



Nuneaton and Bedworth Borough Council LAQM Progress Report 2014

Bureau Veritas



July 2014



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Document Control Sheet

Issue/Revision	Issue 1	Issue 2
Remarks	Draft	Final
Date	17/04/2014	23/07/2014
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File reference	2923	

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Report Reference number	Annual Progress Report 2014
Date	July 2014

Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work. This Annual Progress Report is a requirement of the Fifth Round of Review and Assessment and is a requirement for all local authorities. The Report has been prepared in accordance with the Technical Guidance LAQM.TG (09) and associated tools (2010 based).

This Annual Progress Report considers all new monitoring data and assesses the data against the Air Quality Strategy objectives. It also considers any changes that may have an impact on air quality.

Updated monitoring showed that there were no exceedences of the Air Quality Objectives outside of existing Air Quality Management Areas (AQMAs) or where relevant exposure was present.

There have been no new sources identified in the Borough which require any further assessment at the current time.

Proposed actions arising from the 2014 Annual Progress Report are as follows:

- Continue diffusion tube and continuous monitoring in the district to identify future changes in pollutant concentrations;
- Within Leicester Road Gyratory AQMA, it is recommended to relocate some of the monitoring sites to the façade of properties if possible; and
- Proceed to the Updating and Screening Assessment 2015.

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1 Introduction

1.1 Description of Local Authority Area

Nuneaton and Bedworth is the smallest in geographical area (7,898 hectares) of the five districts in Warwickshire, but has the second highest population (122,200 – 2010 mid-year estimate¹). The Borough is urban in character containing 3 main settlements: Nuneaton (78,403 – 2001 census), Bedworth (34,426) and Bulkington (6,303) which are separated by narrow areas of countryside. The borough has a high density of residential properties. This has both advantages and disadvantages; access to services and public transport is very good, but there are social and environmental problems associated with the high population density. The population of the Borough is predicted to grow by 18.8% between 2010 and 2035.

The main source of air pollution in the Borough is road traffic emissions from major roads, notably the A444, A47, A5 and M6. An Air Quality Management Area (AQMA) was declared in March 2007 along the A47 Leicester Road in Nuneaton town centre where exceedences of the annual mean objective for nitrogen dioxide (NO₂) were predicted. A second AQMA was declared for NO₂ in October 2009 encompassing an area of Nuneaton from Midland Road to Corporation Street. Other pollution sources, including commercial, industrial and domestic sources, also make a contribution to background pollution concentrations

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 (AQS) 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 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.

¹ Warwickshire Observatory – Warwickshire County Council updated from the Office for National Statistics, June 2011

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 should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in England are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre ($\mu\text{g}/\text{m}^3$) (milligrammes per cubic metre (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 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particulate Matter (PM ₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

The conclusions of the First Round of LAQM Review and Assessment, commencing in 1998, were that all AQS objectives were expected to be met and that no AQMAs were required.

Following the outcome of the Second Round Updating and Screening Assessment (USA) in 2003, the Council undertook a Detailed Assessment in 2004, which concluded that there was a potential risk of exceedence of the annual mean NO₂ objective at receptors adjacent to the Leicester Road Gyratory, based on the limited monitoring data available at that time. Further monitoring and modelling was undertaken to confirm the findings of the Detailed Assessment and the results indicated that there remained a risk of exceedences of the annual mean NO₂ objective at sensitive receptors adjacent to the Leicester Road Gyratory. The area was declared as an AQMA on 1st March 2007 and a continuous monitoring station was installed. The Further Assessment was completed in January 2008 and a draft Action Plan has been drawn up setting out measures to work towards achieving compliance with the prescribed objectives.

Nuneaton & Bedworth Borough Council completed the Third Round USA in June 2006 with the conclusion that a Detailed Assessment was not required for any pollutant. However, subsequent annual Progress Reports indicated, through local monitoring data, that exceedences of the annual mean NO₂ objective had occurred along Central Avenue in Nuneaton and a Detailed Assessment was undertaken in 2008. This concluded that there was a potential risk of exceedences of the annual mean objective for NO₂ and recommended declaration of a second AQMA. An AQMA covering the Corporation Street to Midland Road was declared in October 2009. The Further Assessment was completed in 2010 and the Council's AQAP updated to incorporate the second AQMA.

The 2008 Progress Report indicated that a number of roadside/kerbside sites may be at risk of exceeding the annual mean objective outside the areas previously assessed. It was therefore recommended that façade-based monitoring be installed at these locations to demonstrate compliance with the objective.

The Fourth Round 2009 USA findings indicated that the objectives were likely to be achieved for all pollutants outside of the existing AQMAs. A Detailed Assessment of PM₁₀ was recommended to assess the impact of waste transfer facilities ABS Skips, Midland Road, Nuneaton; Crown Waste, Pool Road, Nuneaton; and Budget Skips (and Hammonds Skips - adjoining premises), Colliery Lane, Exhall. A further recommendation was to commence additional diffusion tube monitoring at Black Bank (at the junction of Colliery Lane and Coventry Road, and the West Coast Main Line).

A further review of the fugitive emission source from waste transfer sites in the borough has been undertaken by the Council following the recommendation that a Detailed Assessment be undertaken. The decision to propose undertaking a Detailed Assessment was due to the proximity of receptors to the sites and that there had been a history of complaints. An investigation into the complaints received regarding air quality issues from the installations has been undertaken by the council. This has found that complaints received were in relation to ABS Skips only and these were relating to odour issues and the storage of house-hold waste. Since the 2009 USA ABS Skips has relocated part of its operation to an industrial location. There have been no further complaints from any of the noted sites. It is therefore proposed that a Detailed Assessment is not required for the waste transfer sites.

In the 2010 Progress Report, no exceedences of the objectives were recorded as relevant receptors outside of the AQMAs. As the recorded NO₂ level at the 78 Bayton Road diffusion tube monitoring site was close to the annual mean objective, it was recommended that triplicate monitoring be undertaken to increase robustness of results.

The 2011 Progress Report identified one location outside of the AQMAs where the air quality objective for NO₂ was being exceeded, NB13 Watling Street. This site is situated at kerbside so it is not representative of relevant exposure. Other tubes in the area confirmed that objectives were being met at relevant receptors within the area. A further NO₂ exceedence was identified at NB36 78 Bayton Road. Due to limited data capture at this location it was recommended to continue monitoring and to review the 2011 monitoring data to determine if a Detailed Assessment is required. The report also identified possible issues with the data at the continuous monitoring location due to a large increase from previous years' concentrations.

The 2012 Updating and Screening Assessment found there to be no exceedences of the Air Quality Objective outside of the existing AQMAs, with many sites showing a reduction in NO₂ concentrations. Although the annual mean NO₂ concentrations increased at the majority of diffusion tube monitoring sites in 2012, concentrations outside of the AQMAs are all below the objectives at relevant locations, as confirmed by the 2013 Progress Report.

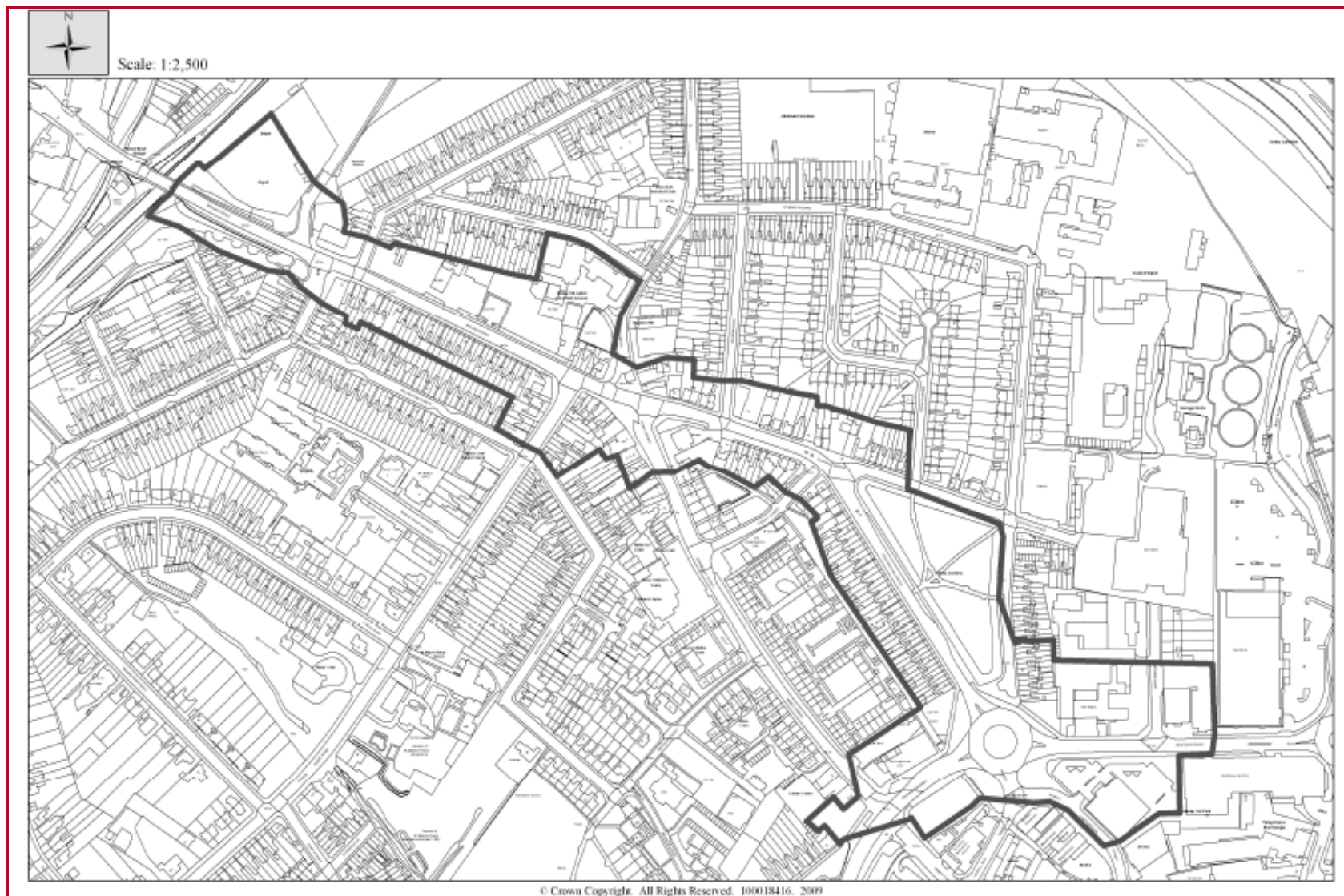
Table 1.2 Summary of Previous Reports Completed by Nuneaton & Bedworth Borough Council as Part of the LAQM Review and Assessment Process.

