2014 Air Quality Progress Report for Rugby Borough Council

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

May 2014

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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.

The latest NO_2 monitoring data within the Borough has indicated exceedences of the annual mean NO_2 objective occurred in 2013 at three diffusion tube monitoring locations: site S10 (Webb Ellis Pub, Corporation Street; 40.2 µg/m^3), site S24 (Dun Cow, Dunchurch; 46.6 µg/m^3) and site S46 (Oxford Road, Ryton; 40.9 µg/m^3). Monitoring at site S24 commenced in April 2012, and as such 2013 was the first full calendar year at which monitoring was undertaken at this location. Whilst the annualised NO_2 concentration in 2012 indicated potential exceedence of the annual mean NO_2 objective at this location; the monitoring data for 2013 confirm this finding. Despite being a newly identified area of exceedence, site S24 is within the boundary of the current Air Quality Management Area (AQMA). Site S10 is also within the boundary of the existing AQMA and elevated concentrations have previously been monitored at this location.

The monitored exceedence at site S46 however is of particular concern as this site is outside of the existing AQMA and represents a newly identified exceedence. Correction for distance from the kerb however suggests that annual mean NO_2 concentrations at locations of relevant exposure (e.g. the nearest residential properties) are likely to be well below the annual mean objective so it will not be necessary to proceed to a Detailed Assessment at this time. It should be noted however that contraflow systems and road works contributed to increased congestion in the Oxford Road area throughout 2013 resulting in higher levels of NO_2 than would

be expected under normal conditions. Future monitoring results for this location will be subject to close scrutiny.

A further three sites – S30 (Murray Road; 37.2 µg/m^3), S36 (Whitehall Road junction; 36.6 µg/m^3) and S49 (Lesley Suiter House; 39.4 µg/m^3) – can be considered borderline as monitored NO_2 concentrations in 2013 were greater than 36 µg/m^3. These sites are within the current AQMA boundary and represent locations where NO_2 concentrations approaching the annual mean NO_2 objective have either been monitored previously or suspected to be close to the objective. Recent monitoring results from sites in and around Rugby town centre appeared to indicate a downward trend (2010 to 2012); the latest results may suggest a levelling off in NO_2 concentrations.

A screening assessment of the biomass boiler at the Queen's Diamond Jubilee Sports Centre has been carried out. The results of the screening assessment indicate that pollutant emissions from the biomass boiler are unlikely to result in significant air quality impacts, and consequently a Detailed Assessment is not required.

Rugby Borough Council has identified a number of major local developments that have the potential to impact upon local air quality. In accordance with local planning policy, Rugby Borough Council will ensure that appropriate air quality assessments are submitted during the planning application process to identify those developments that may give rise to unacceptable air quality impacts. In cases where significant adverse air quality impacts are identified the Council will ensure measures are implemented by the applicant to mitigate or offset such impacts.

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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_2 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 Environmental Permitting (England and Wales) Regulations 2010, including the Cemex cement works, which are located close to the town centre and are a source of NO_X, SO_2 and PM_{10}.

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 Environmental Permitting (England and Wales) Regulations 2010. 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 (LAQM) 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 LAQM 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 µg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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

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

1.4 Summary of Previous Review and Assessments

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[i]. 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[ii] involved an accurate and detailed study of current and future air quality. The assessment identified that annual average levels of NO_2 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[iii] to investigate the risk of exceedence of the PM_{10} 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_{10} 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 resulting Further Assessment[iv] 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_X 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[v], 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_2 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[vi], 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_2 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[vii] 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_2 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_2 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[viii] 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.

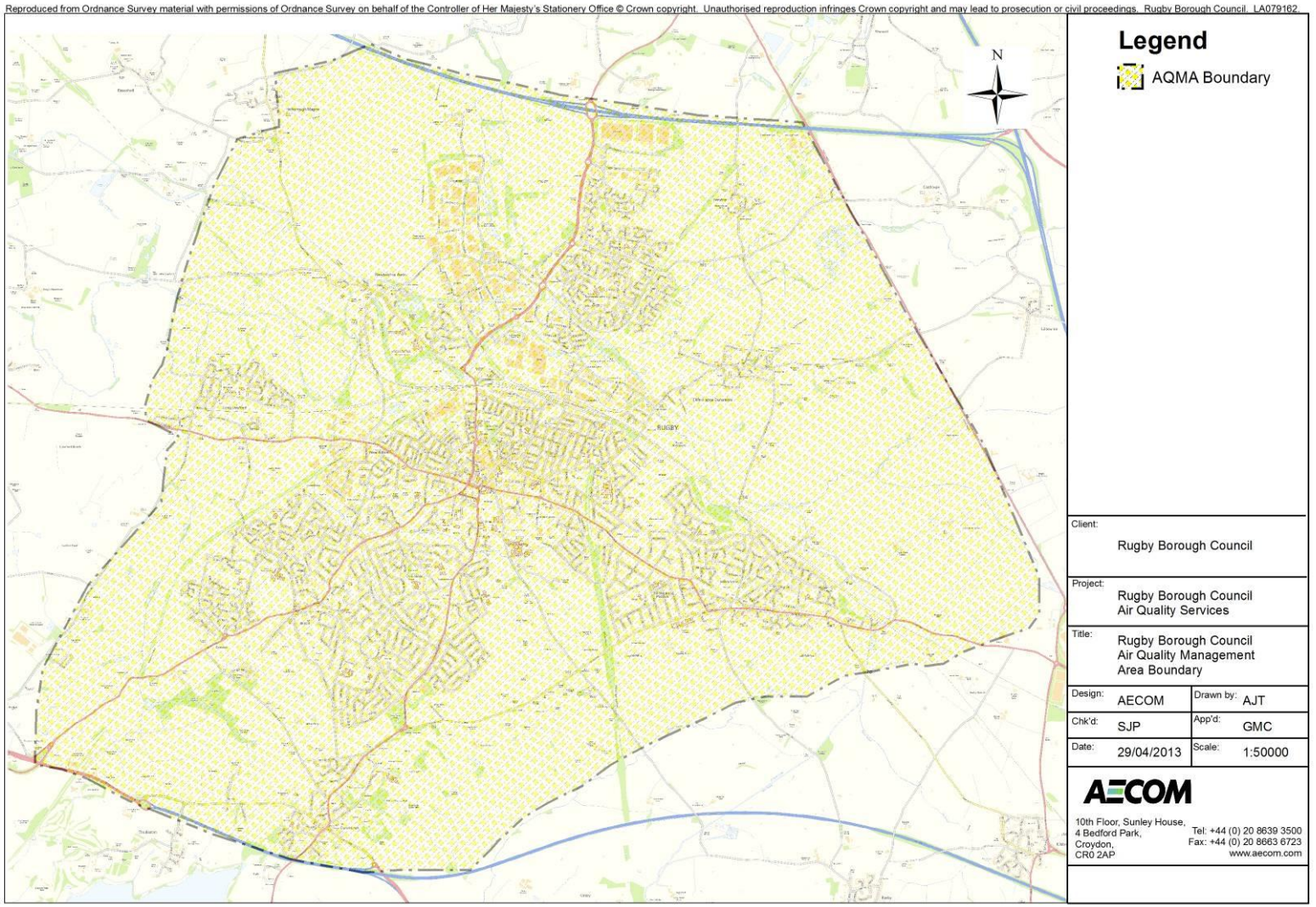
The 2012 Updating and Screening Assessment[ix] was put out to consultation in May 2012. Updated monitoring results for NO_2 showed that three monitoring locations within the existing AQMA continued to exceed the annual mean NO_2 objective in 2011 but that the annual mean NO_2 objective was not likely to be exceeded at locations outside the AQMA. It was concluded that the current AQMA declaration should remain. Monitoring of PM_{10} indicated that UK air quality objectives were not exceeded at any location in the Borough, although elevated PM_{10} 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_X and PM_{10} 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.

The 2013 Progress Report described the expansion of the diffusion tube monitoring network from 17 sites to 48 sites in preparation for the decommissioning of continuous monitoring activities in the Borough. Exceedences of the annual mean NO_2 objective were monitored at two of the new monitoring locations, therefore representing areas of new exceedences. These were locations in Dunchurch and Whitehall Road, Hilmorton. Both sites of exceedence were within the boundary of the AQMA for NO_2, which was declared in 2004. PM_{10} monitoring which took place before the discontinuation of continuous monitoring showed that annual mean PM_{10} concentrations were well within the annual mean PM_{10} objective at all monitoring locations and that exceedences of the PM_{10} objectives were unlikely at any locations of relevant exposure within the Borough. The Progress Report concluded that there would be no requirement to proceed to a Detailed Assessment for any pollutant at the time.

Figure 1.1 Map of 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[x] 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_2 and PM_{10} 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.

2.1.2 Non-Automatic Monitoring Sites

Rugby Borough Council has operated a network of NO_2 diffusion tubes since 2000. Until April 2012, there were seventeen long-term diffusion tube locations across the Borough.

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. In April 2013, three new diffusion tube monitoring sites were added to the network – there are two new sites located alongside Daventry Road and one new site located in Brinklow. Further details are provided in Table 2.2 and Figures 2.1 to 2.4.

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 (Didcot) achieved 100% Z-Scores of $< \pm 2$, (which is interpreted as a satisfactory result and indicative of acceptable laboratory performance) in all WASP NO_2

Laboratory Performance Proficiency Testing Rounds 120 to 123. Further details of diffusion tube QA / QC and the derivation of bias adjustment factors are presented in Appendix A.

Figure 2.1 Map of Non-Automatic Monitoring Sites within AQMA

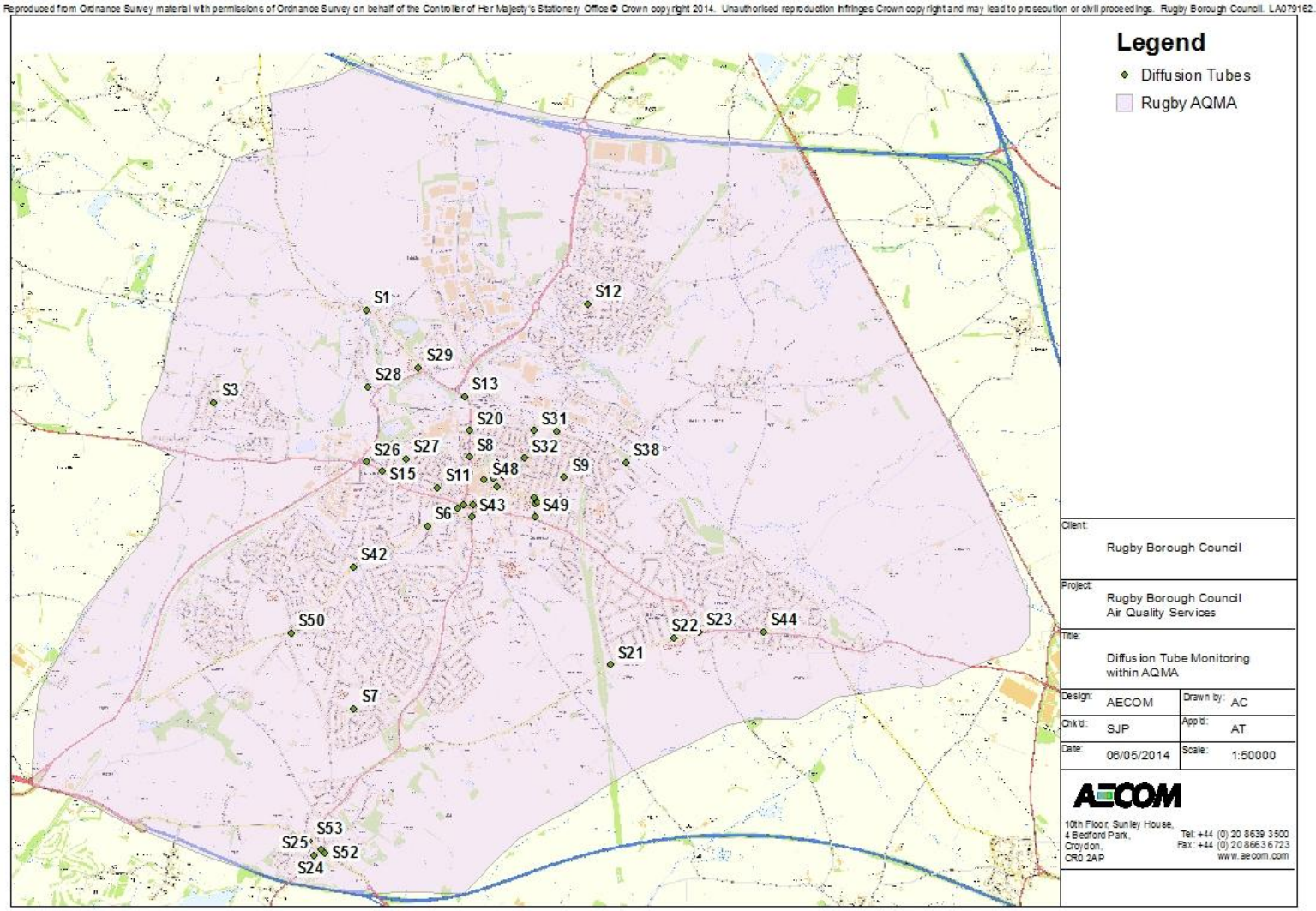


Figure 2.2 Map of Non-Automatic Monitoring Sites (South-west of Rugby Town)

