



## 2013 Air Quality Progress Report for **Rugby Borough Council**

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

**November 2013**

**Rugby Borough Council**

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## Executive Summary

Rugby Borough Council has completed an Air Quality Action Plan and Progress Report in fulfilment of Local Air Quality Management obligations.

This report documents changes to the air quality monitoring regime within the Borough and presents the latest monitoring data from the continuous and diffusion tube monitoring networks. New local developments and planning applications which have the potential to affect air quality are also summarised. Local Transport Plan and Air Quality Action Plan measures are presented, together with an indication of progress against the targets.

In April 2012, the diffusion tube monitoring network was expanded from 17 sites to 48 sites in preparation for the decommissioning of continuous monitoring activities in the Borough. Exceedences of the annual mean NO<sub>2</sub> objective were monitored at two of the new monitoring locations and so these represent locations where new exceedences have been identified, namely Dunchurch and Whitehall Road, Hilmorton. It should be noted that the results are based on the annualisation of short-term monitored concentrations and may not be truly representative of annual mean NO<sub>2</sub> concentrations at these locations. Furthermore, both sites of exceedence are within the boundary of the current AQMA for NO<sub>2</sub>, which was declared in 2004 covering the whole urban area of Rugby and surrounding areas.

Annual mean NO<sub>2</sub> concentrations at diffusion tube locations that have previously shown exceedences were within the annual mean NO<sub>2</sub> objective in 2012 and continued a trend of downward concentrations at these locations that have been apparent since 2010.

PM<sub>10</sub> monitoring in the Borough ceased in June 2012. Annualised mean PM<sub>10</sub> concentrations were well within the annual mean PM<sub>10</sub> objective at all monitoring locations and it is unlikely that the objective is exceeded at any locations of relevant exposure within the Borough. PM<sub>10</sub> concentrations from Russelsheim Way in 2012 appeared spurious and further investigation concluded that the data should be

rejected. Omitting Russelsheim Way from further discussion, the short-term PM<sub>10</sub> objective was not exceeded at any monitoring location within the Borough.

Rugby Borough Council has identified a number of major local developments that have the potential to impact upon local air quality. Rugby Mast Site Sustainable Urban Extension (SUE) and Daventry International Rail Freight Terminal (DIRFT) are currently at the planning stage and are subject to their own air quality assessments. The findings of the reports associated with these and other local developments, and the implications for local air quality in Rugby will be reported in a future LAQM report once full details are available.

Rugby Borough Council concludes there is no requirement to proceed to a Detailed Assessment for any pollutant at this stage. However, an assessment is to be carried out of the proposed biomass boiler within the Queen's Diamond Jubilee Leisure Centre development to determine the potential for adverse impacts on local air quality. The Council proposes to continue the current level of diffusion tube monitoring and to report updated NO<sub>2</sub> concentrations when a full calendar year of data is available to allow direct comparison with the annual mean NO<sub>2</sub> objective. The Council will at that stage review the situation regarding exceedences of the objective within the Borough, in particular in relation to the newly identified areas of exceedence, and investigate potential action plan measures to improve air quality in those areas in due course.

The Council will also compile and submit a combined Air Quality Progress Report and Action Plan Progress Report in 2014 in line with LAQM obligations.

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# 1 Introduction

## 1.1 Description of Local Authority Area

Rugby Borough Council is situated in north-east Warwickshire to the west of the M1 and east of Coventry and is bound to the north by the M6. The Borough covers an area of 138 square miles surrounding the town of Rugby. The main pollutants of concern in Rugby Borough, as in most urban areas of the UK, are associated with road traffic, in particular NO<sub>2</sub> and particulate matter at locations close to busy, congested roads where people may live, work or shop. Previous Review and Assessment reports and local knowledge have identified areas where UK objectives may be exceeded.

Rugby Borough Council has six Part A1 installations that are regulated and inspected by the Environment Agency under the Pollution Prevention and Control (England and Wales) Regulations 2000, including the Cemex cement works, which are located close to the town centre and are a source of NO<sub>x</sub>, SO<sub>2</sub> and PM<sub>10</sub>.

The Borough has a number of other industrial installations of significance in terms of air quality. There is one Part A2 process for the manufacturing of drinks cans which involves solvent based coating processes. In addition there are 37 minor (Part B) installations. Each process / installation is regulated under the Pollution Prevention and Control (England and Wales) Regulations 2000. The processes / installations are regularly inspected by the Rugby Borough Council Regulatory Services unit (formerly Environmental Health) to ensure they are controlling their emissions to atmosphere

The majority of the urban area of Rugby town is classed as a smoke control area making it an offence under the Clean Air Act 1993 to emit smoke from a chimney caused by the burning of unauthorised fuel or the use of an unauthorised appliance.

## 1.2 Purpose of Progress Report

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

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

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

## 1.3 Air Quality Objectives

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

**Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England**

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
	5.00 µg/m <sup>3</sup>	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m <sup>3</sup>	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m <sup>3</sup>	Annual mean	31.12.2004
	0.25 µg/m <sup>3</sup>	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m <sup>3</sup>	Annual mean	31.12.2005
Particulate Matter (PM <sub>10</sub> ) (gravimetric)	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m <sup>3</sup>	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

Rugby Borough Council completed the required three rounds of Review and Assessment of air quality in its administrative area between 1998 and 2008, comprising:

- Round One:
  - Stage 1 (Review and Assessment) identifying the main sources of air pollution within and around the Borough, reviewing the levels of air pollutants for which prescribed standards and objectives have been set, and estimating the likely future levels.
  - Stage 2/3 provided further screening of pollutant concentrations within the area to assess whether the air quality objectives would be achieved by the target date. A more complex assessment of monitoring and modelling in the Borough identified no exceedences of national air quality objectives.
- Round Two:
  - Updating and Screening Assessment (USA) 2003<sup>i</sup>. The USA identified a number of sources that may lead to exceedences of the air quality objectives, thus requiring Rugby Borough Council to proceed to a Detailed Assessment.
  - Detailed Assessment of Air Quality 2004<sup>ii</sup> involved an accurate and detailed study of current and future air quality. The assessment identified that annual average levels of NO<sub>2</sub> were at risk of being exceeded on a number of major roads in the centre of Rugby town and in Dunchurch.
  - Detailed Assessment of Particulate Matter 2005<sup>iii</sup> to investigate the risk of exceedence of the PM<sub>10</sub> air quality objectives related to emissions (stack, low-level point source and fugitive) from the Cemex cement plant in Rugby. The report concluded that air quality objectives for PM<sub>10</sub> would be achieved.

The outcome of the 2004 Detailed Assessment led to the declaration of Rugby's AQMA in 2004. A map depicting the extent of the AQMA is shown in Figure 1.1 below.

The Further Assessment<sup>iv</sup> required the local authority to undertake further detailed monitoring of the air quality within the AQMA in order to confirm that the decision to declare the AQMA was justified. The Further Assessment involved calculations to predict the scale of improvement that was needed for each pollutant exceeding the air quality objectives to satisfy those objectives and included source apportionment of pollutant emissions.

The Further Assessment was amended following comments received by Defra, in February 2006. It identified that only one property in the Borough was likely to be exposed to levels above the national air quality objective. Projected future reductions in NO<sub>x</sub> emissions and the planned Rugby by-pass (the Rugby Western Relief Road (RWRR)) were anticipated to result in compliance within 2 years.

Between 2006 and 2011 Rugby Borough Council completed the third and fourth rounds of the Review and Assessment process. The following reports were published in fulfilment of LAQM duties:

- Round Three:
  - USA 2006<sup>v</sup>, which concluded that the air quality objectives were unlikely to be exceeded at any location within the Borough for six of the seven pollutants assessed. It was concluded that exceedences of the NO<sub>2</sub> objective persisted at several locations within the present AQMA in respect of diffusion tube monitoring results. The declaration of the AQMA was upheld and there was no need to proceed to a Detailed Assessment.
- Round Four:
  - USA 2009<sup>vi</sup>, which identified the requirement for a Detailed Assessment due to the development of a new superstore in the town centre and the proposed expansion of the pedestrianised area of the town centre. Updated monitoring results indicated continued exceedences of the annual mean NO<sub>2</sub> objective at a number of locations of relevant

exposure. It was concluded that exceedences of the air quality objectives for any of the other key pollutants were very unlikely.

- Detailed Assessment of Nitrogen Dioxide 2011<sup>vii</sup> concluded from the results of a short-term monitoring programme, implemented as part of the Rugby Pedestrianisation Scheme study, that potential exceedences could occur along a number of streets in Rugby Town Centre as a consequence of poor dispersion, i.e. street canyon effects. Dispersion modelling undertaken during the Detailed Assessment predicted that the highest NO<sub>2</sub> concentrations would be along the B5414 Church Street/North Street/Clifton Road.

Based on the findings of the Detailed Assessment it was recommended that the existing AQMA order remained in place and that the long-term monitoring survey of NO<sub>2</sub> should be continued. Additional recommendations were made to supplement the existing monitoring network with a number of new monitoring locations across the Borough, focusing on pollution hotspots and narrow streets, to provide better information on the spatial variation of pollution concentrations and to assess changes in pollution levels following the completion of the RWRR.

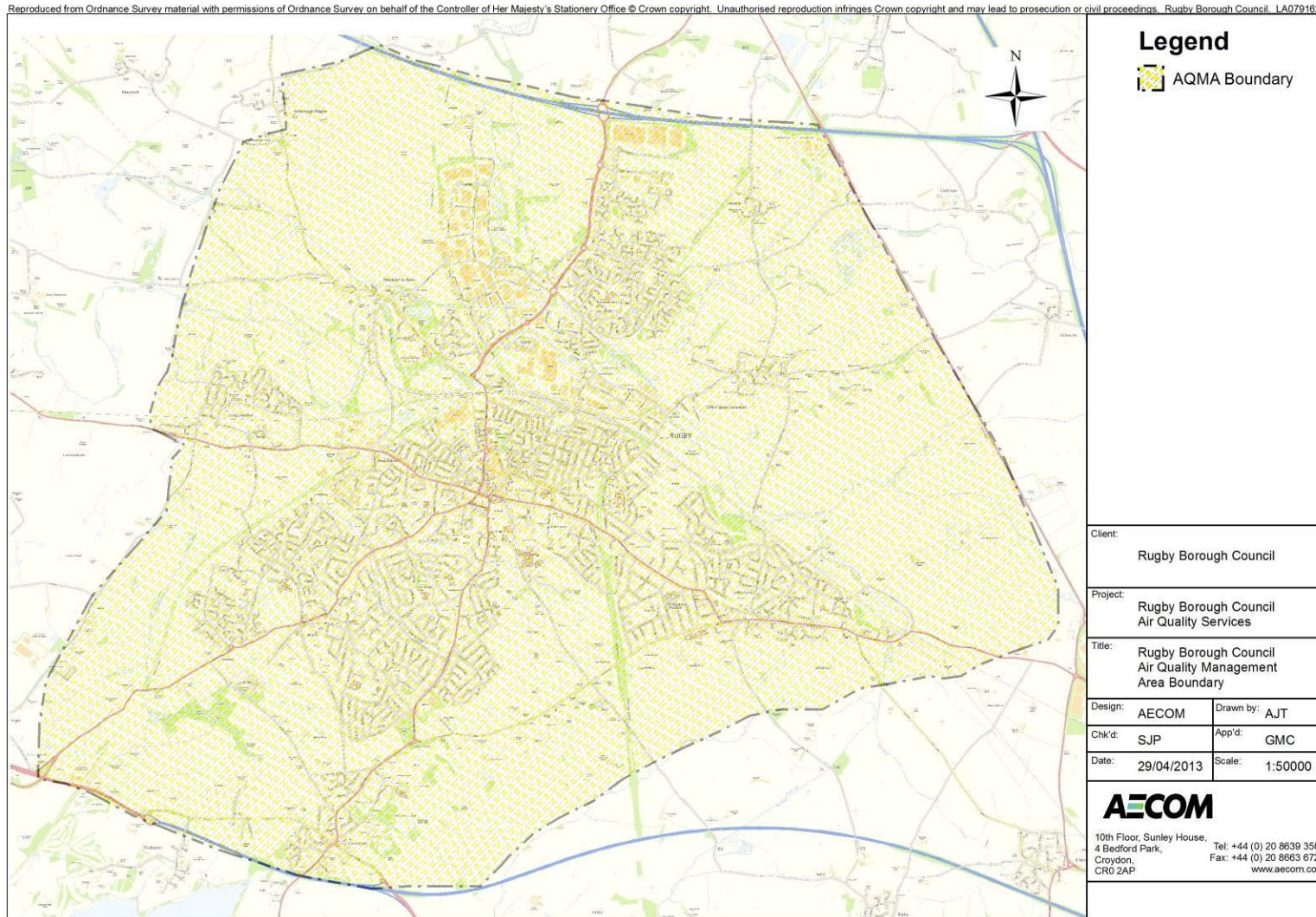
In April 2011, Rugby Borough Council produced a Progress Report<sup>viii</sup> documenting the results of updated monitoring data within the Borough, and new local developments and planning applications with the potential to impact upon local air quality. It also contained details of proposals to set up an Air Quality Monitoring Task Group to carry out a review of the Council's Air Quality Monitoring Network to define a cost-effective strategy for air quality monitoring within the Borough from 2012 onwards.

The 2012 Updating and Screening Assessment<sup>ix</sup> was put out to consultation in May 2012. Updated monitoring results for NO<sub>2</sub> showed that three monitoring locations within the existing AQMA continued to exceed the annual mean NO<sub>2</sub> objective in 2011 but that the annual mean NO<sub>2</sub> objective was not likely to be exceeded outside at locations outside the AQMA. It was concluded that the current AQMA declaration should remain. Monitoring of PM<sub>10</sub> indicated that UK air quality objectives were not exceeded at any location in the Borough, although elevated PM<sub>10</sub> concentrations in

the short-term in the Long Lawford area as a result of sizeable construction activity were monitored.

There were no new sources identified that could give rise to air quality issues. Increases in emissions of NO<sub>x</sub> and PM<sub>10</sub> from the Cemex Rugby Cement facility were assessed using dispersion modelling and it was concluded that the increase in emissions was not likely to result in exceedences of the relevant air quality objectives at any location. The consultation process highlighted an error in the input data used in the assessment of emissions from Cemex presented in the 2009 USA and that the same erroneous input data was initially used in the 2012 USA calculations. These errors were addressed in the final 2012 USA report, which was published in November 2012.

**Figure 1.1 Map of Rugby Borough Council AQMA Boundaries**





## **2 New Monitoring Data**

### **2.1 Summary of Monitoring Undertaken**

#### **2.1.1 Automatic Monitoring Sites**

In August 2011, Rugby Borough Council's Air Quality Monitoring Task Group completed a review of the Council's Air Quality Monitoring Network<sup>x</sup> to define a cost-effective strategy for air quality monitoring within the Borough beyond the end date of the current Air Quality Monitoring Network contract in June 2012. The review concluded with a recommendation that all continuous monitoring of NO<sub>2</sub> and PM<sub>10</sub> within the Borough should cease in June 2012. In October 2011, a Cabinet Meeting approved the recommendations detailed within the Review of the Rugby Borough Council Air Quality Monitoring Network that Rugby Borough Council would cease to operate continuous air quality monitoring equipment. All continuous monitoring stations within the Borough were decommissioned in June 2012.

Tabulated details of the automatic monitoring sites can be found in Table 2.1. Further details can be found in the 2012 Updating and Screening Assessment.

**Table 2.1 Details of Automatic Monitoring Sites**

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	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?
AQMS 5 Newbold Road	Roadside	450130	275849	NO <sub>2</sub> , PM <sub>10</sub>	Y	Chemiluminescence (NO <sub>2</sub> ); TEOM-FDMS (PM <sub>10</sub> )	Y (1m)	6 m	Y
T2 Lawford Farm	Rural	444853	274080	TSP, PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1</sub>	Y	Turnkey Osiris	N	N/A	N
T8 Townsend Lane	Industrial	448125	275865	TSP, PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1</sub>	Y	Turnkey Osiris	Y	2 m	N
T10 Avenue Road	Industrial	449289	275607	TSP, PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1</sub>	Y	Turnkey Osiris	Y	<1 m	Y
T14 Russelsheim Way	Roadside	450016	274966	TSP, PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1</sub>	Y	Turnkey Osiris	Y	2 m	Y
T16 Murray Road	Roadside	451132	275887	TSP, PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1</sub>	Y	Turnkey Osiris	Y	2 m	Y

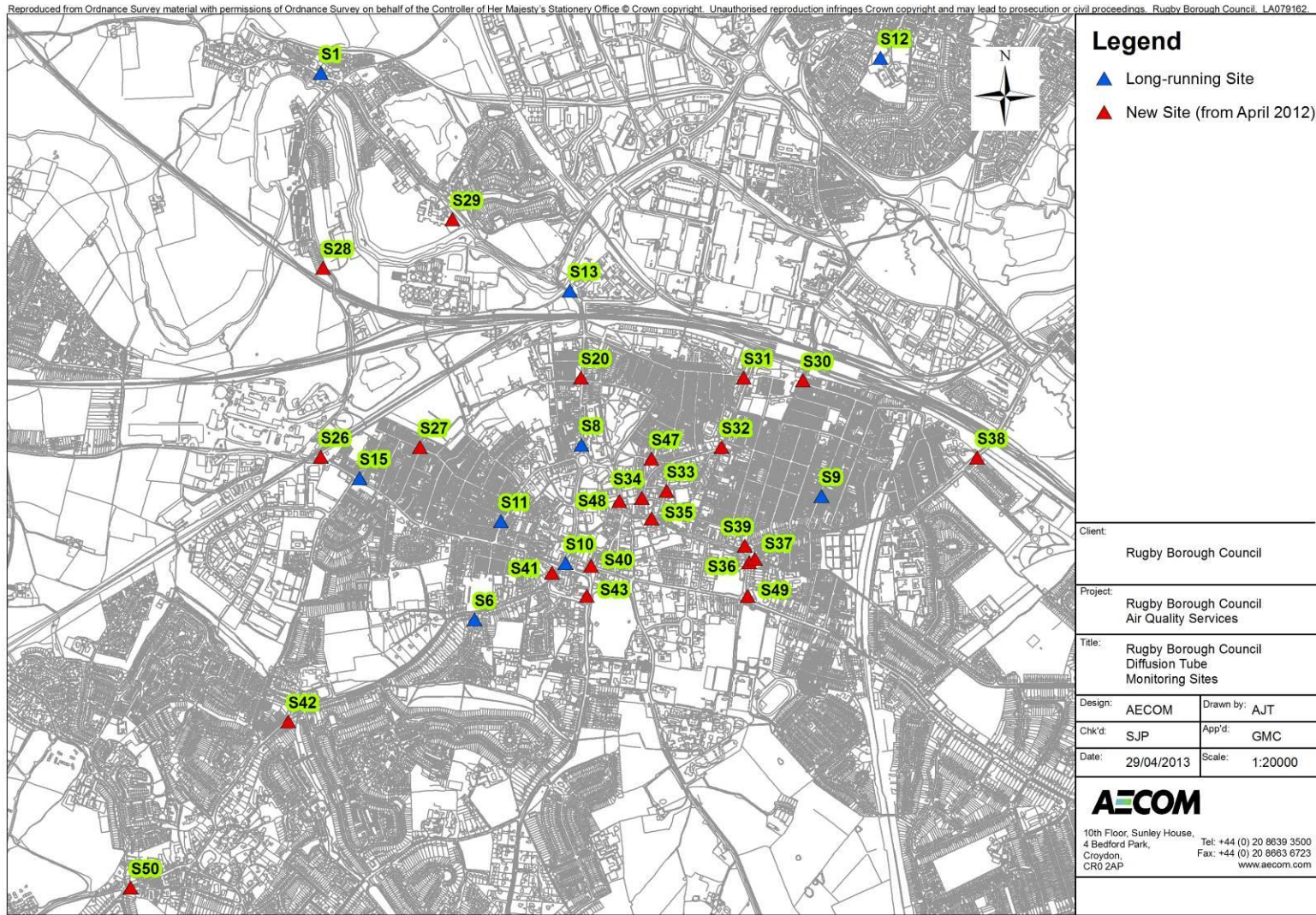
### **2.1.2 Non-Automatic Monitoring Sites**

Rugby Borough Council has operated a network of NO<sub>2</sub> diffusion tubes since 2000. Until April 2012, there were seventeen long-term diffusion tube locations across the Borough. In October 2011, the Cabinet approved the recommendations of Rugby Borough Council's review of the air quality monitoring network. The recommendations included the cessation of all continuous monitoring in the Borough and the expansion of the NO<sub>2</sub> diffusion tube monitoring network.

