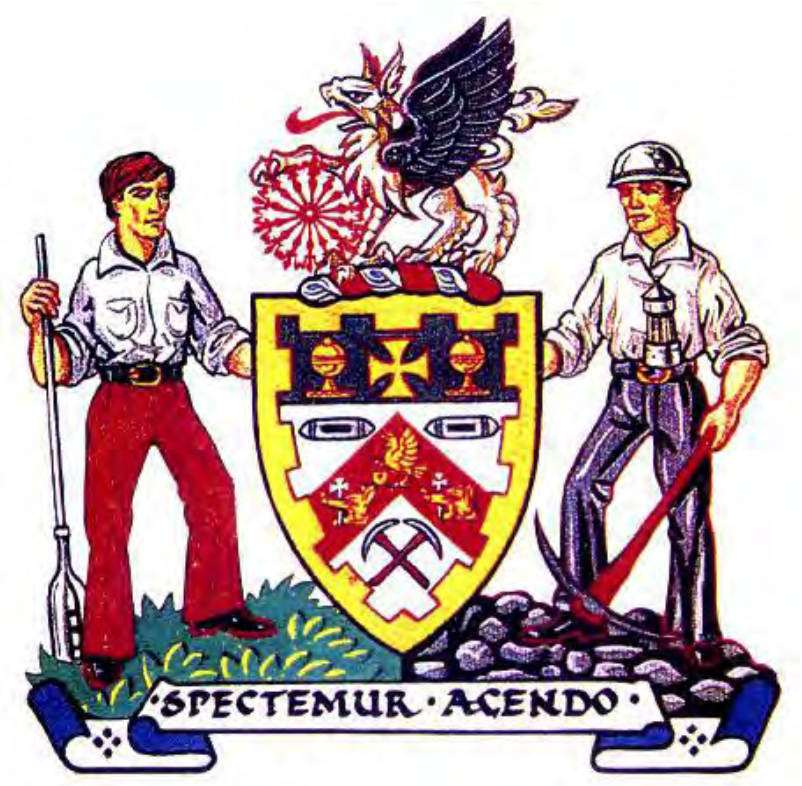

2025 Air Quality Annual Status Report (ASR)

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

Date: July 2025

Information	Barnsley Metropolitan Borough Council Details
Local Authority Officer	Nigel Butterfield
Department	Pollution Control – Regulatory Services
Address	Barnsley MBC, PO Box 634, Barnsley, S70 9GG
Telephone	01226 772456
E-mail	pollutioncontrol@barnsley.gov.uk
Report Reference Number	ED20604117
Date	July 2025

Local Responsibilities and Commitment

This ASR was prepared by Ricardo Energy and Environment on behalf of Barnsley Metropolitan Borough Council with the support and agreement of the following officers and departments:

Nigel Butterfield, Regulatory Services Field Officer – Pollution Control Team

David Romanowski, Regulatory Services Field Officer

This ASR has been signed off by Anna Hartley, Executive Director of Public Health and Communities.

If you have any comments on this ASR, please send them to Nigel Butterfield at:

- Regulatory Services
- PO Box 643
- Barnsley
- S70 9GG
- 01226 772456
- Pollutioncontrol@barnsley.gov.uk

Executive Summary: Air Quality in Our Area

Air Quality in Barnsley Metropolitan Borough Council

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Low-income communities are also disproportionately impacted by poor air quality, exacerbating health and social inequalities.

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

The Barnsley Metropolitan Borough Council area covers 32,853 hectares (127 square miles) and has an estimated population of approximately 244,500.

Barnsley Metropolitan Borough Council's air quality issues are typical of an urban location, with emissions from road transport being a major source of air pollution, and the

underlying reason for the declaration of the five Air Quality Management Areas (AQMAs). Emissions from industrial and domestic sources are still of importance, however, and continue to be subject to the relevant regulation, where appropriate.

Previous assessment of Barnsley Metropolitan Borough Council's air quality revealed an exceedance of the annual average Air Quality Objective (standard) for nitrogen dioxide gas (NO_2) at receptors (mainly houses). Nitrogen dioxide is strongly associated with traffic emissions, and contributes to respiratory symptoms[1]. There have been inter-year fluctuations of NO_2 concentrations, but there is a general downward trend and there have been no exceedances of the Air Quality Objectives in AQMA 1 or 2A over the past five years. As a result of this, the Council aims to explore revocation of AQMA 1 in the near future. These areas are close to several arterial roads and junctions near to Barnsley town centre and close to the M1 motorway. All Barnsley's current AQMAs are summarised in the table below:

AQMA No.	Adjacent Roads / Junctions	Year Declared	Estimated Number of Domestic Dwellings within AQMA
1	M1 Motorway, 100 metres either side of the central reservation within the Barnsley Borough	2001	356
2A	A628 Dodworth Road	2005	291
4	A61 Harborough Hill Road	2008	42
6	A616 passing through Langsett	2012	7
7	Junction of A61 Sheffield and A6133 Cemetery Road	2012	23

Further details of our AQMAs can be found at List of Local Authorities with AQMAs - DEFRA, UK.

The Council has an Air Quality Action Plan (AQAP), published in May 2017 (and updated in 2019) available at the Barnsley Air Quality page[2], which contains measures designed to improve air quality within the AQMAs and within the Council as a whole, as it is important

[1] DEFRA, February 2015 – Getting to grips with air pollution – the latest evidence and techniques – A briefing for Directors of Public Health

[2] Barnsley MBC, 2025 - https://www.barnsley.gov.uk/services/pollution/air-pollution/air-quality/

to continually drive down emissions and reduce air pollution, even below legal standards to protect public health.

Barnsley Metropolitan Borough Council will continue to monitor concentrations in future years, and further monitoring is required in order to continue assessing longer term trends, particularly as traffic flows have levelled following Covid-19. Concentrations of other air pollutants such as PM_{10} particulate matter were not impacted significantly by the Covid-19 lockdowns, due to the greater number of particulate matter sources and the transboundary nature of this pollutant. Barnsley recorded its first year of $PM_{2.5}$ concentrations at the Defra managed Barnsley Gawber site in 2023, which continues to show compliance with UK air quality strategy objectives.

Further details of Barnsley's local air quality, including up-to-date local data and comparison with the Daily Air Quality Index (AQI; which tells us the daily pollution concentrations and their impacts on our health), can be found at our Barnsley Metropolitan Borough Council air quality webpage or the Air Quality in England webpage. The Council believes it is important that Barnsley residents are made aware of the air quality they breathe and how it may impact them.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan[3] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant most harmful to human health. The Air Quality Strategy[4] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

[3] Defra. Environmental Improvement Plan 2023, January 2023, https://www.gov.uk/government/publications/environmental-improvement-plan

[4] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023, https://www.gov.uk/government/publications/the-air-quality-strategy-for-england

The Road to Zero[5] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Key actions taken within Barnsley include:

- Continuing engagement within the South Yorkshire Enhanced Partnership, which targets increased use of public transport through fare alteration, system reliability, and improved user experience.
- Continuing development of Barnsley Intelligent Transport Systems, which involves the installation of intelligent systems (SCOOT / MOVA) within AQMAs. Barnsley Metropolitan Borough Council will continue to investigate the installation of new Intelligent Transport Systems where the opportunity presents, such as new developments and new road schemes.
- Implementation of EV charging points and reserved parking within all car parks operated by Barnsley Metropolitan Council.

Conclusions and Priorities

Barnsley Metropolitan Borough Council's 2025 ASR is an update of the monitoring carried out within the last year and illustrates that there has been a general improvement in air quality across the district over several years, with levels remaining relatively stable from 2021 to 2024.

There were three exceedances of the NO_2 annual mean air quality objective identified across the 64 passive monitoring sites and two automatic monitoring sites. Two of these exceedances occurred within AQMA 4 and the third was at site 53, on Sheffield Road in the town centre. In 2024, NO_2 concentrations slightly decreased overall compared to 2023 concentrations, with the greatest decrease seen at site 50, from 26.3 µg/m^3 in 2023 to 23.1 µg/m^3 in 2024. The greatest increase was seen at site 49, from 29.4 µg/m^3 in 2023 to 32.0 µg/m^3 in 2024.

[5] DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018, https://assets.publishing.service.gov.uk/media/5b968e3ee5274a13859deed2/road-to-zero.pdf

The annual mean NO_2 concentration did not exceed 60 µg/m^3 at any monitoring locations during 2024, which indicates that an exceedance of the 1-hour mean objective (200 µg/m^3) is unlikely at these sites.

Barnsley Metropolitan Borough Council's priorities for the coming year are:

- To explore revocation of AQMA 1.
- Where appropriate, the Council will bid for funding for actions within our AQAP, as and when this funding becomes available.
- Following the successful road closure scheme aimed at improving awareness and air quality around a local school, it is planned that further schemes will be implemented following the same template. This scheme was funded by Defra and was successful as part of a joint air quality grant bid with our partners Doncaster Metropolitan Borough Council and Sheffield City Region. The scheme involved temporary road closures around a local school, along with active travel initiatives, in order to highlight the benefits of cycling and walking.
- To continue to work with developers to minimise the air quality impact of new development, and to ensure that this development takes account of future sustainable transport modes, and in particular refine the Council's requirement of LAQM Annual Status Report 2023 iv Barnsley Metropolitan Borough Council electric vehicle (EV) charge points for new developments in the Borough, in order ensure installation of the most optimum charge point schemes.
- To align the AQAP with the Council's Sustainable Energy Action Plan to ensure that the co-benefits of improved air quality and reductions in carbon emissions in the Borough are maximised.
- Continue monitoring both inside and outside of AQMAs to gauge progress with actions and ensure continued compliance outside of our AQMAs, and assess the continued direct and indirect impact of the pandemic and subsequent recovery on air pollution concentrations.
- To work with Public Health colleagues in order to raise awareness of poor air quality and actions that can be taken to reduce emissions, and develop programmes such as anti-idling and promotion of Clean Air Day.
- To work with nearby local authorities who may be required to implement Clean Air Zones, to understand the impacts these zones may have on Barnsley.

- To re-draft the Action Plan, in light of completion of the previous Action Plan 2016 to 2021 and development of the Council's Sustainable Energy Action Plan. This is currently in progress.

How to get Involved

As part of the ongoing AQMA process, and since publication of the AQAP latest, we welcome continuous suggestions from residents, local business and interest groups in order to improve air quality in the area. We have further met with local and regional organisations and Councils to ensure that we are in touch with local concerns and are better placed to explore potential solutions.

Find out more about your local air quality by:

- Contacting the Air Quality officer at Barnsley (details at the beginning of this report) or through Barnsley MBC's website[6]
- Contact your local Councillor with any concerns.

Consider how and when you use your car, especially at peak times. Consider using public transport where possible for trips into towns and walking or cycling for a non-polluting and healthy alternative.

[6] Barnsley MBC. Air Quality. https://www.barnsley.gov.uk/air-quality

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Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Barnsley Metropolitan Borough Council (MBC) during 2024. 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 Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order 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 Barnsley Metropolitan 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.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (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 Barnsley MBC can be found in Table 2.1. The table presents a description of the five AQMAs that are currently designated within Barnsley MBC. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO_2 annual mean;
- NO_2 1-hour mean (AQMA 6 only)

In February 2022, Barnsley MBC successfully revoked AQMA 5, originally declared in 2008 due to exceeding the NO_2 annual mean Air Quality Objective. The Council is considering and collating the evidence for the revocation of AQMA 1 in future years. AQMA 1 covers parts of the M1 and extends to 100 m either side of the motorway carriageway. The case for revocation is based on monitoring data showing compliance with the Air Quality Objective for NO_2 for several years[7]..

[7] Barnsley MBC previously postponed the revocation process as a proposed “Smart Motorway” was planned for the stretch of M1 passing though the Borough; however, an announcement by the UK Government in April 2023 stated that “plans for new smart motorways will be cancelled in recognition of the current lack of public confidence felt by drivers and cost pressures” and so the Council is revisiting the case

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
No.1	03/10/2001	NO_2 Annual Mean	An area encompassing residential properties one hundred metres either side of the central reservation of the M1 motorway in Barnsley	YES	46.4 µg/m^3	32.3 µg/m^3	5 years	Barnsley MBC Air Quality Action Plan	https://www.barnsley.gov.uk/media/18071/air-quality-action-plan.pdf
No.2A	16/06/2005	NO_2 Annual Mean	Residential properties along Dodworth Road between Junction 37 of the M1 motorway and Town End roundabout, including a portion of Summer Lane.	NO	49.7 µg/m^3	33.1 µg/m^3	5 years	Barnsley MBC Air Quality Action Plan	https://www.barnsley.gov.uk/media/18071/air-quality-action-plan.pdf
No.4	07/07/2008	NO_2 Annual Mean	Residential properties along the uphill carriageway of Harborough Hill Road from the gyratory	NO	58.6 µg/m^3	48.4 µg/m^3	Exceedance	Barnsley MBC Air Quality Action Plan	https://www.barnsley.gov.uk/media/18071/air-quality-action-plan.pdf

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
No.6	30/08/2012 (Amended 27/10/2016 to include NO_2 1-hour mean)	NO_2 Annual Mean NO_2 1 Hour Mean	Residential properties along the A616 Manchester Road in Langsett	YES	77.1 µg/m^3	37.6 µg/m^3	2 years	Barnsley MBC Air Quality Action Plan	https://www.barnsley.gov.uk/media/18071/air-quality-action-plan.pdf
No.7	30/08/2012	NO_2 Annual Mean	Residential properties at the junction of Sheffield Road and the A6133 Cemetery Road	NO	48.5 µg/m^3	34.9 µg/m^3	5 years	Barnsley MBC Air Quality Action Plan	https://www.barnsley.gov.uk/media/18071/air-quality-action-plan.pdf

☒ **Barnsley Metropolitan Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **Barnsley Metropolitan Borough Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Barnsley Metropolitan Borough Council

Unfortunately, due to the late submission of last year's ASR, Barnsley MBC has not received any comments from DEFRA with regards the 2024 ASR, and thus cannot provide a response to any comments received from DEFRA. The report has been approved.

Barnsley MBC has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 11 measures are included within Table 2.2, with the type of measure and the progress Barnsley MBC has made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

Barnsley MBC is currently preparing an updated AQAP, which is in the draft stage at time of writing. The expected publication date for the updated AQAP is in late 2025.

More detail on these measures can be found in their respective Action Plans.

Key completed measures are:

South Yorkshire Enhanced Bus Partnership

The Barnsley Bus partnership was replaced with the South Yorkshire Enhanced Bus Partnership in 2022[8]. Figure 1 shows the South Yorkshire Enhanced Bus Partnership which incorporates a statutory scheme, as opposed to the previous scheme which was a Voluntary Agreement. The plan targets increased use of public transport through fare alteration, system reliability, and improved user experience. Barnsley is continuing to work with the Partnership and corresponding bus companies in order to enhance the fleet. Similarly, Barnsley has encouraged licenced taxi drivers to increase update of EV and hybrid vehicles. Currently, 182 vehicles out of 452 are EVs or hybrids (40%).

[8] South Yorkshire Mayoral Combined Authority. Enhanced Partnership Plan, April 2022, https://www.southyorkshire-ca.gov.uk/getattachment/b396e5dd-eb2a-4e2a-b108-c539b658e996/South-Yorkshire-Enhanced-Partnership-Plan-FINAL.pdf

Figure 1 - South Yorkshire Mayoral Combined Authority Enhanced Partnership Plan

Barnsley Intelligent Transport Systems

This process involved the installation of intelligent systems (SCOOT / MOVA) within AQMAs. Several of our AQMAs now have SCOOT/MOVA installed with performance reviewed. Ongoing maintenance along with minor upgrades when funding allows. Barnsley Metropolitan Borough Council will continue to investigate the installation of new Intelligent Transport Systems where the opportunity presents, such as new developments and new road schemes.

Electric Vehicle Infrastructure

Since the previous ASR, Barnsley reviewed the most suitable locations and technology to facilitate electric vehicle technology. This has resulted in the implementation of EV charging points and reserved parking for electric vehicles in public car parks across the borough. The principal challenges and barriers to implementation that Barnsley MBC anticipates facing are significant resourcing constrains which will hinder monitoring and review of existing and development of new policies to improve air quality.

AQMA 4 is in exceedance at locations that LAQM.TG.22 Box 1.1 does not class as applicable Air Quality Strategy Objectives. As such, concentrations become compliant when corrected for distance between diffusion tube exposure and relevant exposure

(residential buildings). Barnsley MBC anticipates that the measures stated above and in Table 2.2 will achieve compliance in AQMA 4.

Penny Pie Park Road Scheme

The Pennie Pie Park Roais a scheme created in order to improve traffic flow through AQMA 2A with the addition of a through-road to reduce standing traffic.

Key components of the proposed scheme, as detailed in the Statement of Reasons[9], consists of:

- The replacement of the existing signalised junction with an upgrade of the A628 incorporating a one-way signalised gyratory, increasing the number of traffic lanes;
- The realignment and upgrade of links to the A6133 Broadway, Pogmoor Road and to Junction 37 of the M1, increasing capacity of the existing approaches;
- The construction of a new attenuated highway drainage system;
- The construction of new controlled toucan crossing points at all the junction interfaces, to improve access and safety for both pedestrians and cyclists;
- The relocation and upgrade of the existing play areas and the inclusion of extensive hard and soft landscaping.

