



2023 Air Quality Annual Status Report (ASR)

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

Date: June 2023

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Report Reference Number	RBC LAQM ASR 2023
Date	29/06/2023

Executive Summary: Air Quality in Our Area

Air Quality in Rushmoor Borough

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

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

Rushmoor Borough Council has been investigating air quality in the borough since 1999, following the guidance provided in the Local Air Quality Management process, as part of the requirements of the Environment Act 1995. This review and assessment of air quality over the years has identified that the most significant air quality objective, in terms of the one most likely to be breached in the borough, is the annual mean objective for nitrogen dioxide. Monitoring of nitrogen dioxide (NO₂) levels in Rushmoor has continued and the results for 2022 show that air quality in the area is generally good. Air quality objectives are being achieved and the designation of an Air Quality Management Area within the Borough is not required.

Emissions from road traffic using the M3 motorway have proved a problem in the past, and an AQMA was in place along the M3 corridor due to likely exceedances of the air quality objective for nitrogen dioxide. However, this AQMA was revoked in 2011 due to monitoring showing continual on-going improvements in nitrogen dioxide levels in the area. Levels

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

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

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

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

now are well within the objective level and the overall trend continues to be one of improvement.

Whilst monitoring across the borough shows that the relevant air quality objectives are being met, further improvements in air quality is always desirable, particularly close to main roads that experience a high volume of traffic. Rushmoor Borough Council will continue to work closely with Hampshire County Council and Highways England, who ultimately have direct responsibility for these roads, to seek continuing improvements to air quality in these areas.

Rushmoor Borough Council, along with Surrey Heath Borough Council, was directed by the Secretary of State to develop a plan to achieve air quality improvements along the A331, and to bring about compliance with legal limits in the shortest possible time. The Local Plan was finalised in April 2019 and a speed restriction of 50mph along a 1.8 km section of the A331, between Coleford Bridge and Frimley was implemented in June 2019. Funding was secured for Hampshire County Council to implement the speed reduction and for Rushmoor Borough Council to monitor and evaluate its effectiveness in delivering compliance. Further details of the Full Business Case can be found on the Blackwater Valley Group's website at <https://www.a331airquality.co.uk/>.

The speed reduction measure was predicted to deliver compliance with the NO₂ EU limit value in 2021 and monitoring is to continue until at least the end of 2024 to ensure this remains the case. The measure was scheduled to be decommissioned at the end of 2022; however, the Council was awaiting guidance from Government detailing the level of evidence required to demonstrate the measure has been a success. This guidance has just been released (28 June 2023) so the Council can now proceed with the next stage of this project.

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

Rushmoor Borough Council have undertaken several measures to improve air quality across our region:

- The Rushmoor Local Plan, adopted February 2019, will guide the location, scale and type of future development in Rushmoor up to 2032 and contains detailed policies to protect air quality. These are designed to prevent future developments from impacting local air quality negatively, ensuring continued compliance with national air quality objectives.
- A Local Air Quality Plan has been produced and a speed restriction implemented along the A331 to reduce concentrations of NO₂. Rushmoor Borough Council has received funding to monitor and evaluate the effectiveness of this measure in delivering compliance with the NO₂ EU limit value.
- Rushmoor Borough Council declared a Climate Emergency in 2019, and our Climate Change Strategy was approved in November 2020. The Climate Change Action Plan has been revised and is being presented to Cabinet for approval in July 2023. The Climate Change Action Plan 2023-2026 contains 12 priority actions that have the potential to reduce the Council's carbon emissions by over 40% by 2030. Whilst this revised Action Plan is predominantly focused on reducing the Council's own carbon footprint, it also includes actions which support the objective of achieving a greener and more sustainable Rushmoor.

⁵ Defra. Environmental Improvement Plan 2023, January 2023

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

Conclusions and Priorities

During 2022, there were no exceedances of the nitrogen dioxide (NO₂) annual mean air quality objective of 40µg/m³ recorded at any monitoring location within the borough. Concentrations at all long-established sites remain significantly down on levels monitored before Covid-19. The overall trend on average remains one of gradual reduction since 2002.

Rushmoor Borough Council will continue to monitor NO₂ using passive diffusion tubes and will continue to periodically review this monitoring regime in order to identify potential new hotspot locations and to ensure monitoring is representative of the whole borough.

Monitoring will continue along the A331 to assess the effectiveness of reducing the speed limit from 70mph to 50mph and to demonstrate ongoing compliance with the NO₂ EU limit value.

Rushmoor Borough Council's priorities for the coming year are to continue implementation of the Council's Climate Change Action Plan, and to demonstrate compliance with the EU Limit value for NO₂ along the A331 so that decommissioning of the speed reduction measure can commence if this is considered desirable.

Local Engagement and How to get Involved

Road traffic emissions are the main source of pollution in the borough, so there are a number of ways in which residents and businesses locally can help to improve air quality in the area. Reducing energy use in the home, at work and whilst travelling all can have a beneficial impact on local air quality, whilst saving money and reducing carbon emissions.

Reducing fuel use is easy and individual minor changes can collectively make a significant contribution to improving local air quality:

- Walk or cycle for shorter journeys when you can. Not only is this good for the environment but it's also good for your health and wellbeing:
<https://myjourneyhampshire.com/>
- Use public transport where possible: <http://www.travelinesw.com/>
- Car sharing is an easy way to reduce emission and fuel costs:
<https://liftshare.com/uk>

- Improving your driving style can save lots of fuel:
<https://myjourneyhampshire.com/drive/eco-driving/>

Further details of air quality in the Borough can be found on the Council's webpages at:
<https://www.rushmoor.gov.uk/recycling-rubbish-and-environment/noise-and-air-pollution/air-quality/>

Daily forecasts of air pollution across the UK can be found at: <https://uk-air.defra.gov.uk/forecasting/>

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Control and Pollution Team within Operational Services of Rushmoor Borough Council with the support and agreement of the following officers and departments:

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1 Local Air Quality Management

This report provides an overview of air quality in Rushmoor during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an 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 Rushmoor 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.

Rushmoor Borough Council currently does not have any declared AQMAs.

2.2 Progress and Impact of Measures to address Air Quality in Rushmoor

Defra's appraisal of last year's ASR concluded the report was well structured, detailed and provided the information specified in the Guidance. On the basis of the evidence provided, the conclusions reached were deemed to be acceptable for all sources and pollutants.

Rushmoor Borough Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. 10 measures are included within Table 2.1, with the type of measure and the progress Rushmoor have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

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

- Blackwater Valley Local NO₂ Plan
- Hampshire Local Transport Plan (LTP3)
- Hampshire Draft Local Transport Plan (LTP4)
- Rushmoor Local Cycling and Walking Infrastructure Plan 2023
- Rushmoor Borough Transport Statement 2013
- Hampshire County Council Cycling September 2015
- Hampshire County Council's Electric Vehicle Charging Framework
- Farnborough and Aldershot Town Access Plans
- Hampshire County Council Climate Change Action Plan 2020-2025
- Rushmoor's Climate Change Action Plan 2020-2030

Key completed measures are:

- Over the past two years HCC have been developing their draft LTP4. Formal consultation on this ended in June 2022. The outcome from this consultation is still pending.

Rushmoor Borough Council expects the following measures to be completed over the course of the next reporting year:

- The Rushmoor climate change action plan is to be revised, with the new action plan due to go to Cabinet in July 23.
- Rushmoor workplace travel plan to be revised to reduce emissions associated with business travel year on year.

Rushmoor's priorities for the coming year are

- To continue passive monitoring throughout the borough, to ensure compliance with air quality objectives
- To update and revise the Council's Climate Change Action Plan
- To demonstrate ongoing compliance of EU Limit value for nitrogen dioxide along the A331 and decommission speed reduction measure following receipt of guidance from Joint Air Quality Unit.