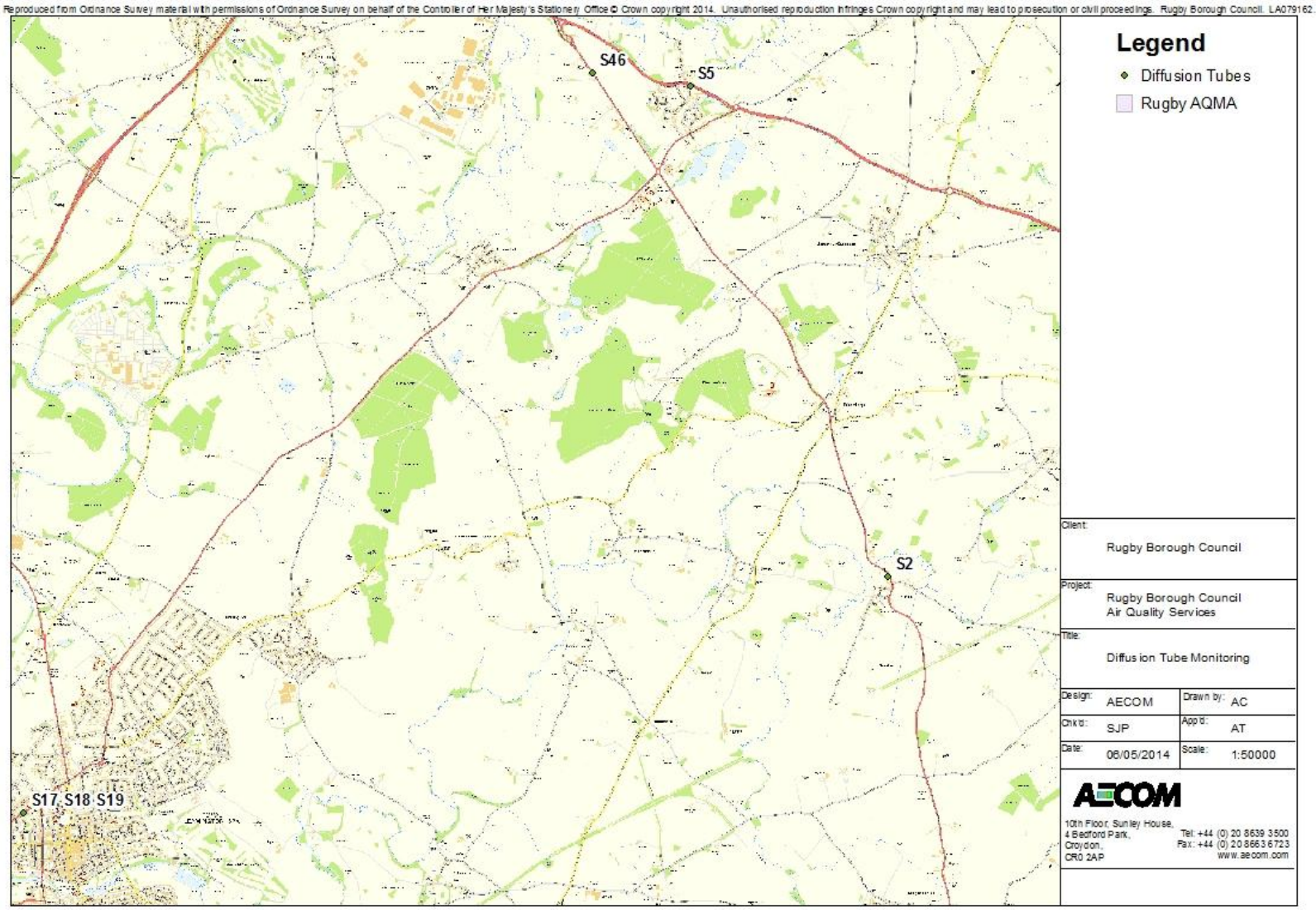


Figure 2.3 Map of Non-Automatic Monitoring Sites (West of Rugby Town)

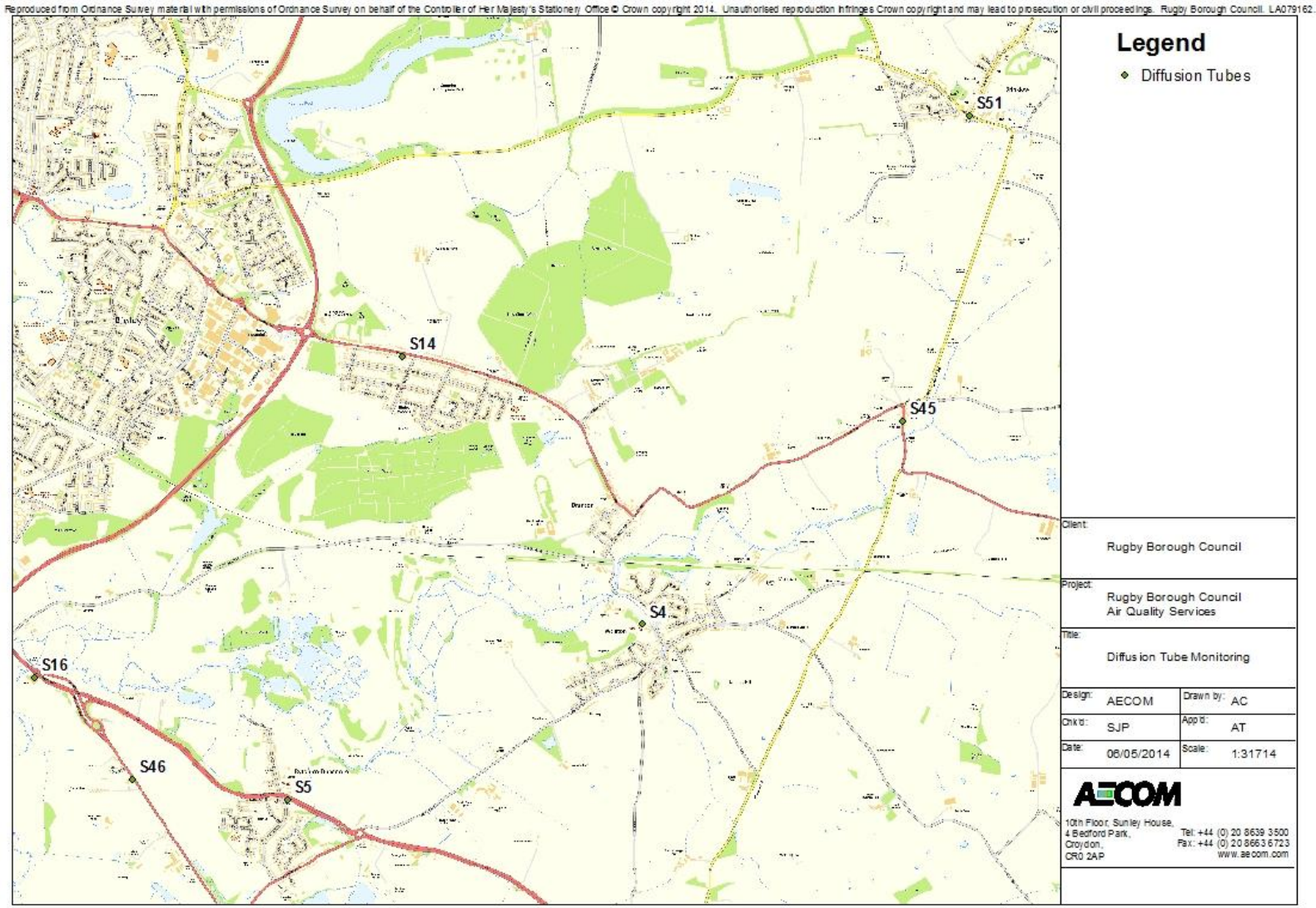


Figure 2.4 Map of Non-Automatic Monitoring Sites (Rugby Town Centre)

