2009 Air Quality Updating and Screening Assessment for Coventry City Council

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

October 2009

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 with Coventry City Council's area from January to December 2008.

The air quality in Coventry continues to meet National Air Quality Strategy objectives with the exception of Nitrogen Dioxide. Three Air Quality Management Areas have been declared in Coventry for the annual mean nitrogen dioxide objective, and a number of ongoing exceedances of the annual mean objective have been recorded outside the AQMAs. This report provides monitoring results for all locations currently undergoing investigation.

Following the conclusions of this report, a detailed assessment must be carried out for all locations where the annual mean objective has been exceeded. However, Coventry City Council is considering declaring a city wide AQMA for nitrogen dioxide which is likely to take place by the end of December 2009. Therefore it is not necessary for the detailed assessment to be carried out, and a further assessment will be completed within 12 months of the city-wide AQMA declaration.

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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 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 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 exceedances 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 micrograms per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances 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 $\mu g/m^3$	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 Updating and Screening Assessment report is the first stage of the fourth round of the Review and Assessment programme of air quality. Coventry City Council has completed the previous three 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. Maps indicating the location of the three AQMAs in Coventry are given in Appendix 3.

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.
Either of these will require revocation of the designation orders for the current three AQMAs. The issue of the whether to designate a borough wide AQMA is still in discussion at the current time.

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.

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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 summarised in Table 1.1 below:

Table 1.1 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 4)**	The Progress Report indicates exceedances of the NO_2 annual mean objective at a number of locations across the city.

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 2.1. 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 2.1: Location of Air quality stations in Coventry

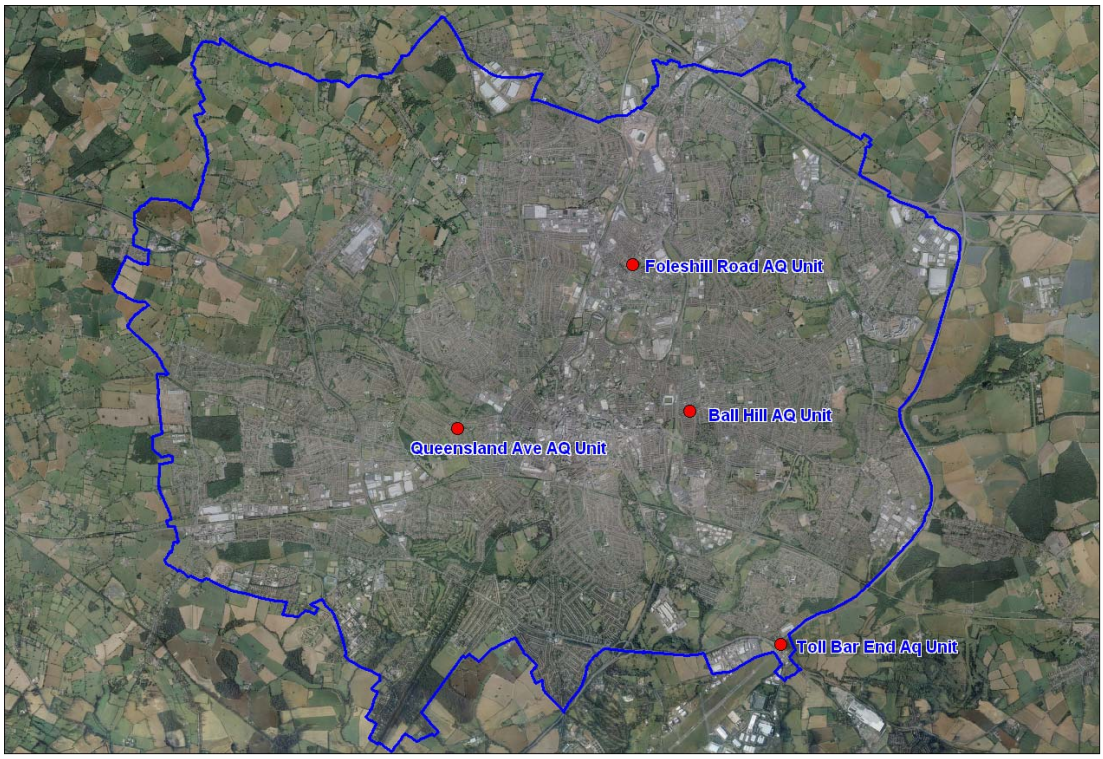

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants 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	Roadside	X 431572 Y 279022	NO_2 PM_{10}	Y	Y(9m)	3.5m	N
Foleshill Road	Roadside	X 434251 Y 281512	NO_2 PM_{10}	N	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	NO_2 PM_{10}	N	Y(25m)	4.5m	N

2.1.2 Non-Automatic Monitoring

Coventry City Council operates a network of NO_2 diffusion tubes at strategic points across the city. Details of the 100 diffusion tube locations are provided in Table 2.2 below and in Figure 2.1. Full details relating to the bias adjustment, QA/QC, and data ratification and validation procedures for diffusion tube measurement are given in Appendix 1.

