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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Executive Summary: Air Quality in Our Area

Air Quality in South Oxfordshire and Vale of White Horse District Councils

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 343,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

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[5] 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

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[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

[5] Defra. Environmental Improvement Plan 2023, January 2023

reduce $PM_{2.5}$ in their areas. The Road to Zero[6] 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.

Conclusions and Priorities

No exceedances of either of the NO_2 objectives were identified in South Oxfordshire, with 2022 monitoring data supporting the decreasing five-year trend of NO_2 levels observed in previous years.

Two exceedances were recorded in Vale of White Horse, both within the Botley AQMA.

Work on the production of the new joint Air Quality Action Plan has commenced in accordance with the council's Corporate Plan. The public consultation was launched 12 June 2023.

In terms of the Local Air Quality Management (LAQM), the council's priority for the following reporting year (2022) will be the preparatory work for this project.

Local Engagement and How to get Involved

There are many ways in which the public can get involved in helping to improve air quality in their area, from using your car less, driving more efficiently when you do have to drive, or considering a cleaner vehicle when you choose to upgrade your car.

Many smart travel choices and other tips to reduce air pollution can be found in the links below:

- http://www.traveline.info/
- https://oxfordshire.air-quality.info/what-can-you-do-to-improve-air-quality
- https://www.southandvale.gov.uk/turnitoff/
- https://uk-air.defra.gov.uk/library/burnbetter/
- https://www.climateactionoxfordshire.org.uk/

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

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection Team of South Oxfordshire and Vale of White Horse District Councils Council with the support and agreement of the following officers and departments:

- Carmen Cubillas Martinez, Air Quality Officer
- Simon Hill, Environmental Protection Team Leader

This ASR has been approved by:

- Paul Fielding, Head of Housing and Environment at South Oxfordshire and Vale of White Horse District Councils
- Cllr Sue Cooper, South Oxfordshire District Council's Cabinet Member for Environment)
- Cllr Mark Coleman, Vale of White Horse District Council's Cabinet Member for Environmental Services and Waste
- Rosie Rowe, Head of Healthy Place Shaping, Public Health Oxfordshire County Council

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

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1 Local Air Quality Management

This report provides an overview of air quality in South Oxfordshire and Vale of White Horse District Councils 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 South Oxfordshire and Vale of White Horse District Councils to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 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 South Oxfordshire and Vale of White Horse District Councils can be found in Table 2.1. The table presents a description of the six AQMAs that are currently designated within South Oxfordshire and Vale of White Horse. 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

We propose to revoke Wallingford AQMA within the next year due to NO_2 being under the national objective for 5 consecutive years (see further details in section 3.2 below).

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
Abingdon	23/08/2006	NO2 Annual Mean	Major town centre roads	NO	63.2	31.1	3	Vale of White Horse District Council AQAP 2015	http://www.whitehorsedc.gov.uk/sites/default/files/Vales%20District%20AQAP.pdf
Botley	29/04/2008	NO2 Annual Mean	Residential properties close to the A34	YES	58.8	53.7	0	District wide AQAP 2015	http://www.whitehorsedc.gov.uk/sites/default/files/Vales%20District%20AQAP.pdf
Marcham	15/06/2006	NO2 Annual Mean	Residential properties near A415	NO	53.9	30.4	3	District wide AQAP 2015	http://www.whitehorsedc.gov.uk/sites/default/files/Vales%20District%20AQAP.pdf
Henley	01/01/2003	NO2 Annual Mean	Major town centre roads	NO	45.1	30.5	3	Air Quality Action Plan 2014: Henley	https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2019/01/air_quality_action_plan.pdf

Wallingford	28/03/2008	NO2 Annual Mean	Major town centre roads	NO	48.3	28.5	5	Air Quality Action Plan 2014: Wallingford	https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2019/01/air_quality_action_plan.pdf
Watlington	31/03/2009	NO2 Annual Mean	Major town centre roads	NO	51.3	27.9	3	Air Quality Action Plan 2014: Watlington	https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2019/01/air_quality_action_plan.pdf

☒ **South Oxfordshire and Vale of White Horse District Councils confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **South Oxfordshire and Vale of White Horse District Councils confirm that all current AQAPs have been submitted to Defra.**

Progress and Impact of Measures to address Air Quality in South Oxfordshire and Vale of White Horse District Councils

Defra's appraisal of last year's South Oxfordshire District Council's ASR concluded:

1. *The AQAP for all three AQMAs were published in 2014 and therefore need to be updated as they are greater than five years old*- The production of a new Air Quality Action Plan was, in terms of Local Air Quality Management, the priority of the Council in 2022. Further information can be found below.
2. *Multiple graphs were provided to show the five year trends in NO_2 at automatic and non-automatic sites in comparison to the AQO however greater discussion of trends in the report text would be appreciated*- Further discussion on the five year NO_2 levels trends is provided in section 3.2.1 below.
3. *In Table A.2, A.4 and B.1 the diffusion tube ID are not in numerical order, this could be altered to ensure the tables are clearer to read*- Tables A.2, A.4 and B.1 have been updated so that the diffusion tube ID are in numerical order.
4. *The report contains a good discussion of what had been done within the local community in the "progress and impact of measures to address AQ in South Oxfordshire" section, the degree of community engagement is encouraging.*
5. *Detailed maps provided in Appendix D showing the location of all monitoring sites and AQMAs.*
6. *The "$PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations" section includes significant detail about the $PM_{2.5}$ (and PM_{10}) concentrations in the district as well as a clear table which shows measures which may reduce $PM_{2.5}$.*

Defra's appraisal of last year's Vale of White Horse District Council's ASR concluded

1. *Vale of the White Horse District Council have detailed and addressed the comments from last year's ASR appraisal, this is appreciated, and it is encouraged that this is continued in future reports.*

2. *The Council have provided extensive details on $PM_{2.5}$ concentrations and emissions within its boundaries, and what it is doing in order to tackle them, in particular the discussion of the D01 indicator is appreciated.*

3. *The graph type for Figure A.1 to A.5 is probably not the best choice, it makes it seem like the data is continuous throughout the years, but as an annual average it should be fixed for that year period. It would be more useful if a bar chart was utilised like provided in the ASR template-* This report includes clustered column graphs to show the trends in NO_2 in the different areas of the districts,

4. *The maps of monitoring locations and AQMAs are clear and easy to read, it is appreciated that they have been broken up by location, but it could be helpful to have a zoomed-out view to gain overall context for the area- An overview of all monitoring locations can be found below in Figures D.1-D.14.*

5. *Table 2.2 has been filled out well, with all pertinent information completed where necessary, this is welcomed, and it is encouraged that the Council continues to do this in future reports.*

Figure 1 EV chargers installed in the Market Place car park in Henley

South Oxfordshire and Vale of White Horse District Councils 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 Tables

2.2.1 and 2.2.2. Fifty-one measures are included within Tables.1 and 2.2.2, with the type of measure and the progress South Oxfordshire and Vale of White Horse District Councils 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 these tables.

More detail on these measures can be found in their respective Action Plans: South Oxfordshire District Council 2014 Air Quality Action Plan and Vale of White Horse District Council 2015 Air Quality Action Plan (please see table 2.1 for links).

One of the completed measures is starting the **production of the Council's new joint AQAP**. The current AQAPs for South Oxfordshire (adopted 2014) and Vale of White Horse (adopted 2015) must be replaced as they were first adopted more than five years ago. Early in 2022 it was decided by elected members that the new AQAP will be a joint one for both councils and that an environmental consultancy would be commissioned to deliver the project.

Following the councils' procurement process, the contract was awarded to Atkins Ltd in August 2022. Inception meetings and discussions about source apportionment and other data and policies to inform the AQAP on took place in October, followed by discussions on the traffic survey commissioned for the project.

Another completed measure is the **production of this traffic survey** to inform the source apportionment for the new AQAP. The traffic counts we carried out by Intelligent Data Ltd in December 2022, further information on this will be included in the AQAP.

Another measure completed in 2022 was the installation of 112 new EV charging points in council run car parks across the district, as part of the **Oxfordshire EV Charging Project**. These charging points are available in 10 car parks cross Wallingford, Henley, Thame, Abingdon, Faringdon and Wantage and give residents with no off-street parking the ability to park for free overnight and charge their electric vehicles with competitive prices.

Details on locations, booking, costs and further information are available on their website: https://parkandchargeoxfordshire.co.uk/

Phase 3 of the project to produce a **new Oxfordshire Air Quality Website**, was also completed in 2022, in partnership with other LAs in Oxfordshire. During this phase a user engagement research project took place, this helped understand what features and tools members of the public expect to see in the new website and how to present air quality information so that it's easily understood.

In 2022 the design of the website commenced, with a new logo being created for the project (see logo, the development of which was funded by Oxfordshire County Council, in Figure 2 below) and the new partnership arrangement with City, Districts and County Council.

Figure 2 New Oxfordshire Air Quality Website logo

Another completed measure is the first pilot of the Schools Streets project launched in 2021, which has continued in 2022. The project, which uses Zephyr sensors to understand the impact of schools' streets closures, has been piloted at St Nicholas's Primary School in Abingdon. In the past year, work has focused on reviewing further schools to form a second pilot.

South Oxfordshire and Vale of White Horse District Councils worked to implement these measures in partnership with the following stakeholders during 2022:

- Oxfordshire County Council
- The Oxfordshire Air Quality Group, which includes air quality officers from all Local Authorities in Oxfordshire, together with representatives from teams that have an involvement in air quality such as colleagues in the Public Health and community safety directorate.

South Oxfordshire and Vale of White Horse District Council's priority for the coming year is the production and adoption of the new AQAP and starting to implement the measures outlined in the document.

South Oxfordshire and Vale of White Horse District Councils expect the new AQAP will be adopted in Autumn 2023, following public consultation in the summer (15 June – 27 July).

The principal challenges and barriers to implementation that South Oxfordshire and Vale of White Horse District Councils anticipates facing when delivering the actions included in the new joint AQAP are some action's progress depends on third parties, changing policies or lack of resources.

Table 2.2.1 Progress on Measures to Improve Air Quality in Vale of White Horse

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
VOWH1	Creation of a 'low emission strategy' and 'low emission zone' feasibility study	Promoting Low Emission Transport	Low Emission Zone (LEZ)	2017		VOWHDC/OCC	VOWH				Aborted		Feasibility study	This has been reviewed and considered in the new AQAP that will be adopted later in 2023	
VOWH2	Frilford & Marcham Transport Study	Other	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2021	2021/22	OCC VOWH Highways England	Optioneering funded by Housing & Growth Deal Implementation funding TBC	None	Optioneering - fully funded Implementation - not yet funded	£>10m	Planning	Not quantified	Successful identification of deliverable preferred option	Work underway; long list options developed; early stakeholder engagement underway	Funding for large infrastructure options uncertain
VOWH3	Oxfordshire Park and Charge project	Transport Planning and Infrastructure	Other	2017	2022	VOWH	Innovate UK, OCC, SODC	NO	Funded	£1 million - £10 million	Completed	Not quantified	New policies in place. EV infrastructure in place	A total of 62 charging points have been installed in Council owned car parks in Wantage, Faringdon and Abingdon as part of a county-wide project to increase EV charging availability in the county.	Details on exact locations, booking, costs and queries are available on the website https://parkandchargeoxfordshire.co.uk/
VOWH4	Introduce south facing slip roads to Lodge Hill interchange	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high	2015	2024	OCC	OCC (Growth fund) and Developer contributions	NO	Partially Funded	> £10 million	Planning	Not quantified But should reduce traffic through Abingdon	Completion of slip road	This is part funded by S106 contributions for a large development in N. Abingdon (planning application submitted in 2023). Progress on that development is conditional on the provision of these slip roads.	Being progressed with Government, OCC and developer funding.

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
			vehicle occupancy lane												
VOWH5	Assess Feasibility of Barriers	Other	Other	2015		Highways England		NO	Not Funded		Aborted			HE has done research on the use of barriers in protecting sensitive receptors and determined that there is not sufficient space and barriers would need to be excessively tall to have any beneficial effect at the proposed location	
VOWH6	Feasibility study for freight consolidation centre / freight quality partnerships	Freight and Delivery Management	Freight Consolidation Centre	2017		OCC	OCC				Aborted	Not quantified	Study completion		Freight consolidation not feasible for small towns. Freight consolidation even for large city centres is rare
VOWH7	Marcham Weight Restriction Limit	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		OCC					Aborted				Being reviewed as part of Marcham & Frilford study
VOWH8	Marcham By-pass	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars,	2015		OCC					Aborted				Being reviewed as part of Marcham & Frilford study

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
			including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane												
VOWH9	Improved use and enforcement of traffic regulation orders	Traffic Management	Other	2014		OCC					Aborted				Not being progressed other than as part of specific projects listed elsewhere
VOWH10	Low Emission Bus Strategy	Transport Planning and Infrastructure	Vehicle Retrofitting programmes	2017		VOWH, Oxford Bus Company,	VOWH, Oxford Bus Company,	NO	Funded	£50k - £100k	Implementation	Not quantified	% of Euro VI buses	Thames Travel have a fleet of 71 buses and of these, 24 are Euro V rated with the remaining 47 being Euro VI	
VOWH11	AQ Planning Guidance	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	2020	VOWH	VOWH	NO	Funded	£10k - 50k	Completed	Not quantified	Guidance available to the public. All developments adhering to guidance	Published guidance including most up to date best practice design published and available to the public	Document available at: https://www.whitehorsedc.gov.uk/wp-content/uploads/sites/3/2021/01/Air-Quality-Developer-Guidance-Vale-of-White-Horse.pdf
VOWH12	Review of Council and contractors' fleet	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	-	2019	VOWH, Biffa	Biffa	NO	Funded	£10k - 50k	Implementation	Not quantified	New Policies in Place; Greener Vehicles Procured	Our waste contractor (Biffa) updated its fleet to Euro 6 vehicles in October 2017. Council vehicles being purchased include an emission levels appraisal as part of the selection process.	
VOWH13	Taxi incentives for LEVs	Promoting Low Emission Transport	Taxi Licensing conditions	2015	2015	VOWH	VOWH	NO	Funded	< £10k	Completed	Not quantified	Full sliding scale for fees	Current taxi licensing policy promotes the uptake of LEV. Policy currently being reviewed (consultation stage just completed) during to ensure the emissions from the taxi fleet continue to decrease in future years. New policy will address idling at taxi ranks.	

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
VOWH14	Promoting the installation of EV charging points	Transport Planning and Infrastructure	Other	2017	2022	VOWH	Developer funded	NO	Funded	£10k - 50k	Implementation	Not quantified	EV infrastructure in place for new developments	Encouragement through the planning process, best practice design outlined on the councils Developers Guidance states that, where on-site parking is provided in new developments, electric vehicle charging points of suitable kW/h charging rate should be installed. A minimum of: o 1 per household for each of the houses; o 1 per every 10 flats (with unallocated parking, or 1 for every dwelling if there are allocated spaces or garages); o 1 ‘rapid charge’ per 1000m2 of commercial/retail/industrial floorspace (or 10% of parking spaces with electric vehicle charging8 , whichever is greater).	
VOWH15	Parking permit incentives for green vehicles	Promoting Low Emission Transport	Priority parking for LEV's	2015	2021	VOWH	VOWH	NO	Funded		Implementation	Not quantified	Policy in place	New off-street parking places order introduced in April 2021, which includes the following provision: To introduce spaces (bays) reserved for electric vehicles whilst charging, and enforcement for unauthorised parking in those spaces in respect of i) non-electric vehicles parked in those spaces, and ii) electric vehicles parked in those spaces but not for the purpose of charging	

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
VOWH16	Anti-idling Campaign: "Turn it Off"	Public Information	Via other mechanisms	2019	2019	VOWH	SODC	NO	Funded	< £10k	Completed	Not quantified	Campaign launched. Number of projects launched.	First stage: shared information on the impacts of engine idling during a series of promotional events, provided promotional materials (car stickers, key rings) for member of the public and advertised the campaign on council car parks and in the nozzles of petrol stations Second stage (May 2021): targets idling at school gates by launching an artwork competition where children will design an air quality superhero. The creator of the best superhero won a scooter, and their school received banners including the winning design.	
VOWH17	Awareness campaigns: Oxfordshire Air Quality Website	Public Information	Other	2009	2015	VOWH, Other LAs in Oxfordshire	VOWH, Other LAs in Oxfordshire, Defra grant	YES	Funded	£50k - £100k	Completed	Not quantified	Website available	A joint bid to Defra's AQ Grant was successful in 2020, awarding 100k to the 6 LAs in Oxfordshire update the already existing Oxfordshire AQ Website. Most of the design and development work took place in 2022	New website will be available July 2023. The new website will be easily accessible and will include new features like text message pollution alert and forecast systems, an area aimed at children and clear information on the LAQM regime, monitoring data and national and local AQ policies.
VOWH18	Scheme to promote sustainable travel to the workplace	Promoting Travel Alternatives	Workplace Travel Planning	2014	Ongoing	OCC Developers VOWH	Developers, OCC	None	Fully funded	£100k-£500k	Implementation	Not quantified	Development of workplace travel plans for new employment sites	Workplace travel plans secured on all new developments above size threshold	
VOWH19	School Streets	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access managemen	2021	2021	OCC	OCC	N/A	Fully funded	£50k-£100k	Implementation	Not quantified	Roll out of Active Travel to School programme and pilot of Active Travel to Work scheme	School street at St Joseph's Primary School, Abingdon is now permanent and enforced via cameras. Additional schools currently being considered for Phase 2 of the projects.	

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
			t, Selective vehicle priority, bus priority, high vehicle occupancy lane												
VOWH20	Scheme to promote sustainable school travel	Promoting Travel Alternatives	School Travel Plans	2020	Ongoing	OCC Schools	OCC DfT Active Travel Fund Tranche 2	None	Fully funded	£0-£10k	Implementation	Not quantified	Development of voluntary school travel plans	School travel plans developed through Modeshift Stars programme	
VOWH21	"Park and Stride" Campaign	Promoting Travel Alternatives	Promotion of walking	-	2021	OCC	OCC	NO	Funded	< £10k	Completed	Not quantified	Scheme in place, number of schools that have participated	County wide scheme to encourage parents not to park at the school gate but to either walk from home or park a short distance away and walk.	
VOWH22	Promotion of car & lift sharing schemes	Alternatives to private vehicle use	Car & lift sharing schemes	2020	2025	OCC, LiftShare	OCC	None	Fully funded	£0-10k	Implementation	Not quantified	Delivery of various initiatives including LiftShare	Oxfordshire LiftShare in operation	
VOWH23	Low Emission Strategy (LES)	Promoting Travel Alternatives	Promotion of walking	2014		VOWH OCC	SODC OCC	NO	Developer funding available for some projects	£10k - £50k	Implementation	Not quantified	Delivery of various behavioural change projects	Street Tag initiative underway countywide to promote walking. Street Tag is a smartphone app that offers rewards for exercise, turning physical activity into a game. Other developer-funded schemes now approved	
VOWH24	Eco-driver training	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2020	2020	VOWH	SODC	NO	Funded	< £10k	Completed	Not quantified	Training Complete	Eco-driving workshop took place in December 2020 with 80 officers taking part	

Table 2.2.2 Progress on Measures to Improve Air Quality in South Oxfordshire

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
SODC1	LES	Policy Guidance and Development Control	Low Emissions Strategy	2017	2017	SODC	SODC	NO	Fully funded	£50k - £100k	Completed	16% NO2 reduction in Wallingford, 35% in Watlington and an overall 5% reduction districtwide	New policies in place. NO2 levels reduced	LES adopted	LES adopted in Oct2017. Further implementation will progressively take place during the following years
SODC2	Oxfordshire Park and Charge project	Transport Planning and Infrastructure	Other	2017	2022	SODC	Innovate UK, OCC, SODC	NO	Funded	£1 million - £10 million	Completed	Not quantified	EV infrastructure in place	A total of 62 EV chargers have been installed in council owned car parks in Wallingford, Henley and Thame as part of a county-wide project to increase EV charging availability in the county.	Details on exact locations, booking, costs and queries are available on the website https://parkandchargeoxfordshire.co.uk/
SODC3	Watlington Edge Road	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2014	2024/25	OCC	OCC		Funded	£10m +	Planning	Not quantified	Project (bypass road) completed	Design complete	2024/25 completion
SODC4	Smoothing traffic flow in Watlington	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus	2014	2021/22	OCC	OCC	NO	Funded	£10-50k	Planning	Not quantified	Parking restrictions implemented	Scheme identified for delivery by developer. Scheme will result in a reduced number of parking spaces along Shirburn Street which will improve traffic flow	2021/22 completion

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
			priority, high vehicle occupancy lane												
SODC5	Parking permit incentives for green vehicles	Promoting Low Emission Transport	Priority parking for LEV's	2014	2015	SODC	SODC	YES	Funded	< £10k	Completed	Not quantified	Policy in place	Council's new Off-street parking places Order, which came into force April 2021, includes: a) the introduction of half-price tickets for electric vehicles (able to run at least 20 miles on zero CO2) and revocation of the current offer of half-price tickets for low emission vehicles, with the exception of Goldsmiths Lane, Wallingford b) the introduction of spaces reserved for electric vehicles whilst charging and enforcement for unauthorised parking in those reserved spaces for i) parking in those spaces with a vehicle that is not an electric vehicle and ii) for parking an electric vehicle in those spaces but without charging the vehicle	
SODC6	Feasibility study for freight consolidation centre / freight quality partnerships	Freight and Delivery Management	Freight Consolidation Centre	2017		OCC	OCC				Aborted	Not quantified	Study completion		New freight strategy to be included in Local Transport & Connectivity Plan

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
SODC7	Taxi incentives for LEVs	Promoting Low Emission Transport	Taxi Licensing conditions	2015	2015	SODC	SODC	NO	Funded	< £10k	Completed	Not quantified	Full sliding scale for fees	Current taxi licensing policy promotes the uptake of LEV: From 1 January 2022 proprietors will be required to have vehicles of at least Euro 4 standard to renew their licence; and Euro 4, Euro 6 or zero-emission capable to receive a new licence. From 1 January 2026, proprietors will be required to have vehicles of at least Euro 6 standard to receive a new or renewed licence. This policy also offers reduced licence fees for LEV/EV. The current policy also addresses engine idling, with idling for more than a minute constituting a breach licensing conditions.	
SODC8	Improved use and enforcement of traffic regulation orders	Traffic Management	Other	2014		OCC	OCC	NO	Not Funded		Aborted	Not quantified			Not being progressed other than as part of specific projects listed elsewhere
SODC9	AQ Planning Guidance	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2014	2020	SODC	SODC	NO	Funded	£10k - 50k	Completed	Not quantified	Guidance available to the public. All developments adhering to guidance	Updated guidance including most up to date best practice design published and available to the public	Document available at: https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2021/01/Air-Quality-Developer-Guidance-South-Oxfordshire.pdf
SODC10	Increased use of the Ring Road: Wallingford	Traffic Management	Other	2014		OCC	OCC	NO				Not quantified			Not currently being progressed - review as part of Local Transport Connectivity Plan area travel plans.

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
SODC11	Increased enforcement and review of the weight restriction zone: Watlington	Traffic Management	Other	2014	2018	OCC, Thames Valley Police	OCC	NO	Fully funded	Not costed	Implementation	Not quantified	Penalty charge notices issued (TVP). No of prosecutions/informal warnings issued (OCC)	Weight restriction breaches seem to be decreasing. In 2018 and 2019, 268 vehicles were reported as potentially in breach of the Watlington and area restriction (N.B more than half were found not to be in breach at all). In 2022 and 2023, to date, 98 vehicles have been so reported. The proportion of reported vehicles which are not, in fact, breaching the restriction remains over 50%	There have been 80 warnings, 17 prosecutions and 38 FPNs issued since 2018. OCC enforcement is only by informal warning or criminal prosecution which is resource-intensive and time consuming. Prosecutions take place many months after the incident, reducing the immediate impact of action. OCC resources for weight restriction enforcement reduced from 0.5FTE in 2020 for the whole county. Enforcement has minimal impact on over all levels of HGV use as a result of the sheer number of HGV journeys and the fact that most drivers do not repeat the same journeys. TVP resources for highways enforcement are also very limited.
SODC12	Low Emission Bus Strategy	Transport Planning and Infrastructure	Vehicle Retrofitting programmes	2017		SODC, Oxford Bus Company, Arriva	SODC, Oxford Bus Company, Arriva	NO	Funded	£50k - £100k	Implementation	Not quantified	% of Euro VI buses	Thames Travel have a fleet of 71 buses and of these, 24 are Euro V rated with the remaining 47 being Euro VI	The successful bid to the DfT's ZEBRA fund for up to 159 zero-emission buses for Oxford city will result in Euro VI buses being cascaded to South Oxfordshire routes in the early part of 2024 meaning that once this cascade is complete, the South Oxfordshire fleet will be almost wholly Euro VI in makeup.

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
SODC13	Promoting the installation of EV charging points	Transport Planning and Infrastructure	Other	2017	2022	SODC	Developer funded	NO	Funded	£10k - 50k	Implementation	Not quantified	EV infrastructure in place for new developments	Encouragement through the planning process, best practice design outlined on the councils Developers Guidance states that, where on-site parking is provided in new developments, electric vehicle charging points of suitable kW/h charging rate should be installed. A minimum of: o 1 per household for each of the houses; o 1 per every 10 flats (with unallocated parking, or 1 for every dwelling if there are allocated spaces or garages); o 1 'rapid charge' per 1000m2 of commercial/retail/industrial floorspace (or 10% of parking spaces with electric vehicle charging, whichever is greater).	
SODC14	Anti-idling Campaign: "Turn it Off"	Public Information	Via other mechanisms	2019	2019	SODC	SODC	NO	Funded	< £10k	Completed	Not quantified	Campaign launched. Number of projects launched.	First stage: shared information on the impacts of engine idling during a series of promotional events, provided promotional materials (car stickers, key rings) for member of the public and advertised the campaign on council car parks and in the nozzles of petrol stations. Second stage (May 2021): targeted idling at school gates by launching an artwork competition where children designed an air quality superhero. The creator of the best superhero won a scooter and their school received banners including the winning design.	

