Nuneaton and Bedworth Borough Council
Annual Status Report 2019

Bureau Veritas

January 2020

Document Control Sheet

Identification	
Client	Nuneaton and Bedworth Borough Council
Document Title	2019 Annual Status Report
Bureau Veritas Ref No.	6487277/UK/Final V2.0

Contact Details		
Company Name	Bureau Veritas UK Limited	Nuneaton and Bedworth Borough Council
Contact Name	Hannah Smith	Alison Cannon
Position	Senior Consultant	Environmental Health
Address	5th Floor 66 Prescot Street London E1 8HG	Town Hall Coton Road Nuneaton CV11 5AA

Configuration				
Version	**Date**	**Author**	**Reason for Issue/Summary of Changes**	**Status**
V1.0	01/07/19	T Campbell	Draft for comment	Draft
V2.0	25/07/19	T Campbell	Draft for comment	Draft
Final	29/07/19	T Campbell	Update due to comments	Final
Final V2.0	14/01/20	T Campbell	Update due to appraisal comments	Final V2.0

	Name	Job Title	Signature
Prepared By	T Campbell	Senior Consultant	
Approved By	P Bentley	Senior Consultant	

2019 Air Quality Annual Status Report (ASR)

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

June 2019

Local Authority Officer	Alison Cannon
Department	Environmental Health
Address	Nuneaton and Bedworth Borough Council Town Hall, Coton Road Nuneaton CV11 5AA
Telephone	024 7637 6334
E-mail	alison.cannon@nuneatonandbedworth.gov.uk
Report Reference number	6487276
Date	June 2019

Executive Summary: Air Quality in Our Area

Air Quality in Nuneaton & Bedworth Borough Council

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

The main sources of air pollution within Nuneaton and Bedworth are from road traffic sources contributing to elevated concentrations of NO_2, PM_{10} and $PM_{2.5}$. Currently there are two designated Air Quality Management Areas (AQMAs) in the Borough, both have been declared in relation to exceedances of the AQS annual mean objective for NO_2 and both are surrounding busy roads and interchanges within Nuneaton.

The boundaries of the two AQMAs can be viewed online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=189, details are provided in Table 2.1 and a boundary map is presented in Figure D.1.

An Air Quality Action Plan (AQAP) has been completed due to the AQMA designations within Nuneaton and Bedworth, this outlines measures to be completed in order to achieve compliance with annual mean AQS objective for NO_2, thus improving air quality within the AQMAs and also the Borough as a whole. Many of the measures have been set up to include the input and support of Warwickshire County Council (WCC), most of the action plan measures are transport-based measures that aim to reduce road traffic emissions to achieve improvements in air quality.

Actions to Improve Air Quality

The AQAP for Nuneaton and Bedworth is the main action to drive a reduction in air pollution within the Borough. The measures set out within the AQAP have been

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

developed as actions to help Nuneaton and Bedworth work towards achieving compliance with the NO_2 annual mean AQS objective.

In addition, the Warwickshire Local Transport Plan 2011-2026, which came into effect on the 1st April 2011, includes a high level of consideration throughout the plan in relation to the reconfiguration of roads, sustainable transport plans and modes of transport, alternative modes of transport to private vehicles and to overall reduce the impact of the transport system on air quality within the local area.

Conclusions and Priorities

Within Nuneaton and Bedworth, concentrations of NO_2 remain above the AQS annual mean objective level at two diffusion tube monitoring sites, both of the sites are located within the designated AQMAs (sites NB29 and NB 30, concentration were 41.0 and 41.1 µg/m^3 respectively). These sites have shown exceedances of the AQS annual mean objective in previous years but concentrations have declined since peak concentrations were recorded in 2008 and 2009.

The priority for Nuneaton and Bedworth for the coming year is to progress the measures set out within the AQAP which have been designed to address these elevated concentrations, with the overall goal of ensuring pollution levels are below the AQS objectives. Monitoring of NO_2 is to continue so that any changes in concentration can be identified and progress in the implementation of the AQAP can be measured.

As stated above, the Warwickshire Local Transport Plan aims to reduce the impact of transport on local air quality, cooperation with all the Districts and Boroughs within Warwickshire is essential for this to be achieved. The plan was developed with engagement with a wide range of stakeholders including community groups and organisations.

Local Engagement and How to get Involved

The main source of air pollution within Nuneaton and Bedworth originates from road traffic emissions. Therefore the best way for members of the public to help improve air quality within the Borough is to adjust their normal travel patterns, moving to more sustainable methods of transport. As cited in the 2017 ASR, online tools are also available to help you plan your journey, including Warwickshire County Council's car share database (https://carsharewarwickshire.liftshare.com/default.asp), the 'Choose

How You Move' website https://www.warwickshire.gov.uk/activetravel , Twitter https://twitter.com/ChooseMoveCW and Facebook page https://www.facebook.com/ChooseMoveCW/ ,walkit.com and cyclestreets.net.

The following are suggested alternatives to private travel that are given within the AQAP measures that would contribute to improving the air quality within the Borough:

- Use public transport where available – This reduces the number of private vehicles in operation, thereby reducing pollutant concentration through the number of vehicles and reducing congestion
- Walk or cycle if your journey allows – From choosing to walk or cycle for your journey the number of vehicles is reduced and also there is the added benefit of keeping fit and healthy. In addition, many of the cycle routes are off-road meaning you are not in close proximity to emissions from road traffic sources
- Car/lift sharing – Where a number of individuals are making similar journeys, such as travelling to work or to school, car sharing reduces the number of vehicles on the road and therefore the amount of emissions being released. This can be promoted via travel plans through the workplace and within schools and
- Alternative fuel / more efficient vehicles – Choosing a vehicle that meets the specific needs of the owner. Fully electric, hybrid fuel and more fuel efficient cars are available and all have different levels benefits by reducing the amount of emissions being released.
- Home working – Choosing to work from home can help to alleviate congestion on the roads during peak times and therefore reduce the amount of emissions being released.

Table of Contents

List of Tables

List of Figures

1 Local Air Quality Management

This report provides an overview of air quality in Nuneaton & Bedworth Borough Council during 2018. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 an exceedance is considered likely the local authority must 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. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Nuneaton & Bedworth Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of the AQMAs declared by Nuneaton and Bedworth can be found in Table 2.1, with further information related to declared or revoked AQMAs, including maps of AQMA boundaries available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=189. Alternatively, see Appendix D: Maps of Monitoring Locations and AQMAs, which provides for a map of air quality monitoring locations in relation to the AQMA(s).

Due to a number of exceedances of the AQS annual mean objective for NO_2 being recorded within the existing Midland Road/Corporation Street AQMA (AQMA 2), it is recommended that the AQMA remain designated.

In light of the continual compliance with AQO, the revocation of the AQMA at Leicester Rd (AQMA 1) is being assessed, and the most appropriate approach is currently under consideration. This recommendation is supported within the 2018 ASR Appraisal performed by Defra, and reflected by the ongoing compliant results recorded over the last 3 years. All sampling locations within AQMA 1 have recorded NO_2 concentrations <35 µg/m^3 since 2016, furthermore, locations NB15, NB20, NB22, and NB24 within this AQMA have reported concentrations of NO_2 <30 µg/m^3 since 2016. This demonstrates further support for the revocation of AQMA 1.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure, µg/m^3)		Action Plan		
						At Declaration	Now	Name	Date of Publication	Link
AQMA 1 – Leicester Rd Gyratory, Nuneaton	01/03/2007	NO_2 annual mean	Nuneaton	An area of Nuneaton centred on the Leicester Road Gyratory system and incorporating sections of the Leicester, Old Hinckley and Weddington Roads.	NO	41	31.2	Nuneaton and Bedworth Borough Council, Air Quality Action Plan	2011	https://www.nuneatonandbedworth.gov.uk/downloads/file/2521/nuneaton_and_bedworth_air_quality_action_plan
AQMA 2 – Midland Road / Corporation Street, Nuneaton	01/10/2009	NO_2 annual mean	Nuneaton	Centred on Midland Road, Central Avenue and Corporation Street but also includes parts of Manor Court Road.	NO	55	41.1	Nuneaton and Bedworth Borough Council, Air Quality Action Plan	2011	https://www.nuneatonandbedworth.gov.uk/downloads/file/2521/nuneaton_and_bedworth_air_quality_action_plan

☒ **Nuneaton & Bedworth Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date**

2.2 Progress and Impact of Measures to address Air Quality in Nuneaton & Bedworth Borough Council

Defra's appraisal of last year's ASR concluded that the report was well structured, detailed and provided information specified within the relevant guidance. A number of comments were offered in relation to the current AQAP measures, the AQMAs, and the associated monitoring locations within them.

In particular, the appraisal raised the following observations:

- The Council has been encouraged to develop measures to address $PM_{2.5}$ emissions coordinated with an approach to reduce concentrations at hotspots within the Borough;
- Expansion of the monitoring network is recognised and encouraged, however it is important to relocate monitoring resources where consistently low concentrations are measured, thereby increasing hotspot data capture;
- The Council may wish to consider revoking the Leicester Road Gyratory AQMA as measured results have generally decreased since 2014;
- Full details within Table 2.1 were absent and should be included in the next ASR; and
- Overall it is recommended that the Council continue to implement the current air quality strategy and maintain the monitoring network.