Table 2.2 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	LHR1	R	X 432880 Y 279180	NO2	N	Y(0.9m)	5.6	Y
Holyhead Rd	6Nd	R	X 431990 Y 279644	NO2	N	Y(7.2m)	3.4	Y
Holyhead Rd	6N*	R	X 431990 Y 279644	NO2	N	Y(7.2m)	3.4	Y
Holyhead Rd	CCO1*/1N	R	X 432105 Y 279578	NO2	N	Y(7.2m)	3.1	Y
Holyhead Rd	CCO3/3N*	UB	X 432299 Y 279898	NO2	N	Y(5.8m)	59	Y
Holyhead Rd	CCO4/5N*	UB	X 431683 Y 281446	NO2	N	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	N	Y(0m)	1.8	Y
City Centre	BUR 2i	UC	X 433398 Y 279168	NO2	N	Y(7.7m)	0.5	Y
City Centre	BUR 4i	UC	X 433387 Y 279199	NO2	N	Y(2m)	0	Y
City Centre	BUR 4ii	UC	X 433387 Y 279199	NO2	N	Y(2m)	0	Y
City Centre	BUR 4iii	UC	X 433387 Y 279199	NO2	N	Y(2m)	0	Y
City Centre	BUR 6	UC	X 433373 Y 279257	NO2	N	Y(1.8m)	1	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	HS1	UC	X 433468 Y 279266	NO2	N	Y(24.6m)	0.9	Y
City Centre	HS2	UC	X 433416 Y 279235	NO2	N	Y(2m)	3.2	Y
City Centre	TS1	UC	X 433467 Y 279200	NO2	N	Y(3m)	3.6	Y
City Centre	TS2	UC	X 433465 Y 279154	NO2	N	Y(3.7m)	4.4	Y
City Centre	CL1	UC	X 433471 Y 279043	NO2	N	Y(0m)	21	Y
City Centre	FS1	UC	X 433567 Y 279235	NO2	N	Y(4.9m)	1	Y
City Centre	CP1	UC	X 433522 Y 279339	NO2	N	Y(0m)	8.1	Y
City Centre	CR1	UC	X 432998 Y 278820	NO2	N	Y(1.6m)	4.3	Y
City Centre	CR2	UC	X 432929 Y 278828	NO2	N	N/A	1	Y
City Centre	CR3	UC	X 432959 Y 278812	NO2	N	Y(0m)	6.2	Y
City Centre	CR3a	UC	X 432959 Y 278897	NO2	N	Y(0m)	6.2	Y
City Centre	CR4	UC	X 433052 Y 278897	NO2	N	Y(0m)	2.3	Y
City Centre	CR4a	UC	X 433052 Y 278897	NO2	N	Y(0m)	2.3	Y
City Centre	GR1	UC	X 433087 Y 278702	NO2	N	Y(0m)	N/A	Y
City Centre	GR2	R	X 433025 Y 278 084	NO2	N	Y(0m)	N/A	Y
City Centre	SL1	R	X 436178 Y 275853	NO2	N	Y(17.1m)	0.5	Y
City Centre	SL2	R	X 436178 Y 275853	NO2	Y	Y(17.1m)	0.5	Y
Tollbar End	LON 3	R	X 436544 Y 275729	NO2	Y	Y(0m)	10.7	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 7iii	R	X 436546 Y 275711	NO2	Y	Y(0m)	17.9	Y
Tollbar End	LON 8	R	X 436548 Y 275712	NO2	Y	Y(0m)	19.4	Y
Tollbar End	LON 8a	R	X 436551 Y 275703	NO2	Y	Y(0m)	17.9	Y
Tollbar End	LON 11	R	X 434084 Y 278506	NO2	Y	Y(0m)	3	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?
Tollbar End	LON12	R	X 431703 Y 278680	NO2	N	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	N	Y(17.1m)	0.5	Y
Spon End	SE1	R	X 432091 Y 279042	NO2	N	Y(0m)	3.4	Y
Spon End	SE1d	R	X 432091 Y 279042	NO2	N	Y(0m)	3.4	Y
Spon End	SE2	R	X 432256 Y 279019	NO2	N	Y(0m)	2	Y
Spon End	SE3	R	X 432305 Y 279027	NO2	N	Y(0m)	3.5	Y
Spon End	EA1	R	X 432013 Y 278188	NO2	N	Y(0m)	2.5	Y
Spon End	EA2	R	X 431840 Y 278395	NO2	N	Y(0m)	2.5	Y
Spon End	AL1	R	X 432309 Y 278472	NO2	Y	Y(0m)	3	Y
Queensland Ave	QAV 01	R	X 431590 Y 278988	NO2	Y	Y(0m)	5.3	Y
Queensland Ave	QAV01d	R	X 431590 Y 278988	NO2	Y	Y(0m)	5.3	Y
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 10	R	X 431559 Y 279020	NO2	Y	Y(1m)	4.4	Y
Queensland Ave	QAV 11	R	X 431631 Y 278992	NO2	Y	Y(0m)	9.6	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

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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?
Foleshill Road	R6a	R	X 433617 Y 280276	NO2	Y	Y(0m)	4.9	Y
Foleshill Road	R7	R	X 434765 Y 282830	NO2	Y	Y(7m)	0	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	N	Y(0m)	2.5	Y
Foleshill Road	MR1	R	X 434548 Y 282079	NO2	N	Y(5m)	2	Y
Burnaby Rd	LL1	R	X 434837 Y 283030	NO2	N	Y(0m)	3	Y
Burnaby Rd	HL1	R	X 433689 Y 281988	NO2	N	Y(0m)	3.5	Y
Burnaby Rd	BRN2	R	X 433605 Y 281965	NO2	N	Y(0m)	5.5	Y
Burnaby Rd	BRN2a	R	X 433605 Y 281965	NO2	N	Y(0m)	5.5	Y
Burnaby Rd	BRN3	R	X 433036 Y 281981	NO2	N	Y(0m)	8.3	Y
Burnaby Rd	BRN4	R	X 433034 Y 282007	NO2	N	Y(0m)	8.3	Y
Beake Ave	BA1	R	X 432531 Y 280769	NO2	N	Y(7.5m)	2.2	Y
Beake Ave	BA1d	R	X 432531 Y 280769	NO2	N	Y(7.5m)	2.2	Y
Stoney Stanton Rd	SS1	R	X 434064 Y 280083	NO2	N	Y(0m)	3.1	Y
Stoney Stanton Rd	SS2	R	X 433994 Y 279969	NO2	N	Y(0m)	4.5	Y
Stoney Stanton Rd	SS3	R	X 434842 Y 281272	NO2	N	Y(0m)	3	Y
Stoney Stanton Rd	SS4	R	X 434593 Y 281057	NO2	N	Y(0m)	3	Y
Stoney Stanton Rd	SS5	R	X 433847 Y 279814	NO2	N	Y(0m)	3	Y
Stoney Stanton Rd	BG 1	R	X 435156 Y 281567	NO2	N	Y(0m)	3.5	Y

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

Figure 2.1 Location of nitrogen dioxide diffusion tubes in Coventry.

2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Coventry City Council undertook continuous monitoring of nitrogen dioxide at four separate locations during 2008: Queensland Avenue, Ball Hill, Foleshill Road and Tollbar End. All locations are representative of public exposure. The results of the 2006, 2007 and 2008 monitoring data are condensed into Table 2.3a 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 2.3a Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Proportion of year with valid data 2008 %	Annual mean concentrations (µg/m^3)		
				2006	2007	2008
QU	Queensland Avenue	Y	95	31.1[1]	29.4	26.5
FO	Foleshill Road	N	95	24.4[2]	34.4	32.1
BH	Ball Hill	Y	88	**48.9**[3]	**48.1**[4]	**42.2**
TB	Tollbar End	N	11	N/A	N/A	**87.8**

Notes

1 Data capture 82%
2 Data capture 80%
3 Data capture 83%
4 Data capture 87%

The results confirmed good data capture rates of over 90% at Queensland Avenue and Foleshill Road**.** At Ball Hill during 2008 the data capture was 88% due to the fact that NO/NO_x monitoring was not carried out from mid June to mid July. The site had suffered from vandalism and for practical reasons was moved to the opposite side of Ball Hill. At Tollbar End, NO/NO_x monitoring was not carried out from October 2007 – December 2008 due to the failure of the analyser. A new analyser was installed in November 2008, therefore only 5 weeks of data were available. The annual mean concentrations from the Tollbar station are not available for 2006 and 2007.

An exceedance of the 40µg/m^3 annual mean NO_2 objective was recorded at Ball Hill and Tollbar End, but there was <90% data capture at both stations, so the data may be unreliable. Ball Hill also recorded an exceedance of the annual mean NO_2 objective in 2006 and 2007, although the 2008 value is lower than the previous years. This may in part be due to Coventry's first red route being introduced on Ball Hill in October 2007.

Table 2.3b Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedances of hourly mean (200 µg/m^3) *If the period of valid data is less than 90% of a full year, include the 99.8th %ile of hourly means in brackets.*		
				2006	2007	2008
QU	Queensland Avenue	Y	95	1[1]	5	1
FO	Foleshill Road	N	95	0[2]	8	0
BH	Ball Hill	Y	88	0[3]	33[4]	0 (144)
TB	Tollbar End	N	11	16	0	1 (162)

Notes

1 Data capture 82%
2 Data capture 80%
3 Data capture 83%
4 Data capture 87%

At Ball Hill and Tollbar End, data capture was less than 90% and the 99.8th percentile has been calculated as shown in brackets in Table 2.3b above. The 99.8th percentile indicates that the NO_2 levels are not likely to exceed 200µg/m^3 more than 18 times per year therefore the air quality objective is not reached.

