

**Nuneaton
&
Bedworth**



2022 Air Quality Annual Status Report (ASR)

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

July 2022

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Report Reference Number	J10-12361B-10/D1
Date	July 2022

Executive Summary: Air Quality in Our Area

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 28,000 to 36,000 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), PM₁₀ and PM_{2.5}. Currently, there are two designated Air Quality Management Areas (AQMAs) 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 https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=189, details are provided in Table 2.1 and maps are presented in Figures D1 and D2 (Appendix D). Compared to 2020 levels, air pollutant concentrations experienced an increase across Nuneaton and Bedworth in 2021. This is likely to be attributable to an increase in road traffic in 2021 following the COVID-19 Pandemic which caused a reduction in traffic in 2020 because of restrictions on travel. Despite this increase, air pollutant concentrations in Nuneaton and Bedworth generally are demonstrating a long-term reduction. Consistently low NO₂ concentrations in the Leicester Road Gyratory AQMA led to Defra recommending its

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, July 2020

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

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 Road and Stanley Road; there were no recorded exceedances in this AQMA in 2021.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, and will continue to improve in the future due to national policies, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy⁵ sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero⁶ sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is crucial given that the majority of Air Quality Management Areas (AQMA) are designated due to elevated concentrations related to transport emissions, including those in Nuneaton.

In 2021, a revised Action Plan for Nuneaton and Bedworth outlined the actions that have been developed to address both the nitrogen dioxide air quality objective exceedance along Midland Road in Nuneaton, and also more strategic issues to try and reduce emissions of both nitrogen dioxide and PM_{2.5} across the borough, to improve health in a more equitable way. The measures can be considered under five broad topics:

- Support and Collaborate with Warwickshire County Council 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;
- Developing Policies to Support Better Air Quality; and
- Controlling Domestic Emissions.

⁵ Defra. Clean Air Strategy, 2019

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

The Plan recognises that concentrations of nitrogen dioxide 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 Warwickshire County Council, 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 2021, 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 action plan 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 more generally 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 Warwickshire County Council's car share database (<https://carsharewarwickshire.liftshare.com/default.asp>), 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

- Use public transport where available – This reduces the number of private vehicles in operation, thereby reducing pollutant concentrations 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;
- 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 in 2021. 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 and Bedworth 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.

2 Actions to Improve Air Quality

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 should prepare an Air Quality Action Plan (AQAP) within 12 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of two AQMAs declared by Nuneaton and Bedworth can be found in Table 2.1. Maps of the AQMAs, and the air quality monitoring locations in relation to the AQMAs, are shown in Appendix D: Maps of Monitoring Locations and AQMAs; the AQMA boundaries can also be viewed online at http://uk-air.defra.gov.uk/aqma/local-authorities?la_id=189. 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 2021.

Annual mean NO₂ concentrations in 2021 were greater than 2020 (5.5% overall). This increase is likely to be attributable to an increase in road traffic in 2021 following the COVID-19 Pandemic which caused a reduction in traffic in 2020 because of restrictions on travel.

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 the last two years of monitoring have been below 10% of the annual mean objective value however it is recommended that AQMA 2 remains designated to ensure a long term trend of reductions continues.

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 2020/2021 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	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 1 - Leicester Road Gyratory, Nuneaton	01/03/2007	NO ₂ Annual Mean	An area of Nuneaton centred on the Leicester Road Gyratory system and incorporating sections of the Leicester, Old Hinckley and Weddington Roads	No	43	25.9	Nuneaton and Bedworth Borough Council, Air Quality Action Plan, 2022	Link to AQAP
AQMA 2 - Midland Road / Corporation Street, Nuneaton	01/10/2009	NO ₂ Annual Mean	Centred on Midland Road and Corporation Street but also includes parts of Central Avenue and Manor Court Road	No	53	35.2	Nuneaton and Bedworth Borough Council, Air Quality Action Plan, 2022	Link to AQAP

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

Nuneaton and Bedworth 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 is considered an example of good practice. The only comment which needed addressing was that the Council should include a screen grab of the national bias adjustment factor spreadsheet, which has been included in Appendix C of this report.

Nuneaton and Bedworth Council has taken forward a number of direct measures during the current reporting year of 2021 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 Council have made during the reporting year of 2021 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](#)⁷. This Action Plan aims to progress air quality in Nuneaton and Bedworth'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 fuel vehicles;
- Ongoing implementation of the SPD 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: ⁷

- Support and collaborate with Warwickshire County Council on Traffic Management Measures Directly Impacting Midland Road;
- Promote Behaviour Change away from Single Occupancy Private Vehicle Use;

⁷ Nuneaton and Bedworth Council. Air Quality Action Plan (April 2022).

- 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. While 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 DfT for the Warwickshire Bus Service Improvement Plan, currently resulting in a barrier in delivering EV bus priority measures in Warwickshire.

Nuneaton and Bedworth 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	Estimated / Actual Completion Year	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
2021 Air Quality Action Plan Measures															
1	Support and Collaborate with Warwickshire County Council 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 project	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 nitrogen dioxide concentrations	The Transforming Nuneaton Programme (TNP) includes significant highway improvement schemes, which are predicted to have a positive impact on the Midland Road AQMA. 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. Work is progressing, with the possibility of some enabling works being carried out Autumn 2022 and the first of the highway schemes on site summer 2023.	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 LTP	Ongoing work with schools and businesses, and travel plans through planning system. Consultation on the 'Local Cycling and Walking Infrastructure plan' took place in 2021, with a draft version to be released in June 2022. Funding has been secured for future (programmed) delivery within Nuneaton town centre, as part of TNP. There are several funded 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.	A number of initiatives across the borough encourage walking and cycling, Not costed specifically as wider measures to reduce emissions. The TNP incorporates cycling infrastructure improvements, but at the moment none extend as far as Midland Road. There is currently no funding secured for further development of cycle routes within Nuneaton Town centre

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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
2021 Air Quality Action Plan Measures															
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 alternatively fuelled vehicles in the fleet on Warwickshire's roads	EV charging points increasing in NBBC as funding will allow. All new developments are required to have EV charging points in line with the Air Quality SPD. WCC have secured some funding to contribute to towards the cost of supporting street charging for electric buses. WCC have secured funding through the Towns Fund for EV charging points. One rapid chargepoint is to be installed in Church Street, 2022. An additional 10 charging points are to be installed in Abbey Street early 2023. Consultation on the <i>Vehicle Policy</i> relating to taxis took place in 2021. Recommending that Euro 4 vehicles are no longer accepted to replace hackney carriage and private hire vehicles.	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. 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.
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 as no specific projects identified as yet	Air Quality SPD adopted and being implemented. Working closely with Warwickshire Public Health, mainly through the Warwickshire and Coventry Air Quality Alliance	Non statutory function will require additional resources to implement. No specific budget for this work as ongoing collaborative work.

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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
2021 Air Quality Action Plan Measures															
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	Insulation of homes through Green Homes Grant Scheme to increase energy rating of homes with EPC rating of E, F or G 2021 saw the completion of 172 external wall insulations, 293 central heating system replacements and 17 loft insulations	Very difficult to quantify any change in the level of solid fuel burning without detailed survey work. Cost of measure already within existing budgets.

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 2018-based background maps published by Defra⁸, which predict concentrations on a 1 km x 1 km grid, show that concentrations of PM_{2.5} are well below the annual mean air quality objective of 25 µg/m³. 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.

The Public Health Outcomes Framework tool⁹, 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 2019 was 5.5%, slightly higher than the England average of 5.1%.

Nuneaton and Bedworth are 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 measures included within Nuneaton and Bedworth's updated 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.

⁸ Defra. Local Air Quality Management Support Website (2021). Available: <https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>

⁹ Public Health England. Public Health Outcomes Framework (2021). Available: <https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data>

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

This section sets out the monitoring undertaken within 2021 by Nuneaton and Bedworth and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2017 and 2021 to allow 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 monitoring sites during 2021 (including one duplicate site). Table A.1 in Appendix A presents the details of the non-automatic sites.

