

Nuneaton & Bedworth



2023 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995
Local Air Quality Management, as amended by the
Environment Act 2021

Date: August 2023

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Executive Summary: Air Quality in Our Area

Nuneaton and Bedworth Borough Council's (NBBC's) 2023 Air Quality Annual Status Report has been reviewed and approved by the Director of Public Health for Warwickshire County Council (WCC), Dr Shade Agboola on 27th July 2023.

Air Quality in Nuneaton and Bedworth

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, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas^{1,2}.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages³, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017⁴.

The main sources of air pollution within Nuneaton and Bedworth are from road traffic, contributing to elevated concentrations of nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}). Currently, there are two designated Air Quality Management Areas (AQMA) in the borough, both of which have been declared in relation to exceedances of the Air Quality Strategy (AQS) annual mean objective for NO₂ and both are adjacent to busy roads and interchanges within Nuneaton. The boundaries of the two AQMAs can be viewed online at [Local Authority Details - Defra, UK](#), details are provided in Table 2.1 and maps are presented in Figures D.1 to D.5 (Appendix D).

Compared to 2021 levels, air pollutant concentrations experienced an overall decrease across Nuneaton and Bedworth in 2022. Air pollutant concentrations in Nuneaton and

¹ Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

² Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Air quality appraisal: damage cost guidance, January 2023

⁴ Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

Bedworth are generally demonstrating a long-term reduction. Consistently low NO₂ concentrations in the Leicester Road Gyratory AQMA led to Defra recommending its revocation in 2018; this revocation is currently pending. Pollutant concentrations remained above the objective within the Midland Road / Corporation Street AQMA up until 2019, although exceedances were restricted to the section of Midland Road between Manor Court and Stanley Road; there were no recorded exceedances in this AQMA since 2019.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, health effects are apparent even below air quality objectives and therefore local action continues, in order to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan⁵ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM_{2.5} targets. The National Air Quality Strategy, published in 2023, provides more information on local authorities' responsibilities to work towards these new targets and reduce PM_{2.5} in their areas. The Road to Zero⁶ details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of AQMAs are designated due to elevated concentrations heavily influenced by transport emissions, including those in Nuneaton.

In 2022, a revised Action Plan for Nuneaton and Bedworth outlined the actions that have been developed to address the exceedance of the annual mean NO₂ objective along Midland Road in Nuneaton, and also more strategic issues to reduce emissions of both NO₂ and PM_{2.5} across the borough, to improve health in a more equitable way. The measures are presented under five broad topics:

- Support and Collaborate with WCC on Traffic Management Measures Directly Impacting Midland Road;
- Promotion of Behaviour Change away from Single Occupancy Private Vehicle Use;
- Promotion of the Use of Alternatively Fuelled Vehicles;

⁵ Defra. Environmental Improvement Plan 2023, January 2023

⁶ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

- Developing Policies to Support Better Air Quality; and
- Controlling Domestic Emissions.

The Plan recognises that concentrations of NO₂ are reducing and therefore, to be proportionate, focusses on actions which can be implemented within the next few years, with costs that are proportionate to the level of exceedance.

The Action Plan was written in collaboration with a Steering Group which included WCC, as Highways Authority, planning and climate change colleagues and the Consultant in Public Health, Warwickshire. The Transforming Nuneaton team were also consulted with.

Conclusions and Priorities

In 2022, measured concentrations were below relevant air quality objectives, although it is acknowledged that the health impacts of air pollution exposure occur even below the objectives. Our priorities are therefore to ensure that the air quality objectives continue to be met along Midland Road in Nuneaton, largely through traffic management measures as well as encouragement of alternatively fuelled vehicles (in particular electric cars and buses).

Secondly, the Nuneaton and Bedworth Borough Council Air Quality Action Plan (AQAP) aims to reduce emissions more generally across the borough through collaborative working with other policy areas such as County transport, public health, planning and work underway to tackle the Climate Emergency declared in Nuneaton and Bedworth. We will ensure that air quality is considered within transport schemes, the Borough Plan and within other policy areas which are looking to reduce vehicle use, either by encouraging active travel, by reducing travel demand, encouraging freight onto different modes, or increasing the use of non-diesel and petrol vehicles. By taking this more strategic approach, air quality and the associated health outcomes should improve across the district.

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 travel patterns to more sustainable methods of transport. There are online tools available to help you plan your journey, including WCC's car share database ([Carshare Warwickshire community - part of the Liftshare network](#)), How You

Move website and Facebook page <https://www.facebook.com/ChooseMoveCW/>, local bus timetables ([Public transport – Warwickshire County Council](#)) and cycling information ([Cycling – Warwickshire County Council](#)). The following are suggested alternatives to private travel:

- Use public transport where available – this reduces the number of private vehicles in operation, thereby reducing pollutant concentrations through a reduction in 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;
- 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 benefits by reducing emissions; and
- 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.

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1 Local Air Quality Management

This report provides an overview of air quality in Nuneaton and Bedworth during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), 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 AQMA and prepare an AQAP setting out the measures it intends to put in place to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Nuneaton and Bedworth Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

NBBC's 2023 Air Quality Annual Status Report has been reviewed and approved by the Director of Public Health for WCC, Dr Shade Agboola on 27th July 2023.

2 Actions to Improve Air Quality

Air Quality Management Areas

AQMAs are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an AQAP within 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

A summary of AQMAs declared by Nuneaton and Bedworth Borough Council can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within Nuneaton and Bedworth. Appendix D: Maps of Monitoring Locations and AQMAs provides maps of the AQMAs and also shows the air quality monitoring locations in relation to these areas. Both AQMAs are designated for exceedances of the annual mean NO₂ air quality objective.

There were no exceedances of the annual mean NO₂ objective recorded at any monitoring site in Nuneaton and Bedworth in 2022.

Annual mean NO₂ concentrations in 2022 were overall lower than those measured in 2021 (average reduction of 1.5%). Out of the 38 monitoring sites in 2022:

- 22 sites showed a decrease in annual mean NO₂ concentrations compared to 2021 (maximum decrease of 9.7%);
- 13 sites showed an increase in annual mean NO₂ concentrations compared to 2021 (maximum increase of 7.8%);
- 2 sites showed no change in annual mean NO₂ concentrations compared to 2021; and
- A comparison to 2021 data was not available for the remaining site (NB27) as it was installed in January 2022⁷.

Exceedances of the annual mean NO₂ objective were measured prior to 2020 within the existing Midland Road / Corporation Street AQMA (AQMA 2). Measured concentrations for

⁷ Data for 2018 and 2019 are available for this monitor, but not 2020 and 2021 data, due to be monitor being temporarily uninstalled.

the last three years of monitoring have been below 90% of the annual mean NO₂ objective value of 40 µg/m³ (i.e. below 36 µg/m³); however, it is recommended that concentrations within AQMA 2 are reviewed in the 2024 ASR and a decision taken as to whether to revoke the AQMA.

NO₂ concentrations measured in the Leicester Road Gyratory AQMA (AQMA 1) have not been within 10% of the annual mean objective since 2016; concentrations in 2022 (as well as in 2020 and 2021) were all below 75% of the annual mean objective. Revocation of AQMA 1 was recommended by Defra upon review of the 2018 ASR, although this decision was delayed due to growth in house building to the north of Nuneaton, which may impact upon the road network within the AQMA. Currently, this revocation is still pending.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 1 – Leicester Road Gyratory, Nuneaton	01/03/2007	Annual Mean NO ₂	An area of Nuneaton centred on the Leicester Gyratory system and incorporating sections of the Leicester, Old Hinckley and Weddington Roads	No	43.0 µg/m ³	26.2 µg/m ³	>10	Nuneaton and Bedworth Borough Council, Air Quality Action Plan 2022	Link to AQAP
AQMA 2 – Midland Road / Corporation Street, Nuneaton	01/10/2009	Annual Mean NO ₂	Centred on Midland Road and Corporation Street but also includes parts of Central Avenue and Manor Court Road	No	53.0 µg/m ³	34.5 µg/m ³	3	Nuneaton and Bedworth Borough Council, Air Quality Action Plan 2022	Link to AQAP

Nuneaton and Bedworth Borough Council confirm the information on UK-Air regarding their AQMAs is up to date.

Nuneaton and Bedworth Borough Council confirm that all current AQAPs have been submitted to Defra.