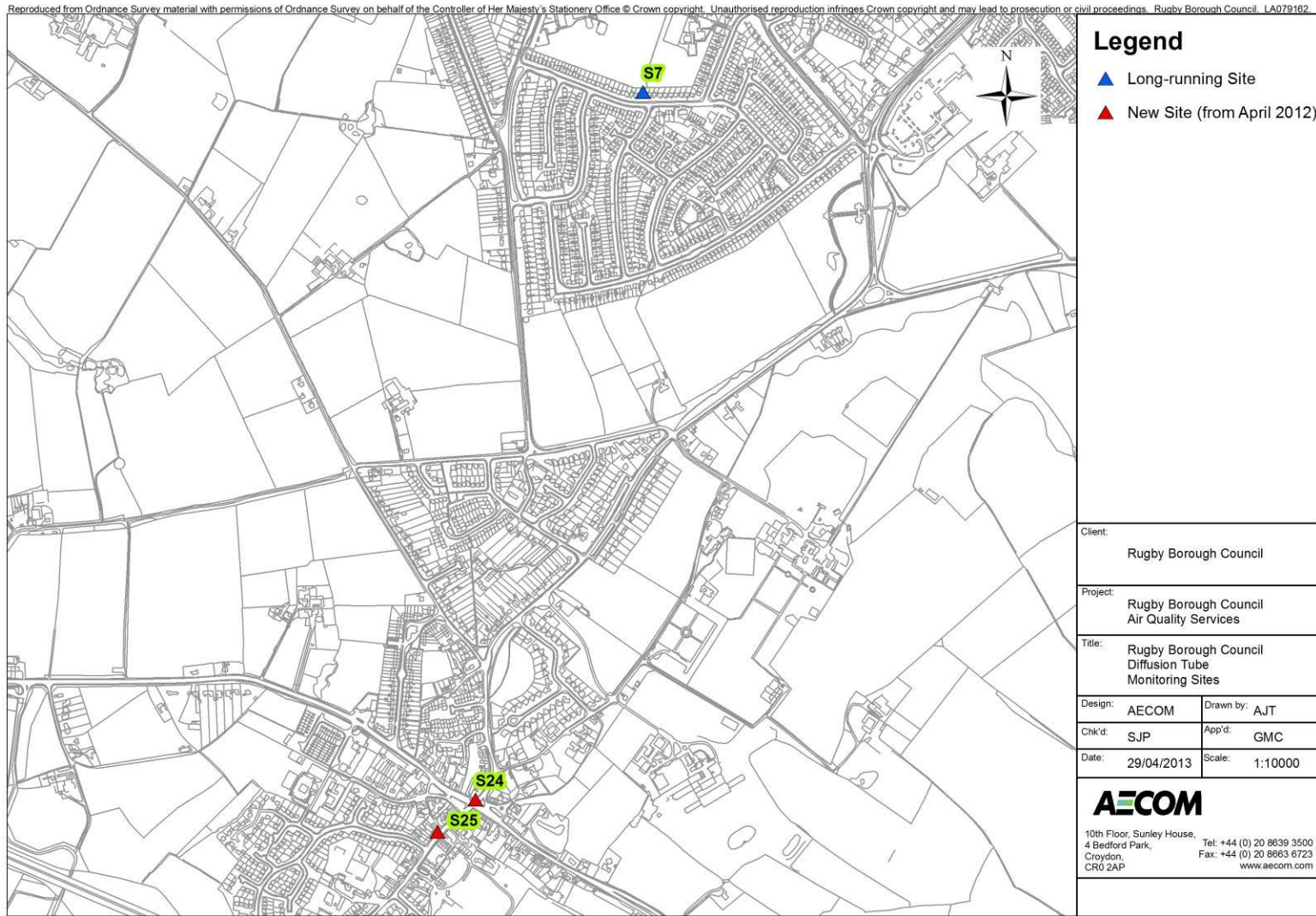
In April 2012, the diffusion tube network was expanded to 48 sites and triplicate tubes for the purpose of bias correction were co-located alongside the automatic monitoring station at Rugby Road, Leamington Spa. Further details are provided in Table 2.2 and Figures 2.1a to 2.1e.

Diffusion tubes used in the monitoring survey were supplied and analysed by Environmental Services Group (Didcot) using a 50% TEA / Acetone preparation. Based upon the new Z-Score Performance criteria Environmental Services Group achieved 100% Z-Scores of  $< \pm 2$ , (which is interpreted as a satisfactory result and indicative of acceptable laboratory performance) in all WASP NO<sub>2</sub> Laboratory Performance Proficiency Testing Rounds 113 to 120. Further details of diffusion tube QA / QC and the derivation of bias adjustment factors are presented in Appendix A.

**Figure 2.1a Map of Non-Automatic Monitoring Sites (Rugby Town Centre)**



**Figure 2.1b Map of Non-Automatic Monitoring Sites (South of Rugby Town Centre)**



**Figure 2.1c Map of Non-Automatic Monitoring Sites (Hilmorton Area)**



**Figure 2.1d Map of Non-Automatic Monitoring Sites (Wolston and Surrounding Areas)**



**Figure 2.1e Map of Non-Automatic Monitoring Sites (Marton Area)**





**Table 2.2 Details of Non- Automatic Monitoring Sites**

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
S1	10 Newbold Road	Kerbside	449000	277178	2.5	NO <sub>2</sub>	Y	N	Y	<1 m	N
S2	Marton A423	Roadside	440830	269008	2.5	NO <sub>2</sub>	N	N	Y (5m)	<1 m	N
S3	69 School Street	Urban Background	447316	276162	2.5	NO <sub>2</sub>	Y	N	Y	15 m	N
S4	St Margaret's School, Wolston	Urban Background	441131	275648	2.5	NO <sub>2</sub>	N	N	N	90 m	N
S5	Ryton Village Hall, High Street	Near-Road	438642	274418	2.5	NO <sub>2</sub>	N	N	Y	5 m	Y
S6	2 West Field Road	Urban Background	449671	274795	2.5	NO <sub>2</sub>	Y	N	Y	10 m	N
S7	68 Cymbeline Way	Urban Background	448863	272786	2.5	NO <sub>2</sub>	Y	N	Y	20 m	N
S8	EHO Treatment, Newbold Road	Roadside	450138	275557	2.5	NO <sub>2</sub>	Y	N	Y	<1 m	Y
S9	(Argyle Street) Cambridge Street	Near-Road	451187	275334	2.5	NO <sub>2</sub>	Y	N	Y	5 m	N

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
S10	Webb Ellis Pub, Corporation Street	Roadside	450069	275040	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S11	15 Oliver Street	Roadside	449787	275224	2.5	NO <sub>2</sub>	Y	N	Y	5 m	N
S12	Boughton Leigh School, Hollowell Way	Urban Background	451445	277245	2.5	NO <sub>2</sub>	Y	N	N	56 m (school parking area <1 m)	N
S13	Avon Mill Pub, Newbold Road	Roadside	450088	276229	2.5	NO <sub>2</sub>	Y	N	Y (15 m)	4.5 m	N
S14	Binley Woods, Village Hall	Urban Background	439450	277523	2.5	NO <sub>2</sub>	N	N	Y	20 m	N
S15	Lawford Road / Jubilee Street, Arnie's Batch	Kerbside	449168	275411	2.5	NO <sub>2</sub>	N	N	Y	<1 m	Y
S16	Hotel, London Road A45, Ryton	Near-Road	436867	275275	2.5	NO <sub>2</sub>	N	N	Y	19 m	Y
S17	Stamford Gardens, Rugby Road, Leamington. AURN Site	Roadside	431271	266404	2.5	NO <sub>2</sub>	N	Y	N/A (Site not within Rugby BC)	6 m	N/A
S18											
S19											

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
S20	Newbold Road	Roadside	450137	275849	2.5	NO <sub>2</sub>	Y	N	N (25 m)	3 m	N
S21	Corner of Percival Road and Ashlawn Road	Roadside	451698	273273	2.5	NO <sub>2</sub>	Y	N	N (15 m)	2 m	N
S22	Corner of Fisher Avenue and Ashlawn Road	Roadside	452403	273567	2.5	NO <sub>2</sub>	Y	N	N (18 m)	5 m	N
S23	Paddox Pub Corner	Roadside	452672	273633	2.5	NO <sub>2</sub>	Y	N	N (13 m)	3 m	Y
S24	Dun Cow, Dunchurch Square	Roadside	448496	271244	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S25	Southam Road, 'Crystal', Dunchurch	Roadside	448414	271175	2.5	NO <sub>2</sub>	Y	N	Y	2 m	Y
S26	Lawford Road, (former Simms Scrap Yard)	Near-Road	448999	275505	2.5	NO <sub>2</sub>	Y	N	Y	20 m	Y
S27	Avenue Road / Campbell Street	Roadside	449435	275543	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S28	256 Parkfield Road	Roadside	449011	276329	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
S29	Avon Valley School	Urban Background	449575	276540	2.5	NO <sub>2</sub>	Y	N	Y	35 m	Y
S30	Murray Road (Bus Stop Nr Rail Station)	Roadside	451107	275838	2.5	NO <sub>2</sub>	Y	N	Y	3 m	Y
S31	Wood Street / Park Road	Roadside	450848	275849	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S32	Railway Terrace, Station Bar	Roadside	450750	275547	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S33	Albert Street, Alma Lodge Hotel	Roadside	450510	275355	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S34	Regent Street, near Oxfam	Roadside	450405	275329	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S35	Church Street, Town Fryer	Roadside	450444	275236	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S36	Whitehall Road junction with Clifton Road Roundabout	Roadside	450870	275043	2.5	NO <sub>2</sub>	Y	N	N (12 m)	3 m	Y

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
S37	Lower Hillmorton Road junction with Clifton Road. Roundabout	Roadside	450897	275059	2.5	NO <sub>2</sub>	Y	N	N (5 m)	2 m	Y
S38	Clifton Road before railway bridge	Kerbside	451868	275501	2.5	NO <sub>2</sub>	Y	N	N (9 m)	< 1 m	N
S39	Clifton Road Roundabout Murray Road	Roadside	450852	275116	2.5	NO <sub>2</sub>	Y	N	Y	5 m	Y
S40	Lawrence Sherriff Street, Drury Lane	Near-Road	450181	275029	2.5	NO <sub>2</sub>	Y	N	Y	13 m	Y
S41	Bilton Road, Big Yellow House	Near-Road	450010	274998	2.5	NO <sub>2</sub>	Y	N	Y	15 m	Y
S42	Bilton Road, near Crow Pie Pub	Roadside	448855	274352	2.5	NO <sub>2</sub>	Y	N	N (11 m)	3 m	N
S43	Dunchurch Gyrotory Residential	Roadside	450162	274898	2.5	NO <sub>2</sub>	Y	N	N (4 m)	3 m	N
S44	High Street, Hillmorton	Roadside	453394	273637	2.5	NO <sub>2</sub>	Y	N	N (10 m)	2 m	N

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
S45	Bretford-electricity pole near 3 Avon Cottages	Roadside	442963	277071	2.5	NO <sub>2</sub>	Y	N	N (11 m)	3 m	N
S46	Oxford Road, Ryton Belvedere	Roadside	437555	274561	2.5	NO <sub>2</sub>	Y	N	N (30 m)	3 m	N
S47	Regent Place	Kerbside	450445	275495	2.5	NO <sub>2</sub>	Y	N	N (5 m)	< 1 m	Y
S48	North Street, Nat. West. Bank	Roadside	450304	275314	2.5	NO <sub>2</sub>	Y	N	Y (at first floor)	2 m	N
S49	Lesley Suiter House, Whitehall Road, Hillmorton	Roadside	450864	274896	2.5	NO <sub>2</sub>	Y	N	N (13 m)	3 m	Y
S50	Bilton Church	Roadside	448169	273625	2.5	NO <sub>2</sub>	Y	N	N (18 m)	3 m	N

## **2.2 Comparison of Monitoring Results with Air Quality Objectives**

Data from each of the Rugby automatic monitoring locations are presented in Sections 2.2.1 and 2.2.2 below along with a discussion of the results of diffusion tube monitoring in Rugby. Summary tables comparing the measured concentrations with the air quality objectives and providing data capture statistics are included.

### **2.2.1 Nitrogen Dioxide (NO<sub>2</sub>)**

#### **Automatic Monitoring Data**

Continuous monitoring of NO<sub>2</sub> in Rugby was carried out at AQMS 5 Newbold Road from 2007 to June 2012. The latest results, for 2012, indicate that the annual mean NO<sub>2</sub> objective of 40 µg/m<sup>3</sup> was achieved.

The monitored mean NO<sub>2</sub> concentration at Newbold Road in 2012 was 25.2 µg/m<sup>3</sup> (1<sup>st</sup> January 2012 to 30<sup>th</sup> June 2012). Due to monitoring being carried out for less than a full calendar year, an annualisation factor of 0.933 was calculated (see Table A.1, Appendix A) and applied to the monitored mean NO<sub>2</sub> concentration. The annualised NO<sub>2</sub> concentration at Newbold Road data was 25.0 µg/m<sup>3</sup>, which is below the annual mean NO<sub>2</sub> objective (see Table 2.3).

From Table 2.3, the following observations can be made regarding trends in NO<sub>2</sub> at Newbold Road. Between 2007 to 2009, the annual mean NO<sub>2</sub> concentrations at Newbold Road were below the annual mean NO<sub>2</sub> objective and appeared to be decreasing slightly over time. The result for 2010 displayed a deviation from this trend with the annual mean concentration for 2010 exceeding the annual mean objective for the first time since monitoring began in 2003. A contributing factor to the monitored exceedence in 2010 was the diversion of traffic via Oliver Street and Newbold Road during the construction of RWRR and it was anticipated that NO<sub>2</sub> concentrations would decrease following the opening of the relief road. The relief road opened in 2011, after which NO<sub>2</sub> concentrations decreased to pre-2010 levels.

There were no hours of exceedence of the hourly mean NO<sub>2</sub> standard of 200 µg/m<sup>3</sup> during the monitored period of 2012; the maximum hourly NO<sub>2</sub> concentration was

141.2  $\mu\text{g}/\text{m}^3$  on 13/01/2012 at 18:00. Due to monitoring covering a period of less than a full calendar year, the 99.8<sup>th</sup> percentile of hourly  $\text{NO}_2$  concentrations, of 93.6  $\mu\text{g}/\text{m}^3$ , was calculated for the 2012 monitoring period, which is well within the 200  $\mu\text{g}/\text{m}^3$  threshold that may indicate an exceedence of the hourly  $\text{NO}_2$  objective. This is consistent with previous monitoring at the site – there have been no exceedences of the hourly standard of 200  $\mu\text{g}/\text{m}^3$  since monitoring began at the site (Table 2.3).



