



WEST OXFORDSHIRE  
DISTRICT COUNCIL

# 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

<b>Information</b>	<b>West Oxfordshire District Council Details</b>
<b>Local Authority Officer</b>	Susan McPherson
<b>Department</b>	Environmental Regulatory Services
<b>Address</b>	Council Offices, Woodgreen, Witney, OX28 1NB
<b>Telephone</b>	01993 861000
<b>E-mail</b>	ers@westoxon.gov.uk
<b>Report Reference Number</b>	WODC-ASR-2023
<b>Date</b>	June 2023

## Executive Summary: Air Quality in Our Area

### Air Quality in West Oxfordshire District Council

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<sup>1,2</sup>.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 343,000 deaths at typical ages<sup>3</sup>, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017<sup>4</sup>.

The monitoring reported within this 2023 Annual Status Report for West Oxfordshire District Council took place during the whole of 2022. The results of the monitoring have not indicated any additional areas of concern with regard to air quality, but our two designated Air Quality Management Areas (AQMAs) continue to experience elevated nitrogen dioxide (NO<sub>2</sub>) levels. However, this year annual mean concentrations within the AQMAs, and across the rest of the district, did not exceed the national objective of 40 µg/m<sup>3</sup>, which has been set to protect health. 2022 was the first year since 2020, with no restrictions on travel due to the Covid-19 pandemic. The expectation was an increase in traffic volumes and a corresponding increase in air pollution. However, contrary to expectations, a raise in NO<sub>2</sub> concentrations was not observed. Although some locations showed a slight increase on the previous two years, of the locations which were monitored in 2021 and 2022, 18 out of 24 locations showed a decrease in NO<sub>2</sub> concentrations compared with 2021, with 10 out of 22 showing a decrease compared with 2020. The reasons for this decline are unclear, however they are likely to be a consequence of the uptake of low emission vehicles,

---

<sup>1</sup> Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

<sup>3</sup> Defra. Air quality appraisal: damage cost guidance, January 2023

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

improvements in engine efficiency and the popularity of working from home and virtual meetings as a consequence of the pandemic.

Current AQMAs are located within the two largest towns within the District – Witney (Bridge Street and immediate area) and Chipping Norton (Horsefair and immediate area):

- Chipping Norton’s action plan can be found here: [Link to Chipping Norton Air Quality Action Plan](#)
- Bridge Street, Witney (air quality action plan pending)

The West Oxfordshire District Council centralised national AQMA page is located [here](#).

## **New Developments**

There were no proposed industrial developments with significant air pollution implications within the District during 2022.

All residential development proposals were considered with regard to their potential to increase traffic pollution in the AQMAs and other areas. Each application is considered as an individual case, and required to demonstrate it will not significantly impact air quality. In addition, all developments are expected to promote the use of electric vehicles, by providing electric vehicle charging, as well as active and public transport.

There are four strategic development areas (SDAs) allocated in the West Oxfordshire district, North Witney (1400 units), East Witney (450 units), West Eynsham (1000 units) and East Chipping Norton (1200 units). The first phase of the Eynsham SDA and the East Witney SDA are currently awaiting planning approval. In addition to the SDAs, the Local Plan includes plans for the Oxfordshire Cotswolds Garden Village (a Strategic Location for Growth), supplying 2,200 homes located north of Eynsham and the A40. WODC Environmental Health will review these developments as planning applications are submitted and will ensure monitoring is in place to ensure air quality is not significantly impacted.

## **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<sup>5</sup> sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM<sub>2.5</sub> targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce PM<sub>2.5</sub> in their areas. The Road to Zero<sup>6</sup> 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.

## **Road Transport & Infrastructure**

Activity within West Oxfordshire has been limited to monitoring and data collection and scrutiny of various large development schemes for their potential effects, beneficial or otherwise, on local air quality.

Traffic within the West Oxfordshire area is influenced by its proximity to the city of Oxford. The city of Oxford is working upon improving air quality in its area and has introduced a low emission zone (LEZ) and a zero emission zone (ZEZ) to encourage the uptake of cleaner, greener vehicles. The results of this work also have the potential to reduce emissions in the outskirts of the city centre, and beyond, if the use of such vehicles extends outside of Oxford.