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
SODC15	Review of Council and contractors' fleet	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	-	2019	SODC, Biffa	Biffa	NO	Funded	£10k - 50k	Implementation	Not quantified	New Policies in Place; Greener Vehicles Procured	Our waste contractor (Biffa) updated its fleet to Euro 6 vehicles in October 2017. Council vehicles being purchased include an emission levels appraisal as part of the selection process.	
SODC16	Updating of the Oxfordshire Air Quality Website to improve AQ communication	Public Information	Via the Internet	2021	2023	SODC, Other LAs in Oxfordshire	SODC, Other LAs in Oxfordshire, Defra grant	YES	Funded	£100k - £500k	Planning	Not quantified	Number of website visitors. Number of website downloads. Reduction of public requests for AQ information	A joint bid to Defra's AQ Grant was successful in 2020, awarding 100k to the 6 LAs in Oxfordshire update the already existing Oxfordshire AQ Website. Most of the design and development work took place in 2022.	New website will be launched in June/July 2023. The new website will be easily accessible and will include new features like text message pollution alert and forecast systems, an area aimed at children and clear information on the LAQM regime, monitoring data and national and local AQ policies.
SODC17	A low emission freight strategy: Delivery service plans	Freight and Delivery Management	Delivery and Service plans	2017		OCC	OCC	None	Not funded	Not costed	Not currently being progressed	Not quantified	N/A	Freight and Logistics Strategy adopted as part of the Local Transport and Connectivity Plan in July 2022.	Freight and Logistics Strategy includes a number of actions related to low emission transport, ongoing work to progress actions in the strategy.
SODC18	Scheme to part fund Parish Councils' projects aimed at improving air quality	Other	Other	2019	2021	SODC, Henley Town Council, Watlington Parish Council	SODC, Henley Town Council	NO	Funded	£10k - £50k	Implementation	Not Quantified	Projects completed	Projects funded are now completed: PM monitoring study and car club in Henley; purchase and installation of cycling racks for Watlington.	
SODC19	School Streets	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle	2021	2021	OCC	OCC	N/A	Fully funded	£50k-£100k	Planning	Not quantified	Roll out of Active Travel to School programme and pilot of Active Travel to Work scheme	Currently reviewing schools to form second Active Travel to Schools pilot	Working with OCC to support cycling and walking activation programme that includes active travel to school and active travel to work initiatives

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
			occupancy lane												
SODC20	"Park and Stride" Campaign	Promoting Travel Alternatives	Promotion of walking	-	2021	OCC	OCC	NO	Funded	< £10k	Complete	Not quantified	Delivery of Park & Stride initiatives		Working with OCC to support cycling and walking activation programme that includes active travel to school and active travel to work initiatives
SODC21	Awareness campaigns to promote walking	Promoting Travel Alternatives	Promotion of walking	2014		SODC OCC	SODC OCC	NO	Developer funding available for some projects	£10k - £50k	Implementation	Not quantified	Delivery of various behavioural change projects	Street Tag initiative underway countywide to promote walking. Street Tag is a smartphone app that offers rewards for exercise, turning physical activity into a game. Other developer-funded schemes now approved	
SODC22	South & Vale Active Travel Phase 2	Promoting Travel Alternatives	Cycling and walking schemes	2021	2022-25	OCC	OCC		Partially funded	£1m-£10m	Feasibility	Not quantified	Delivery of walking and cycling improvements	Scoping of feasibility work underway	Not currently being progressed - review as part of LTCP area travel plans.
SODC23	Didcot LCWIP	Promoting Travel Alternatives	Cycling and walking schemes	2021	2022-25	OCC SODC	OCC SODC(DGT)		Fully funded	£50k-£100k	Planning	Not quantified	Delivery of walking and cycling improvements	Funding available for study and LCWIP development through Didcot Garden Town. Procurement process underway, led by SODC	
SODC24	Scheme to promote sustainable school travel	Promoting Travel Alternatives	School Travel Plans	2020	Ongoing	OCC Schools	OCC DfT Active Travel Fund Tranche 2	None	Fully funded	£0-£10k	Implementation	Not quantified	Development of voluntary school travel plans	School travel plans developed through Modeshift Stars programme	
SODC25	Scheme to promote sustainable travel to the workplace	Promoting Travel Alternatives	Workplace Travel Planning	2014	Ongoing	OCC Developers SODC	Developers, OCC	None	Fully funded	£100k-£500k	Implementation	Not quantified	Development of workplace travel plans for new employment sites	Workplace travel plans secured on all new developments above size threshold	
SODC26	Eco-driver training	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2020	2020	SODC	SODC	NO	Funded	< £10k	Completed	Not quantified	Training Complete	Eco-driving workshop took place in December 2020 with 80 officers taking part	
SODC27	Promotion of car & lift sharing schemes	Alternatives to private vehicle use	Car & lift sharing schemes	2020	2025	OCC, LiftShare	OCC	None	Fully funded	£0-10k	Implementation	Not quantified	Delivery of various initiatives including LiftShare	Oxfordshire LiftShare in operation	

$PM_{2.5}$ – 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.

Regarding particulate matter levels in the districts, examples from councils across the country who have traffic related AQMA's highlight that where NO_2 levels are typically around 60-70 µg/m^3, measured particulate matter (PM_{10}) levels at the same location remain below 25 µg/m^3, which is well below the national objective level of 40 µg/m^3.

Although there are both primary and secondary traffic related PM_{10} sources, the majority of the PM_{10} and $PM_{2.5}$ fraction in our Districts is made up from background sources. No other significant PM sources have been identified in the districts (see below Appendix F) and therefore the DEFRA background mappings of PM are believed to be accurate putting $PM_{2.5}$ levels below 10.89 µg/m^3 in South Oxfordshire and Vale of White Horse in 2022 (please see Figure 3 below for an illustration of Defra's $PM_{2.5}$ modelled levels in the districts), which is just half that of the national objective level.

In 2022 Vale of White Horse District Council commissioned a PM_{10} and $PM_{2.5}$ survey in Packhorse Lane, within Marcham AQMA. The data obtained during this survey, by means of a Praxis Urban sensor, is shown in Table 3 below. and support the idea of particulate matter concentrations falling below national objective levels at all locations throughout the district.

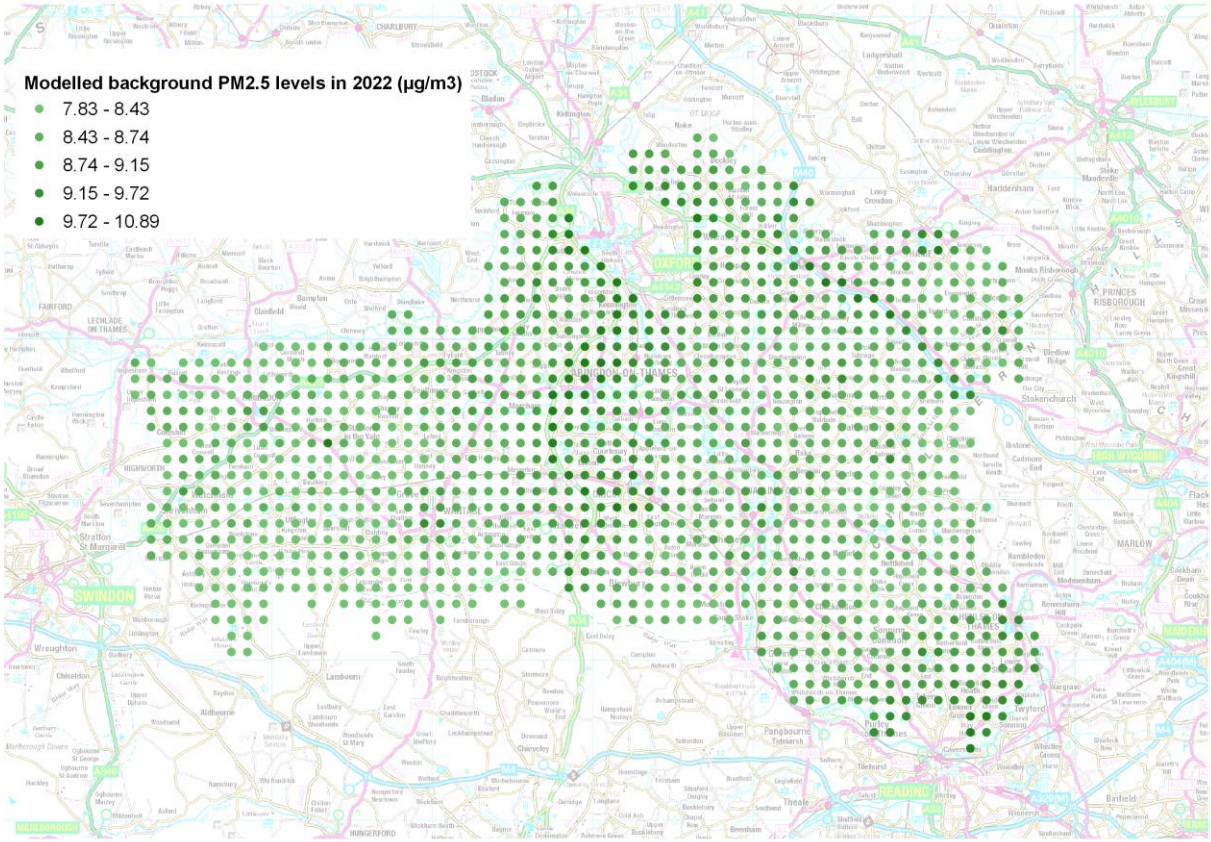
Table 3 Particulate matter monitoring data recorded in Marcham in 2022

Pollutant		Monthly averages									Annual average
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
$PM_{2.5}$	hourly mean (µg/m3)	9.7	5.1	11.2	7.6	8.0	5.1	4.1	4.8	4.8	7
	Data capture	100%	100%	100%	100%	70%	50%	100%	100%	100%	93%
PM_{10}	hourly mean (µg/m^3)	16.0	10.3	17.5	13.0	12.9	10.8	9.6	9.8	14.9	12
	Data capture	100%	100%	100%	100%	70%	50%	100%	100%	100%	93%

However, despite current particulate matter levels meeting the national objective, particulate matter has an impact on the health of South Oxfordshire and Vale of Horse's residents. The Public Health Outcomes Framework sets out a vision for public health, that is to improve and protect the nation's health, and improve the health of the poorest fastest. They have developed a set of supporting indicators that help focus our understanding of how well we are doing, one of them being the fraction of mortality attributable to particulate air pollution.

Indicator D.01 represents the fraction of annual all-cause adult mortality attributable to human-made particulate air pollution ($PM_{2.5}$).

Figure 3 Defra's background maps modelled $PM_{2.5}$ levels in 2022



The Public Health Outcomes Framework research has determined that the percentage of deaths from all causes in those aged 30 years plus are attributable to long-term exposure to $PM_{2.5}$ is 5.4% South Oxfordshire and Vale of White Horse. Oxfordshire level data on the number of deaths attributable to $PM_{2.5}$ can be found on the Oxfordshire Joint Strategic Needs Assessment on Air Quality.

This figure puts the districts just below both the national and county average fractions of mortality attributable to $PM_{2.5}$ (as shown on Table 4 below).

Table 4 Fraction of mortality attributable to PM2.5: an overview

Indicator	South Oxfordshire	Vale of White Horse	Oxfordshire	South East Region	England
D01 - Fraction of mortality attributable to particulate air pollution (new method)	5.353	5.403	5.454	5.4438	5.5025

To reduce PM levels further and working towards achieving the new 2021 Guideline values set by the World Health Organisation, some of the measures taken by the council to tackle NO_2 levels will also result in a reduction of PM emissions. Tables 5 and 6 below shows which of the councils' actions also target the reduction of the existing $PM_{2.5}$ levels in the district.

Table 5 List of measures in SODC's 2014 Action Plan that target PM2.5 reduction according to LAQM.TG16 Action Toolbox

Measure	Reduces PM2.5 emissions
LES	✔
Installation of EV charging points	✔
Parking permit incentives for green vehicles	✔
Feasibility study for freight consolidation centre / freight quality partnerships	✔
Taxi incentives for LEVs	✔
Review of Council and contractors' fleet	✔

Eco-driver training	✔
Increased use of the Wallingford ring road	✔
A low emission freight strategy: Delivery service plans	✔
"Park and Stride" Campaign	✔
Anti-idling Campaigns	✔
Smoothing traffic flow in Watlington	✔
Increased enforcement and review of the weight restriction zone in Watlington	✔
A low emission bus strategy	✔
Mini Park and Ride	✔

Table 6 List of measures in VOWH's 2015 Action Plan that target PM2.5 reduction according to LAQM.TG16 Action Toolbox

Measure	Results in $PM_{2.5}$ emissions reduction
Installation of EV charging points	✔
Parking permit incentives for green vehicles	✔
Taxi incentives for LEVs	✔
Review of Council and contractors' fleet	✔
Eco-driver training	✔
Anti-idling Campaigns	✔

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

This section sets out the monitoring undertaken within 2022 by South Oxfordshire and Vale of White Horse District Councils and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

South Oxfordshire and Vale of White Horse District Councils undertook automatic (continuous) monitoring at five sites during 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. The https://oxfordshire.air-quality.info/ page presents automatic monitoring results for South Oxfordshire and Vale of White Horse District Councils, with automatic monitoring results also available through the UK-Air website . Please note The Oxfordshire Air Quality Website will be replaced with a new website, Oxonair, in the summer of 2023. For more information on this see Tables 2.2.1 and 2.2.2 above.

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

South Oxfordshire and Vale of White Horse District Councils undertook non- automatic (i.e. passive) monitoring of NO_2 at 130 sites during 2022. 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.

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 (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 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.

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 of the NO2 national objectives in South Oxfordshire in 2022

No exceedances of either the annual mean or 1-hour objective were recorded in South Oxfordshire in 2022, with levels remaining well below the objectives as in 2021.

In **Watlington**, all monitoring sites within the AQMA recorded lower levels than the previous year, with levels remaining well below the objective (as shown on Figure A.3) as in 2020 and 2021.

Monitoring data gathered in 2022 therefore supports the 5-year decreasing trend in nitrogen dioxide levels in Watlington identified in previous years.

In **Wallingford**, all monitoring sites recorded levels below the objective in 2022- both within and outside of the AQMA (see Figures A.2 and A.3). 2022 is the fifth consecutive year in which no exceedances of the objectives have been recorded in Wallingford, suggesting air quality has improved significantly and the existing AQMA should be revoked.

Despite these slight increases, 2022 monitoring data supports the 5-year decreasing trend in nitrogen dioxide levels in Wallingford identified in previous years.

In 2022, all monitoring sites in **Henley** recorded, for the third consecutive year, levels below the national objectives (as shown on Figures A.4 and A.5) both within and outside of the AQMA.

Out of the 16 monitoring sites, 9 recorded levels lower levels in 2022 than they did in 2021. Out of the monitoring sites that registered slightly higher levels than those of 2021, the largest increase recorded was 2 µg NO_2/m^3 (at SS60, where levels recorded in 2022 were 18.3 µg NO_2/m^3).

Despite these slight increases, monitoring data gathered in 2022 in Henley supports the 5-year decreasing trend in nitrogen dioxide levels identified in previous years.

In other towns in South Oxfordshire where levels are monitored by means of an extensive network of passive monitoring stations, like **Didcot, Thame and Chinnor**, nitrogen dioxide levels remain well below the national objectives (see figures A.6 – A.8).

Levels recorded in 2022 by the remaining monitoring sites, located in **Whitchurch, Horspath, Wheatley, Clifton Hampden, Little Milton, Stadhampton and Adwell** (see Figure A.9) continue to be below the national objectives like they were in previous years.

Monitoring data gathered in 2022 in these locations also supports the 5-year decreasing trend in nitrogen dioxide levels identified in previous years.

Exceedances of the NO2 national objective in Vale of White Horse in 2022

In 2022, all monitoring sites in **Abingdon** recorded, for the third consecutive year, levels below the national objectives both within and outside of the AQMA (as shown on Figures A.10 and A.11).

Most of the monitoring sites in Abingdon recorded slightly higher levels in 2022 than they did in 2021. The largest increase in concentration was only 3µg NO_2/m^3 (at VNWCS4, where levels recorded in 2022 were 22 µg NO_2/m^3).

Despite the increases recorded at some sites ,2022 monitoring data supports the 5-year decreasing trend in nitrogen dioxide levels in Abingdon identified in previous years.

In **Marcham** all monitoring sites recorded, for the third consecutive year, levels below the national objectives both within and outside of the AQMA (as shown on Figure A.12). Half of these monitoring sites recorded in 2022 levels lower than those recoded in 2021.

Despite the increases recorded at some sites, monitoring data gathered in 2022 in Marcham supports the 5-year decreasing trend in nitrogen dioxide levels identified in previous years.

In **Botley**, two exceedances of the annual NO2 objective recorded in 2022 at the monitoring stations VS25 (4 Yarnells Road, The Willows Fence) and VS30 (63 Southern Bypass, Fence), both roadside sites. VS25 recorded values of levels of 53.7 µg NO_2/m^3

In the case of VS30, using the fall off with distance calculation, the predicted façade level was 47.3ug/m3 indicating an exceedance of the annual average objective. However, there is a diffusion tube mounted on this façade (VS27) and the monitored bias adjusted annual average level was 24.4ug/m3. This indicates that there was no façade exceedance at this site despite the prediction based on the VS30 monitoring.

Since annual average levels remain below 60 µg NO_2/m^3, it is assumed the 1-hour objective is being met at VS25 and VS30.

70% of the monitoring sites in Botley registered slightly higher NO_2 levels in 2022 than they did in 2021. However, the largest increase was only of 2.8 µg NO_2/m^3 (at VS21, where levels recorded in 2022 were 32.2 µg NO_2/m^3).

Despite these slight increases, 2022 monitoring data supports the 5-year decreasing trend in nitrogen dioxide levels in Botley identified in previous years.

In all other areas of the district where air quality is monitored, including **Shippon, Tubney, Fyfield, Sutton Courtenay, Wantage and Faringdon**, nitrogen dioxide levels continue to remain well below the national objectives.

Monitoring data gathered in 2022 in these locations also supports the 5-year decreasing trend in nitrogen dioxide levels identified in previous years.

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?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
Abingdon CA	Masons 39 Stert St Abingdon	Roadside	449790	197180	NOx/NO2	YES, Abingdon AQMA	Chemiluminescent	0	3.6	3
Wallingford CA	Wallingford 83 High St	Roadside	189500	189500	NOx/NO2	YES, Wallingford AQMA	Chemiluminescent	0	1.2	1.5
Henley CA	Henley 45 Duke St	Roadside	476116	182531	NOx/NO2	YES, Henley AQMA	Chemiluminescent	0	3.5	1.5
Watlington CA	Watlington Town hall	Kerbside	468973	194487	NOx/NO2	YES, Watlington AQMA	Chemiluminescent	0	0.2	1.5
Marcham CA	10 Packhorse Lane, Marcham	Kerbside	445552	196639	NOx/NO2, PM10 and PM2.5	YES, Marcham AQMA	Praxis Urban sensor	0	0.5	1.5

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 – 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)
SS1	SS1 - Wheatley- 50 High Street	Kerbside	459532	205740	NO2	No	0.0	1.0	No	2.0
SS2	SS2 - Wheatley- 2 Old London Road	Kerbside	460228	205720	NO2	No	4.0	1.0	No	2.0
SS3	SS3 - Wheatley- 16 Old London Road	Kerbside	460504	205642	NO2	No	8.0	1.0	No	1.5
SS4	SS4 - Thame- 41 Aylesbury Road	Roadside	470605	206554	NO2	No	2.0	2.0	No	2.0
SS5	SS5 - Thame- 16 Park Street	Kerbside	471010	205598	NO2	No	1.0	1.0	No	2.0
SS6	SS6 - Thame- 2 Youens Drive (Jane Morbey Rd)	Roadside	471103	205107	NO2	No	3.0	4.0	No	2.0
SS7	SS7 - Thame- 3 Massey Road	Kerbside	471155	205016	NO2	No	2.0	1.0	No	2.0
SS8	SS8 - Thame- 2 Robin Gibb Road	Kerbside	471078	204851	NO2	No	13.0	1.0	No	2.0
SS9	SS9 - Thame- 12 Markus Avenue	Kerbside	470964	204914	NO2	No	7.0	1.0	No	2.0
SS10	SS10 - Thame- 1 Thame Park Road (The Falcon)	Kerbside	471212	205340	NO2	No	9.0	1.0	No	2.0
SS11	SS11 - Thame- Opp 1 Howland Road	Kerbside	471918	204934	NO2	No	17.0	1.0	No	2.0

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)
SS12	SS12 - Thame- Churchill Crescent, Kingsey Road	Roadside	471695	205806	NO2	No	0.0	2.0	No	2.0
SS13	SS13 - Thame- 1 Ludlow Drive	Roadside	471283	205977	NO2	No	6.0	2.0	No	2.0
SS14	SS14 - Chinnor- 49 Mill Lane	Kerbside	474930	201039	NO2	No	9.0	1.0	No	2.0
SS15	SS15 - Chinnor- 3 Lower Road	Roadside	475250	201230	NO2	No	2.0	2.0	No	2.0
SS16	SS16 - Chinnor- 35 High Street	Kerbside	475703	201120	NO2	No	9.0	1.0	No	2.0
SS17	SS17 - Chinnor- 20 Church Road	Kerbside	475720	200930	NO2	No	9.0	1.0	No	2.0
SS18	SS18 - Chinnor- 31 Station Road	Roadside	475415	200942	NO2	No	6.0	2.0	No	2.0
SS19	SS19 - Chinnor- Plum Cottage, Crowell Road	Kerbside	475001	200196	NO2	No	1.0	1.0	No	2.0
SS20	SS20 - Whitchurch - 1Duchess Close	Roadside	470207	200190	NO2	No	0.0	15.0	No	2.0
SS21	SS21 - Whitchurch - Hawthorn House	Kerbside	463527	177174	NO2	No	0.0	1.0	No	2.0
SS22	SS22 - 10 Adwell Cottages, OX9 7DF	Kerbside	463555	177099	NO2	No	0.0	1.0	No	2.0
SS23	SS23 - Little Milton- 63 High	Kerbside	461901	200989	NO2	No	0.0	1.0	No	2.0

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)
	Street, Plumtree Cottage									
SS24	SS24 - Stadhampton- 2 Cratlands Close	Kerbside	460279	198618	NO2	No	10.0	1.0	No	2.0
SS25	SS25 - Stadhampton- Holme Cottage, Newington Road	Kerbside	460163	198398	NO2	No	2.0	1.0	No	2.0
SS26	SS26 - Watlington- 17 St Leonards Close	Urban Background	468479	194721	NO2	No	0.0	6.0	No	2.0
SS27	SS27 - Watlington- 27 Brook Street	Kerbside	468756	194360	NO2	Watlington AQMA	2.0	1.0	No	2.0
SS28	SS28 - Watlington- 57 Brook Street	Roadside	468856	194293	NO2	Watlington AQMA	5.0	2.0	No	2.0
SS29	SS29 - Watlington- 9 Couching Street	Roadside	468852	194343	NO2	Watlington AQMA	3.0	2.0	No	2.0
SS30	SS30 - Watlington- 41 Couching Street	Kerbside	468951	194457	NO2	Watlington AQMA	0.0	1.0	No	2.0
SS31	SS31 - Watlington- 48-52 Couching Street	Kerbside	468962	194458	NO2	Watlington AQMA	0.0	1.0	No	2.0
SS32	SS32 - Watlington- 23 Shirburn Street	Kerbside	469061	194590	NO2	Watlington AQMA	0.0	1.0	No	2.0

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)
SS33	SS33 - Watlington- 8 Shirburn Street	Kerbside	469017	194514	NO2	No	0.0	1.0	No	2.0
SS34	SS34 - Benson- 11A Watlington Road	Kerbside	461724	191785	NO2	No	4.0	0.0	No	2.0
SS35	SS35 - Wallingford- 3A The Street (Crowmarsh Gifford)	Kerbside	461298	189367	NO2	No	3.0	1.0	No	2.0
SS36	SS36 - Wallingford- 2 Station Road	Roadside	460389	189498	NO2	Wallingford AQMA	0.0	2.0	No	2.0
SS37	SS37 - Wallingford- 68 High Street	Kerbside	460640	189483	NO2	Wallingford AQMA	0.0	1.0	No	2.0
SS38	SS38 - Wallingford- 33 Castle Street	Kerbside	460736	189567	NO2	Wallingford AQMA	1.0	1.0	No	2.0
SS39, SS40, SS41	SS41 - Wallingford, George Hotel, High Street	Roadside	460799	189500	NO2	Wallingford AQMA	0.0	2.0	Yes	1.5
SS42	SS42 - Wallingford- 102 High Street	Roadside	460938	189496	NO2	Wallingford AQMA	0.0	2.0	No	2.0
SS43	SS43 - Wallingford- 52 St Marys Street	Roadside	460713	189279	NO2	No	0.0	2.0	No	2.0
SS44	SS44 - Wallingford- 10 St Martins Street	Roadside	460684	189204	NO2	No	0.0	1.5	No	2.0

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)
SS45	SS45 - Wallingford- 19 St Johns Road	Kerbside	460152	189130	NO2	No	3.0	1.0	No	2.0
SS46	SS46 - Wallingford- 57 Brookmead Drive	Urban Background	460282	188807	NO2	No	16.0	1.0	No	2.0
SS47	SS47 - Wallingford- Bartlett Close, Reading Road	Urban Background	460470	188224	NO2	No	9.0	1.0	No	2.0
SS48	SS48 - Wallingford- The Lodge, Wallingford Rd OX10 9HB	Roadside	460110	187862	NO2	No	14.0	3.0	No	1.0
SS49	SS49 - Wallingford- Willow Cottage, 68 Wallingford Road OX10 9LA	Roadside	459805	187574	NO2	No	38.0	2.0	No	2.0
SS50	SS50 - Wallingford- Newnham Manor Farm, A4070	Roadside	461916	188424	NO2	No	25.0	1.0	No	1.5
SS51	SS51 - Henley- 82 Northfield End	Roadside	475869	183217	NO2	No	2.0	2.0	No	2.0
SS52	SS52 - Henley- 39 Kings Road	Kerbside	475878	182760	NO2	No	1.0	1.0	No	2.0
SS53	SS53 - Henley- 2 Greys Road	Kerbside	476103	182506	NO2	Henley AQMA	1.0	1.0	No	2.0

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)
SS54	SS54 - Henley-35 Reading Road	Roadside	476174	182396	NO2	Henley AQMA	3.0	1.0	No	2.0
SS55	SS55 - Henley-Imperial Court, Station Road	Roadside	476286	182290	NO2	No	6.0	2.0	No	2.0
SS56, SS57, SS58	SS58 - Henley-45 Duke Street	Roadside	476115	182532	NO2	Henley AQMA	1.0	4.0	Yes	1.5
SS59	SS59 - Henley- 4 Duke Street	Kerbside	476071	182612	NO2	Henley AQMA	0.0	1.0	No	2.0
SS60	SS60 - Henley-23 Market Place	Roadside	475997	182614	NO2	Henley AQMA	0.0	3.0	No	2.0
SS61	SS61 - Henley-82 Bell Street	Kerbside	476080	182951	NO2	No	1.0	1.0	No	2.0
SS62	SS62 - Henley-33 New Street	Kerbside	476209	182831	NO2	No	0.0	1.0	No	2.0
SS63	SS63 - Henley-23 Thameside	Roadside	476308	182760	NO2	No	0.0	2.0	No	2.0
SS64	SS64 - Henley-40 Hart Street	Roadside	476288	182078	NO2	No	18.0	2.0	No	2.0
SS65	SS65 - Henley-Upton Close, St Andrews Road	Roadside	476223	182652	NO2	Henley AQMA	0.0	2.0	No	2.0
SS66	SS66 - Henley-178 Reading Road	Roadside	476547	181735	NO2	No	1.0	3.0	No	2.0
SS67	SS67 - Henley-15 Lovell Close	Urban Background	475104	181557	NO2	No	6.0	1.0	No	2.0

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)
SS68	SS68 - Didcot- 8 Lune Close	Urban Background	453499	190384	NO2	No	2.0	1.0	No	2.0
SS69	SS69 - Didcot- Marsh Play Area	Kerbside	453357	190030	NO2	No	0.0	1.0	No	2.0
SS70	SS70 - Didcot- 55 Broadway	Roadside	453099	190031	NO2	No	4.0	3.0	No	2.0
SS71	SS71 - Didcot- 77 Broadway	Roadside	453023	189999	NO2	No	0.0	5.0	No	2.0
SS72	SS72 - Didcot- 110 Broadway	Roadside	452865	189979	NO2	No	2.0	2.0	No	2.0
SS73	SS73 - Didcot- 18 Mereland Road	Kerbside	452753	189729	NO2	No	9.0	1.0	No	2.0
SS74	SS74 - Didcot- 4 Cronshaw Close	Kerbside	452358	190521	NO2	No	5.0	1.0	No	2.0
SS75	SS75 - Didcot- 8 Great Western Drive, Station Road	Roadside	452084	190694	NO2	No	9.0	2.0	No	2.0
SS76	SS76 - Didcot- 20 Wantage Road	Kerbside	451780	189920	NO2	No	9.0	1.0	No	2.0
SS77	SS77 - Didcot- 100 Park Road	Kerbside	451643	189369	NO2	No	15.0	1.0	No	2.0
SS78	SS78 - Didcot- 1 Blackthorn Road	Kerbside	450870	190495	NO2	No	6.0	2.0	No	2.0
SS79	SS79 - Didcot-6 Mendip Heights	Roadside	451424	190943	NO2	No	0.0	7.0	No	1.5
SS80	SS80 - Clifton Hampden- Bus	Roadside	454637	195614	NO2	No	0.0	2.0	No	2.0