Report	Summary
2004 Detailed Assessment	The modelling identified a potential risk of exceedence of the annual mean NO ₂ objective at receptors adjacent to the Leicester Road Gyratory. The assessment recommended further monitoring and modelling. Subsequently the area was declared as an AQMA on 1st March 2007 and a continuous monitoring station was installed. The Further Assessment was completed in January 2008 and a draft Action Plan has been drawn up setting out measures to work towards achieving compliance with the prescribed objectives.
2006 Updating & Screening Assessment	The assessment concluded that a Detailed Assessment was not required for any pollutant. However, subsequent annual Progress Reports indicated, through local monitoring data, that exceedences of the annual mean NO ₂ objective had occurred along Central Avenue in Nuneaton and a Detailed Assessment was undertaken in 2008. This concluded that there was a potential risk of exceedences of the annual mean objective for NO ₂ and recommended declaration of a second AQMA. An AQMA covering the Corporation Street to Midland Road was declared in October 2009. The Further Assessment was completed in 2010 and the Council's AQAP updated to incorporate the second AQMA.
2008 Progress Report	The 2008 Progress Report indicated that a number of roadside/kerbside sites may be at risk of exceeding the annual mean objective outside the areas previously assessed. It was therefore recommended that façade based monitoring be installed at these locations to demonstrate compliance with the objective.
2009 Updating & Screening Assessment	<p>The Fourth Round 2009 USA findings indicated that the objectives were likely to be achieved for all pollutants outside of the existing AQMAs. A Detailed Assessment of PM₁₀ was recommended to assess the impact of waste transfer facilities ABS Skips, Midland Road, Nuneaton; Crown Waste, Pool Road, Nuneaton; and Budget Skips (and Hammonds Skips - adjoining premises), Colliery Lane, Exhall. Also, to commence additional diffusion tube monitoring at Black Bank and the West Coast Main Line.</p> <p>Since the 2009 USA ABS Skips has relocated part of its operation to an industrial location. There have been no further complaints from any of the noted sites. It is therefore proposed that a Detailed Assessment is not required for the waste transfer sites.</p>
2010 Air Quality Progress Report	In the 2010 Progress Report, no exceedences of the objectives were recorded as relevant receptors outside of the AQMAs. As the recorded NO ₂ level at the 78 Bayton Road diffusion tube monitoring site was close to the annual mean objective, it was recommended that triplicate monitoring be undertaken to increase robustness of results.
2011 Progress Report	The 2011 Progress Report identified one location outside of the AQMAs where the air quality objective for NO ₂ was being exceeded, NB13 Watling Street. This site is kerbside and not representative of relevant exposure. Other tubes in the area confirmed that objectives were being met at relevant receptors within the area. A further NO ₂ exceedence was identified at NB36 78 Bayton Road. Due to limited data capture at this location it was recommended to continue monitoring and to review the 2011 monitoring data to determine if a Detailed Assessment is required. The report also identified possible issues with the data at the continuous monitoring location due to a large increase from previous years' concentrations.
2012 Updating & Screening Assessment	The 2012 Updating and Screening Assessment found there to be no exceedences of the Air Quality Objective outside of the existing AQMAs, with many sites showing a reduction in NO ₂ concentrations. Although, the annual mean NO ₂ concentrations increased at the majority of diffusion tube monitoring sites in 2012, concentrations outside of the AQMAs are all below the objectives at relevant locations, as confirmed by the 2013 Progress Report.

Figure 1.1 Map of AQMA Boundary – Leicester Road Gyratory AQMA (2007)



Figure 1.2 Map of AQMA Boundary – Midland Road to Corporation Street AQMA (2009)



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Nuneaton & Bedworth Borough Council operated one continuous air quality monitoring station within the Borough in 2013. This site was installed in 2007 at the Leicester Road Gyratory, to more accurately assess NO₂ concentrations in the AQMA. Nitrogen dioxide concentrations are measured using a chemiluminescent analyser. The monitoring station location is shown in Figures 2.1 and 2.2.

Full details of the QA/QC procedure for both sites are provided in Appendix A.

Figure 2-1 Map of the Automatic Monitoring Site

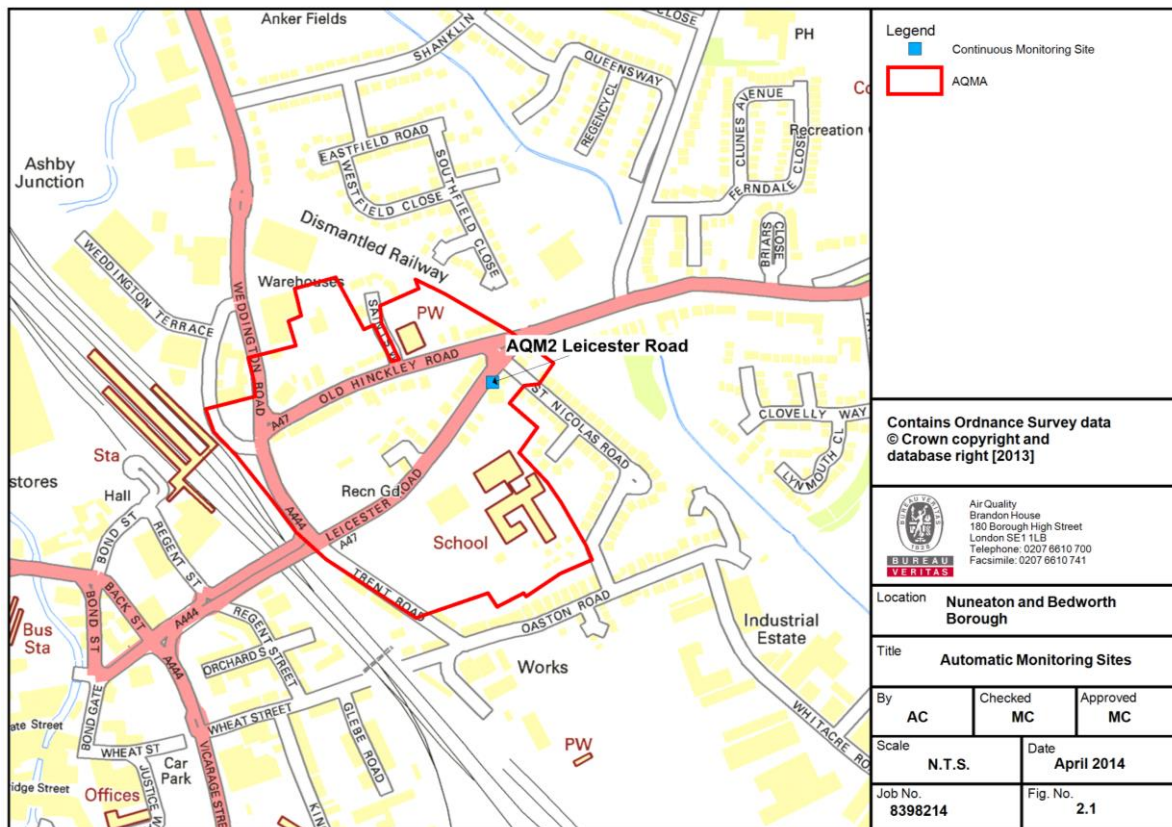
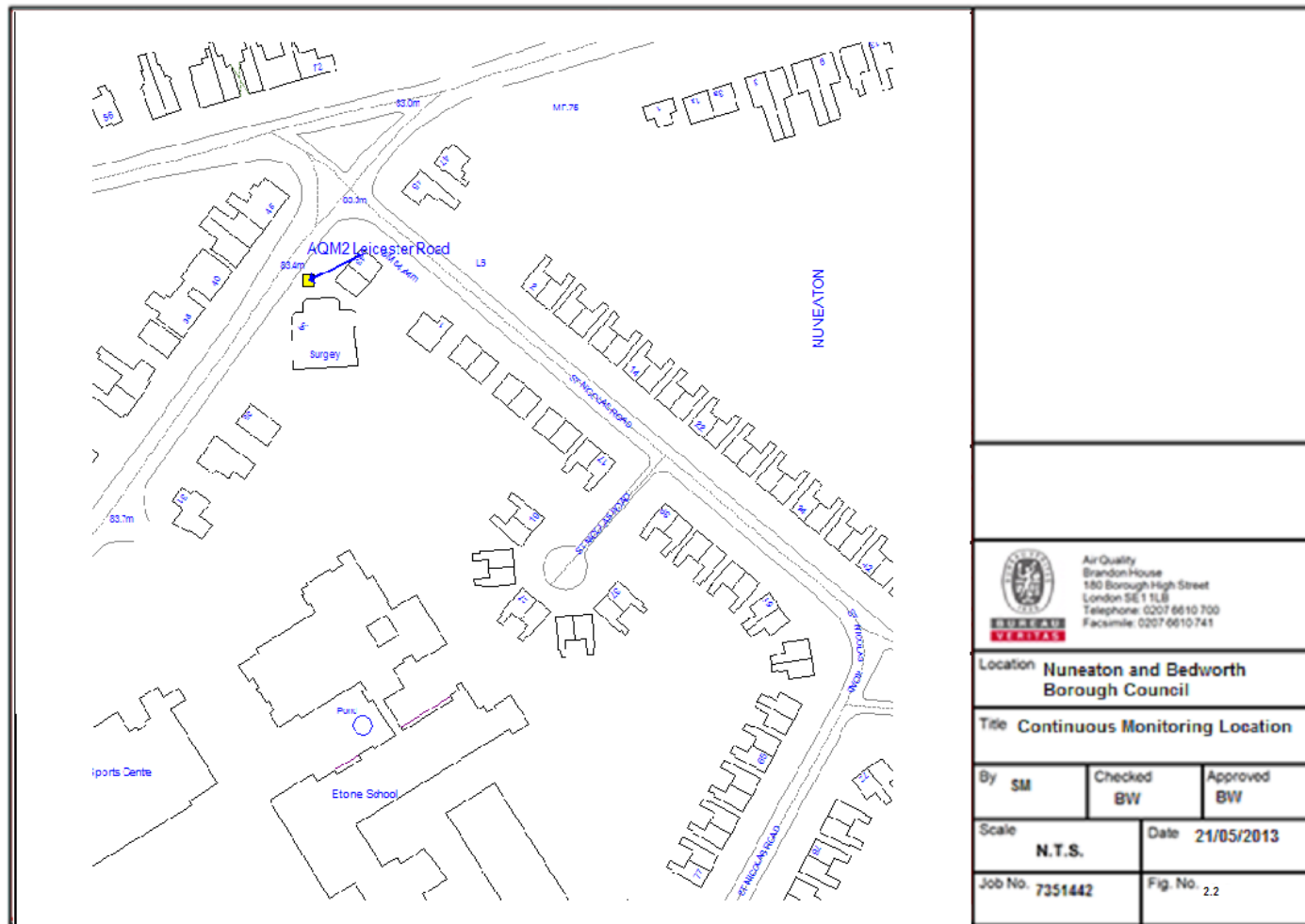


Figure 2-2 Map of Automatic Monitoring Site*



* The 2013 map remains in force and has been confirmed that no details have changed for this reporting period.

Table 2.1 Details of Automatic Monitoring Sites

Site ID	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure?	Distance to Kerb of Nearest Road (m)	Does this Location Represent Worst-Case Exposure?
AQM2 Leicester Road (AQMA)	Roadside	436850	292260	1.88	NO ₂	Yes	Chemiluminescent Analyser	Y (5m)	4m	No

2.1.2 Non-Automatic Monitoring Sites

In 2013 the Council monitored NO₂ at 39 sites in the Borough, using passive diffusion tubes.

This includes a set of triplicate tubes at the AQMA1 location, co-located with the continuous monitoring analyser at the Leicester Road Gyratory. The set also includes two monitoring sites NB41 (61 Mill Street) and NB42 (18 George Street) installed in 2012 to assess the impact from traffic flow as a result of the recent Tesco development.

There has been no change in diffusion tube locations from monitoring in 2012.

The details of the NO₂ diffusion tube monitoring network are shown in Figures 2.3 to 2.5 and Table 2.2.