[9] Statement of reasons for the order - Penny Pie Park

Figure 2 – location of Penny Pie Park traffic congestion easing scheme, with automatic monitoring station (bottom right)

Table 2.2 – Progress on Measures to Improve Air Quality

No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
2	South Yorkshire Enhanced Bus Partnership	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2022	Ongoing	LA Transport department and private company	South Yorkshire Mayoral Combined Authority (SYMCA)	Funded		Completed		A cap on daily and weekly fares, free travel for under 18s. A faster, more reliable and punctual system. A better bus experience. A new zero emission bus fleet.	Ongoing support of the partnership Cabinet approved free bus travel for students.	Estimated funding cost due to funding from private source.
3	Encourage uptake of lower emission vehicles and alternative fuels	Promoting low emission transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019	2025	Growth and sustainability, Local Authority Housing and Energy departments	Joint funding from office for zero emissions vehicles (OZEV) grant award, On-street Residential Charge point Scheme (ORCS), South Yorkshire Mayoral Combined Authority (SYMCA), BMBC Funding	Funded	£100k - £500k	Implementation		Date of completion	Electric vehicle charging points to charge up to 30 vehicles at the same time have been installed at Barnsley Council's Smithies Depot, Rapid chargers are now available within the town centre. Barnsley's sustainability and Climate Change Team is working with SYMBCA on a regional EV strategy due for completion by the end of 2023 and will be followed by a policy for Barnsley in 2024. Barnsley's Licenced Taxi fleet is 40% hybrid or full EV (182 out of 452). Barnsley continues to encourage further uptake of EV/ Hybrid vehicles.	Up to £275,384.98 funding, from South Yorkshire Mayoral Combined Authority (SYMCA), £100k from ORCS. Barnsley falls below current average UK provision for number of EV chargers per 100,000 people. The sale of new diesel and petrol engine vehicles will be banned in the UK from 2030 and residents will increasingly need to adapt to electric vehicles. The Council will need to ensure that adequate infrastructure is available to support residents to make the transition to electric vehicles.
9	BMBC Fleet Improvements	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2016	2025	Local Authority Fleet Operations department	BMBC	Funded	£1 million - £10 million	Implementation		Number of electric vehicles purchased (minimum of 30)	39 fully electric vehicles, which amount to 18 percent of the Council fleet. Three vehicles are also hybrids	
1	Carriageway improvements	Traffic Management	UTC, Congestion management, traffic reduction	2018	2027	Local Authority Highways and Major Projects departments	South Yorkshire Mayoral Combined Authority (SYMCA)	Funded		Implementation		Date of completion	Commencement of construction on the scheme	None
4	Planning applications – air quality mitigation and assessment	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2015	2031	Local Authority Environmental Health and Planning departments	BMBC	Funded	£10k – 50k	Implementation		Number of planning applications where AQ actions have been agreed / conditioned / recommended	17 planning applications in 2016 where AQ actions have been agreed / conditioned / recommended. 35 in 2017, 40 in 2018, 43 in 2019, 213 in 2020.	This action will be ongoing as BMBC guidance and planning documents are continually refined
5	Control over emissions from Part B and A2 processes, and act as consultees for Part A1 processes	Other	Other	2012	2032	Local Authority Environmental Health department	BMBC	Funded	£10k - 50k	Implementation		N/A	Ongoing	The Environmental Bill did not have any implication for Part B and A2 processes.
6	Enforcement of Clean Air Act with regards to industrial smoke	Other	Other	2012	2032	Local Authority Environmental Health department	BMBC	Funded	£10k - 50k	Implementation		N/A	Cabinet has approved the ongoing enforcement of the Clean Air Act.	
7	Enforcement of Clean Air Act with regards to	Other	Other	2012	2033	Local Authority Environmental Health department	BMBC	Funded	£10k - 50k	Implementation		N/A	Ongoing	Schedule 12 of the Environmental Bill amends the Clean Air Act 1993 to allow local authorities to impose financial penalties in smoke control areas. The

No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	domestic smoke													existing criminal offence of emitting smoke from a chimney in a Smoke Control Area is replaced with a civil penalty regime.
8	Investigation of nuisance complaints, including appropriate action to resolve the complaint	Other	Other	2012	2033	Local Authority Environmental Health department	BMBC	Funded	£10k - 50k	Implementation		N/A	Ongoing	The use of Abatement Enforcement Notices (Under the Environmental Protection Act 1990) and Community Protection Warning / Notices (ASB, Crime and Policing Act 2014) will be utilised to help tackle antisocial burning
11	Encourage cycling and walking (developing infrastructure and campaigns)	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2022	2040	Local Authority Highways department	South Yorkshire Mayoral Combined Authority (SYMCA)	Funded	> £10 million	Planning		Completion of schemes	Successful Sheffield City Region bid for £166 million. Barnsley to submit and implement schemes to this funding with schemes completed by March 2023. River Dearne long route (RDLR) scheme is part of the South Yorkshire Mayoral Combined Authority's Transforming Cities fund. The RDLR will improve active travel routes within the Dearne valley Park area between Harborough Hill Road, Pontefract Road, and Grange Lane. Where possible, the existing route will be widened to a four-metre shared use foot and cycle way.	One scheme is designed to enhance walking and cycling routes to retail estates located close to AQMA 4. Promotion of Active Travel as part of Clean Air Day. A number of schemes which will help give people more choices to travel without relying on their cars, so we can all work towards a health more sustainable Barnsley and meet our target of a net zero carbon Barnsley by 2045.
12	Assessment of air quality impact of major traffic schemes	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	2032	Local Authority Environmental Health department	BMBC	Funded	< £10k	Implementation		Assessment of air quality impact of major road schemes with allotted timescale	Assessments completed to allotted timescales	Ongoing subject to future road schemes

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[10], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter ($PM_{2.5}$)). There is clear evidence that $PM_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Barnsley MBC is taking the following measures to address $PM_{2.5}$:

Reducing emissions of $PM_{2.5}$ has been addressed within Barnsley MBC's Air Quality Action Plan (AQAP) revised in 2019. AQAP Appendix G includes further evaluation of actions, including an assessment of actions with regard to their effect of reducing $PM_{2.5}$ concentrations, in accordance with Table A.1 of LAQM TG (22), Action Plan Toolbox[11]. The assessment concludes that all of the actions within the Plan will assist in reducing $PM_{2.5}$ concentrations, including those actions in the Plan which deal with industrial and domestic emissions, particularly actions five to eight which specifically target domestic and industrial $PM_{2.5}$ emissions. These actions are becoming increasingly important in reducing $PM_{2.5}$ emissions as domestic emissions have recently been identified as a significant source of $PM_{2.5}$ within the recently published Clean Air Strategy. The entire Barnsley borough is covered by smoke control orders.

The Clean Air Strategy, published in 2019, demonstrated further commitment to reducing $PM_{2.5}$ concentrations, particularly domestic emissions. The 2021 Environment Act updated targets for $PM_{2.5}$ and Barnsley MBC will use the measures indicated, as well as any other required measures, to ensure that these targets are met.

The Public Health Outcomes Framework (PHOF) is a Department of Health data tool for England, intended to focus public health action on increasing healthy life expectancy and reducing differences in life expectancy between communities. The PHOF includes an

[10] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

[11] Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland

indicator, D01, which is the fraction of mortality attributable to particulate air pollution. The most recent result in 2023 for Barnsley, is 5.2. The average value for England is 5.2, and so Barnsley matches the national average D01.[12]

[12] Public Health Outcomes Framework - Data | Fingertips | Department of Health and Social Care (Accessed May 2025)

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

This section sets out the monitoring undertaken within 2024 by Barnsley MBC and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2020 and 2024 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Barnsley MBC undertook automatic (continuous) monitoring at three sites during 2024. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The Air Quality England webpage presents automatic monitoring results for Barnsley MBC, with automatic monitoring results also available through the UK-Air website.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Barnsley MBC undertook non-automatic (i.e. passive) monitoring of NO_2 at 64 sites during 2024. Table A.2 in Appendix A presents the details of the non-automatic sites.

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.

Barnsley MBC has changed the Diffusion Tube IDs for a number of sites for 2024. For these sites there has been no change in location or diffusion tube placement. The following changes have been made:

- 70 is now 10
- 71 is now 19

- 72 is now 28
- 73 is now 30
- 74 is now 45
- 75 is now 51
- 76 is now 56

Site 32 has been decommissioned, and the ID has been allocated to a new site in Royston. Site 33 is new for the 2024 monitoring period.

3.2 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.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2024 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Exceedances were identified at three diffusion tube locations in 2024: diffusion tube 41, 43 and 53. Locations 41 and 43 have been in exceedance for the past five years, and location 53 has been in exceedance 4 out of the last 5 years. At location 41, a decrease of 0.2 µg/m^3 was observed from 2023 to 2024, and at location 43 an increase of 0.4 µg/m^3 was

observed in the same period. Both locations 41 and 43 sit within AQMA 4 and are being managed with the AQAP published in 2019.

Location 53 showed an exceedance occurring in every year of monitoring outside of 2020, and there was a decrease of 0.4 µg/m^3 from 2023 to 2024. This location will continue to be monitored by the local authority to assess the situation.

Across the local authority, measured results are relatively stable with minor increases and decreases being observed, which can generally be attributed to changing traffic flows and meteorological impacts, on the most part, decreases were observed. The most significant decreases were seen at sites 50, 10, 58 and 54. These sites decreased by 3.2 µg/m^3, 2.9 µg/m^3, 2.9 µg/m^3 and 2.7 µg/m^3, respectively.

The most significant increases were seen at sites 49 and 23. These sites increased by 2.6 µg/m^3 and 2.2 µg/m^3, respectively.

Sites within AQMA 1 have been compliant for five years and Barnsley MBC has plans to apply for revocation of this AQMA due to long term compliance. No site within the local authority has exceeded 60 µg/m^3 during 2022, indicating that an exceedance of the 1-hour mean objective is unlikely to have occurred at any site.

3.2.2 Particulate Matter (PM$_{10}$)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM$_{10}$ annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Automatic monitoring of PM$_{10}$ annual mean displayed a mean consistently below the 40 µg/m^3 objective for the past five years.

Table A.7 in Appendix A compares the ratified continuous monitored PM$_{10}$ daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

Automatic monitoring of PM$_{10}$ 24 hour mean shows that the 24 hour mean has not exceeded the objective more than 35 times each year for the past five years, with the number of exceedances each year remaining well below levels indicated by the Air Quality Objectives.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

Monitoring of $PM_{2.5}$ started in 2023 and a concentration of 7 µg/m^3 was recorded at an Urban Background site, this increased slightly to 7.1 µg/m^3 in 2024.

3.2.4 Sulphur Dioxide (SO_2)

Table A.9 in Appendix A compares the ratified continuous monitored SO_2 concentrations for 2024 with the air quality objectives for SO_2.

No exceedances of the 15-minute mean, 1-hour mean, and 24-hour mean occurred in 2024 at the one automatic monitoring location.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? (1)	Monitoring Technique	Distance to Relevant Exposure (m) (2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
BAR9	Barnsley A635, Kendray Roadside	Roadside	436298	405691	PM_{10}	No	N/A	Beta Attenuation	N/A	5.0	1.5
BAR11	Barnsley A626 Roadside 2	Roadside	432584	406085	NO_2	Yes	AQMA 2A	Chemiluminescent	N/A	7.0	1.8
BAR3	Barnsley Gawber	Urban Background	432525	407475	NO_2, PM_{10}, $PM_{2.5}$	No	N/A	Chemiluminescent, UV Fluorescence, UV Absorption	N/A	N/A	4.0 (estimated)

Notes:

(1) N/A if not applicable

(2) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

Table A.2 – 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)
1	Midhopestones Eastbound	Roadside	423621	399817	NO_2	No	3.0	2.5	No	2.9
2	Langsett, Stanley Cottages	Roadside	421102	400496	NO_2	Yes, AQMA 6	0.0	1.5	No	3.0
3	Footpath Sign, School House, Langsett	Roadside	421143	400481	NO_2	Yes, AQMA 6	0.0	3.5	No	1.9
4	Langsett, School House	Roadside	421126	400485	NO_2	Yes, AQMA 6	0.0	2.0	No	2.8
5	Langsett, Café	Roadside	421291	400482	NO_2	Yes, AQMA 6	0.0	2.0	No	2.9
6	Langsett, Wagon and Horses	Roadside	421282	400471	NO_2	Yes, AQMA 6	0.0	3.0	No	2.6
7	Gilbert Hill - Langsett	Roadside	421117	400501	NO_2	Yes, AQMA 6	7.5	2.5	No	2.6
8	Langsett - Footpath Sign Bus Stop	Roadside	421215	400475	NO_2	Yes, AQMA 6	2.0	2.0	No	2.1
9	Claycliffe Road / Barugh Lane	Kerbside	431482	408572	NO_2	No	0.0	1.5	No	2.8
10	60 Gawber Road, Gawber (70)	Roadside	433563	406982	NO_2	No	0.0	0.0	No	2.6
11	23 Dodworth Road	Roadside	434000	406292	NO_2	Yes, AQMA 2A	0.0	0.0	No	2.7
12	53 Dodworth Road	Roadside	433910	406290	NO_2	Yes, AQMA 2A	0.0	0.0	No	2.8

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)
13	Traffic Lights Dodworth Road	Roadside	433820	406278	NO_2	Yes, AQMA 2A	2.5	2.5	No	2.9
14	Dodworth Road - SE of Cross Roads	Roadside	432702	406160	NO_2	Yes, AQMA 2A	13.0	3.0	No	2.7
15, 16, 17	Pogmoor Crossroads	Roadside	432674	406180	NO_2	Yes, AQMA 2A	0.0	7.0	Yes	1.7
18	Pogmoor Road CCTV Pole Opp Apartments	Roadside	432603	406312	NO_2	No	0.0	5.3	No	2.8
19	67 Gawber Road, Gawber (71)	Roadside	433351	407074	NO_2	No	0.0	0.0	No	2.8
20	Dodworth Road - Outbound - LC 54	Roadside	432535	406071	NO_2	Yes, AQMA 2A	7.5	1.5	No	3.0
21	305 Dodworth Road	Roadside	432402	406013	NO_2	Yes, AQMA 2A	8.0	3.0	No	2.9
22	315 Dodworth Rd, Pogmoor	Kerbside	432351	405985	NO_2	Yes, AQMA 2A	11.5	2.5	No	2.9
23	329 Dodworth Rd, Pogmoor	Roadside	432262	405950	NO_2	Yes, AQMA 1	8.0	2.0	No	3.0
24	Cross Keys, Hoyland	Kerbside	435274	400384	NO_2	No	6.5	1.0	No	2.8
25	25 Sheffield Road, Birdwell	Roadside	434832	400405	NO_2	No	3.0	1.5	No	2.9
26	20 Sheffield Road, Birdwell	Roadside	434820	400421	NO_2	No	3.0	1.5	No	2.8

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)
27	Aetherius Temple, Birdwell	Roadside	434823	400398	NO_2	No	0.0	0.0	No	2.9
28	LC 9, 2 Pogmoor Road, Gawber (72)	Roadside	433299	406873	NO_2	No	0.0	0.0	No	2.7
29	5, Moor Lane, Birdwell	Urban Background	434721	400352	NO_2	Yes, AQMA 1	0.0	0.0	No	2.7
30	Don Villas, Barnsley Road, Penistone (73)	Roadside	424388	403694	NO_2	No	0.0	0.0	No	2.7
31	Sheffield Rd, Birdwell - LC 32	Roadside	434595	401107	NO_2	No	0.0	1.7	No	3.0
32	12 High Street, Royston	Roadside	436150	411395	NO_2	No	0.0	0.0	No	2.5
33	Cherry Cakes, Midland Road, Royston	Roadside	436198	411469	NO_2	No	0.0	0.0	No	2.9
34	Wakefield Road / Carlton Road	Roadside	435011	408281	NO_2	No	7.0	2.0	No	3.5
35	Wakefield Road - South of Carlton Road	Roadside	435027	408190	NO_2	No	0.0	0.0	No	2.8
36	Wakefield Road / Smithies Lane (North)	Roadside	435027	408104	NO_2	No	6.5	2.0	No	2.7
37	Wakefield Rd – app. Burton Rd junc.	Roadside	435174	407499	NO_2	No	5.8	1.7	No	2.8

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)
38	Old Mill Lane / Honeywell Street	Kerbside	434757	406995	NO_2	No	3.0	0.3	No	2.8
39	Burton Road – app Rotherham Rd junc.	Kerbside	436072	407320	NO_2	No	2.5	0.5	No	2.7
40	Grange Lane, near to Cundy Cross junc.	Roadside	437122	406557	NO_2	No	6.0	1.4	No	2.8
41	49 Harborough Hill Road	Roadside	434933	406695	NO_2	Yes, AQMA 4	8.0	2.0	No	2.7
42	11 Eldon Street North	Roadside	434733	406774	NO_2	No	4.0	0.5	No	2.7
43	Harborough Hills Road – near to bakery	Roadside	434955	406769	NO_2	Yes, AQMA 4	5.0	2.0	No	2.9
44	119 Harborough Hills	Roadside	435049	407047	NO_2	Yes, AQMA 4	0.0	0.0	No	2.9
45	Junc Dodworth Road/Shaw Lane (74)	Roadside	433431	406272	NO_2	Yes, AQMA 2A	8.1	1.8	No	2.7
46	Tesco, Wwell Lane	Kerbside	437554	405291	NO_2	No	4.0	0.7	No	3.2
47	Sheffield Road / Park Road Xrds	Roadside	434958	405672	NO_2	No	0.0	0.0	No	2.8
48	Sheffield Road / Cemetery Road Xrds	Roadside	434964	405709	NO_2	Yes, AQMA 7	1.5	2.0	No	2.7
49	Doncaster Road, Ardsley	Kerbside	437528	405675	NO_2	No	3.9	0.5	No	2.8

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)
50	Carlton Road (W'fd Road junction) uphill	Roadside	435062	408244	NO_2	No	5.5	1.5	No	2.8
51	Hoyland Common Primary School (75)	Roadside	435481	400222	NO_2	No	6.0	1.4	No	2.8
52	Wakefield Road / Bar Lane junction	Roadside	434112	409625	NO_2	No	2.8	1.6	No	2.7
53	Sheffield Road, town centre	Roadside	434809	406023	NO_2	No	2.5	0.3	No	2.7
54	LC8 Bridge Street, Penistone (76)	Roadside	424424	403587	NO_2	No	0.0	15.0	No	2.5
55	Wombwell Lane, adj. Keel Inn	Roadside	437367	405458	NO_2	No	2.4	1.6	No	1.2
56	10 Thurlstone Road, Penistone (77)	Roadside	424313	403645	NO_2	No	0.0	12.0	No	2.8
57	Grange Lane, Stairfoot, northbound	Roadside	437242	405772	NO_2	No	1.5	1.5	No	3.0
58	Grange Lane, Stairfoot, southbound	Roadside	437250	405813	NO_2	No	2.3	2.3	No	2.9
59	Entrance to Horizon, sign	Roadside	432882	406259	NO_2	Yes, AQMA 2A	52.0	3.0	No	2.9
60	LC41, opp Horizon Entrance	Roadside	432817	406244	NO_2	Yes, AQMA 2A	90.0	3.0	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)
61	LC16, Sheffield Road	Roadside	434780	406055	NO_2	No	40.0	1.5	No	3.1
62	LC22, Quarry St/Sheffield Rd	Roadside	434855	405957	NO_2	No	5.1	1.4	No	3.0
63	LC35, Sheffield Road	Roadside	434912	405817	NO_2	No	0.0	4.6	No	2.9
64	LC32, Sheffield Road	Roadside	434931	405781	NO_2	No	12.0	4.6	No	3.2

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.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
BAR11	432584	406085	Roadside	98.4	98.4	-	24	19	16	16.6
BAR3	432525	407475	Urban Background	97.4	97.4	12	13	13	12	11.1

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

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

☒ **Where exceedances of the NO_2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for.**

Notes:

The annual mean concentrations are presented as µg/m^3.