One new monitoring site was commissioned in 2021 (NB53), located on McDonnell Drive, outside of any current AQMAs. Site MB27 located on 90 Corporation Street was not installed throughout 2021, however, has been reinstated as of January 2022. Site NB21, located on 36 Old Hinckley Road was removed by new occupants in May 2021, there are currently no plans to reinstall this site at this address.

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, are included in Appendix C.

Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater

than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.1.3 Nitrogen Dioxide (NO₂)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40 µg/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). Two monitoring sites (NB21 and NB35) required annualisation due to their removal part way through the year, further details can be found in Appendix C.

The full 2021 dataset of monthly mean values for diffusion tubes is provided in Appendix B. Annual mean concentrations experienced an overall increase of 5.5% when compared to 2020. However, this increase can be attributed to unusually low 2020 concentrations resultant from a reduction in road traffic from the COVID-19 pandemic. When compared to 2019 concentrations, measured concentrations in 2021 were lower overall and there were no recorded exceedances of the annual mean NO₂ objective recorded at any monitoring sites in Nuneaton and Bedworth in 2021.

The highest concentrations in 2021 were recorded at sites NB29 and NB30 within the Midland Road/Corporation Street AQMA (AQMA 2), which both measured 35.2 µg/m³. These two sites have previously measured exceedances of the annual mean objective, and it is therefore recommended that the AQMA remains designated.

The highest concentration in 2021 within the Leicester Road Gyratory AQMA (AQMA 1) was 25.9 µg/m³ at duplicate site NB23. The highest concentration in 2019 was 31.0 µg/m³ at site NB23. Concentrations have been below the objective since 2016 within AQMA 1. It has therefore been recommended that this AQMA is revoked, but this revocation is still pending.

Figure A.1 and A.2 present the annual mean NO₂ concentrations at monitoring sites within AQMA 1 and AQMA 2 respectively. Figure A.3 presents the annual mean NO₂ concentrations at the remaining sites located outside of the AQMAs.

No monitoring site measured an annual mean NO₂ concentration greater than 60 µg/m³ in 2021, indicating that an exceedance of the 1-hour mean 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⁾	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	NO2	YES – AQMA 1	1.5	4.2	No	1.3
NB01	142 Norman Avenue	Urban Background	435969	291303	NO2	NO			No	1.8
NB02	5 Conifer Close	Urban Background	436427	287646	NO2	NO			No	2.1
NB04	Leisure Ctr 72 Coventry Rd	Suburban	435793	286545	NO2	NO	0.0	3.6	No	3.2
NB06	Tudor Ct Bowling Green Ln	Roadside	434313	285292	NO2	NO	11.0	0.9	No	2.9
NB07	115 Newtown Rd Bedworth	Roadside	435345	286992	NO2	NO	6.0	4.4	No	2.4
NB09	Church, Manor Ct Rd	Roadside	435634	292280	NO2	YES – AQMA 2	1.5	2.2	No	2.4
NB15	Bridge Grove, Leicester Rd	Roadside	436883	292302	NO2	YES – AQMA 1	8.0	1.4	No	2.3
NB17	Balti Hut, 41 Bond Street	Roadside	436393	291987	NO2	NO	0.0	1.3	No	2.3
NB18	Wheat St	Roadside	436525	291863	NO2	NO	23.0	4.0	No	2.3
NB20	17 Old Hinckley Rd	Roadside	436604	292202	NO2	YES – AQMA 1	0.0	6.9	No	2.0
NB21	36 Old Hinckley Rd	Roadside	436691	292271	NO2	YES – AQMA 1	0.0	8.6	No	2.0
NB22	58 Old Hinckley Rd	Roadside	436810	292306	NO2	YES – AQMA 1	0.0	8.8	No	1.9
NB23	46 Leicester Rd Nuneaton	Roadside	436841	292280	NO2	YES – AQMA 1	0.0	4.5	No	2.1
NB24	Lodge, 31 Leicester Rd	Roadside	436812	292196	NO2	YES – AQMA 1	0.0	11.0	No	2.2
NB25	25 Central Avenue	Roadside	435814	292274	NO2	YES – AQMA 2	0.0	6.4	No	2.1
NB26	26 Central Avenue	Roadside	435759	292311	NO2	YES – AQMA 2	0.0	4.6	No	2.1

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⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NB28	138 Corporation St	Roadside	435893	292205	NO2	YES – AQMA 2	0.0	4.7	No	2.4
NB29	16 Midland Road	Roadside	435626	292343	NO2	YES – AQMA 2	0.0	4.0	No	2.1
NB30	52 Midland Road	Roadside	435554	292378	NO2	YES – AQMA 2	0.0	3.8	No	2.1
NB31	376 Longford Road	Roadside	435146	284563	NO2	NO	0.0	12.7	No	2.5
NB35	60 Watling St	Roadside	439268	293457	NO2	NO	0.0	11.7	No	1.9
NB36	78 Coventry Rd Exhall	Roadside	435217	285246	NO2	NO	0.0	2.3	No	2.3
NB37	19 Croft Road Nuneaton	Roadside	435051	291594	NO2	NO	0.0	5.8	No	2.0
NB38	115 Highfield Rd	Roadside	437198	290732	NO2	NO	0.0	7.2	No	1.8
NB41	11 Newtown Rd (Salon)	Roadside	435619	287042	NO2	NO	0.0	4.8	No	2.0
NB42	18 George Street Bedworth	Roadside	435655	287135	NO2	NO	0.0	8.3	No	1.8
NB43	43 Hanover Glebe	Roadside	436303	290796	NO2	NO	0.0	11.6	No	2.0
NB44	503 Heath End Rd	Roadside	434298	290930	NO2	NO	2.0	2.3	No	2.2
NB45	80 Heath End Rd	Roadside	435593	290728	NO2	NO	4.6	2.5	No	2.4
NB46	30 Bermuda Rd	Roadside	435135	290583	NO2	NO	0.0	9.2	No	2.0
NB47	6 The Bridleway	Roadside	435452	290087	NO2	NO	0.0	4.6	No	2.0
NB48	288 Heath End Rd	Roadside	435066	290689	NO2	NO	0.0	8.5	No	2.1
NB49	Co-op Coventry Rd	Roadside	435231	285236	NO2	NO	0.0	4.2	No	2.5
NB50	66 Coventry Rd Exhall	Roadside	435201	285198	NO2	NO	0.0	8.3	No	2.3
NB51	Abbey Green School	Roadside	435638	292357	NO2	YES – AQMA 2	0.0	5.0	No	2.2
NB52	Bridge St, Mower Shop	Roadside	436147	290868	NO2	NO	3.0	7.2	No	2.2

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⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NB53	McDonnell Drive	Roadside	434846	284736	NO2	NO			No	2.1

Notes:

(1) 0m 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 2020 (%) (2)	2017	2018	2019	2020	2021
AQM	436844	292251	Roadside	100	100	30.6	29.9	30.2	24.5	25.8
NB01	435969	291303	Urban Background	100	100	19.2	18.5	19.3	14.6	15.5
NB02	436427	287646	Urban Background	100	100	19.2	18.1	18.9	14.3	14.7
NB04	435793	286545	Suburban	100	100	34.3	30.9	30.1	26.2	27
NB06	434313	285292	Roadside	100	100	25.7	32	31	25.1	26.4
NB07	435345	286992	Roadside	100	100	27.5	32.1	30.9	26	26.1
NB09	435634	292280	Roadside	100	100	27.4	28.5	29.9	22.8	23.8
NB15	436883	292302	Roadside	100	100	23.7	29.2	26.9	21.7	23.3
NB17	436393	291987	Roadside	100	100	30.9	29.3	28.4	21.5	24.9
NB18	436525	291863	Roadside	100	100	26.3	32.9	31.6	24.9	27.1
NB20	436604	292202	Roadside	100	100	27.2	27.7	26.8	21.3	23
NB21	436691	292271	Roadside	33.3	33.3	29.6	27.9	27	22.2	21.5
NB22	436810	292306	Roadside	100	100	25.2	24.9	24.8	18.4	20.3
NB23	436841	292280	Roadside	100	100	33.3	31.2	31	24.4	25.9
NB24	436812	292196	Roadside	100	100	24.3	24.4	23.9	18	19.8
NB25	435814	292274	Roadside	100	100	32.1	31.1	30.5	24	25.2
NB26	435759	292311	Roadside	91.7	91.7	29.5	29.8	28.5	22.9	24.8
NB28	435893	292205	Roadside	100	100	37.2	35.2	35.7	28.5	29.8
NB29	435626	292343	Roadside	100	100	44.6	41	41	33.7	35.2
NB30	435554	292378	Roadside	100	100	39.3	41.1	42.4	33	35.2
NB31	435146	284563	Roadside	100	100	32.1	30.2	29.1	23.5	25.3
NB35	439268	293457	Roadside	66.7	66.7	23.2	22.9	23	16.7	16.8