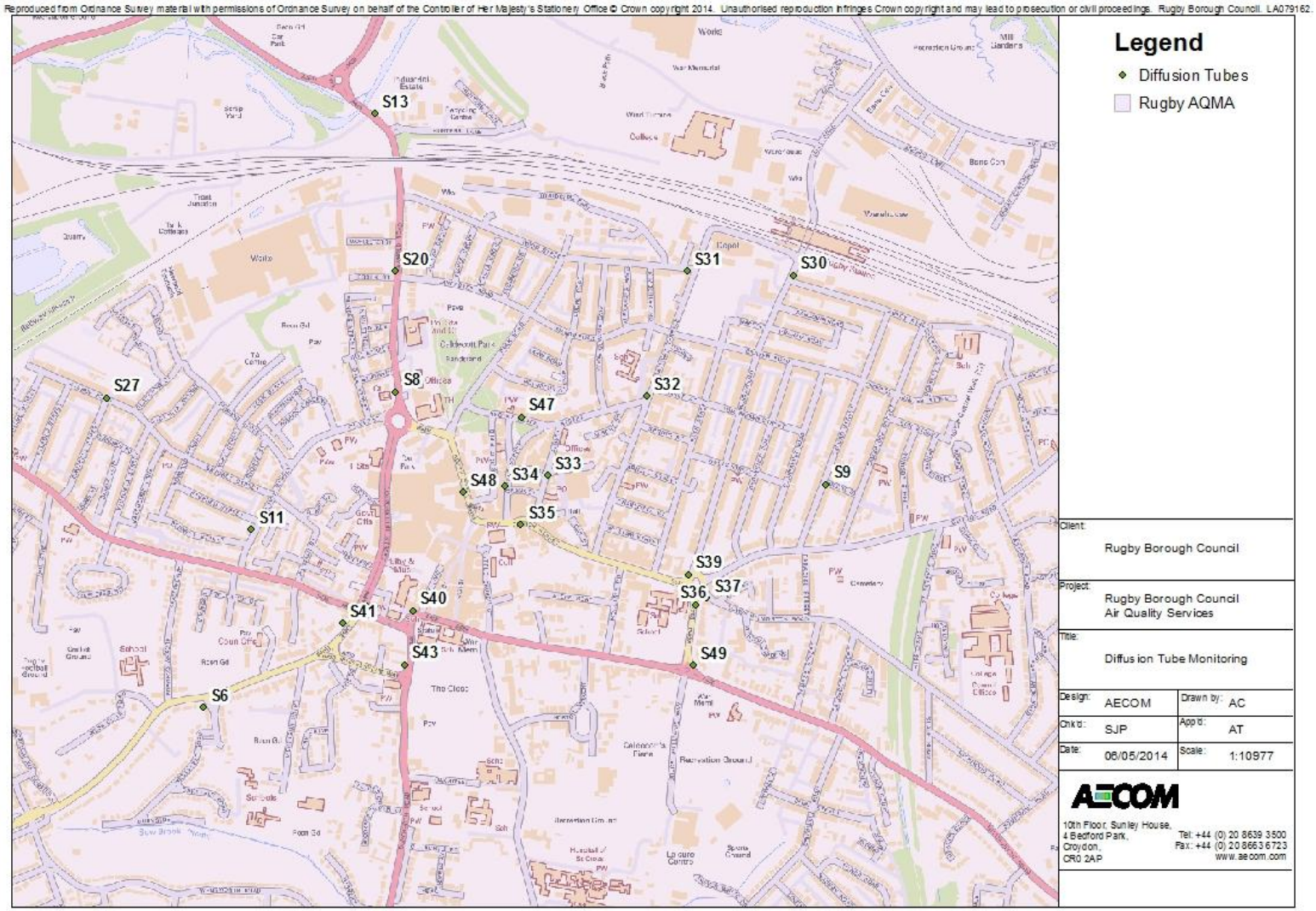


Table 2.2 Details of Non- Automatic Monitoring Sites

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_2	Y	N	Y	<1 m	N
S2	Marton A423	Roadside	440830	269008	2.5	NO_2	N	N	Y (5m)	<1 m	N
S3	69 School Street	Urban Background	447316	276162	2.5	NO_2	Y	N	Y	15 m	N
S4	St Margaret's School, Wolston	Urban Background	441131	275648	2.5	NO_2	N	N	N	90 m	N
S5	Ryton Village Hall, High Street	Near-Road	438642	274418	2.5	NO_2	N	N	Y	5 m	Y
S6	2 West Field Road	Urban Background	449671	274795	2.5	NO_2	Y	N	Y	10 m	N
S7	68 Cymbeline Way	Urban Background	448863	272786	2.5	NO_2	Y	N	Y	20 m	N
S8	EHO Treatment, Newbold Road	Roadside	450138	275557	2.5	NO_2	Y	N	Y	<1 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?
S9	(Argyle Street) Cambridge Street	Near-Road	451187	275334	2.5	NO_2	Y	N	Y	5 m	N
S10	Webb Ellis Pub, Corporation Street	Roadside	450069	275040	2.5	NO_2	Y	N	Y	5 m	Y
S11	15 Oliver Street	Roadside	449787	275224	2.5	NO_2	Y	N	Y	5 m	N
S12	Boughton Leigh School, Hollowell Way	Urban Background	451445	277245	2.5	NO_2	Y	N	N	56 m (school parking area <1 m)	N
S13	Avon Mill Pub, Newbold Road	Roadside	450088	276229	2.5	NO_2	Y	N	Y (15 m)	4.5 m	N
S14	Binley Woods, Village Hall	Urban Background	439450	277523	2.5	NO_2	N	N	Y	20 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?
S15	Lawford Road / Jubilee Street, Arnie's Batch	Kerbside	449168	275411	2.5	NO_2	N	N	Y	<1 m	Y
S16	Hotel, London Road A45, Ryton	Near-Road	436867	275275	2.5	NO_2	N	N	Y	19 m	Y
S17	Stamford Gardens, Rugby Road, Leamington. AURN Site	Roadside	431271	266404	2.5	NO_2	N	Y	N/A (Site not within Rugby BC)	6 m	N/A
S18											
S19											
S20	Newbold Road	Roadside	450137	275849	2.5	NO_2	Y	N	N (25 m)	3 m	N
S21	Corner of Percival Road and Ashlawn Road	Roadside	451698	273273	2.5	NO_2	Y	N	N (15 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?
S22	Corner of Fisher Avenue and Ashlawn Road	Roadside	452403	273567	2.5	NO_2	Y	N	N (18 m)	5 m	N
S23	Paddox Pub Corner	Roadside	452672	273633	2.5	NO_2	Y	N	N (13 m)	3 m	Y
S24	Dun Cow, Dunchurch Square	Roadside	448496	271244	2.5	NO_2	Y	N	Y	5 m	Y
S25	Southam Road, 'Crystal', Dunchurch	Roadside	448414	271175	2.5	NO_2	Y	N	Y	2 m	Y
S26	Lawford Road, (former Simms Scrap Yard)	Near-Road	448999	275505	2.5	NO_2	Y	N	Y	20 m	Y
S27	Avenue Road / Campbell Street	Roadside	449435	275543	2.5	NO_2	Y	N	Y	5 m	Y
S28	256 Parkfield Road	Roadside	449011	276329	2.5	NO_2	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_2	Y	N	Y	35 m	Y
S30	Murray Road (Bus Stop Nr Rail Station)	Roadside	451107	275838	2.5	NO_2	Y	N	Y	3 m	Y
S31	Wood Street / Park Road	Roadside	450848	275849	2.5	NO_2	Y	N	Y	5 m	Y
S32	Railway Terrace, Station Bar	Roadside	450750	275547	2.5	NO_2	Y	N	Y	5 m	Y
S33	Albert Street, Alma Lodge Hotel	Roadside	450510	275355	2.5	NO_2	Y	N	Y	5 m	Y
S34	Regent Street, near Oxfam	Roadside	450405	275329	2.5	NO_2	Y	N	Y	5 m	Y
S35	Church Street, Town Fryer	Roadside	450444	275236	2.5	NO_2	Y	N	Y	5 m	Y
S36	Whitehall Road junction with Clifton Road Roundabout	Roadside	450870	275043	2.5	NO_2	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_2	Y	N	N (5 m)	2 m	Y
S38	Clifton Road before railway bridge	Kerbside	451868	275501	2.5	NO_2	Y	N	N (9 m)	< 1 m	N
S39	Clifton Road Roundabout Murray Road	Roadside	450852	275116	2.5	NO_2	Y	N	Y	5 m	Y
S40	Lawrence Sherriff Street, Drury Lane	Near-Road	450181	275029	2.5	NO_2	Y	N	Y	13 m	Y
S41	Bilton Road, Big Yellow House	Near-Road	450010	274998	2.5	NO_2	Y	N	Y	15 m	Y
S42	Bilton Road, near Crow Pie Pub	Roadside	448855	274352	2.5	NO_2	Y	N	N (11 m)	3 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?
S43	Dunchurch Gyratory Residential	Roadside	450162	274898	2.5	NO_2	Y	N	N (4 m)	3 m	N
S44	High Street, Hillmorton	Roadside	453394	273637	2.5	NO_2	Y	N	N (10 m)	2 m	N
S45	Bretford-electricity pole near 3 Avon Cottages	Roadside	442963	277071	2.5	NO_2	Y	N	N (11 m)	3 m	N
S46	Oxford Road, Ryton Belvedere	Roadside	437555	274561	2.5	NO_2	Y	N	N (30 m)	1 m	N
S47	Regent Place	Kerbside	450445	275495	2.5	NO_2	Y	N	N (5 m)	< 1 m	Y
S48	North Street, Nat. West. Bank	Roadside	450304	275314	2.5	NO_2	Y	N	Y (at first floor)	2 m	N
S49	Lesley Suiter House, Whitehall Road, Hillmorton	Roadside	450864	274896	2.5	NO_2	Y	N	N (13 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?
S50	Bilton Church	Roadside	448169	273625	2.5	NO_2	Y	N	N (18 m)	3 m	N
S51	Brinklow, Brays Close	Roadside	443433	279208	2.5	NO_2	N	N	N (6m)	3 m	N
S52	Daventry Road East	Roadside	448537	271195	2.5	NO_2	Y	N	N (0.5 m)	3 m	N
S53	Daventry Road West	Roadside	448361	271334	2.5	NO_2	Y	N	N (4.5 m)	3 m	N

2.2 Comparison of Monitoring Results with Air Quality Objectives

Data from each of the Rugby non-automatic monitoring locations are presented in Section 2.2.1 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_2)

Rugby Borough Council has 51 diffusion tube monitoring sites, including one triplicate co-location study.

The triplicate co-location study (for the purpose of bias adjustment factor calculation) is located at the AURN continuous monitoring station at Rugby Road in Leamington Spa since the decommissioning of the continuous monitoring site at Newbold Road in Rugby. It was decided most appropriate to use a local bias adjustment factor for the adjustment of raw diffusion tube results. The local bias adjustment factor was calculated as 0.84 on the basis of the Leamington Spa co-location study. Further details of the derivation of bias adjustment factors and discussion of the choice of bias adjustment factor can be found in Appendix A.

After bias adjustment, the 2013 diffusion tube results indicate that the annual mean NO_2 objective was exceeded at three monitoring locations (Table 2.5). The highest annual mean NO_2 concentration, 46.6 µg/m^3, was monitored at site S24 (Dun Cow, Dunchurch Square). Monitoring at this site began in April 2012, and the annualised 2012 mean NO_2 concentration also exceeded the annual mean objective. This site is within the boundaries of the existing AQMA.

The second site exceeding the annual mean NO_2 objective was site S46 (Oxford Road, Ryton; 40.9 µg/m^3). An NO_2 concentration approaching the annual mean NO_2 objective was measured at this location in 2012 (38.5 µg/m^3), although monitoring was not carried out for the full calendar year. The monitoring site is not within the existing AQMA boundary; this exceedence is therefore of particular concern. It should be noted however that contraflow systems and road works contributed to

increased congestion in the Oxford Road area throughout 2013 resulting in higher levels of NO_2 than would be expected under normal conditions.

The monitoring site S46 is not situated at a location of relevant exposure. To estimate the annual mean NO_2 concentration at the nearest sensitive receptors to site S46, the NO_2 falloff with distance calculator was used. To the north-west of the monitoring site there are residential properties that are approximately 10 metres from the kerbside; the monitoring site is 1 metre from the kerbside. Using the 2013 mapped background NO_2 concentration for grid square 437500, 274500 (19.1 µg/m^3), the predicted annual mean NO_2 concentration at these residential properties is 30.8 µg/m^3, which is below the annual mean NO_2 objective. Details of this calculation can be found in Figure A.3.

The annual mean NO_2 concentration at site S10 (Webb Ellis Pub, Corporation Street) was 40.2 µg/m^3. The annual mean concentration at this site is slightly above the annual mean NO_2 objective, and the latest results indicate a levelling off of annual mean NO_2 concentrations at this location after the downward trend of recent years. Indeed, many of the long-term diffusion tube monitoring sites show a similar pattern (See Figure 2.5 and Table 2.6).

In 2012, an exceedence of the annual mean NO_2 objective was monitored at site S49 (Lesley Suiter House, Whitehall Road, Hillmorton), where the annual mean concentration was 49.0 µg/m^3. In October 2012 however there were road works in the vicinity of site S49, which are thought to have contributed to a very high raw NO_2 concentration in this month (121 µg/m^3 before bias adjustment) and leading to a skewed annual mean result. The annual mean NO_2 concentration at this site in 2013 is significantly reduced with a monitored concentration of 39.4 µg/m^3, although this result is very close to the annual mean NO_2 objective, and should be considered as borderline. This site is located within the existing AQMA.

Two further sites recorded concentrations greater than 36 µg/m^3 during 2013 and may therefore be considered as borderline. These were sites S30 (Murray Road; 37.2 µg/m^3) and S36 (Whitehall Road / Clifton Road; 36.6 µg/m^3). Both sites are

within the existing AQMA and do not represent previously unidentified areas of elevated concentrations.

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_2 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. These tubes, S52 and S53, showed annual mean concentrations of 23.0 µg/m^3 and 21.2 µg/m^3, significantly below the objective value of 40 µg/m^3.