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)
	stop, Abingdon Road									
SS81	SS81 - Clifton Hampden- Marsh Cottages, Post Office	Roadside	454710	195562	NO2	No	0.0	3.0	No	2.0
SS82	SS82 - Clifton Hampden- 52 Oxford Road	Roadside	454760	195794	NO2	No	7.0	2.0	No	2.0
SS83	SS83 - Horspath	Roadside	457228	204708	NO2	No	3.0	17.0	No	2.0
SS84	SS84 - Chinnor- Station	Other	475692	200476	NO2	No	0.0	0.0	No	1.0
VS1, VS2, VS3	VS3: Co-location, Masons Stert Street, Abingdon	Roadside	449794	197176	NO2	Abingdon AQMA	0.0	3.6	Yes	3.0
VS4	VS4: High Street, Abingdon	Roadside	449695	197049	NO2	Abingdon AQMA	4.0	1.0	No	2.5
VS5	VS5: Ock Street Baptist Church, Abingdon	Roadside	449452	197047	NO2	Abingdon AQMA	1.0	2.0	No	2.5
VS6	VS6: Stratton Way, Abingdon	Roadside	449697	197343	NO2	Abingdon AQMA	1.0	8.0	No	2.5
VS7	VS7: Barrow Road Shippon	Roadside	448092	198055	NO2	No	4.0	2.0	No	2.5
VS8	VS8: Turner Road, Abingdon	Urban Background	448869	196180	NO2	No	2.0	4.0	No	2.5
VS9	VS9: Drayton Road LP 7, Abingdon	Roadside	448791	196725	NO2	No	2.5	5.0	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)
VS10	VS10: Ock Street Drama Club, Abingdon	Roadside	448828	196966	NO2	No	1.5	2.0	No	2.5
VS11	VS11: Marcham Road LP 5, Abingdon	Roadside	448738	196967	NO2	No	3.5	2.0	No	2.5
VS12	VS12: 97 Ock Street LP 12, Abingdon	Roadside	449225	196992	NO2	No	0.0	5.0	No	2.5
VS13	VS13 Whitehorse Close Shippon	Urban Background	448150	198190	NO2	No	3.0	5.0	No	2.5
VS14	VS14 Faringdon Road Shippon	Roadside	448349	198086	NO2	No	0.0	1.0	No	2.5
VS15	VS15: 24 Mill Road, Marcham	Urban Background	445522	196470	NO2	No	32.0	6.0	No	1.8
VS16	VS16: 10 Packhorse Lane, Marcham	Kerbside	445552	196639	NO2	Marcham AQMA	0.0	0.5	No	2.5
VS17	VS17: 4 Frilford Road, Marcham	Roadside	445456	196623	NO2	Marcham AQMA	1.0	1.5	No	2.5
VS18	VS18: 4 Packhorse Lane, Marcham	Kerbside	445528	196628	NO2	Marcham AQMA	16.0	1.0	No	2.5
VS19	VS19: 13 Packhorse Lane, Marcham	Roadside	445571	196675	NO2	Marcham AQMA	13.0	1.5	No	2.5
VS20	VS20: Rafters B&B Abingdon Road, Marcham	Kerbside	445875	196657	NO2	Marcham AQMA	18.0	1.0	No	2.5
VS21	VS21: Stanley Close, Botley	Kerbside	448913	205813	NO2	Botley AQMA	2.0	8.0	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)
VS22	VS22: Westminster Way, Botley	Roadside	448866	205807	NO2	Botley AQMA	5.0	2.0	No	2.5
VS23	VS23: Hutchcomb Road, Botley	Urban Background	448403	205709	NO2	No	11.0	2.0	No	2.5
VS24	VS24: 4 Yarnells Road The Willows Downpipe, Botley	Roadside	449008	205729	NO2	Botley AQMA	0.0	11.0	No	2.5
VS25	VS25: 4 Yarnells Road The Willows Fence, Botley	Roadside	449003	205724	NO2	Botley AQMA	10.0	3.0	No	2.0
VS26	VS26: 61 Southern Bypass, Botley	Roadside	448894	205826	NO2	Botley AQMA	0.0	8.0	No	2.0
VS27	VS27: 63 Southern Bypass, Botley	Roadside	448917	205804	NO2	Botley AQMA	0.0	10.0	No	2.0
VS28	VS28: 71 Southern Bypass (Flats), Botley	Roadside	448991	205745	NO2	Botley AQMA	0.0	16.0	No	2.5
VS29	VS29: 65 Southern Bypass (Timbers), Botley	Roadside	448946	205780	NO2	Botley AQMA	0.0	10.0	No	2.0
VS30	VS30: 63 Southern Bypass (fence), Botley	Roadside	448914	205798	NO2	Botley AQMA	2.0	8.0	No	2.5
VS31	VS31: Bath Street, Abingdon	Kerbside	449585	197273	NO2	Abingdon AQMA	1.0	1.0	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)
VS32	VS32: Folly View Road, Faringdon	Urban Background	428682	194571	NO2	No	8.0	1.0	No	2.5
VS33	VS33: Town Hall / Central Faringdon, Faringdon	Kerbside	428823	195554	NO2	No	0.0	1.0	No	2.5
VS34	VS34: Sutton Courtenay Junction, Sutton Courtenay	Kerbside	450886	194359	NO2	No	13.0	1.0	No	2.0
VS35	VS35: Sutton Courtenay Mill House downpipe, Sutton Courtenay	Kerbside	450588	194391	NO2	No	1.0	1.0	No	2.5
VS36	VS36: Watchfield / Shrivenham, Watchfield	Kerbside	424275	190640	NO2	No	33.0	4.0	No	2.5
VS37	VS37: Copenhagen Drive, Abingdon	Kerbside	448364	197836	NO2	No	42.0	0.0	No	2.5
VS38	VS38: Market Square / Central Wantage, Wantage	Kerbside	439807	187941	NO2	No	0.0	1.0	No	2.5
VS39	VS39: Hampden Road, Wantage	Urban Background	440409	188319	NO2	No	14.0	3.5	No	2.1
VS40	VS40: Fyfield A420, Fyfield & Tubney	Roadside	442239	198622	NO2	No	42.0	11.0	No	2.5
VS41	VS41: Tubney bus stop A420, Fyfield & Tubney	Kerbside	443526	199184	NO2	No	3.0	2.0	No	2.0

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)
VS42	VS42: St Swithun Church Kennington Post 35, Botley	Kerbside	452253	202255	NO2	No	7.0	1.0	No	2.5
VS43	VS43: St Swithun School Kennington LP68, Botley	Urban Background	452290	201912	NO2	No	0.0	2.0	No	2.5
VS44	VS44: Grove Rd/ Wolage Dr, Wantage	Roadside	440068	189087	NO2	No	3.0	2.0	No	2.5
VS45	VS45: Henry Liddon House, Abingdon	Roadside	448442	196953	NO2	No	0.0	14.0	No	2.5
VS46	VS46: CYPS (Stratton Way), Abingdon	Roadside	449518	197160	NO2	Abingdon AQMA	1.0	6.0	No	2.5
VNWCS1	VNWCS1: Manor Rd S. Hinksey, Botley	Kerbside	450764	204105	NO2	No	17.0	5.4	No	2.0
VNWCS2	VNWCS2: N. Hinksey La speed sign, Botley	Roadside	449404	205422	NO2	No	15.0	4.0	No	2.5
VNWCS3	VNWCS3: Lamppost 35 Dunmore Rd, Abingdon	Kerbside	449558	199016	NO2	No	19.0	0.0	No	2.5
VNWCS4	VNWCS4: Lamppost 9 Dunmore Rd, Abingdon	Roadside	450222	199464	NO2	No	19.0	2.0	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)
VNWCS5	VNWCS5: Botley Primary School, Botley	Roadside	448610	206289	NO2	No	0.0	20.0	No	2.5
VNWCS6	VNWCS6: Rockley Cottages A420, Botley	Kerbside	446273	202333	NO2	No	5.0	3.5	No	2.0

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 2022 (%) (2)	2018	2019	2020	2021	2022
Abingdon CA	449790	197180	Roadside	99.79	99.79	28.0	22	16	17	18
Henley CA	476116	182531	Roadside	97.31	97.31	30	28	19	18	18
Wallingford CA	189500	189500	Roadside	96.45	95.45	37	35	29	33	32
Watlington CA	468973	194487	Kerbside	96.95	96.95	31	32	22	24	23
Marcham CA	445552	196639	Kerbside	92.29	92.29					35

☒ **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.**

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 2022 (%) (2)	2018	2019	2020	2021	2022
SS1	459532	205740	Kerbside	92.3	92.3	22.1	21.3	15.2	14.3	15.1
SS2	460228	205720	Kerbside	100.0	100.0		23.2	14.0	13.5	13.9
SS3	460504	205642	Kerbside	67.3	67.3		18.8	14.0	14.3	15.4
SS4	470605	206554	Roadside	100.0	100.0	31.3	28.3	22.9	22.7	25.7
SS5	471010	205598	Kerbside	100.0	100.0	21.9	22.6	15.9	16.0	16.3
SS6	471103	205107	Roadside	100.0	100.0		14.3	9.4	9.0	9.2
SS7	471155	205016	Kerbside	100.0	100.0		14.1	9.5	9.3	9.5
SS8	471078	204851	Kerbside	92.3	92.3		13.5	9.6	8.8	9.3
SS9	470964	204914	Kerbside	92.3	92.3		12.9	10.2	8.6	8.5
SS10	471212	205340	Kerbside	100.0	100.0		17.0	12.0	12.0	12.3
SS11	471918	204934	Kerbside	92.3	92.3		18.4	14.7	14.9	14.3
SS12	471695	205806	Roadside	84.6	84.6	18.8	19.4	14.4	13.4	12.9
SS13	471283	205977	Roadside	100.0	100.0	13.5	12.7	9.6	9.2	9.4

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 2022 (%) [2]	2018	2019	2020	2021	2022
SS14	474930	201039	Kerbside	92.3	92.3		16.0	13.0	10.4	9.7
SS15	475250	201230	Roadside	100.0	100.0	28.3	24.6	17.1	21.2	20.2
SS16	475703	201120	Kerbside	100.0	100.0		19.7	13.3	13.0	12.6
SS17	475720	200930	Kerbside	67.3	67.3		20.2	16.0	14.7	14.7
SS18	475415	200942	Roadside	100.0	100.0		24.4	15.0	17.6	16.7
SS19	475001	200196	Kerbside	92.3	92.3		22.3	16.5	17.5	17.5
SS20	470207	200190	Roadside	92.3	92.3	32.2	30.3	19.9	15.2	16.3
SS21	463527	177174	Kerbside	100.0	100.0				15.2	16.4
SS22	463555	177099	Kerbside	100.0	100.0				19.3	21.9
SS23	461901	200989	Kerbside	82.7	82.7	25.9	22.4	17.8	18.4	19.0
SS24	460279	198618	Kerbside	92.3	92.3	18.9	19.6	13.3	12.9	13.4
SS25	460163	198398	Kerbside	100.0	100.0	23.9	19.4	16.0	16.5	16.3
SS26	468478.851	194720.915	Urban Background	84.6	84.6	10.5	10.7	5.6	6.9	7.5
SS27	468756	194360	Kerbside	100.0	100.0	23.5	25.5	18.1	18.7	17.9

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 2022 (%) [2]	2018	2019	2020	2021	2022
SS28	468856	194293	Roadside	100.0	100.0	24.2	23.0	16.7	17.0	16.4
SS29	468852	194343	Roadside	100.0	100.0	23.5	22.6	17.0	16.7	16.4
SS30	468951	194457	Kerbside	100.0	100.0	38.5	40.0	28.1	28.5	27.9
SS31	468962	194458	Kerbside	92.3	92.3	35.3	35.8	25.7	25.6	26.4
SS32	469061	194590	Kerbside	100.0	100.0	29.6	29.1	19.6	23.2	20.5
SS33	469017.458	194513.661	Kerbside	100.0	100.0	39.2	36.0	27.6	27.5	25.3
SS34	461724	191785	Kerbside	84.6	84.6	27.9	24.9	17.2	18.0	18.6
SS35	461298	189367	Kerbside	90.4	90.4	18.4	17.4	12.8	13.6	14.3
SS36	460389	189498	Roadside	90.4	90.4	26.3	27.4	20.6	20.5	20.1
SS37	460640	189483	Kerbside	75.0	75.0	21.5	29.7	21.0	21.5	21.7
SS38	460736	189567	Kerbside	82.7	82.7	27.0	26.2	18.3	22.5	22.4
SS39, SS40, SS41	460799	189500	Roadside	100.0	100.0	37.4	35.9	28.4	29.2	28.5
SS42	460938	189496	Roadside	90.4	90.4	32.1	31.0	22.0	23.9	23.8

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
SS43	460713	189279	Roadside	100.0	100.0	29.1	24.9	19.2	21.0	21.0
SS44	460684	189204	Roadside	100.0	100.0	28.4	22.9	16.9	17.1	16.5
SS45	460152	189130	Kerbside	90.4	90.4	18.5	16.6	13.5	12.7	11.4
SS46	460282	188807	Urban Background	92.3	92.3	13.3	14.0	9.2	9.2	9.9
SS47	460470	188224	Urban Background	100.0	100.0	19.4	17.1	13.9	13.2	13.3
SS48	460110	187862	Roadside	90.4	90.4		14.8	11.3	11.0	11.6
SS49	459805	187574	Roadside	100.0	100.0		20.6	14.0	14.1	11.9
SS50	461916	188424	Roadside	100.0	100.0	31.0	29.5	25.2	22.8	21.7
SS51	475869	183217	Roadside	92.3	92.3	25.1	24.4	17.5	18.2	17.8
SS52	475878	182760	Kerbside	92.3	92.3	21.1	23.7	16.4	15.4	16.6
SS53	476103	182506	Kerbside	100.0	100.0	32.5	32.1	25.1	24.1	23.8
SS54	476174	182396	Roadside	92.3	92.3	27.8	29.8	20.3	20.8	20.0
SS55	476286	182290	Roadside	100.0	100.0	26.5	27.8	17.4	17.4	19.3

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 2022 (%) [2]	2018	2019	2020	2021	2022
SS56, SS57, SS58	476115	182532	Roadside	100.0	100.0	28.8	28.2	20.0	19.3	19.7
SS59	476071	182612	Kerbside	92.3	92.3	39.6	**49.0**	38.7	34.0	30.5
SS60	475997	182614	Roadside	92.3	92.3	24.9	22.1	15.6	16.3	18.3
SS61	476080	182951	Kerbside	80.8	80.8	29.9	30.3	21.1	20.6	21.5
SS62	476209	182831	Kerbside	92.3	92.3	25.4	25.1	17.4	17.3	18.7
SS63	476308	182760	Roadside	92.3	92.3	30.6	36.6	26.6	26.8	25.4
SS64	476288	182078	Roadside	75.0	75.0	22.4	23.5	23.2	21.8	21.8
SS65	476223	182652	Roadside	67.3	67.3	31.4	32.9	17.5	15.6	15.6
SS66	476547	181735	Roadside	92.3	92.3	26.4	25.9	19.3	18.6	18.0
SS67	475104	181557	Urban Background	92.3	92.3	12.1	12.1	8.4	9.3	7.5
SS68	453499	190384	Urban Background	92.3	92.3	17.8	16.2	10.6	10.9	11.6
SS69	453357	190030	Kerbside	100.0	100.0		24.6	18.7	19.4	20.8
SS70	453099	190031	Roadside	100.0	100.0	29.5	30.7	22.5	22.2	23.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
SS71	453023	189999	Roadside	84.6	84.6	26.3	26.7	20.1	18.9	22.6
SS72	452865	189979	Roadside	90.4	90.4	25.6	24.1	18.9	18.7	20.6
SS73	452753	189729	Kerbside	92.3	92.3		15.1	11.4	10.8	11.5
SS74	452358	190521	Kerbside	100.0	100.0		23.1	17.2	17.0	17.1
SS75	452084	190694	Roadside	100.0	100.0	27.7	27.2	19.5	19.7	20.4
SS76	451780	189920	Kerbside	82.7	82.7	25.1	23.9	18.8	16.9	19.9
SS77	451643	189369	Kerbside	75.0	75.0	18.9	19.4	12.9	13.5	14.5
SS78	450870	190495	Kerbside	84.6	84.6		19.6	15.0	15.7	14.2
SS79	451424	190943	Roadside	100.0	100.0	**47.3**	16.7	12.6	12.3	12.3
SS80	454637	195614	Roadside	100.0	100.0		21.1	14.9	14.5	14.8
SS81	454710	195562	Roadside	100.0	100.0	24.3	22.2	15.8	17.0	16.8
SS82	454760	195794	Roadside	92.3	92.3		19.9	13.7	14.1	13.5
SS83	457228	204708	Roadside	100.0	100.0			14.8	10.8	11.3
SS84	475692	200476	Other	84.6	42.3				-	7.1

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
VS1, VS2, VS3	449794	197176	Roadside	100.0	100.0	28.7	25.0	15.4	17.6	18.4
VS4	449695	197049	Roadside	90.4	90.4	**41.5**	36.5	21.8	23.2	25.6
VS5	449452	197047	Roadside	100.0	100.0	27.7	29.9	17.9	21.2	21.3
VS6	449697	197343	Roadside	73.1	73.1	**46.3**	**41.3**	27.6	27.2	28.1
VS7	448092	198055	Roadside	84.6	84.6				12.9	13.4
VS8	448869	196180	Urban Background	84.6	84.6	14.8	14.4	8.4	9.2	10.2
VS9	448791	196725	Roadside	82.7	82.7	36.7	30.8	18.7	22.5	22.9
VS10	448828	196966	Roadside	92.3	92.3	33.1	32.6	20.8	22.5	24.8
VS11	448738	196967	Roadside	100.0	100.0	**40.9**	38.9	25.6	30.1	31.1
VS12	449225	196992	Roadside	82.7	82.7	29.6	29.4	16.0	20.3	20.6
VS13	448150	198190	Urban Background	92.3	92.3				8.4	8.8
VS14	448349	198086	Roadside	100.0	100.0				17.5	17.5
VS15	445522	196470	Urban Background	90.4	90.4	11.6	10.6	6.7	7.9	7.9

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 2022 (%) [2]	2018	2019	2020	2021	2022
VS16	445552	196639	Kerbside	100.0	100.0	**50.9**	**41.4**	24.3	31.3	30.4
VS17	445456	196623	Roadside	100.0	100.0	**40.4**	35.6	22.5	26.5	26.8
VS18	445528	196628	Kerbside	92.3	92.3	29.4	26.3	16.6	20.2	19.8
VS19	445571	196675	Roadside	100.0	100.0	**40.1**	33.3	20.8	25.6	26.5
VS20	445875	196657	Kerbside	82.7	82.7	31.4	28.9	18.2	21.2	20.8
VS21	448913	205813	Kerbside	100.0	100.0	**46.2**	**44.3**	27.8	29.4	32.2
VS22	448866	205807	Roadside	100.0	100.0	38.5	30.9	19.8	22.4	24.1
VS23	448403	205709	Urban Background	100.0	100.0	15.5	13.4	8.0	10.0	9.0
VS24	449008	205729	Roadside	7.7	7.7	38.2	34.7	21.9	23.1	-
VS25	449003	205724	Roadside	92.3	92.3	**87.5**	**80.0**	**50.9**	**55.1**	**53.7**
VS26	448894	205826	Roadside	100.0	100.0	37.9	35.2	22.3	24.7	25.5
VS27	448917	205804	Roadside	100.0	100.0	34.7	33.3	22.2	22.6	24.4
VS28	448991	205745	Roadside	100.0	100.0	35.5	31.4	20.0	21.7	21.9
VS29	448946	205780	Roadside	92.3	92.3	34.2	32.2	20.4	22.2	24.2

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
VS30	448914	205798	Roadside	100.0	100.0	**76.5**	**73.7**	**44.7**	**48.3**	**50.5**
VS31	449585	197273	Kerbside	92.3	92.3	26.0	25.4	15.1	17.6	17.5
VS32	428682	194571	Urban Background	82.7	82.7	12.3	11.2	6.8	7.7	7.5
VS33	428823	195554	Kerbside	92.3	92.3	25.2	20.7	13.9	14.1	14.1
VS34	450886	194359	Kerbside	100.0	100.0	26.6	25.6	14.8	14.5	17.3
VS35	450588	194391	Kerbside	100.0	100.0	27.4	24.5	14.4	16.2	17.3
VS36	424275	190640	Kerbside	100.0	100.0	26.9	23.9	14.5	16.2	16.4
VS37	448364	197836	Kerbside	100.0	100.0	33.7	29.1	18.9	21.3	20.9
VS38	439807	187941	Kerbside	100.0	100.0	26.3	25.6	15.1	15.2	17.5
VS39	440409	188319	Urban Background	82.7	82.7	10.3	10.5	6.5	9.3	7.2
VS40	442239	198622	Roadside	100.0	100.0		18.6	11.6	12.0	13.6
VS41	443526	199184	Kerbside	100.0	100.0		18.9	13.6	15.1	13.9
VS42	452253	202255	Kerbside	100.0	100.0		20.0	12.0	13.2	13.7
VS43	452290	201912	Urban Background	100.0	100.0		10.2	11.1	13.3	14.2

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
VS44	440068	189087	Roadside	100.0	100.0		15.1	16.2	20.6	21.4
VS45	448442	196953	Roadside	100.0	100.0	25.7	35.8	23.0	25.3	26.6
VS46	449518	197160	Roadside	90.4	90.4	34.8	20.7	13.1	13.3	14.0
VNWC S1	450764	204105	Kerbside	100.0	100.0			15.6	18.2	20.2
VNWC S2	449404	205422	Roadside	100.0	100.0			16.2	15.4	15.6
VNWC S3	449558	199016	Kerbside	100.0	100.0			14.9	18.3	18.9
VNWC S4	450222	199464	Roadside	90.4	90.4			17.2	19.1	22.0
VNWC S5	448610	206289	Roadside	100.0	100.0			12.8	18.6	16.2
VNWC S6	446273	202333	Kerbside	100.0	100.0			17.7	19.9	20.2

☒ **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 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%).

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

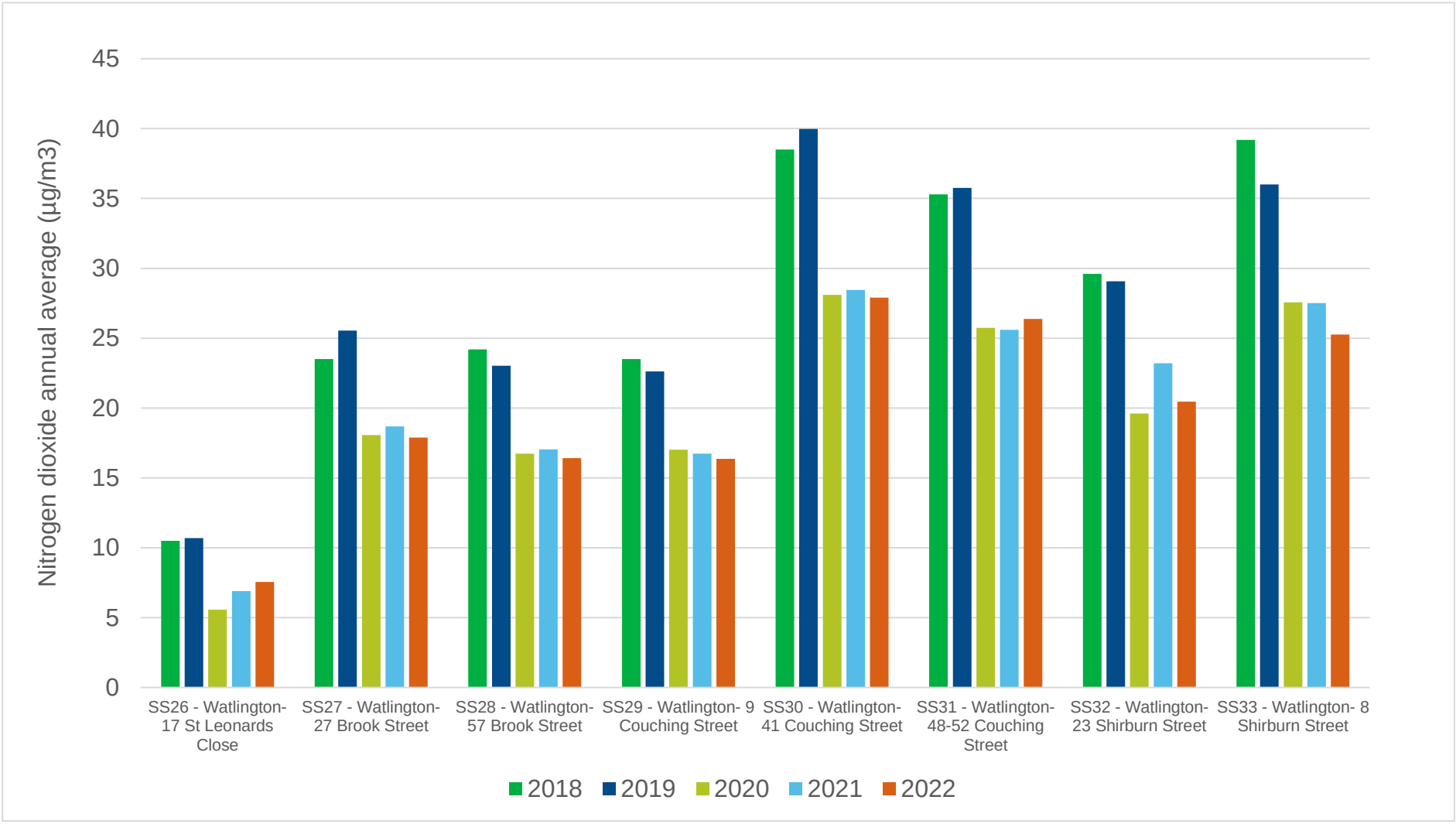


Figure A. 2 Trends in Annual Mean NO_2 Concentrations in Wallingford (outside AQMA)