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 2020 (%) (2)	2017	2018	2019	2020	2021
NB36	435217	285246	Roadside	100	100	36.8	33.8	33.4	26.6	28.1
NB37	435051	291594	Roadside	100	100	31.9	31.3	32.3	24.8	28.3
NB38	437198	290732	Roadside	100	100	30	28.9	27.4	22.2	23.1
NB41	435619	287042	Roadside	100	100	32.8	32.4	30.5	24.9	27.1
NB42	435655	287135	Roadside	100	100	26.2	25	26.7	20.5	21.6
NB43	436303	290796	Roadside	100	100	26.3	26.7	25	18.6	20.5
NB44	434298	290930	Roadside	100	100	27.1	30	29.2	22.5	24.9
NB45	435593	290728	Roadside	83.3	83.3	28.1	34.8	32.6	26.6	26.4
NB46	435135	290583	Roadside	83.3	83.3	18.7	19.8	18.1	13.8	14.1
NB47	435452	290087	Roadside	100	100	18.6	19.1	18	14.4	14.9
NB48	435066	290689	Roadside	100	100	25.6	23.2	22.7	18.3	19.8
NB49	435231	285236	Roadside	100	100	32.4	29.2	29.1	23.7	25
NB50	435201	285198	Roadside	91.7	91.7	32.7	30.6	30.9	25.3	27
NB51	435638	292357	Roadside	100	100	26.3	26.5	27.4	19.7	20.9
NB52	436147	290868	Roadside	100	100			32.1	26.2	26.6
NB53	434846	284736	Roadside	83.3	83.3					23.2

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.

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:

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**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG16 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%).

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

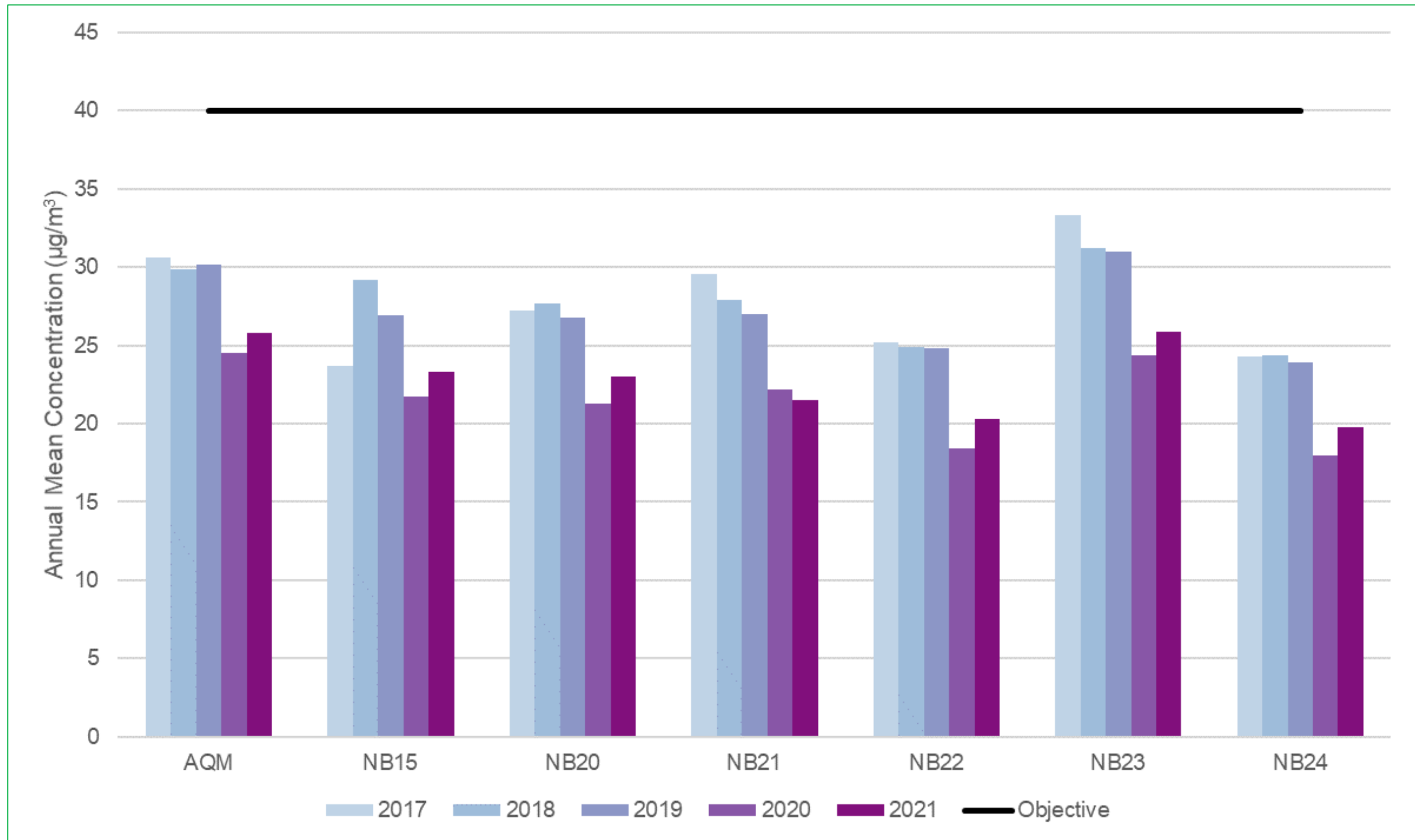


Figure A.2 – Trends in Annual Mean NO₂ Concentrations – Midland Road/Corporation Street AQMA 2