There were 33 exceedances of the hourly mean objective of 200 µg/m^3 at Ball Hill in 2007, 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 2.4a below. The results have been bias adjusted using the national bias adjustment factor of 0.91 calculated using spreadsheet version 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% have been omitted from this table. Any sites with data capture of <90% are shown in italics.

Table 2.4a Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Data Capture 2008 %	Annual Mean Concentrations 2008 (µg/m^3) Adjusted for bias
LHR1	Holyhead Road	N	83	*34.8*
6Nd	Holyhead Road	N	100	**50.6**
6N*	Holyhead Road	N	100	**51.2**
CCO1*/1N	Holyhead Road	N	100	**48.6**
CCO3/3N*	Holyhead Road	N	100	23.4
CCO4/5N*	Holyhead Road	N	100	27.0
BH1	Ball Hill	Y	100	**46.7**
BH2a	Ball Hill	Y	100	**50.7**
BH4	Ball Hill	Y	100	**55.0**
BH6i	Ball Hill	Y	100	**54.7**
BH6ii	Ball Hill	Y	83	***50.5***
BH8	Ball Hill	Y	100	37.6
BH9	Ball Hill	Y	83	***52.1***
BH10	Ball Hill	Y	100	**49.9**
BH11	Ball Hill	Y	100	**47.6**
BH12	Ball Hill	Y	92	**50.0**
BGH1	City Centre	N	100	**41.4**
BUR 2i	City Centre	Y	75	***40.4***
BUR 4i	City Centre	Y	83	*38.4*
BUR 4ii	City Centre	Y	75	*34.8*
BUR 6	City Centre	Y	92	**46.4**
HS1	City Centre	Y	92	**59.9**
HS2	City Centre	Y	100	35.8
TS1	City Centre	Y	100	**56.2**
TS2	City Centre	Y	83	***56.0***
CL1	City Centre	Y	100	36.3
FS1	City Centre	Y	100	**68.8**
CP1	City Centre	N	83	*33.2*
CR1	City Centre	N	83	*39.1*
CR2	City Centre	N	83	***43.0***
CR4	City Centre	N	100	**42.9**
CR4a	City Centre	N	100	**45.5**
GR1	City Centre	N	100	36.3

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Site ID	Location	Within AQMA?	Data Capture 2008 %	Annual Mean Concentrations 2008 (μg/m^3) Adjusted for bias
LON 4	Tollbar End	N	100	**56.0**
LON 5	Tollbar End	N	100	**58.2**
LON 6	Tollbar End	N	92	**56.2**
LON 7i	Tollbar End	N	100	**48.3**
LON 7ii	Tollbar End	N	83	***40.4***
LON 8a	Tollbar End	N	100	**40.1**
LON12	Tollbar End	N	100	**46.1**
SD1	Tollbar End	N	75	*39.7*
STL 1	Tollbar End	N	100	**57.9**
STL 2	Tollbar End	N	100	**54.9**
SE1	Spon End	N	83	***43.4***
SE1d	Spon End	N	75	***41.1***
SE3	Spon End	N	100	**43.8**
QAV 01	Queensland Ave	Y	83	***49.6***
QAV01d	Queensland Ave	Y	83	***46.4***
QAV 6	Queensland Ave	Y	100	36.9
QAV 7	Queensland Ave	Y	100	38.9
QAV 8	Queensland Ave	Y	100	37.5
QAV 9	Queensland Ave	Y	92	38.6
QAV 10	Queensland Ave	Y	83	*39.5*
QAV 12	Queensland Ave	Y	100	**44.1**
QAV 13	Queensland Ave	Y	100	**41.1**
R1	Foleshill Road	N	100	38.8
R2	Foleshill Road	N	100	38.1
R3	Foleshill Road	N	100	38.9
R4	Foleshill Road	N	92	**42.5**
R5	Foleshill Road	N	100	**50.0**
R6	Foleshill Road	N	100	**57.7**
R6a	Foleshill Road	N	92	**54.4**
R8	Foleshill Road	N	83	***41.8***
R9	Foleshill Road	N	92	**51.8**
R10	Foleshill Road	N	83	***41.0***
LR1	Foleshill Road	N	75	***49.3***
LR2	Foleshill Road	N	100	**47.1**
LR3	Foleshill Road	N	92	**45.6**
BR 1	Foleshill Road	N	83	***45.1***
HL1	Burnaby Rd	N	75	***44.4***
BRN2	Burnaby Rd	N	100	39.7
BRN2a	Burnaby Rd	N	100	**41.9**
BRN3	Burnaby Rd	N	92	39.3
BRN4	Burnaby Rd	N	92	37.8
BA1	Beake Avenue	N	92	**44.1**
BA1d	Beake Avenue	N	100	**46.3**
SS1	Stoney Stanton Road	N	100	**43.8**
SS2	Stoney Stanton Road	N	100	**43.2**
SS3	Stoney Stanton Road	N	100	**43.9**
SS4	Stoney Stanton Road	N	100	**41.7**
SS5	Stoney Stanton Road	N	92	**46.5**
BG 1	Stoney Stanton Road	N	83	*39.5*

National Bias adjustment factor = 0.91

After bias adjustment, seven sites outside an AQMA reported annual mean nitrogen dioxide concentrations great then the annual mean objective. This includes exceedances found in locations during previous round of review and assessment, with the addition of two further sites at Holyhead Road and Burnaby Road.

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

- Holyhead Road
- Tollbar End/ London Road
- Croft Road/Queen Victoria Road
- Spon End/Hearsall Lane
- Foleshill Road
- Burnaby Road
- Beake Avenue/ Radford Road
- Stoney Stanton Road

There are diffusion tubes within each AQMA where the annual mean concentration of nitrogen dioxide is greater than 40$\mu g/m^3$. Therefore it will not be necessary to revoke any of the current AQMAs.

There is one site where the annual mean concentration measured by the diffusion tube is greater than 60$\mu g/m^3$. This is labelled as tube FS1. As this location is currently situated within the City Centre AQMA there is no need to proceed to detailed assessment.

Table 2.4b Results of Nitrogen Dioxide Diffusion Tubes

Bias adjusted nitrogen dioxide concentrations recorded in 2006, 2007 and 2008 are shown in Table 2.4b. 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 <90% are shown in italics.