Rushmoor Borough Council worked to implement these measures in partnership with the following stakeholders during 2022:

- Hampshire County Council
- The Blackwater Valley Group: Rushmoor Borough Council, Surrey Heath Borough Council, Hampshire County Council and Surrey County Council,

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Detailed policies included within new Rushmoor Local Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Adopted 21 February 2019	2032	RBC	RBC	NO	Not Funded		Implementation	Ongoing improvement in NO2 levels measured	-	Adopted 21 February 2019	Local Plan will guide the location, scale and type of future development in Rushmoor up to 2032
2	Draft Local Transport Plan (LTP4)	Policy Guidance and Development Control	Other policy	2023	2024	Hampshire County Council	Local Authority, LTP, Funding: Gov Grant, S106	NO	Partially Funded	> £10 million	Planning	Reduced vehicle emissions	To be identified	Consultation on draft LTP4 ended 26/06/22	A final version of the LTP4 is expected to be adopted 2024.
3	Access Improvement	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2013	2033	RBC/HCC	Local Authority, LTP, Funding: Gov Grant, S106	NO	Partially Funded		Implementation	Reduced vehicle emissions	-	Hampshire County Council has adopted the Farnborough Town Access Plan (TAP). This identifies improvements and other access initiatives	TAP to be reviewed every five years
4	Installation of Electric Vehicle (EV) charge points across the County	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2015		HCC	Private/grant funding/public sector investment	NO	Partially Funded		Planning	Reduced vehicle emissions	-	EV charging points in 2 RBC car parks: * Queensmead car park - two EV charging bays * Farnborough (main) train station car park - 12 EV charge bays Also, many fuel stations, supermarkets, and other local businesses in borough offer EV charging	Hampshire County Council has procured an electric vehicle (EV) charging framework and is leading the way in getting more EV charging points installed across Hampshire and the South of England.
5	Cycling Strategy	Promoting Travel Alternatives	Promotion of cycling	2015		HCC	Local Authority, LTP, LEP, Funding: Gov Grant, CIL	NO	Not Funded		Planning	Reduced vehicle emissions	Participation rates and public satisfaction indices.	Cycling Strategy adopted Sept 2015	Local Cycling and Walking Infrastructure Plan published 2023. Developed by RBC & HCC, its purpose to provide strategic approach to identifying walking and cycling infrastructure improvements required at a local level.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
6	Local Air Quality Plan	Policy Guidance and Development Control	Other policy	Final Plan submitted May 2019	2024	RBC SHBC HCC SCC JAQU	Gov Grant	NO	Funded	£100k - £500k	Implementation	Reduction in NO2	* Reduction in NO2 *Behaviour change - average speed	Full Business Case submitted May 2019. Funding received - RBC for monitoring & Evaluation / HCC for implementation of speed reduction measure along A331	Speed reduction measure to be removed once air quality improvements achieved and compliance with EU limit value secured. Currently awaiting JAQU guidance on how to satisfactorily demonstrate compliance so that project can be completed.
7	Bradford's Roundabout improvements	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2019	2020	HCC	43800	NO	Funded	£100k - £500k	Completed	Calculated 4.4t of NO _x emissions over 10 years	before and after queue length surveys	Funding secured and detailed design complete	Works complete 2020
8	Speed reduction on A331	Traffic Management	Reduction of speed limits, 20mph zones	2019	2019	HCC	Gov Grant	NO	Funded	£100k - £500k	Implementation	Reduction in NO2	Reduction in average speed	Funding granted under Implementation Fund and detailed designs complete	On-going
9	Climate Change Action Plan	Other	Other	2020	2030	RBC/HCC	Local Authority	NO	Partially Funded	£50k - £100k	Implementation	Reduction in CO2, NO2, PM10	Development of Action Plan. Carbon neutral by 2030.	Action Plan approved Nov 2020.	Revised Action Plan for 2023-26 presented to Cabinet in July 23, with 12 revised priority actions.
10	"My Journey - Helping Hampshire Getting Around" Travel Awareness Campaign	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2012	2024	HCC	DfT	NO	Funded		Implementation	Reduced vehicle emissions	-	Website: https://myjourneyhampshire.com/	Website includes travel information & advice for Hampshire area, incl information on cycle routes, walking maps and links to public transport

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm 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 Public Health Outcomes Framework (PHOF) for England recognises the burden of ill health resulting from poor air quality. PHOF Indicator D01 reports that 5.5% of deaths in Hampshire and 6% in Rushmoor during 2021 (the year for which the latest data is available) were attributable to fine particulates (PM_{2.5}), the figure for England being 5.5%.

Rushmoor Borough Council do not currently monitor for PM_{2.5} or PM₁₀. In the absence of PM_{2.5} monitoring and where a local authority does not undertake PM₁₀ monitoring, the current Defra background mapping resource should be used to provide maximum background annual mean PM_{2.5} concentrations within the Local Authority. This resource is available through <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018> The 2022 Defra background maps for Rushmoor Borough Council (2018 reference year) show that all background concentrations of PM_{2.5} are below the annual mean Air Quality objective for PM_{2.5} (25 µg/m³), with the highest concentration predicted to be 11.3 µg/m³.

Rushmoor Borough Council is taking the following measures to address PM_{2.5}:

- All significant developments are now required to produce Construction Method Statements prior to demolition or construction works commencing, that detail the measures to be employed to minimise fugitive dust emissions and minimise the deposition of dust on the public highway.
- Environmental Health continue to regulate certain industrial installations under the Environmental Permitting Regulations, including such processes as Concrete Crushers, Roadstone Coating and Concrete Batching processes that all have the potential to emit significant levels of particulates into the air. Environmental Health will continue to work with operators to ensure that measures are in place to reduce fugitive dust from these industrial sites.

- Policy IN2 of the Rushmoor Local Plan requires development to minimise the need for travel, promote opportunities for sustainable transport, and improved accessibility for pedestrian and cycle networks.
- Policy DE10 of the Rushmoor Local Plan deals specifically with Pollution. Proposals for development that risks non-compliance of EU Limit Values or National Air Quality Objectives will be refused.
- Rushmoor Borough Council approved its Climate Change Strategy and complementary Action Plan in 2020. This includes measures to improve air quality and reduce pollution in the borough and will consider the synergies between carbon emission reduction measures and improving local air quality to identify priority areas for maximum benefit. The Climate Change Action Plan has been revised and is being presented to Cabinet for approval in July 2023. The Climate Change Action Plan 2023-2026 contains 12 priority actions that have the potential to reduce the Council's carbon emissions by over 40% by 2030. Whilst this revised Action Plan is predominantly focused on reducing the Council's own carbon footprint, it also includes actions which support the objective of achieving a greener and more sustainable Rushmoor:
 - To switch the Council's car fleet to electric alternatives and investigate options for other Council vehicles
 - To achieve a 5% annual reduction in overall travel from employee-owned vehicles for business purposes and refresh the Council's Workplace Travel Plan.
 - To work further with Hampshire County Council to improve access to EV charging facilities across Rushmoor.

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Rushmoor Borough Council does not currently operate any automatic monitoring sites. An automatic monitoring station was located in Medway Drive, Farnborough, next to the M3 motorway, up until April 2011. The measurements from this site are presented in previous reports.

National monitoring results are available at <https://uk-air.defra.gov.uk/>

3.1.2 Non-Automatic Monitoring Sites

Rushmoor Borough Council undertook non- automatic (i.e. passive) monitoring of NO₂ at 26 sites during 2022. Table A.1 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.

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.

3.1.3 Nitrogen Dioxide (NO₂)

Error! Reference source not found. in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2022 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.

Rushmoor Borough Council has examined the results from monitoring in the borough and can confirm that there were no exceedances of the NO₂ annual mean objective. All air quality objectives are being achieved.

Examination of the trend in the annual mean NO₂ concentrations over the last five years (Figure A.1) indicates a general improvement in NO₂ concentrations at sites across the borough over this time. NO₂ concentrations in 2022 are significantly down on levels monitored pre-Covid-19.

Due to concerns raised regarding emissions from vehicles accessing two adjacent drive-thru fast food restaurants close to a busy junction, two new monitoring locations were installed in January 2023 along North Lane in Aldershot, either side of the North Close junction. To facilitate this, two existing sites were discontinued (sites O1 and JJ). Both routinely reported NO₂ concentrations significantly below the NO₂ annual mean objective.