Table 2.5 Results of NO_2 Diffusion Tubes 2013

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.84
S1	10 Newbold Road	Kerbside	Y	N	100%	21.6
S2	Marton A423	Roadside	N	N	100%	19.6
S3	69 School Street	Urban Background	Y	N	92%	18.3
S4	St Margaret's School, Wolston	Urban Background	N	N	100%	15.0
S5	Ryton Village Hall, High Street	Near-Road	N	N	100%	31.5
S6	2 West Field Road	Urban Background	Y	N	100%	17.9
S7	68 Cymbeline Way	Urban Background	Y	N	100%	14.3
S8	EHO Treatment, Newbold Road	Roadside	Y	N	100%	31.5
S9	(Argyle Street) Cambridge Street	Near-Road	Y	N	100%	19.2
S10	Webb Ellis Pub, Corporation Street	Roadside	Y	N	100%	**40.2**
S11	15 Oliver Street	Roadside	Y	N	100%	25.6
S12	Boughton Leigh School, Hollowell Way	Urban Background	Y	N	100%	21.1
S13	Avon Mill Pub, Newbold Road	Roadside	Y	N	83%	35.7

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.84
S14	Binley Woods, Village Hall	Urban Background	N	N	100%	18.3
S15	Lawford Road / Jubilee Street, Arnie's Batch	Kerbside	N	N	100%	28.9
S16	Hotel, London Road A45, Ryton	Near-Road	N	N	100%	24.4
S17	Newbold Road AQMS / Stamford Gardens, Rugby Road, Leamington. AURN Site	Roadside	N	Y	100%	20.2
S18					100%	21.9
S19					100%	22.3
S20	Newbold Road	Roadside	Y	N	100%	31.6
S21	Corner of Percival Road / Ashlawn Road	Roadside	Y	N	100%	24.4
S22	Corner of Fisher Avenue / Ashlawn Road	Roadside	Y	N	100%	23.0
S23	Paddox Pub Corner	Roadside	Y	N	83%	27.6
S24	Dun Cow, Dunchurch Square	Roadside	Y	N	100%	**46.6**
S25	Southam Road, 'Crystal', Dunchurch	Roadside	Y	N	100%	30.8
S26	Lawford Road, (former Simms Scrap Yard)	Near-Road	Y	N	100%	21.8

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.84
S27	Avenue Road / Campbell Street	Roadside	Y	N	83%	24.0
S28	256 Parkfield Road	Roadside	Y	N	100%	20.3
S29	Avon Valley School	Urban Background	Y	N	100%	23.5
S30	Murray Road (Bus Stop Nr Rail Station)	Roadside	Y	N	100%	37.2
S31	Wood Street / Park Road	Roadside	Y	N	100%	30.7
S32	Railway Terrace, Station Bar	Roadside	Y	N	83%	30.8
S33	Albert Street, Alma Lodge Hotel	Roadside	Y	N	100%	25.2
S34	Regent Street, near Oxfam	Roadside	Y	N	100%	27.7
S35	Church Street, Town Fryer	Roadside	Y	N	100%	31.5
S36	Whitehall Rd junction with Clifton Road Roundabout	Roadside	Y	N	92%	36.6
S37	Lower Hillmorton Road junction with Clifton Road. Roundabout	Roadside	Y	N	75%	33.6

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.84
S38	Clifton Road before railway bridge	Kerbside	Y	N	100%	27.4
S39	Clifton Road Roundabout Murray Road	Roadside	Y	N	92%	32.6
S40	Lawrence Sherriff Street, Drury Lane	Near-Road	Y	N	100%	32.4
S41	Bilton Road, Big Yellow House	Near-Road	Y	N	100%	27.5
S42	Bilton Road, near Crow Pie Pub	Roadside	Y	N	100%	25.8
S43	Dunchurch Gyratory Residential	Roadside	Y	N	100%	29.9
S44	High Street, Hillmorton	Roadside	Y	N	83%	26.7
S45	Bretford- electricity pole near 3 Avon Cottages	Roadside	Y	N	67%	26.9
S46	Oxford Road, Ryton Belvedere	Roadside	Y	N	100%	**40.9**
S47	Regent Place	Kerbside	Y	N	100%	35.3
S48	North Street, Nat. West. Bank	Roadside	Y	N	92%	34.3

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) [a]	2013 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.84
S49	Lesley Suiter House, Whitehall Road, Hillmorton	Roadside	Y	N	75%	39.4
S50	Bilton Church	Roadside	Y	N	67%	24.5 [a]
S51	Brinklow, Brays Close	Roadside	N	N	67%	31.4 [a]
S52	Daventry Road East	Roadside	Y	N	58%	23.4 [a]
S53	Daventry Road West	Roadside	Y	N	58%	21.5 [a]

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

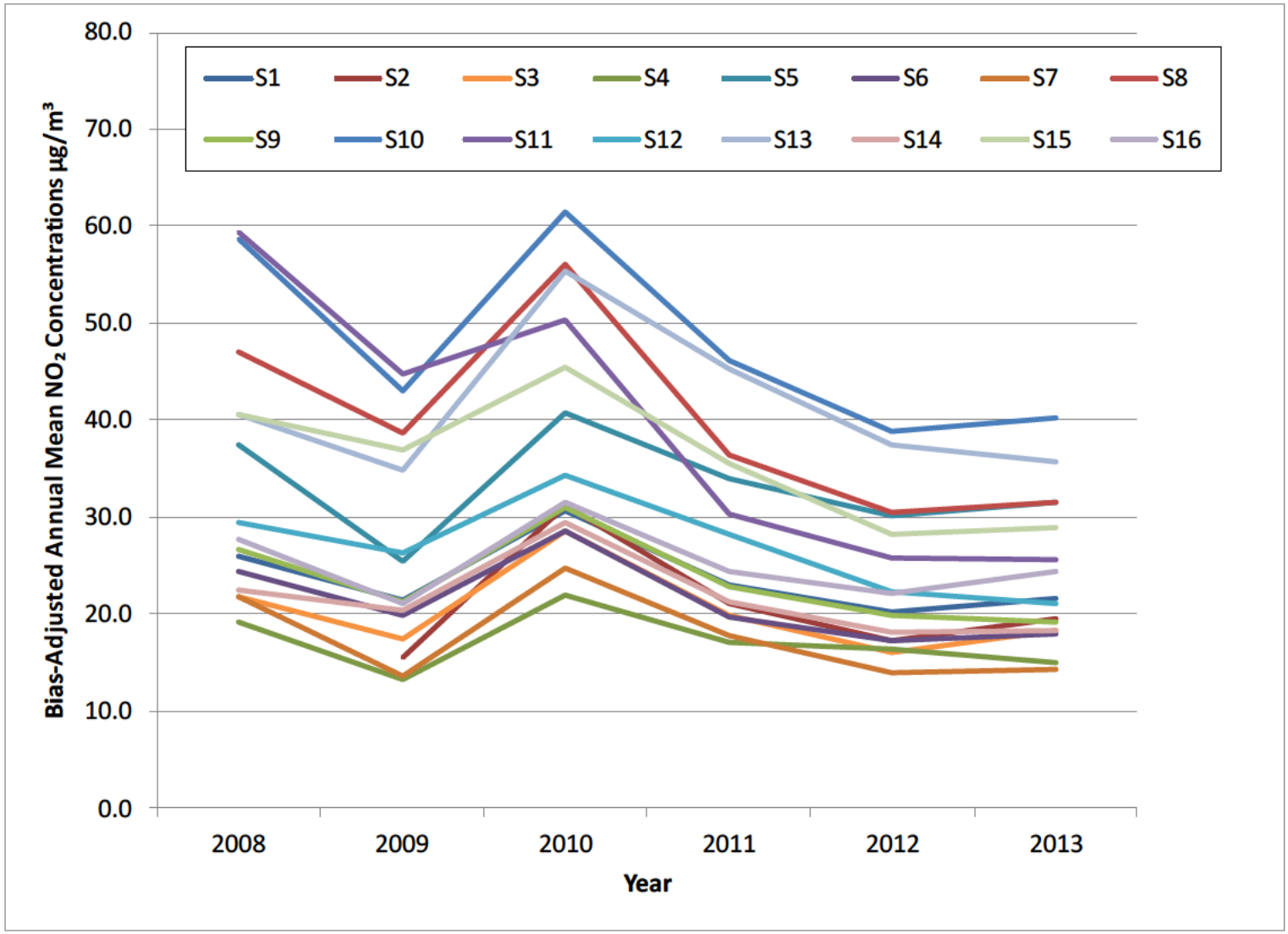
[a] Annualised as in Box 3.2 of TG(09), due to calendar year data capture of less than 75%

Table 2.6 Results of NO_2 Diffusion Tubes at Long-Term Monitoring Sites (2009 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2009 (BAF = 0.81)	2010 (BAF = 1.14)	2011 (BAF = 1.00)	2012 (BAF = 0.79)	2013 (BAF = 0.84)
S1	10 Newbold Road	Y	21.5	30.7	23.0	20.3	21.6
S2	Marton A423	N	15.5	31.2	21.1	17.3	19.6
S3	69 School Street	Y	17.4	28.6	19.8	16.0	18.3
S4	St Margaret's School, Wolston	N	13.3	21.9	17.0	16.4	15.0
S5	Ryton Village Hall, High Street	N	25.5	**40.7**	33.9	30.1	31.5
S6	2 West Field Road	Y	19.8	28.5	19.6	17.2	17.9
S7	68 Cymbeline Way	Y	13.6	24.8	17.7	14.0	14.3
S8	EHO Treatment, Newbold Road	Y	38.6	**56.0**	36.4	30.5	31.5
S9	(Argyle Street) Cambridge Street	Y	21.2	31.0	22.8	19.9	19.2
S10	Webb Ellis Pub, Corporation Street	Y	**43.0**	**61.4**	**46.1**	38.8	**40.2**
S11	15 Oliver Street	Y	**44.7**	**50.3**	30.3	25.8	25.6
S12	Boughton Leigh School, Hollowell Way	Y	26.3	34.3	28.2	22.4	21.1
S13	Avon Mill Pub, Newbold Road	Y	34.9	**55.3**	**45.2**	37.4	35.7
S14	Binley Woods, Village Hall	N	20.4	29.4	21.2	18.0	18.3
S15	Lawford Road / Jubilee Street, Arnie's Batch	N	36.9	**45.4**	35.5	28.2	28.9
S16	Hotel, London Road A45, Ryton	N	21.1	31.5	24.4	22.1	24.4

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3. "BAF" = Bias adjustment factor

Figure 2.5 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



2.2.2 Particulate Matter (PM_{10})

Rugby Borough Council does not carry out any monitoring for particulate matter. Until June 2012 continuous monitoring of PM_{10} in Rugby was carried out at six locations; however all continuous monitoring sites in the Borough have since been decommissioned.

2.2.3 Sulphur Dioxide (SO_2)

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_2 Concentrations within the AQMA still were only found to exceed the annual mean NO_2 objective at one location of relevant exposure and the AQMA should remain. NO_2 Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

3.1 Road Traffic Sources

Road-traffic related developments within the Borough with the potential to impact upon air quality following completion are described below:

Rugby Town Centre Pedestrianisation

A scheme to extend the existing pedestrianised area near the Clock Tower in Rugby town centre has been developed and consulted upon. It has been agreed by Warwickshire County Council and Rugby Borough Council that the proposal will not be taken forward until other schemes such as the improvement of the Warwick Street Gyratory and Avon Mill/Hunters Lane have been implemented. No further work on the scheme is therefore likely until 2015/16 at the earliest.

Warwick Street Gyratory Improvements

Warwickshire County Council has been successful in securing Local Pinch Point Programme funding from Government towards an improvement of the Warwick Street Gyratory system in Rugby. The scheme aims to better manage traffic, make journey times more reliable, improve local air quality and make it easier for pedestrians and cyclists to access the town centre. As part of the scheme, traffic signals with pedestrian and cycle crossing facilities will be installed at the junctions of Dunchurch Road / Russelsheim Way and Bilton Road / Russelsheim Way. The scheme also includes plans to install a Puffin crossing on A428 Lawrence Sheriff Street near Sheep Street and, subject to funding, a Puffin crossing on Barby Road near Lawrence Sheriff Street. The County Council is making a local funding contribution of £0.455m towards the scheme, to complement the £1m contribution from the Department for Transport (DfT). Works are due to start in January 2015 with completion anticipated by March 2015.