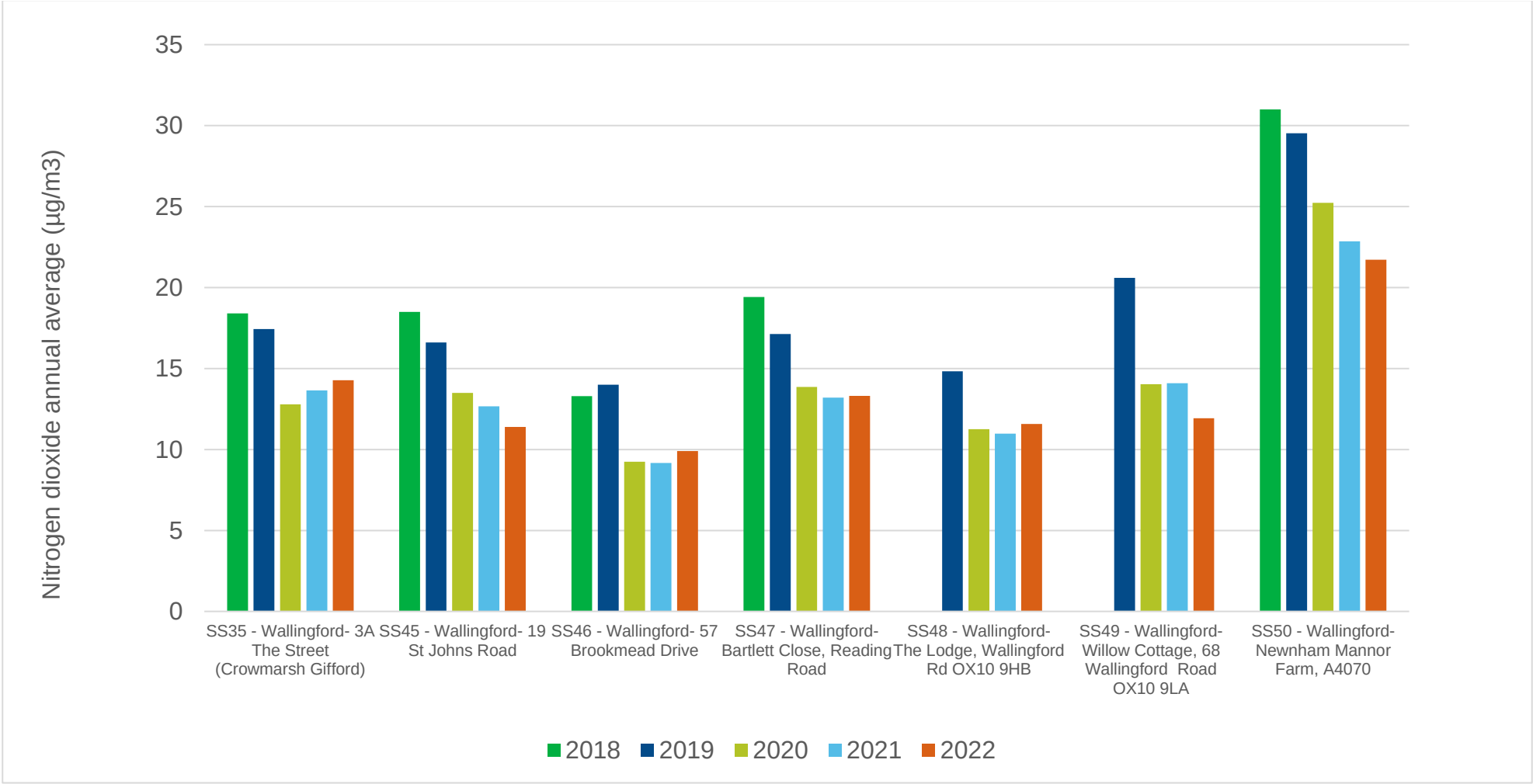


Figure A. 3 Trends in Annual Mean NO_2 Concentrations in Wallingford AQMA

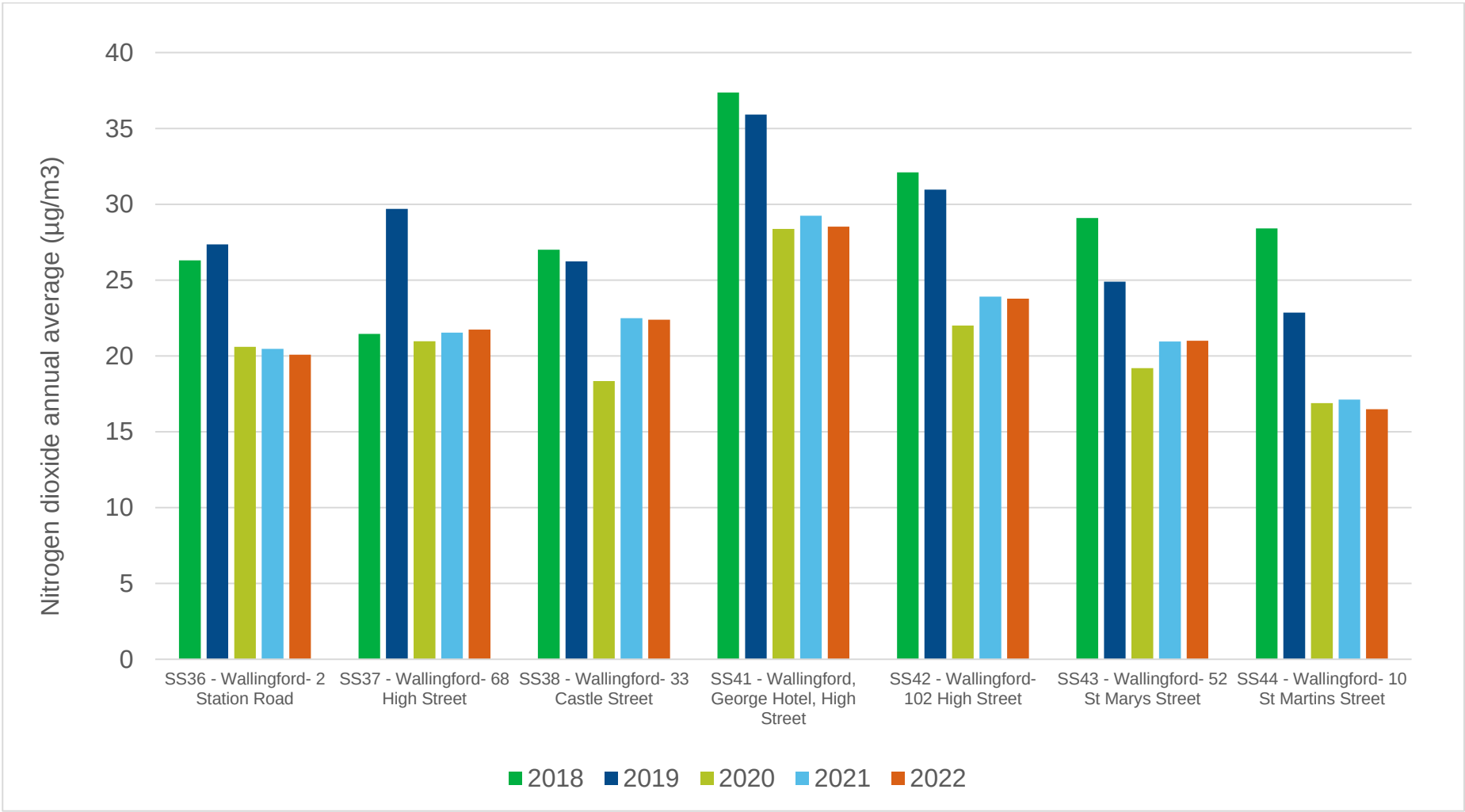


Figure A. 4 Trends in Annual Mean NO_2 Concentrations in Henley AQMA

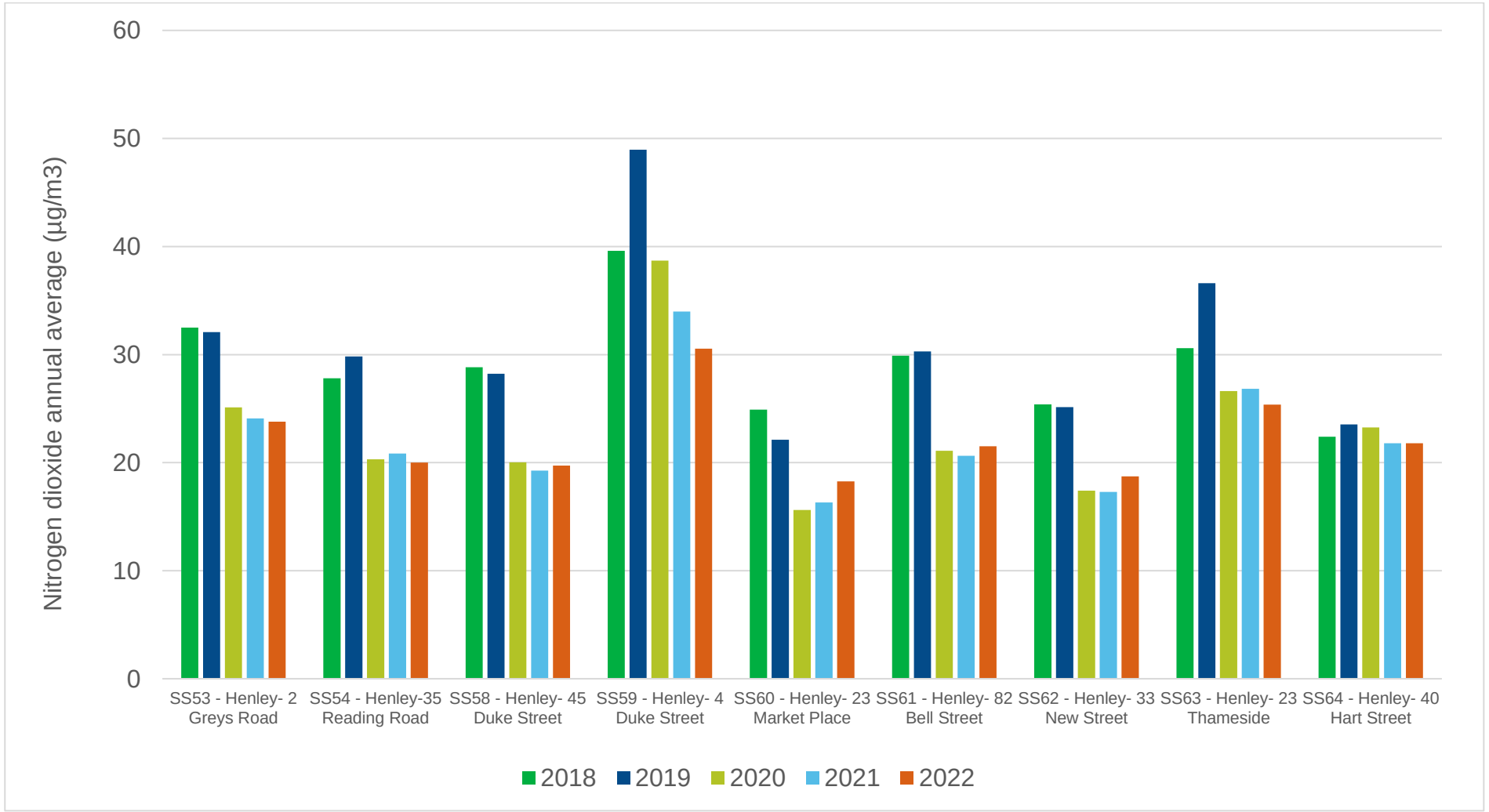


Figure A. 5 Trends in Annual Mean NO_2 Concentrations in Henley (outside AQMA)

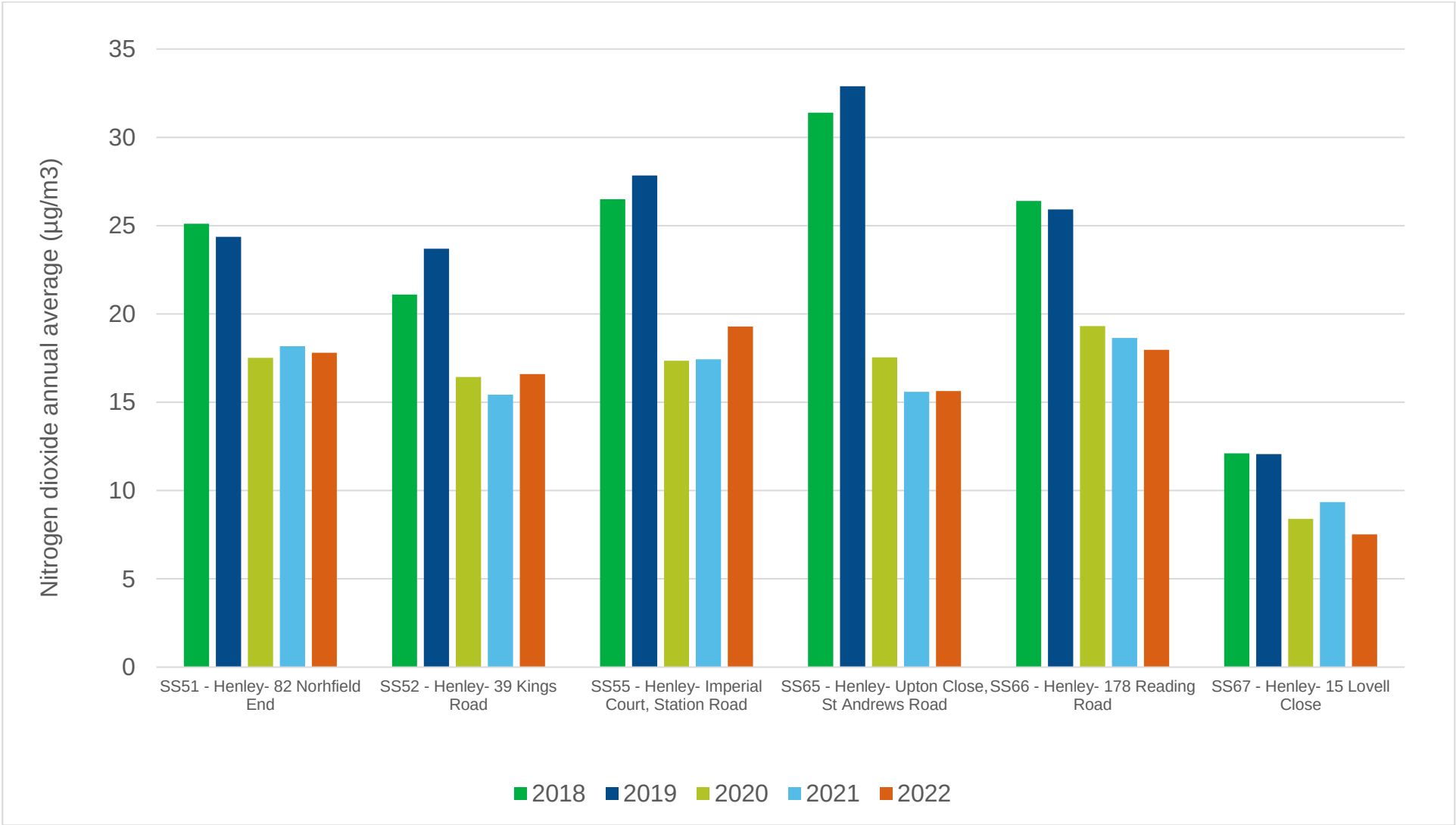


Figure A. 6 Trends in Annual Mean NO_2 Concentrations in Didcot

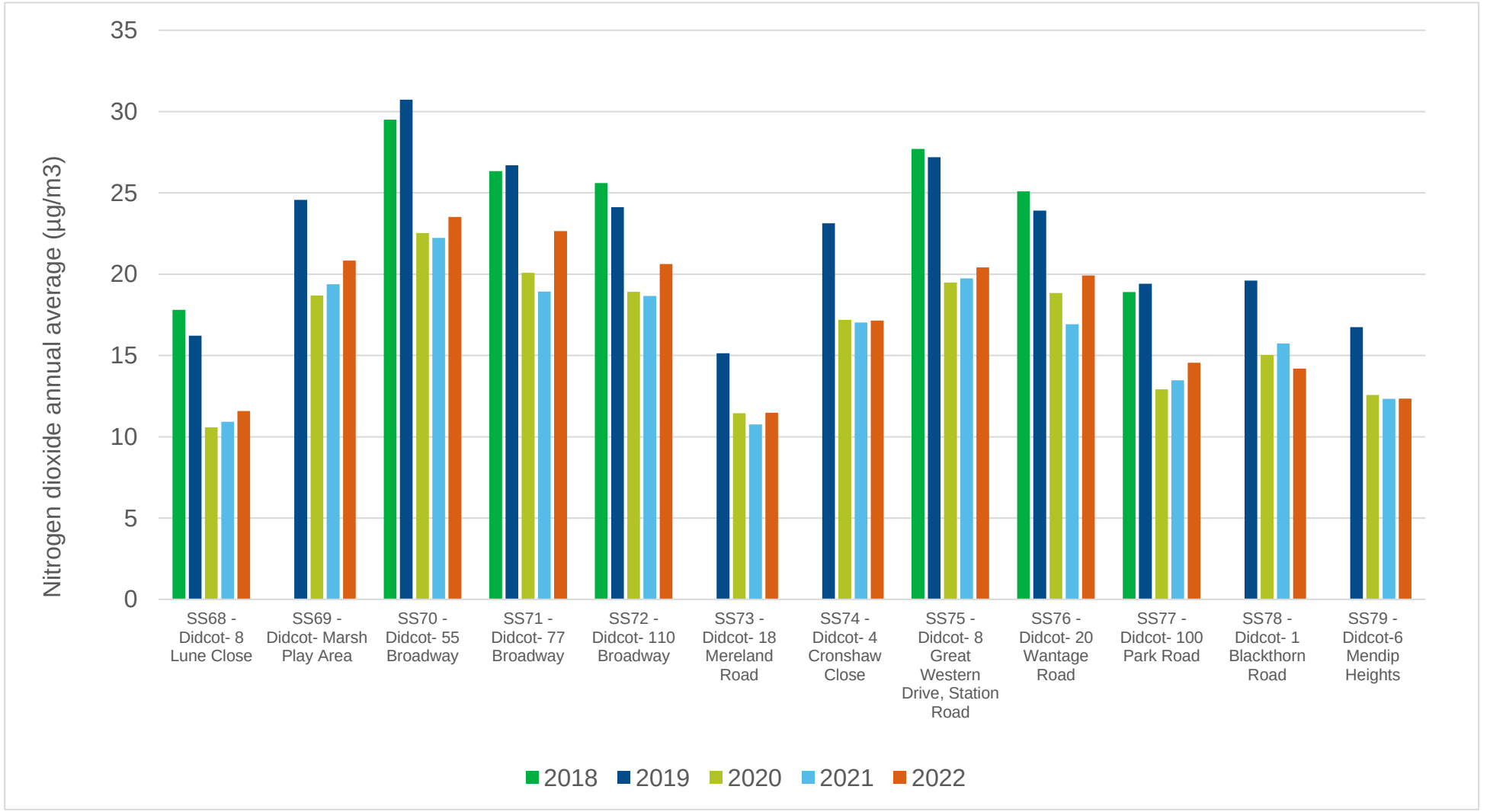


Figure A. 7 Trends in Annual Mean NO_2 Concentrations in Thame

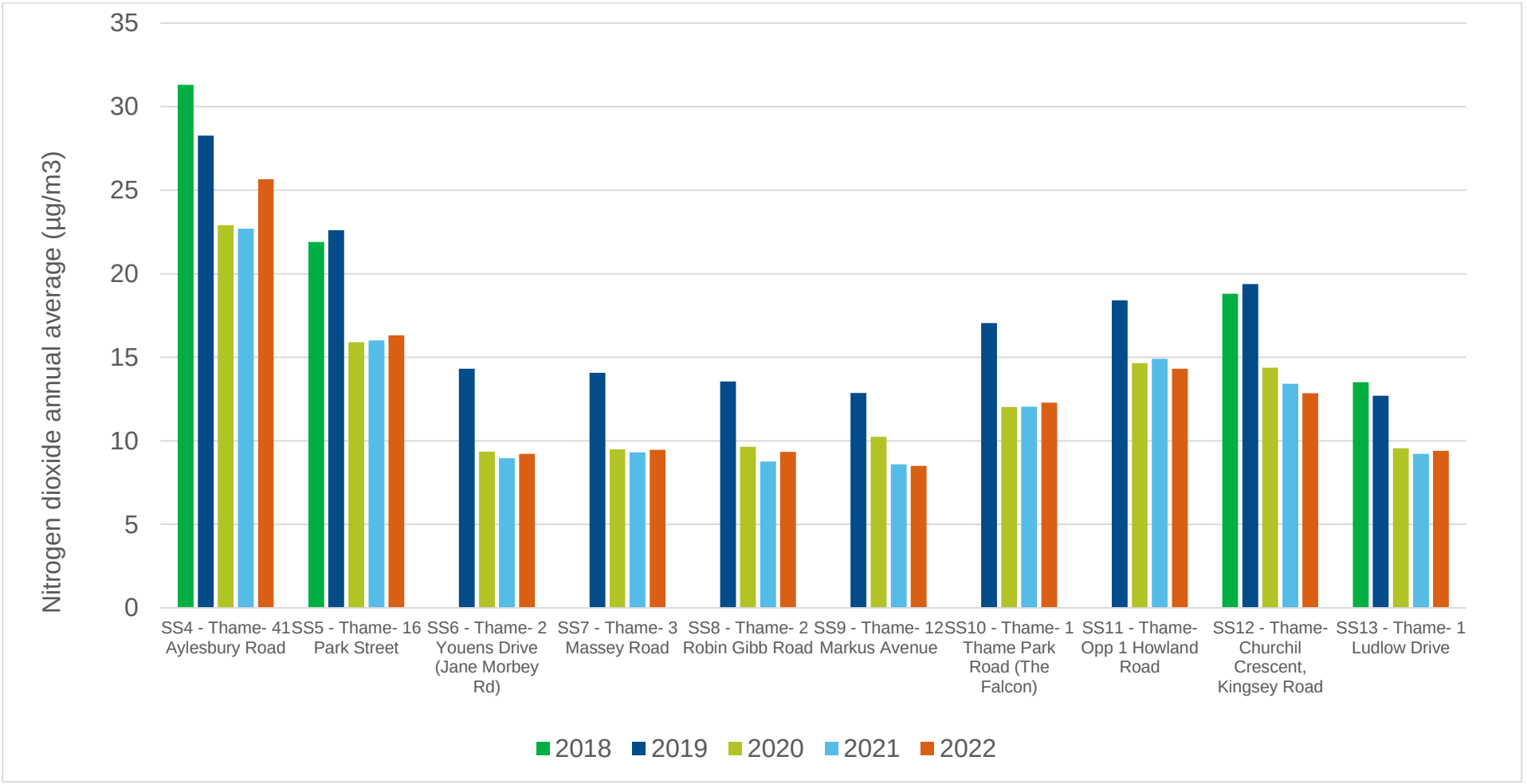


Figure A. 8 Trends in Annual Mean NO_2 Concentrations in Chinnor

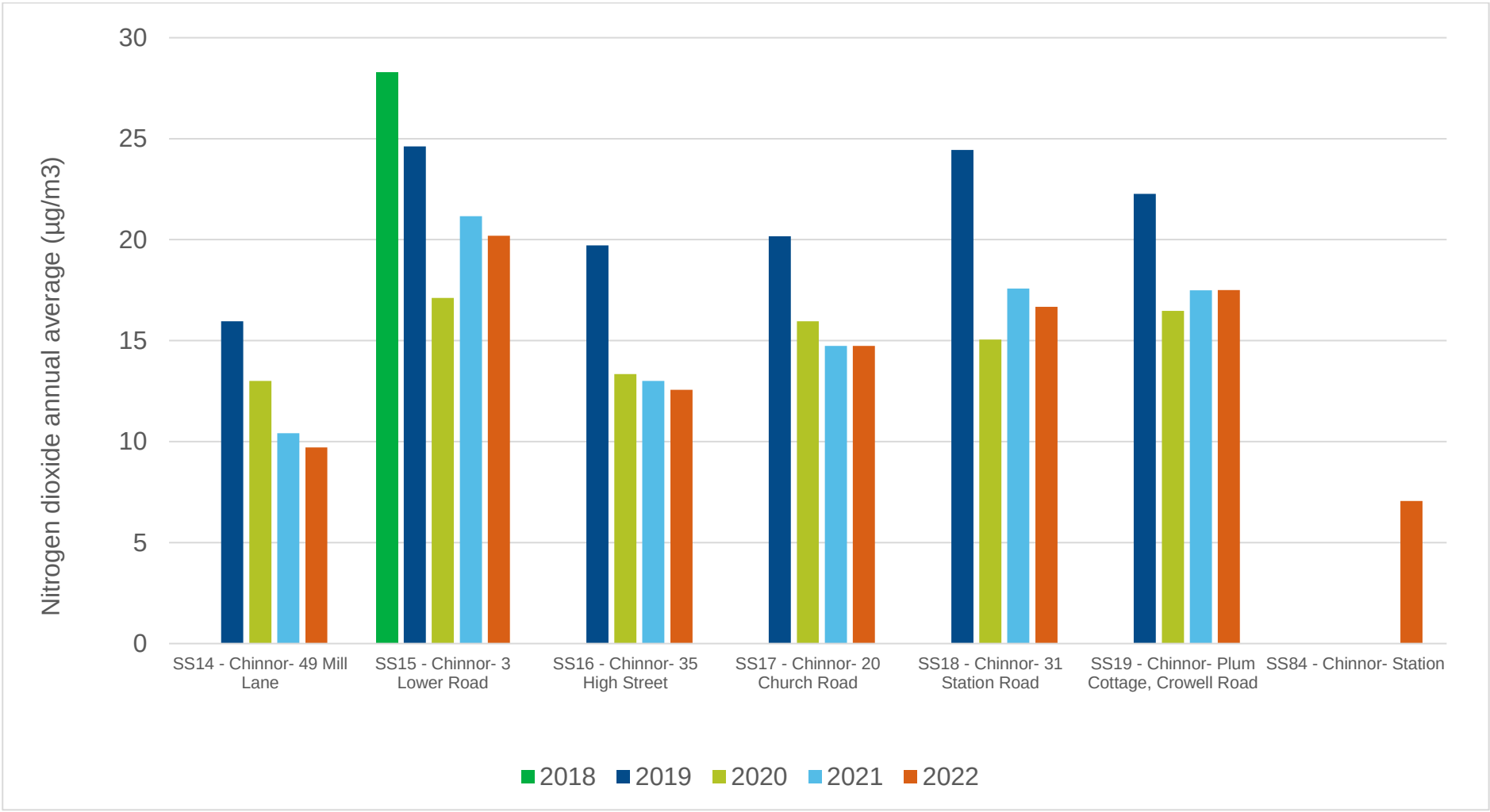


Figure A. 9 Trends in Annual Mean NO_2 Concentrations in Whitchurch, Benson, Clifton Hampden and Horspath