Figure 2-3 Map of Non-Automatic Monitoring Sites

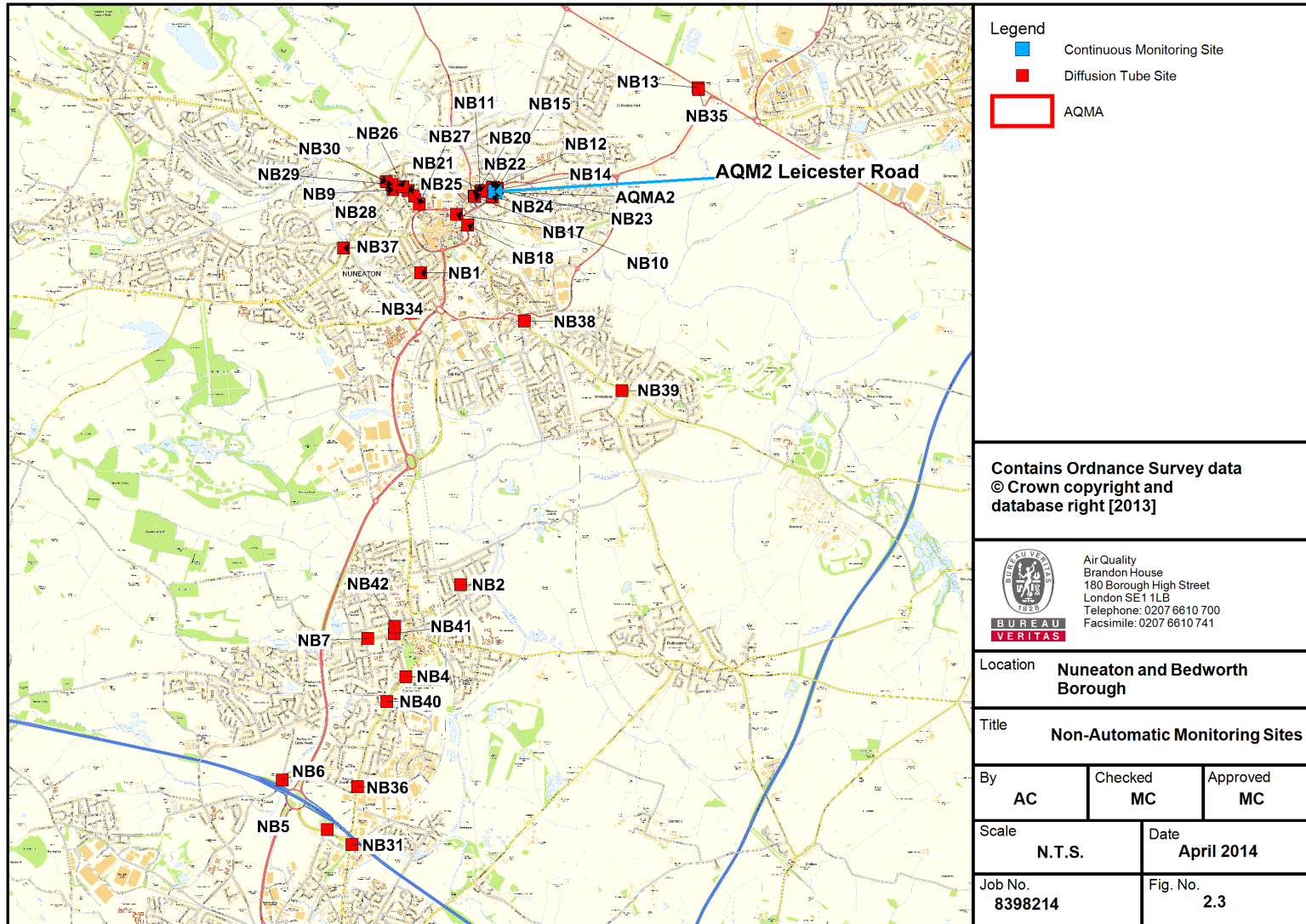
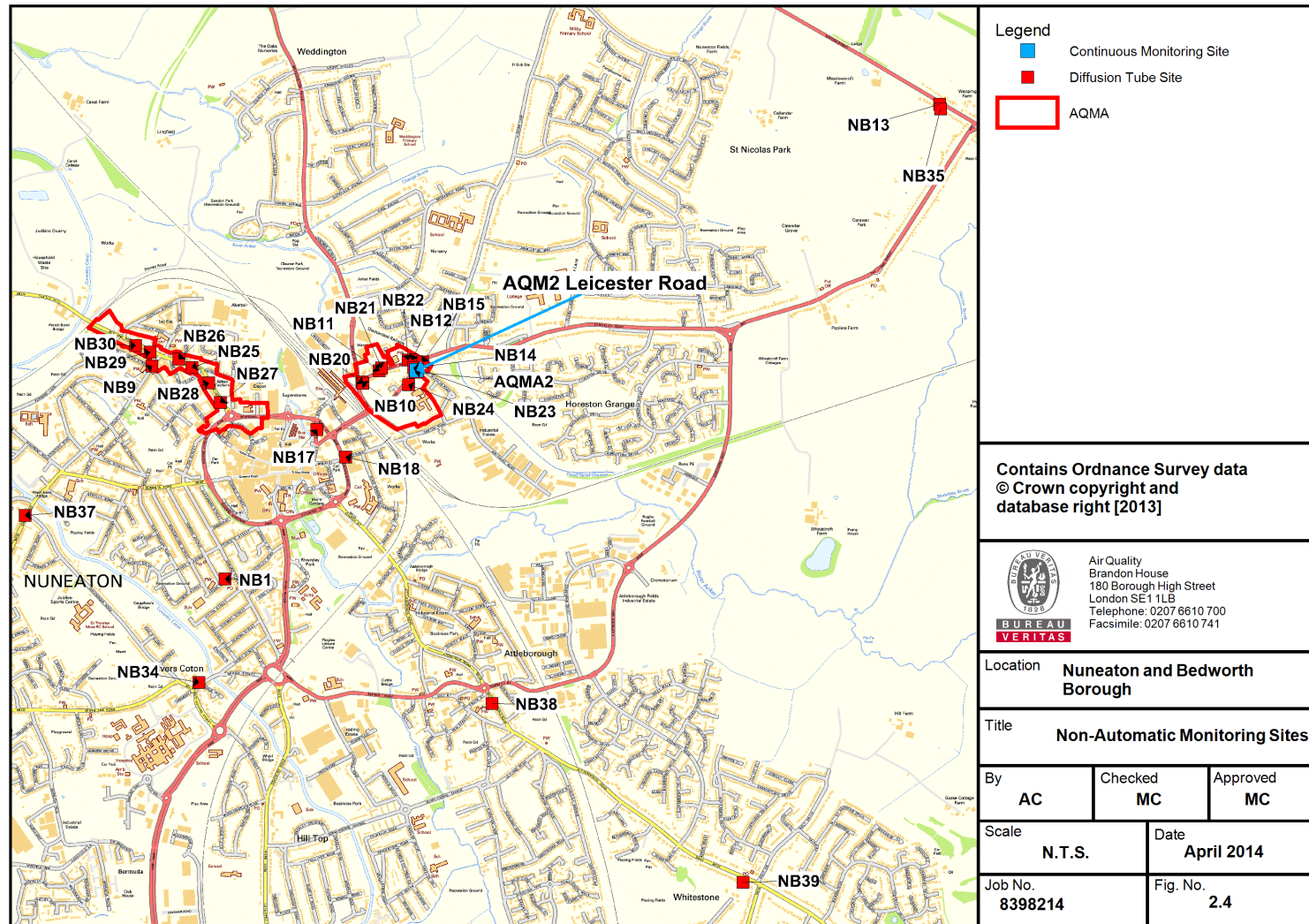


Figure 2-4 Map of Non-Automatic Monitoring Sites: Nuneaton



Legend

- Continuous Monitoring Site
- Diffusion Tube Site
- AQMA

Contains Ordnance Survey data
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Location **Nuneaton and Bedworth Borough**

Title **Non-Automatic Monitoring Sites**

By AC	Checked MC	Approved MC
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Scale N.T.S.	Date April 2014
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Job No. 8398214	Fig. No. 2.4
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Figure 2-5 Map of Non-Automatic Monitoring Sites: Bedworth