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

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%).

Table A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

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 2024 (%) (2)	2020	2021	2022	2023	2024
1	423621	399817	Roadside	100.0	100.0	18.1	19.3	19.7	19.8	18.8
2	421102	400496	Roadside	100.0	100.0	23.5	23.5	26.8	25.7	24.9
3	421143	400481	Roadside	100.0	100.0	31.2	34.4	37.2	37.3	36.1
4	421126	400485	Roadside	100.0	100.0	31.5	34.8	37.5	35.1	33.5
5	421291	400482	Roadside	92.5	92.5	21.1	22.5	24.7	23.7	22.2
6	421282	400471	Roadside	100.0	100.0	24.2	27.7	26.7	27.1	25.9
7	421117	400501	Roadside	100.0	100.0	18.6	18.8	21.7	20.8	19.7
8	421215	400475	Roadside	100.0	100.0	36.2	36.3	**40.2**	36.6	37.6
9	431482	408572	Kerbside	100.0	100.0	19.2	20.0	21.2	20.5	20.3
10	433563	406982	Roadside	100.0	100.0	-	-	-	20.7	17.8
11	434000	406292	Roadside	100.0	100.0	26.5	29.1	28.2	30.7	30.0
12	433910	406290	Roadside	100.0	100.0	25.3	29.0	29.7	29.9	29.7

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 2024 (%) (2)	2020	2021	2022	2023	2024
13	433820	406278	Roadside	92.5	92.5	29.3	31.8	31.6	32.7	31.4
14	432702	406160	Roadside	100.0	100.0	26.6	29.7	26.3	26.2	25.3
15, 16, 17	432674	406180	Roadside	100.0	100.0	24.6	26.6	19.3	18.6	18.3
18	432603	406312	Roadside	90.6	90.6	16.2	17.3	17.3	17.1	16.2
19	433351	407074	Roadside	90.6	90.6	-	-	-	19.5	20.4
20	432535	406071	Roadside	100.0	100.0	29.3	31.0	29.7	30.0	29.1
21	432402	406013	Roadside	100.0	100.0	29.5	31.8	32.8	32.2	31.2
22	432351	405985	Kerbside	100.0	100.0	32.6	34.6	35.8	35.6	33.1
23	432262	405950	Roadside	100.0	100.0	28.9	31.5	31.6	30.1	32.3
24	435274	400384	Kerbside	100.0	100.0	20.6	24.4	23.1	20.8	19.8
25	434832	400405	Roadside	100.0	100.0	26.0	32.4	27.8	27.3	25.5
26	434820	400421	Roadside	90.6	90.6	25.7	32.5	29.1	28.7	28.1
27	434823	400398	Roadside	100.0	100.0	23.9	27.4	27.8	25.1	23.9

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 2024 (%) (2)	2020	2021	2022	2023	2024
28	433299	406873	Roadside	92.5	92.5	-	-	-	20.9	22.2
29	434721	400352	Urban Background	90.6	90.6	17.8	19.0	20.3	18.7	18.5
30	424388	403694	Roadside	92.5	92.5	-	-	-	18.6	16.1
31	434595	401107	Roadside	100.0	100.0	19.1	21.7	21.5	19.9	18.4
32 (old)(3)	434559	401274	Roadside	N/A	N/A	23.0	24.7	25.9	23.3	-
32 (new)(3)	436150	411395	Roadside	100.0	100.0	-	-	-	-	17.2
33	436198	411469	Roadside	100.0	92.5	-	-	-	-	30.1
34	435011	408281	Roadside	100.0	100.0	21.6	24.3	23.8	24.0	24.2
35	435027	408190	Roadside	100.0	100.0	25.7	28.9	26.6	25.9	26.4
36	435027	408104	Roadside	100.0	100.0	27.4	31.7	31.3	29.4	29.7
37	435174	407499	Roadside	100.0	100.0	21.0	23.7	23.0	21.8	22.7
38	434757	406995	Kerbside	100.0	100.0	24.7	29.5	29.5	28.2	26.5
39	436072	407320	Kerbside	100.0	100.0	28.9	34.8	32.6	31.9	30.4

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 2024 (%) (2)	2020	2021	2022	2023	2024
40	437122	406557	Roadside	100.0	100.0	30.0	35.4	33.1	31.4	31.3
41	434933	406695	Roadside	100.0	100.0	**42.4**	**51.3**	**49.7**	**48.4**	**48.2**
42	434733	406774	Roadside	90.6	90.6	21.9	28.2	29.6	28.2	27.2
43	434955	406769	Roadside	82.6	82.6	**41.4**	**47.9**	**50.1**	**48.0**	**48.4**
44	435049	407047	Roadside	100.0	100.0	27.4	30.3	32.8	30.8	31.1
45	433431	406272	Roadside	92.5	92.5	-	-	-	22.5	22.1
46	437554	405291	Kerbside	100.0	100.0	29.0	29.4	33.1	30.3	31.3
47	434958	405672	Roadside	100.0	100.0	22.5	24.9	26.6	24.4	23.8
48	434964	405709	Roadside	100.0	100.0	32.1	33.6	36.9	35.8	34.9
49	437528	405675	Kerbside	100.0	100.0	30.2	31.2	33.9	29.4	32.0
50	435062	408244	Roadside	100.0	100.0	25.0	27.1	27.9	26.3	23.1
51	435481	400222	Roadside	75.6	75.6	-	-	-	19.4	19.9
52	434112	409625	Roadside	100.0	100.0	24.3	25.0	26.3	25.5	24.7

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 2024 (%) (2)	2020	2021	2022	2023	2024
53	434809	406023	Roadside	100.0	100.0	38.6	**45.0**	**43.6**	**44.4**	**44.0**
54	424424	403587	Roadside	63.8	63.8	-	-	-	12.7	9.8
55	437367	405458	Roadside	100.0	100.0	27.0	30.2	30.1	28.3	29.2
56	424313	403645	Roadside	90.6	90.6	-	-	-	14.4	14.0
57	437242	405772	Roadside	90.6	90.6	29.1	27.9	31.7	28.8	27.9
58	437250	405813	Roadside	90.6	90.6	26.1	26.6	27.3	25.6	22.7
59	432882	406259	Roadside	100.0	100.0	-	22.2	20.1	18.9	18.0
60	432817	406244	Roadside	68.1	68.1	-	23.0	19.2	19.0	17.2
61	434780	406055	Roadside	90.6	90.6	-	38.9	36.7	36.1	34.3
62	434855	405957	Roadside	90.6	90.6	-	**42.6**	39.1	36.3	37.4
63	434912	405817	Roadside	83.1	83.1	-	24.2	25.4	24.2	22.4
64	434931	405781	Roadside	90.6	90.6	-	26.4	26.4	23.5	23.0

☒ **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:

The annual mean concentrations are presented as µg/m^3.

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

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

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) Diffusion tube 32 has been removed and relocated. Data for the previous monitoring site is presented as 32 (old), and the new site is presented as 32 (new)