3.2 Other Transport Sources

There have been no changes to other transport sources in the borough since the publication of the 2013 Progress Report.

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_X and PM_{10} from Cemex cement works for 2011 to 2013 are presented in Table 3.1. NO_X emissions increased by 6.5% between 2012 and 2013, which is below the 30% threshold outlined in LAQM.TG(09) that would indicate a "substantial" increase in emissions. Therefore, there is no need to consider NO_X emissions from Cemex further at this stage.

Table 3.1 Pollutant Emissions (tonnes) from Cemex Rugby Cement Works, 2011 to 2013

Year	Pollutant Emissions (tonnes)	
	NO_X	**PM_{10}**
2011	1,952	13.3
2012	1,682	20.0
2013	1,792	18.0
Percentage Change 2012 – 2013	+6.5%	-10.0%

Note: Data supplied by Environment Agency (Personal communication 11/04/2014)

PM_{10} emissions decreased by 10% between 2012 and 2013, from 20.0 tonnes to 18.0 tonnes. Screening calculations carried out for the 2012 Updating and Screening Assessment indicated that the background adjusted permitted emission rate of PM_{10} from Cemex was 56 tonnes/year. The PM_{10} emission rate for 2013 was 18.0 tonnes, which is well within the 56 tonnes threshold value, calculated per the 2012 Updating and Screening Assessment, and so it is unlikely that this level of PM_{10} emissions would lead to exceedences of PM_{10} 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

In the 2013 Air Quality Progress Report, a proposed biomass boiler at the Queen's Diamond Jubilee Sports Centre development was identified as having the potential to impact upon air quality. A screening assessment has therefore been carried out (see Appendix E). The results of this screening assessment indicate that pollutant emissions from the biomass boiler are unlikely to result in significant air quality impacts. Consequently, a Detailed Assessment is not required.

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.

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.

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 230 dwellings with associated open space, infrastructure and ancillary works; (alteration to Brownsover Lane and junction with existing roundabout). In February 2014 Land at unit 1 of the employment area was granted reserved matter approval for the erection of building for B8 storage and distribution use, with associated access, landscaping and other 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. Three further units are

currently under construction for B8 uses with ancillary offices. 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. A vehicle maintenance unit and fuelling and washing facility, security lodge, vehicle parking, landscaping and emergency access are also proposed.

Cawston Lane (R11/1521)

Committee resolution for approval subject to a signed section 106 for an Outline planning application for the development of the site for up to 250 dwellings (Use Class C3), with means of access from Coventry Road and an emergency access from Cawston Lane, together with drainage and flood attenuation measures, the creation of public open space and hard and soft landscaping and associated infrastructure.

Leicester Road

Land at Technology Drive has permission for up to 635 dwellings. Phase one is currently under construction with a further two phases of developments benefiting from full planning permission.

Elliotts Field Retail Park

Demolition of existing units B1 to C2 and car wash, and erection of 12 new (class A1) retail units (with ancillary class A3); Replacement structural frame to Unit A2 subdivision of Unit A2 and the installation of mezzanine floor space; external alterations to Unit A1; erection of 2 no. new café class A3 units; erection of service and access gantry to rear of Unit 1 to Unit 6; reconfiguration of the car park layout; erection of retaining wall to rear of anchor unit and retaining wall adjacent to Leicester Road; creation of 2 no. new service and delivery access/egress points off Old Leicester Road; improvement works to the Old Leicester Road junction; improvements and road widening to Old Leicester Road and Leicester Road, and improvements to the site entrance at Leicester Road; alterations and enhancements to landscaping; creation of new footpath from Leicester Road; and associated works. Planning application approved subject to a call in decision.

Coton House

Committee resolution for approval subject to a signed section 106 for a hybrid planning application seeking full planning permission for the demolition of redundant buildings, alterations to existing access on to A426, change of use and extension of Coton House to form 4 dwellings, construction of garaging to serve Coton House, change of use of stable buildings and extension to form 8 dwellings, change of use of the old dairy and extension to form 1 dwelling, conversion of buildings H, J & K to form 3 dwellings, engineering works to form a noise bund, below ground installation of private sewage treatment plant; and Outline Planning Permission for the provision of a new estate village comprising of the provision of 60 dwellings together with internal access, road layout, car parking, relocation of electricity sub-station, landscaping and open space and 2 bat barns (access and layout to be considered at this stage) (76 dwellings in total).

Warwickshire College

Committee resolution for approval subject to a signed section 106 for an outline application for Class C3 residential development of up to 131 dwellings and provision of 0.4 hectare of land for the provision of a Class C2 Extra Care facility, with associated works and landscaping. All matters reserved except for access.

Evreux Development Site (R13/1916)

On the 30th January 2014 outline approval was granted for the erection of building for retail (Class A1), office (Class B1) and leisure (Classes D2, A3, A4 and A5) uses, with associated works including demolition of existing buildings. All matters reserved except for access.

Junction 1 Retail Park

Application currently being considered for the erection of a terrace of 5 units providing 5,670sqm non-food Class A1 retail floorspace together with car parking, landscaping and associated works.

Dipbar Fields (R13/0690)

Application currently being considered is an outline planning application for the development of the site for up to 86 dwellings (Use Class C3) and associated works

including means of access from the A45/M45 roundabout and an emergency access from Daventry Road. All other matters are reserved.

Leicester Road (land North of Technology Drive) (R13/1612)

Currently being considered is an outline planning application with means of access for consideration (all other matters reserved for subsequent approval) for up to 9,964sq.m (gross internal area) including mezzanines of non-food, bulky goods retail with associated car parking, service areas and landscaping.

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.

National Planning Policy Guidance

On 6th March 2014 the Government released the National Planning Policy Guidance (Department for Communities & Local Government)[xi] which provides guiding principles on how planning can take account of the impact of new development on air quality.

The national guidance recommends that Local Plans take account of air quality and local air quality review and assessment work conducted under the LAQM regime in order to develop planning policies that ensure air quality objectives are met. The national guidance states that Local Plans may need to consider:

"

- *'the potential cumulative impact of a number of smaller developments on air quality as well as the effect of more substantial developments;*
- *the impact of point sources of air pollution (pollution that originates from one place); and,*
- *ways in which new development would be appropriate in locations where air quality is or likely to be a concern and not give rise to unacceptable risks from pollution. This could be through, for example, identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable. "*

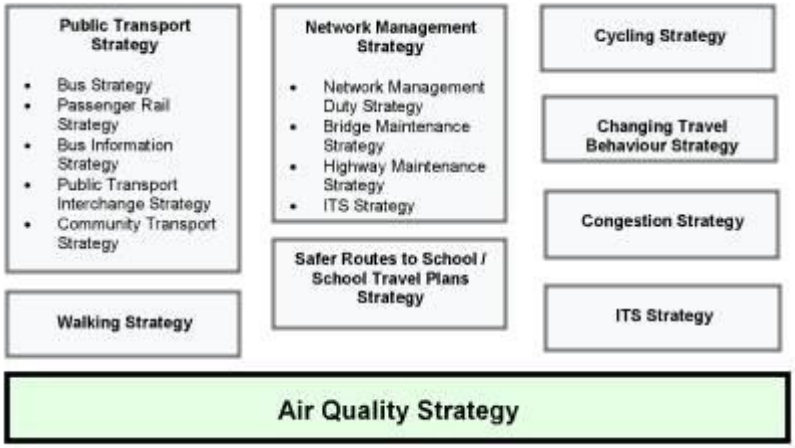
7 Local Transport Plans and Strategies

The improvement of local air quality in Rugby is one of the underlying themes of the Warwickshire County Council Local Transport Plan (LTP)[xii]. 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). 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

Policy	Action	Timescale
Policy AQA1: The contribution of air quality improvements to the national targets on greenhouse gases	Implementation of the wider LTP policies contained in the Public Transport, Cycling, Walking and Changing Travel Behaviour Strategies.	Ongoing
Policy AQA2: Improving poor air quality through partnership working	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
Policy AQA3: Maintaining areas of good air quality	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
Policy AQA4: Education and Information	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

Policy	Action	Timescale
Policy AQA5: Integration of air quality and transport planning	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
Policy AQA6: Strategy Review	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 Climate Change Strategies

Table 8.1 shows a summary of the climate change strategy for Rugby Borough Council.

Table 8.1 Climate Change Strategy

Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Estimated completion date
Energy efficiency improvements to Rugby housing & the reduction of fuel poverty.	Reduction of CO_2 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 published March 13, and will be updated at two yearly intervals.	The Council aim to reduce CO2 emissions in the housing sector to 165.8kt CO_2 of 2009 (207.3kt CO2) levels by 2020. This will be equivalent to a 20%	* Working with our partner, Act on Energy, over 1200 energy enquiries dealt with * Advice sessions at the Town Hall & library; presentations made to health staff, sheltered wardens and at Children's Centres; articles in Tenant Times; press releases	Ongoing

Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Estimated completion date
						reduction.	on coping with cold weather, energy savings tips, etc.; cold weather alerts issued to front-line staff and 100 community organisations * 300 local landlords contacted with information on the Green Deal, the Landlord Energy Savings Allowance and Energy Performance Certificates * 226 households surveyed in	

Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Estimated completion date
							Newbold Town Centre area to assess need for energy improvements, plus health, finance and community support * 122 electric to gas heating upgrades in council properties * 15 boilers serviced through the boiler grant scheme * 5 Renovation Loans given for window replacements * 45 households received energy	

Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Estimated completion date
							improvements in Brinklow & Wolvey * A pilot LED trial reduced energy consumption by 76% in communal areas of Patterdale flats	

9 Implementation of Action Plans

Rugby Borough Council compiled an Air Quality Action Plan Progress Report[xiii] 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 an update on progress made towards achieving the targets therein are outlined in Table 9.1.

Table 9.1 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	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. Data collected in 2012 showed some significant reductions in traffic levels following the opening of the road, when compared to previous traffic volumes: A426 Newbold Road - 22% decrease from 25,237 in March 2006 to 19,667 in March 2012. B4642 Bilton Road - 20% decrease from 15,422 in May 2005 to 12,288 in March 2012. A426 Dunchurch Road nr. Kingsway - 17% decrease from

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
											13,104 in September 2006 to 10,895 in September 2011. These traffic reductions have translated into NO_2 air quality improvements. Comparing 2010 and 2011 NO_2 monitoring data decreases in NO_2 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 Newbold Road on completion of RWRR significantly reducing congestion episodes. Contraflow measures also compounded by

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
											closure of Parkfield Road during construction phase. 2012 comparison with 2011 demonstrates more moderate but still significant NO_2 reductions of 17%-27% on Newbold Road, 17% on Corporation Street, 16% on Oliver Street, 13% on BIlton Road and 21% on Lawford Road. Further monitoring and time required for increased diffusion tube network to better assess the impacts of the RWRR. 2014 Air Quality Progress Report should provide better picture.

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
B	Warwick Street Gyratory Improvements	Manage the impact of traffic accessing and passing through the town centre, along with planned housing and employment growth within the town.	WCC	2007-2014	2014/15	Implementation of the scheme in full	Not specified	A major improvement to the Gyratory is proposed to address an existing pinch point and support the significant growth proposed in the Borough Council's adopted Local Development Framework Core Strategy.	WCC has secured Local Pinch Point Programme funding from Government towards the proposed improvement of the Warwick Street Gyratory system. The County Council is making a local funding contribution of £0.455m towards the scheme to complement the £1m contribution from the Department for Transport (DfT).	Works are due to start on site in January 2015 with completion by March 2015.	The scheme is expected to result in an overall net improvement in local air quality in the vicinity of the Gyratory. An air quality assessment of the scheme is currently in the process of being undertaken.