The Blackwater Valley Group have produced a Local Plan to reduce concentrations of NO₂ along the A331. A speed restriction measure has been implemented along a 1.8 km section of the A331, and monitoring of this is ongoing to evaluate its effectiveness in achieving compliance of the EU Limit value in the shortest possible time.

6 NO₂ diffusion tube triplicate sites (RBC1 – SH6) were established during 2019 along the A331 and Blackwater Valley path. These monitoring sites are not representative of public exposure as defined under the LAQM regime and no results are above 40µg/m³. There were no exceedances of the NO₂ annual mean objective and all results are included in this report.

The Blackwater Valley Group routinely submit quarterly monitoring reports to the Government's Joint Air Quality Unit to update them on progress. We will continue to

monitor air quality levels until at least 2024. Decommissioning of the speed reduction measure was scheduled for the end of 2022 but we have been awaiting guidance from JAQU on how to proceed with demonstrating compliance of the EU limit Value. This was finally provided on 28 June 2023.

All annual mean results were less than $60\mu\text{g}/\text{m}^3$, indicating that an exceedance of the 1-hour mean objective is unlikely at all locations.

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)
C1	Medway Drive - Lamppost 17, opp Tees Close	Roadside	485047	156934	NO2	No	20.0	37.0	No	2.5
J1	2 Tees Close	Roadside	485058	156912	NO2	No	0.0	8.0	No	2.5
K1	201 Ash Road, Aldershot	Roadside	487932	149942	NO2	No	0.0	9.0	No	2.5
L1	Alpine Ski Centre	Urban Background	487380	151558	NO2	No	125.0	300.0	No	2.5
N1	270 Fernhill Road, Farnborough	Urban Background	485444	157373	NO2	No	0.0	26.0	No	2.5
Q1	Prospect Avenue	Roadside	487121	156898	NO2	No	5.0	1.0	No	2.5
R1	86 Rectory Road, Farnborough	Roadside	487844	155922	NO2	No	0.0	4.0	No	2.5
S1	64a Park Road, Farnborough	Roadside	488109	153924	NO2	No	5.0	3.0	No	2.5
Y1	38 Union Street	Roadside	486853	155913	NO2	No	6.0	2.0	No	2.5
Z1	Queens Avenue, A. - opposite churches	Roadside	486588	151976	NO2	No	80.0	13.0	No	2.5
Z2	Badajos Road	Roadside	486112	151152	NO2	No	28.0	10.0	No	2.5
AA	Mayfield Road -Lamppost 7 - Cherrywood Primary School	Roadside	486434	156806	NO2	No	15.0	3.0	No	2.0
BB	Church Lane East - St Michaels Primary School	Roadside	487111	149777	NO2	No	10.0	2.0	No	2.5
GG	Farnborough Road	Roadside	487086	154946	NO2	No	3.0	2.0	No	2.0
FF	97-99 North Lane, Ald	Roadside	487940	150466	NO2	No	6.0	2.0	No	2.0
HH	Windmill Rd/High St, Ald	Roadside	487003	150400	NO2	No	0.0	3.0	No	2.0
JJ	Avon Close, Farnborough	Urban Background	485445	157228	NO2	No	30.0	32.0	No	2.5
KK	Fredrick Street, Aldershot - Junc Victoria Road	Roadside	486236	150638	NO2	No	-8.0	12.0	No	2.5

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)
LL	Nightingale, Farnborough-lamppost no 4	Urban Background	484373	156603	NO2	No	56.0	32.0	No	2.5
MM	Sandy Lane, Farnborough-lamppost no 48	Roadside	484778	156775	NO2	No	50.0	68.0	No	2.5
BVR 1a, BVR 1b, BVR 1c	On Tree at bend north of bridge	Roadside	487963	156329	NO2	No	>200	12.0	No	1.5
BVR 2a, BVR 2b, BVR 2c	North of railway bridge	Roadside	487962	156302	NO2	No	>200	6.5	No	2.0
BVR 3a, BVR3b, BVR3c	Fence post 25m south of footbridge	Roadside	487882	156633	NO2	No	>200	7.5	No	1.1
BVR4a, BVR 4b, BVR 4c	Fence post beside traffic count box	Roadside	487873	156660	NO2	No	>200	8.1	No	1.1
BVR 5a, BVR 5b, BVR 5c	Tree 1m south of traffic count box	Roadside	487874	156656	NO2	No	>200	8.0	No	1.5
SH 6a, SH 6b, SH 6c	Fence - north of railway bridge	Roadside	487952	156395	NO2	No	>200	11.9	No	1.1

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 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
C1	485047	156934	Roadside	92.3	92.3	24.8	24.3	19.5	20.7	19.8
J1	485058	156912	Roadside	100.0	100.0	20.8	21.6	14.8	16.1	15.4
K1	487932	149942	Roadside	100.0	100.0	26.1	25.6	21.1	22.2	21.1
L1	487380	151558	Urban Background	100.0	100.0	12.8	12.2	8.7	9.0	9.0
N1	485444	157373	Urban Background	100.0	100.0	19.4	20.1	15.7	16.0	15.8
Q1	487121	156898	Roadside	100.0	100.0	35.6	36.2	30.7	30.6	30.2
R1	487844	155922	Roadside	100.0	100.0	32.6	30.0	22.5	23.0	22.9
S1	488109	153924	Roadside	84.6	84.6	22.2	23.6	17.1	17.0	18.2
Y1	486853	155913	Roadside	100.0	100.0	23.0	22.4	15.8	17.3	17.7
Z1	486588	151976	Roadside	92.3	92.3	18.0	18.2	12.5	13.1	14.7
Z2	486112	151152	Roadside	100.0	100.0	18.5	16.6	12.6	13.9	14.8
AA	486434	156806	Roadside	82.7	82.7	19.2	20.6	14.2	15.3	13.4
BB	487111	149777	Roadside	100.0	100.0	16.9	18.0	11.3	13.9	12.6
GG	487086	154946	Roadside	90.4	90.4			21.8	23.7	23.3
FF	487940	150466	Roadside	92.3	92.3			19.6	20.1	19.4
HH	487003	150400	Roadside	100.0	100.0			17.6	17.6	17.1
JJ	485445	157228	Urban Background	92.3	92.3				19.5	17.7
KK	486236	150638	Roadside	82.7	82.7				17.8	17.9
LL	484373	156603	Urban Background	100.0	100.0					17.2
MM	484778	156775	Roadside	92.3	92.3					21.2
BVR 1a, BVR 1b, BVR 1c	487963	156329	Roadside	100.0	100.0		25.9	19.4	20.4	20.4
BVR 2a, BVR 2b, BVR 2c	487962	156302	Roadside	100.0	100.0		26.4	22.0	21.6	21.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
BVR 3a, BVR3b, BVR3c	487882	156633	Roadside	100.0	100.0		26.3	22.3	23.2	22.4
BVR4a, BVR 4b, BVR 4c	487873	156660	Roadside	100.0	100.0		27.7	25.5	25.2	25.6
BVR 5a, BVR 5b, BVR 5c	487874	156656	Roadside	100.0	100.0		32.5	26.5	28.0	27.2
SH 6a, SH 6b, SH 6c	487952	156395	Roadside	92.3	92.3		22.7	21.9	20.8	19.2

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 $\mu\text{g}/\text{m}^3$.