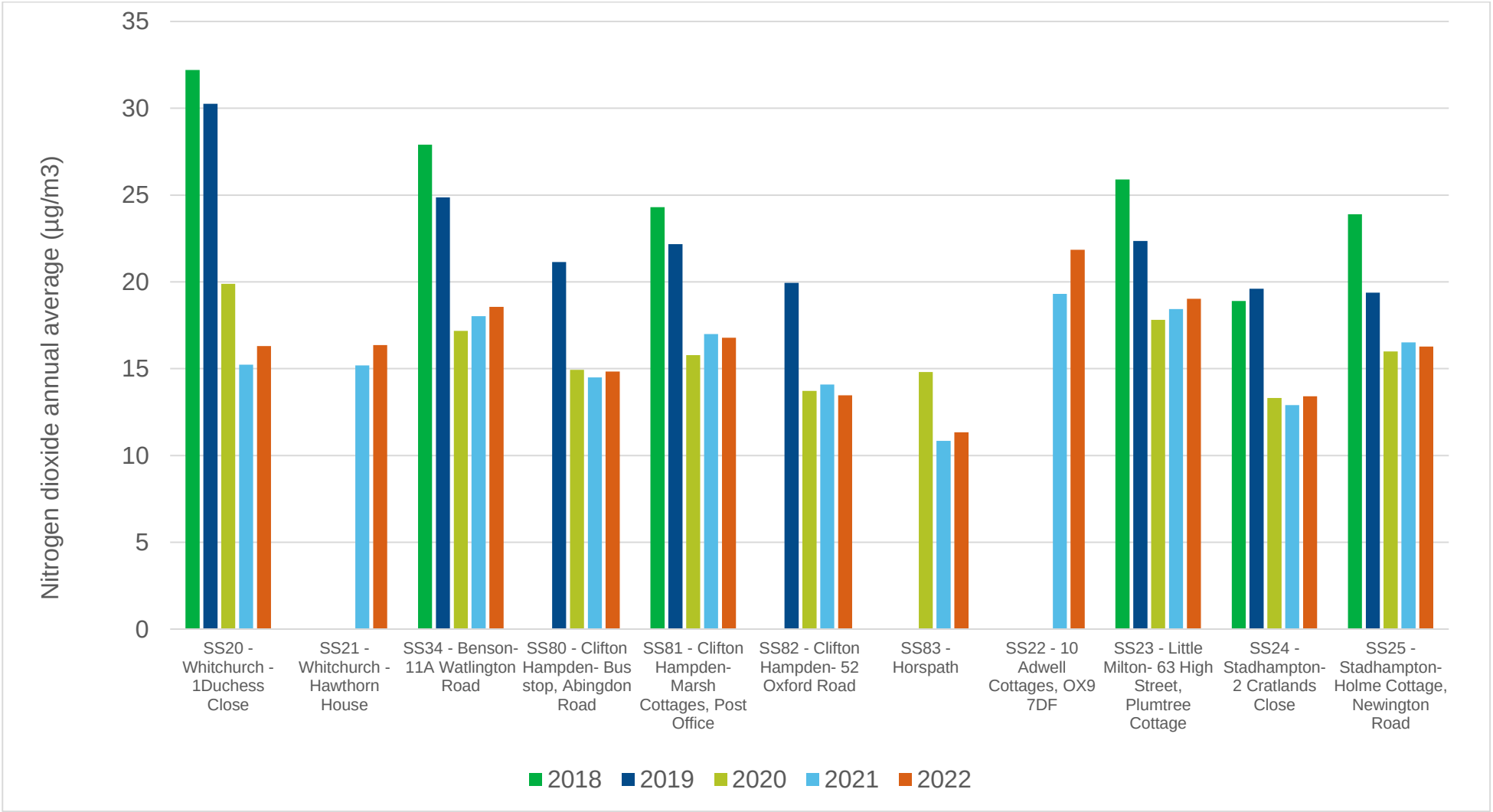


Figure A. 10 Trends in Annual Mean NO_2 Concentrations in Abingdon AQMA

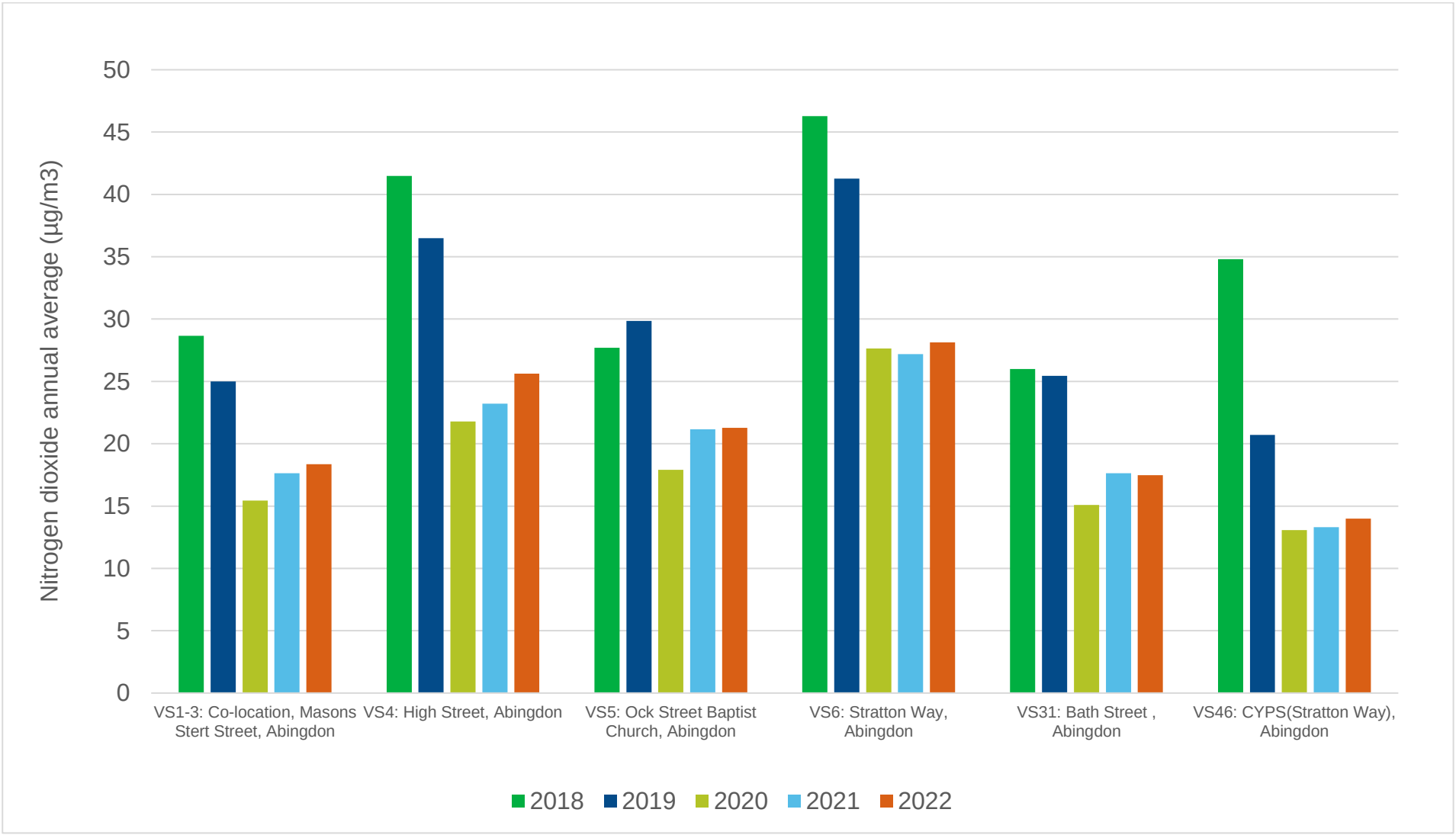


Figure A. 11 Trends in Annual Mean NO_2 Concentrations in Abingdon (outside AQMA)

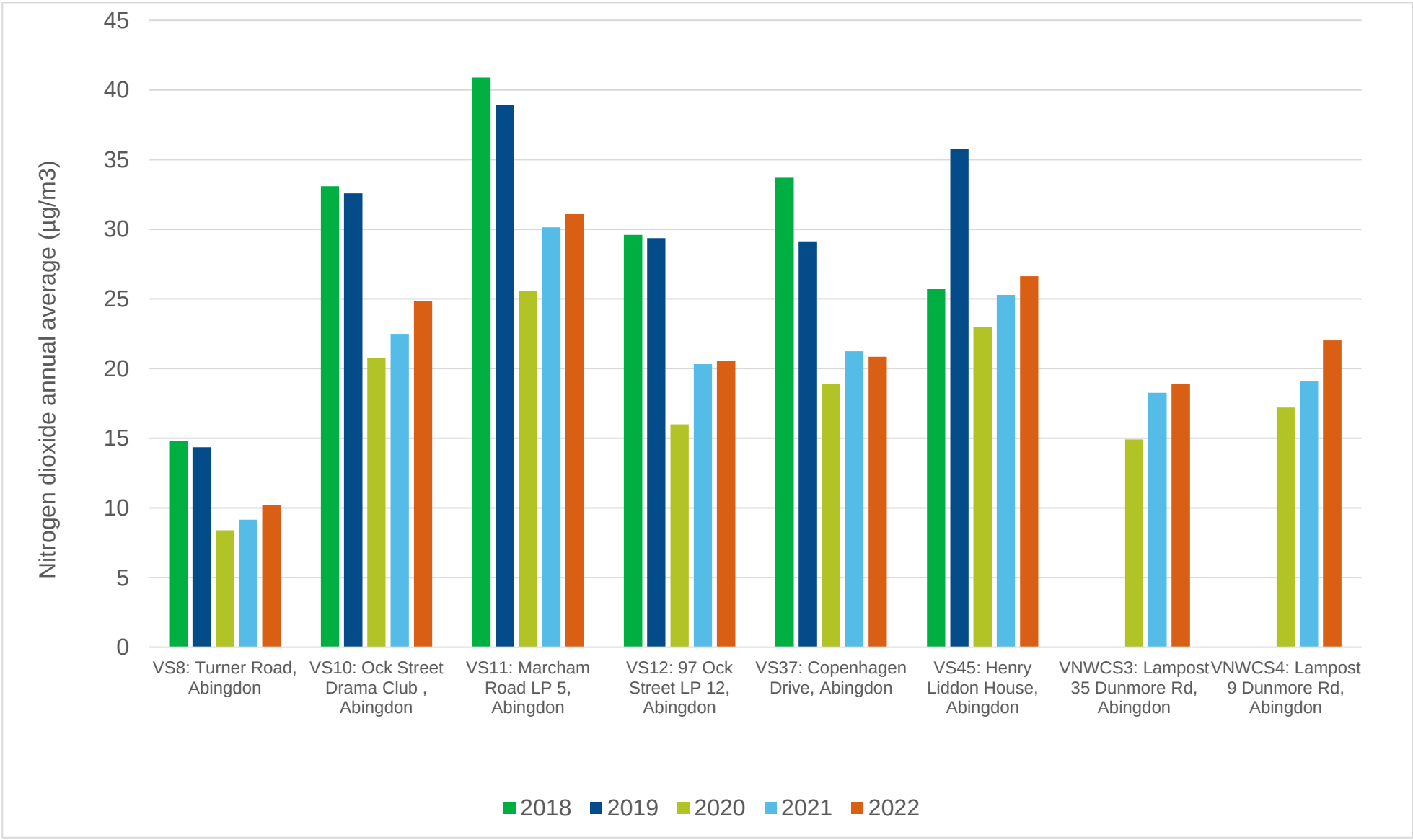


Figure A. 12 Trends in Annual Mean NO_2 Concentrations in Marcham

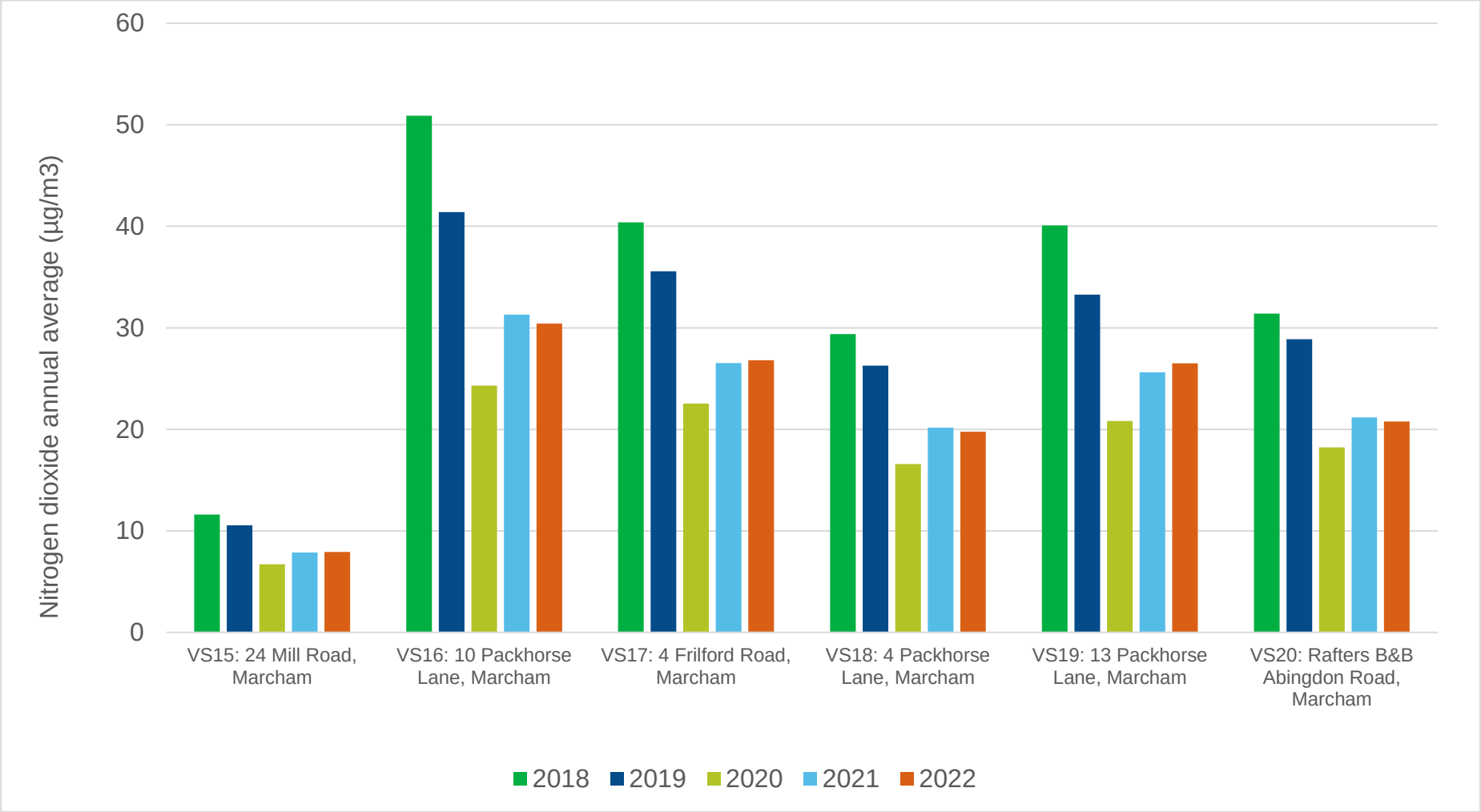


Figure A. 13 Trends in Annual Mean NO_2 Concentrations in Botley and North Hinksey

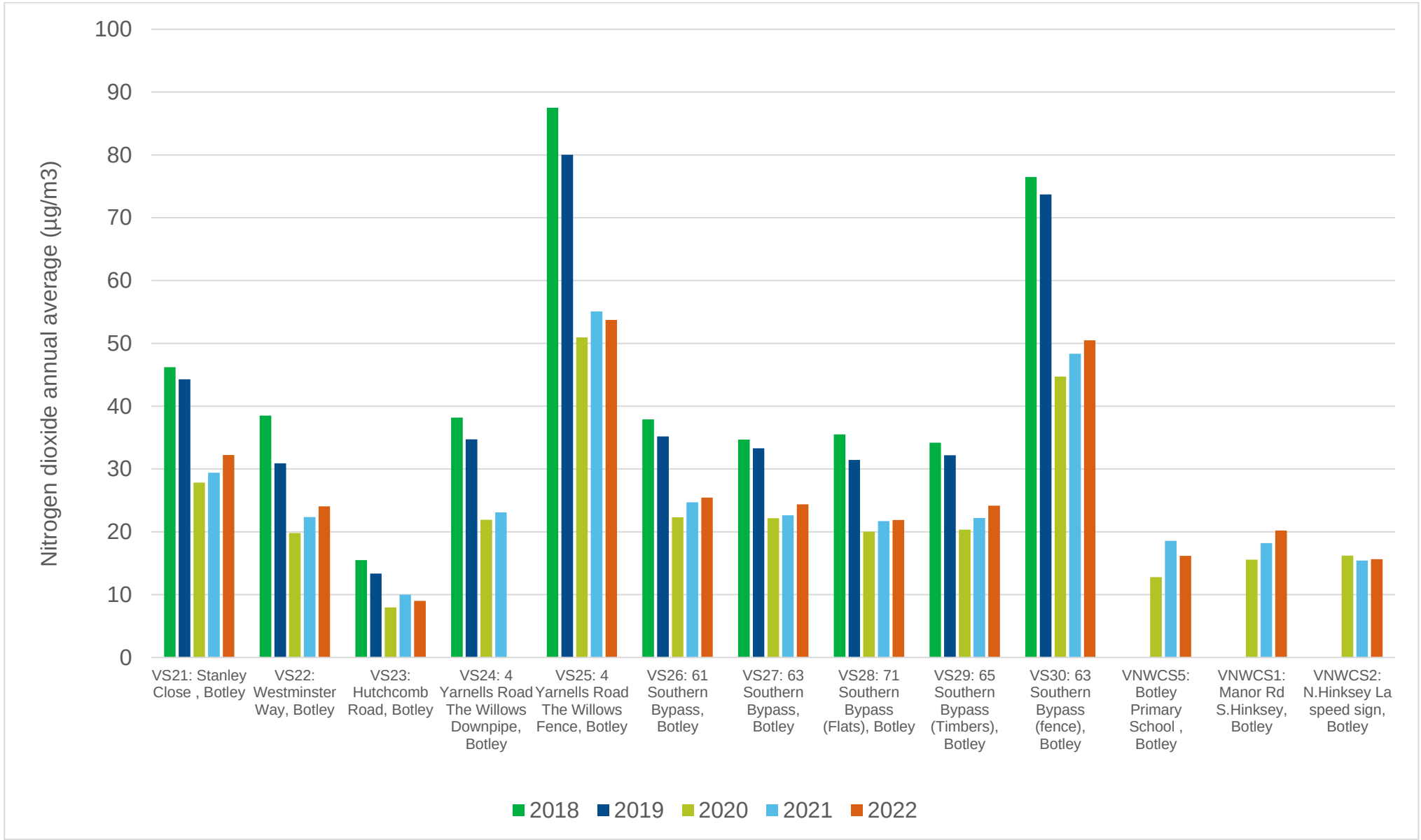


Figure A. 14 Trends in Annual Mean NO2 Concentrations in Faringdon, Shippon, Watchfield and Sutton Courtenay

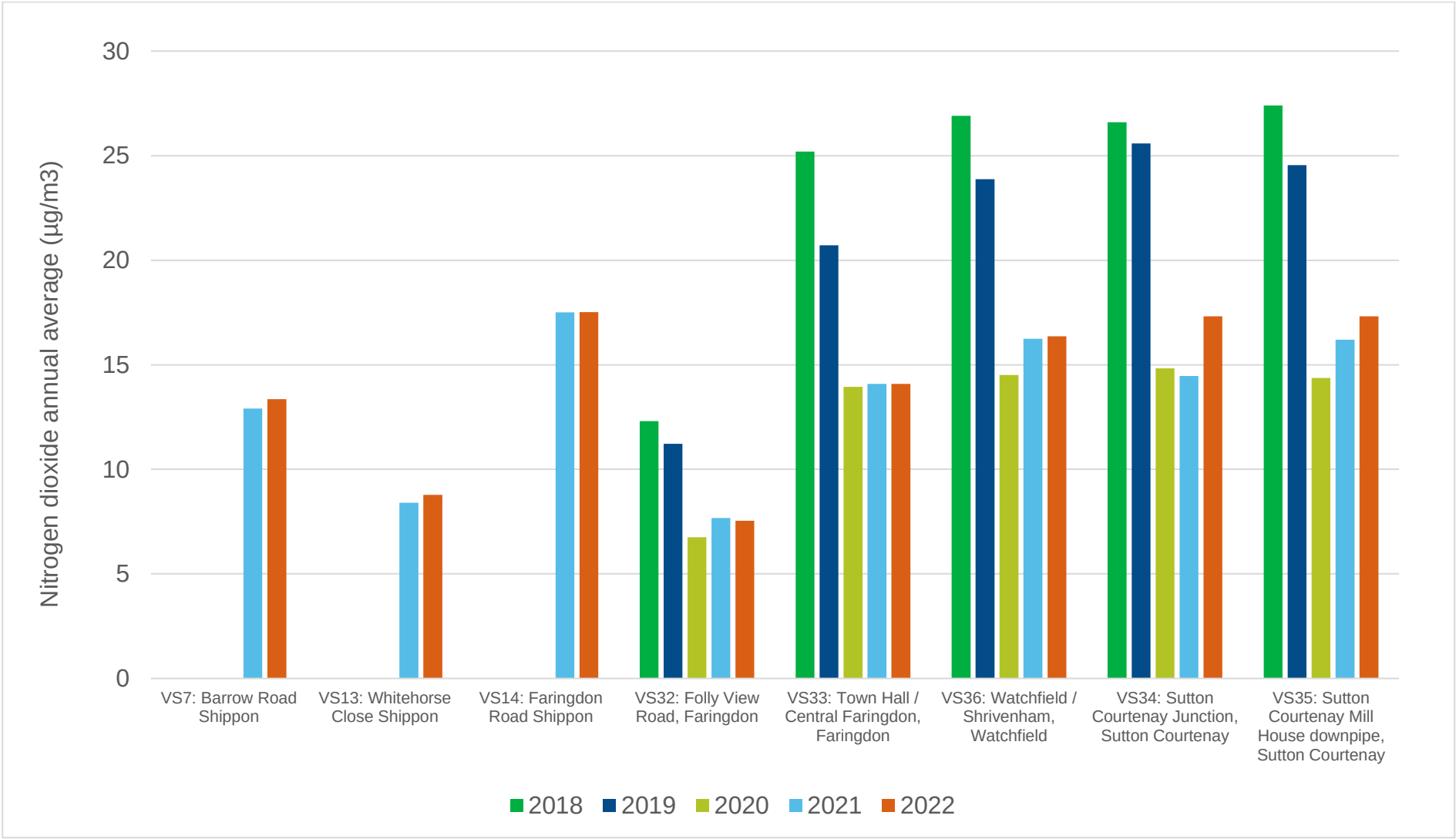


Figure A. 15 Trends in Annual Mean NO2 Concentrations in Wantage, Fyfield and Tubney

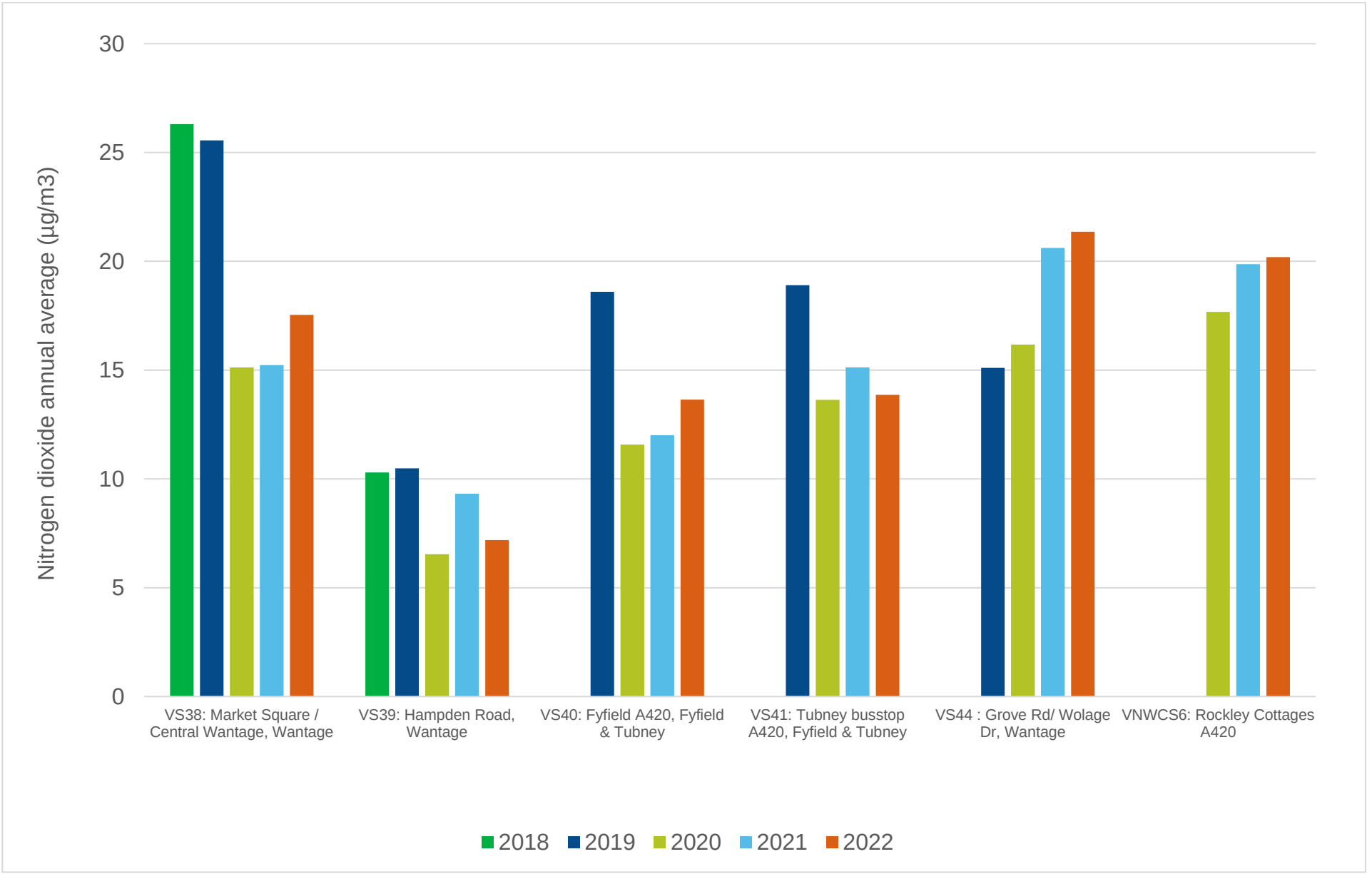


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Abingdon CA	449794	197176	Roadside	99.79	99.77	0	0	**0**	0	0
Henley CA	476116	182531	Roadside	97.31	97.31	0	0	0	0	0
Wallingford CA	189500	189500	Roadside	96.45	95.45	1	0	0	1	0
Watlington CA	468973	194487	Kerbside	96.95	96.95	0	0	0	0	0
Marcham CA	445552	196639	Kerbside	92.29	92.29					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 B.1 – NO_2 2022 Diffusion Tube Results ($\mu g/m^3$)

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 0.80	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SS1	459532	205740	26.0		21.8	18.7	13.5	14.5	13.7	13.7	15.3	18.9	30.2	20.1	18.8	15.1	-	
SS2	460228	205720	27.0	18.6	23.0	16.1	9.7	12.9	14.2	16.0	16.7	16.7	20.9	16.6	17.4	13.9	-	
SS3	460504	205642	39.2		20.1		17.1			17.6	17.2	14.7	22.3	14.2	20.3	15.4	-	
SS4	470605	206554	46.0	34.4	36.6	28.8	26.5	26.4	29.0	27.6	30.1	31.9	38.1	28.5	32.0	25.7	-	
SS5	471010	205598	28.9	17.9	31.5	20.9	13.9	16.4	16.8	21.3	20.9	15.7	24.6	15.2	20.3	16.3	-	
SS6	471103	205107	18.9	12.3	14.9	10.9	6.6	7.0	10.4	9.5	9.6	10.6	14.7	12.4	11.5	9.2	-	
SS7	471155	205016	18.5	12.1	17.8	12.9	5.7	7.3	9.5	11.1	9.6	10.3	16.0	10.8	11.8	9.5	-	
SS8	471078	204851	15.9		23.8	11.0	6.4	7.0	9.0	11.1	9.3	9.4	14.6	10.6	11.6	9.3	-	
SS9	470964	204914	16.4		14.7	10.6	6.4	7.3	7.4	10.5	8.1	9.9	14.2	11.1	10.6	8.5	-	
SS10	471212	205340	24.7	15.1	21.2	13.9	9.3	12.1	11.4	12.6	14.3	12.8	21.3	15.0	15.3	12.3	-	
SS11	471918	204934	27.2		22.2	16.6	13.6	15.6	15.8	16.3	18.1	16.8	18.5	15.7	17.9	14.3	-	
SS12	471695	205806	27.9		20.3	13.3	10.0		10.1	12.4	13.8	14.8	21.6	16.0	16.0	12.9	-	
SS13	471283	205977	17.8	13.1	17.0	10.8	7.0	8.8	8.2	9.3	10.1	8.6	16.9	13.1	11.7	9.4	-	
SS14	474930	201039	19.0		14.5	13.9	8.6	10.6	9.6	11.3	10.9	8.4	15.4	11.0	12.1	9.7	-	
SS15	475250	201230	31.0	27.5	30.3	24.9	20.6	15.9	18.7	22.1	20.7	22.5	46.6	21.3	25.2	20.2	-	
SS16	475703	201120	24.7	16.9	21.0	16.1	10.2	11.0	11.0	13.1	12.8	14.3	21.7	15.2	15.7	12.6	-	
SS17	475720	200930	23.4		22.6	19.4	14.9	17.3	16.5	15.4		16.5			18.3	14.7	-	
SS18	475415	200942	31.6	22.9	28.9	21.4	13.4	14.8	19.7	17.9	19.6	21.8	19.2	18.3	20.8	16.7	-	
SS19	475001	200196	30.1	22.1	31.3	25.3	15.6	15.2	19.4	23.9		19.0	22.4	15.8	21.8	17.5	-	
SS20	470207	200190	21.9	18.4	29.2	19.9	14.7		20.7	17.7	18.0	23.0	17.1	22.9	20.3	16.3	-	