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	Reduce the impact of traffic on the town centre, and allow better access for pedestrians and cyclists. Support the regeneration of the town centre and the growth proposals within the Borough.	WCC	2007-2016	Post-2015/16	Implementation of the scheme in full	Not specified	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.	A revised scheme to extend the existing pedestrianised area near the Clock Tower in Rugby town centre was consulted upon during 2013/14. It has been agreed by Warwickshire County Council and Rugby Borough Council that the proposal will not be taken forward until other schemes such as the improvement of the Warwick Street Gyratory and Avon Mill/Hunters Lane have been implemented.	No further work on the scheme is planned until 2015/16 at the earliest.	The timescales for implementation of the scheme have changed as a result of the further consultation which has been carried out on the revised proposal.

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 limited 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 added in April 2013.	1 Euro 6 added in April 2014 with a further 3 Euro 6 vehicles to be commissioned in 2014.	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	WCC	N/A – ongoing initiative	N/A – ongoing initiative	Increase in cycling as a result of individual scheme	Not specified	The basis of a cycle network has been incrementally delivered within	The Leicester Road viaduct Connect2 scheme opened in	2014	

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
		(particularly within the urban area of Rugby) by encouraging a shift towards sustainable modes of transport.				implementation		Rugby over the last 15 years, using a combination of on and off-carriageway routes. Additional routes will come forward as resources permit and in conjunction with new development. The County Council and RBC provide cycle training for young people and adults who are keen to improve their cycle skills. Connect2 scheme is completed. Cycle facilities have been provided as part of RWRR.	2013/14. The A428 Lawford Road cycleway between Long Lawford and the RWRR is currently under construction, with completion expected by April 2014. A bid to the DfT's Cycle Safety fund was successful for a scheme to extend the A428 Lawford Road cycleway from the RWRR to the Town Centre. This is also currently under construction and will be complete by April 2014. The County Council and RBC provide cycle training for young people and adults who are keen to improve their cycle skills. –	April 2014	

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
									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 Cycle routes to complement future growth within the Borough continue to be identified and worked up in detail, with funding secured from individual developments.	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 wa king (footfall) as a result of individual scheme implementatio n	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.	The cycling improvements described above under Measure K will have significant benefits for pedestrians.	Ongoing	
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 - Coton Park East. Application	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
									formally submitted.		
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. A study has been undertaken to look at future bus stop capacity within the town centre and the need or otherwise for a bus interchange to be provided. This piece of work concluded that there is no requirement for either additional bus stop capacity or a bus	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
									station in the immediate		
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 B ke Week, Wa k 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 published March 13, and will be updated at two yearly intervals..	We aim to reduce CO2 emissions in the housing sector to 165.8kt CO2 of 2009 (207.3kt CO2) levels by 2020. This will be equivalent to a 20% reduction.	* Working with our partner, Act on Energy, over 1200 energy enquiries dealt with * Advice sessions at the Town Hall & library; presentations made to health staff, sheltered wardens and at Children's Centres; articles in Tenant Times; press releases on coping with cold weather, energy savings tips, etc.; cold weather alerts issued to front-line staff and 100 community organisations * 300 local		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
	Corporate Property							landlords contacted with information on the Green Deal, the Landlord Energy Savings Allowance and Energy Performance Certificates * 226 households surveyed in Newbold Town Centre area to assess need for energy improvements, plus health, finance and community support * 122 electric to gas heating upgrades in council properties * 15 boilers serviced through the boiler grant scheme * 5 Renovation Loans given for window replacements * 45 households received energy improvements in Brinklow & Wolvey * A pilot LED trial reduced energy consumption by 76% in communal areas of			

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
								Patterdale flats			
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	99.24% compliance improvements	Not specified	Annual inspection programme complete.	38 Industrial Pollution Processes (100% of inspections completed). All were inspected through 2013/2014 – 99.24% compliance improvements where required for pollution at these sites.	N/A	
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 – From 01.01.13 – 31.12.13 Complaints about smoke from chimneys Domestic – 18 Industrial/trade – 0	N/A	Designated smoke Control Area (chimneys) and section 79 of the EPA 1990 actively implemented where problems are identified.
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 – From 01.01.13 – 31.12.13. Complaints about bonfires Commercial – 16 Domestic – 53		Section 79 of the EPA 1990 actively implemented where problems are identified
U	Planning Development and Planning Applications	Air quality assessments have been requested for	RBC	Ongoing	Ongoing	Not specified	Not specified	CEMEX Climafuel Facility Malpass Farm, Rugby.	Ongoing Local Plan (July 2006)		

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
		land use planning developments that meet AQMA thresholds in the Rugby Borough Local Plan (July 2006. The requirements for 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						Rugby Radio Station Sustainable Urban Extension Rugby Mast Site SUE Rugby Gateway SUE Leicester Road and Rugby College Development (Former Alstom GEC) DIRFT II & III Stretton Croft Mixed Use Development Cattle Market Mixed Use Development Cawston Residential Developments- Lime Tree Village Extension, Coton Residential Developments Rugby and Daventry Crematorium and Cemetery	superseded with Core Strategy/ Planning Obligations Supplementary Planning Document adopted in March 2012. Section 7 covers Air Quality as well as providing an air quality guidance document for developers that has been agreed by Cabinet 4th February 2013		

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
		development has potential to impact on air quality and should be a material consideration.						Queen Jubilee Sports Centre that will include a biomass boiler Cemex Climafuel Manufacturing Facility Distr bution Centre (Former Peugeot Factory)- this includes construction of a new roundabout on Oxford Road Barby Pools Marina Long Lawford residential developments Priory Road, Wolston Residential Development Biomass Boiler for Queens Jubilee Leisure Centre Crematorium Facility, Ashlawn Road, Rugby			

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

The latest NO_2 monitoring data within the Borough has indicated exceedences of the annual mean NO_2 objective occurred in 2013 at three diffusion tube monitoring locations:

- Site S24 (Dun Cow, Dunchurch; 46.6 µg/m^3).
- Site S46 (Oxford Road, Ryton; 40.9 µg/m^3).
- Site S10 (Webb Ellis Pub, Corporation Street; 40.2 µg/m^3).

The exceedences at sites S10 and S24 are within the boundary of the current AQMA. Long-term monitoring at site S10 reveals numerous exceedences of the annual mean NO_2 objective at this location in recent years. The latest data indicates a levelling off of a reduction in NO_2 concentrations that had been apparent between 2010 and 2012. Monitoring at site S24 commenced in April 2012 so 2013 is the first complete calendar year for which data is available. The annualised NO_2 concentration in 2012 indicated potential exceedence of the annual mean NO_2 objective at this location; the monitoring data for 2013 confirm this finding.

The identified exceedence at site S46 is of greater concern as the monitoring site is outside of the existing AQMA boundary and there are a number of large-scale commercial developments proposed in the vicinity. Similar to site S24, monitoring commenced at site S46 in April 2012 and so 2013 is the first full calendar year for which data are available. Monitoring site S46 is not however situated at a location of relevant exposure. After correction for distance from the kerb, using the NO_2 falloff with distance calculator, the predicted annual mean NO_2 concentration at the nearest sensitive receptor is 30.8 µg/m^3, which is below the annual mean NO_2 objective. Therefore, a Detailed Assessment of NO_2 is not required at this stage.

10.2 Conclusions relating to New Local Developments

Planning permissions were granted for the Stretton Croft Mixed Use Development and Cawston Residential Developments which were detailed in the 2013 Progress Report. Both have the potential to impact on air quality due to increased associated traffic volumes on roads.

10.3 Other Conclusions

A screening assessment of the biomass boiler at the Queen's Diamond Jubilee Sports Centre has been carried out. The results of the screening assessment indicate that pollutant emissions from the biomass boiler are unlikely to result in significant air quality impacts, and consequently a Detailed Assessment is not required.

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.

10.4 Proposed Actions

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

- Submit an Updating and Screening Assessment in 2015, in accordance with the LAQM Review and Assessment process.
- Continue to operate a network of diffusion tubes throughout the Borough to inform of NO_2 concentrations in the Borough.
- Maintain the extent of the existing AQMA for NO_2.

In accordance with local planning policy, Rugby Borough Council will continue to ensure that appropriate air quality assessments are submitted during the planning application process to identify those developments that may give rise to unacceptable air quality impacts. In cases where significant adverse air quality impacts are identified the Council will ensure measures are implemented by the applicant to mitigate or offset such impacts.

Appendices

Appendix A: Bias Adjustment and QA:QC

Factor from Local Co-location Studies

A local bias adjustment factor for NO_2 Diffusion Tube monitoring was derived from a co-location study carried out at a continuous monitoring station. Triplicate tubes were placed alongside the NO_X Analyser at Rugby Road, Leamington Spa for 2013. After removal of outlying results in periods 3, 7 and 11, a local bias adjustment factor of 0.84 was calculated. Details of the local bias adjustment calculation are shown in Figure A.1. For details of the outlying values removed see Table A.4.

Figure A.1 NO_2 Diffusion Tube Local Bias Adjustment Calculation, 2013

Checking Precision and Accuracy of Triplicate Tubes

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	07/01/2013	01/02/2013	42.1	42.3	38.3	41	2.3	6	5.6	32.7	95.8	Good	Good
2	01/02/2013	28/02/2013	34.8	38.1	35.5	36	1.7	5	4.3	33.4	99.8	Good	Good
3	28/02/2013	27/03/2013	21.1	23.4		22	1.6	7	14.6	32.4	95.5	Good	Good
4	27/03/2013	01/05/2013	22.7	24.7	22.6	23	1.2	5	2.9	21.4	98.3	Good	Good
5	01/05/2013	30/05/2013	19.9	19.5	19.7	20	0.2	1	0.5	16.6	100.0	Good	Good
6	30/05/2013	01/07/2013	17.3	17.2	13.4	16	2.2	14	5.5	12.8	98.6	Good	Good
7	01/07/2013	02/08/2013		17.7	17.5	18	0.1	1	1.3	14.7	95.8	Good	Good
8	02/08/2013	05/09/2013	18.6	18.0	17.9	18	0.4	2	0.9	13.4	100.0	Good	Good
9	05/09/2013	01/10/2013	24.1	26.4	24.5	25	1.2	5	3.1	17.9	100.0	Good	Good
10	01/10/2013	31/10/2013	21.4	24.1	23.6	23	1.4	6	3.6	18.1	100.0	Good	Good
11	31/10/2013	05/12/2013		37.0	43.5	40	4.6	11	41.3	30.1	100.0	Good	Good
12	05/12/2013	09/01/2014	28.2	24.6	27.6	27	1.9	7	4.8	17.2	99.9	Good	Good
13													

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Overall survey → Good precision | Good Overall DC

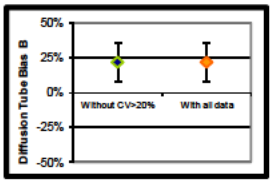
(Check average CV & DC from Accuracy calculations)

Site Name/ ID	LeamingtonSpaRugbyRd

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%	
Bias calculated using 12 periods of data	
Bias factor A	0.84 (0.76 - 0.95)
Bias B	19% (5% - 32%)
Diffusion Tubes Mean	26 μgm^3
Mean CV (Precision):	6
Automatic Mean	22 μgm^3
Data Capture for periods used:	99%
Adjusted Tubes Mean	22 (20 - 24) μgm^3

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 12 periods of data	
Bias factor A	0.84 (0.76 - 0.95)
Bias B	19% (5% - 32%)
Diffusion Tubes Mean	26 μgm^3
Mean CV (Precision):	6
Automatic Mean	22 μgm^3
Data Capture for periods used:	99%
Adjusted Tubes Mean	22 (20 - 24) μgm^3



Jaume Targa, for AEA
Version 04 - February 2011

National Bias Adjustment Factors

A national bias adjustment factor of 0.80 was obtained from the national Spreadsheet of Bias Adjustment Factors Version 03/14 using the following inputs:

- Analysed By: Environmental Services Group Didcot;
- Method: 50% TEA / Acetone;
- Year: 2013.