Progress and Impact of Measures to address Air Quality in Nuneaton and Bedworth

Defra's appraisal of last year's ASR concluded that the conclusions reached are accepted for all sources and pollutants, and that the report overall was well structured, detailed and provided the information specified in the Guidance. Defra's appraisal also stated that the figures included in the report were well-presented and consistent. The AQMAs were also shown on the figures and the labels clearly distinguished between monitoring sites. The following comments were raised, which are designed to help inform future reports:

- *"It is stated on Table 2.1 within the supporting Excel file that the level of exceedance in the current year for both AQMAs are 25 µg/m³ and 34 µg/m³ respectively. However, these values are stated in the report as 25.9 µg/m³ and 35.2 µg/m³ respectively. The Council should be mindful of this discrepancy and ensure that the report and supporting Excel file have the same information.*
- *It is not clear which monitoring site has duplicate diffusion tubes. It is suggested on Page 11 that site NB23 is the duplicate site, while in Table B.1 site AQM is highlighted as the duplicate site. The Council states that there is only one duplicate site within the network.*
- *A good discussion on QA/QC procedures has been provided, including the relevant annualisation calculations. A screen capture of the relevant national bias adjustment factor spreadsheet has been provided. However, the border has not been cropped from this screen capture. The Council should ensure that images are neat and professional, and do not include unnecessary borders or toolbars.*
- *The Council have highlighted that the revocation of AQMA 1 is to be delayed due to the construction of new housing developments. This demonstrates that the Council is committed to maintaining good air quality and ensuring that areas of concern are highlighted. The Council could consider additional monitoring around this area to further support the revocation of the AQMA and to gather information on the impacts of the new housing developments."*

Nuneaton and Bedworth Borough Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Five measures are included within Table 2.2, with the type of measure and the progress Nuneaton and

Bedworth Borough Council have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in the Nuneaton and Bedworth Air Quality Action Plan, which was updated in 2022, and can be found [here](#)⁸. This Action Plan aims to progress air quality in Nuneaton and Bedworth Borough Council's AQMAs through the following means:

- Enhancing cycling infrastructure, along with creating new infrastructure to encourage sustainable travel;
- Reducing congestion;
- Promoting active travel and alternatively fuelled vehicles; and
- Ongoing implementation of the Air Quality Supplementary Planning Document (SPD), which was adopted in 2020, to ensure air quality is fully considered in the development control process.

Nuneaton and Bedworth Borough Council expects the following measures to be taken forward over the course of the next reporting year:

- Support and collaborate with WCC on traffic management measures directly impacting Midland Road, particularly the continuation of the Ring Road upgrades (with first schemes on site in Summer 2023);
- Promote behaviour change away from single occupancy private vehicle use;
- Promote the use of alternatively fuelled vehicles;
- Develop policies to support better air quality; and
- Control domestic emissions.

The principal challenges and barriers to implementation that Nuneaton and Bedworth Borough Council anticipates facing are issues concerning funding. Whilst the costly upgrades to the ring road have largely been secured, improvements to the cycling infrastructure outside the scope of the Transforming Nuneaton Project have yet to secure funding. Beyond this, WCC have not received funding from the Department for Transport (DfT) for the Warwickshire Bus Service Improvement Plan, currently resulting in a barrier in delivering EV bus priority measures in Warwickshire.

⁸ Nuneaton and Bedworth Borough Council. Air Quality Action Plan, April 2022

Nuneaton and Bedworth Borough Council anticipate that the measures stated above and in Table 2.2 will help maintain compliance in AQMA 2 – Midland Road / Corporation Street.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Support and Collaborate with WCC on Traffic Management Measures Directly Impacting Midland Road	Traffic Management	Strategic Highway Improvements	2021 onwards	The scheme will be phased with the first phase due to be completed 2024. The whole scheme is anticipated to be completed by the end of 2025	WCC and NBBC	Developer contributions, Transforming Nuneaton Programme (TNP)	No	Funding secured by WCC	>£10 million (including existing programme)	In planning phase	Reductions large enough to achieve the annual mean NO ₂ at all relevant monitoring locations	Traffic flows on Midland Road, Nuneaton, and resulting NO ₂ concentrations	<p>The TNP includes significant highway improvement schemes, which are predicted to have a positive impact on the Midland Road AQMA (AQMA2). Air quality modelling has been conducted for all of the schemes, and as a whole will improve the flow of the traffic and improve air quality.</p> <p>Works are progressing. The Abbey Green cycleway is due to be constructed in 2023. The Wheat Street scheme will follow and is due to commence in 2024. The remainder of the Corporation Street works (AQMA2) are due to commence in 2024.</p> <p>The Leicester Road gyratory part of the scheme (AQMA 1) has gone through a value engineering exercise and is progressing.</p>	Upgrades to the Ring Road are high cost. Significant funding has been secured for the majority of the scheme.
2	Promote Behaviour Change away from Single Occupancy Private Vehicle Use	Promoting Travel Alternatives	Encourage/facilitate home working, active travel campaign & infrastructure, Personalised Travel Planning, Promotion of Cycling, Promotion of Walking, School Travel Plans, Workplace Travel Planning	Ongoing and 2021 onwards	Ongoing for the measure as a whole	WCC and NBBC	WCC	Possible	Ongoing	>£10 million for all aspects of the measure	Ongoing projects	N/A – strategic measure which will also assist in achievement of air quality objective in AQMA	Monitoring strategy for Local Transport Plan (LTP)	<p>Ongoing work with schools and businesses, and travel plans through planning system.</p> <p>WCC have committed a significant amount of money to improve cycle routes, including in NBBC. Funding has been secured for future (programmed) delivery within Nuneaton town centre, as part of TNP.</p> <p>Planning permission has been granted for a segregated pedestrian and cyclist pathway along a section of Corporation Street which is located in AQMA 2 and is due to be constructed in 2023.</p> <p>There are several funded</p>	<p>A number of initiatives across the borough encourage walking and cycling. Not costed specifically as wider measures to reduce emissions.</p> <p>The TNP incorporates cycling infrastructure improvements, but at the moment none extend as far as Midland Road.</p> <p>There is currently no funding secured for further development of cycle routes within Nuneaton Town centre</p>

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
														<p>walking/cycling schemes outside the town centre, which are programmed for the North of Nuneaton (an area of significant residential development) along major routes into the town.</p> <p>WCC have released the Draft 'Local Cycling and Walking Infrastructure Plan' (LCWIP)- which identifies proposed schemes (with funding secured) and potential schemes for Nuneaton and Bedworth. Following a period of public consultation, the finalised LCWIP is planned to be presented at WCC cabinet for final approval.</p> <p>WCC run 'Cars and Kids Don't Mix' campaign which encourages walking to school. 2022 saw the launch of a new campaign #JustOneJourney, which includes an online platform to help & encourage residents choose more active travel. Officers are working with, supporting and promoting active travel interventions in Schools, Work Places and local community groups. An Award Programme has been introduced in schools to decrease the number of car journeys, increase walking, cycling and scooting and educate on the benefits of active travel on health and the environment.</p>	

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
3	Promote the use of Alternately Fuelled Vehicles	Promoting Low Emission Transport	Priority Parking for LEVs, procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging, taxi emission incentives, taxi licensing conditions	Ongoing and 2021 onwards	Ongoing with aim to become carbon neutral by 2030	WCC and NBBC	DfT, Office for Low Emission Vehicles (OLEV), Energy Savings Trust (EST), WCC	Possible	Ongoing	£1-10 million	Ongoing – some EV charging points already completed	N/A – strategic measure which will also assist in achievement of air quality objective in AQMA	Proportion of alternately fuelled vehicles in the fleet on Warwickshire's roads	<p>EV charging points increasing in NBBC as funding will allow.</p> <p>All new developments are required to have EV charging points in line with the Air Quality SPD.</p> <p>National Express Coventry are now operating 50 all electric buses on several routes, some of which are cross boundary into NBBC.</p> <p>National Express Coventry will be ordering an additional 150 all electric buses in 2023, some of which may be cross boundary into NBBC.</p> <p>WCC have secured funding through the Towns Fund for EV charging points. An additional 10 charging points are to be installed in Abbey Street by summer 2024. Rapid charging points are to be installed at the Pingles Leisure Centre and the Town Hall Carpark. WCC have been awarded an allocation of Local Electric Vehicle (LEVI) funding from Central Government which will be used to rollout on and off-street charging infrastructure in the coming years.</p> <p>WCC officers commissioned a consultant to carry out Options Appraisal work to assess 4 potential off-street sites, (one of which was in Nuneaton) to hold charging infrastructure for utilisation by all-electric cross boundary tendered services operated under contract to the County Council. None of the 4 sites were deemed suitable. Subsequently, WCC and TfWM are working with bus</p>	<p>EV charging infrastructure to be implemented over next few years in line with Carbon Reduction Strategy. High cost, but grants and private sector funding available and will be actively targeted.</p> <p>WCC did not receive funding from DfT for the Warwickshire Bus Service Improvement Plan, currently resulting in a barrier in delivering EV bus priority measures in Warwickshire.</p>