Site ID	Location	Within AQMA?	Annual mean concentrations (g/m^3) Adjusted for bias		
			2006*	2007*	2008*
LHR1	Holyhead Road	N	35.4	36.3	*34.8*
6Nd	Holyhead Road	N	**51.6**	**44.0**	**50.6**
6N*	Holyhead Road	N	**48.8**	**45.2**	**51.2**
CCO1*/1N	Holyhead Road	N	**45.2**	**42.9**	**48.6**
CCO3/3N*	Holyhead Road	N	23.6	22.0	23.4
CCO4/5N*	Holyhead Road	N	24.2	24.1	27.0
BH1	Ball Hill	Y	**43.7**	**42.9**	**46.7**
BH2a	Ball Hill	Y	**46.3**	***45.5***	**50.7**
BH4	Ball Hill	Y	***41.5***	**48.2**	**55.0**
BH6i	Ball Hill	Y	**52.3**	**49.9**	**54.7**
BH6ii	Ball Hill	Y	**47.7**	**49.4**	***50.5***
BH8	Ball Hill	Y	37.1	36.0	37.6
BH9	Ball Hill	Y	**42.1**	**43.7**	***52.1***
BH10	Ball Hill	Y	**-**	***40.3***	**49.9**
BH11	Ball Hill	Y	**-**	***41.5***	**47.6**
BH12	Ball Hill	Y	**-**	***41.6***	**50.0**
BGH1	City Centre	N	*34.5*	**40.3**	**41.4**
BUR 2i	City Centre	Y	**47.5**	**41.2**	***40.4***
BUR 4i	City Centre	Y	**54.3**	**42.9**	*38.4*
BUR 4ii	City Centre	Y	**54.5**	**45.1**	*34.8*
BUR 6	City Centre	Y	**55.0**	**49.8**	**46.4**
HS1	City Centre	Y	**54.2**	**50.4**	**59.9**
HS2	City Centre	Y	36.6	32.6	35.8
TS1	City Centre	Y	-	***53.1***	**56.2**
TS2	City Centre	Y	-	***51.8***	***56.0***
CL1	City Centre	N	*39.0*	34.3	36.3
FS1	City Centre	N	**65.1**	**63.5**	**68.8**
CP1	City Centre	N	30.5	30.9	*33.2*
CR1	City Centre	N	***43.8***	***41.5***	*39.1*
CR2	City Centre	N	*39.8*	***40.9***	***43.0***
CR4	City Centre	N	***41.6***	***51.4***	**42.9**
CR4a	City Centre	N	***44.7***	***53.3***	**45.5**
GR1	City Centre	N	-	-	36.3
GR2	City Centre	N	-	-	37.0
LON 4	Tollbar End	Y	**53.1**	**50.4**	**56.0**
LON 5	Tollbar End	Y	**50.8**	***52.3***	**58.2**
LON 6	Tollbar End	Y	**49.4**	**46.4**	**56.2**
LON 7i	Tollbar End	Y	***41.3***	***44.8***	**48.3**
LON 7ii	Tollbar End	Y	**40.0**	**41.0**	***40.4***
LON 8a	Tollbar End	Y	**40.1**	36.4	**40.1**
LON12	Tollbar End	N	-	**43.0**	**46.1**
SD1	Tollbar End	Y	37.8	36.0	*39.7*
STL 1	Tollbar End	Y	-	-	**57.9**
STL 2	Tollbar End	N	-	-	**54.9**
SE1	Spon End	N	39.5	37.5	***43.4***

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Site ID	Location	Within AQMA?	Annual mean concentrations (g/m^3) Adjusted for bias		
			2006*	2007*	2008*
SE1d	Spon End	N	**40.1**	*36.9*	***41.1***
SE3	Spon End	N	***52.6***	38.9	**43.8**
QAV 01	Queensland Ave	Y	***49.7***	35.5	***49.6***
QAV01d	Queensland Ave	Y	***49.2***	39.9	***46.4***
QAV 6	Queensland Ave	Y	34.6	**46.0**	36.9
QAV 7	Queensland Ave	Y	34.4	**47.3**	38.9
QAV 8	Queensland Ave	Y	36.3	37.1	37.5
QAV 9	Queensland Ave	Y	39.0	33.3	38.6
QAV 10	Queensland Ave	Y	37.0	35.1	*39.5*
QAV 12	Queensland Ave	Y	37.3	33.7	**44.1**
QAV 13	Queensland Ave	Y	**49.3**	31.8	**41.1**
R1	Foleshill Road	Y	**41.3**	34.7	38.8
R2	Foleshill Road	Y	36.5	35.5	38.1
R3	Foleshill Road	Y	36.2	35.6	38.9
R4	Foleshill Road	Y	38.2	*38.4*	**42.5**
R5	Foleshill Road	Y	**44.1**	**45.4**	**50.0**
R6	Foleshill Road	Y	**56.6**	**51.9**	**57.7**
R6a	Foleshill Road	Y	**55.5**	**48.5**	**54.4**
R8	Foleshill Road	Y	***41.6***	39.2	***41.8***
R9	Foleshill Road	Y	***51.7***	**43.3**	**51.8**
R10	Foleshill Road	Y	**-**	**-**	***41.0***
LR1	Foleshill Road	Y	***47.8***	**43.6**	***49.3***
LR2	Foleshill Road	Y	***44.3***	**43.4**	**47.1**
LR3	Foleshill Road	Y	**-**	**-**	**45.6**
BR 1	Foleshill Road	N	**-**	**-**	***45.1***
HL1	Burnaby Road	N	-	-	**44.4**
BRN2	Burnaby Road	N	39.6	36.9	39.7
BRN2a	Burnaby Road	N	**40.4**	38.0	**41.9**
BRN3	Burnaby Road	N	-	-	39.3
BRN4	Burnaby Road	N	-	-	37.8
BA1	Beake Avenue	N	***42.5***	***40.0***	**44.1**
BA1d	Beake Avenue	N	***42.0***	***40.7***	**46.3**
SS1	Stoney Stanton Road	N	39.9	39.3	**43.8**
SS2	Stoney Stanton Road	N	**43.6**	**41.7**	**43.2**
SS3	Stoney Stanton Road	N	***40.1***	**40.2**	**43.9**
SS4	Stoney Stanton Road	N	***52.5***	**40.0**	**41.7**
SS5	Stoney Stanton Road	N	***45.2***	**-**	**46.5**
BG 1	Stoney Stanton Road	N	-	-	*39.5*

Bias adjustment factor 2006 = 0.87

Bias adjustment factor 2007 = 0.98

2.2 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 2.5a below. The number of exceedances of the daily mean objective is shown in Table 2.5b below. At Queensland Avenue, there are 6 exceedances of the 24-hour mean of 50µg/m^3, 4 at Foleshill and 1 at Tollbar End. This is well below the objective of 35 per year.

Table 2.5a Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2008 %	Annual mean concentrations (µg/m^3)		
				2006	2007	2008
QU	Queensland Ave	Y[1]	98	22[2]	20	17.9[3]
FO	Foleshill Road	N	98	23[2]	22	15.7[3]
TB	Tollbar End	N	85	28	28[4]	21.7

Notes
1 AQMA declaration includes NO_2 but not PM_{10}
2 Calculation method: TEOM x 1.3
3 Calculation method: VCM
4 Data capture 83%

Table 2.5b Results of PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedances of daily mean objective (50 µg/m^3) *If data capture < 90%, include the 90th %ile of hourly means in brackets.*		
				2006	2007	2008
QU	Queensland Ave	Y[1]	98	2(27)[2]	**3**	**6**[3]
FO	Foleshill Road	N	98	3(30)[2]	9	4[3]
TB	Tollbar End	N	85	9(40)[2]	13(36)[4]	1(34.6)

Notes
1 AQMA declaration includes NO_2 but not PM_{10}
2 Calculation method: TEOM x 1.3
3 Calculation method: VCM
4 Data capture 83%

2.2.3 Sulphur Dioxide

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

2.2.4 Benzene

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

2.2.5 Other pollutants monitored

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

Coventry City Council has measured concentrations of nitrogen dioxide above the annual mean objective at relevant locations outside of the AQMA, and **will need to proceed to a Detailed Assessment**, for the locations listed below:

- Holyhead Road
- Tollbar End/ London Road
- Croft Road/Victoria Road
- Spon End/Hearsall Lane
- Foleshill Road
- Burnaby Road
- Beake Avenue/ Radford Road
- Stoney Stanton Road

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Coventry City Council has studied estimated 2008 traffic flows by using the Spectrum Traffic Database produced by Mott Macdonald. This identified roads where traffic flows exceed 5,000 vehicles per day. Each of these roads were individually scrutinised to determine whether they fell into the criteria given in Box A.1 of Box 5.3 of LAQM.TG (09)

The following roads fell into the criteria of narrow congested streets with residential properties close to the kerb:

- Allesley Old Road
- Foleshill Road
- Holyhead Road
- Radford Road
- Stoney Stanton Road

Each of the above is either currently in an AQMA or has been considered in previous rounds of review and assessment.