Conversely, as public service operators upgrade their fleet, they sell their older, diesel vehicles to other operators who may use them in parts of Oxfordshire outside the LEZ. Consequently, improvements in emissions from public transport, outside the city centre, may be realised relatively slowly. Furthermore, many bus services serving West Oxfordshire operate out of Oxford. Due to the distances travelled and the shortage of suitable EV charging stations across the district, it is unlikely electric buses and coaches operating from Oxford will serve West Oxfordshire in the near future.

Around Eynsham, the construction of the Park & Ride is underway. The A40 dual carriageway extension between Witney and Oxford, including a cycle route between

---

<sup>5</sup> Defra. Environmental Improvement Plan 2023, January 2023

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

Witney and Oxford, is set to commence in the autumn of 2023. In addition, a planning application has been submitted for the construction of the west facing slip roads at the Shores Green junction, with construction works expected to begin in 2023. It is expected that these projects will ease congestion on the A40 and reduce the traffic travelling through Witney.

Other A40 improvement schemes include:

- The provision of east and westbound bus lanes to provide quicker return journeys to Eynsham park and ride and destinations served by the local bus network – scheduled to start Autumn 2023
- Provision of a high quality 3m wide shared east and west bound cycle path and pedestrian footpath, separated from the general traffic lanes, providing a traffic free route from Witney to Oxford via Eynsham Park & Ride. This is scheduled to start autumn 2023.

Oxfordshire County Council is currently assessing a number of options to ease congestion within the Witney AQMA. The outcome of this project is likely to be published later this year.

Witney's Local Cycling and Walking Infrastructure Plan (LCWIP) was approved by Cabinet in March this year, paving the way to improving cycling and pedestrian routes within the town.

To ease congestion in Chipping Norton the following are currently being prepared or assessed by Oxfordshire County Council:

- The West Oxfordshire Travel Plan – draft document expected summer/autumn 2023
- Chipping Norton Local Cycling and Walking Infrastructure Plan – final document expected Autumn 2023
- A44 Corridor Study aiming to reduce traffic density and improving the environment for cycling and walking – draft report due June 2023

As part of Oxfordshire County Council's 20mph Transformation Project, many towns and villages in West Oxfordshire have applied for speed limits in their town and village centre to be reduced to 20mph. The project is being rolled out in three phases between 2022 and 2025. Witney and Eynsham benefited from the first phase with the 20mph speed limit coming into force during September 2022. Chipping Norton is expected to follow in 2023.

## **Oxfordshire Air Quality Website**

The development of the Oxfordshire Air Quality Website, funded by the DEFRA Air Quality Grant scheme, is nearing completion. The project is the result of active liaison between West Oxfordshire District Council, 3 neighbouring District Councils, Oxford City and Oxfordshire County Council. The new site is expected to go live mid 2023. It is hoped that the website will highlight the status of air quality in their area, and provide information and advice on how to contribute to improving air quality and, consequently, the health of the residents.

## **Air Quality Action Plan Review**

WODC is currently finalising its Air Quality Actions Plans for Witney and Chipping Norton. Many of the measures are focused on active travel and electric vehicles, and are already set in District and County policies and strategies.

We have engaged both with a steering group and via public consultation, the outcome of which is detailed in the AQAP. The AQAP is expected to be submitted to DEFRA later this year.