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
														<p>companies with a view of agreeing a shared arrangement whereby cross boundary services are permitted to use charging infrastructure at Warwickshire depots (including Nuneaton)</p> <p>Consultation on the Vehicle Policy relating to taxis took place in 2021/2022 recommending that Euro 4 vehicles are no longer accepted to replace hackney carriage and private hire vehicles. The document is being taken to committee for final approval in 2023.</p>	
4	Develop Policies to Support Better Air Quality	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance, Low emission strategy, other policy, regional groups	Ongoing and 2021 onwards	N/A – ongoing collaborative working	NBBC	Mainly from existing budgets at both Borough and County level. Planning system generates funding, which could be used for measures within this Action Plan.	Possible	Ongoing	<£10K unless significant projects are progressed	Ongoing, SPD already completed	N/A – strategic measure which will also assist in achievement of air quality objective in AQMA	N/A – no specific projects identified as yet	<p>Air Quality SPD adopted and being implemented. Working closely with Warwickshire Public Health, mainly through the Warwickshire and Coventry Air Quality Alliance.</p> <p>Discussions have been instigated with Development Control Officers, to develop Planning Policy for the allocation of damage costs money obtained through the planning process.</p>	Non statutory function will require additional resources to implement. No specific budget for this work as ongoing collaborative work.
5	Control Domestic Emissions	Promoting Low Emission Plant	Regulations for fuel quality for stationary and mobile sources	2022	N/A	NBBC	NBBC	Possible		<£10K unless a significant project on solid fuel burning is progressed		N/A – strategic measure which will also assist in achievement of air quality objective in AQMA	Level of solid fuel burning	<p>2022 saw the completion of 88 external wall insulations, 301 central heating system replacements and 128 loft insulations.</p> <p>The Council has secured just over £2 million from the Energy Security and Net Zero's Social Housing Decarbonisation Fund. This will be used over the next two years to improve the energy efficiency of approx. 200 homes, including external wall insulation, replacement</p>	Very difficult to quantify any change in the level of solid fuel burning without detailed survey work. Cost of measure already within existing budgets.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
														windows, door and boilers where require.	

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5 µm 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 2018-based background pollutant maps published by Defra⁹, which predict concentrations across the UK on a 1 x 1km grid, show that concentrations of PM_{2.5} are well below the annual mean air quality objective of 25 µg/m³, alongside the annual mean targets published in the Environment Act 2021, corresponding to an interim target of 12 µg/m³ to be achieved by the start of 2028¹⁰, and a long-term target of 10 µg/m³ to be achieved by the end of 2040. The highest concentration is predicted to be 12.0 µg/m³ (in 2018), located in Bedworth close to the junction of the A444 and the M6 motorway. Background concentrations of PM_{2.5} are predicted to decrease into the future.

The Public Health Outcomes Framework tool¹¹, compiled by Public Health England, quantifies the fraction of mortality attributable to particulate air pollution in England on a county and local authority basis. The fraction of mortality attributable to particulate air pollution in Nuneaton and Bedworth in 2021 was 5.4%, slightly lower than the England average of 5.5%.

Nuneaton and Bedworth Borough Council is working to reduce emissions of air pollution across the borough, with many of the measures designed to reduce emissions of NO₂ also reducing emissions of PM₁₀ and PM_{2.5}. The following pollutant emission reduction

⁹ Defra. Local Air Quality Management Support Website, 2023. Available: [Air Quality Assessment | LAQM \(defra.gov.uk\)](https://www.defra.gov.uk/air-quality/assessment/laqm/)

¹⁰ Meaning that it will be assessed using measurements from 2027. The 2040 target will be assessed using measurements from 2040. National targets are assessed against concentrations expressed to the nearest whole number, for example a concentration of 10.4 µg/m³ would not exceed the 10 µg/m³ target.

¹¹ Public Health England. Public Health Outcomes Framework tool, 2023. Available: [Public Health Outcomes Framework - Data - OHID \(phe.org.uk\)](https://www.phe.org.uk/public-health-outcomes-framework-data)

measures included within Nuneaton and Bedworth Borough Council's AQAP are also likely to reduce emissions of PM_{2.5}:

- Traffic management measures targeted at Midland Road;
- Behaviour change away from single occupancy private vehicle use;
- Promoting the use of alternatively fuelled vehicles;
- Developing planning policies to support better air quality; and
- Controlling domestic emissions.

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

This section sets out the monitoring undertaken within 2022 by Nuneaton and Bedworth Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Nuneaton and Bedworth Borough Council does not undertake automatic (continuous) monitoring.

3.1.2 Non-Automatic Monitoring Sites

Nuneaton and Bedworth Borough Council undertook non-automatic (i.e. passive) monitoring of NO₂ at 38 sites during 2022. Table A.1 in Appendix A presents the details of the non-automatic sites.

Since 2021, the roadside monitor AQM has changed from a duplicate to a single monitoring site. One new monitoring site was reinstalled in January 2022 (NB27) at 90 Corporation Street within the Midland Road / Corporation Street AQMA (AQMA 2), after being decommissioned by the previous homeowner in 2019. Site NB21, located on 36 Old Hinckley Road, was removed by new occupants in May 2021 and there are currently no plans to reinstall this site at this address. Additionally, another new monitoring site (NB54) has been positioned on 139 The Longshoot to monitor the potential air quality impact of the strategic housing allocation to the north of Nuneaton; this was a concern raised by local residents. Additionally, Defra's 2021 Appraisal of last year's ASR stated *"the Council have highlighted that the revocation of AQMA 1 is to be delayed due to the construction of new housing developments. This demonstrates that the Council is committed to maintaining good air quality and ensuring that areas of concern are highlighted. The Council could consider additional monitoring around this area to further support the revocation of the AQMA and to gather information on the impacts of the new housing*

developments". The installation of monitoring site NB54 will assist in addressing both issues. Monitoring commenced in November 2022; thus, there are not enough data to report for the calendar year of 2022.

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.

Individual Pollutants

3.1.3 Nitrogen Dioxide (NO₂)

Table A.1 and Table A.2 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment (i.e. the values are exclusive of any consideration to fall-off with distance adjustment). There are no monitoring sites in 2022 requiring annualisation (where the annual mean data capture is below 75% and greater than 25%). Additionally, no monitoring sites required distance correction in 2022.

The full 2022 dataset of monthly mean values for diffusion tubes is provided in Appendix B. Annual mean concentrations experienced an average decrease of 1.5% when compared with 2021. There were no recorded exceedances of the annual mean NO₂ objective, or concentrations within 10% of the objective, at any of the monitoring sites in Nuneaton and Bedworth in 2022.

The highest concentrations in 2022 were recorded at roadside sites NB29 and NB30 within the Midland Road / Corporation Street AQMA (AQMA 2), which both measured a concentration of 34.5 µg/m³. These two sites have previously measured exceedances of the annual mean objective (in 2019); it is recommended that concentrations within AQMA 2 are reviewed in the 2024 ASR and a decision taken as to whether to revoke the AQMA.

Within the Leicester Road Gyratory AQMA (AQMA 1), the highest concentration in 2022 was recorded at roadside site NB23, with a value of 26.2 µg/m³. Concentrations have

remained below the objective within AQMA 1 for at least ten years. It has therefore been recommended that this AQMA is revoked; however, this revocation is still pending.

Figures A.1 and A.2 present the trend in measured annual mean NO₂ concentrations over the past five years (2018 to 2022) at monitoring sites within AQMA 1 and AQMA 2, respectively. Figure A.3 presents the trend in measured annual mean NO₂ concentrations over the same period at the remainder of the monitoring sites located within Nuneaton, while Figure A.4 presents the trend for monitoring sites within Bedworth.

No monitoring site measured an annual mean NO₂ concentration greater than 60 µg/m³ in 2022, indicating that an exceedance of the 1-hour mean NO₂ objective was highly unlikely.

Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ^{(1) (2)}	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
AQM	AQ Monitor, Leicester Rd	Roadside	436844	292251	NO ₂	YES - AQMA 1	1.5	4.2	No	1.3
NB01	142 Norman Avenue	Urban Background	435969	291303	NO ₂	NO	N/A	N/A	No	1.8
NB02	5 Conifer Close	Urban Background	436427	287646	NO ₂	NO	N/A	N/A	No	2.1
NB04	Leisure Ctr 72 Coventry Rd	Roadside	435793	286545	NO ₂	NO	0.0	3.6	No	3.2
NB06	Tudor Ct Bowling Green Ln	Roadside	434313	285292	NO ₂	NO	11.0	0.9	No	2.9
NB07	115 Newtown Rd Bedworth	Roadside	435345	286992	NO ₂	NO	6.0	4.4	No	2.4
NB09	Church, Manor Ct Rd	Roadside	435634	292280	NO ₂	YES - AQMA 2	1.5	2.2	No	2.4
NB15	Bridge Grove, Leicester Rd	Roadside	436883	292302	NO ₂	YES - AQMA 1	8.0	1.4	No	2.3
NB17	Balti Hut, 41 Bond Gate	Roadside	436393	291987	NO ₂	NO	0.0	1.3	No	2.3
NB18	Wheat St	Roadside	436525	291863	NO ₂	NO	23.0	4.0	No	2.3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ^{(1) (2)}	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NB20	17 Old Hinckley Rd	Roadside	436604	292202	NO ₂	YES - AQMA 1	0.0	6.9	No	2.0
NB21	36 Old Hinckley Rd	Roadside	436691	292271	NO ₂	YES - AQMA 1	0.0	8.6	No	2.0
NB22	58 Old Hinckley Rd	Roadside	436810	292306	NO ₂	YES - AQMA 1	0.0	8.8	No	1.9
NB23	46 Leicester Rd Nuneaton	Roadside	436841	292280	NO ₂	YES - AQMA 1	0.0	4.5	No	2.1
NB24	Lodge, 31 Leicester Rd	Roadside	436812	292196	NO ₂	YES - AQMA 1	0.0	11.0	No	2.2
NB25	25 Central Avenue	Roadside	435814	292274	NO ₂	YES - AQMA 2	0.0	6.4	No	2.1
NB26	26 Central Avenue	Roadside	435759	292311	NO ₂	YES - AQMA 2	0.0	4.6	No	2.1
NB27	90 Corporation St	Roadside	435950	292113	NO ₂	YES - AQMA 2	0.0	4.8	No	2.4
NB28	138 Corporation St	Roadside	435893	292205	NO ₂	YES - AQMA 2	0.0	4.7	No	2.4
NB29	16 Midland Road	Roadside	435626	292343	NO ₂	YES - AQMA 2	0.0	4.0	No	2.1
NB30	52 Midland Road	Roadside	435554	292378	NO ₂	YES - AQMA 2	0.0	3.8	No	2.1
NB31	376 Longford Road	Roadside	435146	284563	NO ₂	NO	0.0	12.7	No	2.5
NB35	60 Watling St	Roadside	439268	293457	NO ₂	NO	0.0	11.7	No	1.9

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ^{(1) (2)}	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NB36	78 Coventry Rd Exhall	Roadside	435217	285246	NO ₂	NO	0.0	2.3	No	2.3
NB37	19 Croft Road Nuneaton	Roadside	435051	291594	NO ₂	NO	0.0	5.8	No	2.0
NB38	115 Highfield Rd	Roadside	437198	290732	NO ₂	NO	0.0	7.2	No	1.8
NB41	11 Newtown Rd (Salon)	Roadside	435619	287042	NO ₂	NO	0.0	4.8	No	2.0
NB42	18 George Street Bedworth	Roadside	435655	287135	NO ₂	NO	0.0	8.3	No	1.8
NB43	43 Hanover Glebe	Roadside	436303	290796	NO ₂	NO	0.0	11.6	No	2.0
NB44	503 Heath End Rd	Roadside	434298	290930	NO ₂	NO	2.0	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	0.0	9.2	No	2.0
NB47	6 The Bridleway	Roadside	435452	290087	NO ₂	NO	0.0	4.6	No	2.0
NB48	288 Heath End Rd	Roadside	435066	290689	NO ₂	NO	0.0	8.5	No	2.1
NB49	Co-op Coventry Rd	Roadside	435231	285236	NO ₂	NO	0.0	4.2	No	2.5
NB50	66 Coventry Rd Exhall	Roadside	435201	285198	NO ₂	NO	0.0	8.3	No	2.3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ^{(1) (2)}	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NB51	Abbey Green School	Roadside	435638	292357	NO ₂	YES - AQMA 2	0.0	5.0	No	2.2
NB52	Bridge St, Mower Shop	Roadside	436147	290868	NO ₂	NO	3.0	7.2	No	2.2
NB53	McDonnell Drive	Roadside	434846	284736	NO ₂	NO	39	16	No	2.1

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
AQM	436844	292251	Roadside	99.5	99.5	29.9	30.2	24.5	25.8	25.8
NB01	435969	291303	Urban Background	99.5	99.5	18.5	19.3	14.6	15.5	15.0
NB02	436427	287646	Urban Background	99.5	99.5	18.1	18.9	14.3	14.7	14.0
NB04	435793	286545	Roadside	99.5	99.5	30.9	30.1	26.2	27.0	25.5
NB06	434313	285292	Roadside	99.5	99.5	32.0	31.0	25.1	26.4	26.5
NB07	435345	286992	Roadside	99.5	99.5	32.1	30.9	26.0	26.1	24.8
NB09	435634	292280	Roadside	89.9	89.9	28.5	29.9	22.8	23.8	24.7
NB15	436883	292302	Roadside	99.5	99.5	29.2	26.9	21.7	23.3	22.2
NB17	436393	291987	Roadside	91.8	91.8	29.3	28.4	21.5	24.9	25.3
NB18	436525	291863	Roadside	99.5	99.5	32.9	31.6	24.9	27.1	27.0
NB20	436604	292202	Roadside	99.5	99.5	27.7	26.8	21.3	23.0	22.0
NB22	436810	292306	Roadside	99.5	99.5	24.9	24.8	18.4	20.3	19.9
NB23	436841	292280	Roadside	99.5	99.5	31.2	31.0	24.4	25.9	26.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
NB24	436812	292196	Roadside	99.5	99.5	24.4	23.9	18.0	19.8	19.4
NB25	435814	292274	Roadside	99.5	99.5	31.1	30.5	24.0	25.2	25.9
NB26	435759	292311	Roadside	84.1	84.1	29.8	28.5	22.9	24.8	25.6
NB27	435950	292113	Roadside	99.5	99.5	36.6	36.0	-	-	31.5
NB28	435893	292205	Roadside	99.5	99.5	35.2	35.7	28.5	29.8	30.2
NB29	435626	292343	Roadside	99.5	99.5	41.0	41.0	33.7	35.2	34.5
NB30	435554	292378	Roadside	99.5	99.5	41.1	42.4	33.0	35.2	34.5
NB31	435146	284563	Roadside	91.8	91.8	30.2	29.1	23.5	25.3	23.7
NB35	439268	293457	Roadside	99.5	99.5	22.9	23.0	16.7	16.8	17.6
NB36	435217	285246	Roadside	99.5	99.5	33.8	33.4	26.6	28.1	27.3
NB37	435051	291594	Roadside	99.5	99.5	31.3	32.3	24.8	28.3	27.5
NB38	437198	290732	Roadside	99.5	99.5	28.9	27.4	22.2	23.1	22.7
NB41	435619	287042	Roadside	99.5	99.5	32.4	30.5	24.9	27.1	25.2
NB42	435655	287135	Roadside	73.2 ⁽³⁾	73.2 ⁽³⁾	25.0	26.7	20.5	21.6	19.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
NB43	436303	290796	Roadside	99.5	99.5	26.7	25.0	18.6	20.5	20.1
NB44	434298	290930	Roadside	91.8	91.8	30.0	29.2	22.5	24.9	24.0
NB45	435593	290728	Roadside	99.5	99.5	34.8	32.6	26.6	26.4	27.2
NB46	435135	290583	Roadside	99.5	99.5	19.8	19.1	13.8	14.1	15.2
NB47	435452	290087	Roadside	99.5	99.5	19.1	18.0	14.4	14.9	15.0
NB48	435066	290689	Roadside	89.9	89.9	23.2	22.7	18.3	19.8	18.5
NB49	435231	285236	Roadside	99.5	99.5	29.2	29.1	23.7	25.0	24.2
NB50	435201	285198	Roadside	99.5	99.5	30.6	30.9	25.3	27.0	25.3
NB51	435638	292357	Roadside	99.5	99.5	26.5	27.4	19.7	20.9	21.2
NB52	436147	290868	Roadside	99.5	99.5	-	32.1	26.2	26.6	26.6
NB53	434846	284736	Roadside	99.5	99.5	-	-	-	23.2	23.6

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.

Diffusion tube data has been bias adjusted.

Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.

Notes:

N/A if not applicable.

The annual mean concentrations are presented as $\mu\text{g}/\text{m}^3$.

Exceedances of the NO_2 annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

- (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) Nine calendar months' worth of data were recorded at this monitoring site; as such, annualisation is not required. This data capture value (73.2%) is based on the exposure period dates, whereas in reality, 75% of data was captured at this site over the calendar year.