Nuneaton and Bedworth have taken forward a number of direct measures during the current reporting year of 2018 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

More detail on these measures can be found in the current AQAP that is available at https://www.nuneatonandbedworth.gov.uk/downloads/file/2521/nuneaton_and_bedworth_air_quality_action_plan.

Nuneaton and Bedworth expects that all on-going measures will be monitored over the course of the next reporting year.

The principal challenges and barriers to implementation that Nuneaton and Bedworth anticipates facing are controlling emissions and reducing concentrations within the existing Midland Road/Corporation Street AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Identify and bring forward traffic management improvements in Nuneaton Town Centre, particularly where they will benefit the two AQMAs.	Traffic Management	Strategic Highways Improvements and Road User Charging	WCC / N&BBC	On-going	On-going	Traffic Counts	1 - 2 µg/m^3	WCC are assessing transport implications of Borough Plan growth proposals and have identified a number of transport schemes[4] to mitigate the traffic growth impacts across the Borough including in the town centre. The town centre transport schemes link to the Transforming Nuneaton Town Centre scheme. A business case was submitted to Coventry and Warwickshire Local Enterprise Partnership as part of Growth Deal 3. The bid was successful and a significant sum has been secured towards developing the scheme. Funding will also be sought through S106/CIL contributions. WCC is submitting a bid to the National Productivity and Investment Fund for the A47 between Leicester Rd Bridge and Eastboro Way/Long Shoot[5]. This scheme aims to address congestion issues, remove pinch points and provide pedestrian and cycle facilities	On-going	Funding availability
2	Identify measures to reduce the impact of HGV movements within the area.	Freight and Delivery Management / Traffic Management	Route Management / Traffic Reduction	WCC / N&BBC	On-going	On-going	Traffic Counts	0.2 - 0.5 µg/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.	On-going	Alternative routes availability

[4] https://www.nuneatonandbedworth.gov.uk/downloads/21026/transport
[5] https://warwickshire.gov.uk/npif

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
3	Increase uptake and implementation of School and Workplace Travel Plans.	Promoting Travel Alternatives	School and Workplace Travel Plans	WCC / N&BBC	On-going	On-going	Usage figures	0.2 - 0.5 µg/m^3	On-going as opportunities arise, and through the development process.	On-going	None
4	Develop, implement and monitor the N&BBC Travel Plan. Explore potential for a Car Club in Nuneaton.	Alternatives to Private Vehicle Use / Promoting Travel Alternatives	Car Clubs / Personalised Travel Planning	N&BBC	On-going	On-going	Usage figures	0 - 0.2 µg/m^3	Travel Plan in place. Implementation and on-going monitoring arrangements to be agreed.	On-going	None
5	Include planning policies within the Borough Plan that seek to improve air quality, sustainable transport links and secure Travel Plan agreements. Identify as part of the Borough Plan Infrastructure Delivery Plan specific infrastructure required within the AQMAs or that could relieve the AQMAs. These can then be prioritised alongside the Borough's other infrastructure demands for external funding and developer contributions/CIL.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	N&BBC	On-going	On-going	-	0 - 0.2 µg/m^3	The Borough Plan evidence has allowed WCC to identify schemes and initiatives to improve sustainable transport provision and improve the management of traffic on the network. These will be pursued as funding streams become available. The Transforming Nuneaton Town Centre Scheme and the A47 corridor schemes aim to reduce the level of delay within the identified area. The Nuneaton and Bedworth Borough Council Infrastructure Delivery Plan contains schemes which have been identified through the Strategic Transport Assessment. The Council has also completed assessments of the impact of the Borough Plan on Air Quality within the Borough[6]. The Borough Plan includes an updated and clearer policy on air quality. To support this, Air Quality Guidance for Developers has been produced to show when an Impact Assessment is needed and the potential mitigation measures to be expected.	On-going	Availability of funding

[6] https://www.nuneatonandbedworth.gov.uk/downloads/file/1412/g5_-_air_quality_assessment_updated_2016
https://www.nuneatonandbedworth.gov.uk/downloads/file/2545/nbbc55_-_air_quality_assessment_

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
	Encourage developers to take part in pre-application discussions to ensure air quality is 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.										
6	Continue to work with WCC and other partners to deliver improvements in emissions where practicable.	Promoting Low Emission Transport / Vehicle Fleet Efficiency	Other	WCC / N&BBC / Public Transport Operators	On-going	On-going	-	1 - 2 µg/m^3	Through capital investment arising from the MIRA Enterprise Zone, Arriva Midlands has funded the provision of four new vehicles to operate on the Service 66 (Nuneaton - MIRA - Hinckley) bus route. It is possible that further funding opportunities to secure the improvement of local bus fleets will arise in response to recent changes to legislation, e.g. The Bus Services Bill. Warwickshire Electric Vehicle Infrastructure Strategy now in place. Warwickshire On-street Residential EV Charging Scheme proposed	On-going	Availability of funding

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
7	Make details of the air quality measures and annual reports available on the website to ensure accessibility to the consultation and implementation process.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	N&BBC	On-going	On-going	-	0 µg/m^3	To be uploaded to website annually at the appropriate time.	On-going	None
8	Continue to work with Public Health, 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.	Public Information	Other	WCC / N&BBC / Warwickshire local authorities	On-going	On-going	Website visitor numbers / Members registration for Car Share	0 - 0.2 µg/m^3	WCC promote sustainable travel modes via their website www.warwickshire.gov.uk/activetravel showing: WCC car share database, Nuneaton cycle guide, public transport maps and timetables.	On-going	None
9	Continue the commitment to undertake air quality monitoring within the Borough to ensure a high standard of data is achieved to assess against air quality objectives.	Policy Guidance and Development Control	Other	N&BBC	On-going	On-going	Data capture	0 µg/m^3	Monitoring continues across the Borough – data capture for 2018 was good at all passive locations	On-going	None
10	Continue to enforce industrial pollution control and nuisance legislation to minimise pollutant emissions from these sources	Environmental Permits	Other	N&BBC	On-going	On-going	Number of inspections	0 - 0.2 µg/m^3	N&BBC continue a high rate of inspections of industrial installations.	On-going	None

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
11	Continue to work together with partners to promote and implement energy efficiency measures in the Borough	Promoting Low Emission Plant	Other	N&BBC Department of Energy and Climate Change (DECC) under the Green Deal Communities scheme	On-going	On-going	Number of completed renovations	0 - 0.2 $\mu g/m^3$	2015-16 saw the completion of 61 external wall insulations, 491 central heating systems replacements and 32 loft insulations to properties. To date, a total of 336 properties benefitted from external wall insulation Energy efficiency measures now being promoted via the Energy Company Obligation (ECO) : Help to Heat programme and the national Local Authority Flexible Eligibility scheme	On-going	Grant funding of £2.1 million now exhausted. Availability of future funding

Notes:

WCC – Warwickshire County Council

N&BBC – Nuneaton and Bedworth Borough Council

2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The current Defra 2018 background maps for Nuneaton and Bedworth (2017 based[7]) show that all background concentrations of $PM_{2.5}$ are far below the 2020 annual mean AQS objective of 25 µg/m^3 for $PM_{2.5}$. The highest concentration is predicted to be 12.2 µg/m^3 within the 1 x 1km grid square with the centroid grid reference of 435500, 285500. This is an area close to the M6 and A444 that encompasses residential and light industrial units.

The Public Health Outcomes Framework data tool[8] compiled by Public Heath England quantifies the mortality burden of $PM_{2.5}$ within England on a county and local authority scale. The 2017 fraction of mortality attributable to $PM_{2.5}$ pollution across England is 5.1%, and in contrast the fraction within Nuneaton and Bedworth is slightly higher than the national average, at 5.3%.

Nuneaton and Bedworth are working to reduce emissions of air pollution across the Borough, with many of the measures designed to reduce emissions of NO_2 also impacting the emissions of PM_{10} and $PM_{2.5}$. The following pollutant emission reduction measures included within Nuneaton and Bedworth's existing AQAP are also likely to reduce emissions of $PM_{2.5}$:

- Traffic management improvements, including reduction of HGV movements;
- Improved integration of public transport, including improvements for bus , rail and community transport infrastructure;
- Increase uptake and implementation of School Travel Plans, Workplace Travel Plans and the Nuneaton and Bedworth Borough Council Travel Planning Policy;

[7] Defra Background Mapping data for local authorities (2017-based), available online at https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html

[8] Public Health Outcomes Framework, Public Health England. data tool available online at http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000043/pat/6/par/E12000009/ati/102/are/E06000028

- Improve sustainable transport links, improvements for pedestrians and cyclists, endorse travel planning and promoting a Car Club; and
- Promote and implement energy efficiency measures across the Borough.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

3.1 Summary of Monitoring Undertaken

This section sets out what monitoring has taken place and how it compares with objectives.

3.1.1 Automatic Monitoring Sites

Nuneaton and Bedworth no longer undertake automatic (continuous) monitoring. Due to the continued general decline and stabilisation in NO_2 concentrations within AQMA1 to below the AQO, a decision was made to decommission the automatic monitoring station at the end of 2016. The automatic monitoring station does retain the facility to be brought back into use and monitoring recommenced if sufficient evidence warrants this.