**Table 2.3 Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2012 % <sup>b</sup>	Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>c</sup>				
					2008	2009	2010	2011	2012
AQMS 5	Roadside	Y	99	50	33.6	34.0	<b>40.9</b>	32.7	25.0
					Number of Hourly Means > 200µg/m <sup>3</sup> <sup>d</sup>				
					0	0	0	0 (111.1)	0 (93.6)

In bold, exceedence of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

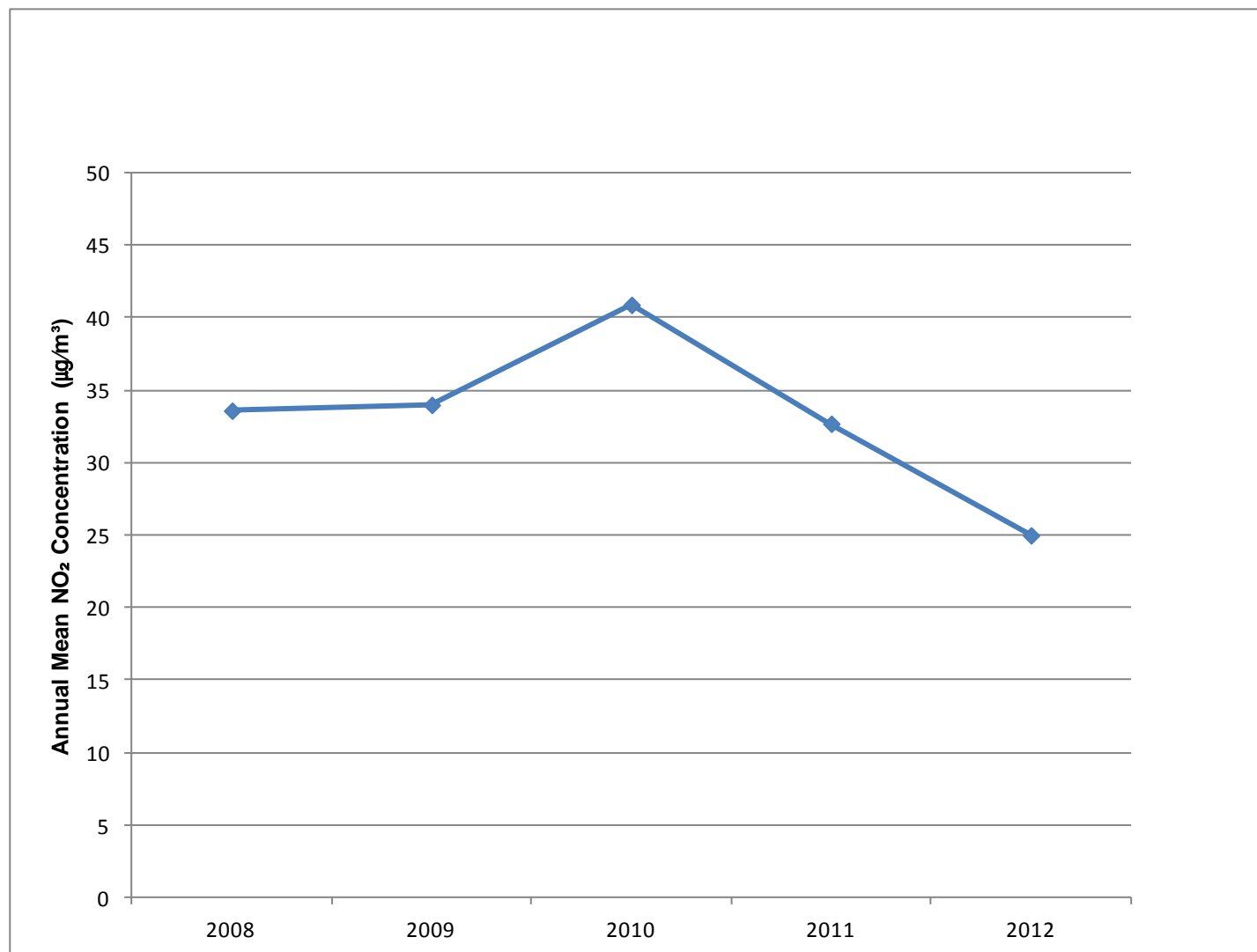
<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> Means should be “annualised” [as in Box 3.2 of TG\(09\) \(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

<sup>d</sup> If the data capture for full calendar year is less than 90%, include the 99.8<sup>th</sup> percentile of hourly means in brackets

**Figure 2.2 Trends in Annual Mean NO<sub>2</sub> Concentrations at Newbold Road AQMS**



## Diffusion Tube Monitoring Data

Until April 2012, Rugby Borough Council's diffusion tube monitoring covered 16 single tube locations and one triplicate co-location study. 13 sites were within the AQMA and 15 sites were at locations of relevant exposure. Following the decommissioning of all continuous monitoring sites in the Borough in June 2012, it was decided to expand the diffusion tube network to 48 sites. Monitoring commenced at the new sites in April 2012.

Due to the scheduled closure of Newbold Road AQMS in June 2012, the triplicate co-location study (for the purpose of bias adjustment factor calculation) was relocated to a new site at Leamington Spa, Rugby Road AURN Site in May 2012. As a result of co-location being carried out at two different sites during the year it was considered more appropriate to use the national bias adjustment factor of 0.79 to bias-adjust all raw diffusion tube results in 2012. Further details of the derivation of bias adjustment factors and discussion of the choice of factor to use (i.e. local or national) can be found in Appendix A.

All of the long-running diffusion tube sites (Sites S1 – S16) achieved 11 or more months of valid data collection during 2012 and therefore do not require annualisation. At the remaining sites between 5 and 8 months of valid data was collected during 2012 and so the results have been annualised in accordance with Box 3.2 of TG(09). Details of the calculation of annualisation factors can be found in Appendix A. All results reported hereafter as bias-adjusted have also been annualised for direct comparison with the annual mean NO<sub>2</sub> objective.

The 2012 diffusion tube results indicate that the annual mean NO<sub>2</sub> objective was exceeded at two monitoring locations (Table 2.5). The highest annual mean NO<sub>2</sub> concentration, 50.0 µg/m<sup>3</sup> was monitored at site S24 (Dun Cow, Dunchurch Square). Whilst this result is an exceedence of the annual mean objective it should be kept in mind that monitoring only commenced in April 2012 and the reported concentration is based on 7 months of data, annualised to estimate the annual mean. The annual mean objective was also exceeded at site S49 (Lesley Suiter House, Whitehall Road, Hillmorton) where the annual mean concentration was 49.0 µg/m<sup>3</sup>. This too is a new

site where monitoring commenced in April 2012 and so the reported concentration is an annualised value. Additionally, during October 2012 there were road works in the vicinity of site S49, which are likely to have contributed to the high raw NO<sub>2</sub> concentration monitored at site S49 in that month (121 µg/m<sup>3</sup> before bias adjustment).

Both sites exceeding the annual mean NO<sub>2</sub> objective are in areas where there was no previous monitoring but are within the boundaries of the existing AQMA.

In previous years the highest annual mean NO<sub>2</sub> concentrations have been monitored at sites S10 (Webb Ellis Pub, Corporation Street) and S13 (Avon Mill Pub, Newbold Road). In 2012 annual mean NO<sub>2</sub> concentrations were below the annual mean objective at both of these locations (38.8 µg/m<sup>3</sup> and 37.4 µg/m<sup>3</sup>, respectively), but remain borderline. Whilst these concentrations are only slightly below the annual mean NO<sub>2</sub> objective, the 2012 results continue the decrease in annual mean NO<sub>2</sub> concentrations at these locations (and all of the long-running diffusion tube monitoring sites) that has occurred since 2010. This is illustrated in Figure 2.3 and Table 2.6.

Other sites that were borderline locations in 2012 (i.e. greater than 36 µg/m<sup>3</sup> annual mean) were sites S30 (Murray Road; 37.5 µg/m<sup>3</sup>), S46 (Oxford Road, Ryton; 38.5 µg/m<sup>3</sup>) and S48 (North Street; 36.7 µg/m<sup>3</sup>). With the exception of site S46 these sites are within the boundary of the existing AQMA. It should be noted these results are based on annualised data as monitoring was not carried out for the full year at these locations. Particular attention will be paid to future monitoring results from these sites (especially S46 as it is outside the current AQMA) to identify at the earliest opportunity potential exceedences at these locations.

It should be noted that extensive road-works were carried out in the vicinity of the S46 monitoring site during 2012, comprising construction of new roundabout and site access on Oxford Road for commercial developments at the former Peugeot factory site. A traffic light controlled contraflow system was also in operation and these factors are likely to have impacted upon monitored concentrations at S46. Large-scale commercial developments within the former Peugeot factory site may affect

local air quality and future monitoring data from site S46 will help to determine if this is the case.

*Additional Diffusion Tube Monitoring in Dunchurch*

Rugby Borough Council has identified Dunchurch as an area for concern from an air quality perspective due to the identified exceedence at site S24 in Dunchurch following the expansion of the NO<sub>2</sub> diffusion tube monitoring network in April 2012. In recognition of this concern, Rugby Borough Council installed 2 additional monitoring sites in Dunchurch in May 2013. Due to the recent commencement of this additional monitoring no results are presently available. However, the results will be reported in subsequent Review and Assessment work and will allow Rugby Borough Council to better understand the extent of exceedences of the annual mean NO<sub>2</sub> objective in Dunchurch.

**Table 2.5 Results of NO<sub>2</sub> Diffusion Tubes 2012**

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months) <sup>a</sup>	2012 Annual Mean Concentration (µg/m <sup>3</sup> ) - Bias Adjustment factor = 0.79 <sup>b</sup>
S1	10 Newbold Road	Kerbside	Y	N	12	20.3
S2	Marton A423	Roadside	N	N	12	17.3
S3	69 School Street	Urban Background	Y	N	12	16.0
S4	St Margaret's School, Wolston	Urban Background	N	N	11	16.4
S5	Ryton Village Hall, High Street	Near-Road	N	N	12	30.1
S6	2 West Field Road	Urban Background	Y	N	12	17.2
S7	68 Cymbeline Way	Urban Background	Y	N	12	14.0
S8	EHO Treatment, Newbold Road	Roadside	Y	N	12	30.5
S9	(Argyle Street) Cambridge Street	Near-Road	Y	N	11	19.9
S10	Webb Ellis Pub, Corporation Street	Roadside	Y	N	12	38.8
S11	15 Oliver Street	Roadside	Y	N	12	25.8
S12	Boughton Leigh School, Hollowell Way	Urban Background	Y	N	11	22.4
S13	Avon Mill Pub, Newbold Road	Roadside	Y	N	12	37.4
S14	Binley Woods, Village Hall	Urban Background	N	N	12	18.0
S15	Lawford Road / Jubilee Street, Arnie's Batch	Kerbside	N	N	12	28.2
S16	Hotel, London Road A45, Ryton	Near-Road	N	N	12	22.1
S17	Newbold Road AQMS / Stamford Gardens, Rugby Road, Leamington. AURN Site	Roadside	N	Y	5 / 7	22.5
S18				Y	5 / 7	23.7
S19				Y	5 / 7	23.2
S20	Newbold Road	Roadside	Y	N	7	30.8
S21	Corner of Percival Road / Ashlawn Road	Roadside	Y	N	8	24.8
S22	Corner of Fisher Avenue / Ashlawn Road	Roadside	Y	N	8	22.0
S23	Paddox Pub Corner	Roadside	Y	N	8	24.5

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months) <sup>a</sup>	2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.79 <sup>b</sup>
S24	Dun Cow, Dunchurch Square	Roadside	Y	N	7	50.0
S25	Southam Road, 'Crystal', Dunchurch	Roadside	Y	N	8	32.6
S26	Lawford Road, (former Simms Scrap Yard)	Near-Road	Y	N	8	20.7
S27	Avenue Road / Campbell Street	Roadside	Y	N	8	21.3
S28	256 Parkfield Road	Roadside	Y	N	8	19.5
S29	Avon Valley School	Urban Background	Y	N	8	22.6
S30	Murray Road (Bus Stop Nr Rail Station)	Roadside	Y	N	8	37.5
S31	Wood Street / Park Road	Roadside	Y	N	8	31.9
S32	Railway Terrace, Station Bar	Roadside	Y	N	7	30.8
S33	Albert Street, Alma Lodge Hotel	Roadside	Y	N	8	24.0
S34	Regent Street, near Oxfam	Roadside	Y	N	8	28.9
S35	Church Street, Town Fryer	Roadside	Y	N	8	33.5
S36	Whitehall Rd junction with Clifton Road Roundabout	Roadside	Y	N	8	35.6
S37	Lower Hillmorton Road junction with Clifton Road. Roundabout	Roadside	Y	N	8	31.8
S38	Clifton Road before railway bridge	Kerbside	Y	N	8	29.2
S39	Clifton Road Roundabout Murray Road	Roadside	Y	N	8	30.6
S40	Lawrence Sherriff Street, Drury Lane	Near-Road	Y	N	7	33.4
S41	Bilton Road, Big Yellow House	Near-Road	Y	N	8	26.8
S42	Bilton Road, near Crow Pie Pub	Roadside	Y	N	8	25.9
S43	Dunchurch Gyratory Residential	Roadside	Y	N	8	28.7
S44	High Street, Hillmorton	Roadside	Y	N	7	22.3
S45	Bretford- electricity pole near 3 Avon Cottages	Roadside	Y	N	5	28.0
S46	Oxford Road, Ryton Belvedere	Roadside	Y	N	8	38.5
S47	Regent Place	Kerbside	Y	N	8	33.2

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months) <sup>a</sup>	2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.79 <sup>b</sup>
S48	North Street, Nat. West. Bank	Roadside	Y	N	7	36.7
S49	Lesley Suiter House, Whitehall Road, Hillmorton	Roadside	Y	N	7	<b>49.0</b>
S50	Bilton Church	Roadside	Y	N	5	23.5

In bold, exceedence of the NO<sub>2</sub> annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$ . Underlined, annual mean > 60 $\mu\text{g}/\text{m}^3$ , indicating a potential exceedence of the NO<sub>2</sub> hourly mean AQS objective

<sup>a</sup> Means should be “annualised” [as in Box 3.2 of TG\(09\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), if full calendar year data capture is less than 75% / 9 months. *Italicised* figures indicate annualised values.

<sup>b</sup> If an exceedence is measured at a monitoring site not representative of public exposure, NO<sub>2</sub> concentration at the nearest relevant exposure should be estimated based on the “[NO<sub>2</sub> fall-off with distance](http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html)” calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>), and results should be discussed in a specific section. The procedure is also explained [in Box 2.3 of Technical Guidance LAQM.TG\(09\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30>).



**Table 2.6 Results of NO<sub>2</sub> Diffusion Tubes (2008 to 2012)**

Site ID	Location	Site Type	Within AQMA?	Annual Mean Concentration (µg/m <sup>3</sup> ) - Adjusted for Bias <sup>a</sup>				
				2008 (Bias Adjustment Factor = 0.99)	2009 (Bias Adjustment Factor = 0.81)	2010 (Bias Adjustment Factor = 1.14)	2011 (Bias Adjustment Factor = 1.00)	2012 (Bias Adjustment Factor = 0.79)
S1	10 Newbold Road	Kerbside	Y	26.0	21.5	30.7	23.0	20.3
S2	Marton A423	Roadside	N	-	15.5	31.2	21.1	17.3
S3	69 School Street	Urban Background	Y	21.7	17.4	28.6	19.8	16.0
S4	St Margaret's School, Wolston	Urban Background	N	19.2	13.3	21.9	17.0	16.4
S5	Ryton Village Hall, High Street	Near-Road	N	37.4	25.5	<b>40.7</b>	33.9	30.1
S6	2 West Field Road	Urban Background	Y	24.4	19.8	28.5	19.6	17.2
S7	68 Cymbeline Way	Urban Background	Y	21.8	13.6	24.8	17.7	14.0
S8	EHO Treatment, Newbold Road	Roadside	Y	<b>47.0</b>	38.6	<b>56.0</b>	36.4	30.5
S9	(Argyle Street) Cambridge Street	Near-Road	Y	26.7	21.2	31.0	22.8	19.9
S10	Webb Ellis Pub, Corporation Street	Roadside	Y	<b>58.6</b>	<b>43.0</b>	<b>61.4</b>	<b>46.1</b>	38.8
S11	15 Oliver Street	Roadside	Y	<b>59.3</b>	<b>44.7</b>	<b>50.3</b>	30.3	25.8
S12	Boughton Leigh School, Hollowell Way	Urban Background	Y	29.5	26.3	34.3	28.2	22.4
S13	Avon Mill Pub, Newbold Road	Roadside	Y	<b>40.6</b>	34.9	<b>55.3</b>	<b>45.2</b>	37.4
S14	Binley Woods, Village Hall	Urban Background	N	22.5	20.4	29.4	21.2	18.0
S15	Lawford Road / Jubilee Street, Arnie's Batch	Kerbside	N	<b>40.5</b>	36.9	<b>45.4</b>	35.5	28.2