Figure A.1 – Trends in Annual Mean NO₂ Concentrations – Leicester Road Gyratory AQMA 1

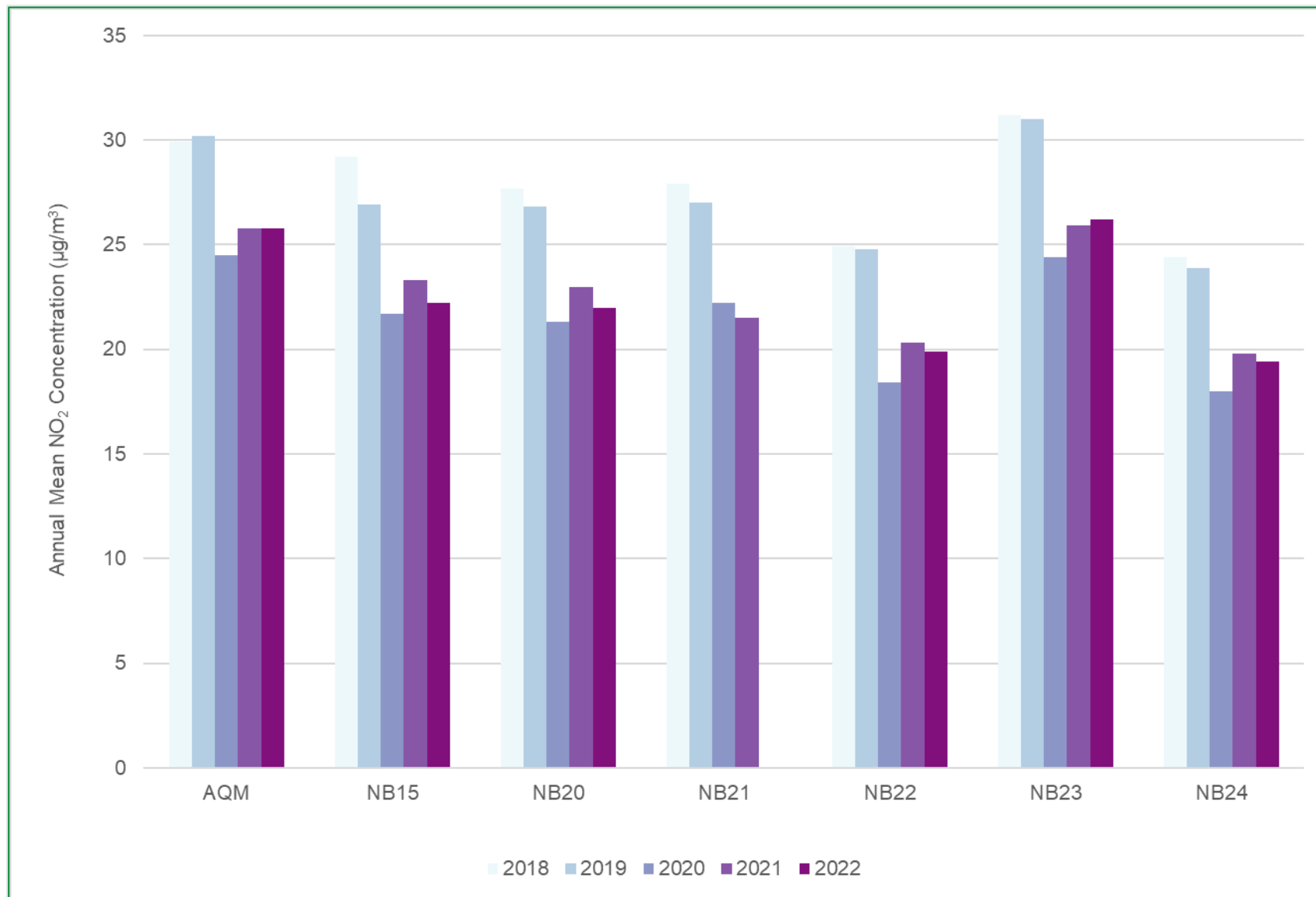


Figure A.2 – Trends in Annual Mean NO₂ Concentrations – Midland Road / Corporation Street AQMA 2



Figure A.3 – Trends in Annual Mean NO₂ Concentrations – Outside of AQMAs: Nuneaton

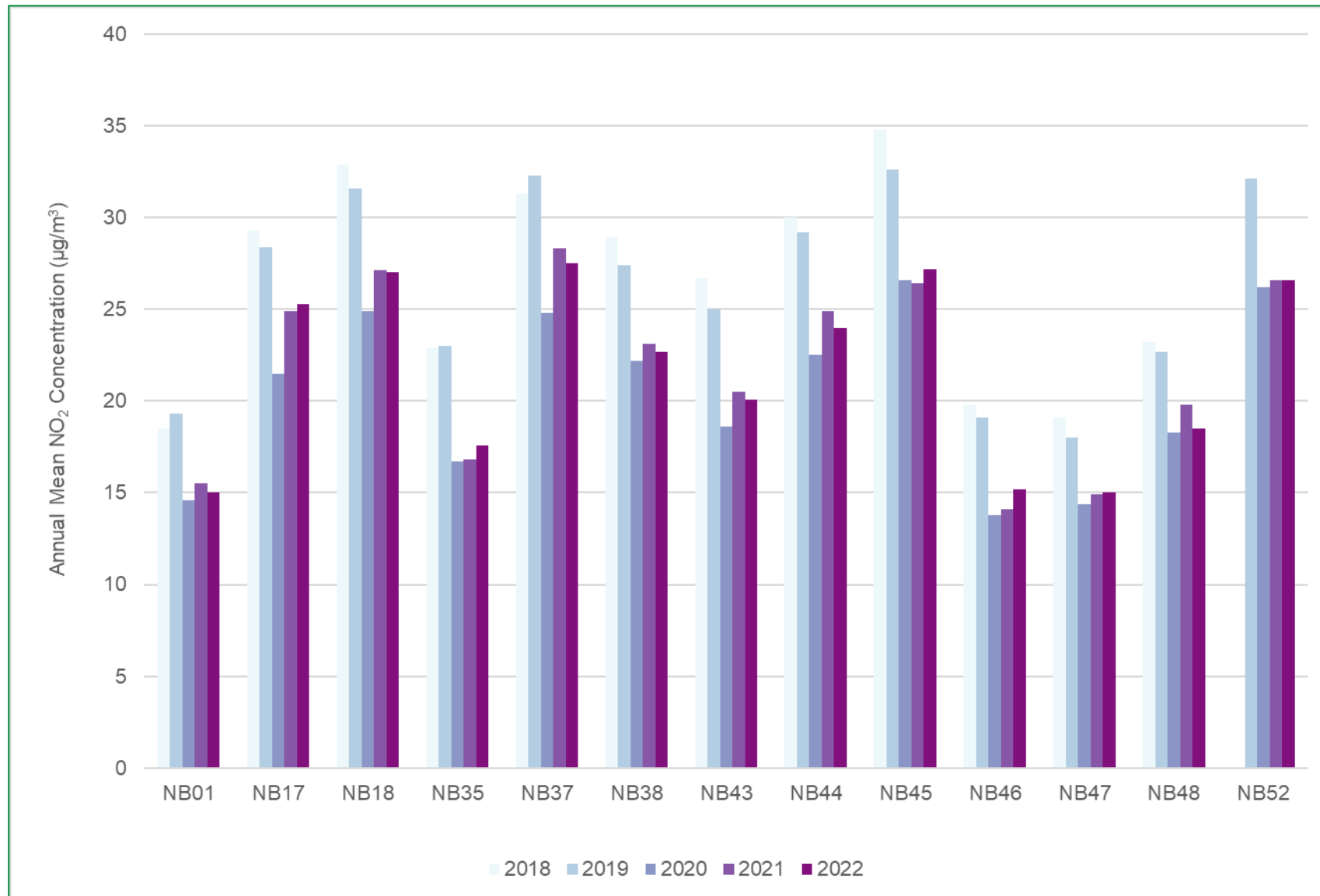
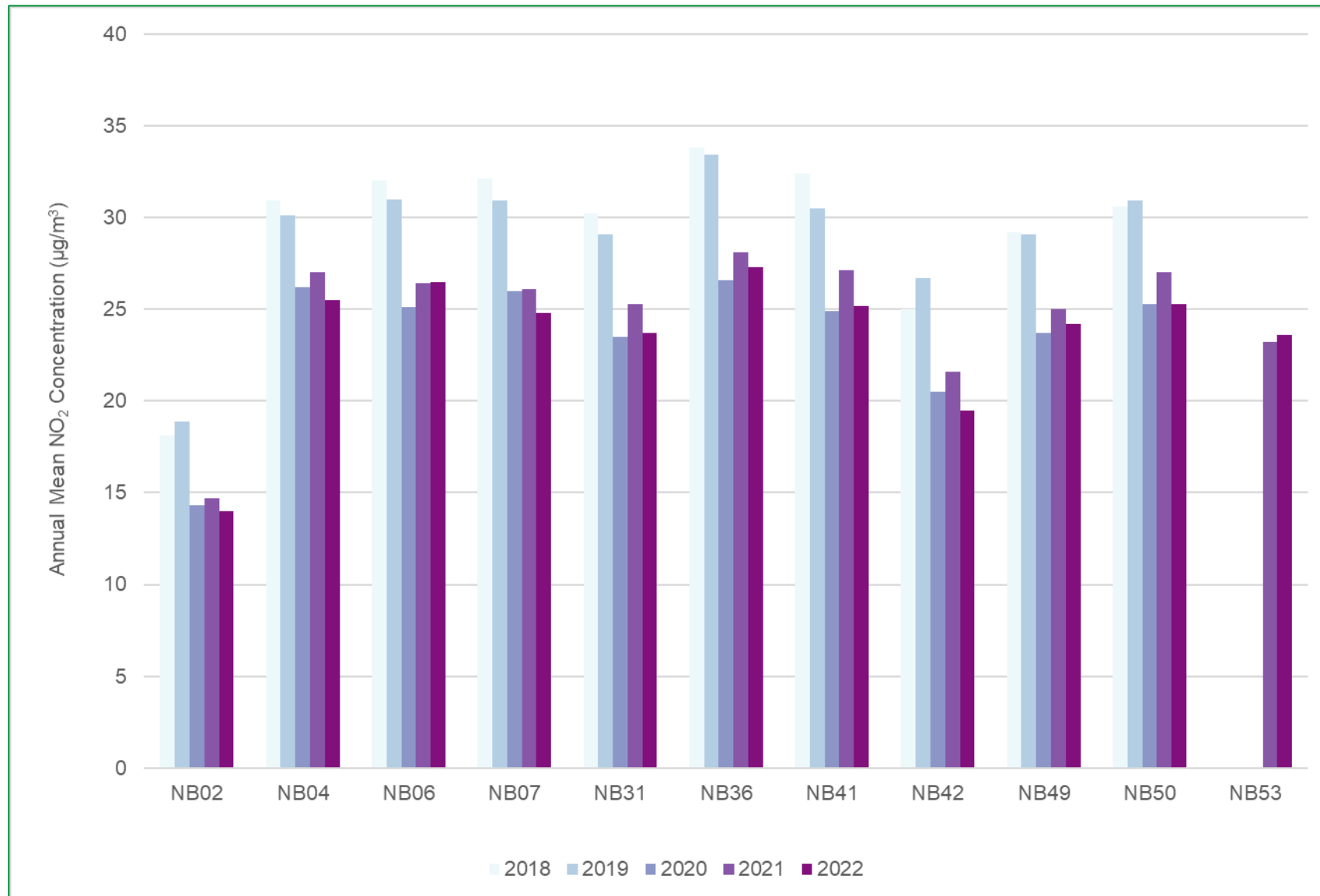