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

Traffic flows were further examined to identify roads where traffic flows exceeded 10,000 vehicles per day. Each of these roads were individually scrutinised to determine whether they fell into the criteria given in Section A.2 of Box 5.3 of LAQM.TG (09) Of these, none of the areas were identified to be busy streets where people may spend one 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.

Since the previous round of Review and Assessment, there has been no change to 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

Although a number of road junctions within Coventry City Council have been identified as having traffic flows of greater than 10,000 vehicles per day, there are no road junctions that have relevant exposure within 10 metres that have not been previously assessed. There is no new relevant exposure.

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 has identified several new road schemes constructed and/ or proposed for future construction since the last round of review and assessment. However, none of these road schemes have a traffic flow of more than 10,000 vehicles per day.

Coventry City Council has assessed new/newly identified junctions meeting the criteria in Section A.5 of Box 5.3 in TG (09), and concluded that it will not be necessary to proceed to a Detailed Assessment.

3.6 Roads with Significantly Changed Traffic Flows

Coventry City Council has considered potential NO_2 and PM_{10} emissions from any roads with significantly changed traffic flows not already covered above in sections 3.1 – 3.5, and confirm there are no roads that have experienced a large increase in traffic.

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 NO_2 and PM_{10} 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 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 Rail Station has been identified as a location where diesel trains may be stationary, but the stationary times are much less than the 15 minute threshold described in LAQM.TG(09) section B.2 Box 5.4

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

According to Paragraph 5.24 and Table 5.1 of LAQM.TG (09), Coventry is on the section of railway line with a high usage of diesel locomotives as it is situated between Rugby and Birmingham New Street. According to the Air Quality archive website, (AEA, 2008) the 2008 annual mean background concentrations of NO_2 in Coventry were less than 25µg/m^3, therefore the rail line does not need to be considered.

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 confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have increased substantially or New Relevant Exposure has been introduced

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 confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

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

5.3 Petrol Stations

There are 35 petrol stations within the Coventry City Council boundary. None of the petrol stations identified qualify to be considered for assessment.

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

5.4 Poultry Farms

Coventry City Council has one poultry farm, Seven Acres Poultry Farm, which is located to the south of the city and does not meet the assessment criteria laid out in section C.4 of LAQM.TG (09).

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

Coventry City Council has identified two individual biomass combustion installations with a rating of between 50kW and 20MW as follows:

- Stivichall Primary School
- Stanton Bridge Primary School

The biomass units are both on the exempt list under the Clean Air Act 1993. However, it should be noted that the Clean Air Act 1993 covers emissions of dark smoke, grit and dust, and does not cover emissions of pollutants such as PM_{10} and NO_2.

In accordance with the requirements of LAQM.TG (09) an assessment was undertaken of each biomass installation. The initial data provided by the manufacturer showed the following:

Table 6.1a Biomass Installations: initial information

School	Model	Boiler Rating	Stack Height	Stack diameter	PM_{10} emission rate	NO_2 emission rate
Stivichall Primary	KWB TDS150	150kW	10m	0.30m	0.0031527	0.0129425
Stanton Bridge	KWB USV 100	100kW	10m	0.25m	0.0016249	0.0118291

The background adjusted emission rates (E_A) were then calculated for PM_{10} (24hr-mean) and NO_2 (annual and 1-hr mean) also using the procedure set out in LAQM.TG (09) The background emissions for this calculation were taken from the Air Quality Website (AEA, 2008) The threshold emissions were obtained using the corresponding nomogram in LAQM.TG(09). The background adjusted emission rates were then compared against the threshold emission rates. A detailed assessment would only be required where the background adjusted emission rates exceed the threshold emission rates. The results were as follows:

Table 6.1b Biomass Installations: Assessment of data

School	Pollutant	Background Adjusted Emission Rate	Threshold Emission Rate	Detailed Assessment required
Stivichall Primary School	PM_{10}	0.00015	0.005	No
	NO_2 (annual)	0.00062	0.012	No
	NO_2 (1-hr)	0.003	0.015	No
Stanton Bridge Primary School	PM_{10}	0.0003	0.0045	No
	NO_2 (annual)	0.00068	0.013	No
	NO_2 (1-hr)	0.003	0.016	No

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 is not required to hold a record of small biomass combustion installations, including domestic solid fuel burning. However, records of smoke complaints have been kept since the last round of review and assessment, and analysis of this data did not show any areas of concern.

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 has declared the whole local authority area a Smoke Control Area. Local knowledge suggests the domestic use of coal or other smokeless fuels is not widespread in the area, therefore there are no areas that will exceed the assessment criteria as described in Section D.2 of LAQM.TG (09)

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 PM_{10} 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 exceedances of the annual mean objective for NO_2 at a number of diffusion tube locations across the city, both within and outside of existing AQMAs as follows:

Within AQMA

- Ball Hill, Walsgrave Road
- The Burges
- Hales Street
- Trinity Street
- Fairfax Street
- Queensland Avenue

Outside AQMA

- Holyhead Road
- Tollbar End, London Road
- Croft Road/Queen Victoria Road
- Spon End/ Hearsall Lane
- Foleshill Road
- Burnaby Road
- Beake Avenue/ Radford Road
- Stoney Stanton Road

There is no evidence of a downward trend over the previous three years at any of the sites monitored. In view of the continued exceedances measured at the diffusion tube sites, it is recommended that a detailed assessment is required for NO2 in the areas of actual exceedances outside the existing AQMAs.

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. The 24-hour mean objective was achieved at all PM_{10} monitoring locations throughout 2008.

8.2 Conclusions from Assessment of Sources

Since the last round of review and assessment, there have been slight changes to the road transport network within the city centre. During 2008, roadworks were started on Trinity Street, which has led to a reduction in traffic in this part of the city centre. There have also been alterations to the local bus routes. It is likely that this may lead to a temporary reduction in the annual mean NO_2 concentration in this area whilst the roadworks are underway.

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. Two new biomass boiler installations have been identified and calculations show that the emissions are below that required for a detailed assessment for both NO_2 and PM_{10}.

8.3 Proposed Actions

The Updating and Screening Assessment has identified the requirement to undertake a detailed assessment for nitrogen dioxide at a number of locations listed in Section 8.1 above. However, Coventry City Council carried out a Detailed Assessment of NO_2 in 2007 recommending the whole city is declared as an AQMA. This process is currently underway and is expected to be complete by the

end of 2009. Consequently a Further Assessment and Action Plan will be produced over the following 12 -18 months, negating the need for a Detailed Assessment to be carried out.