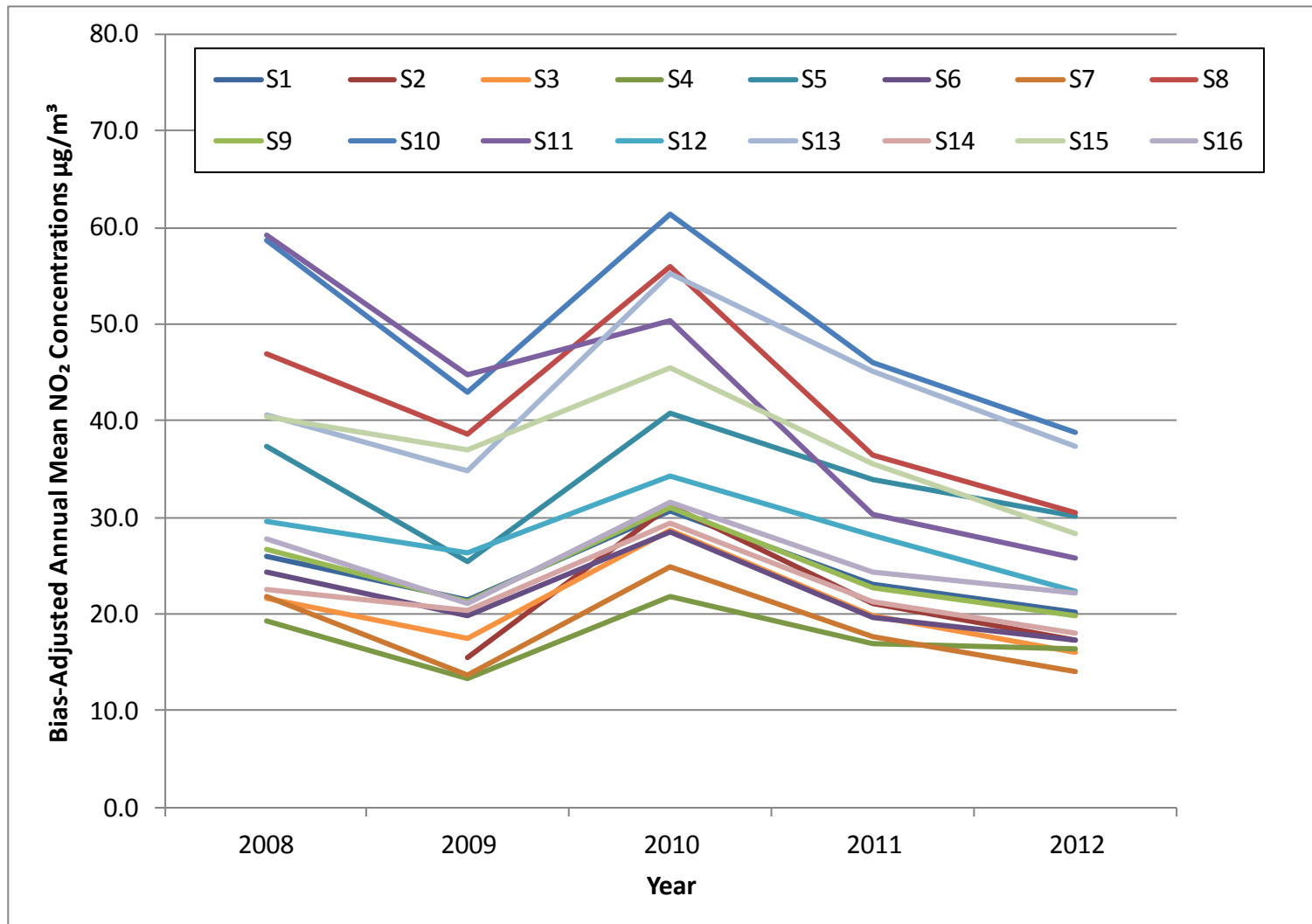
Site ID	Location	Site Type	Within AQMA?	Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Adjusted for Bias <sup>a</sup>				
				2008 (Bias Adjustment Factor = 0.99)	2009 (Bias Adjustment Factor = 0.81)	2010 (Bias Adjustment Factor = 1.14)	2011 (Bias Adjustment Factor = 1.00)	2012 (Bias Adjustment Factor = 0.79)
S16	Hotel, London Road A45, Ryton	Near-Road	N	27.7	21.1	31.5	24.4	22.1

In bold, exceedence of the NO<sub>2</sub> annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$

Underlined, annual mean > 60 $\mu\text{g}/\text{m}^3$ , indicating a potential exceedence of the NO<sub>2</sub> hourly mean AQS objective

<sup>a</sup> Means should be “annualised” [as in Box 3.2 of TG\(09\) \(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%

**Figure 2.3 Trends in Annual Mean NO<sub>2</sub> Concentrations at Diffusion Tube Monitoring Sites**



### 2.2.2 Particulate Matter (PM<sub>10</sub>)

Continuous monitoring of PM<sub>10</sub> in Rugby was carried out at six locations until 30 June 2012 when all continuous monitoring sites in the Borough were decommissioned. The latest results, for 2012, indicate that the annual mean PM<sub>10</sub> objective was achieved at all monitoring locations after annualisation.

The monitoring site at Newbold Road used a TEOM-FDMS system and so the data required no correction to ensure gravimetric equivalence. The remaining five sites employed Turnkey Osiris units. Co-location studies with TEOM instruments in Rugby demonstrated a good agreement between the Turnkey Osiris measurements and those of gravimetric equivalent TEOM measurements. Consequently, all Turnkey results were presented without adjustment.

Due to monitoring being carried out for less than a full calendar year an annualisation factor of 0.862 was calculated and applied to monitored mean PM<sub>10</sub> concentrations from all sites except T10 Avenue Road for which a separate factor of 0.829 was calculated (see Table A.2, Appendix A). The highest annualised PM<sub>10</sub> concentration was 31.7 µg/m<sup>3</sup> at T14 Russelsheim Way. This result marked a significant deviation from the previous monitoring at this location and also differs from the results for other monitoring in Rugby during 2012. There were no changes in local traffic conditions or emissions from other sources that could have contributed to the elevated concentrations of PM<sub>10</sub> monitored. On the basis of further investigation into the spurious nature of the data collected at Russelsheim Way the 2012 data have been rejected.

After the rejection of data from Russelsheim Way the highest annual mean PM<sub>10</sub> concentration was 17.6 µg/m<sup>3</sup> at Newbold Road, which is well within the annual mean PM<sub>10</sub> objective. There have been no recorded exceedences of the annual mean PM<sub>10</sub> objective at any of the monitoring sites since 2007 and the latest results indicate that any exceedence of the annual mean objective is unlikely.

The daily PM<sub>10</sub> objective of not more than 35 days of greater than 50 µg/m<sup>3</sup> was achieved at five out of six sites. Forty days of exceedence were monitored at

Russelsheim Way. However, as noted above, all data from Russelsheim Way have been rejected on the basis of appearing spurious. Between 2008 and 2011, there was a total of 20 days of exceedence of the daily PM<sub>10</sub> standard at Russelsheim Way; the monitoring of 40 days of exceedence in six months of 2012 therefore appears highly spurious given that:

- the number of exceedences at other sites in Rugby during 2012 was very small, the next highest being 8 days of exceedence at Newbold Road; and
- there were no identifiable localised sources (e.g. road works or construction activity) that could have given rise to elevated PM<sub>10</sub> concentrations.

As monitoring was carried out for only six months of 2012 the 90.4<sup>th</sup> percentiles of daily mean PM<sub>10</sub> concentrations have been calculated for each monitoring site. Excluding Russelsheim Way from further discussion, the highest 90.4<sup>th</sup> percentile in 2012 was 39.0 µg/m<sup>3</sup> at Newbold Road. This is within the 50 µg/m<sup>3</sup> threshold that may indicate an exceedence of the daily PM<sub>10</sub> objective.

There has been a general downward trend in annual mean PM<sub>10</sub> concentrations in Rugby over time, although there was a slight deviation from this trend in 2011 at T8 Townsend Lane, which was attributable to significant construction activity in the area. AQMS 5 Newbold Road, T10 Avenue Road, T14 Russelsheim Way and T16 Murray Road all display evidence of a longer-term downward trend in PM<sub>10</sub>.

All PM<sub>10</sub> monitoring sites continue to record occurrences of daily mean PM<sub>10</sub> concentrations exceeding the standard of 50 µg/m<sup>3</sup>. However, no site exceeded the 35 permitted days of PM<sub>10</sub> greater than 50 µg/m<sup>3</sup> in any year between 2008 and 2012. Murray Road recorded 43 days of PM<sub>10</sub> greater than 50 µg/m<sup>3</sup> in 2007 and this is the only exceedence of the 24-hour PM<sub>10</sub> objective since 2007. An elevated number of days of exceedence recorded at T8 Townsend Lane in 2011 (28 days; 90.4<sup>th</sup> percentile = 46.1 µg/m<sup>3</sup>) is the only other occasion where the daily mean PM<sub>10</sub> objective has been approached since 2007. This was due to construction activity in the Long Lawford area and PM<sub>10</sub> concentrations decreased as anticipated following the completion of the works.

**Table 2.7 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with Annual Mean Objective**

Site Name	Site Type	Within AQMA ?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2012 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m <sup>3</sup> )				
						2008 <sup>c</sup>	2009 <sup>c</sup>	2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>
AQMS 5 Newbold Road	Roadside	Y	99	49	N/A	20.9	21.5	20.9	19.8	17.6
T2 Lawford Farm	Rural	N	98	52	Y	20.7	22.2	22.2	19.3	12.5
T8 Townsend Lane	Industrial	Y	99	53	Y	16.1	17.3	19.2	25.5	14.3
T10 Avenue Road	Industrial	Y	72	36	Y	19.2	19.6	15.4	16.3	12.5
T14 Russelsheim Way	Roadside	Y	0	0	Y	20.7	15.9	16.4	19.6	- <sup>d</sup>
T16 Murray Road	Roadside	Y	96	51	Y	24.3	20.0	18.2	17.7	12.2

In bold, exceedence of the PM<sub>10</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

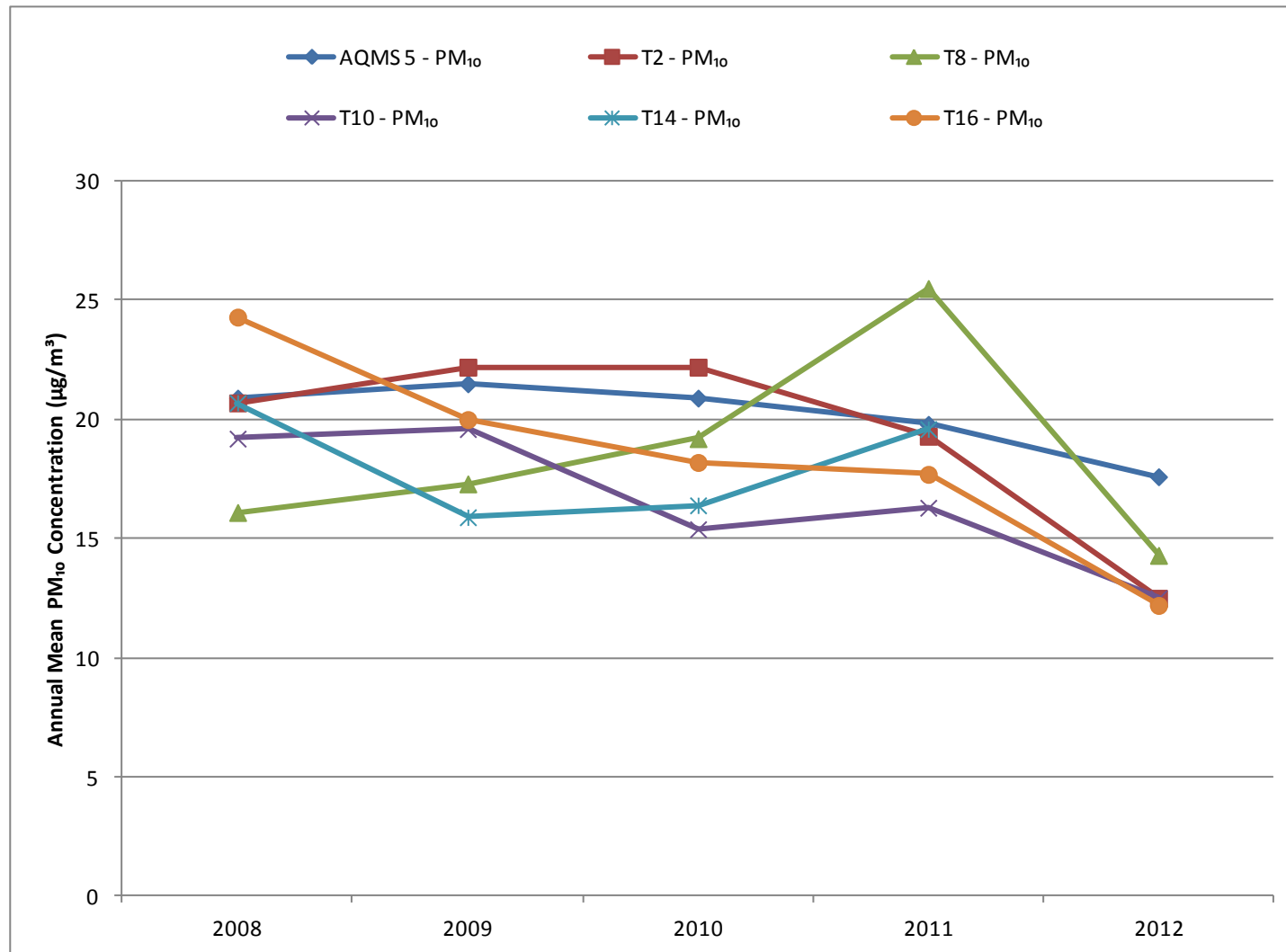
<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> Means should be “annualised” [as in Box 3.2 of TG\(09\) \(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38\)](http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

<sup>d</sup> No PM<sub>10</sub> data for 2012 for site T14 Russelsheim Way. Ratification process found to be spurious and was subsequently rejected.

**Figure 2.4 Trends in Annual Mean PM<sub>10</sub> Concentrations at Monitoring Sites**



**Table 2.8 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2012 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m <sup>3</sup>				
						2008 <sup>c</sup>	2009 <sup>c</sup>	2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>
AQMS 5 Newbold Road	Roadside	Y	99	49	N/A	13	10	4	14	8 (39.0)
T2 Lawford Farm	Rural	N	98	52	Y	5 (31.4)	11	11 (36.3)	7 (33.3)	0 (24.8)
T8 Townsend Lane	Industrial	Y	99	53	Y	2 (25.3)	4 (26.1)	6	28 (46.1)	3 (31.9)
T10 Avenue Road	Industrial	Y	82	36	Y	5	7 (30.9)	1	6 (26.4)	1 (27.6)
T14 Russelsheim Way	Roadside	Y	0	0	Y	5	6	1	9 (35.6)	- <sup>d</sup>
T16 Murray Road	Roadside	Y	96	51	Y	11 (40.6)	7	1 (29.5)	11	1 (25.3)

In bold, exceedence of the PM<sub>10</sub> daily mean AQS objective (50µg/m<sup>3</sup> – not to be exceeded more than 35 times per year)

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

<sup>b</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

<sup>c</sup> if data capture for full calendar year is less than 90%, include the 90.4<sup>th</sup> percentile of 24-hour means in brackets.

<sup>d</sup> No PM<sub>10</sub> data for 2012 for site T14 Russelsheim Way. Ratification process found to be spurious and was subsequently rejected.



### **2.2.3 Sulphur Dioxide (SO<sub>2</sub>)**

Rugby Borough Council does not carry out any monitoring of sulphur dioxide.

### **2.2.4 Benzene**

No monitoring of benzene is undertaken within the Borough. It is considered that there are no significant sources that might give rise to exceedences of the air quality objective for benzene at any receptor location within the Borough.

### **2.2.5 Other Pollutants Monitored**

Rugby Borough Council does not perform monitoring activities for any other pollutants.

## 2.2.6 Summary of Compliance with AQS Objectives

Rugby Borough Council has examined the results from monitoring in the borough.

NO<sub>2</sub> Concentrations within the AQMA still exceed the annual mean NO<sub>2</sub> objective at locations of relevant exposure and the AQMA should remain. NO<sub>2</sub> Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

Monitored concentrations of PM<sub>10</sub> are well within the annual mean and daily mean PM<sub>10</sub> objectives and it is considered unlikely that the objectives are exceeded at any relevant location within the borough, therefore there is no need to proceed to a Detailed Assessment.

## **3 New Local Developments**

### **3.1 Road Traffic Sources**

There are a number of developments within the Borough with the potential to impact upon road traffic sources upon completion:

#### **Daventry International Rail Freight Terminal (DIRFT)**

Development of a portion of the former Rugby Radio Station for a rail freight interchange culminating in an expansion of the Daventry International Rail Freight Terminal (DIRFT) to provide storage and distribution and industrial buildings with ancillary office accommodation, associated access, ground works, highways and rail infrastructure (including the extension of private rail sidings and the creation of a rail port and associated bridge infrastructure), landscaping and associated works.

DIRFT expansion is a significant scale development with a traffic generation potential that may impact on Rugby residents. The majority of the development footprint resides within Daventry District Council administrative area but traffic generated from the development by employment and business vehicle movements will impact upon the wider highway network. The assessment of the proposed development is still at the planning stage. An air quality assessment has been carried out by AECOM commissioned by the developer.

#### **Rugby Mast Site SUE, A5 Watling Street, Clifton upon Dunsmore**

Located on the old radio station site near to Hillmorton, this proposed development would provide up to 6,200 new homes for a population of 15,500, together with 31 hectares of employment land creating approximately 1,500 jobs. The development is likely to be built in phases over a 15-20 year period and would also include at least one secondary school and three primary schools or as agreed with the Local Education Authority; at least one district centre and three local centres and appropriate onsite healthcare provision as agreed by the PCT. As part of an Environmental Statement, AECOM is carrying out air quality assessment work to assess the road traffic impacts associated with the proposed development. However, the development is still at the planning stage.

### **Rugby Gateway SUE, Leicester Road, Rugby**

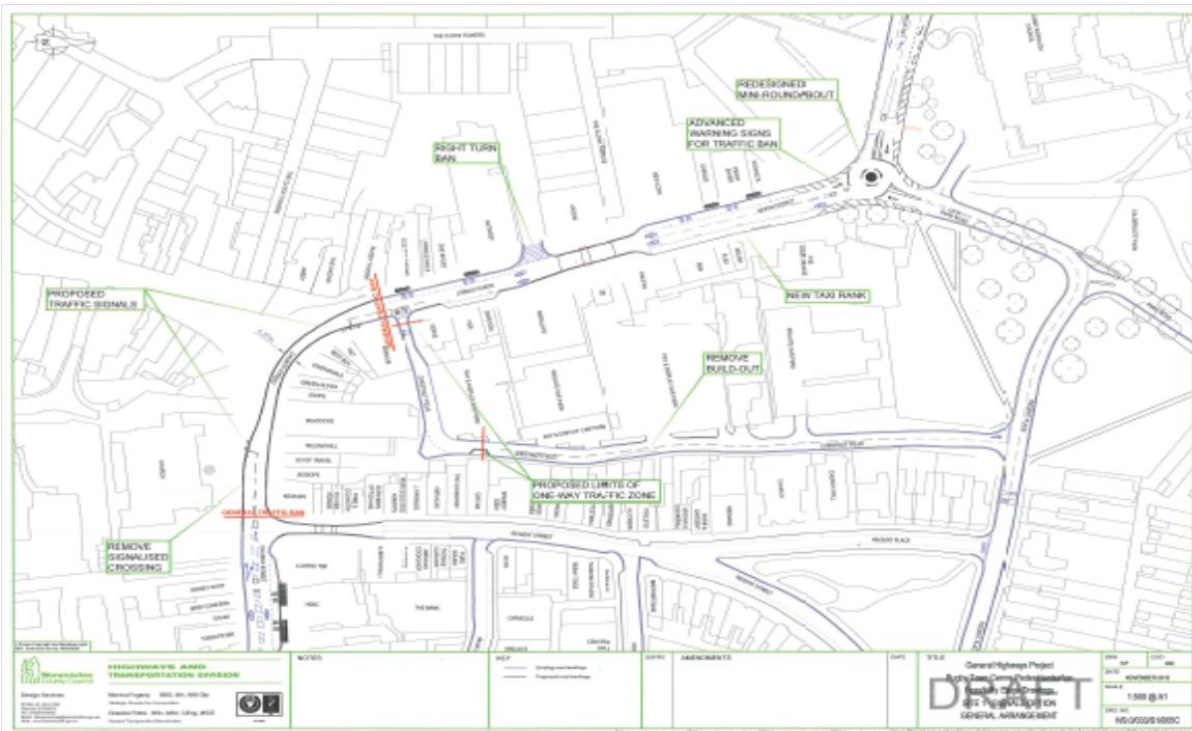
The Rugby Gateway site is located next to the A426 near to Junction 1 of the M6 motorway. The proposed development is mixed use comprising residential (up to 1,300 units); employment development (up to 36 hectares in total, B2 – General Industrial & B8 – Storage & Distribution, creating 1,800 jobs); community facilities (D1 – Non-residential Institutions) including primary school, nursery and health facility, retail premises (A1 – Retail, A3 – Food & Drink, A4 – Drinking Establishments & A5 - Hot Food Takeaway); open space; associated infrastructure and works including details of access into site (including alterations to highway and existing roundabouts).