Exceedances of the NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

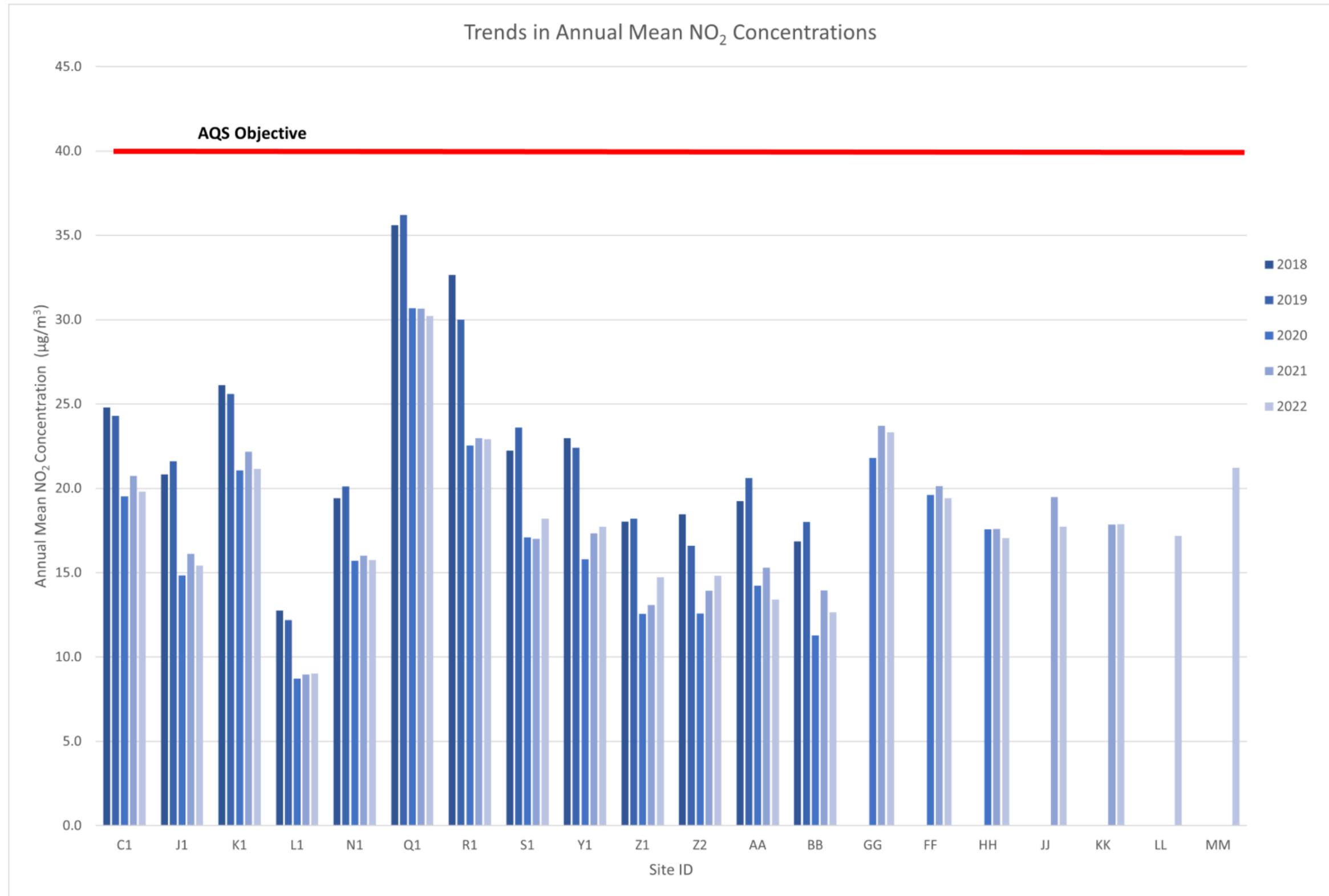
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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%).

Figure A.1 – Trends in Annual Mean NO₂ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2022

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

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
C1	485047	156934	36.5	22.0	27.5	24.5	19.0		18.7	22.6	26.0	19.0	17.4	29.3	23.9	19.8	-	
J1	485058	156912	28.5	15.8	21.1	17.8	15.0	12.2	14.3	18.2	18.5	15.1	22.2	24.3	18.6	15.4	-	
K1	487932	149942	32.3	23.9	30.7	25.8	20.0	19.9	21.3	28.7	23.1	23.3	26.4	30.5	25.5	21.1	-	
L1	487380	151558	15.7	9.7	14.4	9.6	7.5	6.8	6.9	10.4	10.2	10.8	10.7	17.8	10.9	9.0	-	
N1	485444	157373	24.4	17.4	28.2	17.5	13.4	13.0	13.9	18.8	17.4	19.8	20.2	23.9	19.0	15.8	-	
Q1	487121	156898	36.6	36.8	37.4	34.9	30.4	32.4	34.1	43.5	36.2	37.3	38.2	39.1	36.4	30.2	-	
R1	487844	155922	34.2	18.5	36.4	26.4	24.9	22.1	24.5	28.1	27.0	27.0	33.1	29.0	27.6	22.9	-	
S1	488109	153924	29.5	18.9	25.8	17.8	14.9	13.3			18.1	21.8	27.8	31.4	21.9	18.2	-	
Y1	486853	155913	30.5	14.7	28.2	19.1	14.8	14.1	17.0	22.3	21.1	22.2	25.0	27.3	21.3	17.7	-	
Z1	486588	151976	22.3	13.9	20.6	14.1	13.0	12.6		15.1	17.0	20.1	23.0	23.8	17.8	14.7	-	
Z2	486112	151152	24.1	28.3	23.0	15.1	11.2	10.0	11.7	16.4	15.6	16.6	17.5	24.8	17.8	14.8	-	
AA	486434	156806	29.5	16.6		15.8	7.3	12.4	13.1	17.3	17.5	12.7	19.3		16.1	13.4	-	
BB	487111	149777	21.6	11.5	21.1	15.3	11.0	9.2	11.0	14.6	14.6	16.6	13.7	22.7	15.2	12.6	-	
GG	487086	154946	36.6	19.0	32.0	24.2	25.0	26.4	23.2	25.6	28.7		33.5	35.1	28.1	23.3	-	
FF	487940	150466	32.7	18.9		22.5	17.4	15.5	19.8	26.8	23.2	24.3	24.5	31.6	23.4	19.4	-	
HH	487003	150400	29.7	16.9	24.6	19.0	16.0	13.7	16.8	19.6	20.0	21.1	21.6	27.8	20.6	17.1	-	
JJ	485445	157228	31.2	18.7	27.1	23.2	16.9	13.2	15.9		22.6	18.9	20.2	27.1	21.4	17.7	-	
KK	486236	150638	29.8	21.8	26.2		14.7	12.9	16.1	20.8		21.2	23.0	29.0	21.5	17.9	20.5	
LL	484373	156603	31.2	25.3	25.2	21.6	14.7	13.3	16.0	21.1	21.3	15.5	17.6	25.7	20.7	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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
MM	484778	156775	32.0		31.9	22.7	20.6	19.8	18.7	26.7	23.7	25.6	28.7	30.5	25.6	21.2	-	
																-	-	
																-	-	
BVR 1a	487963	156329	34.4	29.1	24.2	25.1	20.8	23.1	20.5	17.8	21.5	24.2	29.1	27.9	-	-	-	Triplicate Site with BVR 1a, BVR 1b and BVR 1c - Annual data provided for BVR 1c only
BVR 1b	487963	156329	32.3	31.7	22.4	24.0	22.0	22.2	18.0		21.2	24.1	29.5	25.7	-	-	-	Triplicate Site with BVR 1a, BVR 1b and BVR 1c - Annual data provided for BVR 1c only
BVR 1c	487963	156329	32.0	28.8	24.7	23.8	21.1	22.0	19.5	21.0	21.2	23.4	28.8	29.3	24.6	20.4	-	Triplicate Site with BVR 1a, BVR 1b and BVR 1c - Annual data provided for BVR 1c only
BVR 2a	487962	156302	35.4	27.0	26.7	21.4	22.7	10.4	21.7	23.4	26.4	25.7	29.1	30.3	-	-	-	Triplicate Site with BVR 2a, BVR 2b and BVR 2c - Annual data provided for BVR 2c only
BVR 2b	487962	156302	36.3		27.5	24.9	22.9	16.6	22.6	25.9	24.1	27.3	29.8	28.4	-	-	-	Triplicate Site with BVR 2a, BVR 2b and BVR 2c - Annual data provided for BVR 2c only
BVR 2c	487962	156302	33.3		28.3	24.2	21.1		22.0	23.2	26.2	25.9	29.7	29.8	25.5	21.2	-	Triplicate Site with BVR 2a, BVR 2b and BVR 2c - Annual data provided for BVR 2c only
BVR 3a	487882	156633	45.5	33.5	27.5	27.8	21.0	22.3	22.4	21.8	24.5	23.0	30.1	31.6	-	-	-	Triplicate Site with BVR 3a, BVR3b and BVR3c - Annual data provided for BVR3c only
BVR3 b	487882	156633	42.4	30.4	27.1	27.3	22.3	21.3	21.6	21.7	24.9	22.1	27.3	32.3	-	-	-	Triplicate Site with BVR 3a, BVR3b and BVR3c - Annual data provided for BVR3c only
BVR3 c	487882	156633	35.7	32.2	29.4	26.7	22.4	21.2	22.3	21.7	25.0	21.0	28.7	32.1	26.9	22.4	-	Triplicate Site with BVR 3a, BVR3b and BVR3c - Annual data provided for BVR3c only
BVR4 a	487873	156660	42.6	34.4	31.3	32.5	26.7	26.9	26.2	26.4	28.5	28.4	34.6	36.3	-	-	-	Triplicate Site with BVR4a, BVR 4b and BVR 4c - Annual data provided for BVR 4c only
BVR 4b	487873	156660	45.5	36.2	32.1	29.3	26.9	24.9	25.1	25.5	29.6	28.4	32.3	35.5	-	-	-	Triplicate Site with BVR4a, BVR 4b and BVR 4c - Annual data provided for BVR 4c only
BVR 4c	487873	156660	42.6	37.7	31.3	28.7	26.3	19.7	25.3	25.9	30.0	29.1	34.8	35.3	30.9	25.6	-	Triplicate Site with BVR4a, BVR 4b and BVR 4c - Annual data provided for BVR 4c only
BVR 5a	487874	156656	46.1	36.0	32.2	30.7	29.1	30.7	24.6	30.1	32.9	30.1	34.5	37.5	-	-	-	Triplicate Site with BVR 5a, BVR 5b and BVR 5c - Annual data provided for BVR 5c only
BVR 5b	487874	156656	40.6	37.1	33.9	30.7	29.2	26.4	27.7	29.0	31.2		37.1	35.7	-	-	-	Triplicate Site with BVR 5a, BVR 5b and BVR 5c - Annual data provided for BVR 5c only
BVR 5c	487874	156656	48.0	36.0	29.8	25.9	27.8	30.2	28.7	30.3	33.4	30.2	36.2	38.6	32.7	27.2	-	Triplicate Site with BVR 5a, BVR 5b and BVR 5c - Annual data provided for BVR 5c only
SH 6a	487952	156395	36.1	27.8	23.9	23.6	18.3		16.3	18.9	18.2	18.6	25.6	27.2	-	-	-	Triplicate Site with SH 6a, SH 6b and SH 6c - Annual data provided for SH 6c only