Figure A.4 – Trends in Annual Mean NO₂ Concentrations – Outside of AQMAs: Bedworth



Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO₂ 2022 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.83	Annual Mean: Distance Corrected to Nearest Exposure	Comment
AQM	436844	292251	37.1	31.8	36.1	26.8	28.6	28.4	26.2	28.5	27.7	28.3	36.0	36.8	31.0	25.8	-	There is now only one tube at this location; in previous years, there have been two.
NB01	435969	291303	26.7	16.4	24.2	15.6	11.1	11.0	12.0	14.6	17.3	20.2	22.9	25.0	18.1	15.0	-	
NB02	436427	287646	25.0	16.1	20.3	13.4	10.3	10.9	11.2	13.0	16.0	18.2	22.5	25.6	16.9	14.0	-	
NB04	435793	286545	39.9	28.3	35.0	30.0	25.0	25.2	25.9	31.5	27.3	30.3	33.3	37.1	30.7	25.5	-	
NB06	434313	285292	36.2	33.6	33.9	27.0	28.7	28.8	30.1	27.0	31.5	32.7	36.8	36.4	31.9	26.5	-	
NB07	435345	286992	39.0	29.7	35.9	27.6	23.9	23.4	24.3	28.8	26.9	27.4	34.6	37.1	29.9	24.8	-	
NB09	435634	292280	41.4	26.2	34.2	27.0	-	20.1	22.8	26.4	29.1	29.3	33.7	37.9	29.8	24.7	-	
NB15	436883	292302	40.6	28.8	30.7	23.4	21.3	21.2	20.7	21.9	22.7	24.9	31.7	33.2	26.8	22.2	-	
NB17	436393	291987	39.7	25.3	38.5	29.5	22.3	-	24.2	26.7	29.7	27.2	34.9	37.0	30.4	25.3	-	
NB18	436525	291863	49.5	31.3	32.1	26.5	26.3	26.4	27.7	25.7	33.0	34.7	39.4	37.7	32.5	27.0	-	
NB20	436604	292202	29.7	25.2	33.9	25.9	22.1	20.8	22.0	24.8	26.2	25.6	29.3	32.6	26.5	22.0	-	
NB22	436810	292306	33.8	23.7	26.7	20.3	19.8	19.0	18.4	19.9	20.5	25.6	28.9	31.2	24.0	19.9	-	
NB23	436841	292280	43.3	36.6	29.5	26.4	28.3	28.2	28.6	25.9	29.0	32.8	36.1	33.6	31.5	26.2	-	
NB24	436812	292196	34.0	21.7	23.4	20.3	19.4	18.2	18.3	22.9	21.8	22.0	27.7	30.3	23.3	19.4	-	
NB25	435814	292274	41.9	33.3	32.2	26.0	27.3	28.2	28.1	25.5	29.4	31.1	35.3	35.7	31.2	25.9	-	
NB26	435759	292311	-	-	34.9	29.7	37.7	23.0	25.0	32.9	32.9	26.3	32.2	33.8	30.8	25.6	-	
NB27	435950	292113	49.4	36.0	39.1	35.3	33.5	34.7	38.4	36.6	37.9	37.3	39.0	38.2	37.9	31.5	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.83	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NB28	435893	292205	47.3	38.4	37.5	31.4	31.4	30.4	34.1	33.1	34.7	36.8	40.5	40.6	36.3	30.2	-	
NB29	435626	292343	53.6	43.1	42.5	37.5	24.9	37.8	44.0	38.7	41.7	43.1	46.2	45.2	41.5	34.5	-	
NB30	435554	292378	51.2	42.3	47.5	35.1	36.4	33.3	41.5	37.8	39.9	41.6	47.6	45.1	41.6	34.5	-	
NB31	435146	284563	37.0	21.8	32.7	26.6	21.0	-	25.8	31.6	32.1	25.4	27.8	31.8	28.5	23.7	-	
NB35	439268	293457	29.9	18.0	25.5	18.4	16.5	15.1	17.3	19.0	20.5	21.8	25.4	27.7	21.3	17.6	-	
NB36	435217	285246	47.7	30.0	35.1	28.4	23.8	27.0	27.5	27.7	32.6	34.7	41.1	39.5	32.9	27.3	-	
NB37	435051	291594	46.5	30.8	35.8	34.9	27.5	28.4	29.1	32.8	34.9	28.2	33.1	35.5	33.1	27.5	-	
NB38	437198	290732	38.2	27.3	27.7	24.8	21.9	23.5	23.9	23.7	27.1	26.8	30.3	33.1	27.3	22.7	-	
NB41	435619	287042	38.9	25.7	39.3	33.0	22.0	21.7	24.5	32.9	32.3	26.4	30.6	37.0	30.4	25.2	-	
NB42	435655	287135	34.5	23.8	29.0	21.6	19.8	19.1	19.4	21.4	22.7	-	-	-	23.5	19.5	-	
NB43	436303	290796	33.0	23.2	29.7	21.4	18.0	16.7	18.4	23.4	25.2	23.7	26.1	31.1	24.2	20.1	-	
NB44	434298	290930	38.0	23.1	37.3	30.5	22.6	21.0	-	31.2	29.6	24.0	26.7	34.7	29.0	24.0	-	
NB45	435593	290728	44.8	34.6	38.1	28.2	25.1	25.3	27.3	26.5	30.8	33.2	38.9	40.1	32.7	27.2	-	
NB46	435135	290583	44.9	13.2	23.1	15.5	11.3	10.8	11.4	14.9	16.7	16.5	18.6	23.5	18.4	15.2	-	
NB47	435452	290087	22.0	14.7	22.5	16.5	11.6	10.5	12.7	15.7	20.8	17.0	23.2	29.0	18.0	15.0	-	This residential road had been reduced down to one lane for the majority of the calendar year and is controlled by traffic lights as part of the Bermuda Bridge development.
NB48	435066	290689	31.8	22.5	16.3	-	17.6	18.2	19.2	20.5	20.0	23.5	26.5	29.9	22.3	18.5	-	
NB49	435231	285236	38.9	26.4	32.0	24.0	22.6	23.6	25.7	26.1	29.9	31.5	33.8	36.1	29.2	24.2	-	
NB50	435201	285198	38.7	33.4	34.6	25.8	21.9	26.7	27.2	24.8	30.5	33.2	34.8	34.6	30.5	25.3	-	
NB51	435638	292357	35.4	27.0	32.3	21.0	16.4	18.0	20.4	20.2	23.9	22.5	40.0	30.2	25.6	21.2	-	
NB52	436147	290868	33.3	25.9	43.7	29.3	26.2	25.5	26.8	33.3	29.6	35.1	38.8	36.8	32.0	26.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.83	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NB53	434846	284736	38.4	28.8	32.5	27.1	21.5	21.2	22.6	25.8	27.3	28.9	31.8	35.4	28.4	23.6	-	

All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.

Local bias adjustment factor used.

National bias adjustment factor used.

Where applicable, data have been distance corrected for relevant exposure in the final column.

Nuneaton and Bedworth Borough Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Nuneaton and Bedworth During 2022

Nuneaton and Bedworth Borough Council has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by Nuneaton and Bedworth Borough Council During 2022

Nuneaton and Bedworth Borough Council has not completed any additional works within the reporting year of 2022.