The Rugby Gateway development will also include a Phase II involving the erection of 219 dwellings with associated open space, infrastructure and ancillary works (alteration to Brownsover Lane and junction with existing roundabout).

### **Rugby Town Centre Pedestrianisation**

Design work on the proposed extension of the existing pedestrianised area of Rugby town centre is ongoing. Work on the detailed design of the pedestrianisation scheme has since been heavily revised by Warwickshire County Council with a new proposal option put forward for consultation with the date of implementation still to be finalised. Consequently formal political approval of the revised scheme is required before further consultation and design work can be undertaken. The revised scheme takes in to consideration new funding and budget restraints so presents an alternative scheme based on a revised feasibility design. Warwickshire County Council is to consult with the wider public and key stakeholder groups regarding the development of the revised scheme in due course. The revised draft scheme involves reducing the footprint of pedestrianisation as well as road closure length and imposing a traffic light controlled one way system by way of a traffic regulation order. A draft proposal is detailed in Figure 3.1.

**Figure 3.1 DRAFT Rugby Town Centre Pedestrianisation Feasibility Design**



### **Southam Quarry Extension**

Permission was granted for the extraction of limestone and clay as an extension to the quarry, within land referred to as Spiers Farm in Southam. The quarry is located outside the boundary of Rugby Borough Council and so on-site activities will not impact upon air quality in Rugby. The extracted material will be transported to the Rugby Cement Works as a continuation of historic practice. At present there is no activity at the site likely to give rise to air quality impacts. The extension to Southam Quarry is intended to maintain the supply of limestone and clay to Rugby Cement Works. However, any increase in demand for limestone and clay may mean that activity increases and vehicle movements to and from Rugby Cement Works would increase accordingly. Should this happen air quality impacts may need to be considered. Rugby Borough Council intends to keep the situation under review.

## **3.2 Other Transport Sources**

There have been no changes to other transport sources in the borough since the publication of the 2012 Updating and Screening Assessment.

### 3.3 Industrial Sources

There are no new or proposed industrial installations within the Borough requiring further consideration for impacts on local air quality.

Emissions of NO<sub>x</sub> and PM<sub>10</sub> from Cemex cement works for 2010 to 2012 are presented in Table 3.1. As NO<sub>x</sub> emissions reduced by 13.8% between 2011 and 2012 there is no need to consider NO<sub>x</sub> emissions from Cemex further at this stage.

**Table 3.1 Pollutant Emissions (tonnes) from Cemex Rugby Cement Works, 2010 to 2012**

Year	Pollutant Emissions (tonnes)	
	NO <sub>x</sub>	PM <sub>10</sub>
2010	2020	13.9
2011	1952	13.3
2012	1682	20.0
Percentage Change 2011 – 2012	-13.8%	+50.4

Note: Data supplied by Environment Agency (Personal communication 14/05/2013)

PM<sub>10</sub> emissions increased by 50.4% between 2011 and 2012, from 13.3 tonnes to 20.0 tonnes. Screening calculations carried out for the 2012 Updating and Screening Assessment indicated that the background adjusted permitted emission rate of PM<sub>10</sub> from Cemex was 56 tonnes/year. The PM<sub>10</sub> emission rate for 2012 was 20.0 tonnes, which is well within the 56 tonnes threshold value and so it is unlikely that this level of PM<sub>10</sub> emissions would lead to exceedences of PM<sub>10</sub> air quality objectives. There is no requirement to undertake further, more detailed investigation at this stage, but the situation will be reviewed in subsequent Review and Assessment work.

There have been no substantial changes in emissions from any other existing installations or changes in the exposure to emissions from existing installations.

There are no fuel storage depots or petrol stations within the Borough requiring assessment at this time and there are no poultry farms within the Borough which may give rise to air quality impacts.

### **3.4 Commercial and Domestic Sources**

The Queen's Diamond Jubilee Sports Centre development will incorporate a biomass heating plant into the design. The proposed biomass boiler has a 199 kW rating and therefore meets the criteria for requiring assessment as outlined in LAQM TG(09). A screening assessment shall be carried out, in accordance with LAQM TG(09), to determine whether the proposed biomass boiler has the potential to impact upon local air quality and therefore requires further assessment.

### **3.5 New Developments with Fugitive or Uncontrolled Sources**

Rugby Borough Council confirms there are no new developments (or changes to existing developments) with fugitive or uncontrolled sources with the potential to give rise to adverse air quality impacts in the borough.

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

Daventry International Rail Freight Terminal (DIRFT)

Rugby Mast Site SUE

Rugby Gateway SUE

Rugby Town Centre Pedestrianisation

These will be taken into consideration in the next Updating and Screening Assessment

A screening assessment, in accordance with LAQM.TG(09), will be carried out of the proposed biomass boiler at the Queen's Diamond Jubilee Sport Centre development to determine whether there is likely to be a perceptible impact on local air quality. If the screening assessment identifies the potential for adverse impacts a more detailed assessment will be carried out.

## **4 Local / Regional Air Quality Strategy**

The improvement of local air quality in Rugby is one of the underlying themes of Warwickshire County Council's Local Transport Plan (LTP). The Air Quality Strategy incorporated into the LTP is dealt with in detail in Section 7 of this report. The measures in the LTP are deliberately generic to allow each local authority within the County to develop its own strategy tailored to address air quality issues that are specific to the local authority area in question.

Rugby Borough Council has expanded upon the more generic measures outlined in the LTP Air Quality Strategy to set out clear actions for tackling air quality issues in the Borough. These actions include:

- Specific proposals for the AQMA.
- Non-specific proposals for general improvement of air quality in the Borough.
- Reducing vehicle emissions.
- Alternative transport modes/policies.
- Non-transport measures.

Further details of Air Quality Action Planning undertaken by Rugby Borough Council are presented in Section 9 of this report.



## 5 Planning Applications

Rugby Borough Council has received a number of planning applications for various developments that have the potential to impact upon local air quality. The applications listed below are at differing stages in the application process at present.

### **Stretton Croft Mixed Use Development, M69 Motorway/Watling Street, Wolvey**

A mixed use development comprising Class B1 (Business) and Class C1 (Hotel Development), incorporating Class A3 (Restaurant) and Class D2 (Assembly and Leisure) with associated car parking and landscaping creating up to 350 jobs.

### **Cawston Residential Developments**

Outline application for residential development (up to 600 dwellings, use class C3), new accesses to Coventry Road and Trussell Way, open space, associated infrastructure and ancillary works.

### **Rugby Gateway SUE (Eden Park)**

Core Strategy allocated site. Outline application for residential development (up to 1300 units); employment development (up to 36ha in total, B2 – General Industrial & B8 – Storage & Distribution); community facilities (D1 – Non-residential Institutions) including primary school, nursery and health facility, retail premises (A1 – Retail, A3 – Food & Drink, A4 – Drinking Establishments & A5 - Hot Food Takeaway); open space; associated infrastructure and works including details of access into site (including alterations to highway and existing roundabouts); demolition of existing buildings.

Phase 1 approved for the erection of 244 dwellings with associated open space, infrastructure and ancillary works; alteration to Brownsover Lane and junction with existing roundabout. Phase 2 is to be confirmed and will comprise the erection of 219 dwellings with associated open space, infrastructure and ancillary works; (alteration to Brownsover Lane and junction with existing roundabout).

### **Rugby and Daventry Crematorium and Cemetery off Ashlawn Road**

A joint venture development project between Rugby and Daventry Local Authorities involving the creation of a Cemetery and Crematorium facility together with a building including 2 Ceremony rooms, an office, a book of remembrance room, associated administration rooms and floral tribute area as well as external areas including a cemetery, an interment area and garden of remembrance, cycle, car and coach parking spaces along with other associated landscaping and highways works.

### **Warehouse Distribution Centre (Former Peugeot Factory) commercial developments, Ryton-On-Dunsmore.**

Demolition of factory and construction of Class B8 (warehouse & distribution) with ancillary offices and Class B1(c)/B2/B8 (light industry/general industry/warehouse & distribution with ancillary offices), including vehicles parking and landscaping with access from existing roundabout.

The demolition work has now been completed with Network Rail occupying part of the cleared site with the remainder cleared for development. There are proposals for the use of land for the parking and storage of heavy goods vehicles and trailers with alterations to access and formation of access ramp into the site, plus ancillary development. Vehicle maintenance unit and fuelling and washing facility, security lodge, vehicle parking, landscaping and emergency access are also proposed.

### **Barby Pools Marina**

Demolition of barn and partial demolition of second barn, construction of marina comprising 550 non-residential berths, marina services and amenities buildings and boat repair facility, with associated car parking and service areas, landscaped areas and minor works to adopted and unadopted roads (straddling the administrative boundaries of Rugby Borough Council and Daventry District Council).

## 6 Air Quality Planning Policies

Rugby Borough Council adopted its Core Strategy in June 2011. The Core Strategy forms one part of the Council's Local Development Framework (LDF) that will guide future development in the Borough. Core Strategy Policy CS11 concerns transport and new development and makes direct reference to development within the Rugby Air Quality Management Area (AQMA):

### **Policy CS11 – Transport and New Development**

Development will be permitted where sustainable modes of transport are prioritised and measures mitigating against the transport impacts which may arise from that development or cumulatively with other proposals are provided. This shall be achieved where appropriate through the submission of a transport assessment and:

- Contributions to transport modelling work;
- The provision of travel plans to promote sustainable travel patterns for work related trips; and;
- The entering into of bus and/or freight partnerships with the County Council and/or third parties.

The thresholds above which transport assessments will be required and the relevant car parking standards for all development types are set out in the Planning Obligations SPD. Where development proposals fall within the designated Air Quality Management Area, the transport assessment should set out how detrimental impacts on air quality will be mitigated.

### **Supplementary Planning Documents**

In March 2012, Rugby Borough Council published a Supplementary Planning Document (SPD), "Planning Obligations" as part of the Local Development Framework. Section 7 of the SPD concerns Air Quality specifically. It gives guidance on development within the AQMA and states the Council's position that it "seeks to ensure new development does not result in a significant increase in the production of air pollutants that will hinder the achievement of its objectives set out in its Air Quality Strategy".

In addition, Rugby Borough Council's Environmental Services Department has published a draft SPD "Air Quality Guidance Note for Developers". This guidance is underpinned by Core Strategy Policy CS11 and provides information on the way in which air quality and air pollution issues will be dealt with through the planning system. The guidance document details criteria under which air quality issues could be a material planning consideration together with criteria for deciding whether an air quality assessment is required and the level of detail of this assessment. The guidance document also details the assessment of the significance of air quality impacts and suggests possible measures for mitigating air quality impacts to acceptable levels.

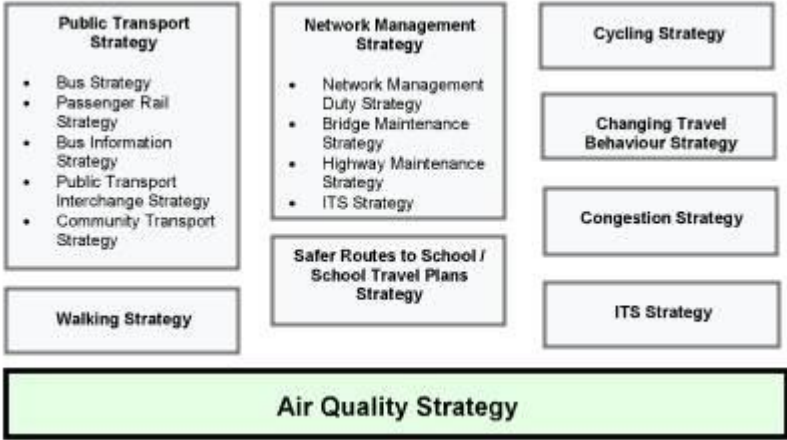
## 7 Local Transport Plans and Strategies

The improvement of local air quality in Rugby is one of the underlying themes of the Warwickshire County Council Local Transport Plan (LTP)<sup>xi</sup>. The fundamental vision of the strategy is 'to take a proactive approach to maintaining and improving air quality within the County where transport is causing unacceptable levels of air pollution, in order to improve quality of life for all'. Five key policies are laid out in the LTP, as summarised below:

- The contribution of air quality improvements to the national targets on greenhouse gases;
- Improving poor air quality through partnership working;
- Maintaining areas of good air quality;
- The promotion and education of the general public as widely as possible about air quality, to provide information about transport choices and their implications for air quality and health;
- Integration of air quality and transport planning;
- Regular reviews of the Air Quality Strategy to keep it up to date with the current air quality situation in the County, developments in policy and legislation and air quality knowledge and best practice techniques;

Figure 7.1 below highlights the key links between the Air Quality Strategy and the other LTP strategies.

**Figure 7.1: Key Links between the Air Quality Strategy and Other LTP Strategies**



Actions for delivering the elements of the Air Quality Strategy are summarised in Table 7.1. The current LTP Air Quality Strategy is available for download from the Warwickshire County Council webpage ([www.warwickshire.gov.uk/ltp](http://www.warwickshire.gov.uk/ltp)). Access to the internet is available in most libraries for those who do not have access at home. Hard copies of the plan can be made available on request, as can an electronic version on CD-ROM.

**Table 7.1 Summary of Local Transport Plan Actions Relating to Local Air Quality**

<b>Policy</b>	<b>Action</b>	<b>Timescale</b>
<b>Policy AQA1: The contribution of air quality improvements to the national targets on greenhouse gases</b>	Implementation of the wider LTP policies contained in the Public Transport, Cycling, Walking and Changing Travel Behaviour Strategies.	Ongoing
<b>Policy AQA2: Improving poor air quality through partnership working</b>	Preparation of Air Quality Action Plans to address Air Quality Management Areas (in conjunction with the relevant District/Borough Council and/or the Highways Agency).	As appropriate
	Implementation of measures within Air Quality Action Plans, such as traffic management improvements (e.g. Urban Traffic Management Control, Variable Message Signing, reviews of fixed highway signage), improvements to public transport, walking and cycling facilities, and initiatives to change travel behaviour.	As appropriate
	Monitoring of Air Quality Action Plans and reporting to DfT/DEFRA.	Ongoing
<b>Policy AQA3: Maintaining areas of good air quality</b>	Regular liaison with District/Borough Councils, adjoining Authorities and other organisations (e.g. Highways Agency).	Ongoing
	Regular monitoring of air quality (by the five Warwickshire District/Borough Councils).	Ongoing
	Regular review of the Lorry Route Map for Warwickshire.	Every 2 – 3 years
	Introduction of cleaner vehicle fleets.	Ongoing
	Regular liaison with District/Borough Councils and interrogation of WCC traffic data.	Ongoing
	Implementation of the wider LTP policies contained in the Public Transport, Cycling, Walking and Changing Travel Behaviour Strategies.	Ongoing
	Regular review of the Lorry Route Map for Warwickshire.	Every 2 – 3 years
<b>Policy AQA4: Education and Information</b>	Implementation of the wider LTP policies contained in the Public Transport, Cycling, Walking and Changing Travel Behaviour Strategies.	Ongoing
	Regular review and update of the Air Quality web page.	Annual
	Implementation of the County Council's Green Travel Plan.	Ongoing

<b>Policy</b>	<b>Action</b>	<b>Timescale</b>
<b>Policy AQA5: Integration of air quality and transport planning</b>	Provide input to the preparation of District/Borough Council Local Development Frameworks, both within Warwickshire and in adjoining areas.	Ongoing
	Provide input to individual planning applications, and negotiate appropriate improvements (e.g. traffic management measures, walking and cycling improvements and Travel Plans).	Ongoing
<b>Policy AQA6: Strategy Review</b>	The County Council will keep the Air Quality Strategy under regular review. This will be informed by the local reviews of air quality undertaken by the five Warwickshire District/Borough Councils.	Every 2 – 3 years

Rugby Council Parking Services Department have implemented a number of schemes and improvements that may have also benefitted local air quality:

- The installation of Variable Message Signs on the approaches to the Town Centre advising motorists of where there are vacant car parking spaces has assisted in reducing queuing times in car parks.
- Regular parking enforcement patrols have deterred those drivers who previously took the chance of parking on double yellow lines on major routes within the town thus reducing the risk of traffic congestion.
- Regular Parking enforcement patrols in Resident Parking Zones has reduced the incidence rate of commuters using these areas and encouraged the use of car parks on the fringe of the town centre.
- Regular parking enforcement has encouraged motorists to look at alternative modes of travel into the town centre.



## **8 Implementation of Action Plans**

Rugby Borough Council compiled an Air Quality Action Plan Progress Report<sup>xii</sup> in March 2013. The report documented the measures in place to improve air quality within the Borough of Rugby including measures specific to the declared AQMA. A summary of the Action Plan measures and progress towards achieving them are outlined in Table 8.1.