## **Oxfordshire County Council Air Quality Strategy**

The Oxfordshire County Council Air Quality Strategy, outlines the county's vision and objectives for tackling air pollution across Oxfordshire as a whole. The Strategy will support local councils in delivering their statutory duties, delivering initiatives and schemes to reduce air quality, and will influence planning and highways to consider air quality at the planning stages. It will also focus on other areas of air pollution, such as solid fuel burning in homes. The strategy is linked to the Healthy Place Shaping initiative which seeks to improve the environments where people live. Link: [Healthy Place Shaping](#)

## **Conclusions and Priorities**

2023 was the first year post Covid-19 pandemic where there were no restriction on travel. Despite this, we have not seen a corresponding increase in NO<sub>2</sub> which we would have expected if the traffic numbers had returned to pre-pandemic levels. Nitrogen dioxide levels in Bridge Street, Witney remained below the national air quality objective, and had fallen

compared with 2021. The annual average results of 36.1  $\mu\text{g}/\text{m}^3$  and 32.6  $\mu\text{g}/\text{m}^3$  can be compared with last year when the levels were 37.6  $\mu\text{g}/\text{m}^3$  and 35.1  $\mu\text{g}/\text{m}^3$  respectively.

Similar reductions have been noted in Chipping Norton. The highest recording tube in Horsefair, Chipping Norton gave an annual mean of 34.3  $\mu\text{g}/\text{m}^3$ , compared to the previous year's result of 38.2  $\mu\text{g}/\text{m}^3$ . Levels recorded by the other tubes in Chipping Norton are typical of busy roadsides around the whole of the UK.

Despite the fall in  $\text{NO}_2$  concentrations, it is too early to assume this will be the norm over the coming years. Consequently, the County Council, District Council, residents and businesses continue to have a part to play in reducing emissions and improving the quality of the air we breathe. The residential developments outlined above are likely to impact the AQMAs, and consequently it is important that Oxfordshire County Council Transport Department are kept informed of proposed developments and that developers are aware of the need for appropriate mitigation in respect of associated pollution.

Infrastructure plans for the A40 should alleviate existing congestion in Bridge Street, as well as mitigate some of the additional traffic generated by housing developments.

Overall, there is a cautious positive outlook for air quality in the two AQMAs, which reflects changes in how we work and the technology in the cars we drive. Over the coming years, we anticipate further improvements as a consequence of changes in the way we travel, how our roads are used and further improvements in car technology. WODC will continue to work with Oxfordshire County Council to explore and develop highway improvements, and ensure large developments include or, provide funding for, mitigation measures to minimise the impact of the consequential additional traffic.

Over the next year we will continue the diffusion tube monitoring survey.

## **Local Engagement and How to get Involved**

As the air pollution of concern in the District is related to traffic emissions, we can all do our bit to reduce emissions, by not using a car unless entirely necessary. Walking, cycling, taking public transport or car sharing reduces our individual carbon footprint, and in the case of walking and cycling, can improve our health too.

The solution to congestion-related pollution lies to a large extent in road traffic management and District authorities do not have the remit to manage this. Local interest groups can however lobby County Councils directly to influence the content of Local Transport Plans (LTP).



Any queries about Air Quality should be directed to the Environmental Protection team within West Oxfordshire District Council. This team can be contacted by e mail on: [customer.services@westoxon.gov.uk](mailto:customer.services@westoxon.gov.uk)

## **Local Responsibilities and Commitment**

This ASR was prepared by the Environmental Regulatory Services department of West Oxfordshire District Council with of Oxfordshire County Council.

This ASR has been reviewed by:

Kate Eveleigh (Health Improvement Practitioner) and Rosie Rowe (Head of Healthy Place Shaping) at Oxfordshire County Council and Lidia Arciszewska, West Oxfordshire District Council Cabinet Member for the Environment.

If you have any comments on this ASR please send them to Senior Officer for Air Quality at:

West Oxfordshire District Council

Council Offices

Woodgreen

Witney

Oxfordshire

OX28 1NB

Tel: 01993 861000

Email: [ers@westoxon.gov.uk](mailto:ers@westoxon.gov.uk)