Figure A.1 – Trends in Annual Mean NO_2 Concentrations in AQMA 1

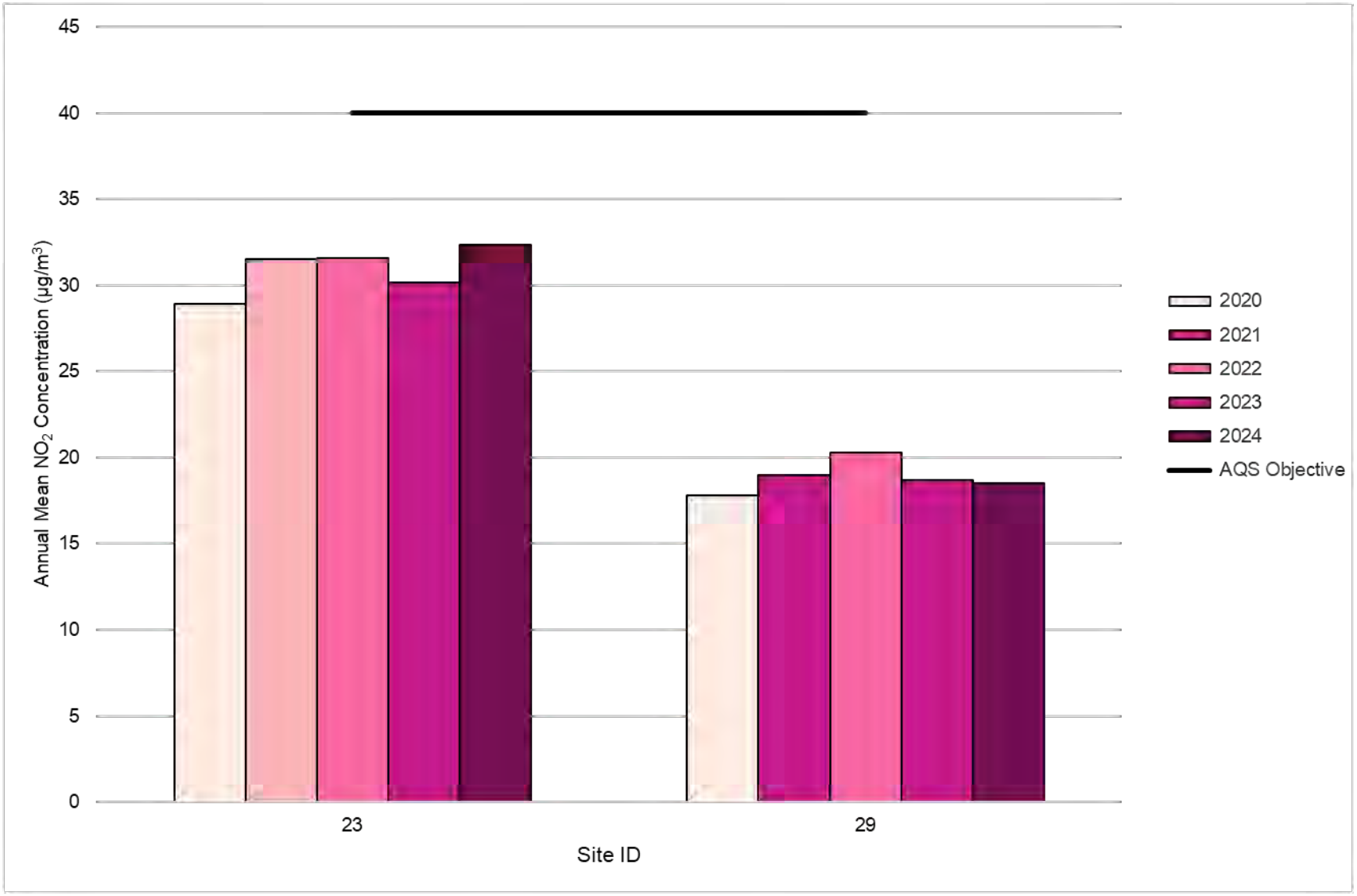

Figure A.2 – Trends in Annual Mean NO_2 Concentrations in AQMA 2A

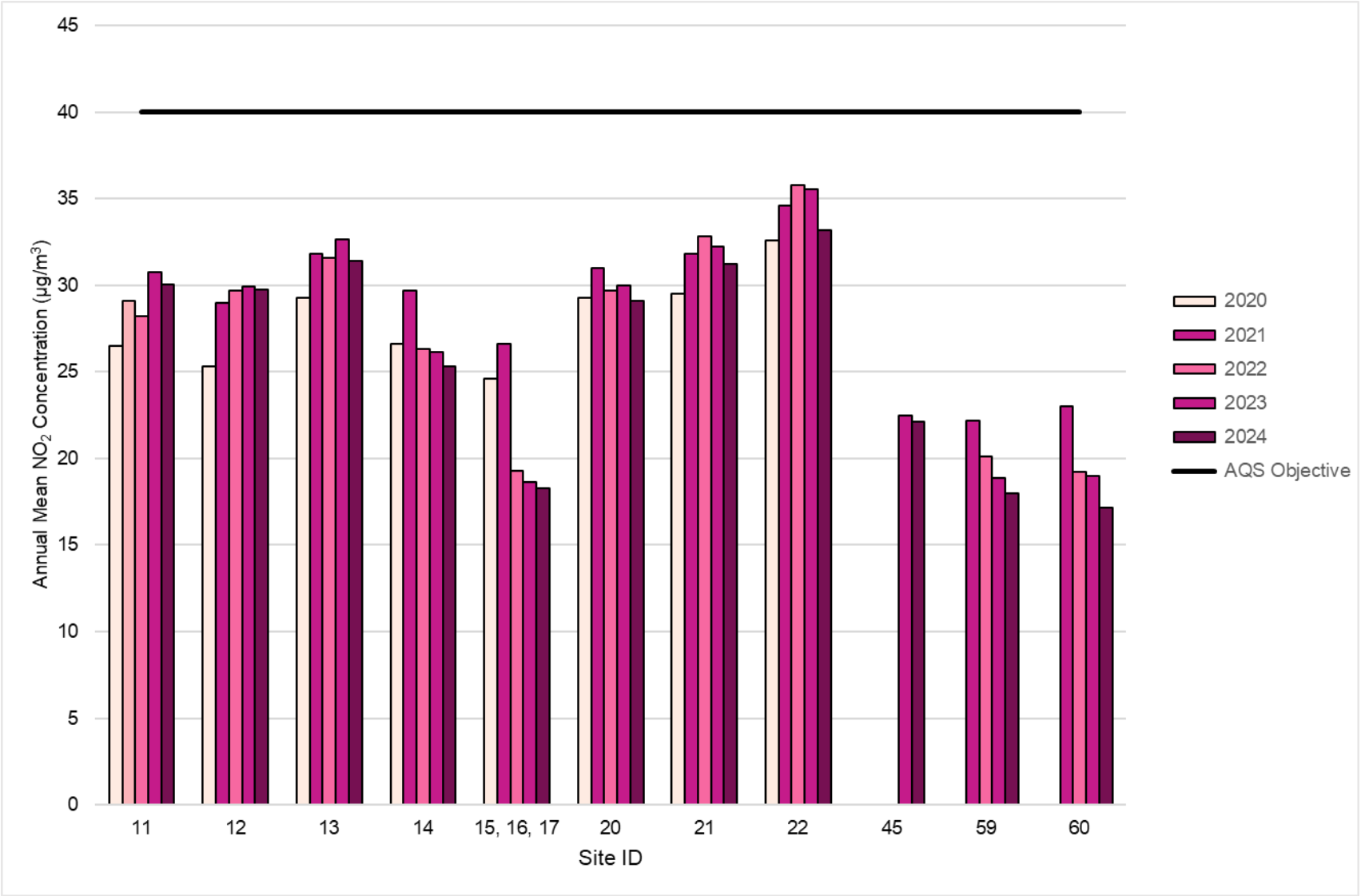

Figure A.3 – Trends in Annual Mean NO_2 Concentrations in AQMA 4

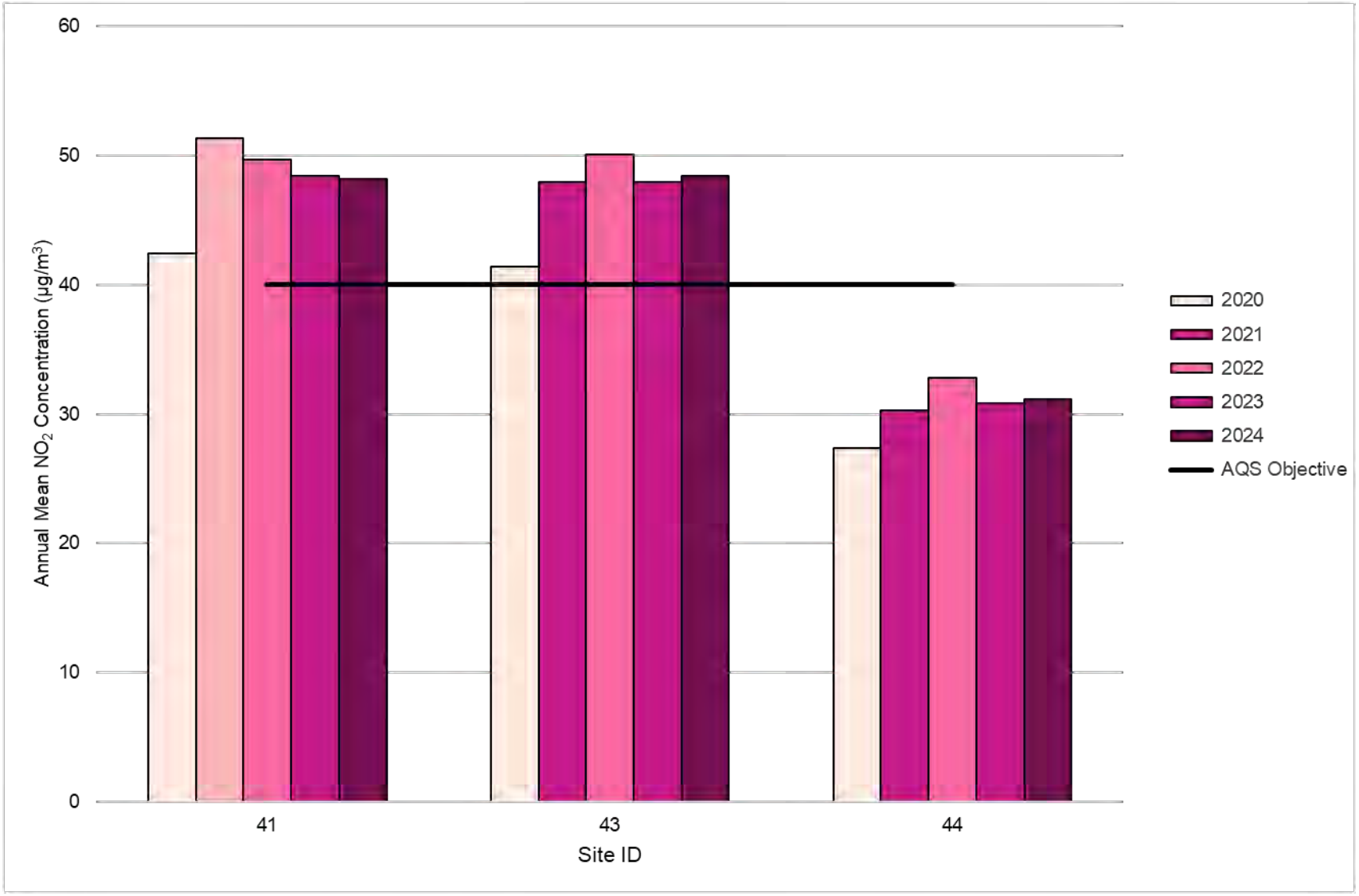

Figure A.4 – Trends in Annual Mean NO_2 Concentrations in AQMA 6

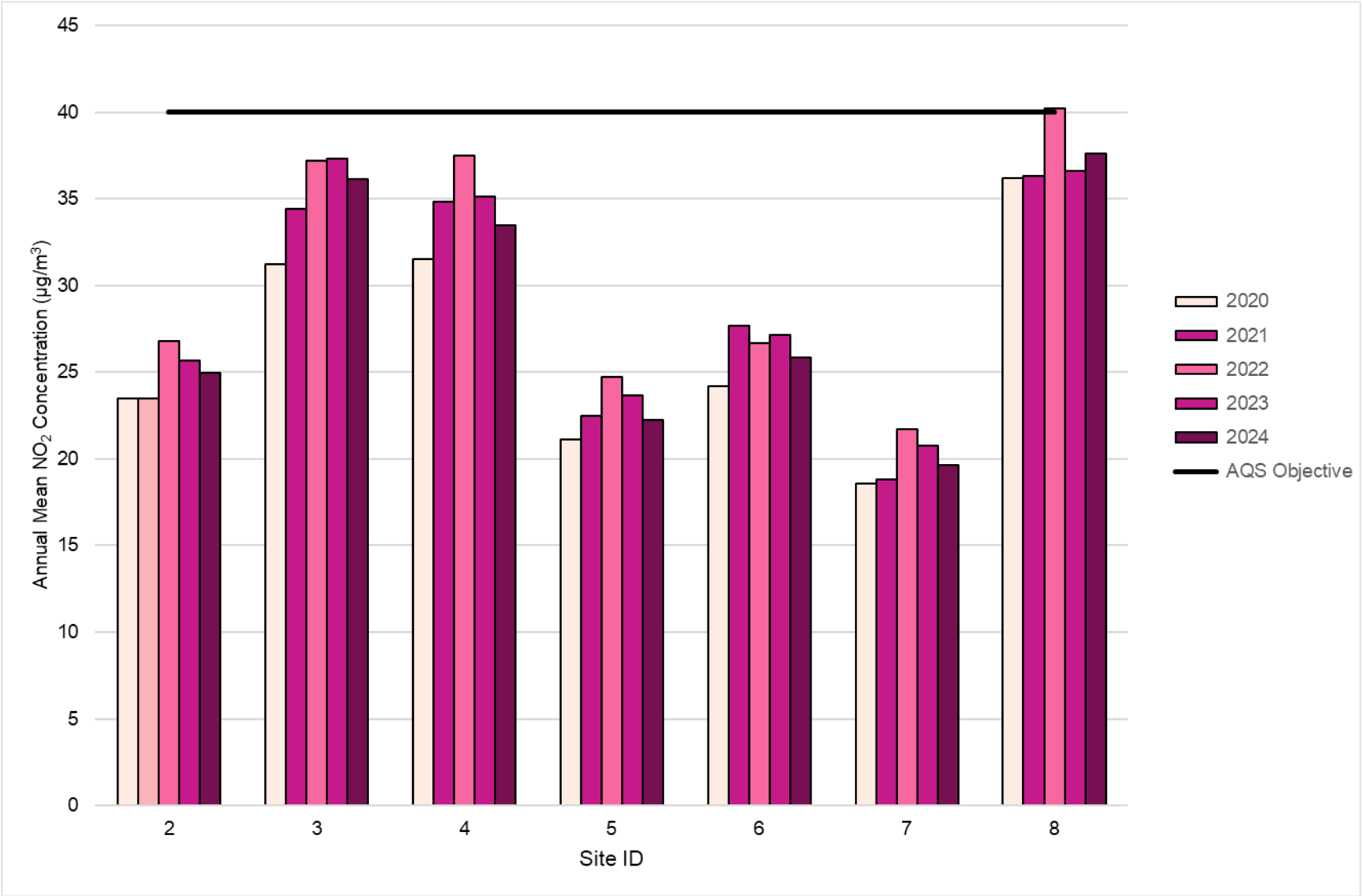

Figure A.5 – Trends in Annual Mean NO_2 Concentrations in AQMA 7

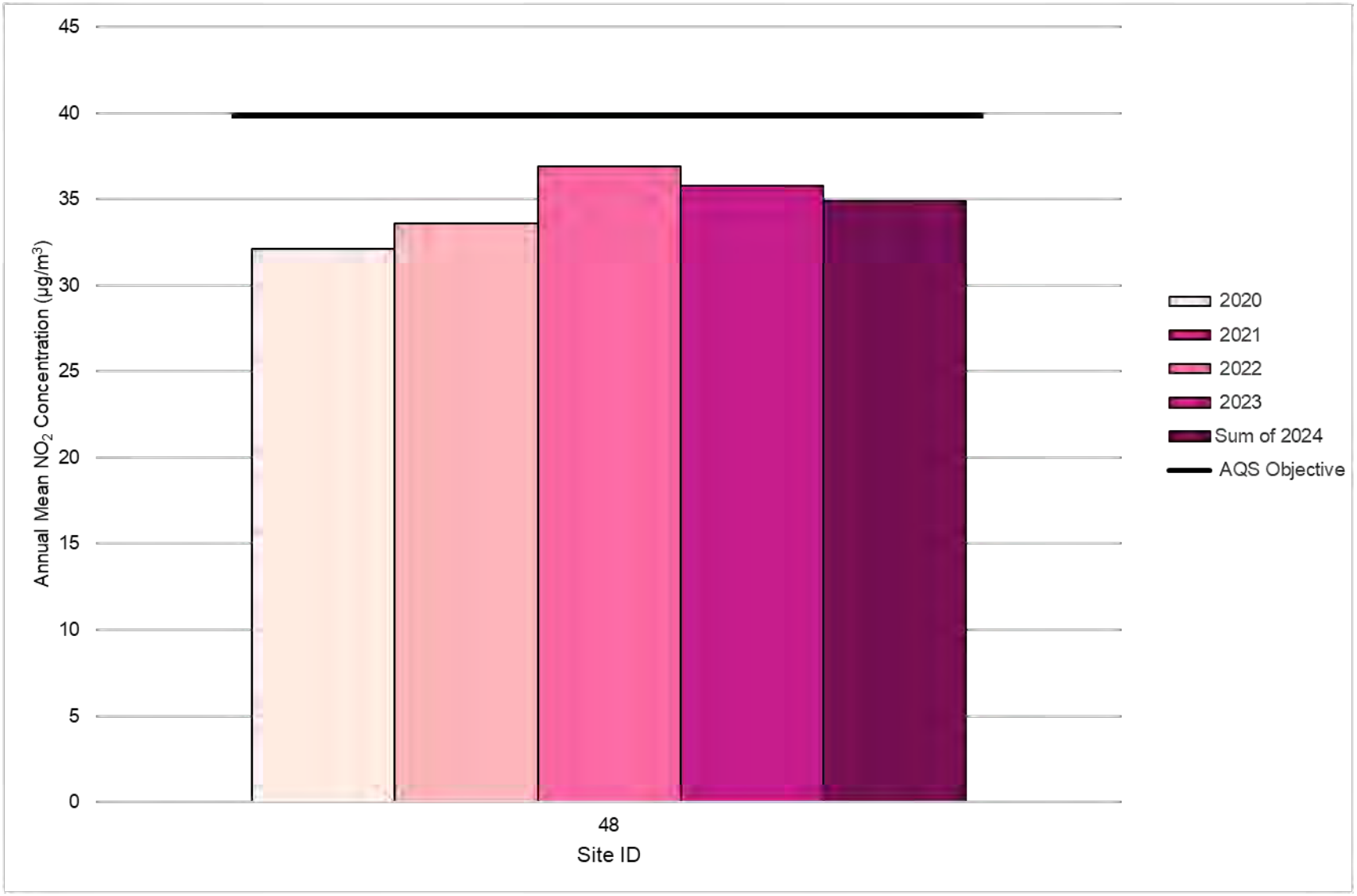

Figure A.6 – Trends in Annual Mean NO_2 Concentrations outside of AQMAs - 1

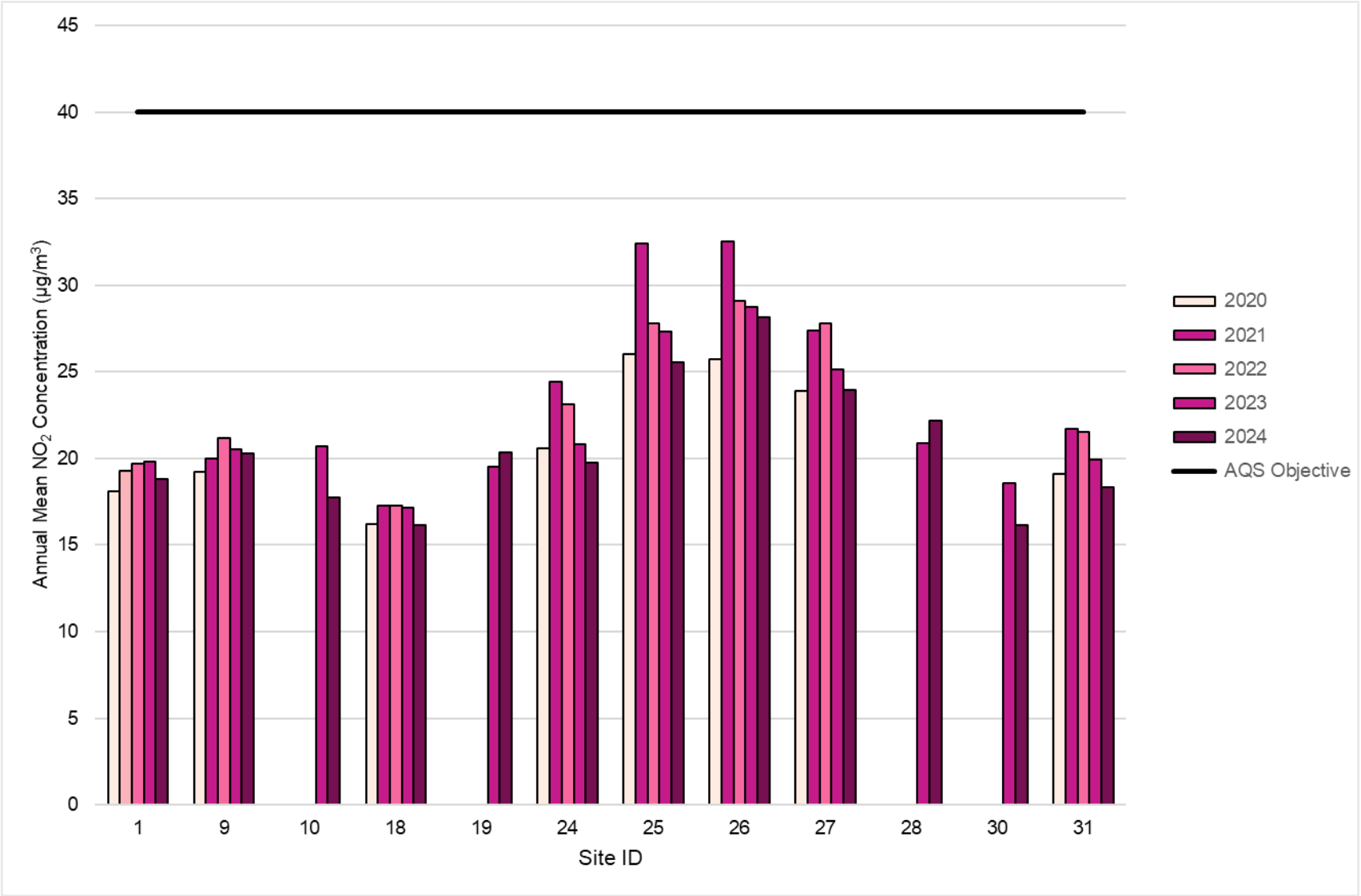

Figure A.7 – Trends in Annual Mean NO_2 Concentrations outside of AQMAs - 2

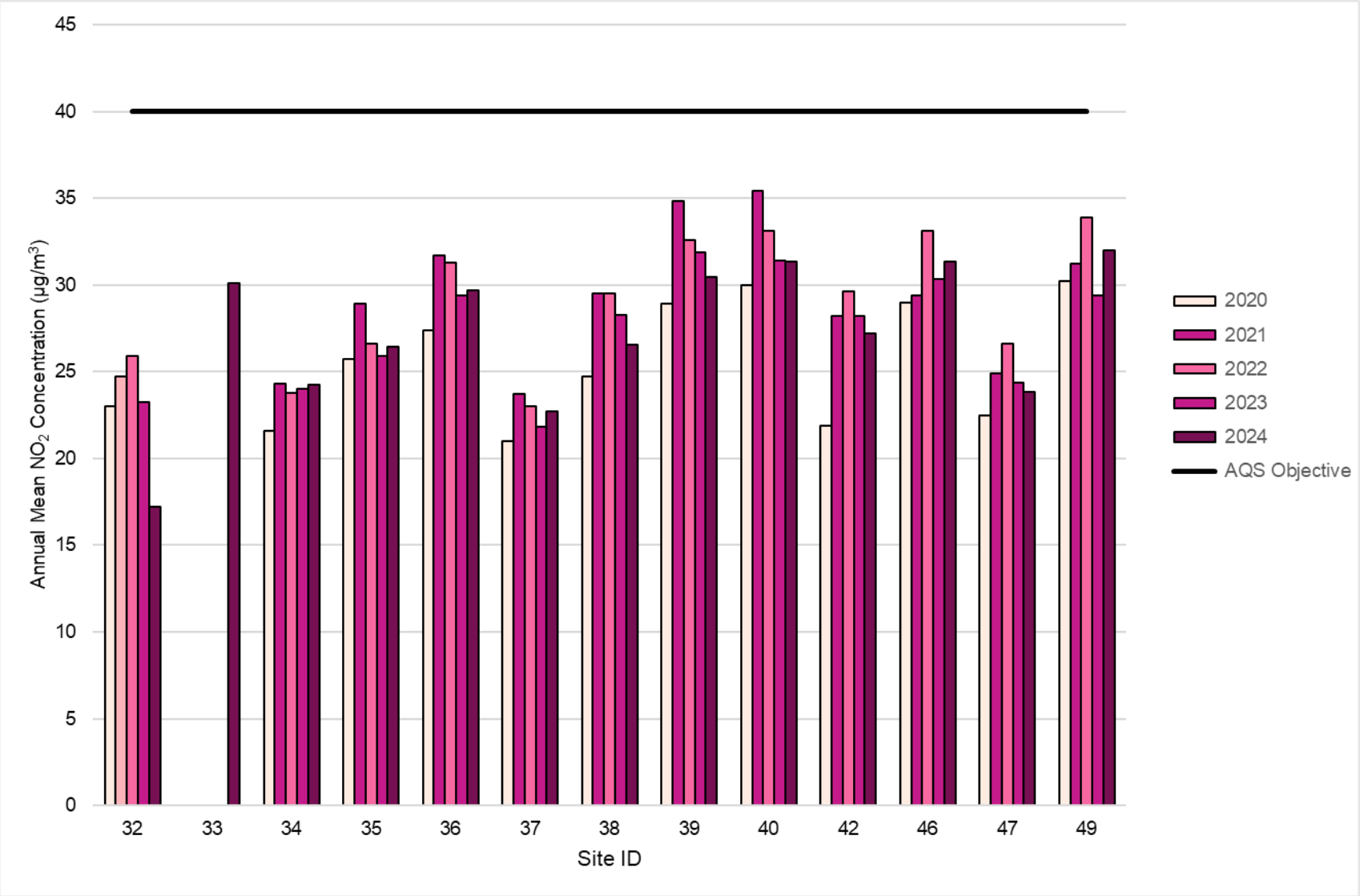

Figure A.8 – Trends in Annual Mean NO_2 Concentrations outside of AQMAs - 3

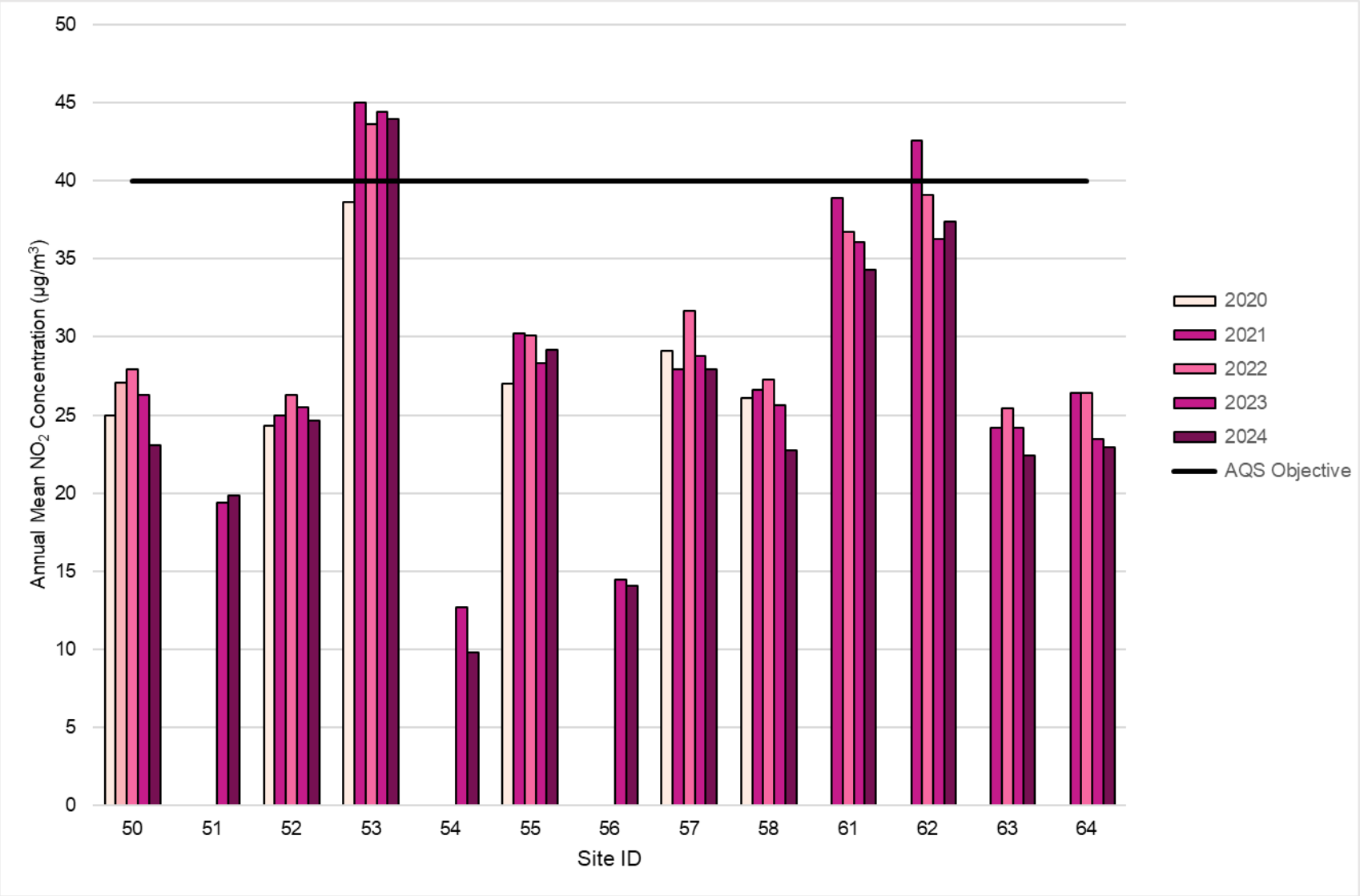

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
BAR11	432584	406085	Roadside	98.4	98.4	-	0	0	0	0
BAR3	432525	407475	Urban Background	97.4	97.4	0	0	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m^3 have been recorded.

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(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%).

Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
BAR9	436298	405691	Roadside	94.8	94.8	20	19	21	20	16.9
BAR3	432525	407475	Urban Background	99.6	99.6	-	-	-	12	11.4

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

Notes:

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

Exceedances of the PM_{10} annual mean objective of $40\mu g/m^3$ are shown in **bold**.