Following designation of the AQMA the Council are legally required to produce an assessment of the sources and extent of the nitrogen dioxide exceedance. An Air Quality Action Plan detailing measures for reduction of nitrogen dioxide within the AQMA is also required. The current Air Quality Action Plan may be reviewed and measures added to reflect the extended area covered.

Coventry City Council's next course of action will be to:

- declare the whole city AQMA by December 2009
- submit a Further Assessment report within 12 months of the AQMA declaration
- submit a revised Air Quality Action Plan within 18 months of the AQMA declaration
- submit a Progress Report by the end of April 2010

9 References

AEA (2008) http://www.airquality.co.uk/laqm/tools.php?tool=background06/no2/69-no2-2008.csv
AEA (2009) http://www.laqmsupport.org.uk
Coventry City Council (2006) Updating and Screening Assessment 2006
Coventry City Council (2007) Detailed Assessment of Air Quality 2007
Coventry City Council (2008) Air Quality Progress Report 2008
DEFRA (2009) Local Air Quality Management Technical Guidance LAQM.TG (09) February 2009
DEFRA (2009b) WASP – Annual Performance Criteria for NO_2 diffusion tubes used in Local Air Quality Management (LAQM), 2008 onwards, and summary of Laboratory performance in rounds 100 – 104.
ERG (2008) http://volatile-correction-model.info/
UWE (2009)http://uwe.ac.uk/aqm/review/R&Asupport/diffusiontube290909.xls

Appendices

Appendix 1: QA/QC Data

Appendix 2: 2008 Diffusion Tube Data Set

Appendix 3: Maps indicating the location of AQMAs

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

The name and address of the supply and analysis laboratory is:
Gradko International Ltd
St. Martins House,
77 Wales Street
Winchester
SO23 0RH

The preparation method used is 20% Triethanolamine (TEA) in deionised water

Gradko International Ltd has produced the following harmonisation guidance statement:

'Our NO_2 diffusion tube procedures have been amended to follow the guidelines of the DEFRA Harmonisation document related to the preparation, extraction, analysis and calculation procedures for NO_2 passive diffusion tubes. As most of the procedures were already carried out before the introduction of the guidelines, the amendments are minimal. Our internal analysis procedures are assessed by UKAS on an annual basis for compliance to ISO 17025.'

The national bias adjustment factor was taken as 0.91 and was obtained from the R&A Helpdesk Website (REF)

Factor from Local Co-location Studies (if available)

A local co-location bias correction factor was not calculated as a decision had been made to use the national bias correction factor. (We could still calculate this if we want to)

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 issues. Coventry City Council considered the guidance given in Box 3.3 of LAQM.TG (09) and decided to use the national bias adjustment factor to correct the diffusion tube results. Therefore all NO_2 values presented in this report have been adjusted using the national bias adjustment factor of 0.91. This was calculated using the spreadsheet version 09/09 published by DEFRA (REF)

The decision was made to use the national bias adjustment factor as this is more applicable where:

- The survey consists of tubes exposed over a range of settings
- The automatic analysers have been operated using local rather than national QA/QC procedures
- The data capture from the automatic analysers is less than 90%, or there have been problems with data quality

As all the above apply in Coventry.

PM Monitoring Adjustment

PM_{10} concentrations at Tollbar End are measured by TEOM-FDMS, therefore do not require any correction for gravimetric equivalence.

The data for Queensland Avenue and Foleshill Road have been corrected using DEFRA's Volatile Correction Model (VCM) web portal. (REF) This allows the TEOM measurements to be corrected for the loss of any volatile components of particulate matter that occur due to the high sampling temperatures employed by the TEOM.

Short-term to Long-term Data adjustment

Any periods of monitoring data which resulted in data capture of <75% have been omitted from this report. Therefore there has been no adjustment of short term surveys using long term sites to estimate annual mean concentrations. …

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.

Over the period January 2008 – January 2009, Gradko laboratory has demonstrated good performance with regard to WASP performance criteria. [AEA(2009)]

Appendix 2: Diffusion Tube Monitoring Data

Site ID	2008 Bias Adjusted Nitrogen Dioxide Concentration ($\mu g/m^3$)											
	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
LHR1	42.0	50.9	20.1	36.3	42.3	27.1	32.0	28.3	34.2	35.0	Removed	
6Nd	50.8	59.9	41.3	40.8	48.1	48.1	46.3	50.9	37.2	55.7	65.4	62.2
6N*	50.8	63.7	37.5	47.8	43.2	42.1	48.9	51.4	45.9	59.1	54.9	69.3
CCO1*/1N	56.5	53.4	49.0	48.5	54.7	43.5	49.8	41.8	23.8	56.1	45.4	61.3
CCO3/3N*	26.2	33.7	19.6	21.3	23.6	14.9	15.2	16.7	19.5	24.4	29.8	36.1
CCO4/5N*	25.9	37.3	20.5	23.4	26.1	14.2	15.3	14.5	55.8	21.3	32.3	37.5
BH1	43.8	46.7	45.7	49.2	53.6	35.0	40.9	33.2	48.0	52.7	51.9	60.1
BH2a	46.6	58.6	43.8	56.5	57.5	44.6	46.4	43.6	52.1	39.5	52.2	67.7
BH4	57.2	67.2	53.8	61.3	71.3	43.8	41.9	45.1	41.2	40.2	66.6	70.2
BH6i	50.8	67.6	46.2	61.7	80.7	42.0	41.2	36.5	53.9	52.3	54.7	68.8
BH6ii	45.6	60.4	44.3	55.4	65.7	43.1	43.4	40.0	48.0	58.9		
BH8	43.3	47.0	18.6	25.1	36.0	30.8	35.7	37.5	41.6	45.6	39.8	50.8
BH9	44.6	64.0	54.6	51.4	67.9	45.1	46.4		29.6		59.8	57.3
BH10	46.2	66.2	46.8	54.5	61.8	36.9	45.9	40.1	43.8	30.8	59.6	66.6
BH11	44.5	62.6	40.0	45.3	61.1	37.8	48.1	40.3	48.8	38.9	49.9	53.8
BH12	45.6	58.7	48.8	47.6	46.1		42.3	43.4	53.6	54.8	50.5	58.7
BGH1	46.5	55.4	43.6	47.0	48.1	34.3	35.0	31.2	33.1	24.5	47.2	50.6
BUR 2i	42.1	55.8	35.1	40.7			28.7	24.5		26.8	59.0	51.2
BUR 4i		55.8	34.3	41.6	51.3	25.5	32.5	28.8		30.5	41.2	42.6
BUR 4ii			26.9	42.6	49.1	27.0	34.8	27.7		30.3	43.7	30.8
BUR 4iii	42.0	52.8	41.3	38.9	49.5	29.5	30.3	28.8				
BUR 6	58.2	68.1	36.2	48.2	57.9	30.9	37.9	34.8		36.8	50.4	51.1
HS1	57.1	68.1	42.6	62.4	69.4	42.8	59.6	60.3	68.7	60.0		68.3
HS2	36.9	47.8	30.5	35.7	52.4	26.1	25.6	25.7	35.8	23.5	42.9	46.6
TS1	50.9	69.9	42.6	62.3	86.4	55.3	55.0	48.4	48.1	25.5	65.0	64.8
TS2	64.5	68.9	53.4	60.2			53.7	52.6	53.4	31.6	51.5	70.6
CL1	39.2	50.6	32.8	41.3	54.2	29.9	28.3	31.0	27.9	21.2	35.8	42.8
FS1	72.4	77.5	46.4	66.9	87.0	63.2	64.7	62.7	66.8	70.2	77.6	70.0
CP1	38.5	43.9		30.2	35.6	21.3		24.0	36.8	22.3	39.6	39.8
CR1	52.7			40.9	38.6	28.0	29.4	35.0	43.6	36.6	39.3	46.8
CR2	49.2	58.8		47.8	44.8	30.8		34.0	42.3	33.1	45.6	44.1
CR3	36.9	47.8	28.2	36.5	33.6	25.9	32.1	Removed				
CR3a	40.1	48.2	32.7	36.9	35.4	22.6	35.2	Removed				
CR4	48.6	52.8	43.0	40.0	46.3	33.2	38.7	37.9	35.8	39.9	56.5	42.3
CR4a	46.5	59.1	45.0	49.9	47.7	31.3	33.6	39.0	41.4	43.0	55.1	55.0
GR1	39.9	47.2	36.3	38.5	32.6	23.1	29.9	26.8	40.1	35.3	39.6	46.4
GR2	36.1	41.5	34.3	35.9	35.5	30.1	36.5	49.6	34.2	29.0	45.0	36.2
LON 4	60.7	54.2	59.1	59.3	48.5	56.9	53.2	49.1	55.7	53.1	65.6	56.7
LON 5	58.7	67.8	65.5	65.0	46.4	57.1	43.8	54.2	43.4	63.6	67.7	65.5
LON 6	57.2	68.9	59.4	59.1	46.4	42.8	54.3	58.5	46.2		63.0	62.2
LON 7i	55.8	59.5	59.5	52.6	45.8	45.5	46.4	49.5	37.4	37.6	28.1	61.8
LON 7ii	44.8	46.5	47.0	47.3	34.2	37.7	38.9	38.3	29.0	40.5		
LON 8a	43.3	46.3	42.1	45.0	28.7	31.1	34.8	37.5	27.7	46.0	49.2	49.1
LON 11	36.8	46.7	31.1	37.1	35.0	41.8	33.7	Removed				
LON12	44.4	55.6	44.4	47.1	43.3	37.3	43.2	42.8	43.3	43.9	53.4	54.7
SD1	36.7	45.0	35.4	46.3	35.4	40.2	34.0	36.2				48.5
STL 1	62.4	70.6	53.3	61.3	42.2	47.4	64.6	68.1	57.2	75.9	58.6	33.3