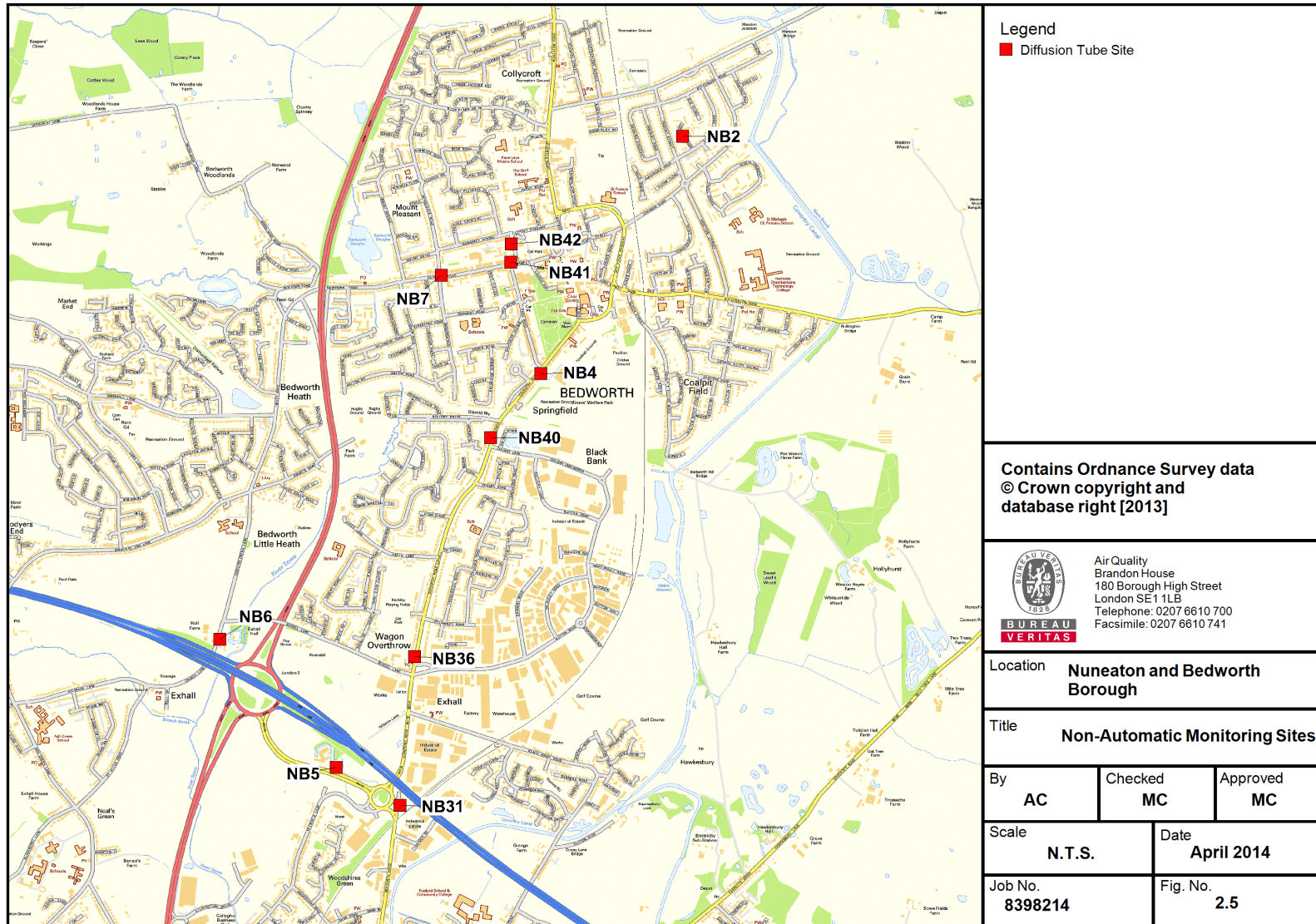


Table 2.2 Details of Non- Automatic Monitoring Sites

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?
NB1	Norman Avenue, Nuneaton	UB	435969	291303	2.08	NO ₂	No	N	Y-3m	N/A	N
NB2	Conifer Close, Bedworth	UB	436438	287627	2.30	NO ₂	No	N	Y-7.8m	N/A	N
NB4	Coventry Road	R	435792	286540	3.12	NO ₂	No	N	Y-0m	4.1m	N
NB5	Mc Donnell Drive	K	434857	284737	2.28	NO ₂	No	N	Y-0m	100m	N
NB6	Tudor Court	K	434326	285323	2.88	NO ₂	No	N	Y-0m	63.5m	N
NB7	Newdegate Road	K	435338	286991	2.53	NO ₂	No	N	Y-8.1m	<1m	Y
NB9	Manor Court Road	K	435634	292279	2.6	NO ₂	Yes	N	Y-4.9m	<1m	Y
NB10	17 Old Hinckley Road	K	436600	292206	1.85	NO ₂	Yes	N	Y-6.5m	<1m	Y
NB11	34 Old Hinckley Road	R	436680	292259	2.45	NO ₂	Yes	N	Y-6m	4m	N
NB12	64 Old Hinckley Road	R	436830	292308	2.55	NO ₂	Yes	N	Y-4.1m	4.5m	N
NB13	64 Watling Street	K	439256	293482	2.11	NO ₂	No	N	Y-14.3m	<1m	Y
NB14	46 Leicester Road	R	436842	292274	1.58	NO ₂	Yes	N	Y-3.1m	1.5m	N
NB15	Bridge Grove-Leicester Road	K	436878	292300	2.58	NO ₂	Yes	N	N	<1m	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?
NB17	Bond Gate	R	436393	291989	2.20	NO ₂	No	N	N	1.3m	Y
NB18	Wheat Street	K	436525	291862	2.30	NO ₂	No	N	N	<1m	Y
AQM	AQM2 Leicester Road (TriPLICATE)	R	436844	292251	1.88	NO ₂	Yes	Y	Y (5m)	4m	N
NB20	17 Old Hinckley Rd	R	436604	292201	2.55	NO ₂	Yes	N	Y-0m	7.1m	N
NB21	36 Old Hinckley Rd	R	436690	292271	1.73	NO ₂	Yes	N	Y-0m	9.6m	N
NB22	62 Old Hinckley Road	R	436813	292308	2.55	NO ₂	Yes	N	Y-0m	8.7m	N
NB23	46 Leicester Road	R	436837	292274	2.65	NO ₂	Yes	N	Y-0m	4.6m	N
NB24	31 Leicester Road	R	436814	292194	1.77	NO ₂	Yes	N	Y-0m	9m	N
NB25	25 Central Avenue	R	435817	292273	1.75	NO ₂	Yes	N	Y-0m	6.8m	N
NB26	26 Central Avenue	R	435758	292312	1.75	NO ₂	Yes	N	Y-0m	3.8m	N
NB27	90 Corporation Street	R	435949	292113	2.3	NO ₂	Yes	N	Y-0m	4.7m	N
NB28	138 Corporation Street	R	435894	292202	1.55	NO ₂	Yes	N	Y-0m	4.7m	N
NB29	16 Midland Road	R	435626	292343	1.75	NO ₂	Yes	N	Y-0m	4.4m	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?
NB30	50 Midland Road	R	435559	292375	2.01	NO ₂	Yes	N	Y-0m	4.1m	N
NB31	376 Longford Road	R	435149	284563	2.08	NO ₂	No	N	Y-0m	12.7m	N
NB34	9 Bull Ring, 4 College St	R	435851	290826	1.68	NO ₂	No	N	Y-0m	11.5m	N
NB35	62 Watling Street	R	439262	293461	1.83	NO ₂	No	N	Y-0m	13m	N
NB36	78 Bayton Road	R	435216	285245	2.56	NO ₂	No	N	Y-0m	2.5m	N
NB37	Jewsons (19 Croft Road)	R	435050	291594	1.75	NO ₂	No	N	Y-0m	4.2m	N
NB38	115 Lutterworth Road	R	437198	290731	1.66	NO ₂	No	N	Y-0m	21m	N
NB39	171 Lutterworth Road	R	438352	289910	1.53	NO ₂	No	N	Y-0m	19.5m	N
NB40	25 Black Bank	R	435563	286248	1.73	NO ₂	No	N	Y-0m	6m	N
NB41	61 Mill Street	R	435655	287050	2.00	NO ₂	No	N	Y-0m	9.6m	Y
NB42	18 George Street	R	435657	287135	1.80	NO ₂	No	N	Y-0m	8.3m	Y

K-Kerbside, R-Roadside, UB-Urban Background

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

There are two AQS Objectives for nitrogen dioxide, namely:

- the annual mean of $40\mu\text{g}/\text{m}^3$, and
- the 1-hour mean of $200\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year.

Automatic Monitoring Data

The Council monitored NO_2 at one location during 2013: AQM2 Leicester Road (AQMA).

The monitoring data can be seen in Table 2.3 and Table 2.4 below. Full details of the QA/QC procedure are provided in Appendix A.

As data capture was good during 2013 annualisation was not required.

Results for 2013 indicate that both the annual mean objective and the 1-hour objective for NO_2 were met at the continuous monitoring location.

Figure 2-6 shows the trend in NO_2 concentration from 2008 through to 2013, this shows that annual mean concentrations in 2013 reduced to the lowest level for the monitoring period.

Table 2.3 Results of Automatic Monitoring for NO₂: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)					
					2008	2009	2010	2011	2012	2013
AQM2 Leicester Road (AQMA)	Roadside	Y	99.2	99.2	40	39.1	-	-	39.6	33.5

Table 2.4 Results of Automatic Monitoring for NO₂: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2013 %	Number of Hourly Means > 200 $\mu\text{g}/\text{m}^3$					
					2008	2009	2010	2011	2012	2013
AQM2 Leicester Road (AQMA)	Roadside	Y	99.2	99.2	0	11 (191.4)	-	-	0 (121.7)	0

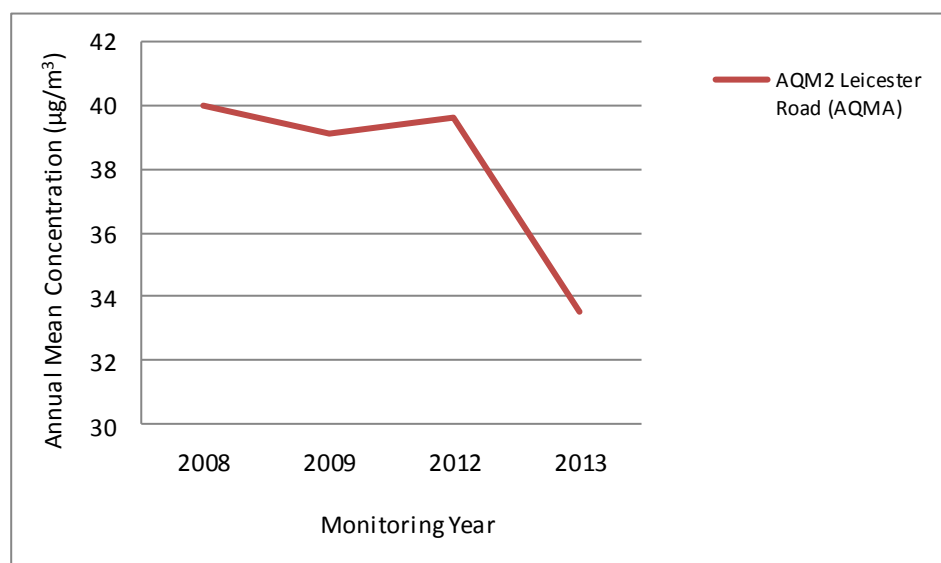
Figure 2-6 Trends in Annual Mean NO₂ Concentrations Measured at Automatic Monitoring Sites

Figure 2-6 shows the trend in annual mean concentrations at the AQMA2 Leicester Road monitoring location. The annual mean concentrations fell between 2008 and 2009. The concentrations from the 2012 data set were very similar to those recorded in 2008/9. Data was not available for 2010 and 2011 due to an instrument fault. The concentrations reduced in 2013, with the site showing the lowest annual mean for the monitoring period.

Diffusion Tube Monitoring Data

The nitrogen dioxide diffusion tube data are summarised in Table 2.5. The full dataset (monthly mean values) are included in Appendix A.

Data capture for 2013 was good, with none of the sites requiring annualisation.

For the 2013 data-set, there were only two sites where the annual mean Air Quality Objective for NO₂ was exceeded, both located within the existing AQMAs:

- Site NB11 - 34 Old Hinckley Road - Leicester Road Gyratory AQMA;
- Site NB29 - 16 Midland Road - Midland Road/Corporation Street AQMA.

The site NB29 (16 Midland Road) is located at the façade of relevant receptor. The concentration for the site NB11 (34 Old Hinckley Road) was distance corrected to estimate concentrations at the façade, with the result presented in Table 2.6. When the distance correction is applied the annual mean concentration was below the objective at 36.8 µg/m³. Both sites have shown exceedences in the past, however the 2013 concentrations showed a decrease on previous years' concentrations.

Sites NB41 and NB42 were installed in 2012 to monitor the impacts of the new Tesco development through increased traffic flow in the area. The results show that currently the annual mean NO₂ concentrations remain below the objective. There was no change in concentrations between 2012 and 2013.

With respect to the hourly NO₂ objective, there could be a potential risk of exceedence where the annual mean concentration is greater than 60µg/m³. From the 2013 results there are no sites where the annual mean is greater than 60µg/m³; therefore it is unlikely that the hourly mean objective will be exceeded at any of the monitoring sites.

Figure 2-7 shows the trend across the diffusion tube monitoring locations in Nuneaton and Bedworth Borough Council from 2008 to 2013. From this it can be seen that the majority of sites showed a peak in annual mean concentrations between 2008 and 2009. The concentrations also increased in 2012, following which the majority of sites showed a decrease in concentrations in 2013.

Leicester Road Gyratory AQMA

With the exception of NB11 all monitoring sites within the Leicester Road Gyratory AQMA met the objective in 2012 and 2013. When the distance correction is applied the annual mean concentration at Site NB11 was also below the objective. All the monitoring sites located at the façade of residential properties were below $36 \mu\text{g}/\text{m}^3$ in 2012 and 2013. The majority of sites in 2013 showed a decrease on 2011-2012 results. Within this AQMA, it is recommended to relocate some of the monitoring sites to the façade of properties if possible to remove the need to use the fall-off with distance calculator to estimate concentrations at locations relevant for public exposure.

Midland Road to Corporation Street AQMA

All but one of the monitoring sites within this AQMA are located at the façade of properties. The only site that is not located at the façade of a property is Site NB9 (5 m away from a relevant receptor). Exceedences within this AQMA were recorded at Site NB29 in 2013 and previous years. Three other sites remained close to the objective in 2013, showing concentrations of $37.4 \mu\text{g}/\text{m}^3$ (NB27), $37.1 \mu\text{g}/\text{m}^3$ (NB28) and $37.8 \mu\text{g}/\text{m}^3$ (NB30).