3.1.2 Non-Automatic Monitoring Sites

Nuneaton and Bedworth undertook non- automatic (passive) monitoring of NO_2 at 38 sites during 2018 Table A.1 in Appendix A shows the details of the sites. Monitoring is completed at three different types of site:

- Roadside (R) – A site that is located within 1 – 5m from the kerb edge;
- Kerbside (K) – A site within 1m of the kerb edge; and
- Urban Background (UB) – A site >50m from any major source of NO_2 and representative of urban residential areas.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. “annualisation” and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, “annualisation” and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40 µg/m^3.

For diffusion tubes, the full 2018 dataset of monthly mean values is provided in Appendix B.

Table 3.1 below provides a summary of measured exceedances (bias adjusted) of the annual mean objective that were recorded for 2018. During 2018 there were two exceedances of the AQS annual mean objective for NO_2, both were at locations within existing AQMA2.

Table 3.1 – Summary of Measured Annual Mean NO_2 Exceedances

Site ID	Within AQMA Y/N	2018 Bias Adjusted Annual Mean Concentration (µg/m^3)
NB29	Yes - Midland Road / Corporation Street AQMA	**41.0**
NB30	Yes - Midland Road / Corporation Street AQMA	**41.1**

The results from 2018 generally show similar results to those presented in 2017, with exceedances of the NO_2 annual mean being experienced at two diffusion tube monitoring sites on Midland Road, both located within existing AQMA2. Of these locations, both NB29 and NB30 are located at relevant exposure locations.

Figure A.1 and Figure A.2 present the annual mean NO_2 concentrations recorded at all diffusion tube locations since 2014, outwith and within the designated AQMAs. In 2018 none of the monitoring sites experienced their highest recorded annual mean NO_2 concentrations apart from NB45 and NB51, which recorded their highest value since 2015 and 2017 respectively. However, a number of the sites did record their lowest annual mean NO_2 concentrations in 2018.

It should be noted that although the annual result for diffusion tube location NB27 was within 10% of the AQS annual mean, distance correction was not applied as it is located relevant to exposure.

Due to two exceedances of the AQS annual mean objective for NO_2 being recorded within the existing Midland Road/Corporation Street AQMA (AQMA2), it is recommended that this AQMA remain designated.

The Council are considering revoking the Leicester Road Gyratory AQMA (AQMA1), with support from Defra, as measured results have generally decreased since 2014.

Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
AQM	AQM Leicester Rd	Roadside	436844	292251	NO_2	YES	1.5	4.2	NO	1.3
NB01	42 Norman Avenue	Urban Background	435974	291304	NO_2	NO	N/A	N/A	NO	1.9
NB02	5 Conifer Close	Urban Background	436427	287646	NO_2	NO	N/A	N/A	NO	2.1
NB04	72 Coventry Rd Leisure Centre	Suburban	435793	286545	NO_2	NO	0	3.6	NO	3.2
NB05	McDonnell Drive	Roadside	434857	284734	NO_2	NO	0	15	NO	2.3
NB06	Tudor Court	Roadside	434313	285292	NO_2	NO	11	0.9	NO	2.9
NB07	115 Newtown Rd	Roadside	435345	286992	NO_2	NO	6	4.4	NO	2.4
NB09	Manor Court Rd (Rooms)	Roadside	435634	292280	NO_2	YES	1.5	2.2	NO	2.4
NB15	Bridge Grove, Leicester Rd	Roadside	436883	292302	NO_2	YES	8	1.4	NO	2.3
NB17	41 Bond St, Balti Hut	Roadside	436393	291987	NO_2	NO	0	1.3	NO	2.3
NB18	Wheat Street	Roadside	436525	291863	NO_2	NO	23	4	NO	2.3
NB20	17 Old Hinckley Rd	Roadside	436604	292202	NO_2	YES	0	6.9	NO	2
NB21	36 Old Hinckley Rd	Roadside	436691	292271	NO_2	YES	0	8.6	NO	2

NB22	58 Old Hinckley Rd	Roadside	436810	292306	NO_2	YES	0	8.8	NO	1.9
NB23	46 Leicester Road	Roadside	436841	292280	NO_2	YES	0	4.5	NO	2.1
NB24	31 Leicester Rd (School Lodge)	Roadside	436812	292196	NO_2	YES	0	11	NO	2.2
NB25	25 Central Avenue	Roadside	435814	292274	NO_2	YES	0	6.4	NO	2.1
NB26	26 Central Avenue	Roadside	435759	292311	NO_2	YES	0	4.6	NO	2.1
NB27	90 Corporation St	Roadside	435959	292098	NO_2	YES	0	4.8	NO	2.4
NB28	138 Corporation St	Roadside	435893	292205	NO_2	YES	0	4.7	NO	2.1
NB29	16 Midland Road	Roadside	435626	292343	NO_2	YES	0	4	NO	2.1
NB30	50/52 Midland Road	Roadside	435554	292378	NO_2	YES	0	3.8	NO	2.1
NB31	376 Longford Road	Roadside	435146	284563	NO_2	NO	0	12.7	NO	2.5
NB35	60 Watling Street	Roadside	439268	293457	NO_2	NO	0	11.7	NO	1.9
NB36	78 Coventry Rd	Roadside	435217	285246	NO_2	NO	0	2.3	NO	2.3
NB37	19 Croft Rd	Roadside	435051	291594	NO_2	NO	0	5.8	NO	2
NB38	115 Highfield Rd	Roadside	437198	290732	NO_2	NO	0	7.2	NO	1.8
NB41	11 Newtown Rd (salon)	Roadside	435619	287042	NO_2	NO	0	4.8	NO	2
NB42	18 George Street	Roadside	435655	287135	NO_2	NO	0	8.3	NO	1.8
NB43	43 Hanover Glebe	Roadside	436303	290796	NO_2	NO	0	11.6	NO	2
NB44	503 Heath End Rd	Roadside	434298	290930	NO_2	NO	2	2.3	NO	2.2

NB45	80 Heath End Rd	Roadside	435593	290728	NO_2	NO	4.6	2.5	NO	2.4
NB46	30 Bermuda Rd	Roadside	435135	290583	NO_2	NO	0	9.2	NO	2
NB47	6 The Bridleway	Roadside	435452	290087	NO_2	NO	0	4.6	NO	2
NB48	288 Heath End Rd	Roadside	435066	290689	NO_2	NO	0	8.5	NO	2.1
NB49	Co-op, Coventry Rd	Roadside	435231	285236	NO_2	NO	0	4.2	NO	2.5
NB50	66 Coventry Rd	Roadside	435201	285198	NO_2	NO	0	8.3	NO	2.3
NB51	Abbey Green School	Roadside	435638	292357	NO_2	YES	0	5	NO	2.2

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	NO_2 Annual Mean Concentration (µg/m^3) (3)				
					2014	2015	2016	2017	2018
AQM	Roadside	Duplicate Diffusion Tube	100%	100%	31.2	32.4	30.4	30.6	29.9
NB01	Urban Background	Diffusion Tube	100%	100%	19.9	20.2	20.4	19.2	18.5
NB02	Urban Background	Diffusion Tube	100%	100%	19.7	19.6	19.2	19.2	18.1
NB04	Suburban	Diffusion Tube	92%	92%	32.4	33.3	34.7	34.3	30.9
NB05	Roadside	Diffusion Tube	100%	100%	31.2	31.9	30.9	28.4	26.5
NB06	Roadside	Diffusion Tube	100%	100%	33.7	34.6	34.9	25.7	32.0
NB07	Roadside	Diffusion Tube	100%	100%	34.4	31.9	31.9	27.5	32.1
NB09	Roadside	Diffusion Tube	100%	100%	31	29.5	30.3	27.4	28.5
NB15	Roadside	Diffusion Tube	100%	100%	28.6	30.3	29.8	23.7	29.2
NB17	Roadside	Diffusion Tube	100%	100%	32.8	33.4	32.5	30.9	29.3
NB18	Roadside	Diffusion Tube	100%	100%	30.9	31.9	32.8	26.3	32.9
NB20	Roadside	Diffusion Tube	100%	100%	27.6	25.9	28.5	27.2	27.7
NB21	Roadside	Diffusion Tube	100%	100%	30.6	29.4	30	29.6	27.9
NB22	Roadside	Diffusion Tube	100%	100%	25.2	25.2	24.9	25.2	24.9