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.

(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.2 – Trends in Annual Mean PM_{10} Concentrations

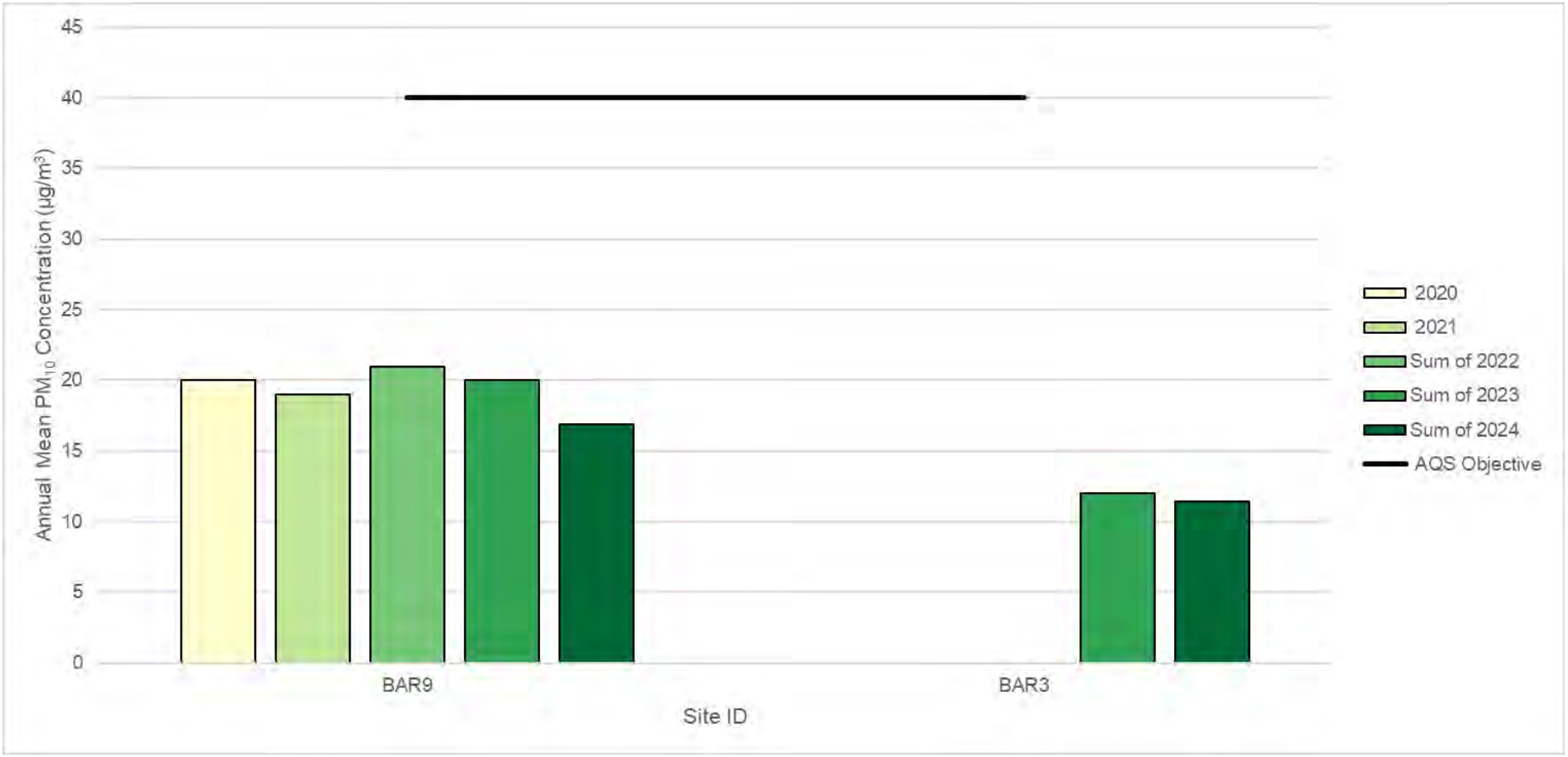

Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
BAR9	436298	405691	Roadside	94.8	94.8	3	1	7	1	2
BAR3	432525	407475	Urban Background	99.6	99.6	-	-	-	0	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

(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.3 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m³

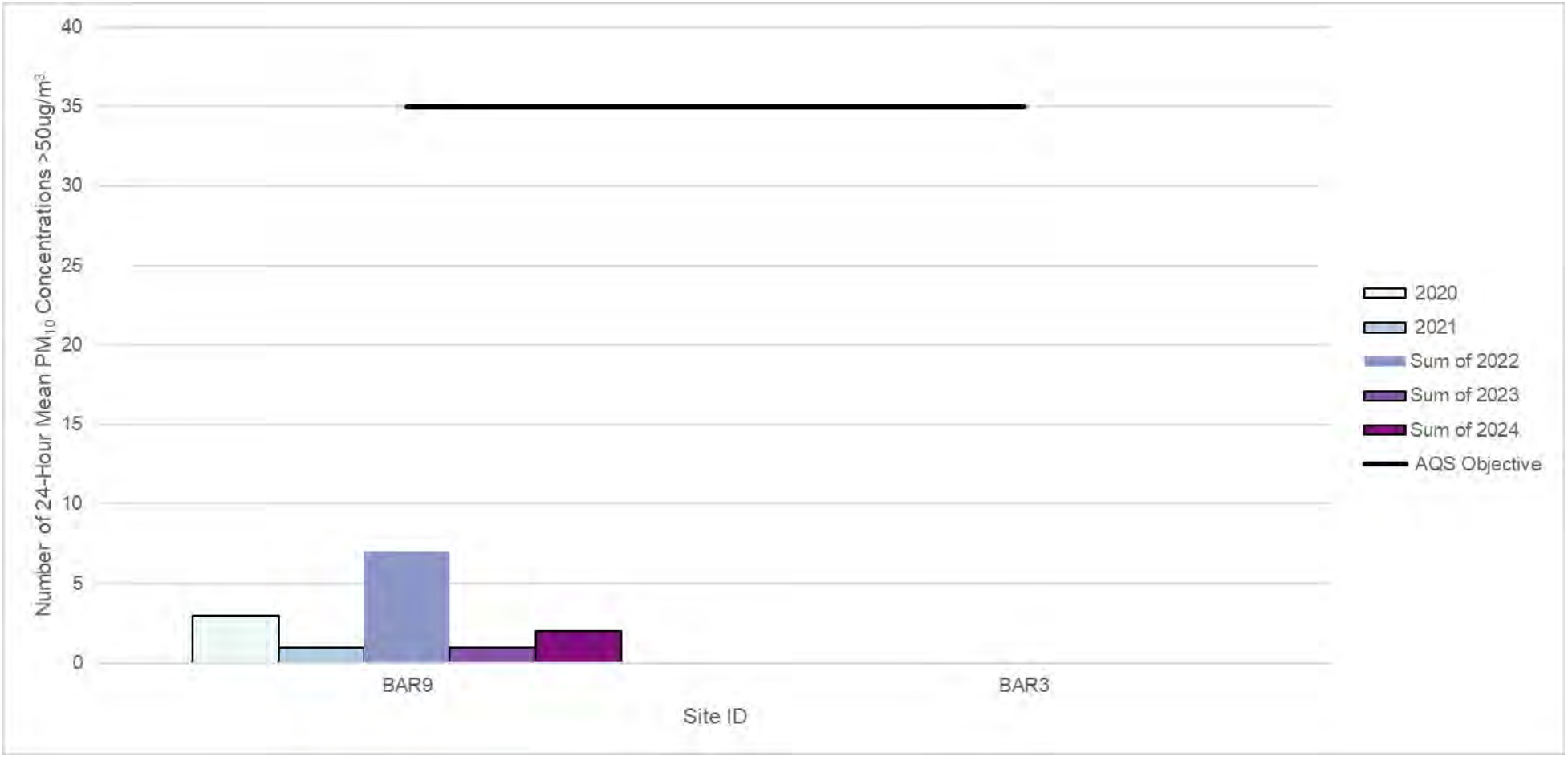

Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
BAR3	432525	407475	Urban Background	99.6	99.6	-	-	-	7	7.1

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

Notes:

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

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.

(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.4 – Trends in Annual Mean $PM_{2.5}$ Concentrations

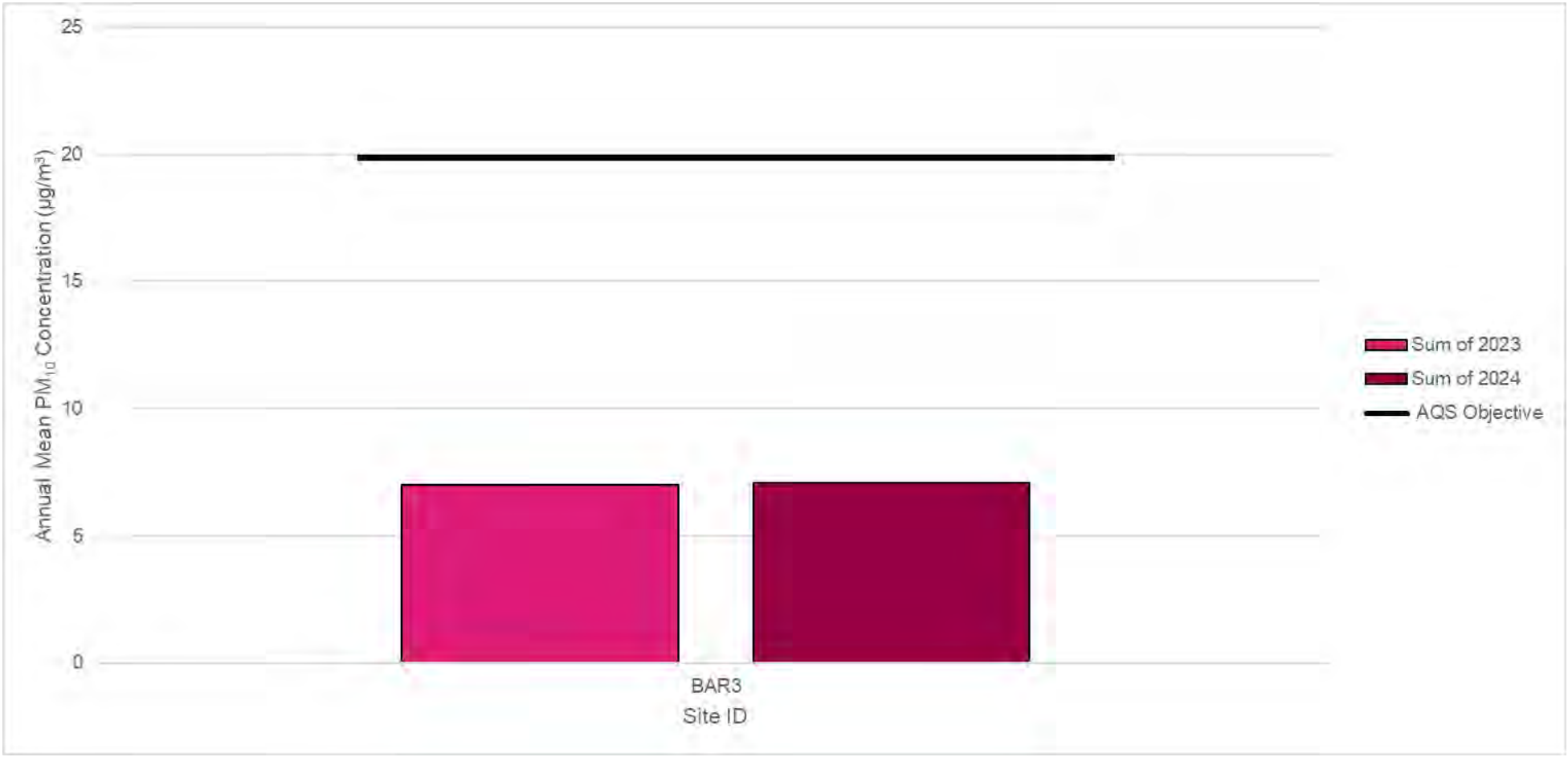

Table A.9 – SO_2 2024 Monitoring Results, Number of Relevant Instances

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	Number of 15 minute Means > 266µg/m³	Number of 1 hour Means > 350µg/m³	Number of 24 hour Means > 125µg/m³
BAR3	432525	407475	Urban Background	77.9	77.9	0	0	0

Notes:

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

Exceedances of the SO_2 objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year).

If the period of valid data is less than 85%, the relevant percentiles are provided in brackets.

(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%).