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SH 6b	487952	156395	36.4	30.2	21.7	24.2	17.4		16.0	18.4	18.1	17.8	24.2	26.9	-	-	-	Triplicate Site with SH 6a, SH 6b and SH 6c - Annual data provided for SH 6c only
SH 6c	487952	156395	34.7	31.0		23.4	18.8		15.9	18.1	18.5	19.1	24.9	28.6	23.1	19.2	-	Triplicate Site with SH 6a, SH 6b and SH 6c - Annual data provided for SH 6c only

- All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.
- Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.
- Local bias adjustment factor used.
- National bias adjustment factor used.
- Where applicable, data has been distance corrected for relevant exposure in the final column.
- Rushmoor Borough Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Rushmoor Borough Council During 2022

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

Additional Air Quality Works Undertaken by Rushmoor Borough Council During 2022

Rushmoor Borough Council has not completed any additional works within the reporting year of 2022.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes deployed by Rushmoor Borough Council are supplied and analysed by Gradko using a preparation mixture of 20% triethanolamine (TEA) in water. Gradko participate in the AIR PT scheme, 100% of results between January and June 2022 were determined to be satisfactory based upon a z-score of $< \pm 2$. Table 1 from the latest summary of the Laboratory Performance in AIR NO₂ Proficiency Testing Scheme (AIR-PT Rounds AR037, 39, 40, 42, 43, 45, 46, 49 and 50 (May 2020 – June 2022) is reproduced here. The actual reports can be accessed at <http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>

All monitoring has been completed in adherence with the 2022 Diffusion Tube Monitoring Calendar.

Table 1: Laboratory summary performance for AIR NO₂ PT rounds AR037, 39, 40, 42, 43, 45, 46, 49 and 50

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent AIR NO₂ PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of $\leq \pm 2$ as defined above.

AIR PT Round	AIR PT AR037	AIR PT AR039	AIR PT AR040	AIR PT AR042	AIR PT AR043	AIR PT AR045	AIR PT AR046	AIR PT AR049	AIR PT AR050
Round conducted in the period	May – June 2020	July – August 2020	September – October 2020	January – February 2021	May – June 2021	July – August 2021	September – October 2021	January – February 2022	May – June 2022
Aberdeen Scientific Services	NR [4]	NR [4]	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Cardiff Scientific Services	NR [4]	NR [4]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Edinburgh Scientific Services	NR [4]	NR [4]	100 %	25 %	100 %	100 %	75 %	NR [2]	50 %
SOCOTEC	NR [4]	NR [4]	100 % [1]	100 % [1]	100 % [1]	87.5 % [1]	100 % [1]	100 % [1]	100 % [1]
Exova (formerly Clyde Analytical)	NR [4]	NR [4]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Glasgow Scientific Services	NR [4]	NR [4]	100 %	50 %	100 %	100 %	NR [2]	100 %	100 %
Gradko International	NR [4]	NR [4]	75 %	25 %	100 %	100 %	100 %	100 %	100 % [1]
Kent Scientific Services	NR [4]	NR [4]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Kirklees MBC	NR [4]	NR [4]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Lambeth Scientific Services	NR [4]	NR [4]	100 %	100 %	100 %	75 %	75 %	50 %	75 %
Milton Keynes Council	NR [4]	NR [4]	25 %	0 %	50 %	100 %	100 %	75 %	100 %
Northampton Borough Council	NR [4]	NR [4]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Somerset Scientific Services	NR [4]	NR [4]	100 %	100 %	100 %	100 %	100 %	75 %	100 %
South Yorkshire Air Quality Samplers	NR [4]	NR [4]	100 %	100 %	75 %	100 %	100 %	NR [2]	NR [2]
Staffordshire County Council	NR [4]	NR [4]	50 %	100 %	100 %	100 %	100 %	100 %	100 %
Tayside Scientific Services (formerly Dundee CC)	NR [4]	NR [4]	100 %	NR [2]	100 %	NR [2]	100 %	NR [2]	NR [2]
West Yorkshire Analytical Services	NR [4]	NR [4]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]

[1] Participant subscribed to two sets of test results (2 x 4 test samples) in each AIR PT round.

[2] NR, No results reported.

[3] Cardiff Scientific Services, Exova (formerly Clyde Analytical), Kent Scientific Services, Kirklees MBC, Northampton Borough Council and West Yorkshire Analytical Services; no longer carry out NO₂ diffusion tube monitoring and therefore did not submit results.

[4] Round was cancelled due to pandemic.

NO₂ PT Summary – AIR PT Rounds AR037, 39, 40, 42, 43, 45, 46, 49 and 50

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Diffusion Tube Annualisation

All diffusion tube monitoring locations within Rushmoor Borough Council recorded data capture of 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.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion NO₂ tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Rushmoor Borough Council have applied a national bias adjustment factor of 0.83 to the 2022 monitoring data. This is derived from the national spreadsheet, version number: 03/23, based on 27 studies. A national factor has been used to maintain consistency with previous year reporting. A summary of bias adjustment factors used by Rushmoor Borough Council over the past five years is presented in [Error! Reference source not found.](#)

Table C.1– Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.83
2021	National	03/22	0.84
2020	National	08/21	0.81
2019	National	09/20	0.91
2018	National	03/19	0.93

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

Although the annual mean concentration was not greater than 36µg/m³, a fall-off-with-distance calculation was undertaken for one site (Site KK). Output data from the LAQM NO₂ fall-off with distance calculator for this site is presented in Table C.2.