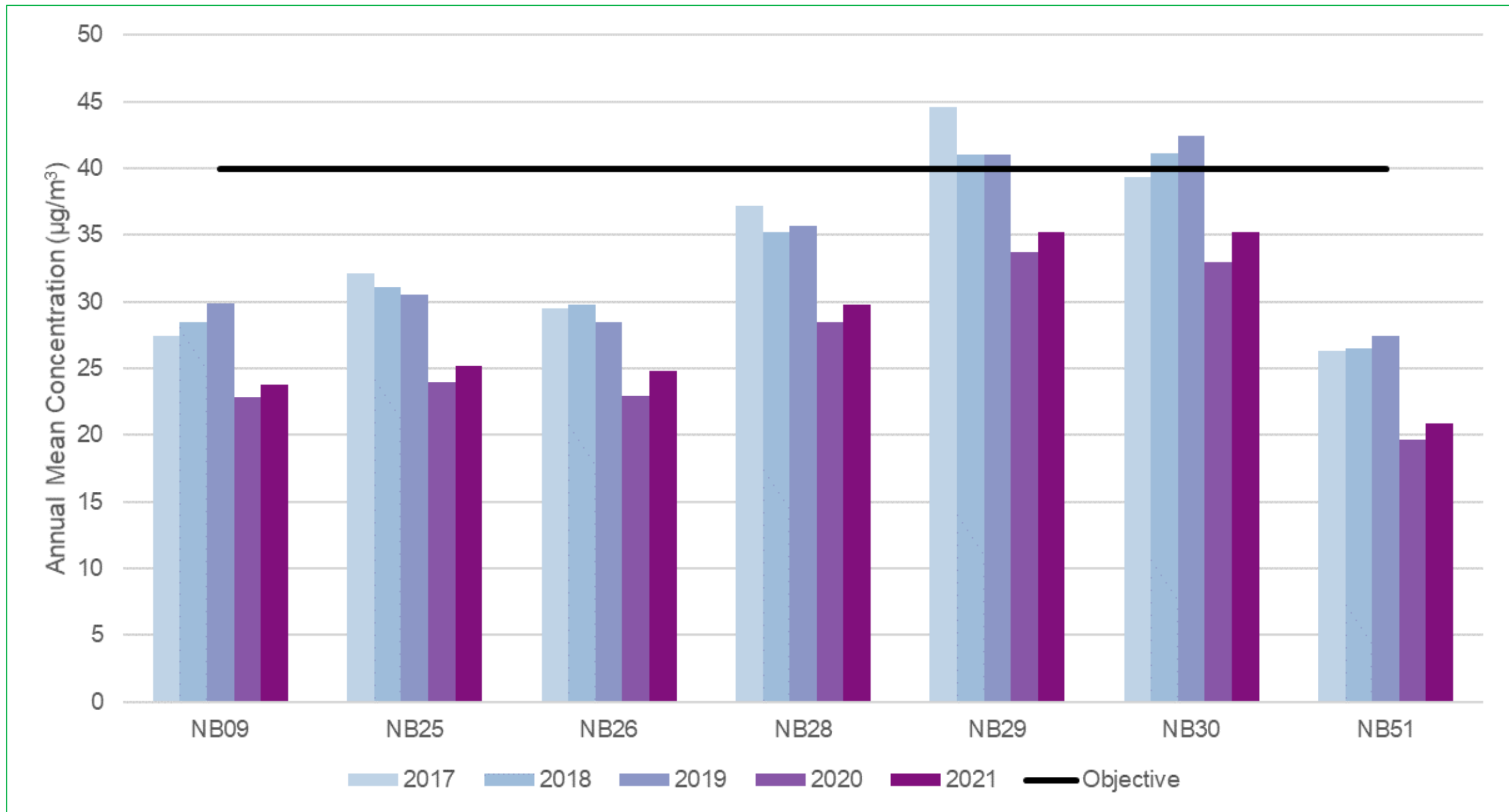
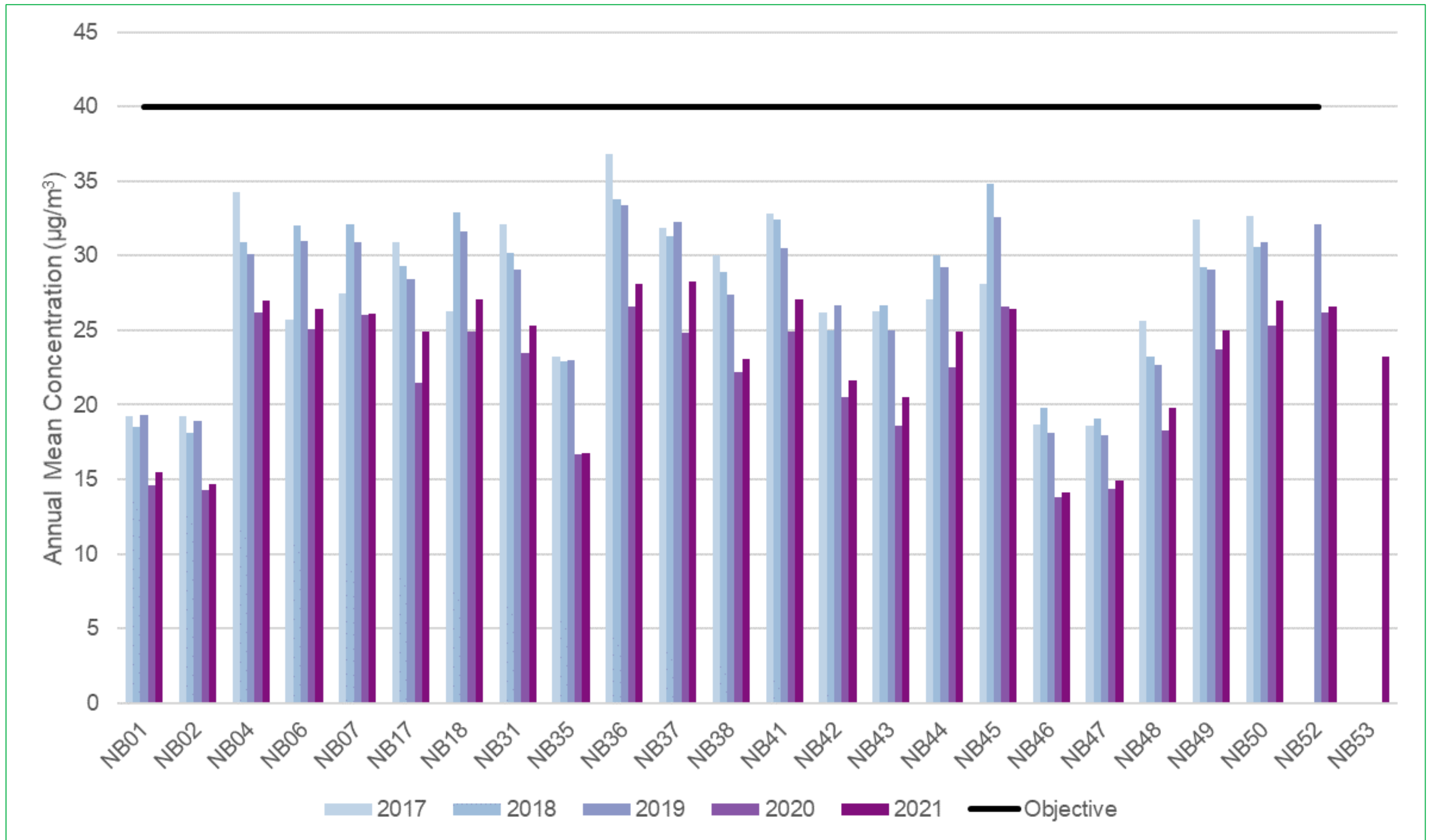


Figure A.3 – Trends in Annual Mean NO₂ Concentrations – Outside of AQMAs



Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO₂ 2021 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 (0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
AQM01	436844	292251	37.44	32.66	31.16	25.8	29.14	27.14	27.65	25.78	32.33	31.32	35.41	32.91	30.6	25.7	-	Duplicate Site with AQM01 and AQM02 - Annual data provided for AQM02 only
AQM02	436844	292251	36.26	33.67	31.61	26.7	29.57	28.3	27.99	24.04	33.91	30.58	33.51	33.54	30.8	25.8	-	
NB01	435969	291303	26.33	22.93	20.92	18.17	14.51	13.04	13.1	11.28	18.94	19.25	21.94	21.55	18.5	15.5	-	
NB02	436427	287646	26.87	20.18	20.42	14.77	13.32	11.27	12.17	11.14	16.22	18.94	23.72	21.65	17.6	14.7	-	
NB04	435793	286545	42.21	36.85	33.76	30.68	31.51	28.66	27.68	24.61	26.04	33.27	37.72	32.96	32.2	27.0	-	
NB06	434313	285292	38.67	34.51	31.47	28.29	30.36	25.42	28.06	25.59	36.59	30.68	34.32	33.86	31.5	26.4	-	
NB07	435345	286992	37.32	36.07	32.93	33.23	24.63	26.92	22.34	23.77	34.54	29.65	36.47	35.8	31.1	26.2	-	
NB09	435634	292280	37.2	31.09	29.75	28.98	25.26	22.74	23.83	20.04	30.14	27.5	32.66	30.4	28.3	23.8	-	
NB15	436883	292302	38.41	29.9	32.18	26.47	24.49	20.91	21.65	20.21	27.44	25.9	37.6	28.98	27.8	23.4	-	
NB17	436393	291987	37.92	31.07	28.72	31.45	27.06	24.06	28.19	22.65	31.94	26.72	34.77	31.63	29.7	24.9	-	
NB18	436525	291863	42.78	33.16	34.14	27.83	28.9	24.78	25.73	24.57	35.2	31.51	43.33	36.42	32.4	27.2	-	
NB20	436604	292202	33.21	31.97	26.69	30.12	25.7	22.08	23.77	20.52	29.32	27.09	30.07	27.86	27.4	23.0	-	
NB21	436691	292271	34.12	26.81	18.62	23.34									25.7	18.6	-	Site removed in May. Will not be reinstalled.
NB22	436810	292306	34.06	24.97	24.39	19.85	20.88	20.36	19.03	19.18	26.9	25.34	29.24	27.27	24.3	20.4	-	
NB23	436841	292280	37.9	27.65	35.9	26.27	28.82	26.84	26.58	24.59	31.35	31.91	40.33	31.78	30.8	25.9	-	
NB24	436812	292196	30.31	23.59	25.86	20.56	17.93	21.19	20.16	21.81	25.41	22.55	29.3	25.43	23.7	19.9	-	
NB25	435814	292274	36.14	29.92	32.52	25.18	27.56	24.67	24.78	22.91	33.82	29.91	38.9	34.38	30.1	25.2	-	