The output is shown in Figure A.2.

Figure A.2 NO_2 Diffusion Tube National Bias Adjustment Factors, 2013

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/14

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2014
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[3].

Step 4: **Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.**

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
ESG Didcot	50% TEA in acetone	2013	B	Gravesham Borough Council	11	33	32	4.8%	G	**0.95**
ESG Didcot	50% TEA in acetone	2013	B	Gravesham Borough Council	12	44	32	39.8%	G	**0.72**
ESG Didcot	50% TEA in acetone	2013	R	Falkirk Council	12	35	31	14.2%	G	**0.88**
ESG Didcot	50% TEA in acetone	2013	UB	Falkirk Council	12	25	20	22.7%	G	**0.81**
ESG Didcot	50% TEA in acetone	2013	B	Pembrokeshire Council	12	7	6	17.3%	P	**0.85**
ESG Didcot	50% TEA in acetone	2013	UB	Medway	12	24	25	-3.5%	G	**1.04**
ESG Didcot	50% TEA in acetone	2013	R	Medway Council	10	36	27	36.5%	G	**0.73**
ESG Didcot	50% TEA in acetone	2013	B	Medway	11	26	14	84.9%	P	**0.54**
ESG Didcot	50% TEA in acetone	2013	R	Wrexham County Borough Council	12	23	22	8.3%	G	**0.92**
ESG Didcot	50% TEA in acetone	2013	UI	Stockton on Tees	12	27	20	38.0%	G	**0.72**
ESG Didcot	50% TEA in acetone	2013	R	Stockton on Tees	12	21	16	30.5%	G	**0.77**
ESG Didcot	50% TEA in acetone	2013	SU	Thanet District Council	11	21	16	29.5%	P	**0.77**
ESG Didcot	50% TEA in acetone	2013	R	Thanet District Council	11	29	24	17.9%	P	**0.85**
ESG Didcot	50% TEA in acetone	2013	R	Cambridge City Council	12	46	35	33.3%	G	**0.75**
ESG Didcot	50% TEA in acetone	2013	R	Swale Borough Council	10	45	41	9.3%	G	**0.91**
ESG Didcot	50% TEA in acetone	2013	R	Swale Borough Council	12	40	34	16.0%	P	**0.86**
ESG Didcot	50% TEA in acetone	2013	R	Swale Borough Council	12	41	40	4.0%	G	**0.96**
ESG Didcot	50% TEA in acetone	2013	R	Swale Borough Council	11	53	34	54.8%	G	**0.65**
ESG Didcot	50% TEA in acetone	2013	R	North East Lincolnshire Council	11	59	49	19.5%	G	**0.84**
ESG Didcot	50% TEA in acetone	2013	R	North East Lincolnshire Council	11	34	30	12.3%	G	**0.89**
ESG Didcot	50% TEA in acetone	2013	R	North East Lincolnshire Council	11	40	31	26.9%	G	**0.79**
ESG Didcot	50% TEA in acetone	2013	R	Rugby Borough Council	12	26	22	16.6%	P	**0.86**
ESG Didcot	50% TEA in acetone	2013	KS	Marylebone Road Intercomparison	12	109	81	34.8%	G	**0.74**
ESG Didcot	50% TEA in acetone	2013	UB	City of York Council	11	25	19	29.7%	G	**0.77**
ESG Didcot	50% TEA in acetone	2013	R	City of York Council	12	40	28	41.2%	G	**0.71**
ESG Didcot	50% TEA in acetone	2013	R	City of York Council	12	34	24	38.0%	G	**0.72**
ESG Didcot	50% TEA in acetone	2013	R	City of York Council	10	40	31	28.3%	G	**0.78**
ESG Didcot	50% TEA in acetone	2013	KS	Suffolk Coastal District Council	11	46	41	11.8%	G	**0.89**
ESG Didcot	50% TEA in acetone	2013		**Overall Factor[3] (28 studies)**				**Use**		**0.80**

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_2 diffusion tube results. It was decided to use the local factor for bias adjustment for the following reasons:

- Local bias adjustment factor calculation was based on co-location studies carried out at a single monitoring station, unlike in 2012 where the co-location was moved during the year. The continuous monitoring site achieved good data capture.
- The local bias adjustment factor was slightly higher than the local figure (0.84 compared to 0.80) and therefore will give more conservative estimates of NO_2 concentrations.

QA/QC of Diffusion Tube Monitoring

All NO_2 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_2 Monitoring: Practical Guidance'.

Environmental Services Group achieved 100% satisfactory laboratory performance in WASP Rounds 120 – 122, inclusive, based on the z-score assessment criterion.

Appendix B: Short-term to Long-term adjustment of diffusion tube monitoring data

Table A.3 Short-Term to Long-Term Monitoring Data Adjustment

Nitrogen Dioxide				
Site	**Site Type**	**Annual Mean ($\mu g/m^3$)**	**Period Mean ($\mu g/m^3$)**	**Ratio**
PERIOD 1: Jan, Jun-Dec 2013				
Birmingham Acocks Green	Urban Background	35.35	36.64	0.965
Leamington Spa	Urban Background	20.04	19.71	1.017
Northampton Kingsthorpe	Urban Background	13.92	15.04	0.925
			Average	0.969
PERIOD 2: Jun-Dec 2013				
Birmingham Acocks Green	Urban Background	35.35	34.27	1.032
Leamington Spa	Urban Background	20.04	18.23	1.099
Northampton Kingsthorpe	Urban Background	13.92	13.60	1.024
			Average	1.051
PERIOD 3: Jun-Sept, Nov, Dec 2013				
Birmingham Acocks Green	Urban Background	35.35	34.17	1.035
Leamington Spa	Urban Background	20.04	18.76	1.068
Northampton Kingsthorpe	Urban Background	13.92	13.32	1.045
			Average	1.049
PERIOD 4: Jun-July, Sept -Dec 2013				
Birmingham Acocks Green	Urban Background	35.35	35.26	1.003
Leamington Spa	Urban Background	20.04	18.18	1.103
Northampton Kingsthorpe	Urban Background	13.92	14.07	0.989
			Average	1.032

Appendix C: NO_2 Falloff with Distance Calculations

The annual mean NO_2 concentration at diffusion tube site S46 was found to exceed the annual mean objective. However, the diffusion tube is not situated at a location of relevant exposure. The diffusion tube is 3 metres from the kerb of the adjacent road whereas the nearest residential properties are approximately 10 metres from the kerbside – the NO_2 falloff with distance calculator was used to estimate annual mean NO_2 concentrations at the facade of the nearest residential properties. Figure A.3 shows details of this calculation.

Figure A.3 NO_2 Fall off with Distance Calculation

Step 1	**How far from the KERB was your measurement made (in metres)?**	(Note 1)	**1**	metres
Step 2	**How far from the KERB is your receptor (in metres)?**	(Note 1)	**10**	metres
Step 3	**What is the local annual mean background NO_2 concentration (in µg/m^3)?**	(Note 2)	**19.08**	µg/m^3
Step 4	**What is your measured annual mean NO_2 concentration (in µg/m^3)?**	(Note 2)	**40.9**	µg/m^3
Result	**The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor**	(Note 3)	**30.8**	µg/m^3

Appendix D: Raw Monthly NO_2 Diffusion Tube Results

Table A.4 Raw Monthly Diffusion Tube Monitoring Results, 2013 (µg/m^3)

Site Ref.	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
S1	44.4	31.7	26.0	23.1	23.0	17.9	17.2	19.7	24.9	22.9	34.3	23.4
S2	42.7	30.7	26.1	18.9	20.6	18.0	19.1	17.3	23.7	17.1	27.3	18.0
S3	40.9	30.1	1.1	34.6	14.4	11.9	12.6	12.4	17.0	17.5	27.9	19.8
S4	29.2	24.4	19.9	14.4	16.1	11.7	12.2	11.6	18.2	15.3	26.0	15.4
S5	51.8	52.6	32.9	33.5	40.8	31.0	29.4	31.5	41.3	29.5	55.3	20.2
S6	35.8	32.4	25.3	20.2	19.1	13.6	14.3	13.3	17.2	17.3	30.0	16.5
S7	33.0	25.0	18.1	14.1	14.5	9.3	10.9	11.1	15.1	14.3	24.7	13.5
S8	46.5	53.5	35.1	36.5	34.8	29.4	39.5	29.1	32.8	33.8	48.2	31.1
S9	35.4	29.7	18.3	19.7	20.0	16.6	14.7	18.1	24.1	19.7	38.0	20.5
S10	57.4	62.2	46.6	42.7	48.7	36.3	46.2	41.9	47.7	49.5	60.4	35.2
S11	46.0	42.6	28.5	25.7	25.6	22.8	22.8	22.9	29.4	29.4	45.7	24.1
S12	38.5	36.4	21.0	22.8	22.0	16.7	16.3	19.5	21.5	21.1	44.4	20.9
S13	53.3	47.6	34.9	30.5	43.7	33.5	6.8	37.1	44.4	37.9	62.2	Missing
S14	34.4	31.8	18.3	13.7	19.7	13.6	15.4	15.1	21.7	21.0	37.6	19.5
S15	49.3	32.8	27.6	28.1	28.4	26.9	26.4	30.3	36.3	36.4	52.0	38.2
S16	38.7	39.4	21.9	23.7	27.5	25.1	29.1	21.4	31.4	27.3	39.3	24.0
S17[A]	42.1	34.8	21.1	22.7	19.9	17.3	25.3	18.6	24.1	21.4	13.7	28.2
S18[A]	42.3	38.1	23.4	24.7	19.5	17.2	17.7	18.0	26.4	24.1	37.0	24.6
S19[A]	38.3	35.5	33.8	22.6	19.7	13.4	17.5	17.9	24.5	23.6	43.5	27.6
S20	60.8	53.1	34.0	31.4	34.5	22.5	31.8	30.0	29.9	33.5	52.9	36.5
S21	50.9	37.3	24.2	21.1	21.3	20.0	23.3	24.3	30.5	28.1	39.9	27.2
S22	36.3	36.6	27.8	23.0	25.0	20.5	24.2	21.7	23.3	25.7	39.9	24.2
S23	49.7	40.0	Missing	27.3	27.3	25.2	23.2	24.2	33.2	29.9	48.0	Missing
S24	63.2	68.7	51.0	51.3	57.9	48.7	49.5	47.7	52.4	54.9	78.0	42.1
S25	57.0	49.7	27.4	29.7	39.6	29.6	31.8	28.1	40.3	33.5	39.8	32.8
S26	34.7	42.3	25.9	20.2	22.5	18.6	17.8	20.7	22.6	24.9	38.3	23.6
S27	41.1	37.4	27.9	Missing	23.8	Missing	23.1	14.6	22.6	29.6	39.1	26.0
S28	41.7	40.9	20.4	18.5	21.3	13.6	15.9	19.1	19.2	23.7	33.5	22.7
S29	51.1	40.3	21.1	23.0	22.2	18.4	20.7	20.3	27.6	26.8	36.2	27.3
S30	63.9	53.6	46.8	40.8	36.8	34.6	39.6	38.0	43.2	33.6	55.7	44.4
S31	52.6	49.3	22.8	33.9	33.7	27.8	31.6	31.0	31.1	35.7	55.6	32.9
S32	4.0	48.0	37.1	31.9	38.9	3.3	30.0	29.9	35.6	32.8	53.6	28.9