NB23	Roadside	Diffusion Tube	100%	100%	33.2	32	32.9	33.3	31.2
NB24	Roadside	Diffusion Tube	92%	92%	22.8	23.3	24.5	24.3	24.4
NB25	Roadside	Diffusion Tube	100%	100%	31.1	31.7	32.2	32.1	31.1
NB26	Roadside	Diffusion Tube	100%	100%	28.7	29.6	31.4	29.5	29.8
NB27	Roadside	Diffusion Tube	100%	100%	37.2	**40.3**	39.9	**40.6**	36.6
NB28	Roadside	Diffusion Tube	83%	83%	36.5	36.3	36.7	37.2	35.2
NB29	Roadside	Diffusion Tube	92%	92%	**41.6**	**43**	**43.8**	**44.6**	**41.0**
NB30	Roadside	Diffusion Tube	100%	100%	**40.9**	**41.4**	**40**	39.3	**41.1**
NB31	Roadside	Diffusion Tube	100%	100%	34.2	33.4	34.3	32.1	30.2
NB35	Roadside	Diffusion Tube	100%	100%	24.8	24.8	24.8	23.2	22.9
NB36	Roadside	Diffusion Tube	100%	100%	35	36.5	37.6	36.8	33.8
NB37	Roadside	Diffusion Tube	92%	92%	31.6	31.8	33	31.9	31.3
NB38	Roadside	Diffusion Tube	100%	100%	28.6	27.4	30.5	30	28.9
NB41	Roadside	Diffusion Tube	92%	92%	31.4	32.1	31.2	32.8	32.4
NB42	Roadside	Diffusion Tube	100%	100%	30.4	28.2	28.1	26.2	25.0
NB43	Roadside	Diffusion Tube	100%	100%	-	27.4	26.9	26.3	26.7
NB44	Roadside	Diffusion Tube	92%	92%	-	30.1	30.5	27.1	30.0
NB45	Roadside	Diffusion Tube	100%	100%	-	26.3	29.6	28.1	34.8

NB46	Roadside	Diffusion Tube	92%	92%	-	-	19.8	18.7	19.8
NB47	Roadside	Diffusion Tube	100%	100%	-	-	18.9	18.6	19.1
NB48	Roadside	Diffusion Tube	100%	100%	-	-	25.2	25.6	23.2
NB49	Roadside	Diffusion Tube	100%	100%	-	-	-	32.4	29.2
NB50	Roadside	Diffusion Tube	100%	100%	-	-	-	32.7	30.6
NB51	Roadside	Diffusion Tube	100%	100%	-	-	-	26.3	26.5

Diffusion tube data has been bias corrected

Annualisation has been conducted where data capture is <75%

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A.1 – Trends in Annual Mean NO_2 Concentrations Outwith AQMAs

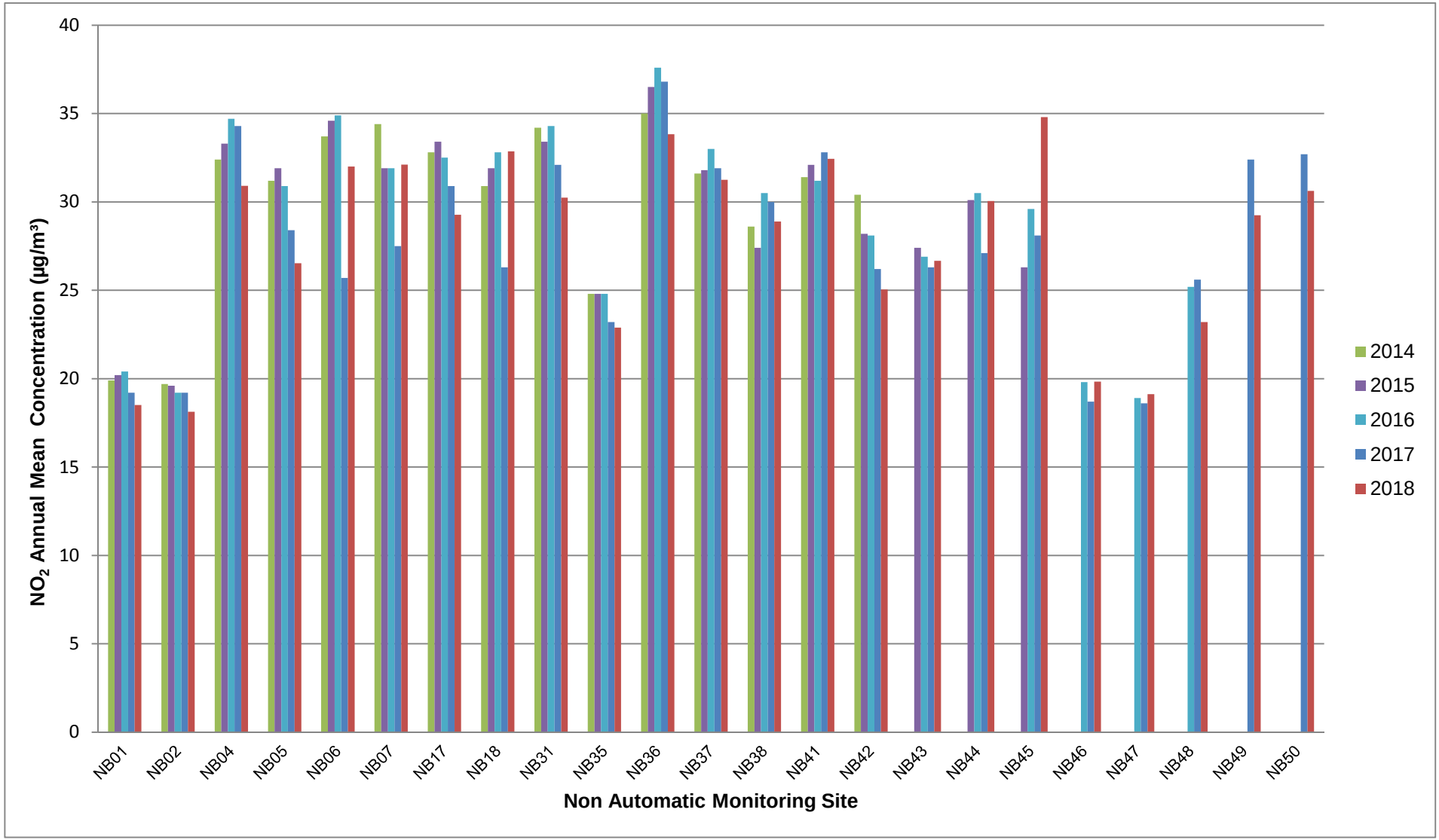
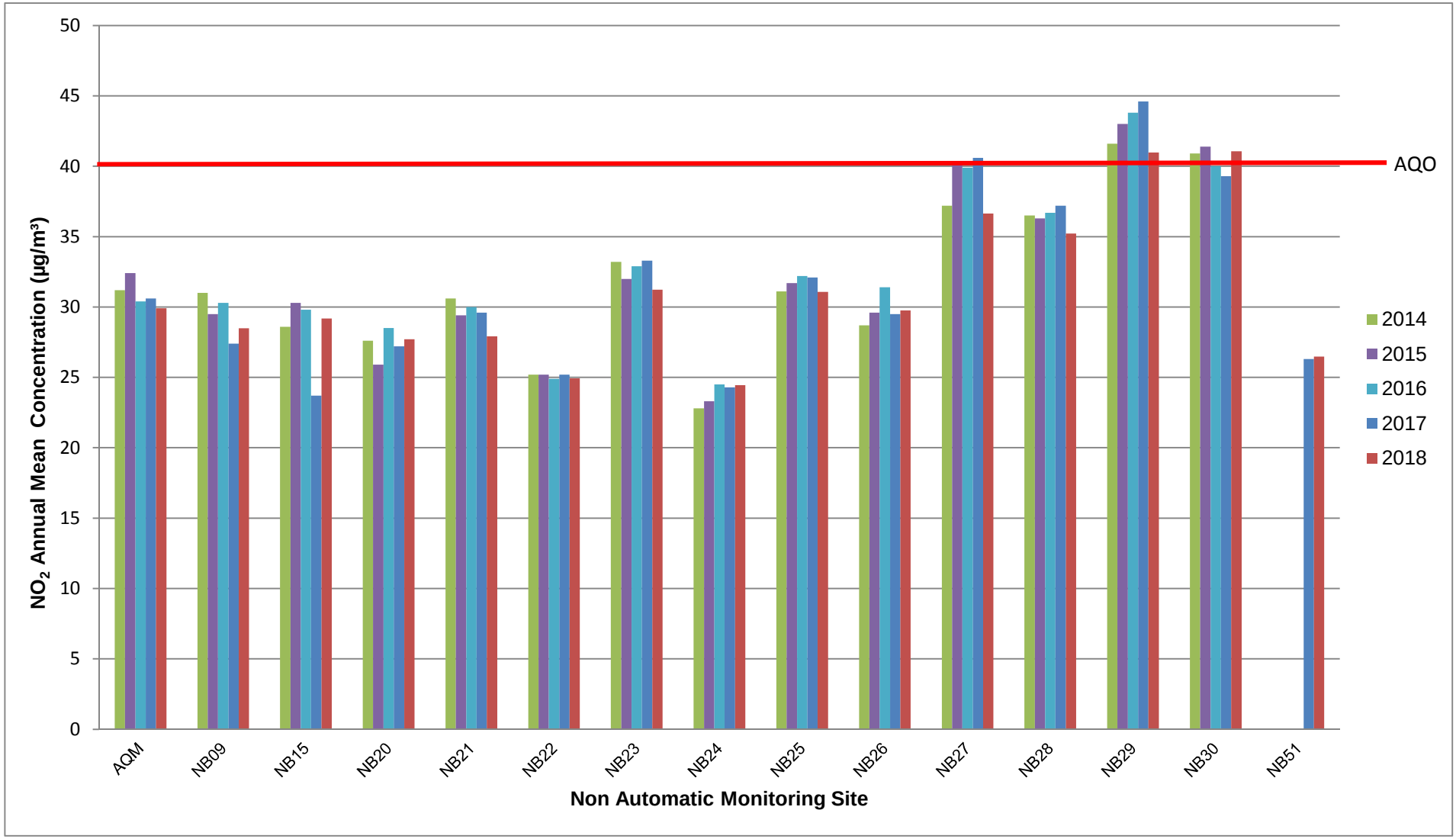