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 (0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NB26	435759	292311	36.28	30.38	31.65	33.74	27.42	25.35	26.73	21.38	33.21	25.16	33.13		29.5	24.8	-	
NB28	435893	292205	43.83	37.51	36.47	30.63	33.96	31.09	32.76	24.79	41.52	37.54	39.46	37.23	35.6	29.9	-	
NB29	435626	292343	48.24	42.75	47.01	40.16	42.68	34.12	38.79	32.21	47.71	40.05	47.07	42.86	42.0	35.3	-	
NB30	435554	292378	49.96	44.23	44.42	38.48	43.83	34.25	35.89	31.41	47.93	39.93	48.87	45.04	42.0	35.3	-	
NB31	435146	284563	34.48	33.87	31.57	33.35	26.77	25.18	28.62	23.48	33.74	26.85	35.58	29.1	30.2	25.4	-	
NB35	439268	293457		24.76	22.18	21.46	20.72	16.16	15.97	14.7				23.71	20.0	18.5	-	
NB36	435217	285246	44.18	38.15	36.02	29.11	31.16	27.84	26.54	25.22	39.95	32.99	38.39	34.01	33.6	28.2	-	
NB37	435051	291594	38.31	33.98	34.36	37.94	30.36	31.28	31.19	28.91	35.44	30.58	40.45	32.22	33.8	28.4	-	
NB38	437198	290732	35.96	27.05	30.07	25.08	24.36	22.23	22.41	21.85	31.39	28.75	34.93	26.83	27.6	23.2	-	
NB41	435619	287042	37.15	42.11	34.3	37.8	27.83	29.85	27.83	24.71	33.64	26.49	34.81	31.68	32.4	27.2	-	
NB42	435655	287135	36.35	31.64	26.94	22.52	21.19	19.41	22.05	18.82	28.71	25.24	27.5	29	25.8	21.7	-	
NB43	436303	290796	32.68	27.23	25.22	26.16	20.97	21.74	19.16	18.3	24.75	25.03	29.89	22.78	24.5	20.6	-	
NB44	434298	290930	36.75	30.38	31.25	35.25	26.96	24.48	28.16	21.76	32.74	24.42	34.71	29.02	29.7	24.9	-	
NB45	435593	290728	46.2	35.21	35.21	31.69	27.02	24.25	26.75	13.06			37.34	37.3	31.4	26.4	-	
NB46	435135	290583			18.09	18.61	15.4	13.06	14.27	11.96	18.47	17.72	20.7	18.46	16.7	14.0	-	
NB47	435452	290087	25.68	25.84	19.27	18.35	14.71	13.31	12.53	11.83	18.39	17.38	17.63	19.61	17.9	15.0	-	
NB48	435066	290689	29.79	25.73	25.92	22.24	22.18	18.35	20.69	17.26	24.71	24.83	28.39	22.98	23.6	19.8	-	
NB49	435231	285236	37.42	33.01	29.53	29.63	26.45	26.67	25.37	24.12	32.84	31.04	29.97	32	29.8	25.1	-	
NB50	435201	285198	43.21	40.51	34.69		27.1	25.67	24.47	23.12	34.64	33.46	33.21	34.85	32.3	27.1	-	
NB51	435638	292357	34.52	30.65	26.89	22.57	23.01	18.64	21.28	17.81	24.88	21.59	31.21	27.45	25.0	21.0	-	

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 (0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NB52	436147	290868	42.34	36.69	32.97	33.3	30.54	26.84	26.88	24.14	32	29.55	31.61	34.03	31.7	26.7	-	
NB53	434846	284736		36.69	30.7	30.47	26.06	23.04	20.25	19.51		25.42	34.83	30.81	27.8	23.3	-	

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.TG16.

Local bias adjustment factor used.

National bias adjustment factor used.

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

Nuneaton and Bedworth Borough Council confirm that all 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

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 Borough Council During 2021

Nuneaton and Bedworth Borough Council has not identified any new sources relating to air quality within the reporting year of 2021.

Additional Air Quality Works Undertaken by Nuneaton and Bedworth Borough Council During 2021

Other than the update to the Air Quality Action Plan, as already described, and appraisals of planning applications with regards to air quality, there has been no additional specific air quality works undertaken by Nuneaton and Bedworth Borough Council in 2021.

New Developments

Several new developments have either received planning permission, or are currently within the planning system, for example at the pre-application stage. Those included in the table below have been submitted within the reporting period. Of particular relevance to the Midland Road AQMA is application 38512 for a foodstore and petrol filling station. There is ongoing correspondence between the Council and the applicant regarding the detail of the air quality assessment.

Planning app. reference	Site	Number of dwellings	Notes	Planning permission granted
37112	Land off Golf Drive	621	Air Quality assessment conducted June 2020. Housing Allocation HSG9. This site has now been granted outline planning permission.	01/03/2022

Planning app. reference	Site	Number of dwellings	Notes	Planning permission granted
38023	Land rear of Mercers Meadows (Prologis)	Industrial Development	Air quality assessment submitted as part of outline planning application	Not yet determined
38340	Padge Hall Farm, Watling Street	Industrial Development	Air Quality assessment submitted as part of full planning application. The majority of the development site is located in Hinckley and Bosworth Borough Council	Not yet determined
38375	Land off Bedworth Road, Bulkington	83	Air Quality assessments submitted as part of full planning application. Part of housing allocation HSG8.	Not yet determined
38512	Midland Road, Nuneaton	Foodstore and petrol filling station	Air Quality assessment submitted as part of full planning application. The site is partly within Midland Road/Corporation Street AQMA.	Not yet determined
38602	Land west of Higham Lane	700	Air Quality assessment submitted as part of outline planning application	Not yet determined
38702	Bedworth Leisure Centre & land at Miners Welfare park, Coventry Road, Bedworth	New physical activity hub. Existing leisure centre to be demolished	Air Quality assessment submitted as part of full planning application	Not yet determined
38716	Smarts Road, Bedworth	126	Air Quality assessment submitted as part of full planning application	Not yet determined

Planning app. reference	Site	Number of dwellings	Notes	Planning permission granted
38856	Land Coventry Road, Bulkington	149	Air Quality assessment submitted as part of full planning application. Part of housing allocation HSG8.	Not yet determined
37658	Site 51A073 - Ex Co-op buildings and car park, Abbey Street, Nuneaton, Warwickshire, CV11 5BU	Mixed use development	Air Quality assessment submitted as part of Hybrid application	Yes

QA/QC of Diffusion Tube Monitoring

Diffusion tubes throughout 2021 were supplied and analysed by Gradko using the 20% TEA in water preparation method. Gradko 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 January 2019 and March 2021, Gradko scored 100% in three of the seven rounds reported (AR031, AR033 and AR034), 75% in another three rounds (AR030, AR036 and AR040) and 25% in the final round (AR042); two rounds were not reported. With exception to the final round, the percentage score reflects the results deemed to be satisfactory based upon a z-score of $< \pm 2$. Gradko also follows the procedures set out in the Harmonisation Practical Guidance.

All diffusion tube changeovers occurred within two days of the dates of the 2021 Diffusion Tube Monitoring Calendar.

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

Annualisation has been conducted where data capture is $<75\%$ and $>25\%$ in line with LAQM.TG16. Two monitoring sites (NB21 and NB35) have been annualised in Nuneaton and Bedworth in 2021. Further details can be found below.

Table C.2 Diffusion Tube Annualisation

The following table outlines the annualisation factors used for sites NB21 and NB35.