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 0.80	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SS21	463527	177174	22.0	18.3	32.4	19.6	15.6	21.0	18.5	18.9	18.2	19.4	19.5	21.3	20.4	16.4	-	
SS22	463555	177099	57.2	24.3	21.7	22.0	29.6	26.1	26.7	23.7	30.4	26.6	19.3	19.3	27.2	21.9	-	
SS23	461901	200989	31.3		24.4	22.1	17.2	20.7	18.6	25.3	21.9	24.5	31.2		23.7	19.0	-	
SS24	460279	198618	22.7		20.2	15.6	12.5	10.9	17.4	15.3	20.2	11.6	21.9	15.7	16.7	13.4	-	
SS25	460163	198398	25.3	17.4	31.8	20.8	14.2	17.0	13.9	25.8	20.5	15.1	25.1	16.5	20.3	16.3	-	
SS26	468479	194721	22.1	9.8	12.7	7.8	4.8			7.2	6.1	6.7	8.8	8.1	9.4	7.5	-	
SS27	468756	194360	33.0	21.3	29.1	22.9	17.1	14.4	19.2	21.0	19.6	20.7	29.4	19.9	22.3	17.9	-	
SS28	468856	194293	26.2	20.1	24.6	20.6	15.9	16.4	20.9	22.1	19.7	16.5	26.7	15.8	20.5	16.4	-	
SS29	468852	194343	28.4	23.8	24.1	23.4	17.6	18.5	16.7	21.0	18.4	18.3	16.3	18.2	20.4	16.4	-	
SS30	468951	194457	47.6	34.6	41.5	34.5	31.2	30.4	34.1	34.7	32.4	30.4	36.4	29.6	34.8	27.9	-	
SS31	468962	194458	37.3		39.6	30.4	27.7	26.6	29.1	36.9	28.9	34.2	41.6	29.3	32.9	26.4	-	
SS32	469061	194590	35.6	22.9	25.7	25.6	23.8	24.3	24.1	25.4	27.5	20.6	26.8	23.7	25.5	20.5	-	
SS33	469017	194514	38.3	32.1	35.5	31.2	26.9	27.7	30.1	34.9	23.6	30.4	36.9	30.2	31.5	25.3	-	
SS34	461724	191785	33.1		29.7	19.2	19.2	16.8		24.4	18.7	22.4	26.8	21.1	23.1	18.6	-	
SS35	461298	189367	24.4	14.0	21.4	21.2		14.5	17.8	17.9	16.3	15.3	15.3	17.7	17.8	14.3	-	
SS36	460389	189498	36.5	25.6	29.9		17.8	22.7	23.2	22.7	22.1	24.0	25.9	25.1	25.0	20.1	-	
SS37	460640	189483	38.6		32.3	25.1		20.4		26.6	25.8	24.4	24.4	26.3	27.1	21.7	-	
SS38	460736	189567	37.2	26.2	40.7	16.7		18.4	22.3	19.3		31.2	33.1	34.1	27.9	22.4	-	
SS39	460799	189500	50.3	29.0	41.1	40.0	33.9	31.9	36.2	38.2	34.8	26.0	32.5	31.2	-	-	-	Triplicate Site with SS39, SS40 and SS41 - Annual data provided for SS41 only
SS40	460799	189500	53.0	30.3	42.5	39.9	33.1	30.3	37.6	38.9	34.4	28.0	32.9		-	-	-	Triplicate Site with SS39, SS40 and SS41 - Annual data provided for SS41 only
SS41	460799	189500	47.8	27.8	35.9	39.5	33.0	33.7	39.5	40.1	34.9	27.2	32.5		35.6	28.5	-	Triplicate Site with SS39, SS40 and SS41 - Annual data provided for SS41 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 0.80	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SS42	460938	189496	42.8	27.1	39.1		24.4	24.6	29.5	33.5	26.9	22.7	25.7	29.8	29.6	23.8	-	
SS43	460713	189279	39.2	23.4	29.5	25.4	20.8	25.2	28.1	25.7	21.9	23.6	22.8	28.7	26.2	21.0	-	
SS44	460684	189204	31.8	18.4	23.4	21.6	17.0	16.6	17.4	19.4	18.6	17.1	22.3	23.1	20.6	16.5	-	
SS45	460152	189130	26.7	16.5	23.7		10.2	7.6	9.3	12.3	12.4	9.7	13.0	14.8	14.2	11.4	-	
SS46	460282	188807	20.2	11.2	16.7	10.1	6.4	10.3	7.2	7.0	10.2	12.9		23.5	12.3	9.9	-	
SS47	460470	188224	23.9	13.7	21.6	14.2	10.7	17.6	13.5	14.4	13.0	14.9	20.2	21.5	16.6	13.3	-	
SS48	460110	187862	23.9	9.8	19.1	15.7		9.7	9.5	18.2	13.7	12.2	12.7	14.2	14.4	11.6	-	
SS49	459805	187574	23.6	15.1	22.1	6.9	9.0	13.2	13.3	11.1	10.9	9.9	24.4	18.9	14.9	11.9	-	
SS50	461916	188424	36.2	21.5	34.4	27.2	24.5	22.4	21.7	27.8	28.4	26.7	24.0	30.0	27.1	21.7	-	
SS51	475869	183217	31.4	24.8	21.8	26.3	15.3		18.5	21.2	20.5	20.8	17.4	26.2	22.2	17.8	-	
SS52	475878	182760	24.9		26.8	23.6	12.7	17.4	14.3	25.2	15.7	19.1	23.5	24.4	20.7	16.6	-	
SS53	476103	182506	34.4	29.7	34.8	18.6	23.3	26.9	30.5	27.8	28.7	28.8	32.7	39.8	29.7	23.8	-	
SS54	476174	182396	33.9		35.3	24.3	18.2	18.3	21.1	21.2	21.8	23.2	28.2	29.0	25.0	20.0	-	
SS55	476286	182290	43.6	20.4	29.1	24.5	16.7	17.5	20.2	20.0	19.6	21.4	29.9	25.5	24.0	19.3	-	
SS56	476115	182532	29.5	20.6	43.9	23.8	18.1	19.7	24.5	23.5	25.1	22.1	24.8	25.4	-	-	-	Triplicate Site with SS56, SS57 and SS58 - Annual data provided for SS58 only
SS57	476115	182532	30.9	16.5	40.1	32.4	18.3	19.3	24.5	14.8	23.4	21.7	32.0	24.8	-	-	-	Triplicate Site with SS56, SS57 and SS58 - Annual data provided for SS58 only
SS58	476115	182532	30.0	20.0	36.2	17.8	18.4	19.9	21.8	25.4	24.4	20.3	27.7	24.1	24.6	19.7	-	Triplicate Site with SS56, SS57 and SS58 - Annual data provided for SS58 only
SS59	476071	182612	42.2	41.4		24.6	36.5	36.6	42.3	35.8	36.3	41.9	43.6	37.7	38.1	30.5	-	
SS60	475997	182614	28.0	18.1	29.9	22.0	16.5	33.7		18.1	17.0	19.4	22.4	25.5	22.8	18.3	-	
SS61	476080	182951	33.0	22.5	38.9	28.3		19.9	23.5	26.0	22.5		27.5	26.0	26.8	21.5	-	
SS62	476209	182831	30.5		28.2	24.1	14.9	23.1	24.1	20.0	18.9	20.3	26.6	26.1	23.3	18.7	-	

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 0.80	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SS63	476308	182760	39.2	39.5	35.6	15.4	28.7	34.0	29.3		25.7	30.5	35.0	34.9	31.6	25.4	-	
SS64	476288	182078	34.7		32.5	21.2		23.6	26.8		20.9	25.9	29.3	29.7	27.2	21.8	-	
SS65	476223	182652	29.3	20.7	26.9	16.4			16.5	14.2		18.7		24.2	20.9	15.6	-	
SS66	476547	181735	36.8		29.4	19.6	16.6	16.7	17.1	20.2	16.1	21.3	25.4	27.2	22.4	18.0	-	
SS67	475104	181557	14.6		10.9	8.3	7.3	5.8	6.5	7.0	7.2	8.5	10.9	16.1	9.4	7.5	-	
SS68	453499	190384	23.5		21.0	11.7	9.3	8.9	12.4	11.1	12.5	13.5	15.5	19.4	14.4	11.6	-	
SS69	453357	190030	34.6	24.5	34.5	24.9	19.4	18.1	28.8	33.1	25.1	22.8	26.7	19.3	26.0	20.8	-	
SS70	453099	190031	40.2	28.9	40.1	24.8	22.3	21.0	31.1	30.1	25.3	30.8	30.7	26.6	29.3	23.5	-	
SS71	453023	189999	32.8	22.2	31.0	22.1	19.4	17.7			29.5	35.4	40.2	32.0	28.2	22.6	-	
SS72	452865	189979	36.3	19.6	34.2	26.3	17.8	15.7	28.9	28.2	26.2		28.5	21.1	25.7	20.6	-	
SS73	452753	189729	23.7		19.5	13.1	7.5	9.1	13.1	11.7	12.2	12.4	19.2	15.9	14.3	11.5	-	
SS74	452358	190521	27.1	13.3	35.8	23.0	10.6	15.6	25.0	26.4	20.5	16.1	23.1	19.9	21.4	17.1	-	
SS75	452084	190694	34.0	19.5	34.0	26.4	18.2	21.1	29.5	26.4	24.1	22.9	25.8	23.5	25.5	20.4	-	
SS76	451780	189920	38.1	24.1	35.0	23.5	19.3	17.3	21.9	24.0	20.6			24.5	24.8	19.9	-	
SS77	451643	189369		16.1	30.4	17.3		10.5	16.8	15.1		16.7	22.3	18.0	18.1	14.5	-	
SS78	450870	190495	24.8			19.6	12.0	13.5	18.4	16.7	17.7	13.2	22.9	18.1	17.7	14.2	-	
SS79	451424	190943	21.5	10.6	25.7	18.1	10.0	9.5	15.9	16.2	13.7	12.3	17.9	13.3	15.4	12.3	-	
SS80	454637	195614	23.5	18.4	26.0	15.6	14.4	14.1	13.7	17.2	15.1	20.3	28.1	15.5	18.5	14.8	-	
SS81	454710	195562	28.8	20.4	30.3	19.6	16.1	18.2	17.3	21.2	19.8	17.3	27.9	14.2	20.9	16.8	-	
SS82	454760	195794	23.3		18.6	13.4	14.6	12.8	14.6	13.9	15.3	20.0	21.9	16.3	16.8	13.5	-	
SS83	457228	204708	24.1	19.4	16.5	11.8	11.1	9.6	12.9	10.7	13.3	15.9	9.2	15.1	14.1	11.3	-	

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 0.80	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SS84	475692	200476								9.9	6.7	8.3	9.8	9.0	8.7	7.1	-	
VS1	449794	197176	24.0	28.4	22.6	24.8	17.7	17.8	18.8	19.8	22.3	21.9	26.8	26.1	-	-	-	Triplicate Site with VS1, VS2 and VS3 - Annual data provided for VS3 only
VS2	449794	197176	25.4	30.8	22.0	24.9	20.0	18.0	16.7	16.1	26.4	22.6	29.4	27.6	-	-	-	Triplicate Site with VS1, VS2 and VS3 - Annual data provided for VS3 only
VS3	449794	197176	26.0	27.5		21.9	19.1	18.6	17.7	19.0	26.9	21.6	26.9	25.5	22.9	18.4	-	Triplicate Site with VS1, VS2 and VS3 - Annual data provided for VS3 only
VS4	449695	197049	48.5	33.9	38.9	28.9	28.5	26.4	27.9	13.7	30.8	38.6	35.3		31.9	25.6	-	
VS5	449452	197047	40.3	27.5	30.7	22.8	22.7	20.5	26.6	12.9	27.3	27.9	29.7	29.3	26.5	21.3	-	
VS6	449697	197343	48.4	37.1	44.5	33.5			33.1	16.4	34.6		27.7	40.4	35.1	28.1	-	
VS7	448092	198055	27.2		26.0	14.9	12.2	14.5	10.8	5.6	15.0	21.9		18.4	16.7	13.4	-	
VS8	448869	196180	22.7	10.8	18.3	11.5	7.0	5.7	10.6			11.8	11.9	16.8	12.7	10.2	-	
VS9	448791	196725	40.1		39.3	31.8	21.9	22.3	25.2	14.2	31.3		29.2	30.6	28.6	22.9	-	
VS10	448828	196966	46.4		36.2	29.0	25.6	22.7	24.7	15.7	33.3	36.1	38.1	32.9	31.0	24.8	-	
VS11	448738	196967	69.8	28.2	49.0	37.4	33.0	31.8	36.7	18.3	39.1	45.8	39.6	36.5	38.8	31.1	-	
VS12	449225	196992	37.5		37.0	28.6	20.8	21.2	21.3	12.1	26.9		23.7	27.2	25.6	20.6	-	
VS13	448150	198190	15.6		18.0	10.2	6.6	7.4	6.8	4.3	10.2	13.5	12.4	15.4	10.9	8.8	-	
VS14	448349	198086	29.8	23.3	28.1	18.8	19.8	20.8	16.4	6.7	19.3	25.2	28.2	25.7	21.8	17.5	-	
VS15	445522	196470	17.7	9.7	14.1	9.7		4.1	7.5	4.0	8.7	9.2	8.8	15.1	9.9	7.9	-	
VS16	445552	196639	61.9	35.8	51.1	39.8	32.6	34.0	25.5	17.1	40.3	36.9	39.3	40.8	37.9	30.4	-	
VS17	445456	196623	51.9	29.0	45.8	35.2	28.2	28.4	29.3	13.8	35.9	36.6	31.1	35.8	33.4	26.8	-	
VS18	445528	196628	37.7		30.6	26.5	21.0	21.8	19.7	10.1	21.6	27.4	26.8	27.7	24.6	19.8	-	
VS19	445571	196675	49.1	30.4	43.0	35.2	27.0	29.1	23.0	13.5	31.3	44.3	34.6	36.1	33.1	26.5	-	
VS20	445875	196657	40.9	23.4	32.9		23.4		20.4	11.1	23.5	32.8	22.5	28.0	25.9	20.8	-	

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 0.80	Annual Mean: Distance Corrected to Nearest Exposure	Comment
VS21	448913	205813	59.1	48.9	40.9	30.3	38.1	40.6	36.8	17.3	34.4	56.6	48.5	30.6	40.2	32.2	-	
VS22	448866	205807	35.5	21.1	47.1	33.1	21.3	24.8	28.3	17.0	32.4	43.1	26.0	30.4	30.0	24.1	-	
VS23	448403	205709	18.9	9.3	20.3	11.9	7.6	8.1	7.7	5.1	9.8	9.9	11.4	14.8	11.2	9.0	-	
VS24	449008	205729	39.9												-	-	-	
VS25	449003	205724	85.6		76.3	62.3	68.9	69.2	65.5	34.5	67.5	83.1	73.5	50.4	67.0	**53.7**	36.8	
VS26	448894	205826	40.9	34.5	33.8	26.7	30.4	31.7	28.6	14.2	32.1	39.4	32.0	36.7	31.8	25.5	-	
VS27	448917	205804	42.4	29.6	32.9	26.5	23.9	29.5	26.8	13.3	28.0	45.1	36.8	29.8	30.4	24.4	-	
VS28	448991	205745	38.9	29.6	31.2	23.5	25.0	27.7	24.6	12.1	27.3	34.6	23.1	29.7	27.3	21.9	-	
VS29	448946	205780	39.9		33.7	25.9	28.2	29.9	26.9	12.4	27.9	44.7	32.9	28.8	30.1	24.2	-	
VS30	448914	205798	72.5	62.0	72.0	58.2	50.2	64.5	67.6	31.9	63.8	81.2	76.3	54.9	62.9	**50.5**	**47.3**	
VS31	449585	197273	32.0	20.1		24.1	18.0	20.0	18.1	11.2	21.9	25.2	24.4	24.8	21.8	17.5	-	
VS32	428682	194571	20.4	8.3	15.1	9.7	6.5	6.6	6.9	3.4		8.3	8.8		9.4	7.5	-	
VS33	428823	195554	26.1	19.6		15.7	12.9	15.6	12.7	5.9	13.2	28.6	20.0	22.8	17.6	14.1	-	
VS34	450886	194359	32.4	18.6	29.5	20.3	19.1	21.2	19.1	9.9	19.9	22.0	23.8	23.2	21.6	17.3	-	
VS35	450588	194391	31.3	18.7	29.4	24.6	18.3	18.1	21.2	10.8	22.0	24.4	18.9	21.3	21.6	17.3	-	
VS36	424275	190640	35.6	19.0	28.8	24.5	16.5	16.1	17.8	10.8	18.0	18.7	16.1	22.9	20.4	16.4	-	
VS37	448364	197836	33.0	26.7	34.0	30.8	21.9	23.8	21.7	13.5	27.6	24.9	25.3	28.8	26.0	20.9	-	
VS38	439807	187941	33.1	19.0	25.2	23.1	18.4	20.1	22.3	11.4	23.1	20.5	22.7	23.5	21.9	17.5	-	
VS39	440409	188319	17.3		13.5	8.3	5.4	6.3	6.7	3.5	6.9		9.0	12.8	9.0	7.2	-	
VS40	442239	198622	24.7	18.0	19.5	12.9	13.5	14.3	16.5	9.5	17.6	18.0	20.9	18.8	17.0	13.6	-	
VS41	443526	199184	28.7	17.4	21.6	20.1	14.5	13.3	14.1	6.0	11.9	18.6	18.4	22.8	17.3	13.9	-	

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 0.80	Annual Mean: Distance Corrected to Nearest Exposure	Comment
VS42	452253	202255	28.2	13.4	26.8	18.2	11.9	10.5	12.4	7.9	17.9	18.5	16.0	23.3	17.1	13.7	-	
VS43	452290	201912	25.7	14.0	24.6	17.8	12.4	11.5	14.1	18.2	15.8	17.0	19.6	22.1	17.7	14.2	-	
VS44	440068	189087	40.0	23.6	32.2	22.6	21.0	22.7	24.5	12.5	26.0	34.5	30.0	29.9	26.6	21.4	-	
VS45	448442	196953	43.6	32.4	44.1	32.5	29.9	31.1	32.7	14.5	32.2	35.8	34.3	35.3	33.2	26.6	-	
VS46	449518	197160	22.0	15.5	27.2	14.4	12.4	14.2	15.1	8.0	15.8	24.3	22.9		17.4	14.0	-	
VNWC S1	450764	204105	35.1	26.6	27.8	19.0	22.9	23.1	21.3	11.5	24.9	35.2	30.9	24.0	25.2	20.2	-	
VNWC S2	449404	205422	27.5	21.3	24.0	17.7	16.7	14.9	17.1	8.4	17.8	24.0	22.3	22.1	19.5	15.6	-	
VNWC S3	449558	199016	39.8	27.9	31.4	25.5	15.8	16.4	18.1	10.6	20.9	21.2	20.8	34.2	23.6	18.9	-	
VNWC S4	450222	199464	49.3	27.3	31.1	18.7	19.7	17.5	20.5	9.5	26.5	44.4	37.5		27.5	22.0	-	
VNWC S5	448610	206289	23.8	27.2	33.3	24.6	14.3	12.9	15.6	12.7	18.5	20.7	18.0	20.5	20.2	16.2	-	
VNWC S6	446273	202333	37.5	25.0	28.9	23.5	22.8	23.0	23.5	12.3	25.1	25.8	27.5	27.2	25.2	20.2	-	

☒ **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.**

☒ **South Oxfordshire and Vale of White Horse District Councils confirm that all 2022 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 South Oxfordshire and Vale of White Horse District Councils During 2022

South Oxfordshire and Vale of White Horse District Councils have not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by South Oxfordshire and Vale of White Horse District Councils During 2022

South Oxfordshire and Vale of White Horse District Councils have not completed any additional works within the reporting year of 2022.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes used by SODC are provided by Socotec Didcot. Please see the information forwarded by the supplier below.

Diffusion Tube Performance Summary 2022:

- Tube Type: 20% TEA: 80% Water
- Uncertainty: "Diffusion Tubes for Ambient NO2 Monitoring: Practical Guidance" categorises diffusion tubes as an indicative method, and as such the uncertainty is defined as ± 25%.
  During in field intercomparisons, SOCOTEC's diffusion tubes perform at ±10% uncertainty.
- Quality Control: A quality control (QC) sample of known concentration is run with the samples. The data generated is then assessed using a Shewhart control chart to determine the process is under statistical control.
- Analytical Repeatability: In 2022 ~9000 QC samples were analysed, achieving a relative standard deviation of 0.98%

- Confidence Intervals: 2σ ±1.96%; 3σ ±2.94%
- Limit of Detection: The analytical limit of detection is 0.03µg NO2.
  Over a 4-week exposure this would equate to 0.6µg/m3, or 0.3ppb
- Quality Assurance: The manufacture and analysis of NO2 diffusion tubes is covered by our UKAS accreditation.
  The laboratory has taken part in the AIR (previously WASP) proficiency scheme since its inception. To achieve the highest ranking of "Satisfactory" a laboratory must achieve a z-score of <2. For 2022, SOCOTEC had an average z-score of 0.50
  Bought in ISO Guide 34 and ISO/IEC 17025 certified standards are used to prepare calibration and QC standards.
  2% of tubes are checked for blankness during manufacture, to ensure there is no contamination introduced during the manufacturing process.
  The method meets the requirements laid out in DEFRA's "Diffusion Tubes for Ambient NO2 Monitoring: A Practical Guidance."

Diffusion Tube Annualisation

The results from the following non-automatic sites required annualisation since its data capture less than 75% but greater than 33%:

- SS3 - Wheatley- 16 Old London Road
- SS17 - Chinnor- 20 Church Road
- SS65 - Henley- Upton Close, St Andrews Road
- SS84 - Chinnor- Station

Details of the calculation method undertaken (using the DT Data Processing Tool) are provided in Table C. 1 below.

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

Site ID	Annualisation Factor Henley	Annualisation Factor Wallingford	Annualisation Factor Abingdon	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
SS3	0.9425	0.9695	0.9171	0.9430	20.3	19.1
SS17	1.0188	0.9870	1.0152	1.0070	18.3	18.4
SS65	0.9363	0.9379	0.9290	0.9344	20.9	19.5
SS84	0.9959	1.0607	0.9645	1.0070	8.7	8.8

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

South Oxfordshire and Vale of White Horse District Councils have applied a local bias adjustment factor of 0.80 to the 2022 monitoring data. A summary of bias adjustment factors used by South Oxfordshire and Vale of White Horse District Councils over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	Local		0.80
2021	Local		0.79
2020	Local		0.88
2019	Local		0.86
2018	Local		1.08 and 0.79

Table C.3 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1- Henley co-location	Local Bias Adjustment Input 2- Wallingford co-location	Local Bias Adjustment Input 3- Abingdon co-location
Periods used to calculate bias	10	11	12
Bias Factor A	0.75 (0.7 - 0.81)	0.89 (0.85 - 0.93)	0.79 (0.68 - 0.94)
Bias Factor B	34% (24% - 43%)	13% (8% - 18%)	27% (6% - 47%)
Diffusion Tube Mean (µg/m^3)	24.9	36.0	22.9
Mean CV (Precision)	5.6%	3.4%	5.5%
Automatic Mean (µg/m^3)	18.7	32.0	18.1
Data Capture	96%	96%	99%
Adjusted Tube Mean (µg/m^3)	19 (17 - 20)	32 (31 - 33)	18 (16 - 22)
Overall Diffusion Tube Precision	Good Overall Precision	Good Overall Precision	Good Overall Precision
Overall Continuous Monitor Data Capture	Good Overall Data Capture	Good Overall Data Capture	Good Overall Data Capture

Notes:

A combined local bias adjustment factor of 0.80 has been used to bias adjust the 2022 diffusion tube results.

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 B.1.

The results from the following non-automatic sites required distance correction:

- VS25: 4 Yarnells Road, The Willows Fence, Botley
- VS30: 63 Southern Bypass (fence), Botley

Table C.4 – 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
VS25	3.0	13.0	53.7	9.0	*36.8*	*Predicted concentration at Receptor within 10% the AQS objective.*
VS30	8.0	10.0	50.5	9.0	**47.3**	*Predicted concentration at Receptor above AQS objective.*

Notes: There is relevant façade level monitoring at VS28 for VS25 and VS 27 for VS 30. All façade levels are below the objective.

QA/QC of Automatic Monitoring

Ricardo Energy & Environment currently provide independent UKAS accredited quality control audits (biannual) and data management services to the three automatic monitoring stations in the district. Their data management process includes:

- Scaling data based on routine instrument calibrations. These calibrations are carried out by the Local Site Operator (Air Quality Officer at SODC) on a monthly/fortnightly basis

- Instrument and site infrastructure service and maintenance records obtained from the biannual servicing visits
- Local meteorological data where possible
- Results of quality control audits
- Comparisons with other nearby site concentrations to help ensure data integrity

Figures C1-3 show the annual data recorded at the council's continuous monitoring sites in 2021. Further historical data can be accessed on the Oxfordshire AQ Website or the AQE website.