Figure A.2 – Trends in Annual Mean NO_2 Concentrations Within AQMA



Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO_2 Monthly Diffusion Tube Results - 2018

Site ID	NO_2 Mean Concentrations ($\mu g/m^3$)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
AQM	32.3	29.2	36.6	33.6	26.2	23.9	34.0	35.5	34.9	33.5	36.6	36.8	32.8	30.5	
AQM	38.1	29.6	36.2	30.1	27.6	21.6	34.1	32.6	34.3				31.6	29.4	
NB01	22.2	20.8	23.9	19.83	16	13.32	15.22	16.07	17.03	22.34	26.13	26	19.9	18.5	
NB02	25.5	21.5	23.7	17.81	13.53	10.97	13.89	15.93	18.88	22.13	23.07	27.07	19.5	18.1	
NB04	45.8	34.2	30.8	32.98	28.84	25.68	32.95		32.02	33.73	31.93	36.77	33.2	30.9	
NB05	32.1	33.2	36.6	26.07	26.7	21.86	26.92	24.13	24.75	30.17	30.78	29.04	28.5	26.5	
NB06	39.5	32.1	41.2	36.74	27.88	24.14	34.19	36.76	33.95	32.66	37.47	36.23	34.4	32.0	
NB07	39.5	28.7	40.4	32.31	33.04	30.74	30.32	32.05	32.88	37.19	40.15	37.11	34.5	32.1	
NB09	32.9	33.4	34.8	30.11	28.86	21.88	26.8	15.63	30.71	34.4	38.79	39.34	30.6	28.5	
NB15	41.8	32.0	38.3	29.59	23.96	21.84	25.78	28.73	33.58	30.73	32.68	37.62	31.4	29.2	
NB17	38.8	36.0	30.1	32.34	32.96	26.65	29.79	28.88	28.34	28.44	31.88	33.47	31.5	29.3	
NB18	25.9	38.1	39.7	34.08	27.09	22.77	36.39	38.48	39.48	38.68	39.21	44.19	35.3	32.9	
NB20	34.1	31.1	36.1	30.76	27.35	24.02	27.79	25.81	28.07	31.24	28.99	32.18	29.8	27.7	
NB21	30.7	27.9	33.6	32.48	24.57	21.05	32.19	34.06	32.55	33.73	26.55	30.83	30.0	27.9	
NB22	32.9	25.2	32.3	27.43	23.11	18.42	22.66	24.42	27.31	23.87	30.16	33.82	26.8	24.9	

NB23	39.5	37.4	34.8	21.77	30.91	18.76	32.44	35.41	39.93	38.79	32.5	40.75	33.6	31.2	
NB24	31.7	26.4	30.3	24.16		19.69	23.34	24.16	25	25.8	28.44	30.11	26.3	24.4	
NB25	36.0	34.2	41.0	28.63	27.49	23.8	31.85	33	36.94	37.11	30.4	40.49	33.4	31.1	
NB26	35.1	34.5	38.3	34.3	30.89	22.81	29.37	28.85	28.85	32.47	35.32	33.34	32.0	29.8	
NB27	37.8	38.0	41.4	42.34	35.04	27.34	42.87	42.22	42.96	41.79	38.45	42.58	39.4	36.6	
NB28	47.9	39.0	41.0	38.65	31.24	24.47	37.86	38.83	38.57			41.14	37.9	35.2	
NB29	44.2	38.6	48.6		38.43	28.98	48.73	50.94	46.76	44.56	47.62	47.1	44.1	**41.0**	
NB30	53.3	41.1	45.5	41.53	35.35	30.66	44.59	48.34	45.86	44.35	50.41	48.78	44.1	**41.1**	
NB31	30.0	37.8	37.4	30.84	33.01	26.27	31.96	28.65	31.94	36.08	32.59	33.58	32.5	30.2	
NB35	26.3	25.6	28.3	23.77	19.93	19.25	23.48	23.3	23.59	27.04	26.42	28.49	24.6	22.9	
NB36	43.6	34.9	40.0	36.67	28.39	21.41	34.69	32.22	31.31	39.67	44.33	49.41	36.4	33.8	
NB37	31.2	34.6	33.2	35.26	31.25	28.7		31.9	32.84	37.13	34.76	38.77	33.6	31.3	
NB38	33.3	32.9	34.4	27.69	26.54	22.65	29.3	30.38	32.37	32.73	34.19	36.35	31.1	28.9	
NB41	39.8	35.6	38.1	38.63	34.94	29.75	29		30.34	32.81	38.48	36.16	34.9	32.4	
NB42	29.4	26.2	32.9	27.42	21.46	19.57	22.4	26.44	24.47	25.11	35.25	32.55	26.9	25.0	
NB43	39.2	29.5	32.7	28.14	25.9	25.78	23.74	23.1	24.71	29.56	31.22	30.45	28.7	26.7	
NB44	32.6		37.4	33.32	32.76	28.96	31.26	30.13	29.26	33.54	32.21	33.96	32.3	30.0	
NB45	42.3	38.9	43.5	39.83	33.01	23.68	33.19	36.64	34.7	37.34	48.68	37.23	37.4	34.8	
NB46	21.9	24.6		35.44	17.89	16.03	16.33	15.68	16.69	20.47	26.37	23.16	21.3	19.8	
NB47	23.7	23.8	26.4	19.63	17.05	13.86	13.78	16.66	17.03	22.01	29.13	23.69	20.6	19.1	
NB48	25.2	28.6	30.2	24.84	19.85	19.27	21.06	23.1	25.29	27.77	27.78	26.54	25.0	23.2	
NB49	35.2	32.8	40.0	31.01	28.5	20.82	30.21	31.53	31.18	31.84	40.32	23.99	31.4	29.2	
NB50	42.0	30.7	40.4	29.78	29.07	22.64	16.16	30.08	33.8	36.44	45.85	38.12	32.9	30.6	
NB51	31.3	28.2	34.5	30.35	21.57	19.49	23.25	25.09	26.54	33.31	30.25	37.78	28.5	26.5	

National bias adjustment factor used

Annualisation has been conducted where data capture is <75%

Distance correction for relevant exposure, as per LAQM TG-16 (February 2018) Chapter 7 Paragraph 7.78, is applicable to locations measuring >40ug/m^3, or within 10% of the AQO, where not at relevant exposure. In this instance, only sampling locations NB27 (within 10% of the AQO), and NB29 and NB30 were above the AQO, however all three of these sites are located at relevant exposure i.e. distance to relevant exposure is "0 meters".

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Diffusion Tube Monitoring Data

The diffusion tube data has been corrected using a bias adjustment factor, which is an estimate of the difference between diffusion tube concentration and continuous monitoring, the latter assumed to be a more accurate method of monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 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 diffusion tubes, the Defra Technical Guidance LAQM.TG(16) and the LAQM Helpdesk recommend the use of a local bias adjustment factor where available and relevant to diffusion tube sites.

Diffusion Tube Bias Adjustment Factors

At the end of 2016 the roadside automatic monitoring station located at Leicester Road was decommissioned, hence Nuneaton and Bedworth Borough Council does not currently undertake any automatic monitoring to derive a local bias adjustment factor. As a result of this the national bias adjustment factor approach was taken and calculated to 0.93 (based on 30 studies) as derived from the national bias adjustment calculator (Spreadsheet Version Number: 03/2019). The spreadsheet is shown below in Figure C.1.

Figure C.1 – National bias adjustment factor spreadsheet

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/19

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 spreadhseet 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 2019
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[2].