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO_2 2024 Diffusion Tube Results (µg/m^3)

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 (0.88)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	423621	399817	23.2	17.2	21.7	17.4	22.2	21.4	20.7	17.1	27.7	25.6	25.2	17.6	21.4	18.8	-	
2	421102	400496	24.6	24.5	30.1	28.6	30.2	23.3	29.4	28.3	30.9	35.7	32.1	22.5	28.3	24.9	-	
3	421143	400481	39.3	36.7	37.9	40.4	45.2	47.7	45.3	41.3	43.6	42.1	39.9	33.2	41.0	36.1	-	
4	421126	400485	36.3	34.9	34.1	38.1	39.6	42.2	43.2	40.6	43.2	40.5	36.0	27.8	38.0	33.5	-	
5	421291	400482	19.9	25.9	23.4		30.0	23.0	25.8	22.9	26.3	25.2	30.7	24.8	25.3	22.2	-	
6	421282	400471	25.6	27.8	27.4	25.1	31.6	29.4	29.4	28.4	37.4	32.6	33.0	25.1	29.4	25.9	-	
7	421117	400501	19.0	25.6	20.3	19.2	19.2	23.7	23.3	23.7	22.0	24.6	25.4	22.1	22.3	19.7	-	
8	421215	400475	41.7	42.6	42.8	39.3	46.8	43.9	45.6	38.5	44.7	42.9	45.7	38.0	42.7	37.6	32.3	
9	431482	408572	24.3	25.5	26.5	18.8	23.7	19.7	20.3	16.7	25.3	24.7	28.7	22.4	23.1	20.3	-	
10	433563	406982	19.9	23.7	23.8	17.1	17.8	17.2	18.6	16.2	18.4	21.3	27.0	21.1	20.2	17.8	-	
11	434000	406292	33.8	33.3	35.3	34.6	35.9	32.7	33.7	26.9	36.2	36.6	37.5	33.3	34.1	30.0	-	
12	433910	406290	40.6	39.3	33.5	33.7	37.0	33.2	32.4	24.4	23.5	34.3	40.0	33.7	33.8	29.7	-	
13	433820	406278	37.0	40.2	36.5	34.5	34.6		30.7	33.7	28.9	40.4	42.9	32.9	35.7	31.4	-	
14	432702	406160	30.2	29.2	29.8	28.3	30.7	28.1	21.3	24.6	32.8	30.0	29.8	30.6	28.8	25.3	-	
15	432674	406180	23.5	25.6	20.7	20.2	19.8	13.9	17.5	16.8	16.3	24.2	30.3	19.2	-	-	-	Triplicate Site with 15, 16 and 17 - Annual data provided for 17 only
16	432674	406180	23.7	28.1	24.6	19.6	18.8	14.3	17.3	16.5	17.7	24.5	28.6	22.3	-	-	-	Triplicate Site with 15, 16 and 17 - Annual data provided for 17 only
17	432674	406180	23.3	25.4	25.2	17.1	16.4	14.6	17.5	16.7	16.3	25.2	26.9	18.3	20.7	18.3	-	Triplicate Site with 15, 16 and 17 - Annual data provided for 17 only
18	432603	406312	22.9		20.6	16.9	16.5	13.0	16.2	13.8	19.3	21.1	25.2	16.9	18.4	16.2	-	

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 (0.88)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
19	433351	407074	23.8		55.9	15.6	16.9	16.1	18.5	17.1	15.5	24.4	28.0	22.8	23.1	20.4	-	
20	432535	406071	39.3	41.1	34.7	31.3	33.0	30.2	26.2	27.5	30.7	30.0	37.5	35.4	33.1	29.1	-	
21	432402	406013	33.3	36.2	40.2	35.8	34.2	37.0	34.5	29.2	33.5	35.8	41.2	35.1	35.5	31.2	-	
22	432351	405985	39.4	43.4	42.8	26.0	37.4	40.1	39.3	36.8	33.3	43.7	35.6	34.2	37.7	33.1	-	
23	432262	405950	33.5	42.8	38.1	35.8	35.7	38.0	34.1	35.1	30.9	38.9	41.0	37.1	36.7	32.3	-	
24	435274	400384	25.4	23.8	20.1	19.1	21.5	20.1	22.6	19.1	19.6	24.4	33.0	21.3	22.5	19.8	-	
25	434832	400405	34.5	31.0	32.1	27.3	28.4	24.0	27.2	21.6	30.5	31.6	33.3	26.7	29.0	25.5	-	
26	434820	400421	37.1	35.4	35.6	28.1	33.9	26.6	27.3		26.2	34.5	37.2	30.0	32.0	28.1	-	
27	434823	400398	26.1	26.5	30.6	19.5	24.8	25.9	25.6	23.7	30.0	31.3	34.9	27.3	27.2	23.9	-	
28	433299	406873	31.3	25.7	23.5	24.3	21.7	20.4		17.2	23.2	23.9	35.9	30.2	25.2	22.2	-	
29	434721	400352	22.0		25.1	19.9	18.1	19.6	19.5	18.1	18.8	24.0	27.5	19.2	21.1	18.5	-	
30	424388	403694	21.3	22.8	18.6	15.6	17.4	17.3	17.4	15.1		20.1	21.5	14.5	18.3	16.1	-	
31	434595	401107	19.9	26.5	21.9	18.5	21.3	13.6	19.2	17.0	19.9	23.1	25.9	23.7	20.9	18.4	-	
32	436150	411395	28.7	23.7	17.4	14.7	17.6	15.3	16.5	13.9	18.2	19.1	28.7	21.2	19.6	17.2	-	
33	436198	411469		33.7	29.9	36.3	35.7	31.7	32.6	26.9	43.4	34.2	36.4	35.3	34.2	30.1	-	
34	435011	408281	34.8	33.1	30.0	26.2	22.0	23.1	24.6	23.1	24.0	28.8	31.6	29.2	27.5	24.2	-	
35	435027	408190	39.9	29.5	32.4	30.1	24.4	26.5	24.3	26.2	28.9	30.0	33.6	34.4	30.0	26.4	-	
36	435027	408104	32.4	41.3	34.8	29.0	33.3	33.2	31.3	26.2	30.3	37.6	38.7	36.7	33.7	29.7	-	
37	435174	407499	31.6	31.9	25.0	24.4	22.7	21.0	22.4	17.7	27.5	23.5	34.8	27.6	25.8	22.7	-	
38	434757	406995	38.0	35.3	26.8	28.9	30.3	27.6	27.2	21.8	28.3	27.6	36.8	33.2	30.1	26.5	-	
39	436072	407320	40.0	38.7	36.6	28.1	39.0	26.3	30.6	23.9	40.9	35.7	39.7	35.7	34.6	30.4	-	

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 (0.88)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
40	437122	406557	42.6	38.2	33.5	33.2	37.4	32.5	31.3	24.6	39.9	35.5	42.3	36.2	35.6	31.3	-	
41	434933	406695	57.1	53.6	60.4	56.1	56.7	55.1	56.5	52.7	57.7	54.2	50.3	46.3	54.7	**48.2**	35.0	
42	434733	406774	35.0		36.6	25.1	31.9	26.0	28.0	27.5	29.8	35.7	35.9	28.4	30.9	27.2	-	
43	434955	406769	58.2	56.8	58.8	51.9	54.9		58.9	49.4	54.7	55.3	51.4		55.0	**48.4**	38.1	
44	435049	407047	40.5	38.4	40.5	34.9	33.8	34.6	33.9	32.8	34.1	33.9	36.7	30.6	35.4	31.1	-	
45	433431	406272	28.9	25.6	27.7	19.8	27.7		31.6	19.2	22.7	27.7	21.6	24.0	25.1	22.1	-	
46	437554	405291	37.8	42.1	33.9	33.6	29.9	35.6	34.2	30.6	28.6	39.6	44.3	37.0	35.6	31.3	-	
47	434958	405672	34.4	32.7	28.5	28.3	25.0	13.3	23.0	21.7	28.9	30.1	29.6	29.5	27.1	23.8	-	
48	434964	405709	44.5	45.1	41.7	38.1	44.3	33.4	36.3	30.4	41.2	42.7	39.2	39.2	39.7	34.9	-	
49	437528	405675	33.3	41.0	38.3	33.9	39.5	33.5	36.0	31.5	41.0	37.0	38.2	33.4	36.4	32.0	-	
50	435062	408244	31.8	17.1	28.3	12.3	28.1	28.2	26.2	24.6	30.2	28.9	31.5	27.5	26.2	23.1	-	
51	435481	400222	19.6	27.1	25.3				18.9	18.2	19.0	26.5	26.3	22.2	22.6	19.9	-	
52	434112	409625	32.5	30.3	30.5	20.3	29.5	20.7	26.2	24.0	30.5	32.4	30.7	28.9	28.0	24.7	-	
53	434809	406023	51.4	50.2	52.9	52.1	57.0	48.3	47.0	39.6	52.6	50.6	54.3	43.4	50.0	**44.0**	32.9	
54	424424	403587	14.9	15.3	13.9	7.9			4.1		14.0	13.5	15.7		12.4	9.8	-	
55	437367	405458	29.9	36.0	32.5	28.8	36.5	27.5	33.8	31.2	36.9	31.1	38.6	35.4	33.2	29.2	-	
56	424313	403645	18.2	17.5	10.9	15.8	17.7	12.5	12.5		19.8	19.0	18.9	12.7	16.0	14.0	-	
57	437242	405772	37.3	43.8	33.7	26.0	28.0	12.0	28.7		26.9	36.7	39.9	36.4	31.8	27.9	-	
58	437250	405813	30.4		34.1	24.4	27.5	22.4	20.4	19.6	25.1	25.8	27.5	26.7	25.8	22.7	-	
59	432882	406259	26.7	24.3	21.7	18.8	17.2	18.6	17.0	16.3	19.4	17.5	22.6	25.4	20.5	18.0	-	
60	432817	406244	22.5		21.5	14.4	17.4		15.6	15.6			24.0	18.6	18.7	17.2	-	

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 (0.88)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
61	434780	406055	42.8		39.4	39.2	35.5	41.7	35.4	36.5	38.2	36.2	41.1	43.0	39.0	34.3	-	
62	434855	405957	48.0		43.5	42.6	44.2	42.7	42.8	33.4	50.2	31.0	43.7	45.2	42.5	37.4	28.6	
63	434912	405817	33.2			20.3	24.8	21.4	21.4	18.9	22.8	26.3	34.5	31.3	25.5	22.4	-	
64	434931	405781	31.9		29.3	25.9	27.1	18.9	23.5	19.1	26.8	27.2	29.4	28.0	26.1	23.0	-	

☒ **All erroneous data has been removed from the NO_2 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 has been distance corrected for relevant exposure in the final column.**

☒ **Barnsley MBC confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

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 Barnsley Metropolitan Borough Council During 2024

Air quality assessments have been undertaken in support of various planning applications which have potential to impact on local air quality. In addition, following adoption of the Councils' Local Plan in 2019, the Council has been developing Masterplan Frameworks as Barnsley's Local Plan includes some site allocations which require the production of such a framework. Masterplan frameworks are subject to public consultation and approval by the Council prior to the determination of any planning applications on the affected sites. Air quality impact has been included within these frameworks in order to ensure that this is considered appropriately at subsequent planning stage. The Council has its own Air Quality and Emissions Good Practice Planning Guidance which requires that air quality impact from future development are reasonably mitigated.

Specifically, in 2020, the following significant planning applications were assessed for air quality impact: 2020/0647 - Hybrid planning application for a development up to 103,086sqm of employment uses (use classes B1/B2 and B8) 2020/0027 and 2020/0028 - Hybrid planning application for a development up to 103,086sqm of employment uses (use classes B1/B2 and B8) 2020/1005 - Outline planning permission (with all matters reserved except access) for redevelopment of the site to include up to 500 residential units.

In 2021 a planning application was approved by Barnsley MBC for the MU1 development at land south of Barugh Green Road and east of Higham Common Road. The development comprises of 1,760 dwellings and business parks with an estimated operational year of 2026. An air quality assessment was submitted demonstrating that air quality impacts would be negligible within all AQMAs. However, additional traffic would potentially cause adverse effects at properties close to roads with increased traffic flow.

In August 2024, a hybrid planning application for the construction of up to 204,000 sqm of industrial and logistics floorspace on land south of Dearne Valley Parkway was approved. The accompanying air quality assessment investigated the impact of construction and operational road traffic on NO_2, PM_{10} and $PM_{2.5}$ concentrations at sensitive receptor locations, as well as considering nitrogen and acid deposition at the Dearne Valley Park

SSSI – Gypsy Marsh. The investigation demonstrated that air quality impacts for the construction and operational phases would be negligible in the local area and all AQMAs after suitable mitigation.

Additional Air Quality Works Undertaken by Barnsley Metropolitan Borough Council During 2024

Barnsley MBC has decommissioned diffusion tube Site 32, and the ID has been allocated to a new site in Royston. Barnsley has created a new diffusion tube monitoring site in Royston, which has been labelled Site 33.

QA/QC of Diffusion Tube Monitoring

Nitrogen dioxide diffusion tubes for 2024 were analysed by Gradko. The Gradko lab used the analytical technique of the grid adsorbent being 50% triethanolamine (TEA) in acetone. Gradko International Ltd is a UKAS accredited laboratory and participates in laboratory performance and proficiency testing schemes. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre.

The laboratory follows the procedures set out in the Harmonisation Practical Guidance and participates in the AIR proficiency-testing (AIR-PT) scheme. Defra and the Devolved Administrations advise that diffusion tubes used for LAQM should be obtained from laboratories that have demonstrated satisfactory performance in the AIR-PT scheme. Laboratory performance in the AIR-PT is also assessed by the National Physical Laboratory (NPL), alongside laboratory data from the monthly NPL Field Inter-Comparison Exercise.

In the 2024 AIR-PT results, Gradko scored 100% in AIR-PT AR066 (September – October 2024)[13]. The percentage score reflects the results deemed to be satisfactory based upon the z-score of < ±2.

The diffusion tube calendar was adhered to for the whole of the schedule, with only small variations of ±1 day.

[13] Available at https://laqm.defra.gov.uk/wp-content/uploads/2025/04/AIR-PT-Rounds-55-to-68-January-2023-to-February-2025.pdf

Diffusion Tube Annualisation

Annualisation was required at sites 54 and 60 as these sites had a data capture less than 75% but greater than 25%. Details of the calculation method undertaken are provided in Table C.1.

Table C.1 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Barnsley Gawber	Annualisation Factor Sheffield Tinsley	Annualisation Factor Leeds Centre	Annualisation Factor Dewsbury Ashworth Garage	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
54	0.8973	0.9246	0.8462	0.9158	0.8960	12.4	11.1
60	1.0021	1.0032	1.1256	1.0448	1.0439	18.7	19.5

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2025 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/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Barnsley MBC have applied a national bias adjustment factor of 0.88 to the 2024 monitoring data. A summary of bias adjustment factors used by Barnsley MBC over the past five years is presented in Table C.2.

A local bias adjustment factor of 0.54 was calculated for the 2024 monitoring data . However, the national adjustment factor was chosen to be used as it is more reliable in cases where the national and local factors differ significantly according to TG22 section 7.224[14]. Additionally, applying a local bias adjustment factor of 0.54 resulted in adjusted concentrations at some roadside sites being lower than background concentrations of NO_2 at the same site, which is not considered representative of actual concentrations.

[14] Available at https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	April 2025	0.88
2023	National	March 2024	0.83
2022	Local	-	0.83
2021	Local	-	0.87
2020	Local	-	0.84

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table C.3.

Five diffusion tube NO_2 monitoring locations within Barnsley MBC required distance correction during 2024.

Table C.3 – Non-Automatic NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted	Background Concentration	Concentration Predicted at Receptor	Comments
8	2.0	4.0	37.6	5.1	32.3	
41	2.0	10.0	48.2	13.3	35.0	
43	2.0	7.0	48.4	13.3	*38.1*	*Predicted concentration at Receptor within 10% the AQS objective.*
53	0.3	2.8	44.0	13.34055	32.9	
62	1.4	6.5	37.4	10.99685	28.6	

QA/QC of Automatic Monitoring

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

The type of PM_{10} and $PM_{2.5}$ monitors utilised within Barnsley MBC do not require the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within Barnsley MBC recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO_2 concentrations corrected for distance are presented in Table A.3.

No automatic NO_2 monitoring locations within Barnsley MBC required distance correction during 2023.