Table 2.5 Results of NO₂ 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 %)	2013 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) – (Local) Bias Adjustment factor = 0.92
NB1	Norman Avenue, Nuneaton	UB	No	N	12	21.0
NB2	Conifer Close, Bedworth	UB	No	N	12	20.5
NB4	Coventry Road	R	No	N	12	35.5
NB5	Mc Donnell Drive	K	No	N	12	33.2
NB6	Tudor Court	K	No	N	9	34.0
NB7	Newdegate Road	K	No	N	12	33.5
NB9	Manor Court Road	K	Yes	N	12	30.6
NB10	17 Old Hinckley Road	K	Yes	N	11	33.8
NB11	34 Old Hinckley Road	R	Yes	N	12	43.1
NB12	64 Old Hinckley Road	R	Yes	N	11	35.8
NB13	64 Watling Street	K	No	N	12	37.0
NB14	46 Leicester Road	R	Yes	N	12	35.0
NB15	Bridge Grove-Leicester Road	K	Yes	N	12	31.5
NB17	Bond Gate	R	No	N	12	35.9
NB18	Wheat Street	K	No	N	11	34.3
AQM	AQM2 Leicester Road	R	Yes	Triplicate Co-located	12	33.6
NB20	17 Old Hinckley Rd	R	Yes	N	12	29.6
NB21	36 Old Hinckley Rd	R	Yes	N	12	29.6

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %)	2013 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) – (Local) Bias Adjustment factor = 0.92
NB22	62 Old Hinckley Road	R	Yes	N	11	24.8
NB23	46 Leicester Road	R	Yes	N	12	31.4
NB24	31 Leicester Road	R	Yes	N	12	31.4
NB25	25 Central Avenue	R	Yes	N	12	25.0
NB26	26 Central Avenue	R	Yes	N	12	31.1
NB27	90 Corporation Street	R	Yes	N	11	37.4
NB28	138 Corporation Street	R	Yes	N	12	37.1
NB29	16 Midland Road	R	Yes	N	12	40.7
NB30	50 Midland Road	R	Yes	N	10	37.8
NB31	376 Longford Road	R	No	N	12	37.1
NB34	9 Bull Ring, 4 College St	R	No	N	12	29.8
NB35	62 Watling Street	R	No	N	12	26.2
NB36	78 Bayton Road	R	No	N	12	38.1
NB37	Jewsons (19 Croft Road)	R	No	N	12	32.0
NB38	115 Lutterworth Road	R	No	N	12	29.6
NB39	171 Lutterworth Road	R	No	N	12	20.7
NB40	25 Black Bank	R	No	N	11	27.6
NB41	61 Mill Street	R	No	N	12	34.8
NB42	18 George Street	R	No	N	12	28.7

Table 2.6 Fall-off with Distance Correction of Sites Exceeding the NO₂ Annual Mean Objective

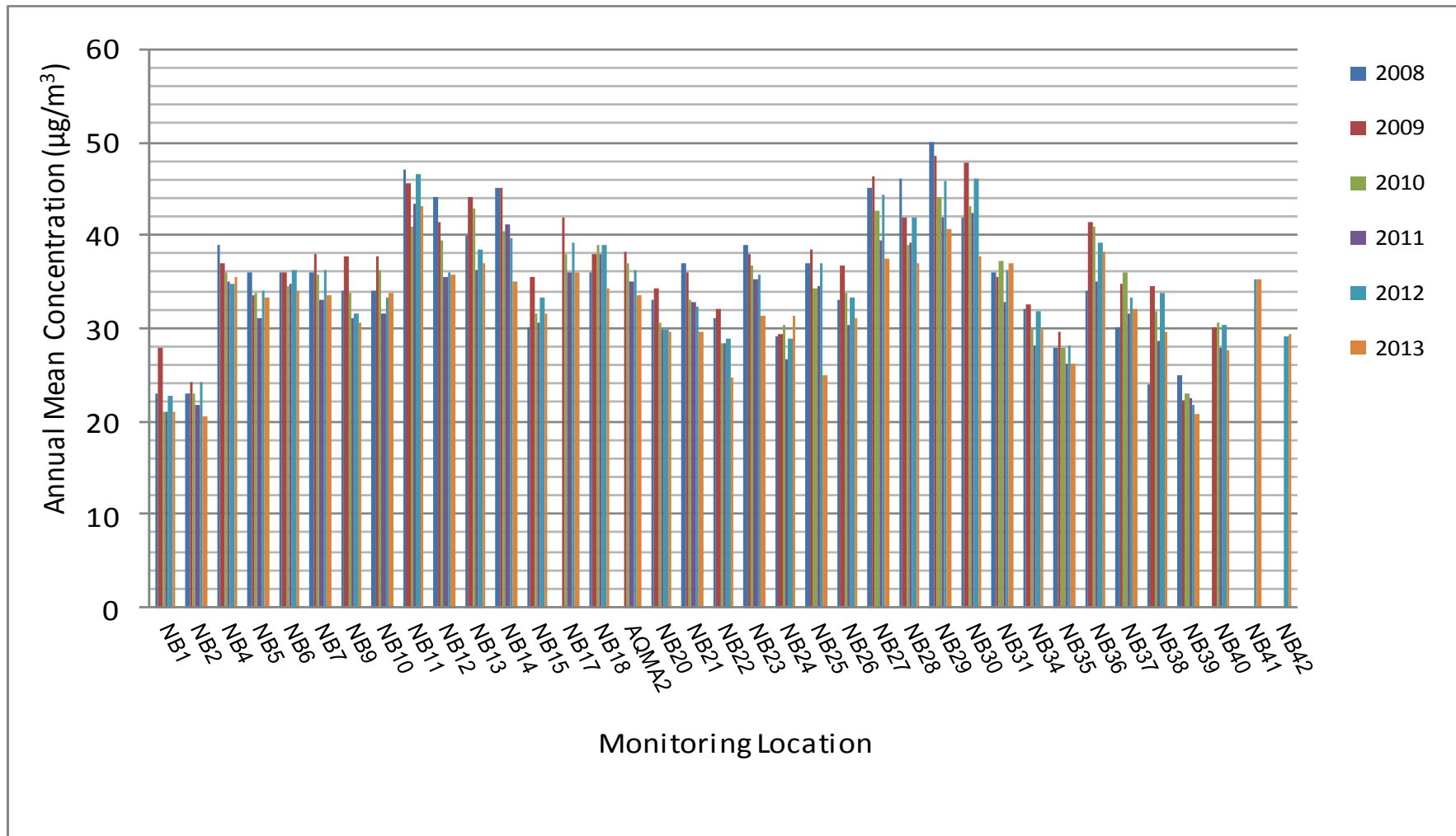
Site ID	Distance from Kerb to Receptor	Distance from Kerb to Diffusion Tube	Bias Adjusted Annual Mean ($\mu\text{g}/\text{m}^3$)	Distance Corrected Annual Mean ($\mu\text{g}/\text{m}^3$)
NB11 - 34 Old Hinckley Road	10 m	4 m	43.1	36.8

Table 2.7 Results of NO₂ Diffusion Tubes (2008 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) - Adjusted for Bias					
			2008 (Bias Adjustment Factor = 0.90)	2009 (Bias Adjustment Factor = 0.94)	2010 (Bias Adjustment Factor = 0.92)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.97)	2013 (Bias Adjustment Factor = 0.92)
NB1	UB	No	23	27.9	21.0	21.0	22.7	21.0
NB2	UB	No	23	24.3	22.9	21.8	24.3	20.5
NB4	R	No	39	37.0	36.1	35.1	34.7	35.5
NB5	K	No	36	33.5	33.8	31.0	34.0	33.2
NB6	K	No	36	36.1	34.6	34.7	36.2	34.0
NB7	K	No	36	38.0	35.7	33.0	36.2	33.5
NB9	K	Yes	34	37.8	33.7	31.1	31.5	30.6
NB10	K	Yes	34	37.6	36.3	31.5	33.3	33.8
NB11	R	Yes	47	45.5	41.0	43.4	46.6	43.1
NB12	R	Yes	44	41.3	39.4	35.4	36.0	35.8
NB13	K	No	40	44.0	42.8	36.3	38.4	37.0
NB14	R	Yes	45	45.0	40.3	41.1	39.8	35.0
NB15	K	Yes	30	35.5	31.5	30.7	33.2	31.5
NB17	R	No	-	41.9	38.0	36.1	39.1	35.9
NB18	K	No	36	38.0	38.9	37.9	38.9	34.3

Site ID	Site Type	Within AQMA?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) - Adjusted for Bias					
			2008 (Bias Adjustment Factor = 0.90)	2009 (Bias Adjustment Factor = 0.94)	2010 (Bias Adjustment Factor = 0.92)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.97)	2013 (Bias Adjustment Factor = 0.92)
AQM	R	Yes	-	38.2	37.0	35.1	36.2	33.6
NB20	R	Yes	33	34.3	30.6	29.8	29.8	29.6
NB21	R	Yes	37	36.1	33.1	32.9	32.3	29.6
NB22	R	Yes	31	32.1	28.3	28.4	28.9	24.8
NB23	R	Yes	39	37.9	36.8	35.2	35.7	31.4
NB24	R	Yes	29	29.4	30.4	26.7	28.9	31.4
NB25	R	Yes	37	38.4	34.3	34.5	36.9	25.0
NB26	R	Yes	33	36.7	33.7	30.3	33.4	31.1
NB27	R	Yes	45	46.4	42.7	39.5	44.3	37.4
NB28	R	Yes	46	41.9	38.9	39.3	41.8	37.1
NB29	R	Yes	50	48.5	44.0	41.8	45.8	40.7
NB30	R	Yes	42	47.8	43.1	42.5	46.0	37.8
NB31	R	No	36	35.5	37.2	32.8	36.2	37.1
NB34	R	No	32	32.6	30.1	28.1	31.7	29.8
NB35	R	No	28	29.6	28.0	26.1	28.2	26.2
NB36	R	No	34	41.5	41.0	35.1	39.1	38.1
NB37	R	No	30	34.8	36.0	31.6	33.2	32.0
NB38	R	No	24	34.5	31.8	28.6	33.9	29.6
NB39	R	No	25	22.3	23.0	22.5	21.8	20.7
NB40	R	No	-	30.1	30.7	27.9	30.3	27.6
NB41	R	No	-	-	-	-	35.2	34.8
NB42	R	No	-	-	-	-	29.2	28.7

Figure 2-7 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



2.2.2 Particulate Matter (PM₁₀)

No PM₁₀ monitoring was undertaken by the Nuneaton and Bedworth Borough Council in 2013.

2.2.3 Sulphur Dioxide (SO₂)

No monitoring of sulphur dioxide was undertaken by Nuneaton and Bedworth Borough Council in 2013.

2.2.4 Benzene

No monitoring of benzene was undertaken by Nuneaton and Bedworth Borough Council in 2013.

2.2.5 Summary of Compliance with AQS Objectives

Nuneaton and Bedworth Borough Council has examined the results from monitoring in the Borough.

Exceedence of the annual mean NO₂ objective was recorded in 2013 at a relevant receptor in the Midland Road to Corporation Street AQMA. Three other monitoring sites in this AQMA showed concentrations close to the annual mean NO₂ objective; as such, this AQMA should remain. There was no exceedence of the annual mean NO₂ objective within the Leicester Road Gyratory AQMA in 2013 when concentrations were estimated at receptors relevant to public exposure.