Coventry City Council - England

Site ID	2008 Bias Adjusted Nitrogen Dioxide Concentration ($\mu g/m^3$)											
	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
STL 2	61.9	69.9	61.7	54.4	46.6	53.7	65.2	58.9	43.4	63.1	50.6	30.1
SE1	53.8	58.7	35.6	47.1	45.4	32.4	36.2	36.9	40.9		47.0	
SE2	34.2	43.1	28.7	37.1	34.9	25.5	26.9	Removed				
SE3	39.8	51.2	38.5	46.5	48.0	33.7	33.1	34.4	42.4	48.6	48.9	60.7
QAV 01	56.0		42.7	56.8	56.4	41.0	47.5	40.6		50.1	57.4	47.2
QAV01d	49.4		41.6	56.9	55.8	40.3	39.7	42.5	37.6		58.1	42.2
QAV 6	35.1	50.3	38.8	36.9	34.7	26.4	30.2	27.9	31.2	39.6	42.5	49.7
QAV 7	40.9	51.1	27.0	41.1	38.5	28.5	33.3	33.0	38.3	35.9	47.4	52.0
QAV 8	39.0	48.9	27.6	41.2	35.3	25.4	29.9	35.4	42.7	35.2	41.7	48.3
QAV 9	36.7	49.4	35.2	41.0	35.2	36.2	29.0	28.5	38.3		43.0	51.7
QAV 10	38.6	51.5	37.7	37.9	35.7	31.4	30.4	30.2		39.0	62.3	
QAV 11	32.3	41.3	31.1	32.8	34.7	29.6	31.0	Removed				
QAV 12	43.2	59.8	38.2	45.1	49.2	36.3	35.9	38.5	30.7	46.2	46.1	59.9
QAV 13	43.3	53.5	39.0	43.9	42.9	35.6	32.7	34.9	30.3	39.7	44.1	53.9
R1	43.4	48.4	36.4	40.8	40.5	29.0	27.7	27.9	33.7	41.3	49.2	47.3
R2	39.0	42.8	34.9	38.7	40.4	33.2	28.4	30.6	37.7	36.1	47.4	48.6
R3	41.5	49.9	40.5	42.4	41.5	32.8	29.2	28.7	35.1	29.0	50.4	46.3
R4	41.9		65.2	43.9	42.5	35.3	33.7	34.9	33.1	38.8	46.7	51.8
R5	43.4	63.2	38.5	51.1	60.4	45.4	44.8	41.8	42.4	44.6	60.4	64.4
R6	69.5	61.9	63.1	64.7	47.9	58.5	57.6	57.9	28.4	59.9	58.4	64.7
R6a	19.1	70.1	59.0		52.2	48.0	55.6	61.3	50.4	56.5	62.5	63.6
R8	40.7	42.1		43.2	50.3	40.5	40.7	36.3	35.5	43.0	45.4	
R9	50.0	51.6		51.6	54.1	43.4	43.3	52.7	42.6	60.8	57.1	62.3
R10		54.4	42.0	41.5	46.0	33.9	25.7	36.0	40.6	37.3		52.1
LR1	46.8	61.3	43.7	58.4				39.0	38.1	44.3	52.7	59.2
LR2	41.8	60.1	32.1	47.2	68.1	38.7	43.5		37.6	43.8	54.6	58.2
LR3		50.6	48.7	47.2	46.4	31.3	38.3	40.6	43.6	49.4	52.0	53.2
BR 1		55.1	45.3	47.3	52.3	34.2		36.2	41.8	36.8	50.9	51.6
HL1		48.9	42.6			33.6	44.8	40.1	42.5	43.8	50.0	53.6
BRN2	41.3	51.4	24.3	37.8	37.0	34.5	35.9	38.7	38.3	45.0	44.1	47.9
BRN2a	42.0	54.2	38.6	36.0	45.2	30.4	37.6	40.4	45.3	37.3	46.3	49.1
BRN3		56.7	40.6	44.1	38.9	26.8	29.4	27.6	30.5	40.9	45.8	51.1
BRN4		46.8	33.7	34.7	39.0	29.5	35.8	37.2	38.7	30.3	40.0	49.9
BA1	45.9	56.0	40.5	49.0	47.2	34.1	42.4	41.9	25.7		54.0	48.5
BA1d	47.5	53.8	45.7	46.0	49.7	39.8	40.6	41.7	28.5	48.3	49.7	64.1
SS1	45.3	46.9	35.7	43.6	50.2	36.9	34.7	37.2	41.7	43.6	49.2	60.8
SS2	52.6	63.2	37.3	43.4	56.1	28.4	35.4	38.9	43.0	37.3	28.4	54.9
SS3	40.3	58.1	43.1	44.2	49.5	34.6	34.0	36.3	43.6	40.7	45.8	56.1
SS4	43.0	56.8	29.0	35.7	57.1	28.8	32.9	23.9	47.4	36.9	54.1	54.7
SS5		56.2	44.6	51.5	53.5	31.4	39.8	41.4	33.7	53.3	54.5	52.0
BG 1		50.8	35.6	44.7	42.7	19.5	33.0		31.2	40.4	47.3	49.5