Appendix D: Map(s) of Monitoring Locations and AQMAs

Figure D.1 – Map of Non-Automatic Monitoring Site

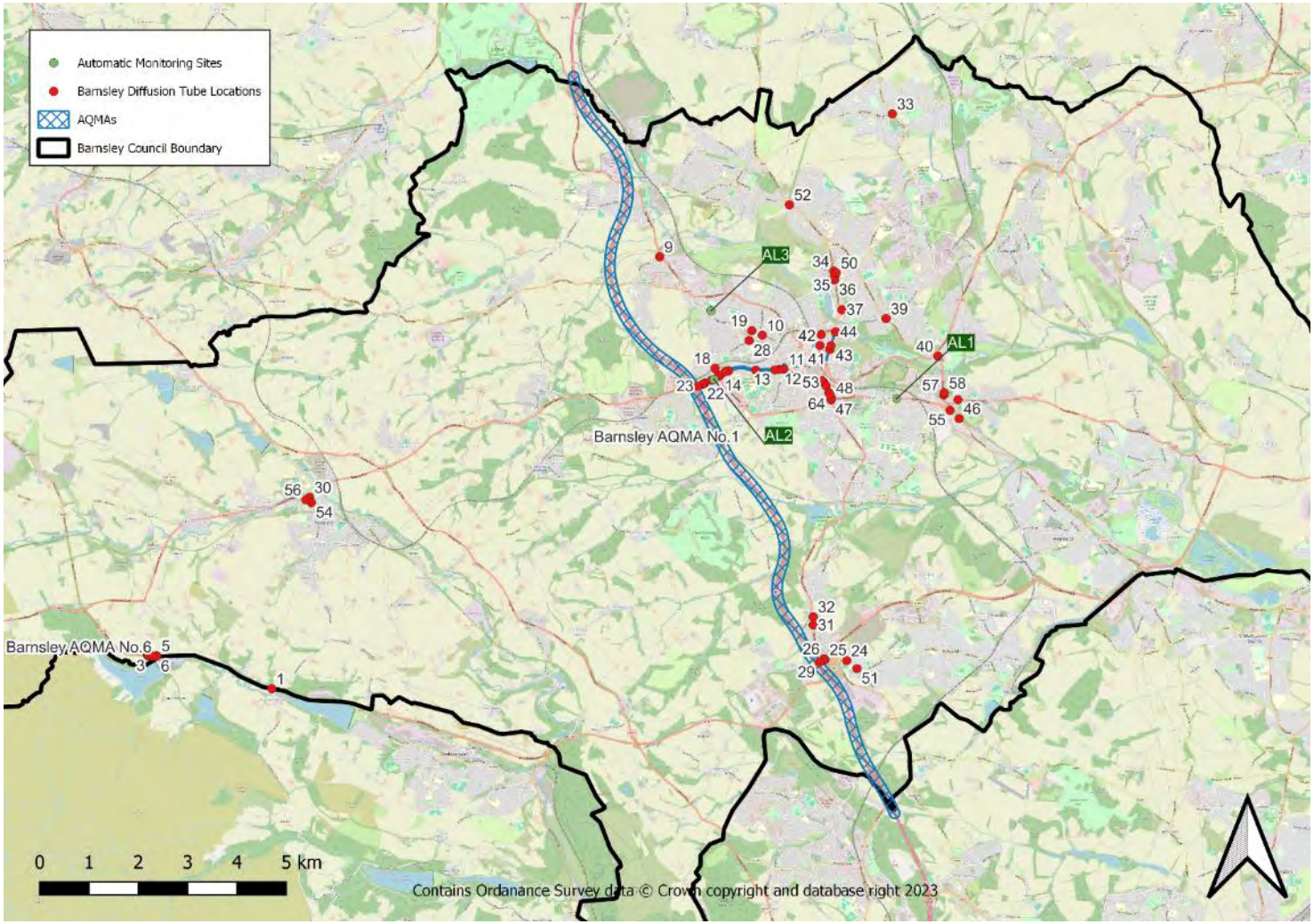

Figure D.1 1 - Map displaying diffusion tube 1

Figure D.1 2 - Map displaying diffusion tubes 2 to 8, and AQMA 6

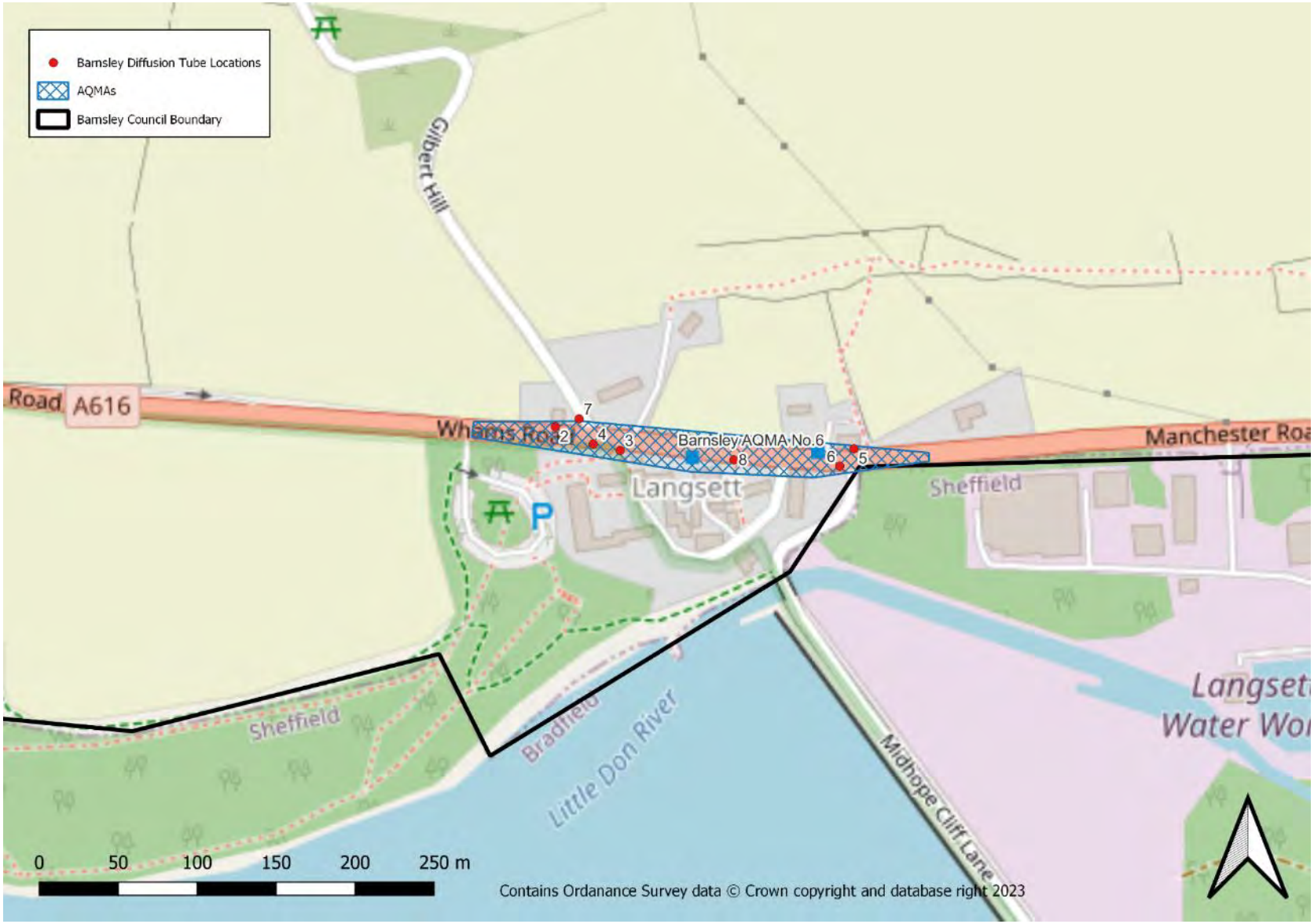

Figure D.1 3 - Map displaying diffusion tube 9

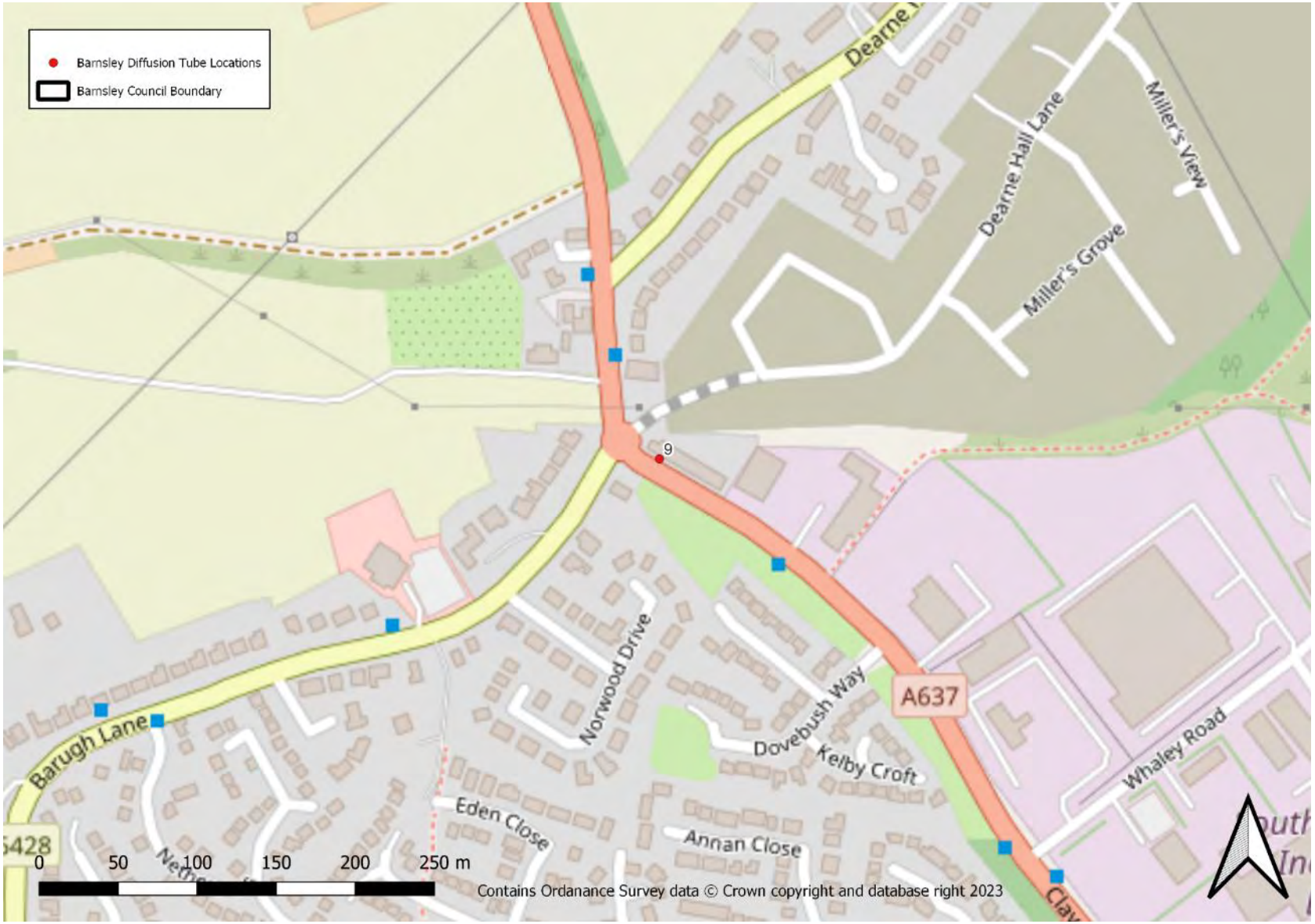

Figure D.1 4 - Map displaying diffusion tubes 10 to 23, 28, 45, 59 to 60, automatic monitoring location AL3, AQMA1 and AQMA 2A