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)
Gradko	20% TEA in water	2018	R	Ards and North Down Borough Council	11	36	29	27.4%	G	**0.78**
Gradko	20% TEA in water	2018	R	Gedling Borough Council	12	33	32	5.6%	G	**0.95**
Gradko	20% TEA in water	2018	R	Lisburn & Castlereagh City Council	12	32	24	32.1%	G	**0.76**
Gradko	20% TEA in water	2018	R	Monmouthshire County Council	12	38	36	4.7%	G	**0.96**
Gradko	20% TEA in water	2018	UB	Northampton Borough Council	12	16	13	26.8%	G	**0.79**
Gradko	20% TEA in water	2018	R	Bedford Borough Council	11	32	29	9.2%	G	**0.92**
Gradko	20% TEA in water	2018	R	Borough Council of King's Lynn and West Norfol	12	26	24	6.0%	G	**0.94**
Gradko	20% TEA in water	2018	R	Cheshire West and Chester	12	36	37	-2.5%	G	**1.03**
Gradko	20% TEA in water	2018	R	Cheshire West and Chester	12	43	40	6.1%	G	**0.94**
Gradko	20% TEA in water	2018	R	Fareham Borough Council	12	28	34	-17.5%	G	**1.21**
Gradko	20% TEA in water	2018	R	Fareham Borough Council	12	37	34	8.9%	G	**0.92**
Gradko	20% TEA in water	2018	R	Fareham Borough Council	12	32	28	12.6%	G	**0.89**
Gradko	20% TEA in water	2018	R	NOTTINGHAM CITY COUNCIL	12	35	34	0.3%	G	**1.00**
Gradko	20% TEA in water	2018	R	Bracknell Forest Borough Council	12	44	37	19.4%	G	**0.84**
Gradko	20% TEA in water	2018	R	Brighton & Hove City Council	9	48	50	-3.7%	G	**1.04**
Gradko	20% TEA in water	2018	R	Eastleigh Borough Council	11	28	32	-12.0%	G	**1.14**
Gradko	20% TEA in water	2018	R	Eastleigh Borough Council	12	42	38	10.2%	G	**0.91**
Gradko	20% TEA in water	2018	UB	Eastleigh Borough Council	12	27	28	-4.4%	G	**1.05**
Gradko	20% TEA in water	2018	R	Gateshead Council	12	29	25	13.9%	G	**0.88**
Gradko	20% TEA in water	2018	R	Gateshead Council	12	32	29	10.8%	G	**0.90**
Gradko	20% TEA in water	2018	R	Gateshead Council	9	40	41	-1.8%	G	**1.02**
Gradko	20% TEA in water	2018	R	Wokingham Borough Council	12	38	33	13.2%	G	**0.88**
Gradko	20% TEA in water	2018	R	Bath & North East Somerset	12	40	39	4.0%	G	**0.96**
Gradko	20% TEA in water	2018	R	Bedford Borough Council	10	30	27	8.8%	G	**0.92**
Gradko	20% TEA in water	2018	KS	Marylebone Road Intercomparison	11	93	85	9.3%	G	**0.91**
Gradko	20% TEA in water	2018	R	South Gloucestershire Council	12	21	20	6.3%	G	**0.94**
Gradko	20% TEA in water	2018	R	Thurrock Borough Council	12	53	52	2.3%	S	**0.98**
Gradko	20% TEA in water	2018	R	Thurrock Borough Council	12	34	30	15.1%	G	**0.87**
Gradko	20% TEA in water	2018	R	Thurrock Borough Council	12	31	24	28.8%	G	**0.78**
Gradko	20% TEA in water	2018	UB	Thurrock Borough Council	12	27	25	9.2%	S	**0.92**
Gradko	20% TEA in water	2018		**Overall Factor[3] (30 studies)**				Use		**0.93**

QA/QC of Diffusion Tube Monitoring

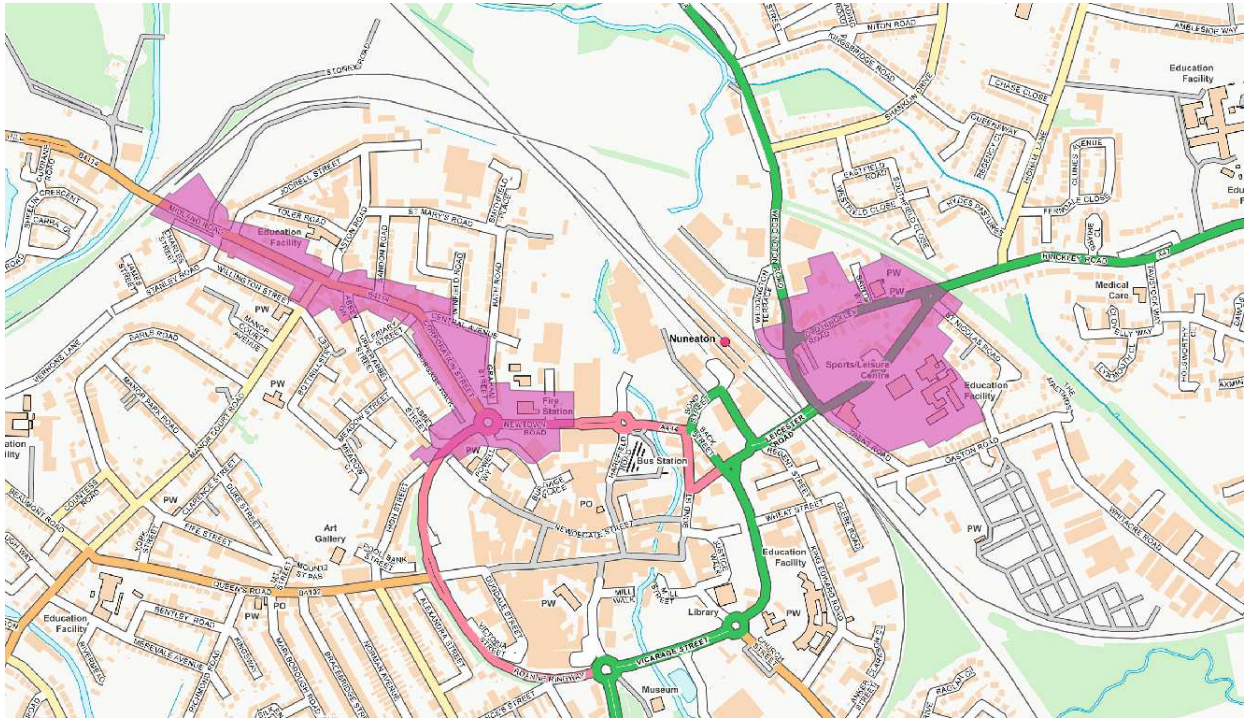
The diffusion tubes are supplied and analysed by Gradko International Limited utilising the 20% Triethanolamine (TEA) in water preparation method.

Gradko International Ltd is a UKAS accredited laboratory and participates in laboratory performance and proficiency testing schemes. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The laboratory follows the procedures set out in the Harmonisation Practical Guidance and participates in the AIR proficiency-testing (AIR-PT) scheme. Defra and the Devolved Administrations advise that diffusion tubes used for LAQM should be obtained from laboratories that have demonstrated satisfactory performance in the AIR-PT scheme. Laboratory performance in the AIR-PT is also assessed by the National Physical Laboratory (NPL), alongside laboratory data from the monthly NPL Field Inter-Comparison Exercise.

In the 2018 AIR-PT results, AIR-PT AR024 (January to February 2018), AIR-PT AR025 (April to May 2018), AR027 (July to August 2018) and AR028 (September to October 2018), Gradko scored 100% for all periods. The percentage score reflects the results deemed to be satisfactory based upon the z-score of < ±2.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Map of Current Air Quality Management Area Boundaries



Legend

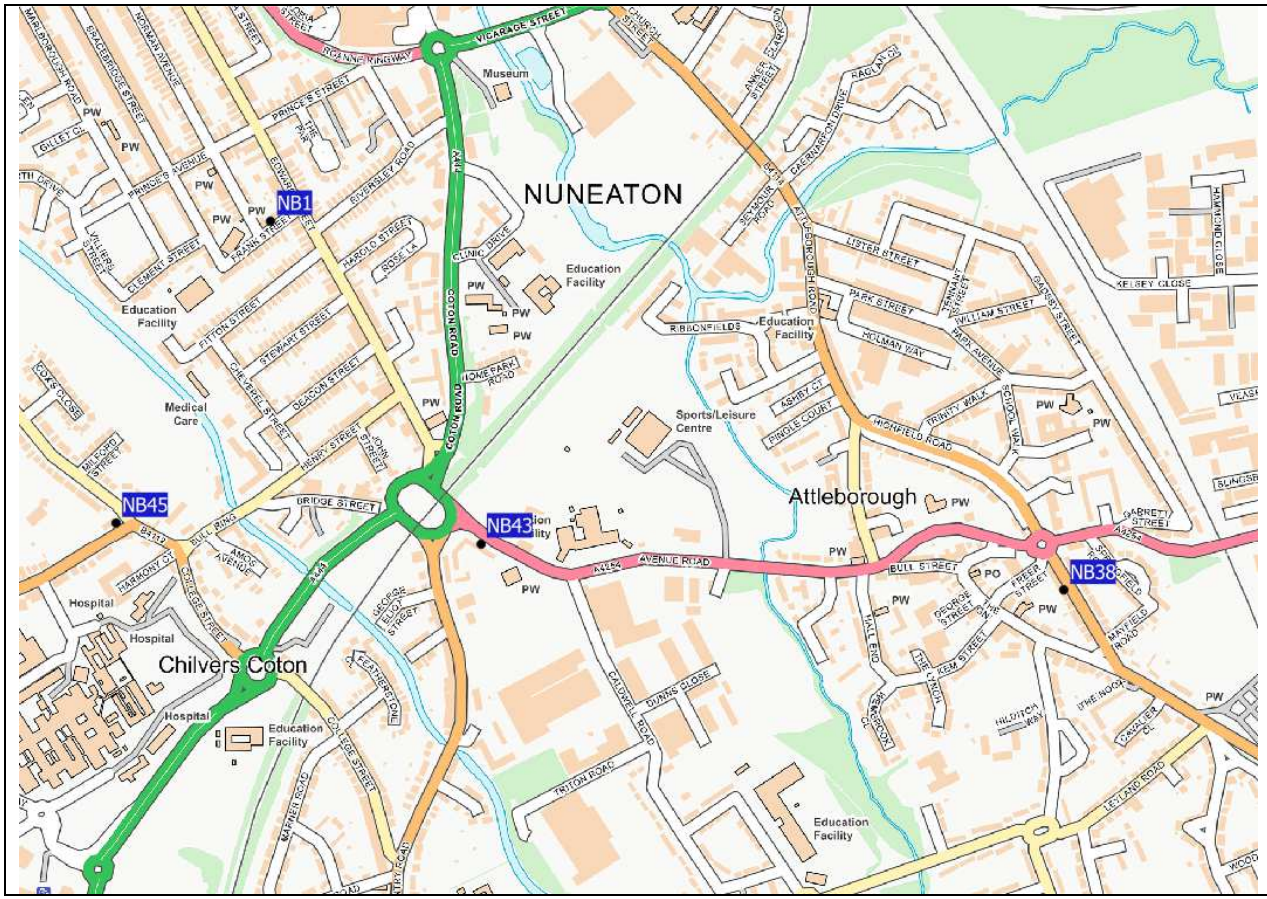
AQMA

GRXX Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	**Nuneaton and Bedworth Borough Council**
Title	**Designated AQMAs**
By TC	**Approved** PB
Scale Not To Scale	**Job Ref** 6487276
Date June 2019	**Figure No.** **D.1**