**Table 8.1 Action Plan Progress**

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
A	Rugby Western Relief Road	Serve new development at Cawston, Swift Valley, Malpass Farm and Coton Park, and reduce the impact of traffic within the town centre.	WCC	1996-2007	2007-2011	Implementation of the scheme in full	12%	The road opened in December 2010.	N/A	N/A	<p>With the opening of the RWRR it was anticipated that traffic flows on certain corridors within the town would decrease and that air quality would improve as a result. Recent data from a number of 12-hour 2-way weekday counts within the town show some significant reductions in traffic levels since RWRR opened, when compared to previous traffic volumes:</p> <p>A426 Newbold Road - 22% decrease from 25,237 in March 2006 to 19,667 in March 2012.</p> <p>B4642 Bilton Road - 20% decrease from 15,422 in May 2005 to 12,288 in March 2012.</p>

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
											<p>A426 Dunchurch Road nr. Kingsway - 17% decrease from 13,104 in September 2006 to 10,895 in September 2011.</p> <p>These traffic reductions have translated into NO<sub>2</sub> air quality improvements. Comparing 2010 and 2011 NO<sub>2</sub> monitoring data decreases in NO<sub>2</sub> annual mean concentrations of 18%- 35% on Newbold Road, 25% on Corporation Street, 40% on Oliver Street, 30% on Bilton Road and 22% on Lawford Road. However reductions considered principally attributable to removal of contraflow measures on Lawford Road, Oliver Street and</p>

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
											<p>Newbold Road on completion of RWRR significantly reducing congestion episodes. Contraflow measures also compounded by closure of Parkfield Road during construction phase.</p> <p>2012 comparison with 2011 demonstrates more moderate but still significant NO<sub>2</sub> reductions of 17%-27% on Newbold Road, 17% on Corporation Street, 16% on Oliver Street, 13% on Bliton Road and 21% on Lawford Road.</p> <p>Further monitoring and time required for increased diffusion tube network to better assess the impacts of the RWRR. 2014 Air Quality Progress</p>

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
											Report should provide better picture.
B	Improvements to the Warwick Street Gyratory	Manage the impact of traffic accessing and passing through the town centre, along with planned housing and employment growth within the town.	WCC	2007-2015	Post-2015	Implementation of the scheme in full	Not specified	A major improvement to the Gyratory is proposed to support the significant growth proposed in the Borough Council's adopted Local Development Framework Core Strategy.	A scheme design is in the process of being finalised which deals with traffic generated by the two key development sites contained within the Borough Council's adopted Core Strategy. A funding contribution towards the scheme has been secured from the developers of the Gateway Rugby site. The balance of the scheme costs will be met by the developers of the Rugby Radio Station site.	Subject to the Rugby Radio Station site securing planning permission and agreement of an appropriate phasing plan, an improvement to the Gyratory is likely to come forward in the next 5-7 years.	Implementation dates for the scheme have changed as a result of funding through Section 106 Agreements not coming forward as quickly as planned due to the downturn in the economy.

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
C	Improvements to Church Street/North Street	<p>Reduce the impact of traffic on the town centre, and allow better access for pedestrians and cyclists.</p> <p>Support the regeneration of the town centre and the growth proposals within the Borough.</p>	WCC	2007-2013	2014-2015	Implementation of the scheme in full	Not specified	<p>Pedestrianisation of the area around the Clock Tower on Church Street/North Street was originally considered as part of the 2008 Rugby Transport Study. This identified an opportunity to extend the existing pedestrianised area and allow the delivery of a new civic space within the town centre.</p>	<p>A revised scheme for partial pedestrianisation has been identified which will be subject to public consultation during 2013/14. Funding of just over £1m in total has been identified by both the County and Borough Council, subject to the revised proposals being supported by the public..</p>	<p>Subject to securing support from the public towards the revised scheme and Member approval, implementation could follow in 2014/15.</p>	<p>The timescales for implementation of the scheme have changed as a result of a lack of funding for the originally planned scheme and the requirement to carry out further consultation on a revised proposal.</p>

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
D	Decriminalisation of Parking Enforcement within Rugby Borough	Improve the management of traffic within the town centre and the impact of illegal parking.	WCC	2000-2005	2005-2006	Implementation of the scheme in full	Not specified	Scheme fully implemented in 2006	Civil Enforcement Officers continue to enforce town centre and residential streets in Rugby and there has been a noticeable reduction in parked cars and occurrences of congestion caused by illegal or inconsiderate parking.	N/A	Since the commencement of Decriminalisation of Parking (now referred to as Civil Parking Enforcement CPE) on 02/10/06 in Rugby, the introduction of parking charges on some town centre streets together with a high level of enforcement has resulted in less vehicles being parked on the streets and less congestion due to inconsiderate parking.
E	Rugby Town Centre 20:20 Vision	Improve public transport. Improve access for pedestrians and cyclists.	RBC/Rugby Town Centre Company	N/A – ongoing initiative	N/A – ongoing initiative	N/A	Not specified	Various target dates.	Rugby BID are starting to consult on updating the Town Centre Strategy.	N/A	No progression. WCC has no financial resources at the moment to support implementation.
F	Re-routing traffic – Lorry Route Maps and agreements	Reduce the impact of heavy goods vehicles on the transport network of the Borough.	WCC	N/A – ongoing initiative	N/A – ongoing initiative	Reduction in complaints regarding inappropriate lorry movements	Not specified	An initial Advisory Lorry Route Map for the County was produced in 2005. This was subsequently revised and reissued in 2009.	N/A	N/A	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
G	Variable Message Signing	Reduce the impact of circulating traffic seeking access to the town centre car parks.	WCC	2006-2008	2009	Implementation of the scheme in full	Not specified	Scheme fully implemented in 2009.	N/A	N/A	Evidence from other towns in Warwickshire that Variable Message Signing reduces the unnecessary distance travelled by vehicles looking for parking spaces.  In Rugby town centre the impact of Variable Message Signing may have been masked by overall reductions in road traffic brought about by the opening of RWRR.
H	Enforcement of Idling Vehicle Legislation	Reduce number of idling vehicle improving local air quality by reducing emissions to air.	RBC/WCC	Investigation found limitations in the Traffic Management Act which means that Civil Enforcement Officers will be unable to fully enforce	Currently N/A	Currently N/A	Currently N/A	Feasibility of scheme investigated. Decision taken not to proceed with the scheme due to the restrictions in enforcement actions that can be carried out by Civil Enforcement Officers	Due to enforcement patrols by Civil Enforcement Officers, vehicles who have drivers sitting in them with their engine running and found to be parked in restricted parking areas are requested to move their vehicle.		



No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
I	Improve the Borough Council Fleet (interims of emissions)	As vehicles are replaced, they are replaced with lower emission vehicles.	RBC	N/A – ongoing initiative	N/A – ongoing initiative	Not specified	Not specified	3 vehicles were replaced with Euro V vehicles in 2007/8 and 2008/9 and 2 further vehicles were replaced during 2009/10. No replacements have been made to date during 2010/2011.	A further 3 Refuse Vehicles using Euro v technology added in 2012 with 2 more on order for April 2013.	Ongoing N/A	
J	Improve Bus Emissions	The County Council is working with the principal bus operators within the town to reduce bus emissions through their fleet renewal process, and on individual routes when they are upgraded to QBC status.	RBC/WCC	Ongoing	Ongoing	Not specified.	Not specified	Urban Quality Bus Corridor improvements have been made on routes between the Town Centre and Lower Hillmorton/Long Lawford, between Woodlands and the Town Centre, and on the Inter-Urban route between Rugby and Coventry.	No further QBC improvements have been made in the last 12 months due to a lack of resources by the bus operators.	Ongoing initiative	
K	Cycling	Reduce the impact of traffic on the transport network of the Borough (particularly within the urban area of Rugby)	WCC	N/A – ongoing initiative	N/A – ongoing initiative	Increase in cycling as a result of individual scheme implementation	Not specified	The basis of a cycle network has been incrementally delivered within Rugby over the last 15 years, using a	The Leicester Road viaduct Connect2 scheme which will open up this route to cyclists and link to a	2012/13	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		by encouraging a shift towards sustainable modes of transport.						<p>combination of on and off-carriageway routes. Additional routes will come forward as resources permit and in conjunction with new development.</p> <p>The County Council and RBC provide cycle training for young people and adults who are keen to improve their cycle skills.</p> <p>Improvements to the Black Path bridge for pedestrians and cyclists over the West Coast Main Line have been implemented. Further improvements to this facility will be made when the Leicester Road Viaduct</p>	<p>number of existing routes within the town is due to open in 2013/14.</p> <p>A design for the A428 Lawford Road cycleway between Long Lawford and the RWRR has been completed. The scheme is due to be implemented during 2013/14. A bid to the DfT's Cycle Safety fund has been submitted for a scheme to extend the A428 Lawford Road cycleway from the RWRR to the Town Centre.</p> <p>The County Council and RBC provide cycle training for young people and</p>	<p>2013/14</p> <p>31.03.13</p>	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
								<p>Connect2 scheme is completed.</p> <p>Cycle facilities have been provided as part of RWRR.</p>	<p>adults who are keen to improve their cycle skills. – The Community Safety Wardens will have completed by the end of the financial year (31.03.13) approximately 54 Bikeability/cycle awareness courses for varying schools in the borough</p> <p>Cycle routes to complement future growth within the Borough continue to be identified and worked up in detail.</p>	2013-2026	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
L	Walking	Reduce the impact of traffic on the transport network of the Borough (particularly within the urban area of Rugby) by encouraging a shift towards sustainable modes of transport.	WCC	N/A – ongoing initiative	N/A – ongoing initiative	Increase in walking (footfall) as a result of individual scheme implementation	Not specified	The LTP Walking Strategy sets out a series of improvements for pedestrians, including new or upgraded pedestrian crossings, new/widened footways, improved street lighting, provision of new dropped kerbs, and footway resurfacing/reconstruction.	Along with the area-wide improvements described in the progress to date section, a revised scheme for partial pedestrianisation within the town centre has been identified – see Measure C for details.	2014/15 (subject to public consultation and Member approval) – see Measure C for details	
M	Workplace Travel Plans	Reduce the impact of traffic on the transport network of the Borough (particularly within the urban area of Rugby) by encouraging a shift towards sustainable modes of transport.	WCC	N/A – ongoing initiative	N/A – ongoing initiative	Number of Travel Plans agreed with existing employers and as part of new development	Not specified	Workplace Travel Plans are secured through a S106 agreement as part of new development.	Travel Plans covered by Planning Condition - NPIA Training Centre - Ryton  - Rugby Cattle Market, Hotel Use Travel Plans covered by S106 - Herbert Grey College / Caldecott Square Residential Travel Plan	N/A	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
									- Coton Park East (awaiting outcome of appeal)		
N	School Travel Plans and Safer Routes to School	Reduce the impact of traffic on the transport network of the Borough (particularly within the urban area of Rugby) by encouraging a shift towards sustainable modes of transport.	WCC	N/A – ongoing initiative	N/A – ongoing initiative	Reduction in the number of car-based journeys to school	Not specified	The majority of Local Authority run schools within the Borough now have a School Travel Plan in place.	N/A	N/A	
O	Public Transport Strategy, including the Bus Strategy	Reduce the impact of traffic on the transport network of the Borough (particularly within the urban area of Rugby) by encouraging a shift towards sustainable modes of transport.	WCC	N/A – ongoing initiative	N/A – ongoing initiative	Increase in bus patronage	Not specified	Ongoing implementation of the various strategies which make up the Public Transport Strategy, including the Bus Strategy, Passenger Rail Strategy, Community Transport Strategy, Public Transport Information Strategy and Public Transport Interchange Strategy.	No further significant improvements have been made in the last 12 months due to a lack of resources.	N/A	

No.	Measure	Focus	Lead authority	Planning phase	Implement ation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
P	Travel Awareness Campaigns	Reduce the impact of traffic on the transport network of the Borough (particularly within the urban area of Rugby) by encouraging a shift towards sustainable modes of transport.	WCC	N/A – ongoing initiative	N/A – ongoing initiative	Reduction in the number of car-based journeys being made within the Borough	Not specified	Ongoing implementation of the Changing Travel Behaviour Strategy and other relevant LTP strategies.	Regular annual events include Bike Week, Walk to School week, and In Town Without My Car Day. The County and Borough Councils both support the national Travel wise initiative.	N/A	
Q	Energy efficiency improvements to Rugby housing & the reduction of fuel poverty.	Reduction of carbon emissions from domestic dwellings, the reduction of residents' fuel bills & the alleviation of ill health due to cold, damp housing.	Rugby Borough Council	N/A – ongoing initiative	Ongoing	HECA report – due 31.3.13, and then at two yearly intervals. This replaces the requirement for NI 187 - reduction of fuel poverty and NI 186 - per capita reduction in CO <sub>2</sub> emissions in the LA.  Our HECA report will include details of improvement in the energy efficiency	15% increase in households receiving energy efficiency improvements; 1.5% improvements in SAP Ratings.	Ongoing promotion of energy efficiency measures across the Borough.	Authorities are no longer expected to provide data on their CO <sub>2</sub> emissions as part of reporting progress, but are obliged to produce a Home Energy Conservation Act (HECA) report by 31.3.13, and then at two-yearly intervals.  Households which received energy efficiency	Ongoing	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
						performance of housing through the installation of cavity wall insulation, loft insulation & high energy efficiency condensing boilers using the existing discounts & grants.			<p>improvements : 265 heating upgrades and 286 loft insulation upgrades to 270mm = 551 measures in total</p> <p>Warm Front Grants funding to Rugby Borough residents for energy efficiency improvements : assisted 22 households with measures totalling £16,298</p> <p>Act on Energy total of 49 referrals: Cavity wall - 7; Loft &amp; Cavity Wall -17; Loft Insulation -19; Mail outs - 7</p> <p>Provided information to residents on the Green Deal and ECO funding.</p>		

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
	Corporate Property								<p>Presently working on a rural fuel poverty project, funded through DECC, to improve the energy efficiency of 50 rural households with a combination of loft, cavity or external wall insulation and new boilers (project due to finish 31.3.13).</p> <p>Have installed LED lighting with movement sensors in a communal area of Patterdale flats. This is a trial to establish the rate of energy consumption reduction. The aim is to assess this</p>		



No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
									<p>trial and potentially roll this out across suitable areas of council stock.</p> <p>Reviewing options for a range of energy improvement measures for the High Rise flats. Further progress due in 2013/14</p>		
R	Control Of Industrial Emissions	Reduce the environmental impact of industrial processes through pollution control regulation	RBC	N/A – ongoing initiative	N/A – ongoing initiative	97.36% compliance improvements	Not specified	Annual inspection programme complete.	35 Industrial Pollution Processes (100% of inspections completed). All were inspected through 2012/2013 - 97.83% compliance improvements where required for pollution at these sites.	N/A	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
S	Emissions from Domestic and Commercial Sources	Prevent and/or reduce environmental impacts from domestic and commercial emissions.	RBC	N/A – ongoing initiative	N/A – ongoing initiative	Reduction in complaints.	Not specified	Low priority. Low number of complaints.	Ongoing Emissions from domestic and commercial sources – From 01.04.12 – 21.02.13 Complaints about smoke from chimneys Domestic – 18 Industrial/trade – 4 No notices served	N/A	
T	Control of Bonfires	Prevent and/or reduce environmental impacts from domestic and commercial emissions.	RBC	N/A – ongoing initiative	N/A – ongoing initiative	Reduction in complaints	Not specified	Low priority. Low number of complaints.	Ongoing – Control of bonfires - From 01.04.12 – 21.02.13. Complaints about bonfires Commercial – 16 Domestic – 36		
U	Planning Development and Planning Applications	Air quality assessments have been requested for land use planning developments that meet AQMA thresholds in the Rugby Borough Local Plan (July 2006). The requirements for	RBC	Ongoing	Ongoing	Not specified	Not specified	CEMEX Climafuel Facility Malpass Farm, Rugby.  Rugby Radio Station Sustainable Urban Extension  Rugby Mast Site SUE	Ongoing  Local Plan (July 2006) superseded with Core Strategy/ Planning Obligations Supplementary Planning Document adopted in		

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		<p>future assessments have now been embodied in a new Planning Obligations Supplementary Planning Document adopted in March 2012. This is to ensure that new development does not result in a significant increase in the production of air pollutants and that opportunities are taken to improve air quality, where possible. In some instances where an AQMA threshold has not been met, officer discretionary measures have been utilised where it is felt that a proposed land use development has potential to impact on air quality and</p>						<p>Rugby Gateway SUE</p> <p>Leicester Road and Rugby College Development (Former Alstom GEC)</p> <p>DIRFT II &amp; III</p> <p>Stretton Croft Mixed Use Development</p> <p>Cattle Market Mixed Use Development</p> <p>Cawston Residential Developments- Lime Tree Village Extension,</p> <p>Coton Residential Developments</p> <p>Rugby and Daventry Crematorium and Cemetery</p> <p>Queen Jubilee Sports Centre that will include</p>	<p>March 2012. Section 7 covers Air Quality as well as providing an air quality guidance document for developers that has been agreed by Cabinet 4<sup>th</sup> February 2013</p>		

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		should be a material consideration.						a biomass boiler  Rugby Town Centre Pedestrianisation Scheme  Cemex Climafuel Manufacturing Facility  Distribution Centre (Former Peugeot Factory)- this includes construction of a new roundabout on Oxford Road  Barby Pools Marina  Long Lawford residential developments  Town Centre Pedestrianisation –ongoing and revised. Due for consultation 2013/2014 financial year			

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
								Priory Road, Wolston Residential Development  Biomass Boiler for Queens Jubilee Leisure Centre  Crematorium Facility, Ashlawn Road, Rugby			

## 9 Conclusions and Proposed Actions

### 9.1 Conclusions from New Monitoring Data

The latest NO<sub>2</sub> monitoring data within the Borough has indicated exceedences of the annual mean NO<sub>2</sub> objective at 2 diffusion tube monitoring locations, site S24 (Dun Cow, Dunchurch; 50.0 µg/m<sup>3</sup>) and site S49 (Lesley Suiter House, Hilmorton; 49.0 µg/m<sup>3</sup>). Both monitoring sites are new sites, installed in April 2012, and are therefore newly identified areas of exceedence. However, both sites are within the boundary of the current AQMA and as the sites were only installed in April 2012 the reported concentrations have been annualised, according to TG(09) methodology, and may not be truly representative of annual mean NO<sub>2</sub> concentrations at these locations. Consequently, no action is required at this stage.