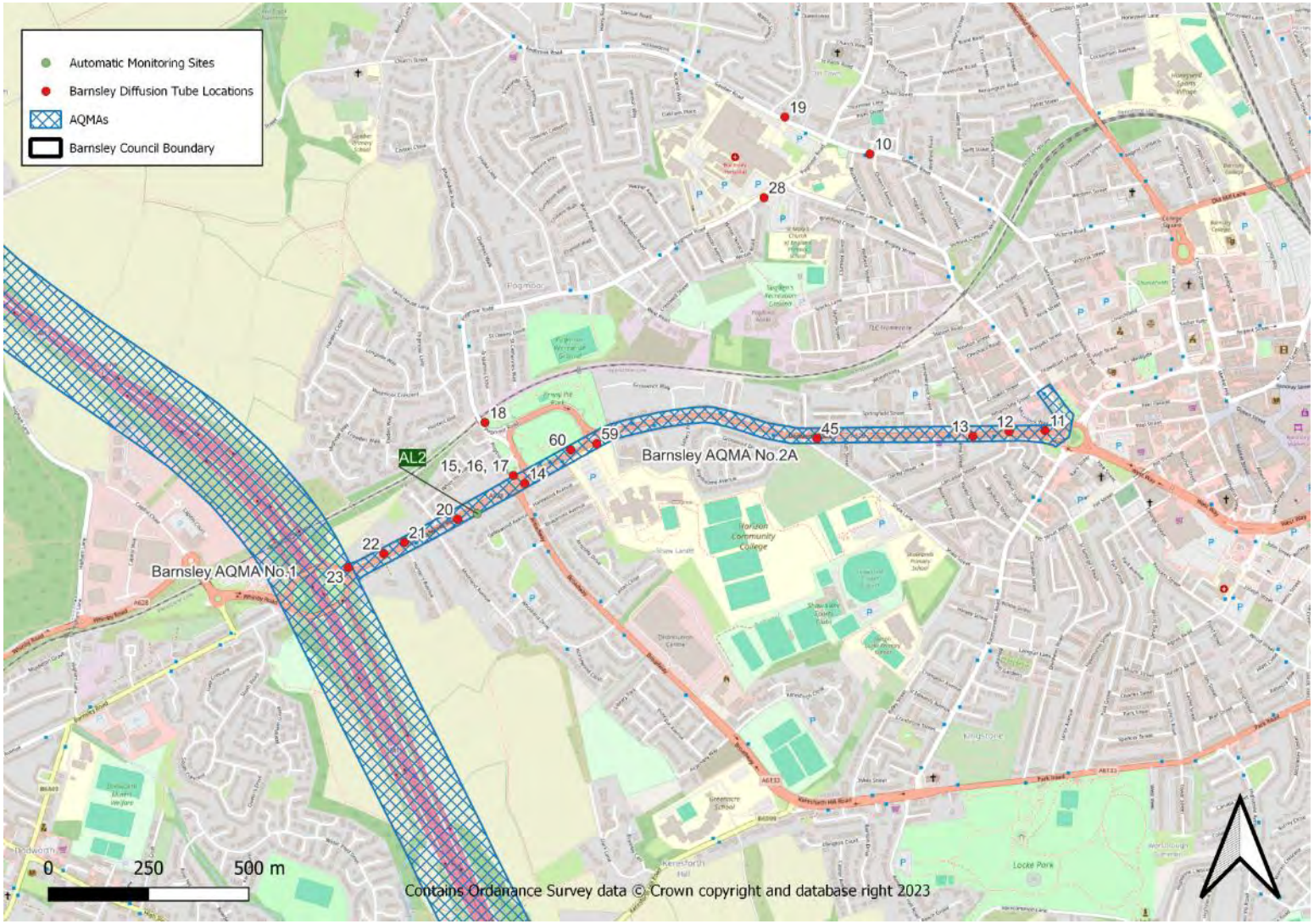

Figure D.1 5 - Map displaying diffusion tubes 24 to 27, 29, 31, 51 and AQMA 1

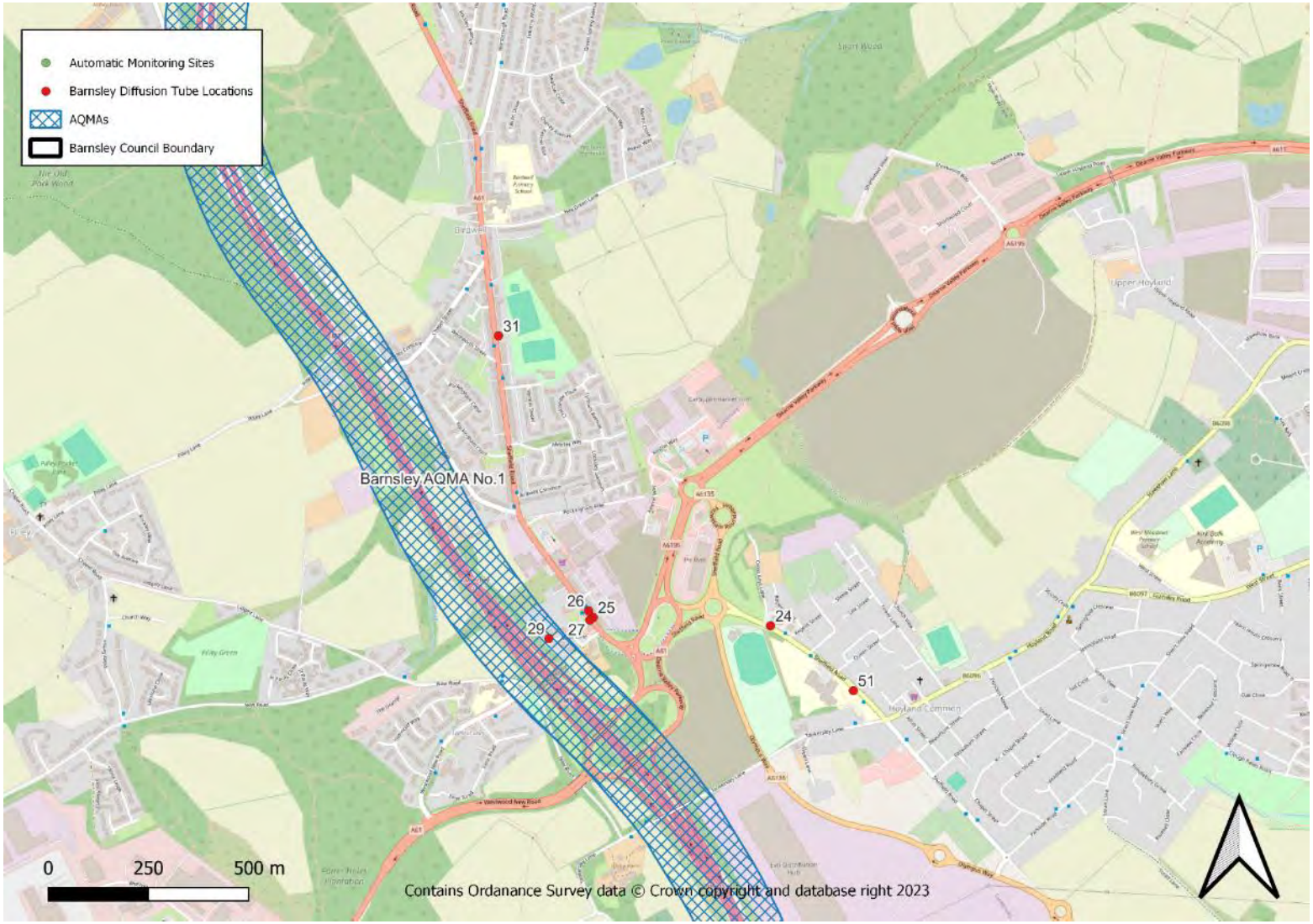

Figure D.1 6 - Map displaying diffusion tubes 30, 54 and 56

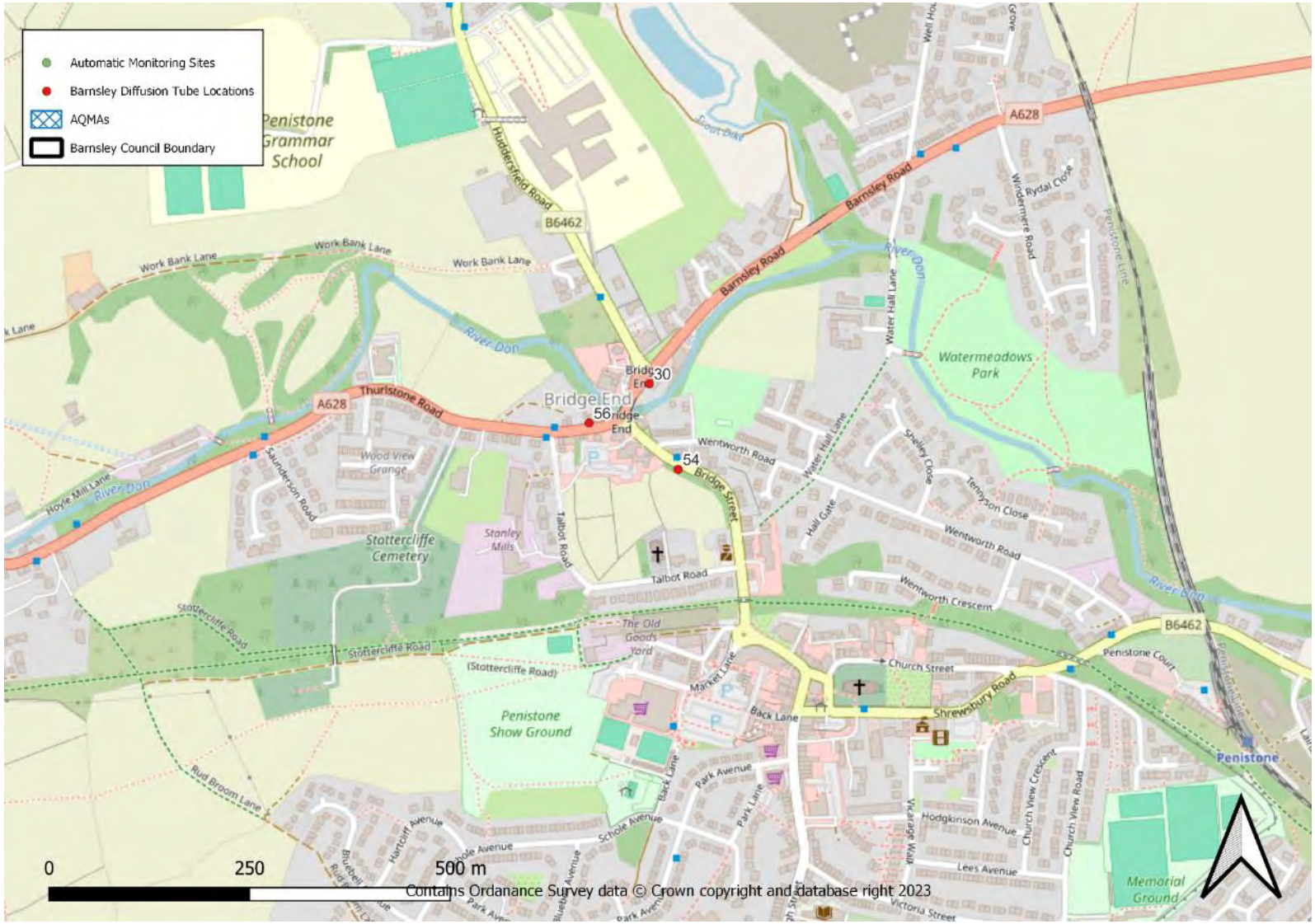

Figure D.1 7 - Map displaying diffusion tubes 34 to 36 and 50

Figure D.1 8 - Map displaying diffusion tubes 37 to 38, 41 to 44, and AQMA 4

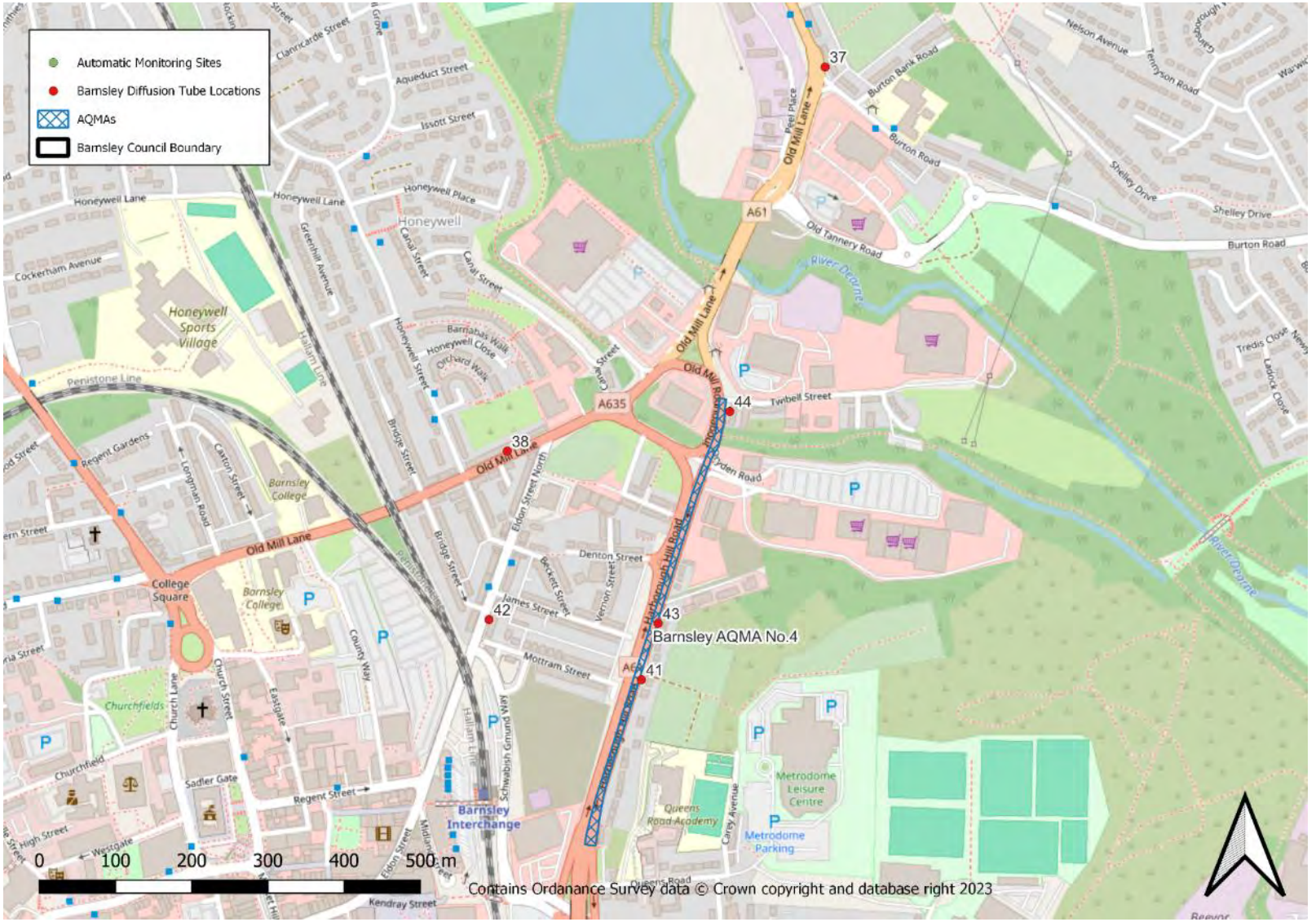

Figure D.1 9 - Map displaying diffusion tube 39

Figure D.1 10 - Map displaying diffusion tube 40

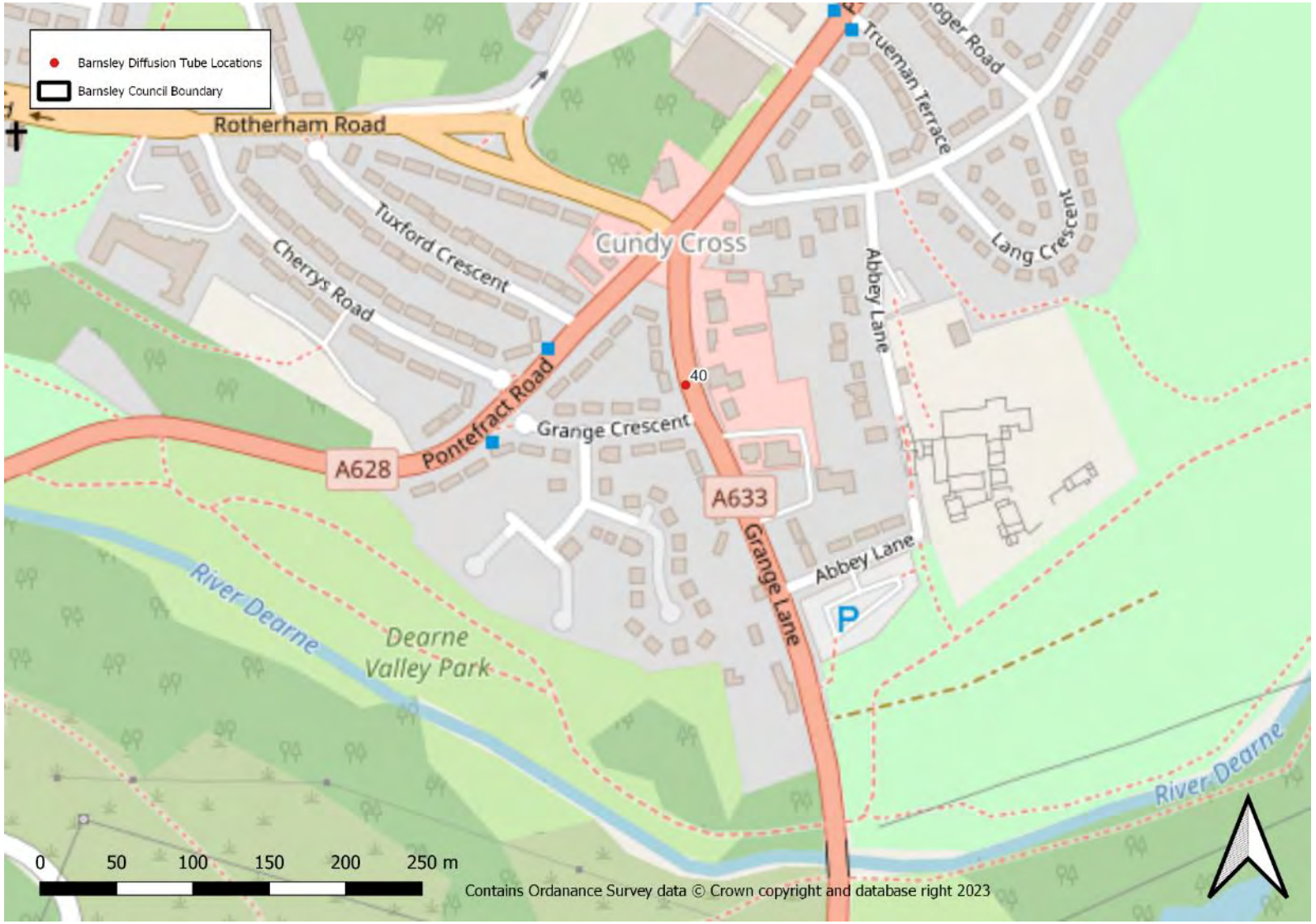

Figure D.1 11 - Map displaying diffusion tubes 46, 49, 55, 57 and 58

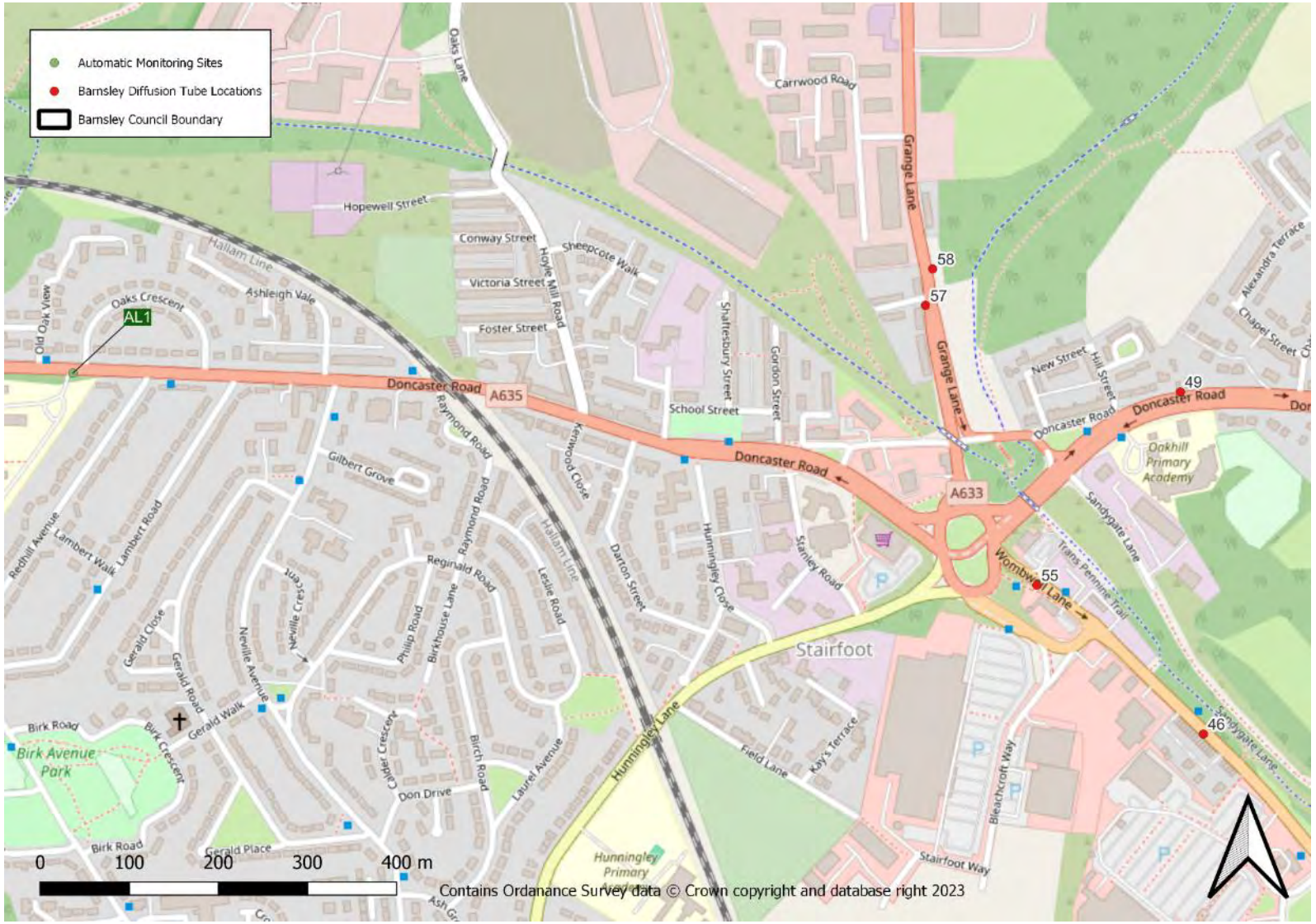

Figure D.1 12 - Map displaying diffusion tubes 47, 48, 53, 61 to 64 and AQMA 7

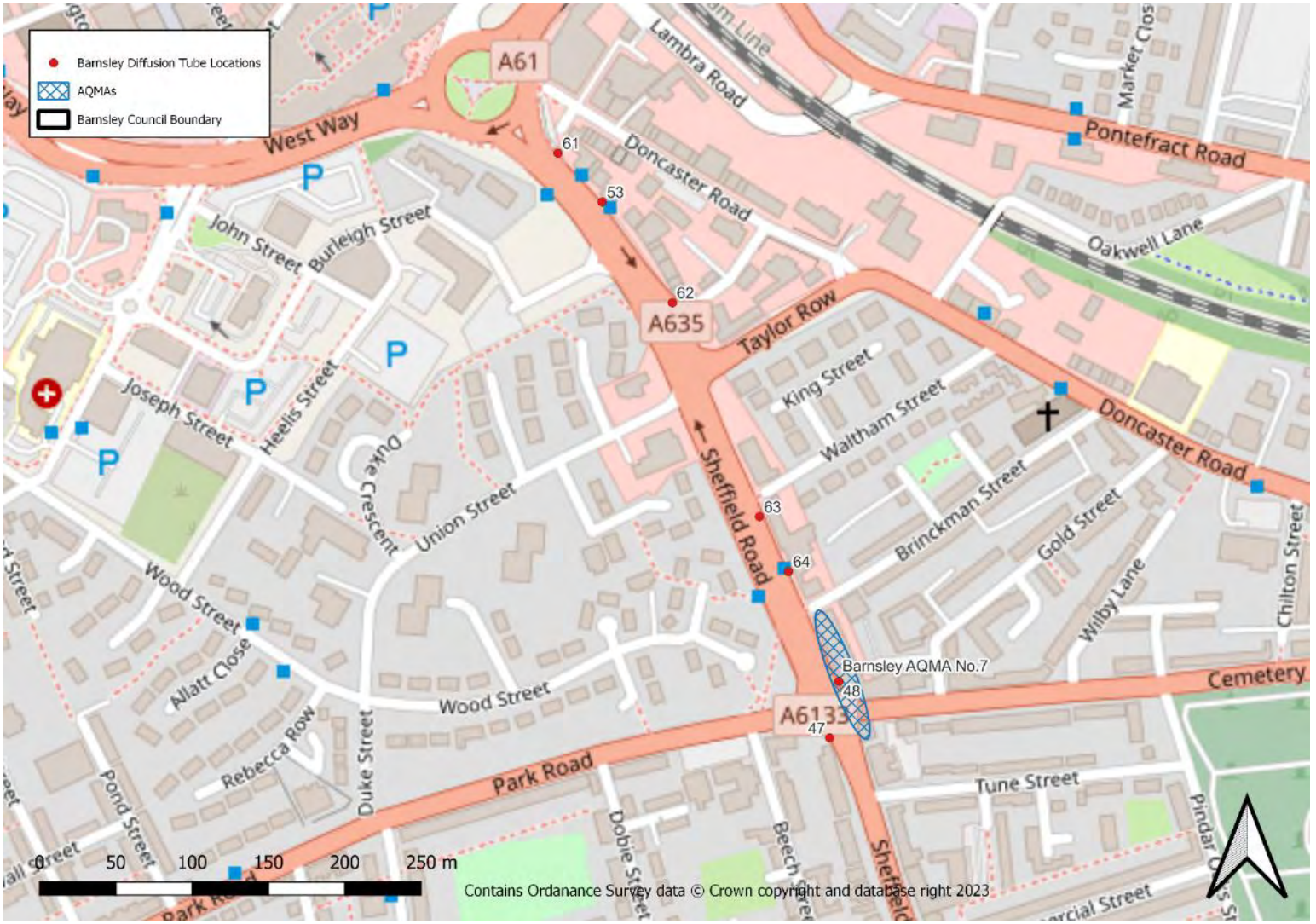

Figure D.1 13 – Map displaying diffusion tubes 32 and 33

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[15]

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

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
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
SO_2	Sulphur Dioxide

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