Site ID	Annualisation Factor - Coventry Allesley	Annualisation Factor - Leamington Spa	Annualisation Factor - Burton upon Trent	Annualisation Factor - Leicester	Average Annualisation Factor	Raw Data Annual mean	Annualised Annual Mean	Comments
NB21	0.8	0.9	0.8	0.9	0.9	25.7	22.1	
NB35	1.1	1.1	1.1	1.1	1.1	20.0	22.1	

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 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.TG16 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.

Nuneaton and Bedworth Borough Council diffusion tube monitoring is analysed using the 20% TEA in water method by Gradko. The national bias adjustment factor of 0.84 has therefore been applied to the monitoring data, as derived from the national bias adjustment calculator (spreadsheet version number: 03/22, based on 32 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

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	03/22	0.84
2020	National	06/21	0.81
2019	National	06/20	0.91
2018	National	03/19	0.89
2017	National	03/18	0.94

National Diffusion Tube Bias Adjustment Factor Spreadsheet Spreadsheet Version Number: 03/22

Follow the steps below in the correct order to show the results of relevant co-location studies

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods. Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet. This spreadsheet will be updated every few months. The factors may therefore be subject to change. This should not discourage their immediate use.

The LAQM Support is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AEDDII 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 Analyzes Your Tubes from the Drop-Down List

Step 2: Select a Preparation Method from the Drop-Down List

Step 3: Select a Year from the Drop-Down List

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 shown in blue at the foot of the final column. 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@nuneatonbedworth.gov.uk or 0300 8327953

Analysed By	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (µg/m³)	Automatic Monitor Mean Conc. (µg/m³)	Bias (B)	TUBE Precision	Bias Adjustment Factor (A) (Cm/Dm)
Gradiol	2001 TEA in water	2001	R	Gateshead Council	10	23	39	23.6%	G	0.81
Gradiol	2001 TEA in water	2001	R	Gateshead Council	12	25	32	11.7%	G	0.88
Gradiol	2001 TEA in water	2001	R	Gateshead Council	11	27	35	9.8%	G	0.91
Gradiol	2001 TEA in water	2001	R	Gateshead Council	12	31	25	26.8%	G	0.75
Gradiol	2001 TEA in water	2001	R	Gateshead Council	12	32	34	-4.7%	G	1.04
Gradiol	2001 TEA in water	2001	K3	Maylebene Road Intercomparison	11	53	42	25.0%	G	0.80
Gradiol	2001 TEA in water	2001	R	Monmouthshire County Council	11	35	29	21.8%	G	0.82
Gradiol	2001 TEA in water	2001	R	Belfast City Council	12	25	20	24.3%	G	0.80
Gradiol	2001 TEA in water	2001	UC	Belfast City Council	12	25	20	26.5%	G	0.78
Gradiol	2001 TEA in water	2001	R	Belfast City Council	12	42	35	19.8%	G	0.84
Gradiol	2001 TEA in water	2001	R	Belfast City Council	12	38	27	39.4%	G	0.72
Gradiol	2001 TEA in water	2001	UB	Dudley MBC	12	20	16	36.0%	G	0.74
Gradiol	2001 TEA in water	2001	R	Dudley MBC	12	30	25	4.2%	G	0.96
Gradiol	2001 TEA in water	2001	R	Dudley MBC	12	42	40	5.5%	G	0.95
Gradiol	2001 TEA in water	2001	R	Lambeth	10	31	62	46.8%	G	0.68
Gradiol	2001 TEA in water	2001	R	Lancaster City Council	13	38	32	16.4%	G	0.84
Gradiol	2001 TEA in water	2001	R	Lancaster City Council	13	28	27	4.3%	G	0.95
Gradiol	2001 TEA in water	2001		Overall Factor* (32 studies)					Use	0.84

1 For Casella Strangel/Bureau Veritas (NOT Bureau Veritas Lab) use Gradiol 500; TEA in Acetone
 For Casella SeadQMSSC cells C16/Bureau Veritas Lab/Eurofin/ use Environmental Scientific Group
 From 2011 for Environmental Scientific Group use ESG Glasgow
 From 2011 for Harvell Scientific Services use ESG Didcot
 For 2011 for NCC/STN use ESG Didcot, as name changed not used

NO₂ Fall-off with Distance from the Road

Wherever possible, local authorities should ensure that monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure should be estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website.

No diffusion tube NO₂ monitoring locations within Nuneaton and Bedworth required distance correction during 2021.

Appendix D: Maps of Monitoring Locations and AQMAs

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

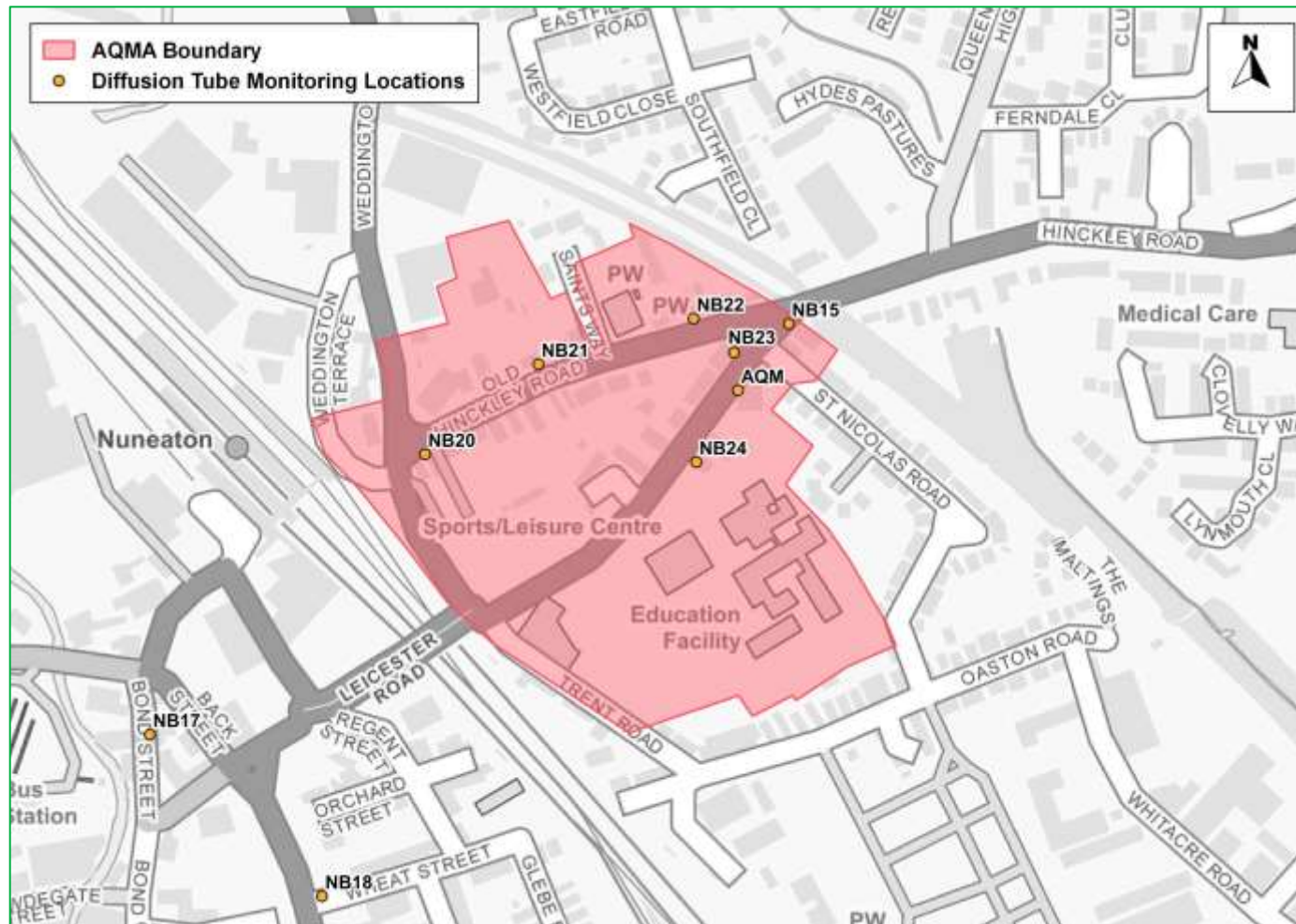


Figure D.2 – Monitoring Locations – Midland Road/Corporation Street AQMA (AQMA 2)