Figure D.2 – Map of Diffusion Tube Locations: Chilvers Coton and Attleborough



Legend

AQMA

GRXX Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	**Nuneaton and Bedworth Borough Council**
Title	**Diffusion Tube Locations: Chilvers Coton and Attleborough**
By TC	**Approved** PB
Scale Not To Scale	**Job Ref** 6487276
Date June 2019	**Figure No.** **D.3**

Figure D.3 – Map of Diffusion Tube Locations: Bedworth

Figure D.4 – Map of Diffusion Tube Locations: Exhall

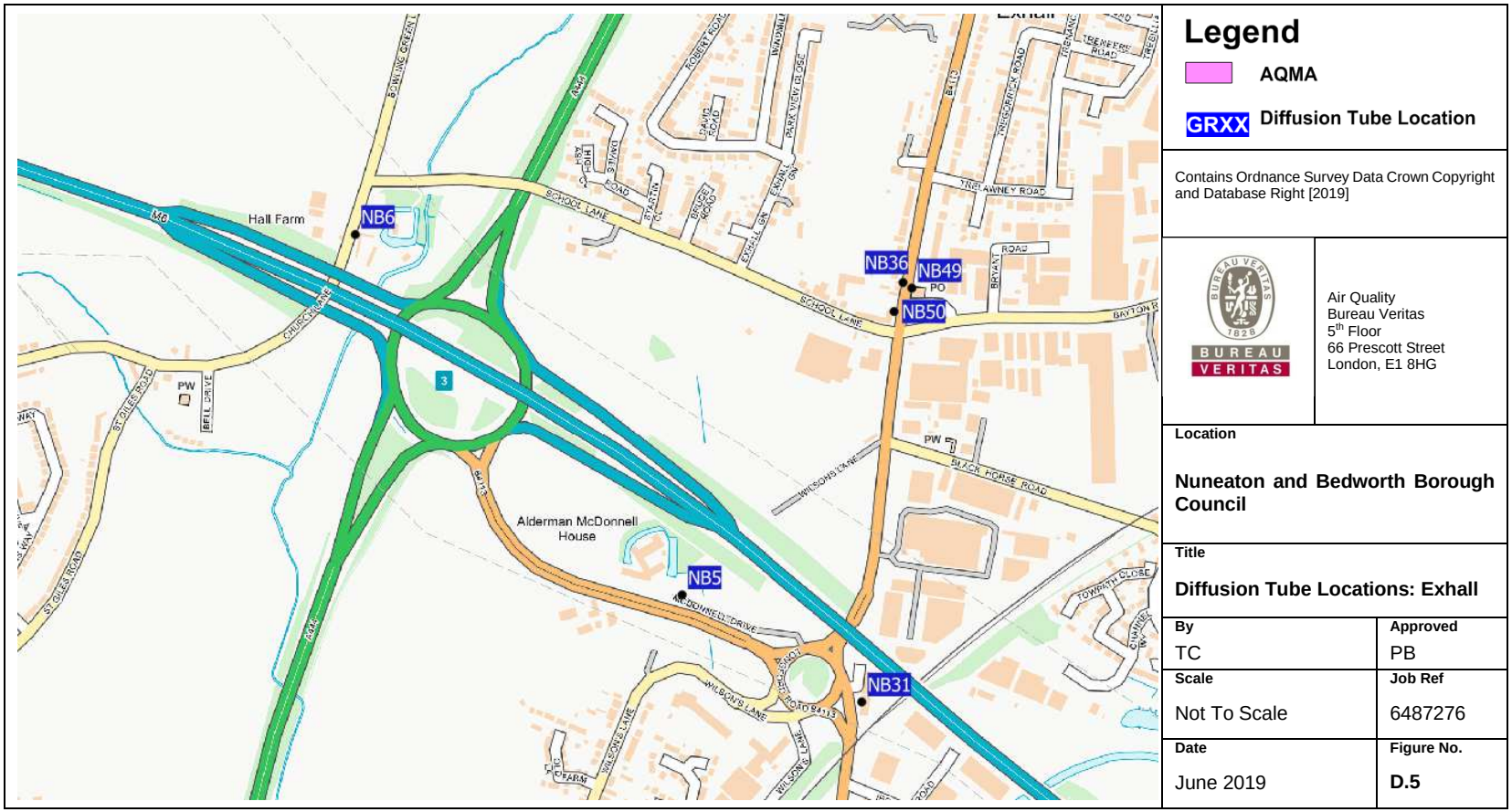
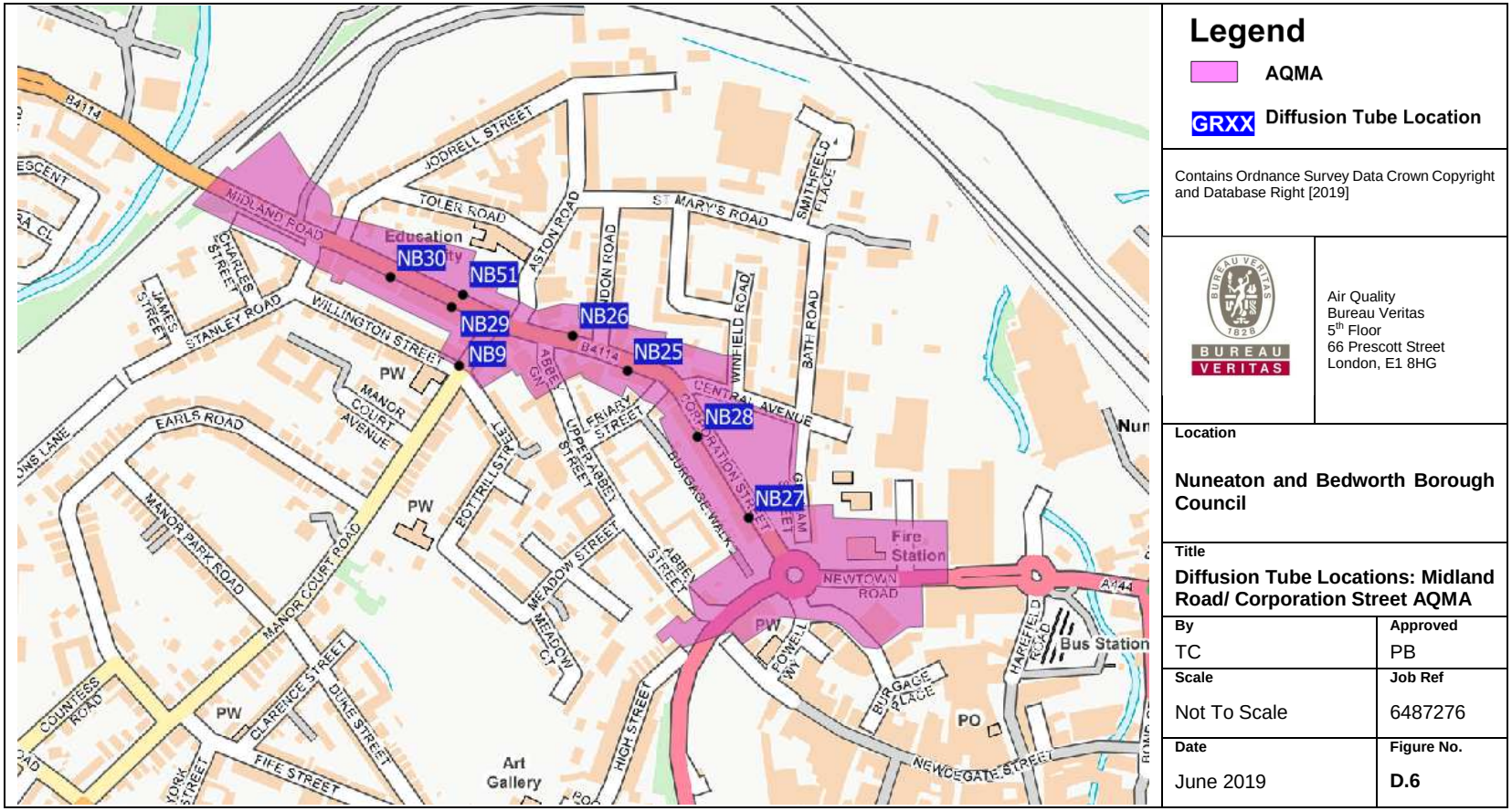


Figure D.5 – Map of Diffusion Tube Locations: Midland Road/Corporation Street AQMA 2