QA/QC of Diffusion Tube Monitoring

Diffusion tubes throughout 2022 were supplied and analysed by Gradko International using the 20% triethanolamine (TEA) in water preparation method. Gradko International is a UKAS accredited laboratory and participates in the AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO₂ diffusion tube analysis and the Annual Field Inter-Comparison Exercise. Strict performance criteria are required to be met by participating laboratories, ensuring reported NO₂ data are of a high standard.

In the latest AIR-PT laboratory summary performance report, between May 2020 and June 2022, Gradko International scored 100% in five of the nine rounds reported (AR043, AR045, AR046, AR049 and AR050), 75% in one round (AR040) and 25% in one round (AR042); two rounds (AR037 and AR039) were cancelled due to the Covid-19 pandemic and have no reported data. The percentage score reflects the results deemed to be satisfactory based upon a z-score of $\leq \pm 2$. Gradko International also follows the procedures set out in the Harmonisation Practical Guidance.

All diffusion tube changeovers occurred within two days of the dates of the 2022 Diffusion Tube Monitoring Calendar.

All results in Table A.2 have been bias adjusted using the national adjustment factor; further details are described below.

Diffusion Tube Annualisation

No diffusion tube NO₂ monitoring locations within Nuneaton and Bedworth required annualisation during 2022 as all sites recorded >75% data capture for the calendar year.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube 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/NO₂ continuous analysers. However, Nuneaton and Bedworth Borough Council do not undertake any automatic monitoring with which to derive a local bias adjustment factor. As a result, a bias adjustment factor was taken from the national database of diffusion tube co-location surveys.

A national bias adjustment factor of 0.83 to the 2022 monitoring data, as derived from the national adjustment calculator (spreadsheet version number: 03/23, based on 27 studies and captured below). A summary of bias adjustment factors used by Nuneaton and Bedworth Borough Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.83
2021	National	03/22	0.84
2020	National	06/21	0.81
2019	National	06/20	0.91
2018	National	03/19	0.89

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/23				
<p>Follow the steps below in the correct order to show the results of relevant co-location studies</p> <p>Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods</p> <p>Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet</p> <p>This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use.</p> <p>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.</p>						<p>This spreadsheet will be updated at the end of June 2023</p> <p>LAQM Helpdesk Website</p> <p>Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.</p>				
Step 1:		Step 2:	Step 3:	Step 4:						
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	<p>Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution.</p> <p>Where there is more than one study, use the overall factor² shown in blue at the foot of the final column.</p>						
If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data ² .	If you have your own co-location study then see footnote ¹ . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953						
Analysed By ¹	Method	Year ²	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ³	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2022	R	Gateshead Council	11	23	20	14.2%	G	0.88
Gradko	20% TEA in water	2022	R	Gateshead Council	12	23	21	12.7%	G	0.89
Gradko	20% TEA in water	2022	R	Gateshead Council	12	25	23	10.1%	G	0.91
Gradko	20% TEA in water	2022	R	Gateshead Council	11	30	23	29.0%	G	0.77
Gradko	20% TEA in water	2022	R	Gateshead Council	9	31	36	-14.0%	G	1.16
Gradko	20% TEA in Water	2022	R	Lisburn & Castlereagh City Council	12	24	19	23.7%	G	0.81
Gradko	20% TEA in Water	2022	R	Monmouthshire County Council	12	35	28	23.8%	G	0.81
Gradko	20% TEA in water	2022	KS	Marylebone Road Intercomparison	12	52	42	22.8%	G	0.81
Gradko	20% TEA in Water	2022	UB	Plymouth City Council	12	18	18	3.2%	G	0.97
Gradko	20% TEA in water	2022	UC	Belfast City Council	12	26	20	30.7%	G	0.76
Gradko	20% TEA in water	2022	R	Belfast City Council	12	47	36	28.1%	G	0.78
Gradko	20% TEA in water	2022	R	Belfast City Council	12	25	22	14.0%	G	0.88
Gradko	20% TEA in water	2022	R	Belfast City Council	12	36	28	29.0%	G	0.78
Gradko	20% TEA in water	2022	R	Brighton & Hove City Council	10	37	23	62.8%	G	0.61
Gradko	20% TEA in water	2022	UB	Hertsmere Borough Council	12	16	15	7.1%	G	0.93
Gradko	20% TEA in water	2022	R	Southampton City Council	12	36	28	30.6%	G	0.77
Gradko	20% TEA in water	2022	UC	Southampton City Council	12	28	24	15.4%	G	0.87
Gradko	20% TEA in water	2022	R	Southampton City Council	12	34	31	8.4%	G	0.92
Gradko	20% TEA in water	2022	R	Worcestershire	11	13	12	4.2%	G	0.96
Gradko	20% TEA in water	2022	R	Lancaster City Council	13	34	27	25.8%	G	0.79
Gradko	20% TEA in water	2022	R	Lancaster City Council	12	28	24	15.2%	G	0.87
Overall Factor ² (27 studies)								Use	0.83	

NO₂ Fall-off with Distance from the Road

No diffusion tube NO₂ monitoring locations within Nuneaton and Bedworth required distance correction during 2022.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Monitoring Locations – Leicester Road Gyratory AQMA (AQMA 1)