Table C.2 – NO₂ Fall off With Distance Calculations (concentrations presented in $\mu\text{g}/\text{m}^3$)

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
KK	12.0	4.0	17.9	12.1	20.5	<i>Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.</i>

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

Figure D.1 – Map showing location of non-automatic monitoring sites LL, MM, C1, J1, N1 and JJ

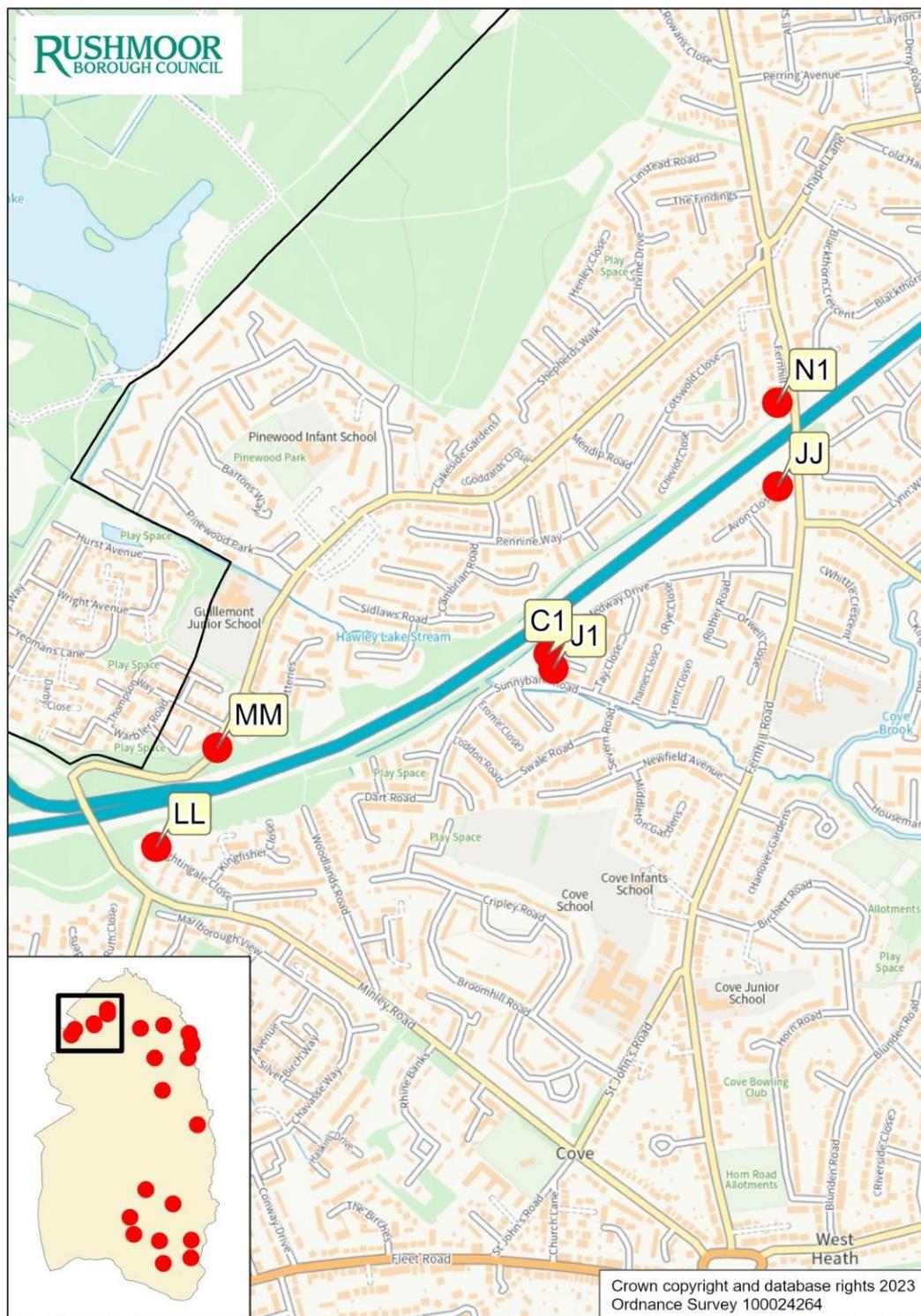


Figure D.2 – Map showing location of non-automatic monitoring sites AA, Q1, R1 and Y1