Concentrations outside of the AQMA in 2013 were 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

LAQM requires local authorities to consider the following:

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

Nuneaton and Bedworth Borough Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

3.2 Other Transport Sources

LAQM requires local authorities to consider the following:

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

Nuneaton and Bedworth Borough Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

3.3 Industrial Sources

LAQM requires local authorities to consider the following:

- Industrial Installations: new or proposed;
- Industrial installations: existing where emissions have increased substantially or relevant exposure introduced;
- Major fuel storage depots;
- Petrol stations; and
- Poultry farms.

Nuneaton and Bedworth Borough Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

3.4 Commercial and Domestic Sources

LAQM requires local authorities to consider the following:

- Biomass combustion plant – individual installations;
- Areas where the combined impact of several biomass combustion sources may be relevant; and
- Areas where domestic solid fuel burning may be relevant.

Further information was collected regarding a biomass boiler installed at Sainsbury's Supermarket, Vicarage Street, Nuneaton (see table below); that had been the subject of a planning application introduced in the 2013 Progress Report. An air quality assessment was undertaken for this application, which concluded that the impact significance of the proposed biomass facility at the nearest sensitive receptors is predicted to be 'Negligible'. The maximum predicted increase in annual average NO₂ exposure as a result of the development at the nearest sensitive receptor was 1.48µg/m³. The maximum predicted increase in annual average PM₁₀ exposure at the nearest receptor façades within the vicinity of the proposed biomass boiler is predicted to be 0.33µg/m³. The predicted impacts were based on a worst-case scenario and included 100% NO_x to NO₂ conversion and the plant operating 24-hours per day, 365-days per year. The development is located within 600 m of both AQMAs, however it is an area where exceedences of either the NO₂ or PM₁₀ objective are not a concern.

Nuneaton and Bedworth Borough Council approved the application with the conditions that the boiler unit must be of the specified type/design and no fuel other than wood pellets that comply with CEN/TS 14961 standards or equivalent shall be used within the unit. The boiler

plant unit shall not be used unless it is operated, serviced and maintained in accordance with the manufacturers' instructions.

Figure 3-1 Planning Consent for Biomass Boiler at Vicarage Road

Planning Reference /Decision	Location	Coordinates	Description	Additional Information
031623 (Planning) Conditional Approval	Sainsbury's Supermarket, Vicarage Street, Nuneaton, Warwickshire	436450, 291475	Installation of a 520kW biomass boiler unit.	Application decided in December 2012.

3.5 New Developments with Fugitive or Uncontrolled Sources

LAQM requires local authorities to consider the following:

- Landfill sites;
- Quarries;
- Unmade haulage roads on industrial sites;
- Waste transfer stations; and
- Any other potential sources of fugitive particulate emissions.

Nuneaton and Bedworth Borough Council confirms that of the above categories there have been no new or newly identified sources which have not been considered in previous rounds of review and assessment.

Nuneaton and Bedworth Borough Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

The Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Local / Regional Air Quality Strategy

Nuneaton and Bedworth Borough Council work together with Warwickshire County Council on transport-related air quality issues. Contained within the Local Transport Plan is the Warwickshire Air Quality Strategy. Contained in this document are the following policies:

Policy AQA1: The contribution of air quality improvements to the national targets on greenhouse gases.

Actions associated with this include implementation of the wider Local Transport Plan (LTP) policies contained in the Public Transport, Cycling, Walking and Changing Travel Behaviour Strategies. This action is ongoing.

Policy AQA2: Improving poor air quality through partnership working

Actions include:

- Preparation of Air Quality Action Plans to address AQMAs (in conjunction with the relevant District/Borough Council and/or the Highways Agency).
- Implementation of measures within AQAPs, 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.
- Monitoring of AQAPs and reporting to Defra.
- Regular liaison with District/Borough Councils, adjoining Authorities and other organisations (e.g. Highways Agency)
- Regular monitoring of air quality (by the five Warwickshire District/Borough Councils).
- Introduction of cleaner vehicle fleets.

All noted as ongoing

- Review of the Lorry Route Map for Warwickshire every 2-3 years.

Policy AQA3: Maintaining areas of good air quality

Actions include:

- Regular liaison with District/Borough Councils and interrogation of WCC traffic data.
- Implementation of the wider LTP policies contained in the Public Transport, Cycling, Walking and Changing Travel Behaviour Strategies.

Noted as ongoing

Policy AQA4: Education and Information

Actions Include:

- Implementation of the wider LTP policies contained in the Public Transport, Cycling, Walking and Changing Travel Behaviour Strategies.
- Implementation of the County Council's Green Travel Plan.

Both are ongoing

- Regular review and update of the Air Quality web page on an annual basis.

Policy AQA5: Integration of air quality and transport planning

Actions Include:

- Provide input to the preparation of District/Borough Council Local Development Frameworks, both within Warwickshire and in adjoining areas.
- Provide input to individual planning applications, and negotiate appropriate improvements (e.g. traffic management measures, walking and cycling improvements and Travel Plans).

Ongoing actions

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.

Reviewed every 2-3 years

5 Planning Applications

Planning consent granted for a number of housing developments to the north of Nuneaton, which may have a potential impact on the Leicester Road Gyratory AQMA. Applications for sites with more than 100 dwellings were supported with an air quality impact assessment. All assessments predicted a 'Negligible' impact on existing NO₂ concentrations within the AQMA and confirmed that the developments would not create any new AQMAs.

The impacts of the developments will be considered further in the next round of review and assessment.

6 Air Quality Planning Policies

The Nuneaton and Bedworth Borough Council Local Development Framework documents are currently under development; this includes development of the Borough Plan, which will include consideration of air quality issues.

Currently the Council are preparing their Borough Plan, which will guide development in the area up to 2028. The Council have carried out consultation on the Preferred Option and are now aiming to carry out the Pre-Submission consultation stage in late summer 2014. Following this, the Examination should take place in early 2015 with a view to adopting the Borough Plan in the summer of 2015.

7 Local Transport Plans and Strategies

Contained in the Warwickshire Local Transport Plan, 2011-2026 are the following sections which are specific to Nuneaton and Bedworth Borough Council:

Town Centre Capacity Study

Aim to promote guide and maximise future development and regeneration of the town centres, included proposals for transport improvements:

- Improving pedestrian and cycle linkages;
- Improving links between the railway and bus station in Nuneaton;
- Improving links between the railway and town centre in Bedworth;
- Rationalising parking within the town centres; and
- Provision of a bus-only bridge across the River Anker to improve access at Nuneaton Bus Station.

Public Transport Improvements

Bus

- Reconfiguration of Nuneaton Bus Station – improve the link between the bus and rail stations;
- Traffic improvements along Mill Street, Bedworth creating a more pedestrian-friendly environment. These proposals have been carried out in connection with the redevelopment of the Tesco store and the required junction improvements at Leicester Road and Mill Street;
- Development of further Quality Bus Corridors; enhancement of facilities including:
 - Improved interchange at Nuneaton rail station with bus services, and facilities for pedestrians and cyclists;
 - Improvements at Nuneaton bus station in conjunction with redevelopment proposals for the site;
 - Improvements to the main bus thoroughfare in Bedworth along Mill Street; and
 - Provision of Bus Information Points (BIPs) at specific locations in the Borough

Rail

The rail-based NUCKLE (**N**uneaton-**C**oventry-**K**enilworth-**L**eamington) initiative has been developed by the County Council in partnership with District Councils, Coventry City Council and Centro, and comprises four phases of development:

- Phase 1 – Improved service frequencies between Coventry-Bedworth-Nuneaton with new stations at Ricoh Arena and Bermuda, platform lengthening at Bedworth and a new bay platform at Coventry;
- Phase 2 – Improved service frequencies between Coventry-Leamington with a new station at Kenilworth with services to Birmingham / London / Oxford / Thames Valley;
- Phase 3 – Extension of the Coventry-Bedworth-Nuneaton services to the East Midlands; and
- Phase 4 – Operation of ‘through’ Leamington Spa-Coventry-Nuneaton services.

Phases 1 and 2 are currently at an advanced stage of development and delivery is anticipated in the short term, with Phases 3 and 4 to follow in the medium/long term.

Pedestrians

Improvements to the pedestrian environment and quality of public realm including:

- A new north-south pedestrian priority route between Bond Street and Corporation Street in Nuneaton;
- An improved pedestrian environment along Spitalfields with enhanced connections to the Miners’ Welfare Park in Bedworth;
- An improved pedestrian link from Nuneaton rail station to the town centre;
- An improved pedestrian environment in each of the two town centres;
- Wider promotion of sustainable transport initiatives.

Cycling

Developing dedicated cycle infrastructure on key links to town centres, employment sites, educational establishments and public transport interchanges in Nuneaton and Bedworth;

- Developing dedicated cycle infrastructure on key inter-urban links, including Bedworth – Nuneaton; and
- Improving cycle access into and through Nuneaton town centre.

Highway Improvements and Traffic Management Measures – County Roads*A444/Newtown Road Improvement*

There has been a long-held aspiration to construct a northbound on-slip and southbound off-slip on the A444 near the junction with Newtown Road. This would remove the need for traffic from the north to pass through Bedworth in order to access the residential areas to the west of the town centre. The County Council will continue to identify opportunities to fund this improvement, including developer contributions (where appropriate) from future housing and employment proposals.

A Strategy for the A5

The A5 is an important strategic link which runs along the northern and eastern edge of the county boundary with Staffordshire, Leicestershire and Northamptonshire, and provides access to a number of major industrial areas such as Magna Park and south west Hinckley. Within Nuneaton and Bedworth, the road also provides an important access to the M42 and M69/M1. In the absence of a long-term strategy for the A5, it has been agreed to prepare a suitable document in conjunction with the Highways Agency and other stakeholders. This will cover the section of the A5 from Gailey in Staffordshire to Weedon in Northamptonshire, and will include a targeted set of improvements for the corridor.

A5 Longshoot to Dodwells

There has been a long-held aspiration for a new road to be provided from Dodwells Roundabout on the A5 to the A47/A4254 near Horeston Grange, in order to remove pressure on the A5 between Dodwells Roundabout and The Longshoot. There may be an opportunity for this scheme to come forward as part of wider development proposals in the local area, although clearly this will be subject to the Borough Council's Preferred Option for its Borough Plan. A recent Inspector's decision has upheld a developer's request to remove a planning condition to signalise Dodwells Roundabout. The scheme described above to improve the A5/A47 Longshoot would necessitate an improvement to this junction.

8 Climate Change Strategies

Warwickshire's Third Local Transport Plan, 2011-2026 is working towards the five goals as outlined by the Department for Transport in 2008, detailed below as the National Transport Goals. Warwickshire County Council have also set out 6 objectives for the LTP3, again taking into consideration the issue of climate change.

The National Transport Goals

Goal 1: To reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of **tackling climate change**.

Goal 2: To **support economic competitiveness and growth**, by delivering reliable and efficient transport networks.

Goal 3: To **promote greater equality of opportunity** for all citizens, with the desired outcome of achieving a fairer society.

Goal 4: To **contribute to better safety, security and health** and longer life expectancy by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health.

Goal 5: To **improve quality of life** for transport users and non-transport users, and to **promote a healthy natural environment**.