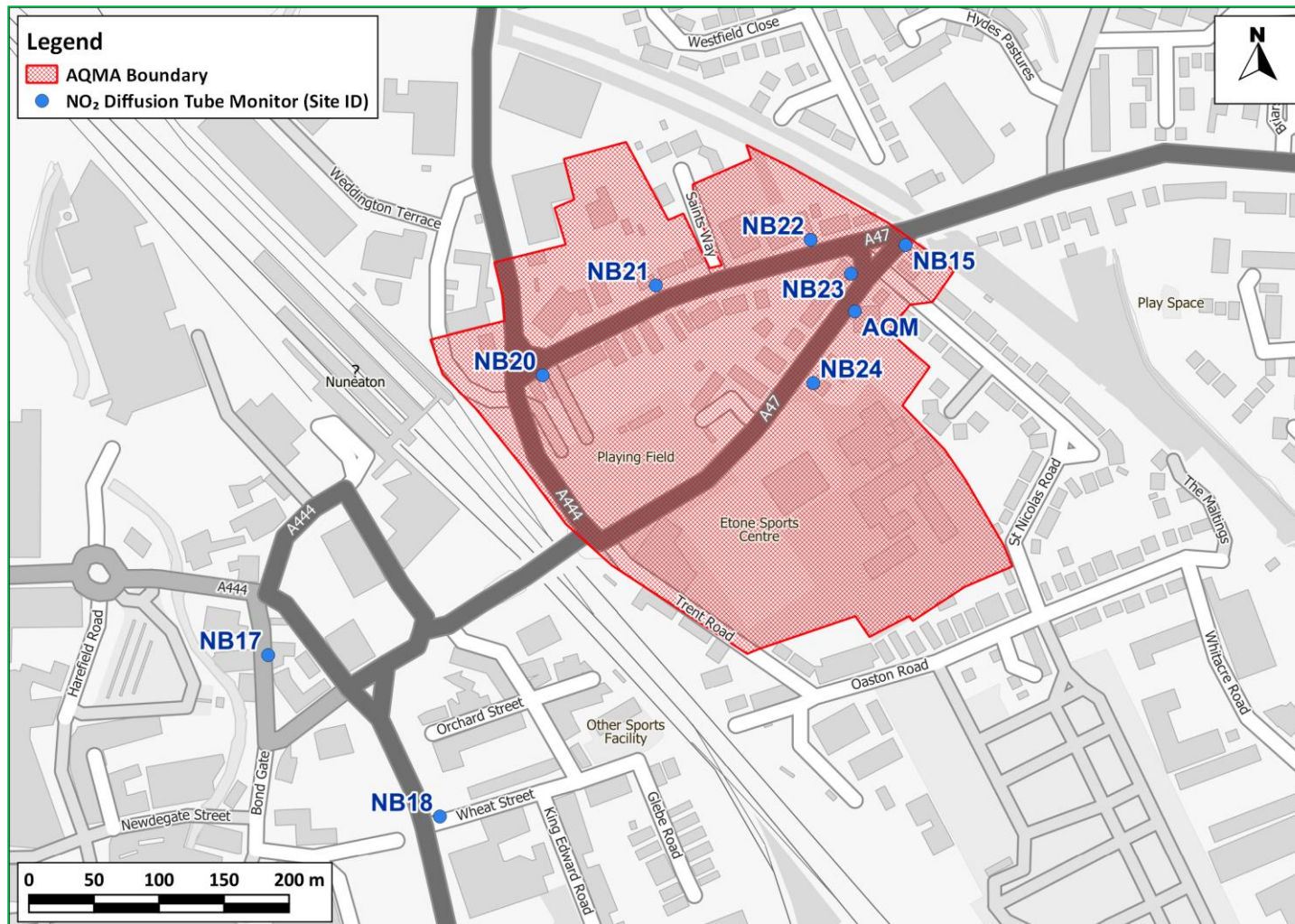


Figure D.3 – Monitoring Locations – South Nuneaton

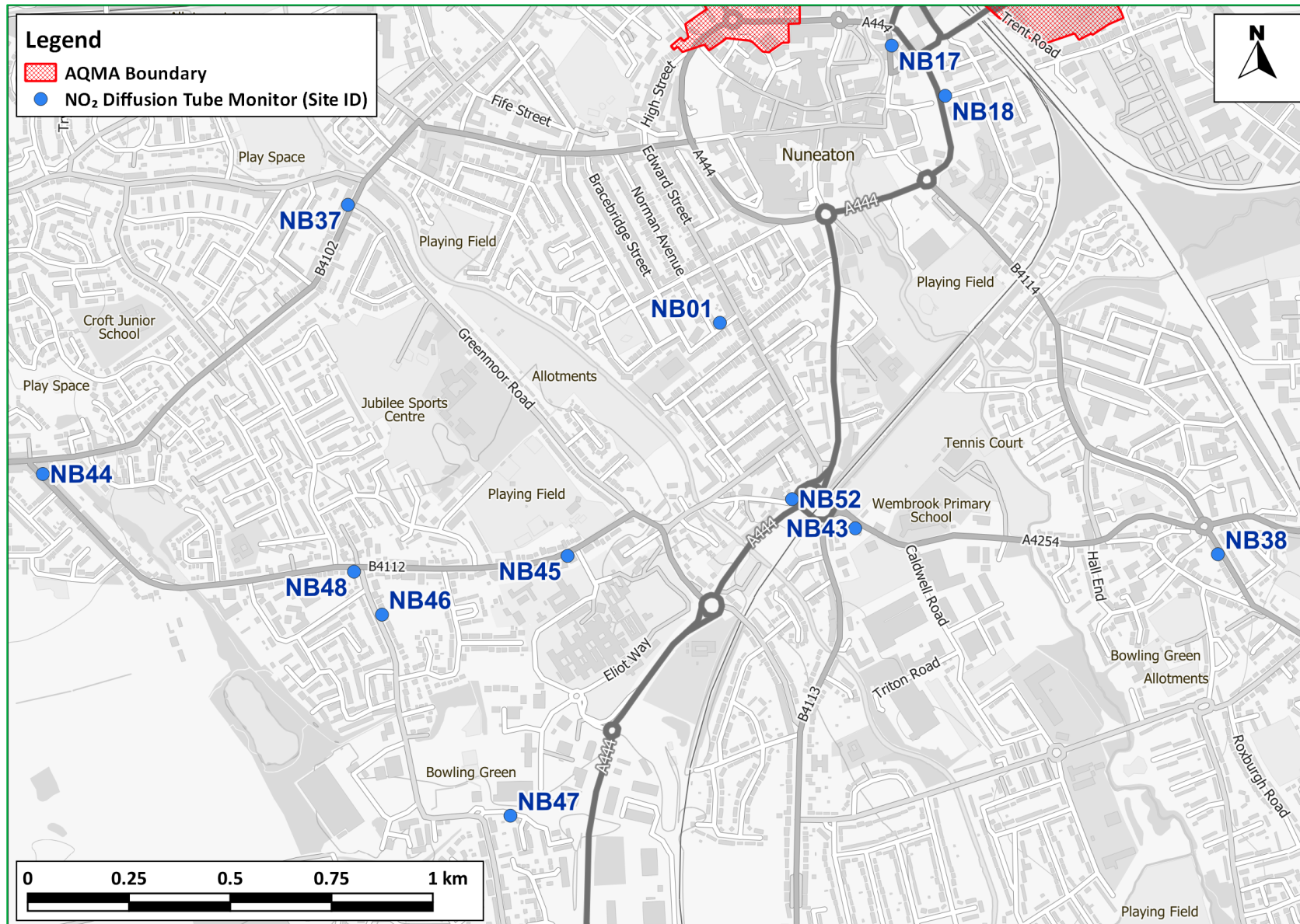
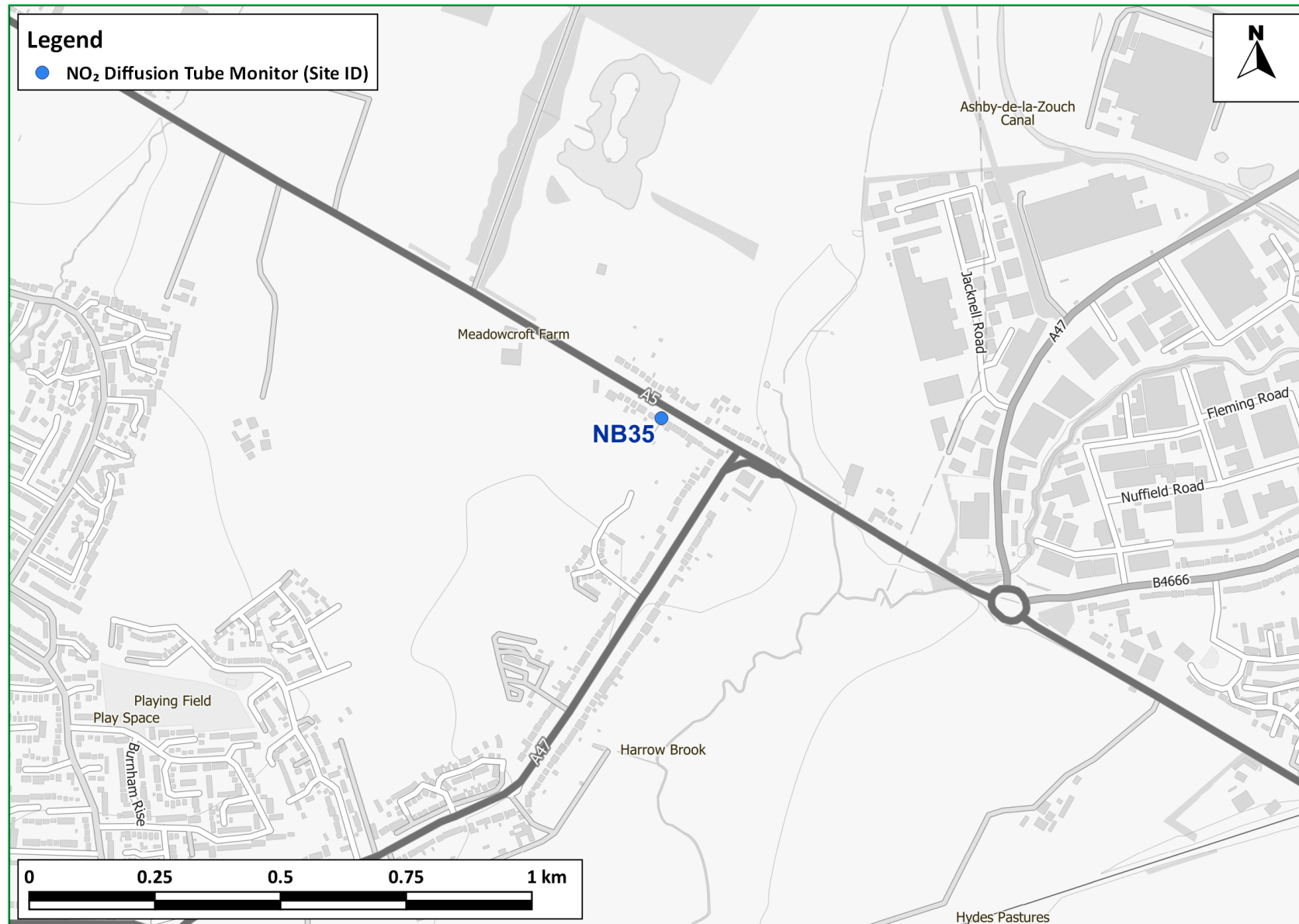


Figure D.4 – Monitoring Location NB35



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England¹²

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO ₂)	200µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO ₂)	40µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM ₁₀)	40µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO ₂)	125µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO ₂)	266µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

¹² The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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
AQS	Air Quality Strategy
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EST	Energy Savings Trust
EU	European Union
EV	Electric Vehicle
LAQM	Local Air Quality Management
LEV	Low Emission Vehicle
LTP	Local Transport Plan
$\mu\text{g}/\text{m}^3$	Microgrammes per cubic metre of air
NBBC	Nuneaton and Bedworth Borough Council
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
OLEV	Office for Low Emission Vehicles
PM_{10}	Airborne particulate matter with an aerodynamic diameter of $10\mu\text{m}$ or less
$\text{PM}_{2.5}$	Airborne particulate matter with an aerodynamic diameter of $2.5\mu\text{m}$ or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide
SPD	Supplementary Planning Document
TNP	Transforming Nuneaton Programme
WCC	Warwickshire County Council

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