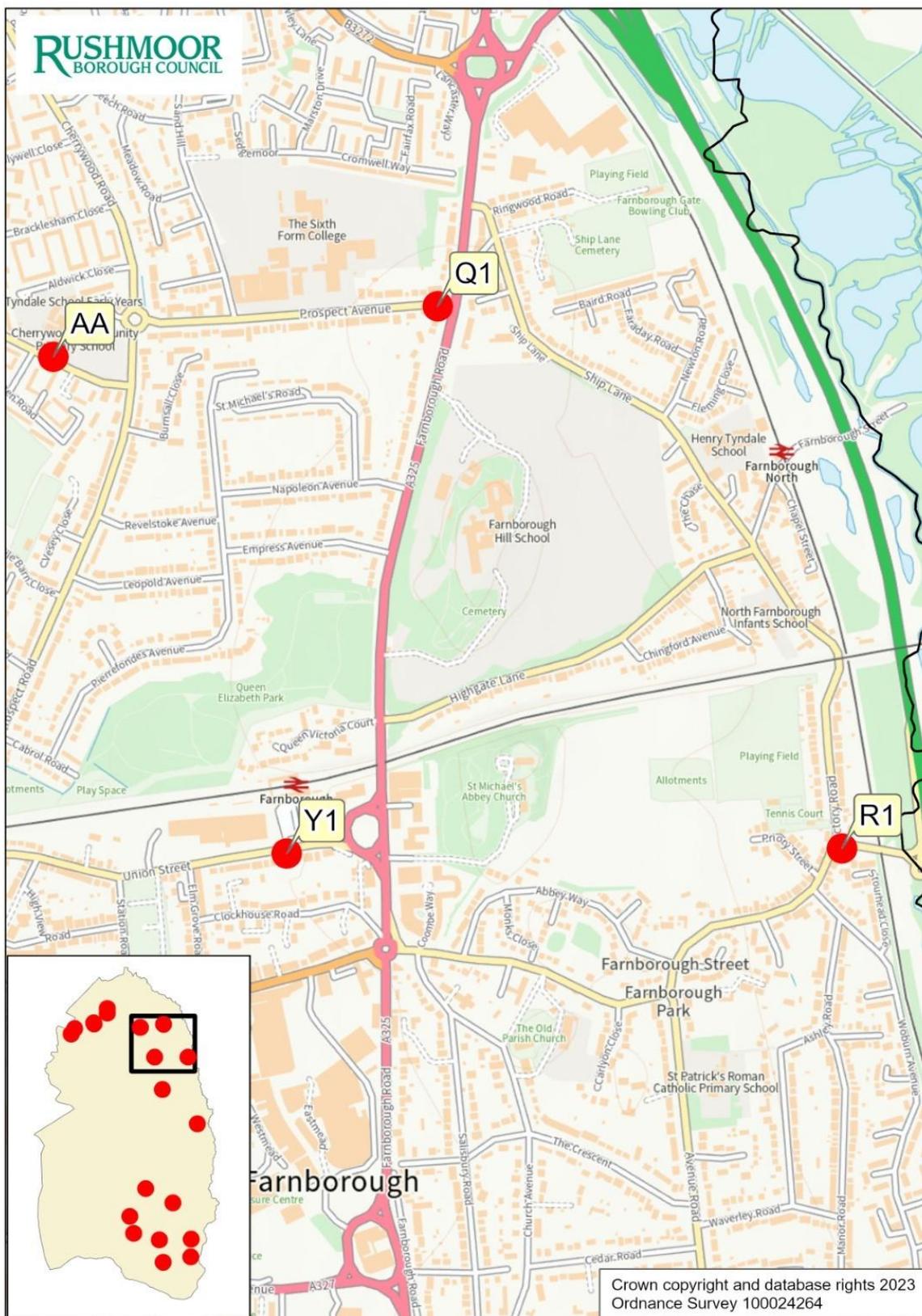


Figure D.3 – Map showing location of non-automatic monitoring sites S1 and GG

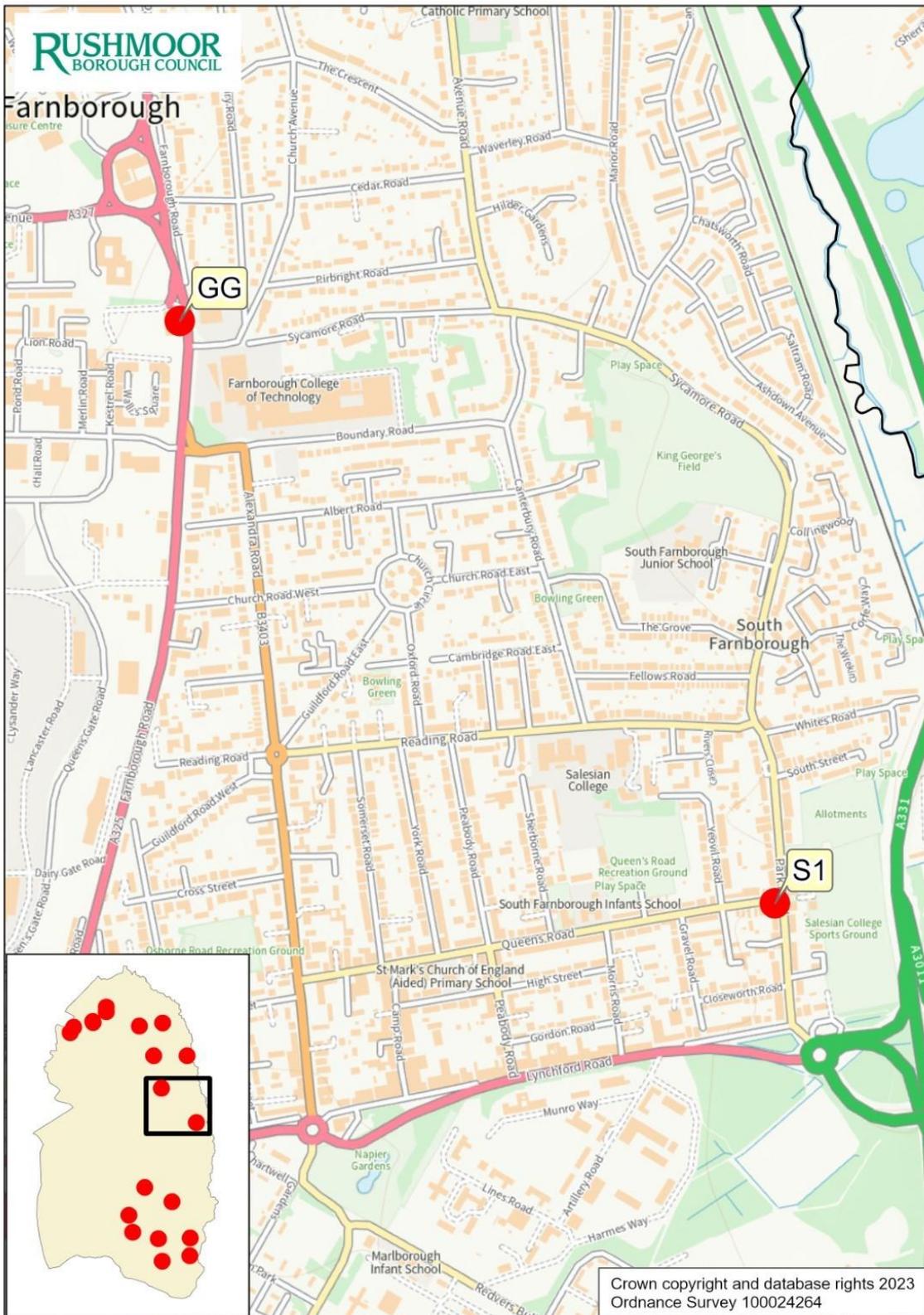


Figure D.4 – Map showing location of non-automatic monitoring sites L1, Z1, Z2, KK and HH

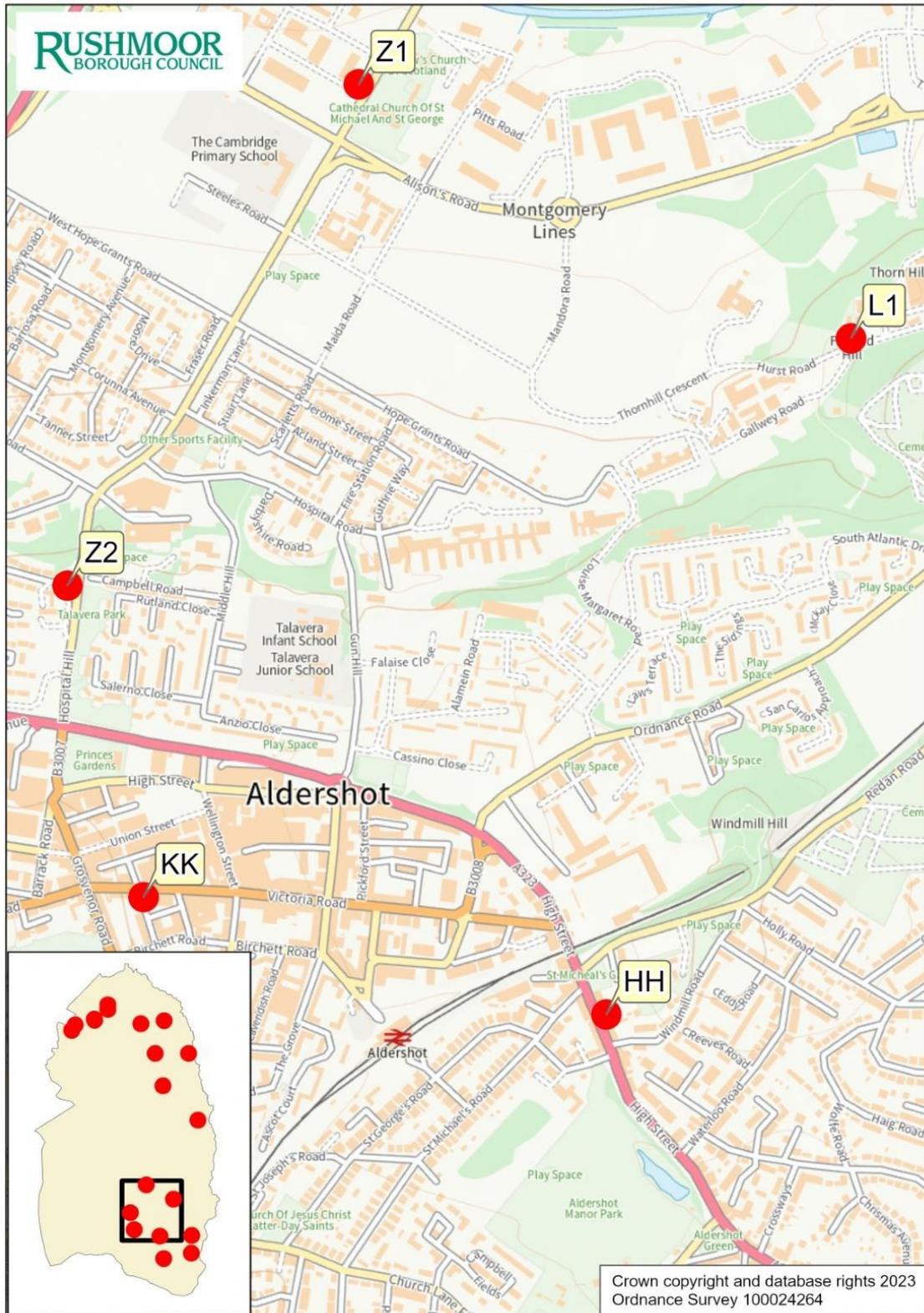


Figure D.5 – Map showing location of non-automatic monitoring sites K1, BB, HH, and FF