Warwickshire's Local Transport Plan 3 Objectives

1. To promote greater equality of opportunity for all citizens in order to promote a fairer, more inclusive society;
2. To seek reliable and efficient transport networks which will help promote full employment and a strong, sustainable local and sub-regional economy;
3. To reduce the impact of transport on people and the [built and natural] environment and improve the journey experience of transport users;
4. To improve the safety, security and health of people by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health;
5. To encourage integration of transport, both in terms of policy planning and the physical interchange of modes;
6. To reduce transport's emissions of carbon dioxide and other greenhouse gases, and address the need to adapt to climate change.

The LTP3 details the following ways in which objective six will be achieved:

- Promoting and enabling a shift to more sustainable forms of transport;
- Reducing vehicle miles by reducing the need to travel and influencing the pattern of journeys;
- Promoting more efficient fuel usage through changes in speed and driver behaviour;
- Adopting more sustainable options for street lighting and signs;
- Use of recycled materials in maintenance activities;
- Ensuring that the transport system can cope with the unavoidable effects of climate change; and
- Street lighting and illumination of traffic signs – implementation of the Street Lighting Central Management System, allowing variable lighting levels to be implemented and replacement of illuminated signs with retro-reflective signs.

9 Implementation of Action Plans

The Nuneaton and Bedworth Borough Council Air Quality Action Plan was formally adopted in 2011. The table below details the specific actions and progress to date with these

Table 9.1 Action Plan Progress in 2013

No.	Measure	Lead Authority	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date
AQAP1	N&BBC will work in partnership with WCC to identify and bring forward traffic management improvements in Nuneaton town centre, particularly where they will benefit the two AQMAs.	WCC / N&BBC	Preparation / Implementation of coordination strategy. Number of meetings between N&BBC and WCC about traffic improvement measures in AQMAs Number of measures implemented or started	1-2 $\mu\text{g}/\text{m}^3$	Traffic modelling work is due to be undertaken during 2014/15 to identify the nature and scale of highway improvements within the town centre. Option testing will be based on the spatial proposals set out in the Borough Plan. Preliminary feasibility work has been completed on a Variable Message Signing (VMS) scheme for public car parking in Nuneaton.	A strategic highway assessment has been carried out in relation to the Borough Plan. This work has identified a number of key highway improvements that will be required to mitigate the traffic impact of future developments in the area.	2012 - 2016
AQAP2	N&BBC will work in partnership with WCC to identify measures to reduce the impact of HGV movements within the area.	WCC / N&BBC	Draft document by N&BBC of identified measures to reduce HGV movements Number of measures approved by WCC Number of measures implemented/started	0.2 – 0.5 $\mu\text{g}/\text{m}^3$	The county-wide Lorry Map is kept under regular review by the County Council. The presence of important 'A' and 'B' roads such as the A444 and B4114 within the AQMAs mean that it is difficult to direct HGV and HDV traffic away from them.	The Lorry map continues to be widely available to help HGV drivers plan their routes as effectively as possible.	ongoing
AQAP3	N&BBC will work in partnership with WCC and Sustrans to deliver further improvements for pedestrians and cyclists within the area.	WCC / N&BBC / Sustrans	Identification of areas, routes for pedestrians and cyclists paths Meters of paths improved / developed for pedestrians and cyclists in Nuneaton particularly in AQMAs.	0.2 – 0.5 $\mu\text{g}/\text{m}^3$	Ongoing improvements through the LTP and as key development sites come forward.	Sustrans route 52 is now substantially completed and provides a cycle link through Nuneaton town centre. The outstanding section will link Nuneaton and Bedworth and will largely run alongside the Coventry Canal. Further	ongoing

No.	Measure	Lead Authority	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date
						<p>improvements will be made in future years through the LTP and as key development sites come forward. Opportunities to secure LSTF and other DfT challenge funding will also be sought by WCC where possible.</p> <p>WCC is aiming to secure almost £1 million through the Single Local Growth Fund to further improve facilities in Nuneaton, including improvements to the Weddington Cycle Link and creation of an improved bridge over the A444 near Bermuda.</p> <p>Sustrans have mapped a route from Tamworth to Nuneaton including a route from Nuneaton past Camphill and Stockingford to reach the town centre.</p> <p>NBBC and WCC have £92K from previous developments to create the route in the harder to achieve sections.</p>	

No.	Measure	Lead Authority	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date
AQAP4	N&BBC will work in partnership with WCC, public transport operators, DfT Rail and Network Rail to implement better integration of public transport in Nuneaton, including improvements for bus, rail and community transport infrastructure and services.	WCC / N&BBC / public transport operators / DfT Rail / Network Rail	Produce strategy for integrating public transport modes No. of improvement Schemes implemented/started Improvement in passenger numbers using public transport.	0.2 – 0.5 $\mu\text{g}/\text{m}^3$	A number of Quality Bus Corridors (QBCs) are planned during the LTP3 period (i.e. 2011-2026), including an Inter-Urban QBC between Nuneaton-Hinckley-Leicester (service 48) and a QBC between Nuneaton and the Tamworth boundary (service 765). Phased rail improvements are planned in the North-South corridor as part of the NUCKLE scheme. Phase 1 of NUCKLE includes the delivery of new stations at Bermuda and Ricoh Arena with delivery proposed in the short term.	Reductions in LTP funding have meant that the introduction of further QBC schemes has been delayed for the foreseeable future. Construction of Phase 1 of the NUCKLE scheme is due to begin in 2014/15.	2012 - 2016
AQAP5	N&BBC will work in partnership with WCC to increase uptake and implementation of School and Workplace Travel Plans (STP and WTP), particularly where they are likely to impact on the AQMAs.	WCC / N&BBC	Number of new travel plans in place. WTP: Increase proportion of working population covered STP: Decrease proportion of car school journeys / increase carsharing	0.2 – 0.5 $\mu\text{g}/\text{m}^3$	Ongoing as opportunities arise, and through the development process.	51 schools now have a Travel Plan – 2011 WCC School Travel Survey 46% of school children walk and 3% cycle. WCC continues to work with major employers across the Borough to encourage them to undertake a Workplace Travel Plan and sign up to the Carshare database. New employment sites will be required to develop and implement workplace travel plans through the planning process.	ongoing

No.	Measure	Lead Authority	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date
AQAP6	N&BBC will continue to develop, implement and monitor its Travel Plan policy. As part of the ongoing implementation of this plan, N&BBC will explore the potential for operation of a Car Club in Nuneaton	N&BBC	Reduction on the number of car journeys.	0 - 0.2 µg/m ³	Travel Plan Policy in place. Implementation and ongoing monitoring arrangements to be agreed via the N&BBC Environmental Sustainability Strategy Group	On-going monitoring of the travel plan policy	ongoing
AQAP 7	i) N&BBC will include planning policies in its Borough Plan that seek to improve air quality, to improve sustainable transport links and to secure travel plan agreements. ii) N&BBC will identify, as a part of the Borough Plan Infrastructure Delivery Plan specific pieces of infrastructure required within the AMQA or that could relieve the AQMA. These can then be prioritised alongside the Borough's other infrastructure demands for external funding and developer contributions/CIL AQMA.	N&BBC	i) and ii) Adoption of Borough Plan and Infrastructure Delivery Plan in 2014/15 iii) Increased number of pre-application discussions and planning applications taking account of air quality and sustainable transport issues.	0 - 0.2 µg/m ³	i) and ii) Draft Borough Plan and Infrastructure Delivery Plan underway. iii) Development control officers require training in air quality issues in order to advise developers.	i) currently being prepared ii) currently awaiting the Borough Plan decision iii) this is now an adopted practice	ongoing
AQAP7	iii) N&BBC will encourage developers to take part in pre-application discussions to ensure air quality is	N&BBC	i) and ii) Adoption of Borough Plan and Infrastructure Delivery Plan in 2014-15 iii) Increased number of	0 - 0.2 µg/m ³	i) and ii) Draft Borough Plan and Infrastructure Delivery Plan underway. iii) Development control officers require training in air quality	i) currently being prepared ii) currently awaiting the Borough Plan decision iii) this is now an adopted practice	ongoing

No.	Measure	Lead Authority	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date
	considered when formulating a planning application. Developers should ensure good design as a part of their proposals and actively endorse travel planning to minimise and mitigate the impacts of new development upon the AQMA. Where appropriate development proposals should be accompanied by Air Quality Assessments		pre-application discussions and planning applications taking account of air quality and sustainable transport issues.		issues in order to advise developers.		
AQAP8	N&BBC will continue to work with WCC and other partners to deliver improvements in emissions standards, where practicable.	N&BBC / WCC / Public transport operators	Number of new / improved vehicles within fleets	1-2 µg/m ³	Deployment of newer, cleaner vehicles as part of the QBC and QBI initiatives	WCC continue to support bus operators to provide new cleaner lower emission vehicles where feasible. Due to a reduction in LTP funding, WCC are unable to progress the introduction of newer vehicle via the QBC initiatives. Bus companies such as Stagecoach are continuing to invest and renew their fleet of vehicles, which should have a positive impact on emission levels.	ongoing
AQAP9	N&BBC will make details of the air quality measures and annual progress reports available on its Website to ensure	N&BBC	Availability of recently published reports on the Website	0 µg/m ³	To be uploaded to website at the appropriate time	Reports are available on the council website	ongoing

No.	Measure	Lead Authority	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date
	accessibility to the consultation and implementation process.						
AQAP10	N&BBC will continue to work in partnership with WCC and the Warwickshire District Authorities on air quality and travel awareness campaigns to raise the profile of air quality in the Borough and County-wide.	N&BBC / WCC / Warwickshire local authorities	Number of campaigns implemented	0 - 0.2 $\mu\text{g}/\text{m}^3$		WCC continues to promote more sustainable travel options across the County. WCC actively promotes the car share database, public transport and cycle maps have been produced and widely distributed to make it easier for residents to use alternative transport.	ongoing
AQAP11	N&BBC will continue the commitment to undertake local air quality monitoring within the Borough to ensure a high standard of data is achieved to assess against air quality objectives.	N&BBC	Number monitoring sites - % data capture	0 $\mu\text{g}/\text{m}^3$		Monitoring continues across the borough – data capture for 2013 was good at all passive locations and at the continuous site above 90%	ongoing
AQAP12	N&BBC will continue to proactively enforce industrial control and nuisance legislation to minimise pollutant emissions from these sources in the Borough.	N&BBC	compliance levels of permitted industrial processes	0 - 0.2 $\mu\text{g}/\text{m}^3$		The Borough Council continue a high rate of inspections of industrial installations	ongoing

No.	Measure	Lead Authority	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date
AQAP 13	N&BBC will continue to work together with partners to promote and implement energy efficiency measures in the Borough	N&BBC	Council's energy efficiency figures Number of consultations provided for energy	0 - 0.2 µg/m ₃	<p>The Community Energy Saving Programme started in 2012 and saw the completion in 2013 of external wall insulations (EWI) or boiler replacements to 410 Council owned properties. 139 private properties also benefited from the EWI work in 2012 , and a further 46 properties in 2013.</p> <p>In partnership with Rockwarm the Council have continued to carry out EWI for properties that fall into 'Carbon Saving Community Obligation' areas (these are the lowest 15% of areas ranked in the Indices of Multiple Deprivation). In 2013 Rockwarm did EWI works to 108 properties in Bede ward in Bedworth. They have also insulated a further 100 properties around the Borough where people are eligible for funding towards EWI work or where the property has electric or coal heating. They have also continued to insulate cavity walls and lofts around the Borough .</p> <p>Nuneaton and Bedworth Borough Council and North Warwickshire Borough Council were jointly awarded a grant by the Department of Energy and Climate Change under the Green Deal Communities programme. Nuneaton and Bedworth will receive approximately £1.7m. The money will be spent during the next year on 400+ properties in the Borough to install energy efficiency measures to reduce energy use and pollutant emissions.</p>	ongoing	

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Continuous data for 2013 showed that the annual mean and the hourly mean objective for NO₂ was met at the Leicester Road monitoring location. Annual mean concentrations in 2013 reduced to the lowest level for the monitoring period.