Figure C. 1 Henley Continuous Analyser - Annual Graph

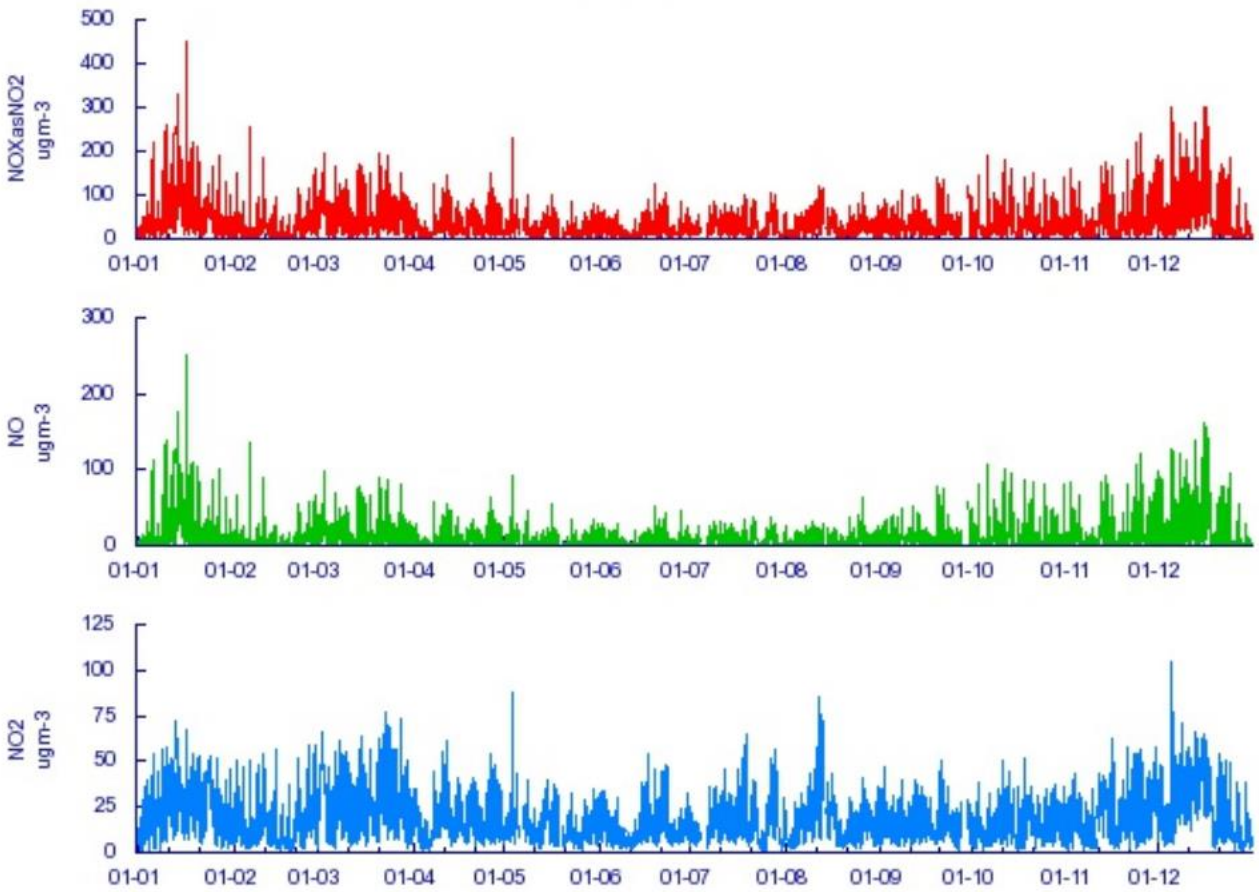


Figure C. 2 Wallingford Continuous Analyser - Annual Graph

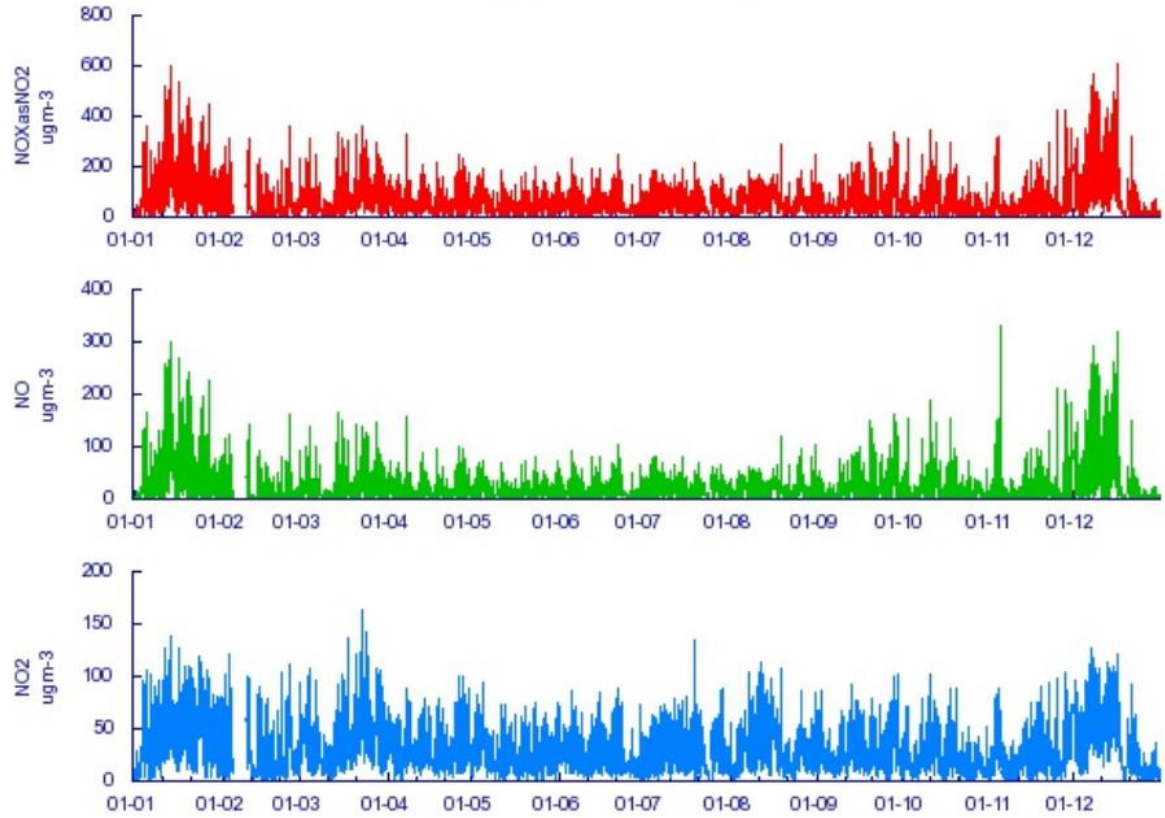


Figure C. 3 Watlington Continuous Analyser - Annual Graph

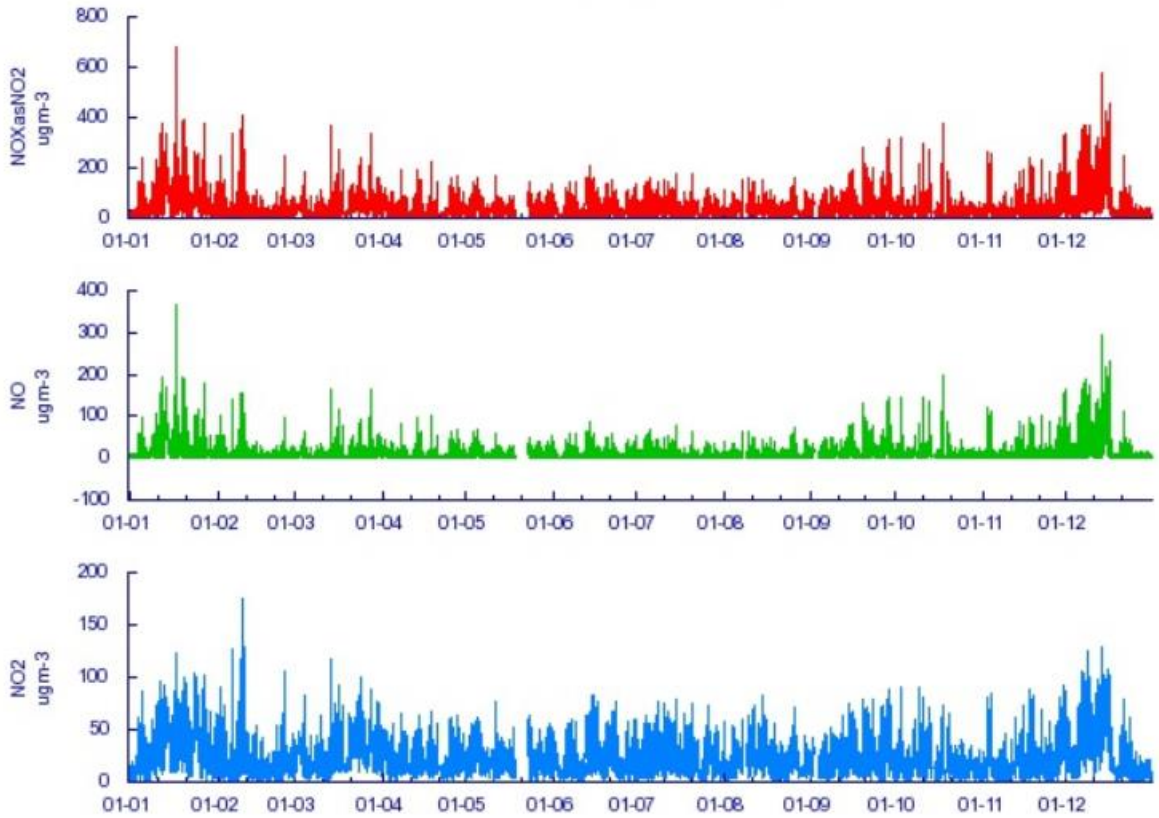


Figure C. 4 Abingdon Continuous Analyser - Annual Graph

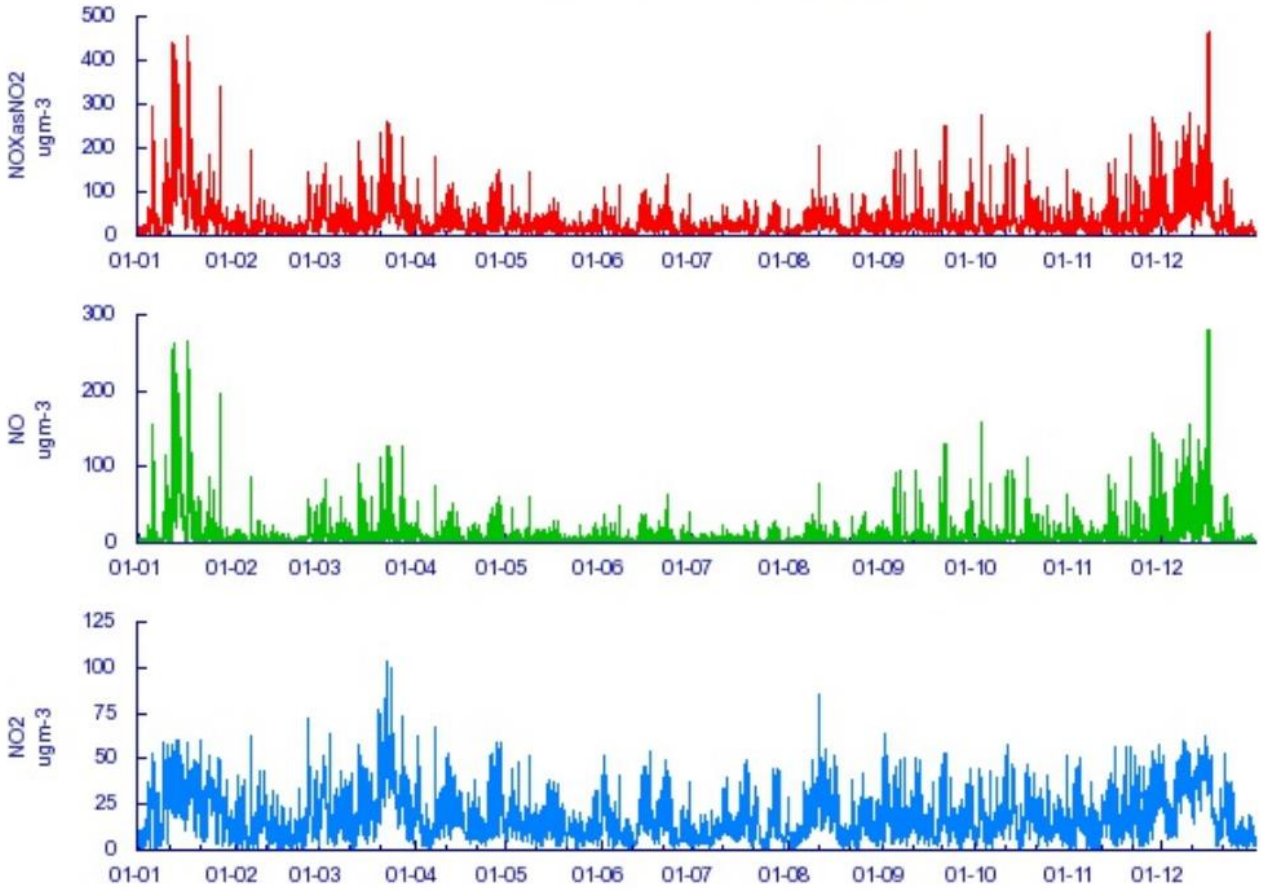
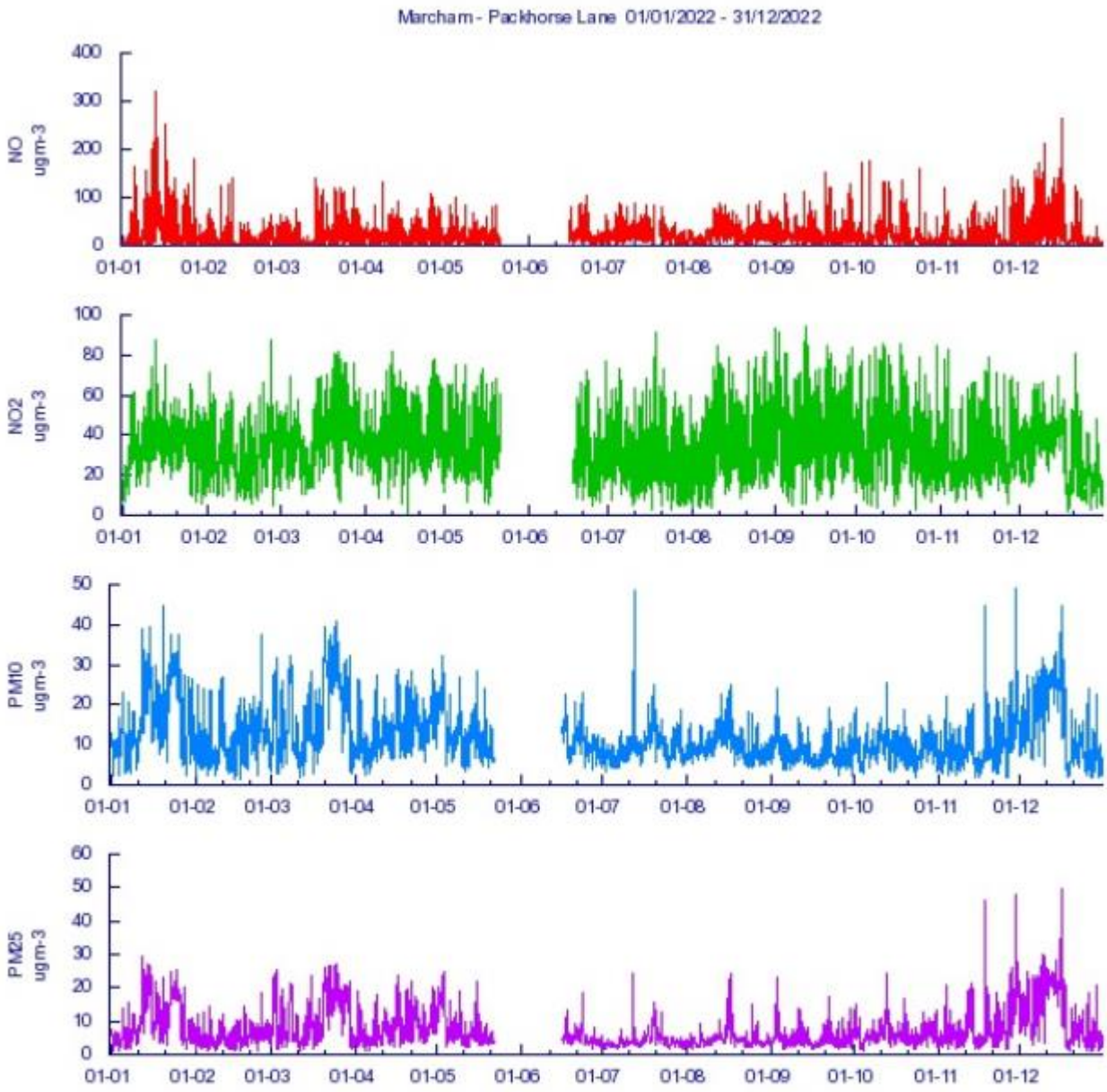


Figure C. 5 Marcham Continuous Analyser - Annual Graph



Automatic Monitoring Annualisation

All automatic monitoring locations within South Oxfordshire and Vale of White Horse 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, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No automatic NO_2 monitoring locations within South Oxfordshire and Vale of White Horse required distance correction during 2022.

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

Figure D. 1 Monitoring stations and Air Quality Management Area, Watlington

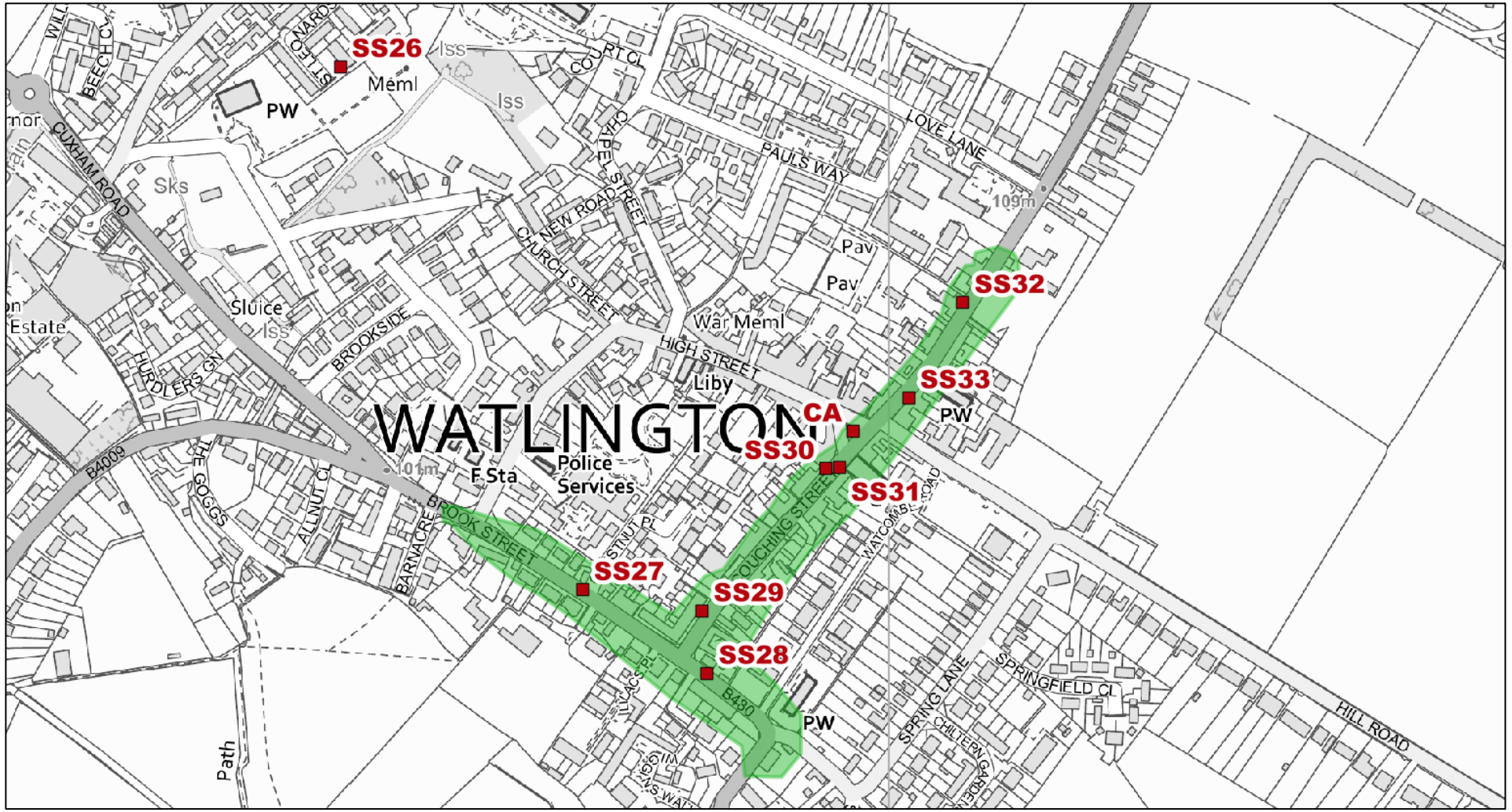
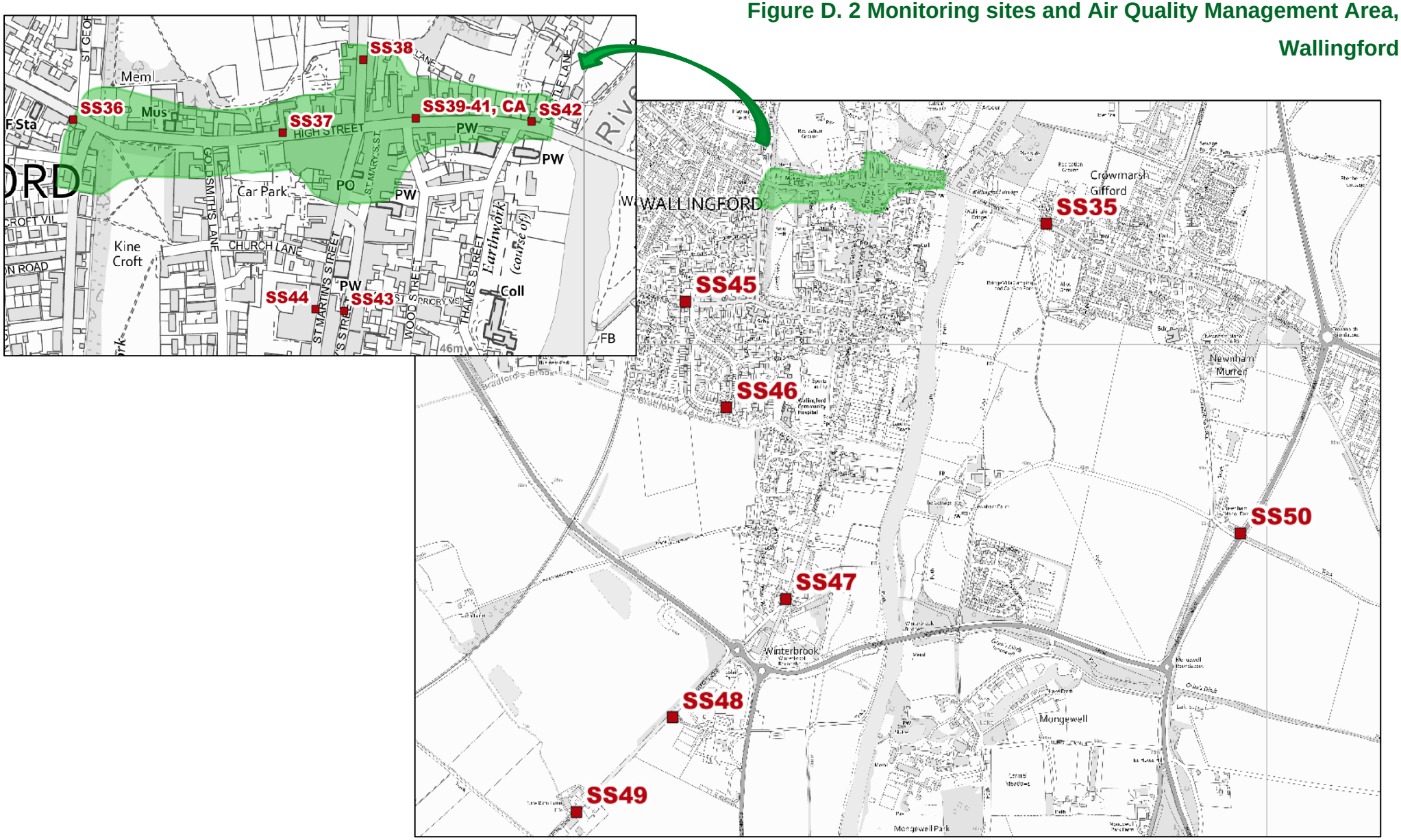


Figure D. 2 Monitoring sites and Air Quality Management Area, Wallingford



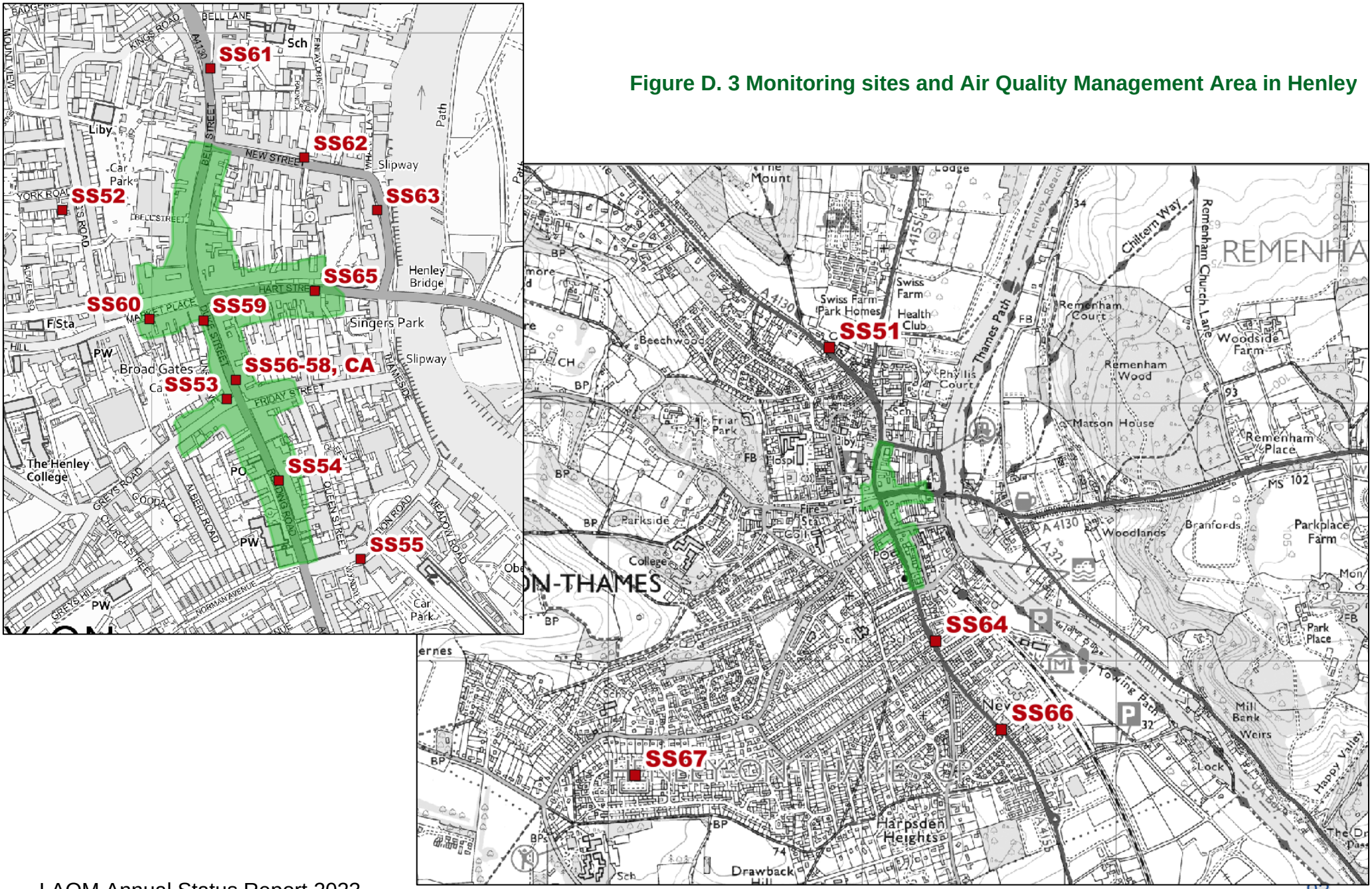
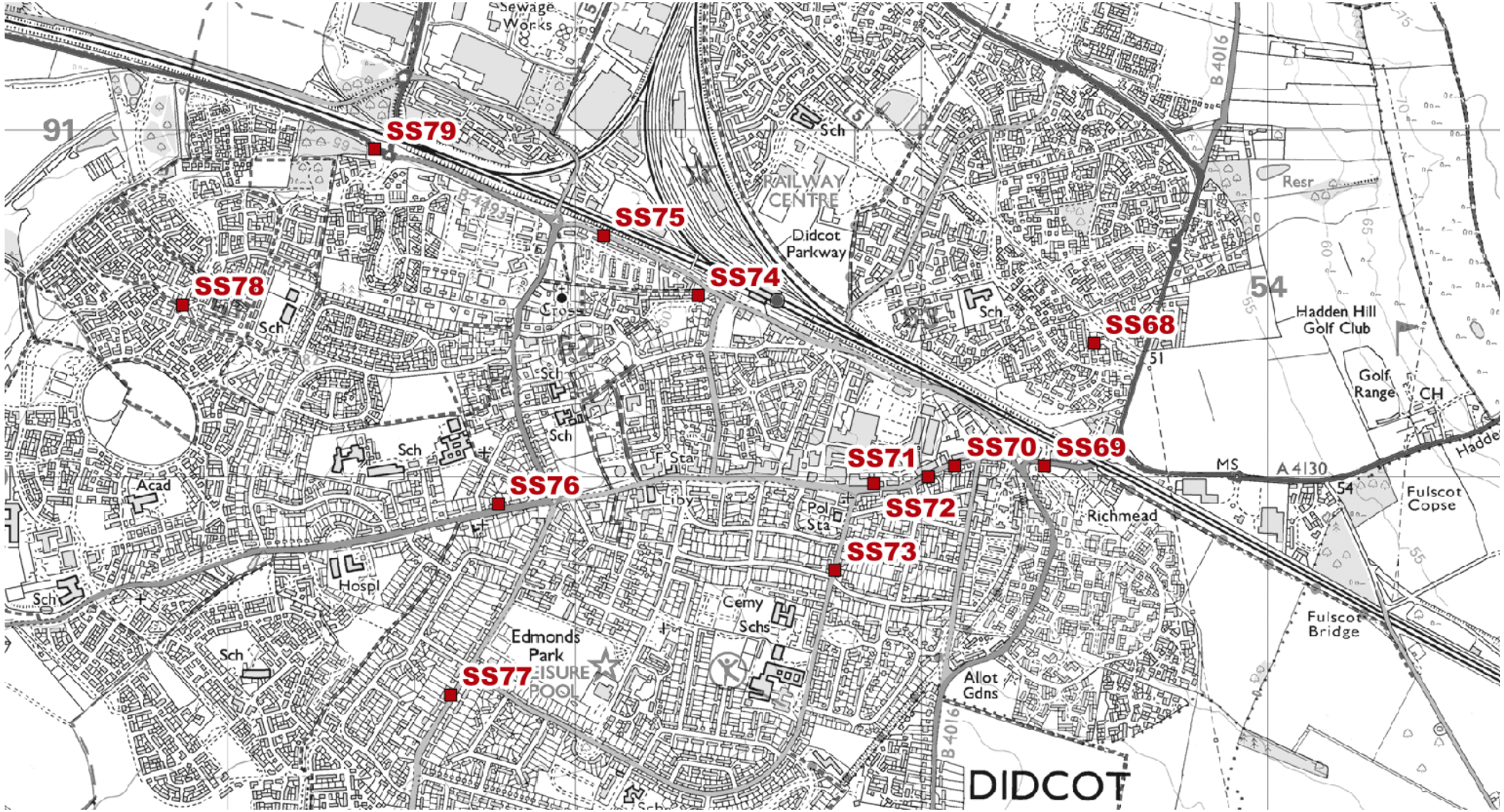