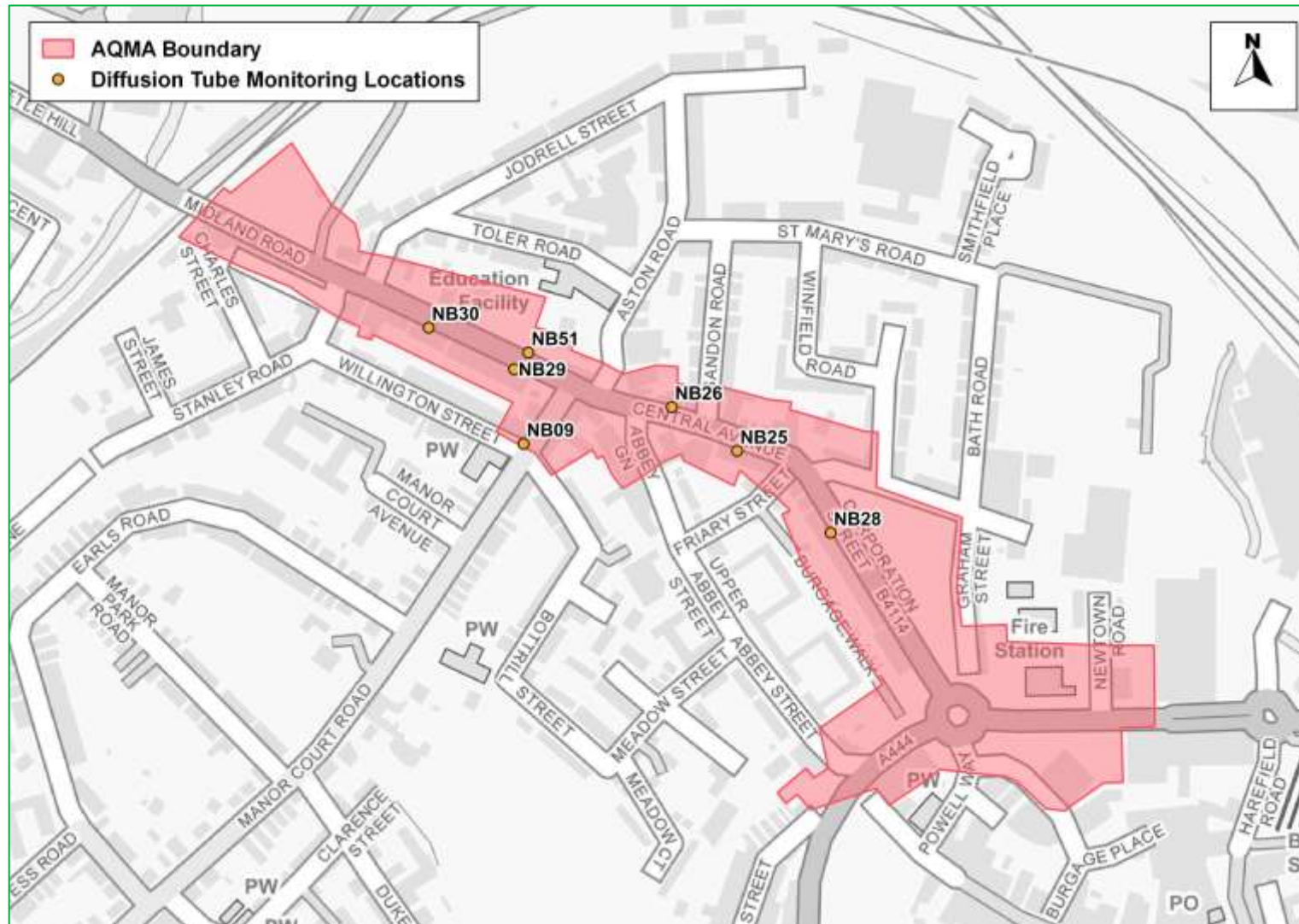


Figure D.3 – Monitoring Locations – South Nuneaton

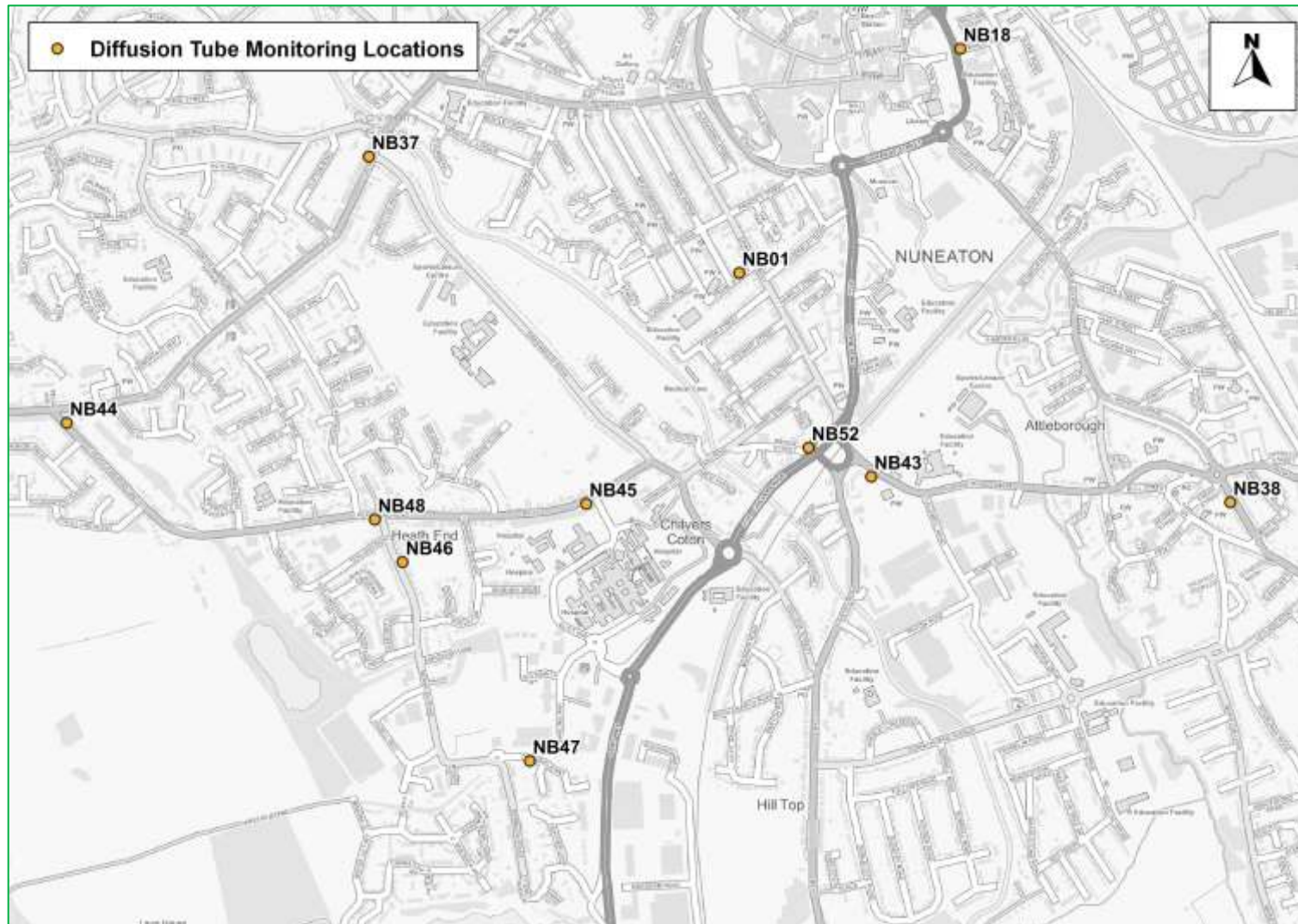


Figure D.4 – Monitoring Location NB35

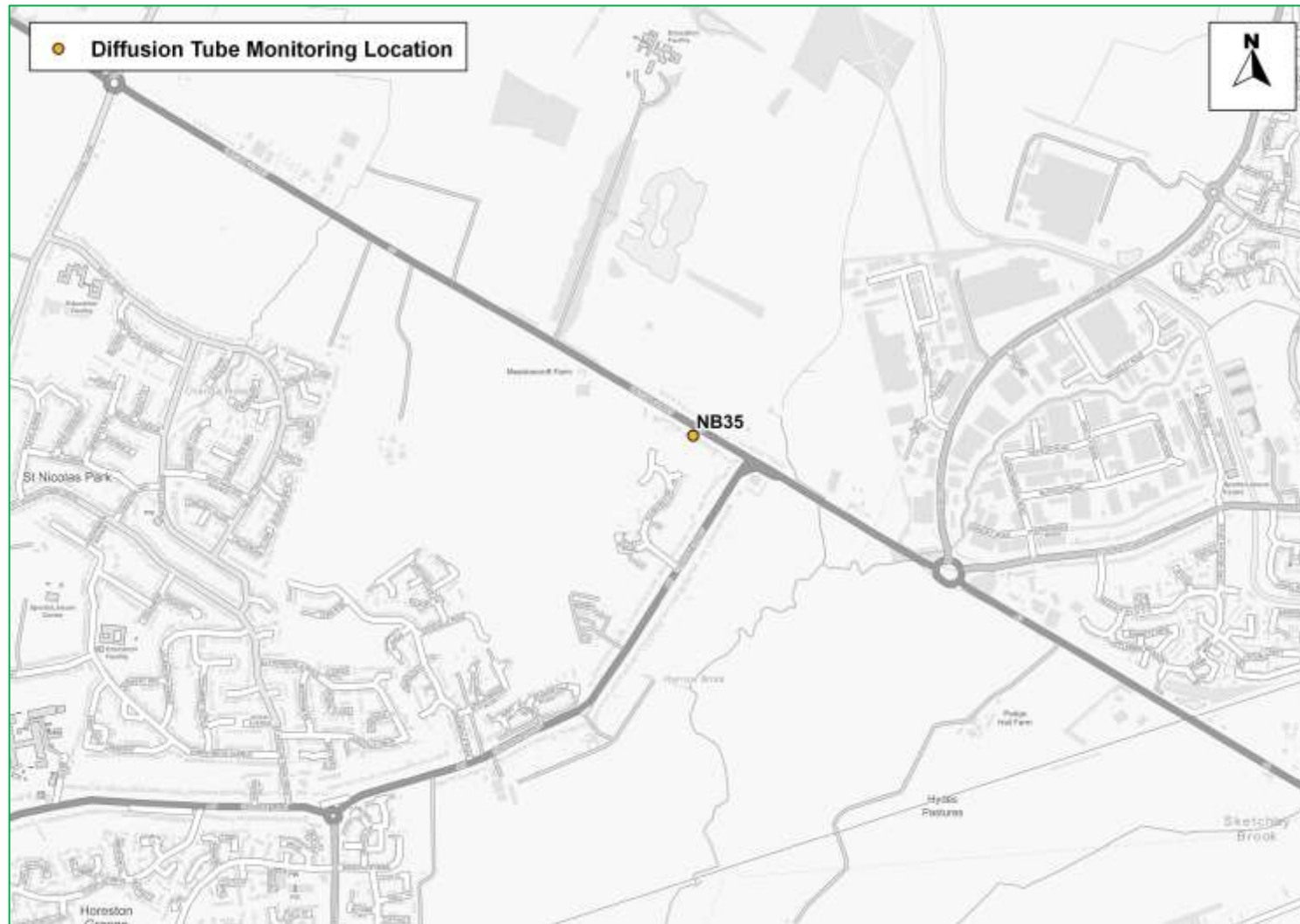
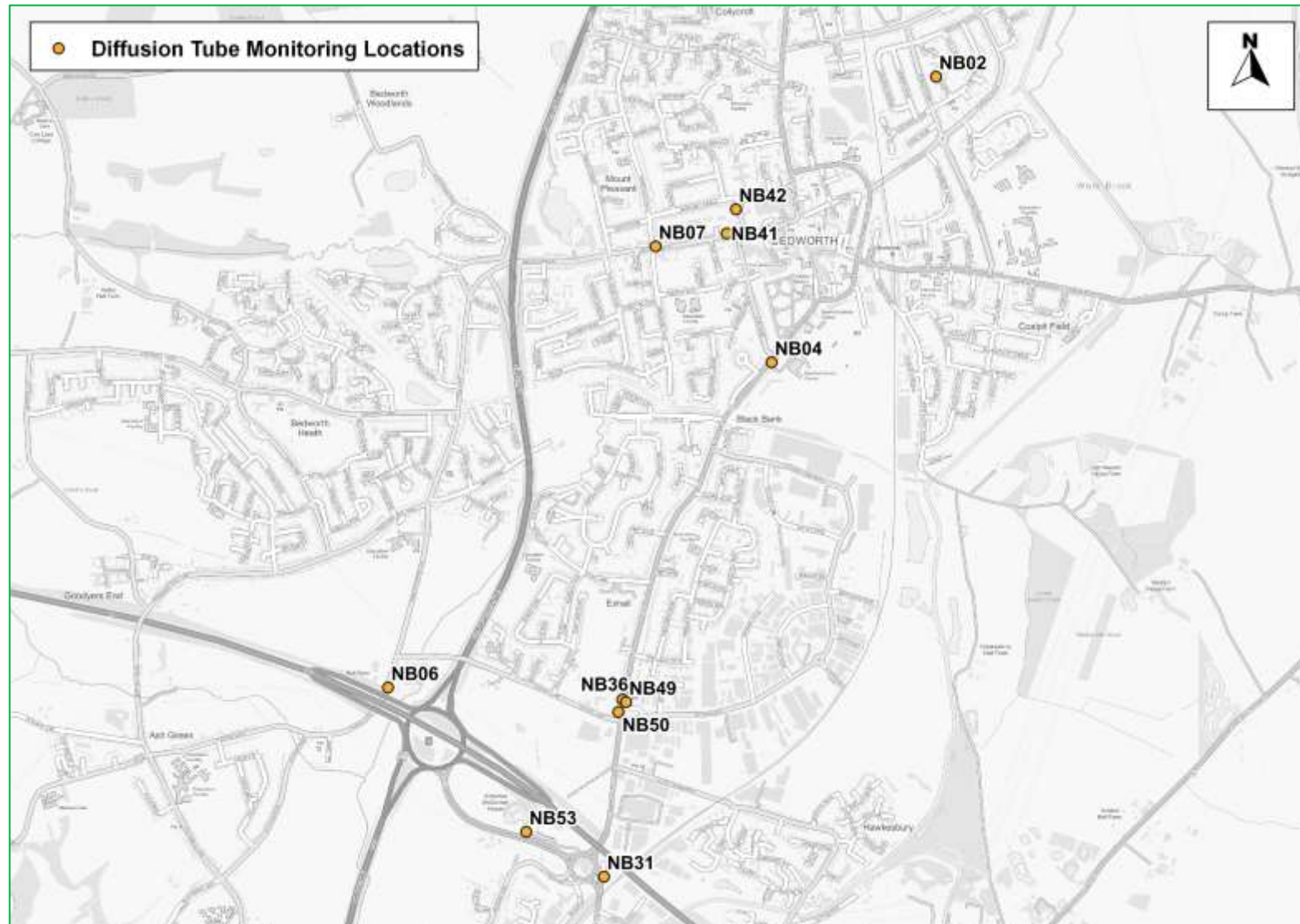


Figure D.5 – Monitoring Locations – Bedworth



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England¹⁰

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

¹⁰ 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
ASR	Annual Status Report
AURN	Automatic Urban and Rural Network
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
EV	Electric Vehicle
LAQM	Local Air Quality Management
NBBC	Nuneaton and Bedworth Borough Council
NHS	National Health Service
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
OLEV	Office for Low Emission Vehicles
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SPD	Supplementary Planning Document
WCC	Warwickshire County Council

References

- Local Air Quality Management Technical Guidance LAQM.TG16. April 2021. 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.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.