The review of diffusion tube monitoring data has identified two locations where the AQS annual NO₂ objective was exceeded in 2013; both were within the existing AQMAs. There was no exceedence of the annual mean NO₂ objective within the Leicester Road Gyratory AQMA in 2013 when concentrations were estimated at receptors relevant to public exposure.

Concentrations outside of the AQMA in 2013 were all below the objectives at relevant receptor locations.

Following an increase in 2012, the majority of the diffusion tube results reduced again in 2013.

10.2 Conclusions relating to New Local Developments

Planning consent has been granted for a number of housing developments to the north of Nuneaton, which may have a potential impact on the Leicester Road Gyratory AQMA. Applications for sites with more than 100 dwellings were supported with an air quality impact assessment. All assessments predicted a 'Negligible' impact on existing NO₂ concentrations within the AQMA and confirmed that the developments would not create any new AQMAs. The impacts of the developments will be considered further in the next round of review and assessment.

Further information was collected regarding the previously reported biomass boiler at Sainsbury's Supermarket, Vicarage Street, Nuneaton. An air quality assessment undertaken for this development concluded that the impact significance of the proposed facility at the nearest sensitive receptors is predicted to be 'Negligible'. The development is located within 600m of both AQMAs, however it is an area where exceedences of either the NO₂ or PM₁₀ objective are not a concern. The installation was approved by Nuneaton and Bedworth Council with the conditions pertaining to the boiler's design and operation.

10.3 Proposed Actions

Proposed actions arising from the 2014 Annual Progress Report are as follows:

- Continue diffusion tube and continuous monitoring in the district to identify future changes in pollutant concentrations;
- Within Leicester Road Gyratory AQMA, it is recommended to relocate some of the monitoring sites to the façade of properties if possible; and
- Proceed to the Updating and Screening Assessment 2015.

11 References

- Local Air Quality Management Technical Guidance LAQM.TG(09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland
- Nuneaton and Bedworth Borough Council, Updating and Screening Assessment 2012
- Nuneaton and Bedworth Borough Council, Annual Progress Report, 2013
- Nuneaton and Bedworth Borough Council, LAQM – Air Quality Action Plan 2011
- Hallam Land Management, Weddington Nuneaton – Air Quality Impact Assessment, 2011
- Warwickshire County Council Local Transport Plan 2011-2026
- Nuneaton and Bedworth Borough Council Annual Monitoring Report, April 2013

Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are supplied and analysed by Gradko utilising the 20% Triethanolamine (TEA) in water preparation method. A bias adjustment of 0.95 for the year 2013 (based on 24 studies) has been derived from the national bias adjustment calculator².

For previous data, years 2010 to 2012, the bias adjustment factors have been taken from the Council's previous LAQM annual reports. The factors used were 0.90 (2008), 0.94 (2009), 0.92 (2010), 0.89 (2011) and 0.97 (2012).

Factor from Local Co-location Studies

Nuneaton and Bedworth Borough Council operates a continuous analyser for NO₂ and have triplicate diffusion tubes co-located at this site; the local bias adjustment factor is 0.92.

Location	Diffusion Tube Data capture	Continuous Monitor Data Capture	Diffusion Tube Annual Mean (µg/m ³)	Continuous Monitor Annual Mean (µg/m ³)	Ratio
AQM2 Leicester Road (AQMA)	100%	99%	37	34	0.92

Discussion of Choice of Factor to Use

A bias adjustment factor has been applied to the data, which is an estimate of the difference between diffusion tube concentrations and continuous monitoring, the latter assumed to be a more accurate method of monitoring. The technical guidance LAQM.TG (09) provides guidance with regard to the application of a bias adjustment factor to correct diffusion tubes. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data from NO_x / NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

With regard to the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG (09) and LAQM Helpdesk³ recommends the use of a local bias adjustment factor where available and relevant to diffusion tube sites.

² National Diffusion Tube Bias Adjustment Factor Spreadsheet, version 03/14 published in March 2014.

³ laqm.defra.gov.uk

The local bias adjustment factor for 2013 was 0.92. The survey had very good data capture and diffusion tubes showed good precision throughout. Therefore, it was decided to use the local bias adjustment factor for the year 2013.

For comparison the national bias adjustment factor for the laboratory and tube preparation method for 2013 was 0.95 based on 24 studies (March 2014).

For previous data, years 2010 to 2012, the bias adjustment factors have been taken from the Council's previous LAQM annual reports. The factors used were 0.90 (2008), 0.94 (2009), 0.92 (2010), 0.89 (2011) and 0.97 (2012).

Short-term to Long-term Data Adjustment

Data capture was above 75% at all monitoring sites, therefore annualisation was not required.

QA/QC of Automatic Monitoring

From 2012, Supporting U were employed by the Council to undertake daily data checks and ratification, as such data from the instrumentation is considered to be reliable.

Data management and calibrations are undertaken by Supporting U. Supporting U undertake 6 monthly servicing of the instrument, undertake routine Local Site Operator duties and process and collate the monitoring data on behalf of the council.

QA/QC of Diffusion Tube Monitoring

Gradko International Ltd is a UKAS accredited laboratory and participates in the Workplace Analysis Scheme for Proficiency (WASP) for NO₂ diffusion tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO₂ concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance. In the latest available WASP results, rounds 120 through to 123 (January to December 2013) Gradko International have scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$. Based on 24 studies, 96% of all local Authority co-location studies in 2013 were rated as 'good' (tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%).

Monthly Diffusion Tube Results 2013

Site Ref	NO ₂ Concentrations µg/m ³												COUNT	AVERAGE
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
NB1	28.2	31.7	27.3	20.7	17.1	16.2	15.4	17.1	20.4	22.0	33.4	24.5	12	22.8
NB2	32.5	28.5	24.0	16.6	12.5	16.6	15.6	18.1	22.1	23.4	30.1	27.9	12	22.3
NB4	42.5	44.9	42.2	37.0	34.7	33.2	34.6	30.8	37.2	31.3	55.4	39.1	12	38.6
NB5	43.0	50.4	43.3	39.7	18.9	31.1	34.4	28.0	35.7	29.9	44.0	35.0	12	36.1
NB6	43.1	41.9	33.7		34.3	30.9			38.3	35.7	43.9	30.9	9	37.0
NB7	41.5	49.3	40.7	36.1	31.8	31.2	35.5	30.2	34.1	35.2	39.4	32.6	12	36.5
NB9	33.4	42.8	33.5	28.9	26.6	27.7	29.2	28.3	33.4	30.1	46.1	38.9	12	33.2
NB10	34.3	46.9	40.6	33.5	29.2	30.8	33.6	28.6	36.9	32.4		57.6	11	36.8
NB11	64.4	51.9	41.6	40.0	34.2	37.6	40.3	45.2	52.7	41.1	59.8	53.0	12	46.8
NB12	41.1	48.9		36.0	30.5	30.7	32.4	30.0	37.9	34.3	59.1	47.5	11	38.9
NB13	35.2	53.9	48.1	33.7	39.8	38.3	35.9	33.1	41.7	35.8	49.6	37.1	12	40.2
NB14	44.4	42.4	32.2	34.0	40.0	29.9	34.5	32.0	38.0	36.4	47.1	45.6	12	38.0
NB15	46.8	47.4	33.5	29.1	31.2	25.7	27.0	28.0	33.6	27.7	40.9	39.6	12	34.2
NB17	35.4	50.0	42.3	38.7	38.0	34.1	35.7	32.6	36.7	36.5	48.8	40.0	12	39.1
NB18	58.0	41.5	32.8	29.5	31.3	30.1	29.2		41.1	32.7	49.0	34.6	11	37.2
AQM	40.5	43.8	36.7	31.0	29.9	29.7	33.9	33.5	37.1	31.6	46.2	50.0	12	37.0
AQM	38.7	42.5	33.7	31.8	29.4	28.4	32.9	34.2	37.6	33.2	44.7	50.2	12	36.4
AQM	43.1	41.5	32.4	28.2	32.7	28.0	31.3	33.3	36.5	32.0	40.3	55.2	12	36.2
NB20	31.2	40.9	38.3	34.3	25.9	28.7	28.3	26.8	31.2	29.1	37.1	34.6	12	32.2
NB21	30.5	37.7	32.0	29.9	29.0	26.0	29.2	30.6	31.2	29.6	44.3	36.4	12	32.2
NB22	34.3	34.3	27.6		21.2	21.0	22.2	22.7	27.3	26.9	35.4	23.7	11	27.0
NB23	36.2	36.6	34.6	29.7	36.2	27.4	30.5	31.8	37.9	33.9	42.1	32.3	12	34.1
NB24	36.2	36.6	34.6	29.7	36.2	27.4	30.5	31.8	37.9	33.9	42.1	32.3	12	34.1
NB25	33.3	30.3	27.9	22.0	22.2	23.0	24.9	22.5	28.4	24.2	38.2	29.7	12	27.2
NB26	36.6	45.6	35.3	32.3	31.0	29.8	30.9	27.5	34.4	28.9	42.4	31.4	12	33.8
NB27	46.7	45.6	23.2	38.0	43.2	36.7	42.0	42.4		44.0	47.1	38.3	11	40.7
NB28	37.0	45.3	33.2	37.3	39.5	34.6	38.3	38.5	43.7	36.0	50.2	50.3	12	40.3
NB29	43.6	44.6	37.4	42.0	43.0	35.9	40.0	42.9	48.7	43.4	54.8	54.1	12	44.2
NB30	37.6	41.6	35.7			32.6	21.7	40.6	48.2	45.7	53.2	53.8	10	41.1
NB31	40.3	50.3	44.6	37.0	38.3	40.4	40.1	31.9	40.6	36.0	53.0	31.3	12	40.3
NB34	36.8	33.6	29.9	26.6	24.7	22.1	26.1	46.6	35.2	31.6	42.4	33.5	12	32.4
NB35	32.1	33.7	31.5	26.1	25.5	23.7	23.0	29.5	26.0	27.9	37.1	25.5	12	28.5
NB36	42.6	50.7	37.4	33.0	33.9	31.3	36.1	38.0	43.5	47.0	52.4	51.4	12	41.4
NB37	41.1	44.7	34.0	27.7	34.3	34.2	18.1	31.9	40.7	30.5	45.2	35.0	12	34.8
NB38	36.9	37.7	34.4	26.5	29.7	26.9	29.4	27.2	33.5	30.5	42.6	31.4	12	32.2
NB39	29.5	29.7	24.7	19.1	18.4	18.4	17.8	16.5	21.1	20.7	30.8	23.1	12	22.5
NB40	32.7	36.7	21.2	26.4	24.9	22.8	28.4		32.6	32.4	37.8	33.6	11	30.0

Site Ref	NO ₂ Concentrations µg/m ³												COUNT	AVERAGE
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
NB41	35.2	52.1	45.1	36.4	31.0	32.6	35.5	34.7	39.3	34.0	50.2	27.3	12	37.8
NB42	44.8	39.8	33.6	33.1	22.9	23.0	26.3	14.0	31.5	29.1	40.9	34.8	12	31.2