A further five sites, S10 (Webb Ellis Pub, Corporation Street; 38.8 µg/m<sup>3</sup>), S13 (Avon Mill Pub, Newbold Road; 37.4 µg/m<sup>3</sup>), S30 (Murray Road; 37.5 µg/m<sup>3</sup>), S46 (Oxford Road, Ryton) and S48 (North Street; 36.7 µg/m<sup>3</sup>), can be considered borderline as monitoring NO<sub>2</sub> concentrations were greater than 36 µg/m<sup>3</sup>. Sites S10 and S13 have in recent years exceeded the annual mean NO<sub>2</sub> objective. The diffusion tube monitoring results for 2012 appears to continue a downward trend in concentrations apparent since 2010. With the exception of site S46 (Oxford Road, Ryton), these sites are within the boundary of the existing AQMA. Future monitoring results from these locations will be scrutinised to identify at the earliest opportunity potential exceedences of the annual mean NO<sub>2</sub> objective. This is considered particularly important at site S46 owing to the site being located outside the existing AQMA and the proximity of a large-scale commercial development on the former Peugeot Factory site. However, it should be noted that extensive road-works were carried out in the vicinity of the S46 monitoring site during 2012, comprising construction of new roundabout and site access on Oxford Road for the Peugeot factory site development. A traffic light controlled contraflow system was also in operation and these factors are likely to have impacted upon monitored concentrations at S46.

Continuous monitoring of PM<sub>10</sub> in the Borough ceased in June 2012. Annualised monitoring data collected at the monitoring sites during January 2012 to June 2012

period indicated that the annual mean and daily mean PM<sub>10</sub> objectives are unlikely to have been breached at any monitoring location within the Borough. The 2012 PM<sub>10</sub> monitoring data collected at Russelsheim Way appeared spurious and, following further investigation, was rejected.

Monitoring of PM<sub>10</sub> was carried out at a number of locations throughout the Borough between 2007 and 2012 during which period there have been no exceedences of the annual mean PM<sub>10</sub> objective. Exceedences of the daily mean PM<sub>10</sub> objective have occurred on two occasions and both of these were related to localised construction activity giving rise to emissions. Upon cessation of these activities PM<sub>10</sub> concentrations returned to levels similar to those prior to these construction activities commencing.

## **9.2 Conclusions relating to New Local Developments**

Rugby Borough Council has identified a number of significant local developments that have the potential to impact upon local air quality once operational. Daventry International Rail Freight Terminal (DIRFT) and Rugby Mast Site SUE are subject to Environmental Statements for which air quality assessment work has been carried out. Rugby Borough Council will report upon these developments in the next USA once the Environmental Statements have been finalised. Rugby Gateway SUE and the proposed extension to the Town Centre Pedestrianisation scheme are other significant local developments that will be covered in due course.

Planning permission was granted for the extension of Southam Quarry for the extraction of limestone and clay. The quarry is located outside the boundary of Rugby Borough Council. On-site activities will not impact upon air quality within the borough. The transport of extracted material to and from Rugby Cement Works, as a continuation of a historic practice, may impact upon local air quality in Rugby due to emissions from heavy-goods vehicle movements to and from the Cement Works. Presently there is no activity on site likely to give rise to air quality issues. The extension to Southam Quarry is intended to maintain the current supply level of limestone and clay to Rugby Cement Works at historic levels. Therefore, the extension is not considered likely to lead to any additional vehicle movements between Southam Quarry and Rugby Cement Works and consequently is not likely

to adversely affect existing air quality in the Borough. The Council will keep the situation under review.

The proposed biomass boiler incorporated within the Queen's Diamond Jubilee Leisure Centre development meets the criteria for assessment under LAQM. A screening assessment will be carried out to determine whether a Detailed Assessment is required. The outcome of this process will be reported in the 2014 Progress Report.

### **9.3 Other Conclusions**

A number of planning applications with the potential to effect local air quality have been received by Rugby Borough Council, but which are yet to be approved. Should planning permission be granted for these developments, potential effects on local air quality should be considered within the next Updating and Screening Assessment.

### **9.4 Proposed Actions**

On the basis of the findings of the Progress Report Rugby Borough Council proposes the following actions:

- Submit an Air Quality and Action Plan Progress Report in 2014, in accordance with the LAQM Review and Assessment process.
- Carry out an assessment of the proposed biomass boiler incorporated within the Queen's Diamond Jubilee Leisure Centre development to determine the potential for adverse impacts on local air quality. The outcome of this will be reported in the Air Quality and Action Plan Progress Report in 2014.
- Continue to operate a network of diffusion tubes throughout the Borough to inform of NO<sub>2</sub> concentrations in the Borough. Upon completion of a full calendar year of monitoring it will be possible to draw more reliable conclusions regarding newly monitored exceedences of the annual mean NO<sub>2</sub> objective (e.g. Sites S24 and S48).
- To enable a better understanding of NO<sub>2</sub> concentrations in the Dunchurch area Rugby Borough Council has installed 2 additional diffusion tube monitoring sites. The results from these sites will be reported the 2014 Air Quality and Action Plan Progress Report.
- Maintain the extent of the existing AQMA for NO<sub>2</sub>.



# Appendices

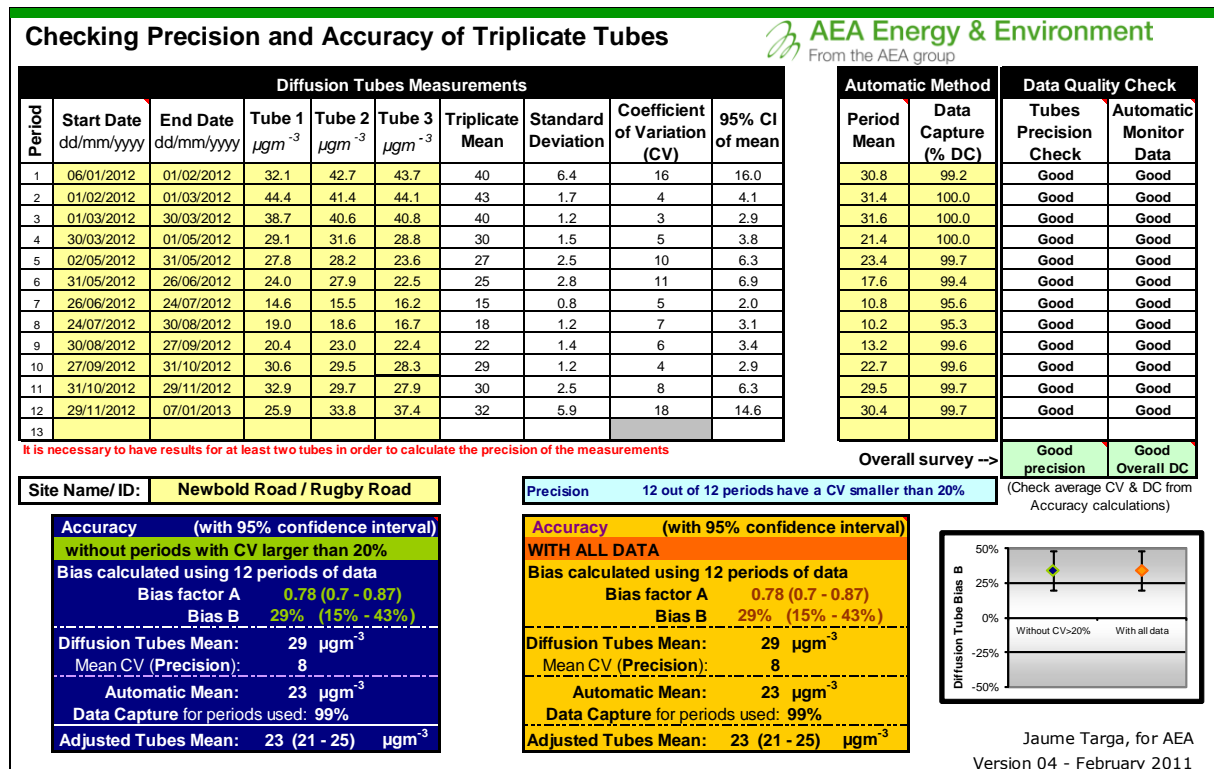
# Appendix A: Monitoring Data

## Diffusion Tube Bias Adjustment Factors

### Factor from Local Co-location Studies

A local bias adjustment factor for NO<sub>2</sub> Diffusion Tube monitoring was derived from co-location studies carried out at two continuous monitoring stations. Triplicate tubes were placed alongside the NO<sub>x</sub> Analyser at AQMS 5 Newbold Road from January to May 2012 and then at Rugby Road, Leamington Spa from May to December 2012 and the results from the two periods combined. Details of the local bias adjustment calculation are shown in Figure A.1.

**Figure A.1 NO<sub>2</sub> Diffusion Tube Local Bias Adjustment Calculation, 2012**



The factor calculated from the co-location study yielded a factor of 0.78. Good tube precision was achieved in all monitoring periods in 2012 and the continuous monitoring sites achieved very good data capture throughout 2012.

### National Bias Adjustment Factors

A national bias adjustment factor of 0.79 was obtained from the national Spreadsheet of Bias Adjustment Factors Version 03/13 using the following inputs:

- Analysed By: Environmental Services Group Didcot;

- Method: 50% TEA / Acetone;
- Year: 2012.

The output is shown in Figure A.2.

**Figure A.2 NO<sub>2</sub> Diffusion Tube National Bias Adjustment Factors, 2012**

Analysed By	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ( $\mu\text{g}/\text{m}^3$ )	Automatic Monitor Mean Conc. (Cm) ( $\mu\text{g}/\text{m}^3$ )	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)
ESG Didcot	50% TEA in acetone	2012	R	Swale Borough Council	9	44	35	25.2%	G	0.80
ESG Didcot	50% TEA in acetone	2012	R	Swale Borough Council	11	46	37	23.7%	G	0.81
ESG Didcot	50% TEA in acetone	2012	R	Vale Of White Horse District Council	12	37	30	24.5%	G	0.80
ESG Didcot	50% TEA in acetone	2012	UB	Gravesham Borough Council	12	32	27	18.4%	G	0.84
ESG Didcot	50% TEA in acetone	2012	UB	Gravesham Borough Council	12	44	35	25.3%	G	0.80
ESG Didcot	50% TEA in acetone	2012	R	Hambleton District Council	12	25	19	31.2%	G	0.76
ESG Didcot	50% TEA in acetone	2012	R	North East Lincolnshire Council	12	38	30	26.2%	G	0.79
ESG Didcot	50% TEA in acetone	2012	R	North East Lincolnshire Council	12	42	32	32.3%	G	0.76
ESG Didcot	50% TEA in acetone	2012	R	Falkirk Council	12	38	33	15.9%	G	0.86
ESG Didcot	50% TEA in acetone	2012	UB	Falkirk Council	12	27	24	9.9%	G	0.91
ESG Didcot	50% TEA in acetone	2012	R	Thanet District Council	12	32	25	27.2%	G	0.79
ESG Didcot	50% TEA in acetone	2012	KS	Marylebone Road Intercomparison	11	127	95	34.1%	G	0.75
ESG Didcot	50% TEA in acetone	2012	B	Stockton on Tees	12	28	21	33.8%	G	0.75
ESG Didcot	50% TEA in acetone	2012	R	Stockton on Tees	11	22	17	29.9%	G	0.77
ESG Didcot	50% TEA in acetone	2012	SU	Thanet District Council	12	21	18	16.6%	G	0.86
ESG Didcot	50% TEA in acetone	2012	UB	CITY OF YORK COUNCIL	12	28	24	15.3%	P	0.87
ESG Didcot	50% TEA in acetone	2012	R	CITY OF YORK COUNCIL	12	41	32	30.5%	P	0.77
ESG Didcot	50% TEA in acetone	2012	R	CITY OF YORK COUNCIL	12	37	28	31.4%	G	0.76
ESG Didcot	50% TEA in acetone	2012	R	CITY OF YORK COUNCIL	12	41	30	34.4%	G	0.74
ESG Didcot	50% TEA in Acetone	2012	KS	Suffolk Coastal District Council	12	50	44	13.8%	G	0.88
ESG Didcot	50% TEA in acetone	2012	B	Maidstone Borough Council	12	20	14	46.2%	G	0.68
ESG Didcot	50% TEA in acetone	2012	R	Maidstone Borough Council	12	48	43	13.2%	P	0.88
ESG Didcot	50% TEA in acetone	2012	R	Armagh City and District Council	12	40	27	45.3%	G	0.69
ESG Didcot	50% TEA in acetone	2012	R	Dumfries and Galloway Council	12	38	33	14.2%	G	0.88
ESG Didcot	50% TEA in acetone	2012	R	Cambridge City Council	12	46	35	31.5%	G	0.76
ESG Didcot	50% TEA in acetone	2012	R	Swale Borough Council	11	44	31	41.9%	G	0.70
ESG Didcot	50% TEA in acetone	2012		<b>Overall Factor<sup>3</sup> (26 studies)</b>					<b>Use</b>	<b>0.79</b>

## Discussion of Choice of Factor to Use

Both local and national bias adjustment factors were derived for the purpose of bias adjusting Rugby Borough Council's NO<sub>2</sub> diffusion tube results. It was decided to use the national factor for bias adjustment for the following reasons:

- Local bias adjustment factor calculation was based on co-location studies carried out at two different sites in 2012. Whilst the two continuous monitoring sites both achieved very good data capture, the monitored NO<sub>2</sub> concentrations at the two sites did not show sufficient overlap.
- The national bias adjustment factor was slightly higher than the local figure (0.79 compared to 0.78) and therefore will give more conservative estimates of NO<sub>2</sub> concentrations.
- Analysis of the long-term trends in bias-adjusted diffusion tube results indicated that the use of a national factor would produce bias-adjusted NO<sub>2</sub> concentrations consistent with the long-term trends in Rugby.

## Short-term to Long-term Data adjustment

**Table A.1 Short-Term to Long-Term Monitoring Data Adjustment – NO<sub>2</sub>**

<b>Nitrogen Dioxide</b>				
<b>Site</b>	<b>Site Type</b>	<b>Annual Mean (µg/m<sup>3</sup>)</b>	<b>Period Mean (µg/m<sup>3</sup>)</b>	<b>Ratio</b>
<b>PERIOD 1: 01/01/2012 to 30/06/2012</b>				
Birmingham Acocks Green	Urban Background	31.7	35.9	0.884
Birmingham Tyburn	Urban Background	32.2	32.8	0.981
Leamington Spa	Urban Background	20.7	22.2	0.933
Average				0.933
<b>PERIOD 2: 02/05/2012 to 07/01/2013</b>				
Birmingham Acocks Green	Urban Background	31.7	28.0	1.132
Birmingham Tyburn	Urban Background	32.2	29.3	1.100
Leamington Spa	Urban Background	20.7	17.8	1.161
Average				1.131
<b>PERIOD 3: 02/05/2012 to 31/05/2012, 26/06/2012 to 27/09/2012 and 29/11/2012 to 07/01/2013</b>				
Birmingham Acocks Green	Urban Background	31.7	25.8	1.229
Birmingham Tyburn	Urban Background	32.2	26.6	1.213
Leamington Spa	Urban Background	20.7	17.3	1.194
Average				1.212
<b>PERIOD 4: 31/05/2012 to 24/07/2012 and 30/08/2012 to 29/11/2012</b>				
Birmingham Acocks Green	Urban Background	31.7	26.9	1.179
Birmingham Tyburn	Urban Background	32.2	29.6	1.087
Leamington Spa	Urban Background	20.7	16.7	1.238
Average				1.168

Notes: Period 1: used for the annualisation of continuous NO<sub>2</sub> monitoring data from Newbold Road AQMS. Period 2: used for the annualisation of diffusion tubes S20-S44 and S46-S49. Period 3: used for the annualisation of diffusion tube S45. Period 4: used for the annualisation of diffusion tube S50.

**Table A.2 Short-Term to Long-Term Monitoring Data Adjustment – PM<sub>10</sub>**

<b>Particulate Matter (PM<sub>10</sub>)</b>				
<b>Site</b>	<b>Site Type</b>	<b>Annual Mean (µg/m<sup>3</sup>)</b>	<b>Period Mean (µg/m<sup>3</sup>)</b>	<b>Ratio</b>
<b>PERIOD 5: 01/01/2012 to 30/06/2012</b>				
Birmingham Tyburn	Urban Background	18.6	23.1	0.803
Leamington Spa	Urban Background	16.2	18.0	0.896
Leicester Centre	Urban Centre	16.7	18.9	0.887
Average				0.862
<b>Site</b>	<b>Site Type</b>	<b>Annual Mean (µg/m<sup>3</sup>)</b>	<b>Period Mean (µg/m<sup>3</sup>)</b>	<b>Ratio</b>
<b>PERIOD 6: 01/01/2012 to 08/06/2012</b>				
Birmingham Tyburn	Urban Background	18.6	24.0	0.775
Leamington Spa	Urban Background	16.2	18.6	0.868
Leicester Centre	Urban Centre	16.7	19.8	0.845
Average				0.829

Period 5: used for the annualisation of continuous PM<sub>10</sub> monitoring data from Newbold Road AQMS, and Turnkey Osiris sites T2, T8, T14 and T16. Period 6: used for the annualisation of PM<sub>10</sub> data from Turnkey site T10.

### **QA/QC of Diffusion Tube Monitoring**

All NO<sub>2</sub> diffusion tubes used by Rugby Borough Council are supplied and analysed by Environmental Services Group using a 50% TEA in Acetone preparation method. Analysis is performed in accordance with standard operating procedure HS/WI/1015 Issue 14. This method conforms to the guidelines set out in Defra's 'Diffusion Tubes for Ambient NO<sub>2</sub> Monitoring: Practical Guidance'.