Figure D. 3 Monitoring sites and Air Quality Management Area in Henley

Figure D. 4 Monitoring sites in Thame

Figure D. 5 Monitoring sites in Chinnor

Figure D. 6 Monitoring sites in Didcot



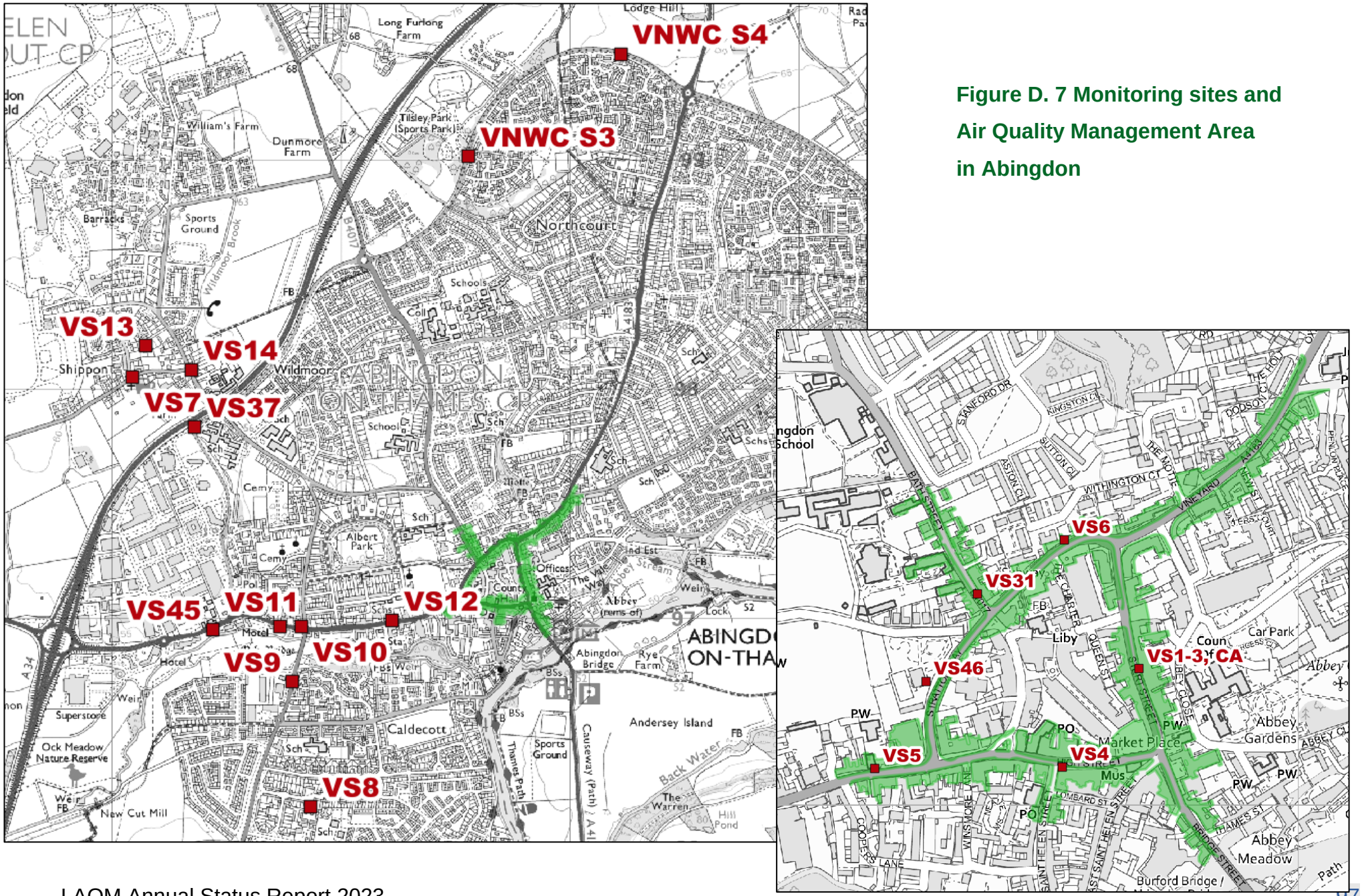


Figure D. 7 Monitoring sites and Air Quality Management Area in Abingdon

Figure D. 8 Monitoring stations and Air Quality Management Area in Botley

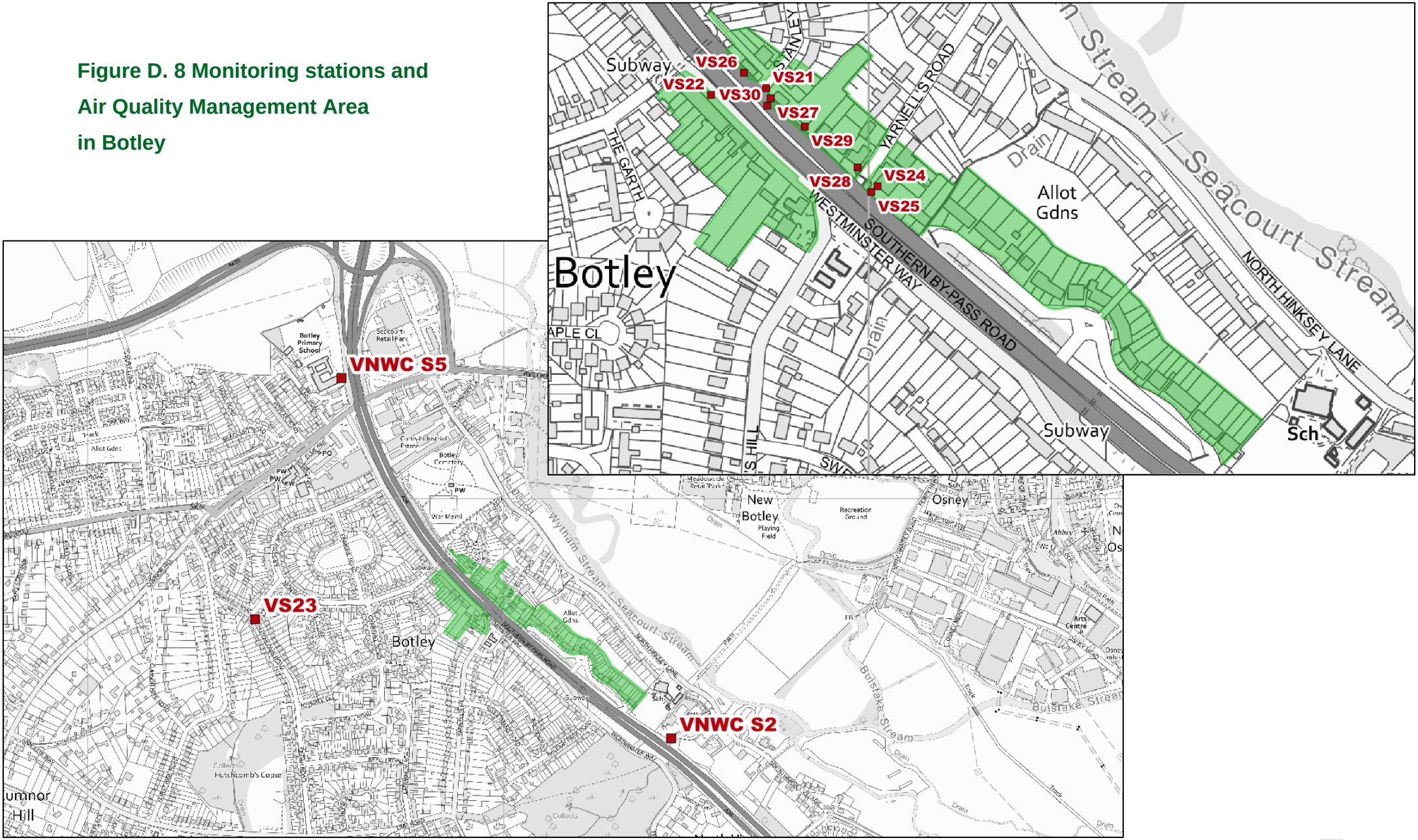


Figure D. 9 Monitoring stations and Air Quality Management Area in Marcham

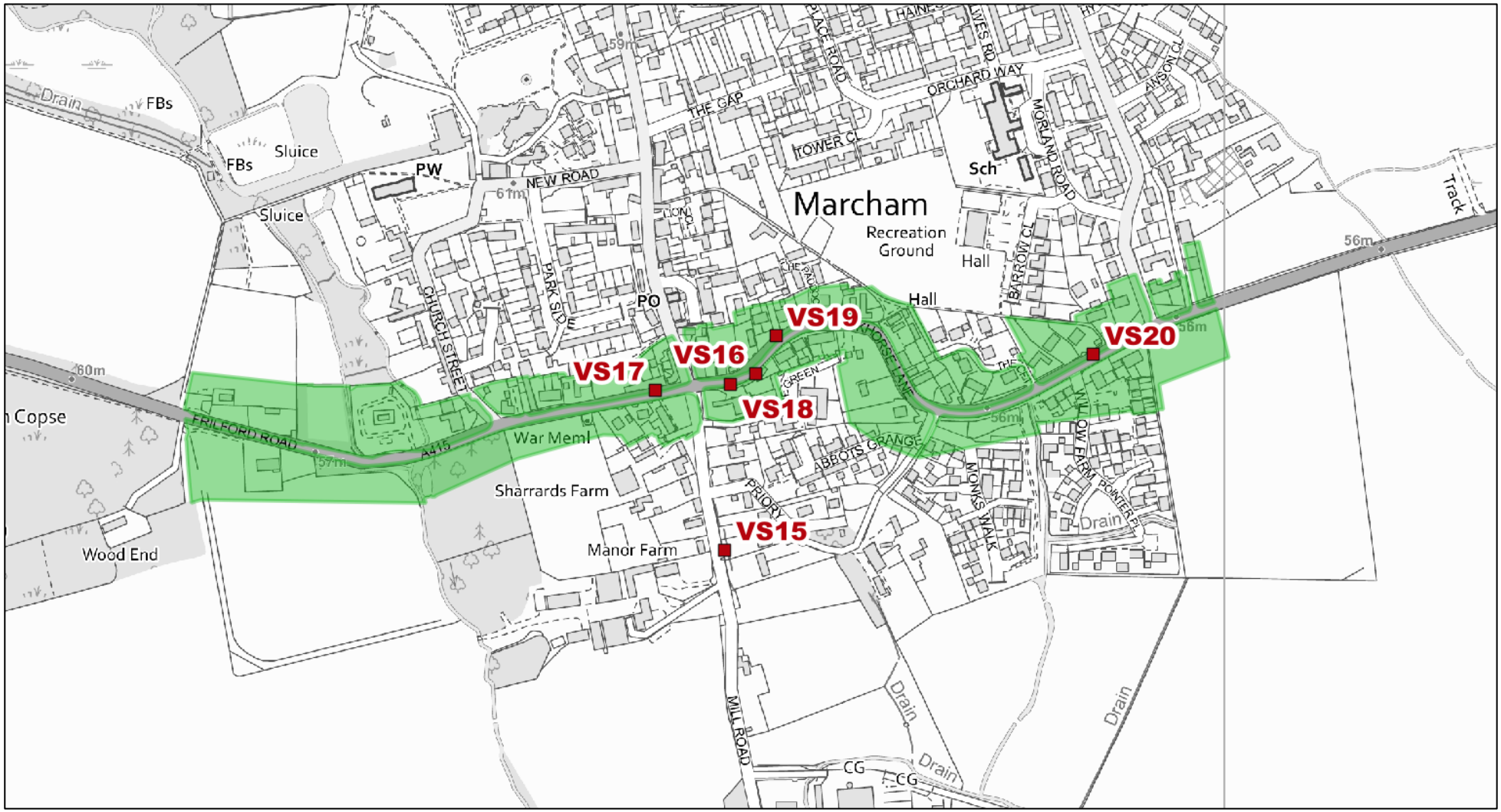


Figure D. 10 Monitoring sites in Whitchurch and Clifton Hampden

Figure D. 11 Monitoring sites in Wheatley and Horspath

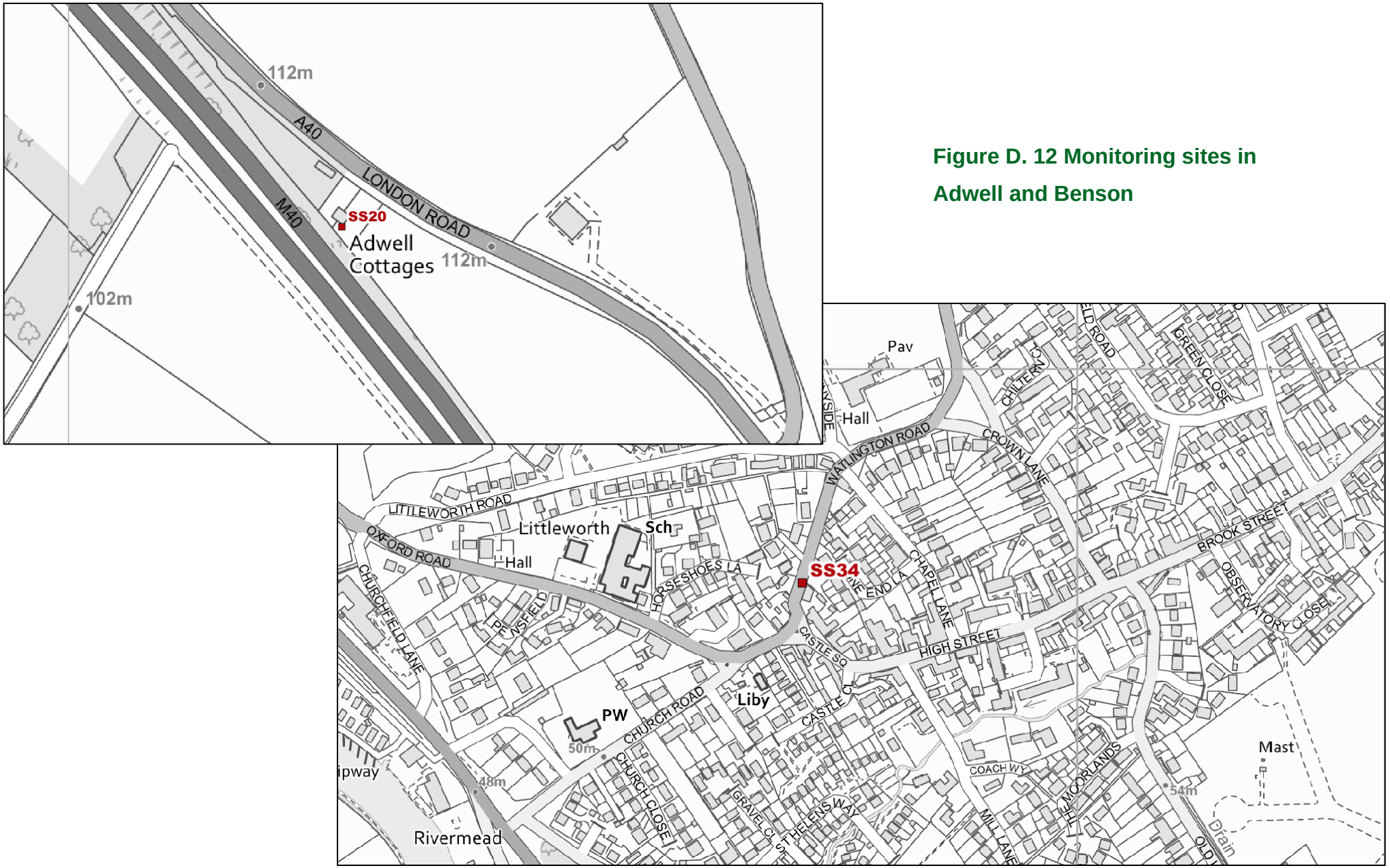


Figure D. 12 Monitoring sites in Adwell and Benson

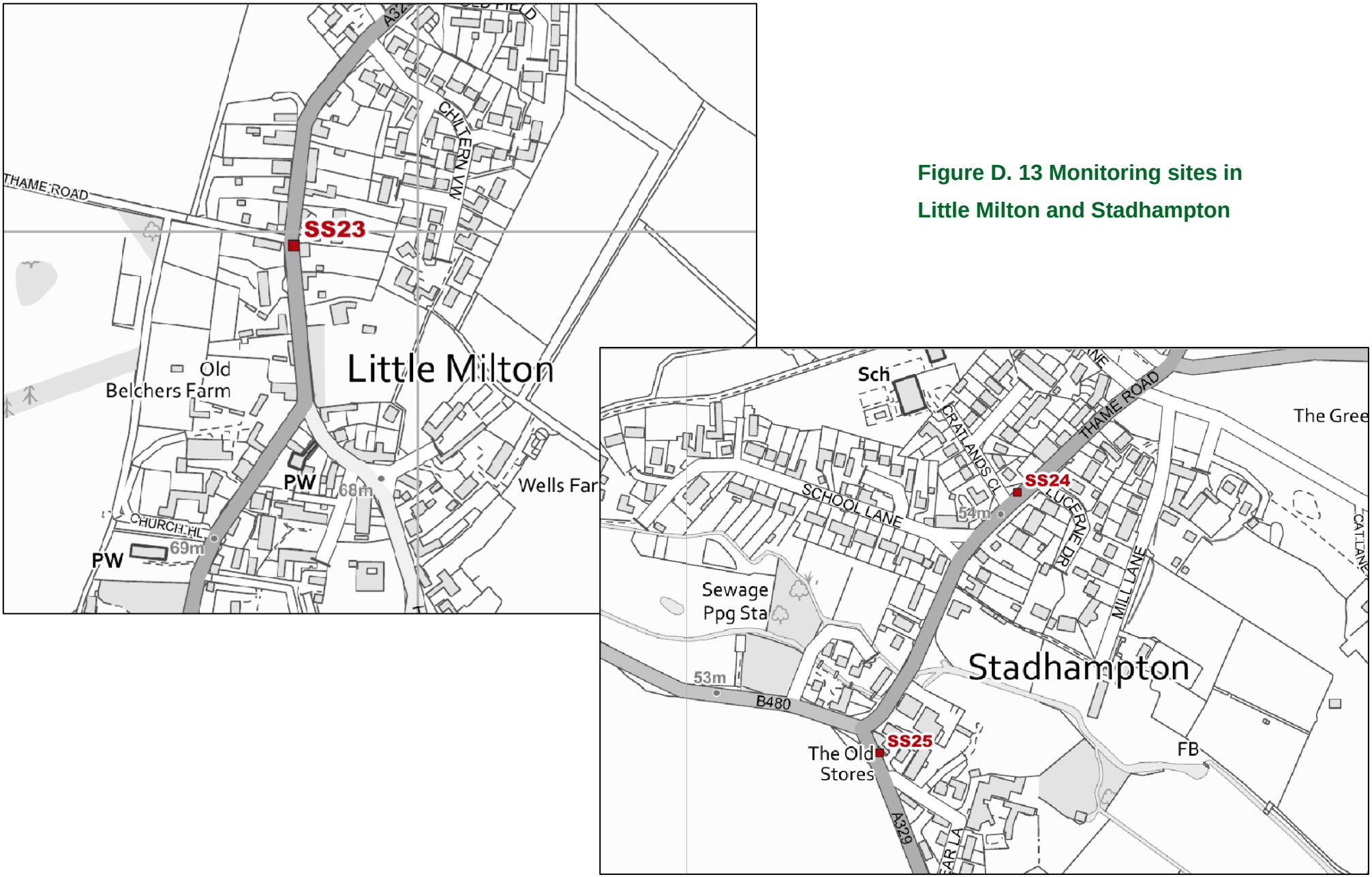


Figure D. 13 Monitoring sites in Little Milton and Stadhampton

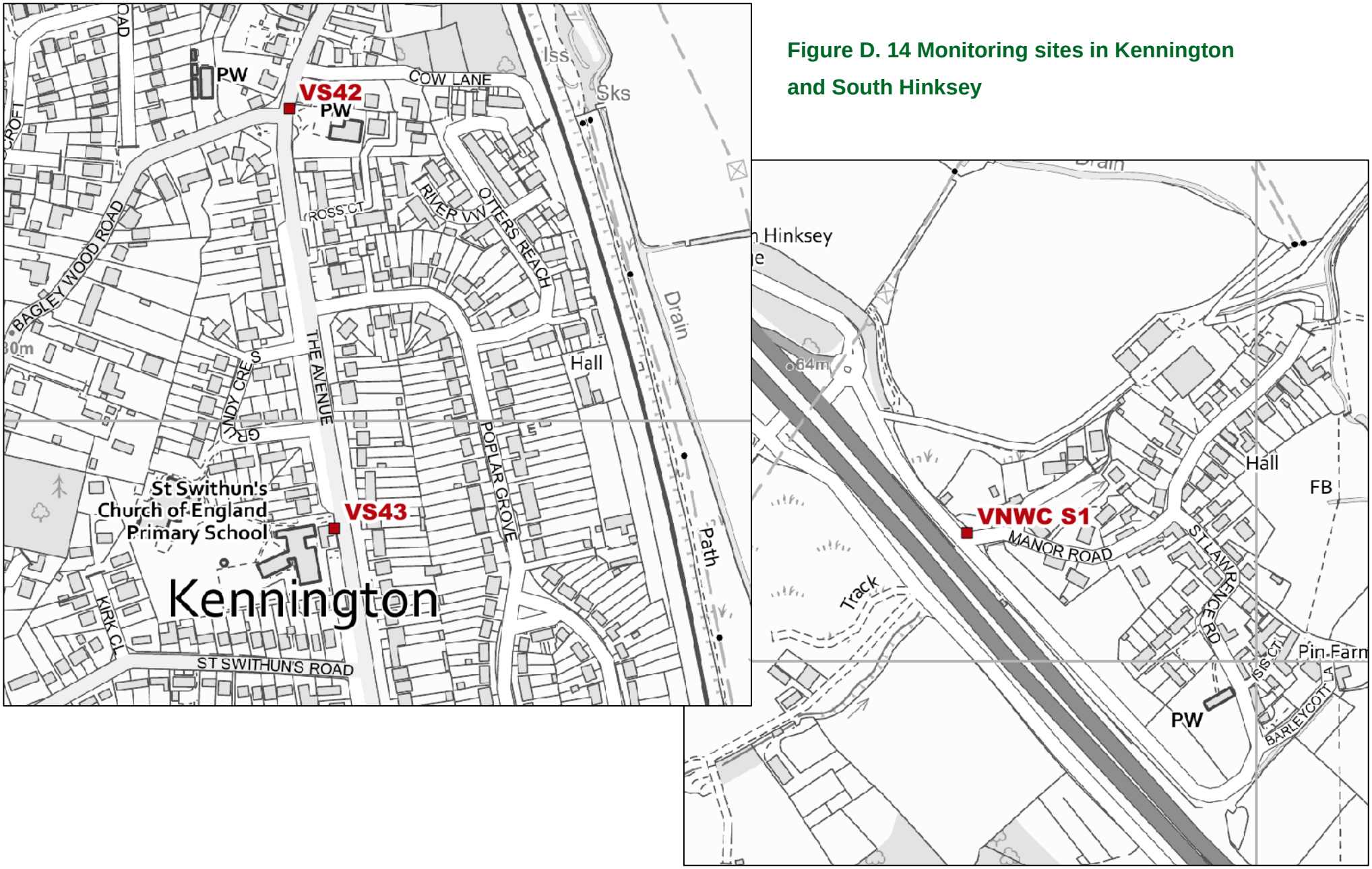


Figure D. 14 Monitoring sites in Kennington and South Hinksey

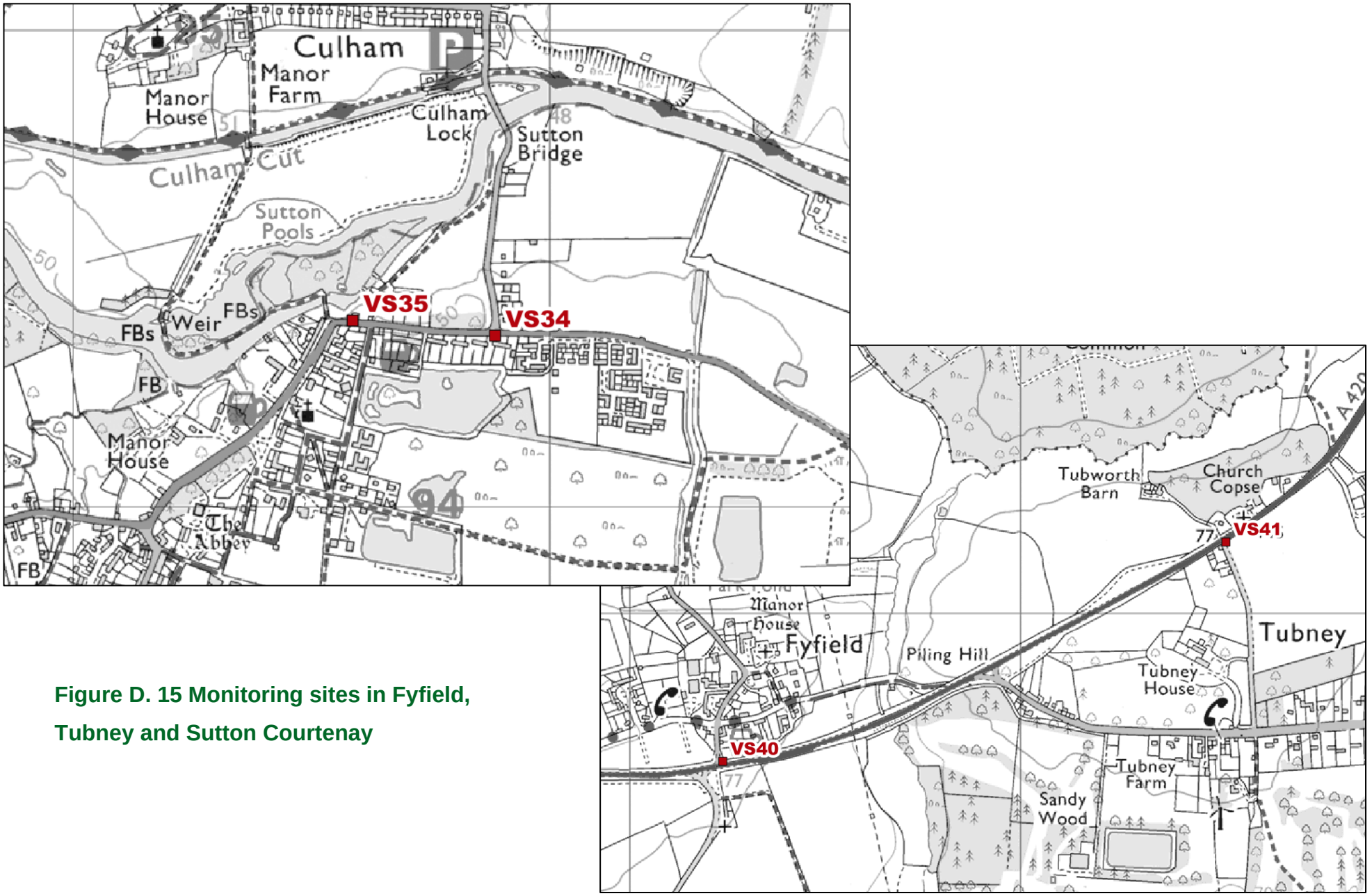


Figure D. 15 Monitoring sites in Fyfield, Tubney and Sutton Courtenay

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

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/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
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.