Legend

AQMA

GRXX Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location

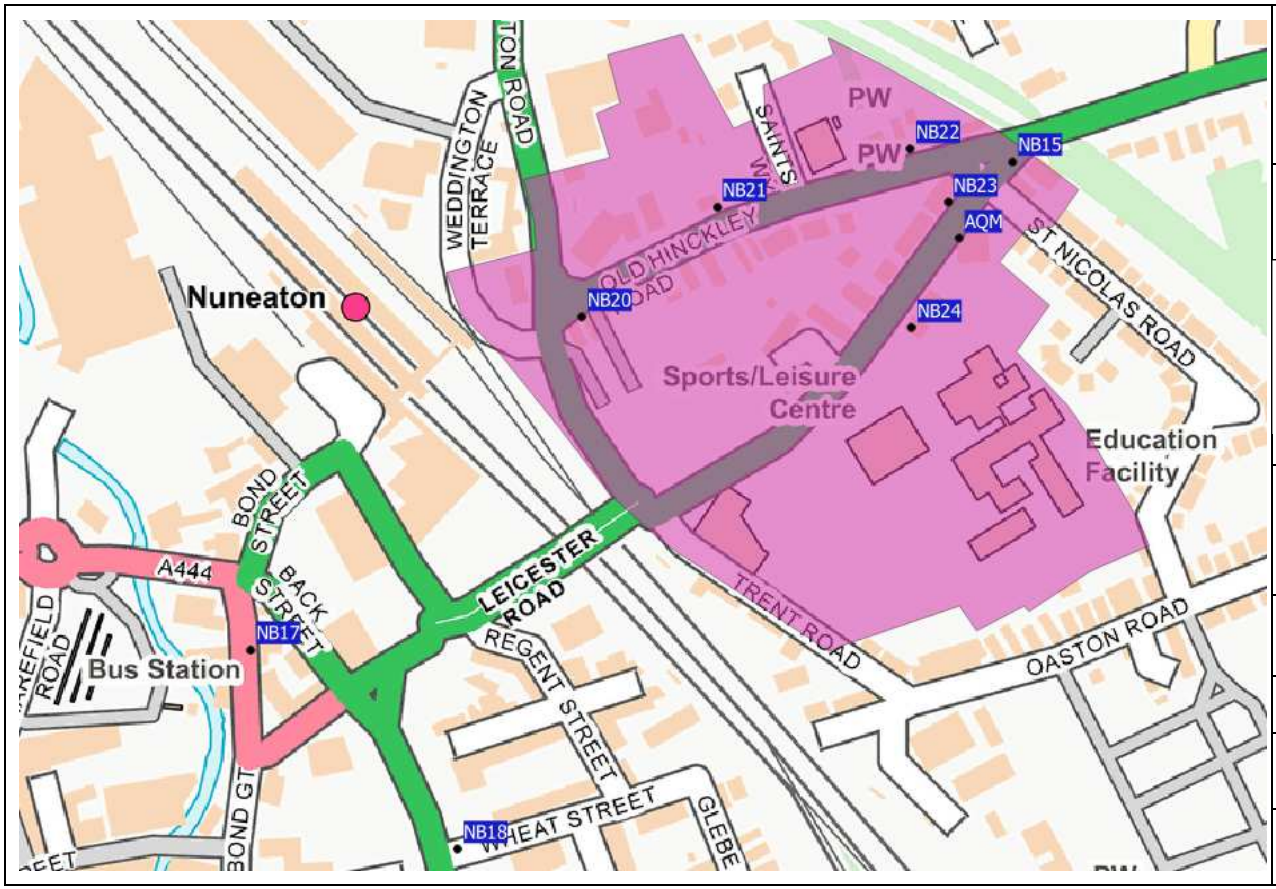
Nuneaton and Bedworth Borough Council

Title

Diffusion Tube Locations: Midland Road/ Corporation Street AQMA

By	Approved
TC	PB
Scale	**Job Ref**
Not To Scale	6487276
Date	**Figure No.**
June 2019	**D.6**

Figure D.6 – Map of Diffusion Tube Locations: Leicester Road Gyratory AQMA 1



Legend

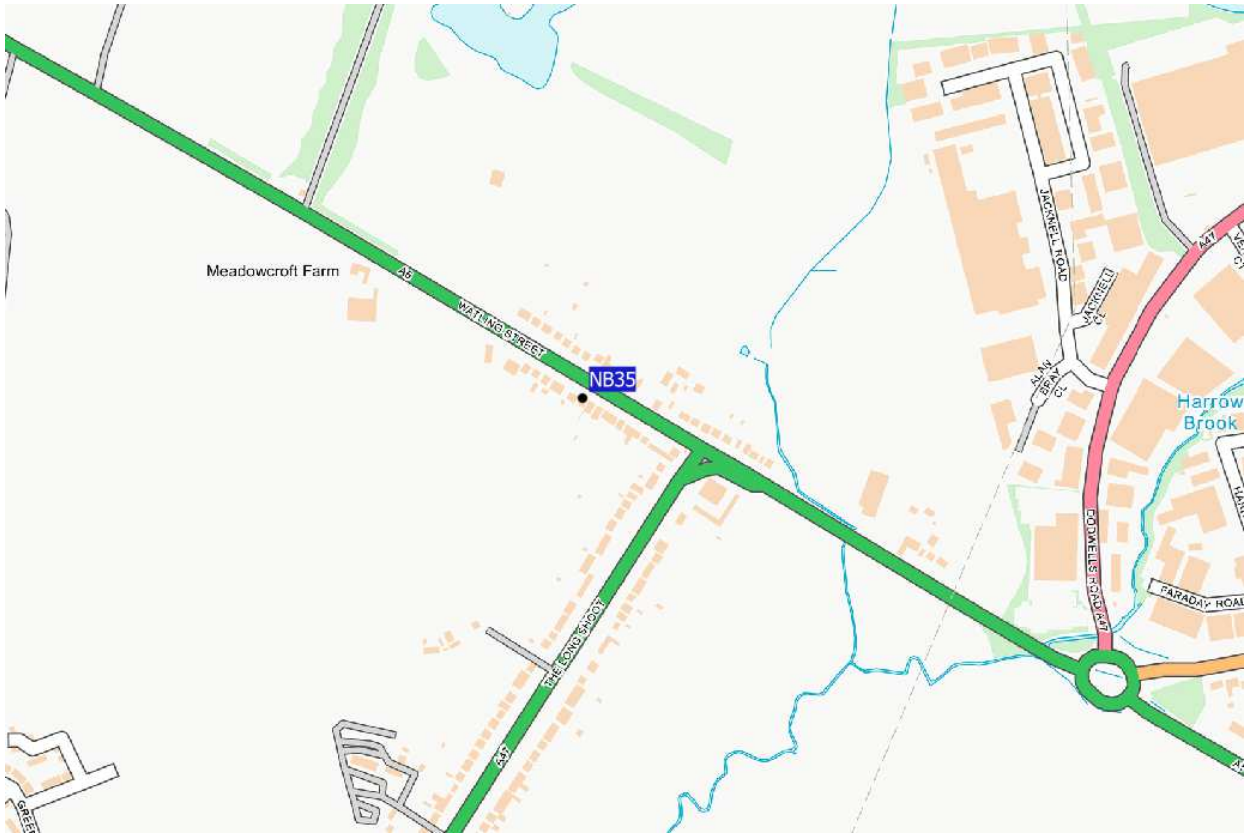
AQMA

GRXX Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	**Nuneaton and Bedworth Borough Council**
Title	**Diffusion Tube Locations: Leicester Road Gyratory AQMA**
By TC	**Approved** PB
Scale Not To Scale	**Job Ref** 6487276
Date June 2019	**Figure No.** **D.7**

Figure D.7 – Map of Diffusion Tube Locations: Watling Street



Legend

AQMA

GRXX Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	**Nuneaton and Bedworth Borough Council**
Title	**Diffusion Tube Locations: Watling Street**
By TC	**Approved** PB
Scale Not To Scale	**Job Ref** 6487276
Date June 2019	**Figure No.** **D.8**

Figure D.8 – Map of Diffusion Tube Locations: Heath End

Legend

AQMA

GRXX Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location

Nuneaton and Bedworth Borough Council

Title

Diffusion Tube Locations: Heath End

By	Approved
TC	PB
Scale	**Job Ref**
Not To Scale	6487276
Date	**Figure No.**
June 2019	**D.9**

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[9]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[9] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG(16). February 2018. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG(16). May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- National Diffusion Tube Bias Adjustment Spreadsheet, version 03/19 published in March 2019.
- http://laqm.defra.gov.uk/documents/LAQM-AIR-PT-Rounds-1-12-(April-2014-February-2016)-NO2-report.pdf
- Nuneaton and Bedworth Borough Council 2018 Annual Status Report.
- Nuneaton and Bedworth Borough Council 2015 Updating and Screening Assessment.
- Nuneaton and Bedworth Borough Council 2014 Progress Report.
- Nuneaton and Bedworth Borough Council 2011 Local Air Quality Management – Air Quality Action Plan.
- Nuneaton and Bedworth Borough Council Local Development Framework Borough Plan, Strategic Transport Assessment, 2011.
- Nuneaton and Bedworth Borough Council Borough Plan (Draft), 2015.