Site Ref.	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
S33	50.3	36.0	25.7	23.4	25.9	22.5	21.7	25.0	28.6	30.2	42.0	28.5
S34	49.8	44.8	26.6	26.1	29.1	23.4	25.1	36.6	24.8	31.3	50.2	28.3
S35	55.3	25.2	30.7	32.9	34.8	33.1	33.5	36.0	37.0	37.8	51.3	42.9
S36	62.6	48.3	Missing	39.0	42.1	32.9	36.1	35.1	42.1	42.6	58.7	39.4
S37	56.0	47.4	34.9	28.5	38.1	Missing	Missing	Missing	37.2	33.5	57.4	26.8
S38	44.1	43.3	27.6	27.1	22.9	28.6	25.4	34.1	32.2	27.3	52.6	26.9
S39	52.9	49.6	28.7	31.0	34.5	Missing	31.0	33.5	37.2	37.7	55.2	35.0
S40	52.4	55.2	38.0	31.1	33.1	31.6	30.4	31.8	41.9	32.7	55.5	28.5
S41	42.4	47.5	36.7	31.6	32.7	24.5	29.2	21.6	28.9	28.3	43.9	25.6
S42	34.1	41.1	34.2	29.5	28.4	26.2	27.1	22.1	30.7	27.3	42.8	25.7
S43	43.9	48.0	33.8	28.5	32.4	31.0	35.8	27.5	36.4	36.4	45.9	27.1
S44	Missing	Missing	29.4	26.5	29.7	21.9	26.1	27.9	53.0	29.1	51.7	22.6
S45	46.0	Missing	Missing	Missing	Missing	25.5	28.7	25.9	29.0	32.9	45.4	30.8
S46	61.6	57.8	41.8	39.2	46.4	43.7	50.1	42.4	53.1	45.2	67.0	35.6
S47	63.9	46.0	38.9	36.4	40.2	36.6	38.7	31.0	46.6	40.1	57.0	28.2
S48	56.7	42.0	30.5	Missing	39.2	31.9	33.9	37.7	34.9	37.1	59.7	46.2
S49	56.1	55.3	Missing	Missing	42.6	Missing	41.7	43.5	46.4	45.6	62.9	28.2
S50	51.2	Missing	Missing	Missing	Missing	24.2	22.6	20.1	31.2	28.2	40.8	22.3
S51 [B]	-	-	-	-	34.5	31.5	34.1	34.9	35.4	36.3	49.1	28.9
S52 [B]	-	-	-	-	26.2	23.4	22.8	21.4	29.4	Missing	36.9	25.7
S53 [B]	-	-	-	-	24.0	19.2	16.3	Missing	27.6	25.4	43.9	17.1

Notes: [A] Co-located triplicate site. Outlying results from co-located highlighted yellow. Other spurious results omitted from annual mean calculations highlighted green. [B] Monitoring commenced at sites S51 to S53 in May 2013, therefore no results for January to April 2013, inclusive.

Appendix E: Assessment of Biomass Boiler at Queen's Diamond Jubilee Sports Centre

A screening assessment has been carried out to determine the potential for local air quality impacts arising from the proposed biomass boiler at the Queen's Diamond Jubilee Sports Centre. The approach outlined in Box 5.8 D.1a of LAQM.TG(09) has been applied and it has been found that it will **not** be necessary to proceed to a Detailed Assessment of air quality for this source. The screening assessment calculations are shown below.

LAQM.TG(09) states that both NO_2 and PM_{10} should be considered. However, the biomass boiler will be fitted with a ceramic filter that removes 96% of PM_{10} emissions; consequently, only NO_2 emissions have been considered.

Input Data

- Maximum Thermal Capacity: 200 kW Th
- Height of Stack: 13 metres
- Building height: 11 metres
- Stack diameter: 0.45 metres
- NO_X emission rate: 0.036 g/s
- Annual Mean Background NO_2 Concentration: 16 µg/m^3
- Effective Stack Height = 1.66 × (Actual Stack Height – Height of Highest Building within 5 stack heights' distance) = 1.66 × (13 – 11) = 3.32 metres

Background-adjusted emission rates (E_A)

Annual Mean NO_2

E_A = Emission Rate (g/s) ÷ (40 – Annual mean background NO_2)

E_A = 0.036 g/s ÷ (40 – 16)

E_A = 0.0015 g/s

Hourly Mean NO_2

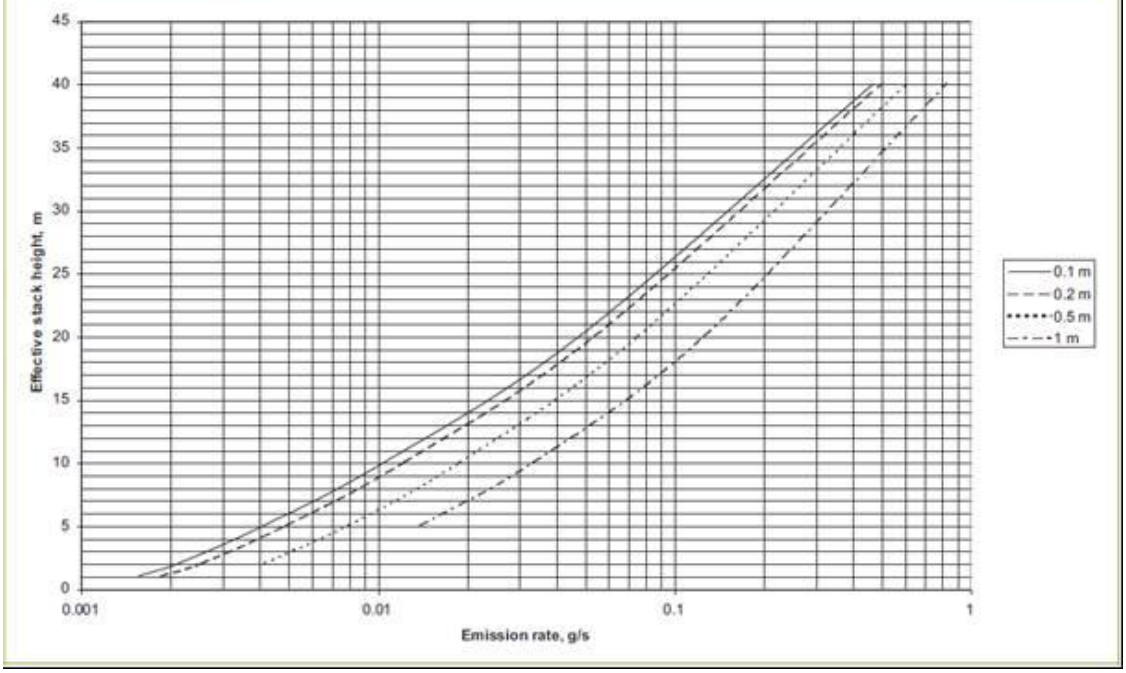
E_A = (40 × Emission Rate (g/s)) ÷ (200 – 2 × Annual mean background NO_2)

E_A = (40 × 0.036 g/s) ÷ (200 – 2 × 16)

E_A = 0.009 g/s

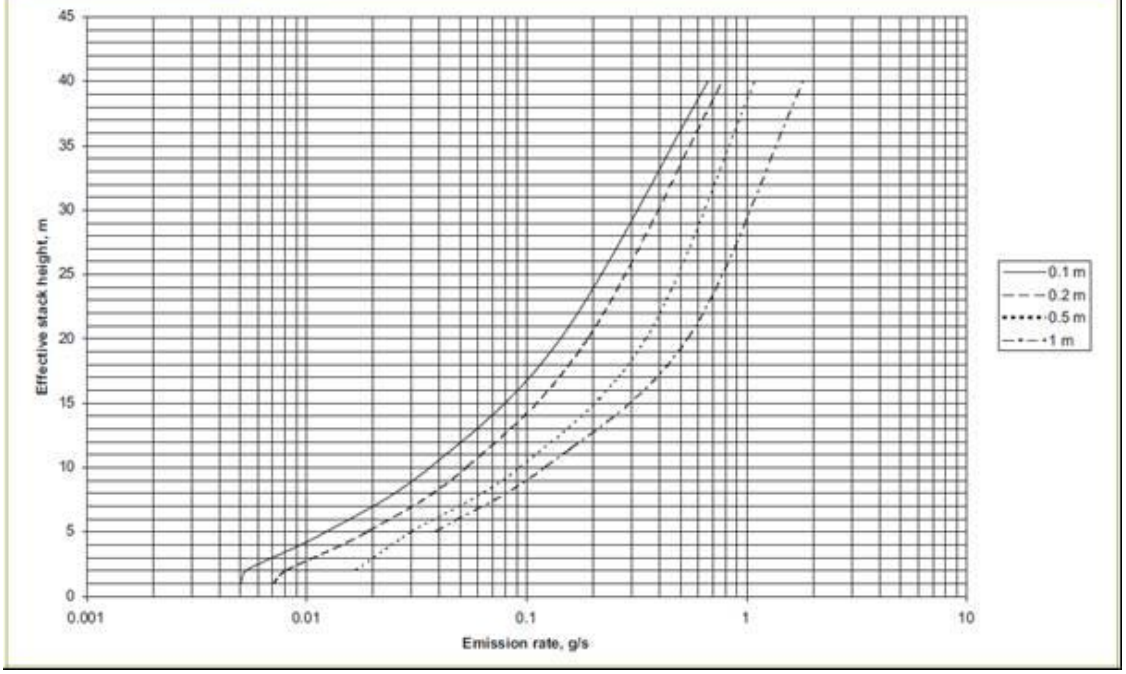
Based on an effective stack height of 3.3 metres and a stack diameter of 0.5 metres, Figure 5.20 of LAQM.TG(09) (reproduced below) indicates a threshold emission rate with regard to annual mean NO_2 of approximately 0.004 g/s.

Figure 5.20: nitrogen dioxides emissions to give an annual mean ground-level nitrogen dioxides concentration of 1 µg/m³



Based on an effective stack height of 3.3 metres and a stack diameter of 0.5 metres, Figure 5.21 of LAQM.TG(09) (reproduced below) indicates a threshold emission rate with regard to hourly mean NO_2 of approximately 0.01 g/s.

Figure 5.21: Emissions of nitrogen oxides that will give a 99.8th percentile of 1-hour nitrogen dioxide concentrations of 40 µg/m³



The background-adjusted emission rates and threshold emission rates for annual mean NO_2 and hourly mean NO_2 are summarised in Table A.5. Since the background-adjusted emission rates for annual mean NO_2 and hourly mean NO_2 are less than the respective threshold emission rates a Detailed Assessment for NO_2 is not required.

Table A.5 Background-Adjusted and Threshold Emission Rates

	Annual Mean NO_2	Hourly Mean NO_2
Emission Rate (g/s)	0.036	0.036
Background NO_2 Concentration ($\mu g/m^3$)	16	16
Background-adjusted NO_2 emission rate	0.0015	0.009
Threshold Emission Rate (g/s)	0.004	0.01

Appendix F: 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 Dismantled but permit still in force 26.07.10 **Permit Surrendered 01.04.12**	SP [illegible]	2202/001	Concrete Batching
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 www.sainsbury.co.uk	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

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35/PPC/1.4(b)	25.09.98 31.03.03 16.03.04 02.11.09	Tesco Stores Limited, P.O. Box 400, Cirrus Building, Shire Park, Welwyn Garden City, Herts, AL7 1AB. Contact: Lynda Vick 01707 634088	Tesco Stores Limited, 1 Leicester Road, RUGBY. CV21 1RG.	SP 506769	8486/001	Unloading of 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

Ref No.	Date Authorised	Applicant and Invoice Address	Address to which relates	O S Grid Ref.	Customer Number	Process
						station
41/PPC/1.4(b)	22.01.99 10.02.06 12.03.09	Murco Petroleum Limited 4 Beaconsfield Road St. Albans Hertfordshire AL1 3RH	Binley Woods Service Station, Coventry Eastern By-pass, COVENTRY, CV3 2ZZ.	SP 382769	9449/001	Unloading of 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

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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

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64/PPC/ A1 Installation (EA Reference EA/PPC/BP3234LK 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

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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

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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

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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

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[xiii] Rugby Borough Council (2013). Air Quality Action Plan Progress Report.