Environmental Services Group scored achieved 100% satisfactory laboratory performance in WASP Rounds 108 – 115, inclusive, based on the z-score assessment criterion.

# Appendix B: Pollution Prevention and Control Index

	Register Only – Other LA Enforced
	Register Only – EA Enforced
	Part A Processes
	Part B Processes

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
5/PPC/3.1(a)	18.02.93 25.11.98 11.03.04 20.12.05	F.A.O: Mr James Wainwright CEMEX UK Materials Limited Camden House Clearwater Park Thornaby Stockton on Tees TS17 6QY	Cemex UK Materials, Leicester Road, RUGBY  Permit surrendered on 27.07.2011	SP 503765	28805/001	Concrete Batching
6/PPC/3.1(a)	16.03.92 30.11.98 00.03.04 19.10.05 05.10.12	Lafarge SPV Ltd (Interim Company Name) PO Box 7390 Grinite House Grinite way Syston Leicester, LE7 1WQ.	Lafarge SPV Ltd (Interim Company Name) Concrete Batching Plant Brandon Lane, Willenhall, COVENTRY, CV3 3GW.	SP 386757	3495/001	Concrete Batching
8/PPC/3.1(a)	05.01.93 15.01.99 13.03.03 09.06.06 27.04.12	The Company Secretary, CEMEX UK Materials Limited Camden House Clearwater Park Thornaby Stockton on Tees TS17 6QY  Transfer from Tarmac to Cemex UK Materials Ltd on 28 Jan 2012	CEMEX UK Materials Limited Unit 11, Dunchurch Trading Estate, A45 London Road, Dunchurch, Nr. RUGBY. CV23 9LN.	SP 458719	6028/001	Concrete Batching
9/PPC/3.1(a)	11.02.93 29.4.99 26.05.04 25.06.08	Marshalls Mono Ltd. Landscape House, Premier Way, Lowfields Business park, Eland, West Yorkshire. HX5 9HT	Stonemarket Limited, Old Gravel Quarry Oxford Road Ryton-on-Dunsmore Nr. COVENTRY, CV8 3EJ.	SP 379741	38181/001	Concrete Batching

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
11/PPC/3.1(a)	19.01.93 11.03.04	Tailby Brack Limited Butlers Leap, RUGBY. CV21 3RQ.	Cwikskip, Butlers Leap, RUGBY. CV21 3RQ	SP 515760	2202/001	Concrete Batching
				Dismantled but permit still in force 26.07.10 <b>Permit Surrendered 01.04.12</b>		
13/PPC/6.5(a)	14.06.93 2.11.00 Part A Issued 31.01.07 23.02.10	Ball Packaging Europe UK Limited, Lakeside Chester Business Park Wrexham Road Chester CH4 9QT	Ball Packaging Pretorian Way, Glebe Farm Industrial Estate, RUGBY. CV21 2RN.	SP 502772	548/001	Metal Coating
16/EPA/E.A  EA Ref:	22.02.93	National Grid Gas plc (Company Registered Address) 1-3 strand London WC2N 5EH	British Gas plc., Churchover Compressor Station, Churchover Lane, Harborough Magna, RUGBY. CV23 0HH.	Withheld	N/a	Natural gas
23/PPC/1.3(e)	21.11.92 9.11.99 12.03.04	Douglass Motors Ltd (Wolston Garage & Engineering) Wolston, Nr. Coventry. CV8 3HB.	Wolston Garage & Engineering Wolston Nr Coventry CV8 3HB	SP 413753	1523/001	Waste Oil Burning
24/EPA/3.1 EA	16.06.93	The Company Secretary, Cemex UK Materials Limited, Cemex House, Coldharbour Lane, Thorpe. Egham SURREY. TW20 8TD	Cemex Lawford Road, RUGBY.	SP 488757		Cement Manufacturing



Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
29/PPC/6.5(b)	28.02.96 18.01.00 01.04.04 04.01.07 20.12.11	The Rugby Bodyshoppe, 2 Avon Industrial Estate, Butlers Leap, RUGBY. CV21 3UY.	The Rugby Bodyshoppe, 2 Avon Industrial Estate, Butlers Leap, RUGBY. CV21 3UY.	SP 515762	5580/001	Vehicle Car Spraying
32/PPC/1.4(b)	24.09.98 31.03.03 12.03.04 21.05.10	Sainsbury's Supermarkets Ltd 33 Holborn London EC1N 2HT Tel. 02076956000 Fax 020 7695 7610 <a href="http://www.sainsbury.co.uk">www.sainsbury.co.uk</a>	Sainsbury's Supermarkets Limited Petrol Station 385 Dunchurch Road, RUGBY. CV22 6HU.	SP 495726	9446/001	Unloading of petrol into stationary storage tanks at a service station
33/PPC/1.4(b)	25.09.98 12.03.04 15.06.06 03.11.10	L W Fuels Ltd Unit 1 10 Gough Road Leicester LE5 4AL	Stretton Service Station A45 London Road (Southbound) Stretton On Dunsmore Coventry CV23 9HX	SP 416733	31530/001	Unloading of petrol into stationary storage tanks at a service station
34/PPC/1.4(b)	25.09.98 30.06.04 11.12.09 21.05.10 31.10.11 06.11.12	Shell UK Oil Products Limited, C/O SSSC Glasgow Limited PO Box 25071 Glasgow G1 3WR	Shell Webb Ellis 89 Hillmorton Road, RUGBY. CV22 5AG.	SP 513749	10558/001	Unloading of petrol into stationary storage tanks at a service station
35/PPC/1.4(b)	25.09.98	Tesco Stores Limited,	Tesco Stores Limited,	SP 506769	8486/001	Unloading of

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
	31.03.03 16.03.04 02.11.09	P.O. Box 400, Cirrus Building, Shire Park, Welwyn Garden City, Herts, AL7 1AB. Contact: Lynda Vick 01707 634088	1 Leicester Road, RUGBY. CV21 1RG.			petrol into stationary storage tanks at a service station
37/PPC/1.4(b)	23.11.98 26.02.02 20.09.02 12.03.04 21.10.09	(Texaco Franchise) Mr I Patel 30 Shipley Road Leicester LE5 5BW  0116 2731351	Pure Fuels (UK) Ltd (A45 – Northbound), London Road, Dunsmore Heath Rugby, Coventry CV23 9LG	SP 453719	37857/001	Unloading of petrol into stationary storage tanks at a service station
38/PPC/1.4(b)	19.01.99 23.02.04 24.03.04 04.06.07 02.12.09	Mr S. Nathawani Gibbetts Cross Station Ltd Watling Street Shawell, Lutterworth, LE17 6AR	Gibbetts Cross Station Ltd Watling Street Shawell, Lutterworth, LE17 6AR	SP 529808	40527/001	Unloading of petrol into stationary storage tanks at a service station
39/PPC/1.4(b)	25.03.99 31.03.03 12.03.04	Murco Petroleum Limited, 4 Beaconsfield Road, St. Albans, Hertfordshire, AL1 3RH.	Lawford Road Service Station, Lawford Road, RUGBY, CV21 3HAQ.	SP 493754	9449/001	Unloading of petrol into stationary storage tanks at a service station
40/PPC/1.4(b)	20.01.99 10.02.06 01.04.09	Murco Petroleum Limited 4 Beaconsfield Road St. Albans Hertfordshire AL1 3RH	Rugby Leicester Road Service Station, Leicester Road, RUGBY. CV21 1DJ.	SP 501763	9449/001	Unloading of petrol into stationary storage tanks at a service station
41/PPC/1.4(b)	22.01.99	Murco Petroleum Limited	Binley Woods Service Station,	SP 382769	9449/001	Unloading of

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
	10.02.06 12.03.09	4 Beaconsfield Road St. Albans Hertfordshire AL1 3RH	Coventry Eastern By-pass, COVENTRY, CV3 2ZZ.			petrol into stationary storage tanks at a service station
42/PPC/1.4(b)	23.04.99 23.02.04 31.10.11	RONTEC Watford Limited 40 Clarendon Road, Watford, Hertfordshire, WD17 1QT.	Auto Stop Service Station 54 Lawford Road, RUGBY. CV21 3EA.	SP 500751	9448/001	Unloading of petrol into stationary storage tanks at a service station
43/PPC/1.4(b)	25.03.99 02.02.06 17.09.09	Mr N. Navanathan 339 Hillmorton Road, RUGBY. CV22 5EZ.	Paddox Service Station, 339 Hillmorton Road, RUGBY. CV22 5EZ.	SP 527738	42697/001	Unloading of petrol into stationary storage tanks at a service station
46/PPC/6.5	22.02.00 21.11.05 08.12.06 07.12.06 14.03.12	XK Engineering Limited, Swallow House, Shilton Industrial Estate, Shilton, Coventry CV7 9JY	XK Engineering Limited, Swallow House, Shilton Industrial Estate, Shilton, Coventry CV7 9JY	SP 402855	7272/001	Vehicle Car Sprayer
47/PPC/1.4(b)	16.06.00 12.03.04 12.08.08 18.06.09	STK Services Limited Dunchurch Service Station Coventry Road Dunchurch Rugby CV22 6RA	Dunchurch Service Station, Coventry Road, Dunchurch, RUGBY, CV22 6RA.	SP 484714	37295/001	Unloading of petrol into stationary storage tanks at a service station

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
51/PPC/6.2(a)	19.09.02 01.04.04 27.09.05 28.04.10	The Millboard Company Ryton Lodge Oxford Road Ryton-on-Dunsmore Warwickshire CV8 3EJ	The Millboard Company Ryton Lodge Oxford Road Ryton on Dunsmore Warwickshire CV8 3EJ	SP 405708	17911/001	Di-isocyanate
52/PPC/3.5(c)	26.02.03 24.03.04 06.03.12	B Reilly & Son Limited 19 North Road Clifton Rugby Warwickshire, CV23 0BW	Mobile plant Watling Street Nr Rugby		17910/001	Mobile screening and crushing process.
57/PPC A1 Installation (EA Reference BU2381)	30.3.2005	Onyx Landfill Ltd 54 Pentoville Road London N1 9PE	Ling Hall Landfill Site Coal Pit Lane Rugby Warwickshire CB23 9HH	SP 445735	221 5767	Landfill Site
59/QP3434SH  EA Enforced	20.10.05	Britvic House Broomfield House Chelmsford Essex CM1 1TU	Britvic Soft Drinks, Rugby Aventine Way Glebe Farm Industrial Estate RUGBY CV21 1HA			Soft Drinks Manufacture
60/PPC/3.1(a)	30.11.05 08.08.07	Breedon Aggregates Limited Breedon Quarry Main Street Breedon-on-the-Hill Derby Derbyshire DE73 8AP	Breedon Aggregates Limited Ling Hall Quarry Coal Pit Lane Lawford Heath CV23 9HH		29927/001	Concrete Batching

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
64/PPC/ A1 Installation (EA Reference EA/PPC/BP3234L K Permit number BU2381iE		Summerleaze RE-Generation Ltd 7 Summerleaze Road Maidenhead Berkshire SL6 8SP	Ling Hall Gas Plant Ling Hall Landfill Coalpit Lane Lawford Heath Rugby Warwickshire CV23 (HH)	SP 450734	00151665	Gas Utilisation Plant
65/PPC	04.01.07 11.04.07 12.12.07	Johnson's Cleaners UK Ltd Lydia House Puma Court Kings Business Park Kings Drive Prescot L34 1PJ	Johnsons Cleaners UK Ltd 35 Clifton Road Rugby Warwickshire CV21 3QF		1312/002	Dry Cleaners
66/PPC	18.01.07 10.04.07 08.05.08 08.04.10	Johnson's Cleaners UK Ltd Lydia House Puma Court Kings Business Park Kings Drive Prescot L34 1PJ	Johnsons Cleaners UK Ltd Central Processing Unit Unit 17, Gladiator Way Rugby Warwickshire, CV21 1DD		1312/002	Dry Cleaners
67/PPC	04.01.07	Brightly Dry Cleaners & Shirt Laundry 45 Woodlands Avenue Binley Woods Coventry CV3 2JL	Brightly Dry Cleaners & Shirt Laundry 45 Woodlands Avenue Binley Woods Coventry CV3 2JL		34538/001	Dry Cleaners
69/PPC Plus SED	19.02.07 05.09.11	Blanc Aero Industries Ltd Butlers Leap Rugby Warwickshire CV21 3RG	Blanc Aero Industries Ltd Butlers Leap RUGBY CV21 3RQ	SP 518761	34535/001	Coating & Surface Treatment of Metals plus Degreasing Process

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
70/PPC	18.01.07 24.08.12	The Village Dry Cleaners, 63 High Street, Hillmorton, Rugby. CV21 4EG.	The Village Dry Cleaners, 63 High Street, Hillmorton, Rugby. CV21 4EG.		1445/001	Dry Cleaners
71/PPC	28.03.07 25.05.12	Breedon Aggregates Limited Breedon Quarry Main Street Breedon-on-the-Hill Derby Derbyshire DE73 8AP	Breedon Aggregates Limited Ling Hall Quarry Coalpit Lane Lawford Heath Nr Rugby Warwickshire CV23 9HH		29927/001	Road stone Coating Plant
72/PPC	18.04.07 22.05.12	Brinklow Quarry, Coventry Road Brinklow CV23 0NJ.	Brinklow Quarry, Coventry Road Brinklow CV23 0NJ.	SP 421786	35797/001	Mobile Crushing & Screening
73/PPC	EA - Pending	W Potter and Sons (Poultry Limited Willey Fields Farm CV23 OSQ	As Applicant			Poultry Rearing Plant 84000 Pullets
74/PPC	EA - Pending	Bio Depot Ltd, The Locks, Hillmorton, Rugby, CV21 4PP.	30 Butlers Leap, Rugby, Warwickshire.	SP 519761		Bio Diesel Production

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
75/PPC/1.3(e)	14/05/2009	Woodlands Service Station 37 Cymbeline Way Bilton Rugby Warwickshire Cv22 6JZ	As Applicant	TBC	40378/001	Waste Oil Burning
76/EPA/EA	EA - Transfer	Charles Trent Ltd Trent House 8 St. George's Avenue Parkstone Poole Dorset BH12 4ND	Charles Trent Ltd Avon Lane Land off Newbold Road Rugby Warwickshire CV21 1HF EA Ref: EPR/AP3995SC			Vehicle Dismantlers
77/PPC/1.3(e)	23/03/09	T W Tyres 11 Paynes Lane New Bilton Rugby Warwickshire CV21 2UH	T W Tyres 11 Paynes Lane New Bilton Rugby Warwickshire CV21 2UH	TBC	574/001	Waste Oil Burning
78/PPC/1.4b	08.05.09 16.12.10	ASDA Stores Limited ASDA House, Southbank Great Wilson Street Leeds LS11 5AD	ASDA Petroleum Station Corporation Street Rugby	TBC	8487/001	Petrol Station
80/PPC	02.12.10	Regal Dry Cleaners (Warwickshire) Ltd 18a Hunters Lane Rugby Warwickshire CV21 1EA	Regal Dry Cleaners (Warwickshire) Ltd 18a Hunters Lane Rugby Warwickshire CV21 1EA	TBC		Dry Cleaners

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
83/EPR/1.3(e)	04.10.11	Binley Woods Service Station 60-62 Rugby Road Coventry Warwickshire CV3 2AX	Binley Woods Service Station 60-62 Rugby Road Coventry Warwickshire CV3 2AX	TBC		Waste Oil Burner
82/EPR	13.2.2013	Power Plane Limited Highway House Asfare Business Park Hinckley Road Wolvey LE10 3HQ	Power Plane Limited Highway House Asfare Business Park Hinckley Road Wolvey LE10 3HQ	TBC		Mobile Asphalt Recycling Plant
84/EPR	26.3.13	Power Plane Limited Highway House Asfare Business Park Hinckley Road Wolvey LE10 3HQ	Power Plane Limited Highway House Asfare Business Park Hinckley Road Wolvey LE10 3HQ	TBC		PP2.17 Mobile Fine Milling Concrete Grinding Plant
85/EPR	26.3.13	Power Plane Limited Highway House Asfare Business Park Hinckley Road Wolvey LE10 3HQ	Power Plane Limited Highway House Asfare Business Park Hinckley Road Wolvey LE10 3HQ	TBC		PP2.17 Mobile Fine Milling Concrete Grinding Plant
86/EPR	26.3.13	Power Plane Limited Highway House Asfare Business Park Hinckley Road Wolvey LE10 3HQ	Power Plane Limited Highway House Asfare Business Park Hinckley Road Wolvey LE10 3HQ	TBC		PP2.17 Mobile Fine Milling Concrete Grinding Plant



## Appendix C: References

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- <sup>i</sup> Faber Maunsell (2003). Rugby Borough Council Updating and Screening Assessment 2003.
- <sup>ii</sup> Faber Maunsell (2004). Rugby Borough Council Detailed Air Quality Assessment 2004.
- <sup>iii</sup> Faber Maunsell (2005). Rugby Borough Council Detailed Assessment of Particulate Matter February 2005.
- <sup>iv</sup> Faber Maunsell (2005). Rugby Borough Council Further Assessment of Air Quality December 2005.
- <sup>v</sup> Faber Maunsell (2006). Rugby Borough Council Updating and Screening Assessment 2006.
- <sup>vi</sup> Faber Maunsell (2009). Rugby Borough Council Updating and Screening Assessment 2009.
- <sup>vii</sup> AECOM (2011). Rugby Borough Council Detailed Assessment of Nitrogen Dioxide.
- <sup>viii</sup> AECOM (2011). Rugby Borough Council Air Quality Progress Report 2011.
- <sup>ix</sup> AECOM (2012). Rugby Borough Council Updating and Screening Assessment 2012.
- <sup>x</sup> Rugby Borough Council Air Quality Monitoring Task Group (2011). A Review of Rugby Borough Council's Air Quality Monitoring Network, August 2011.
- <sup>xi</sup> Warwickshire County Council. 2011-2026 Local Transport Plan <http://www.warwickshire.gov.uk/ltp3>
- <sup>xii</sup> Rugby Borough Council (2013). Air Quality Action Plan Progress Report.