Appendix 3: AQMAs in Coventry

Figure A1 Coventry's Air Quality Management Areas (AQMAs)

Figure A2 Ball Hill AQMA

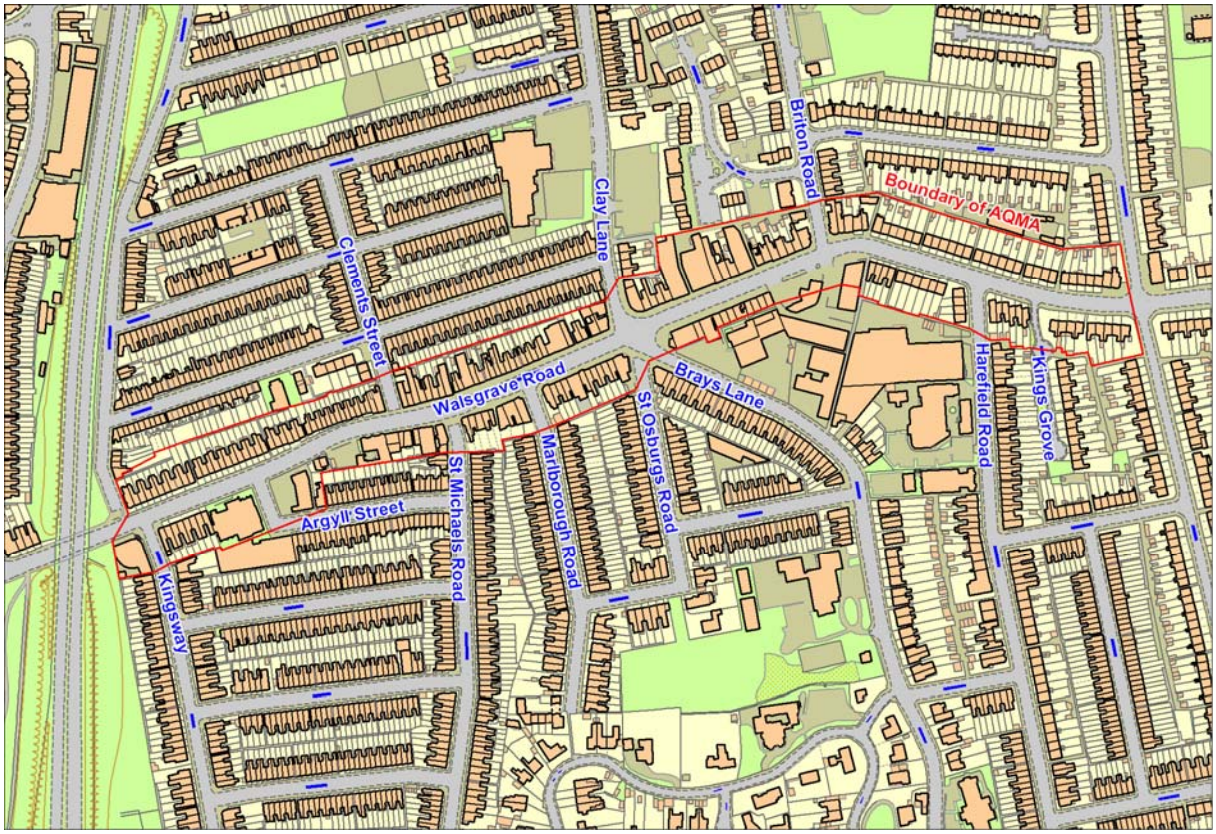

Figure A3 Queensland Avenue AQMA

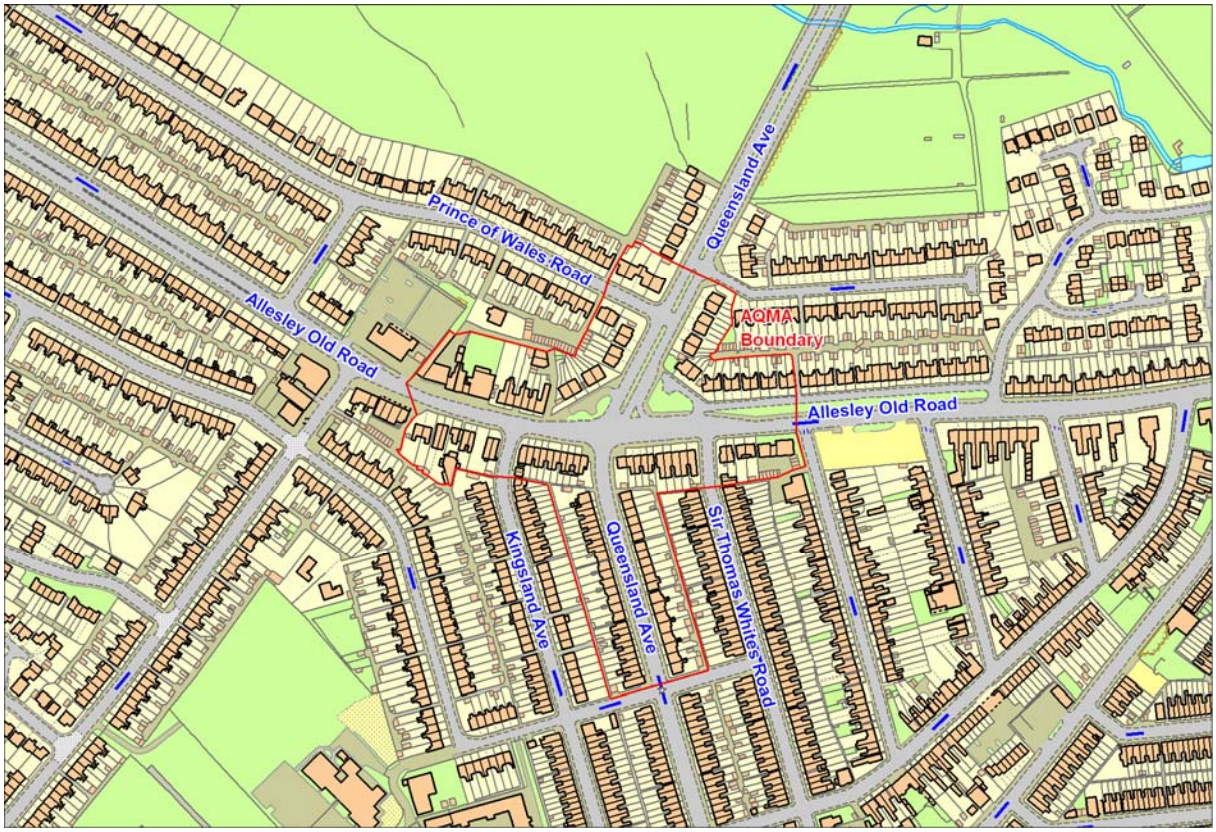

Figure A4 City Centre AQMA