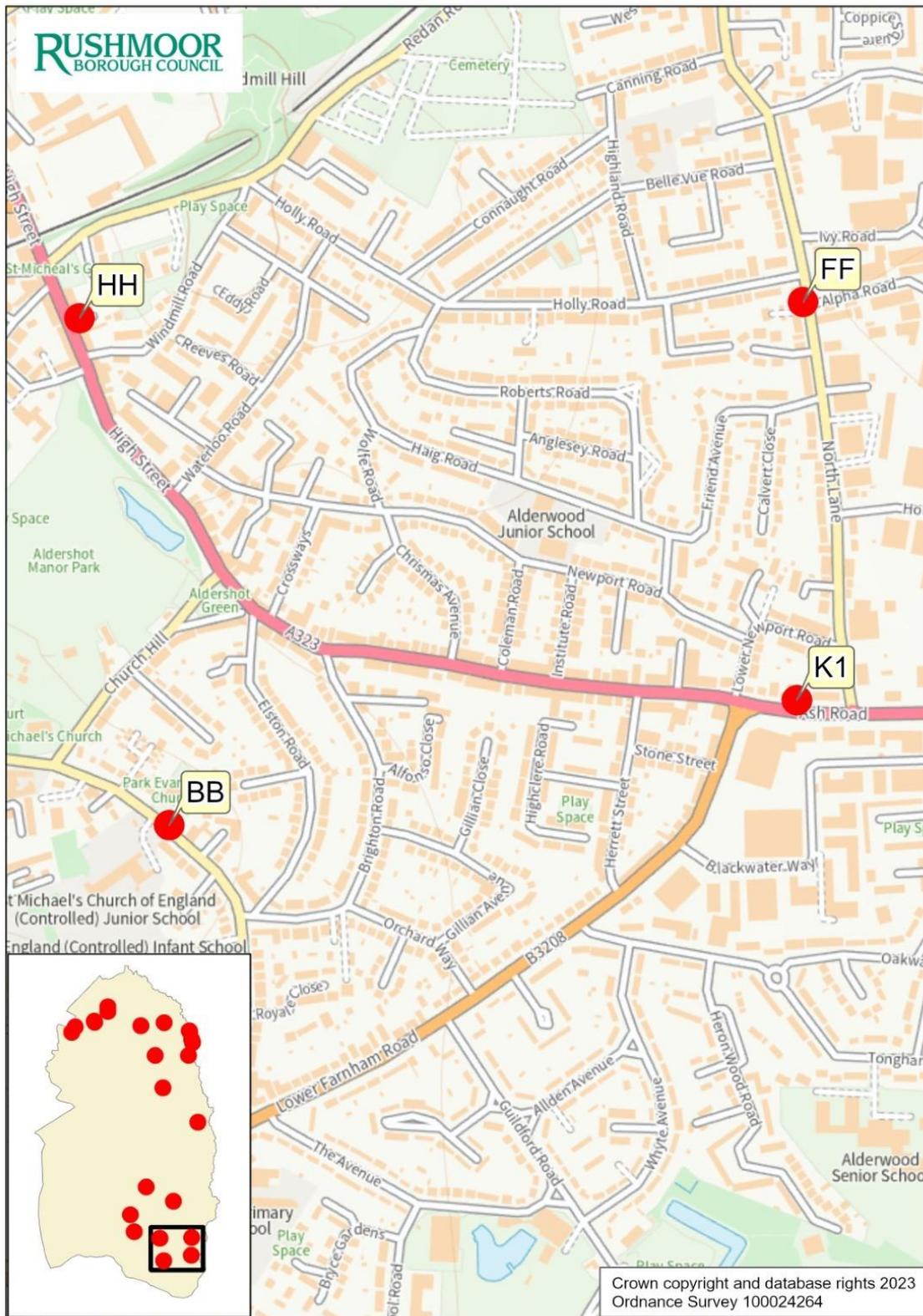
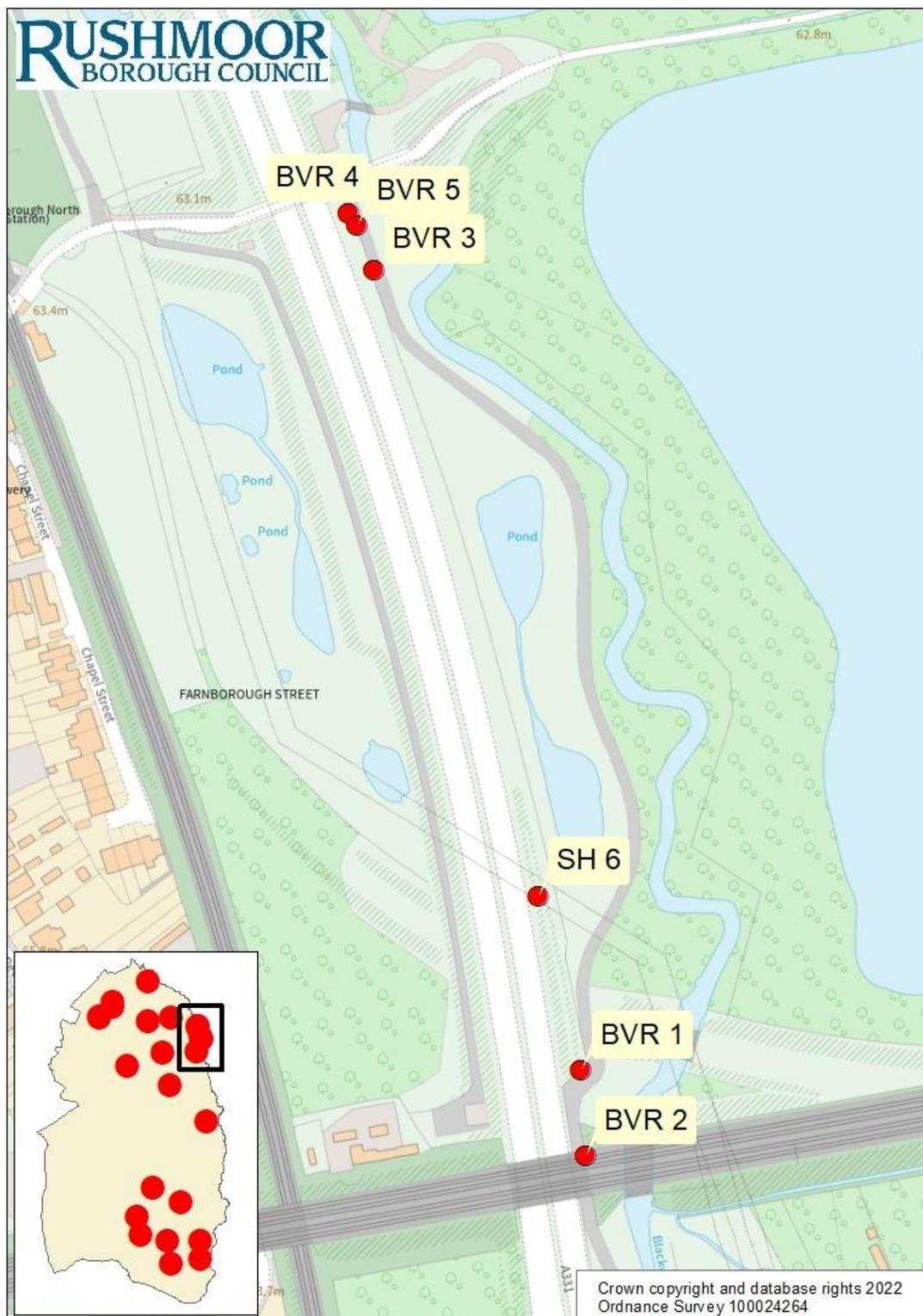


Figure D.6 – Map showing location of non-automatic monitoring sites along the A331 sites



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

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

⁷ 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
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
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

References

- 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.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022.
Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.