## Table of Contents

<b>Executive Summary: Air Quality in Our Area</b> .....	<b>i</b>
Air Quality in West Oxfordshire District Council .....	i
Actions to Improve Air Quality .....	ii
Conclusions and Priorities .....	v
Local Engagement and How to get Involved .....	vi
Local Responsibilities and Commitment .....	vii
<b>1 Local Air Quality Management</b> .....	<b>1</b>
<b>2 Actions to Improve Air Quality</b> .....	<b>2</b>
2.1 Air Quality Management Areas .....	2
2.2 Progress and Impact of Measures to address Air Quality in West Oxfordshire District .....	4
2.2.1 Measures to improve Air Quality .....	4
2.2.2 Forthcoming developments impacting air quality - Active housing developments .....	15
2.2.3 Forthcoming developments impacting air quality - Planned housing developments .....	15
2.3 PM <sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations .....	17
2.3.1 General Approach .....	17
<b>3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance</b> .....	<b>18</b>
3.1 Summary of Monitoring Undertaken .....	18
3.1.1 Automatic Monitoring Sites .....	18
3.1.2 Non-Automatic Monitoring Sites .....	18
3.2 Individual Pollutants .....	19
3.2.1 Nitrogen Dioxide (NO <sub>2</sub> ) .....	19
3.2.2 Particulate Matter (PM <sub>10</sub> & PM <sub>2.5</sub> ) .....	20
3.2.3 Public Health Outcomes Framework .....	21
<b>Appendix A: Monitoring Results</b> .....	<b>23</b>
<b>Appendix B: Full Monthly Diffusion Tube Results for 2022</b> .....	<b>32</b>
<b>Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC</b> .....	<b>34</b>
New or Changed Sources Identified Within West Oxfordshire District Council During 2022 .....	34
Additional Air Quality Works Undertaken by West Oxfordshire District Council During 2022 .....	34
QA/QC of Diffusion Tube Monitoring .....	34
Diffusion Tube Annualisation .....	34
Diffusion Tube Bias Adjustment Factors .....	34
NO <sub>2</sub> Fall-off with Distance from the Road .....	36
<b>Appendix D: Map(s) of Monitoring Locations and AQMAs</b> .....	<b>37</b>
<b>Appendix E: Summary of Air Quality Objectives in England</b> .....	<b>46</b>
<b>Glossary of Terms</b> .....	<b>47</b>
<b>References</b> .....	<b>48</b>

## Figures

Figure 2.1 – Location of West Eynsham SDA (from District Plan) .....	16
Figure A.1 – Trends in Monthly Unadjusted NO <sub>2</sub> Concentrations at Bridge St, Witney.....	29
Figure A.2 – Trends in Monthly Unadjusted NO <sub>2</sub> Concentrations at Horsefair, Chipping Norton.....	30
Figure A.3 - Trend in NO <sub>2</sub> Concentrations (adjusted) at selected locations between 2009 and 2022.....	31
Figure D.1 – Map of Witney AQMA with Diffusion Tube Monitoring Locations .....	37
Figure D.2 – Map of Chipping Norton AQMA with Diffusion Tube Monitoring Locations ...	38
Figure D.3 - Bladon Monitoring Locations.....	39
Figure D.4 - Burford Monitoring Locations .....	40
Figure D.5 - Carterton Monitoring Locations .....	41
Figure D.6 - Chipping Norton Monitoring Locations .....	42
Figure D.7 - Eynsham Monitoring Locations .....	43
Figure D.9 - A40 East of Witney Monitoring Location .....	44
Figure D.10 - East of Witney Monitoring Location (near Proposed SDA).....	44
Figure D.11 - Woodstock Monitoring Locations .....	45

## Tables

Table 2.1 – Declared Air Quality Management Areas.....	3
Table 2.2 – Progress on Measures to Improve Air Quality.....	11
Table A.1 – Details of Non-Automatic Monitoring Sites .....	23
Table A.2 – Annual Mean NO <sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m <sup>3</sup> ) ....	26
Table B.1 – NO <sub>2</sub> 2022 Diffusion Tube Results (µg/m <sup>3</sup> ) .....	32
Table C.1 – Bias Adjustment Factor .....	35
Table C.2 – NO <sub>2</sub> Fall off With Distance Calculations (concentrations presented in µg/m <sup>3</sup> ) .....	36
Table E.1 – Air Quality Objectives in England .....	46

# 1 Local Air Quality Management

This report provides an overview of air quality in West Oxfordshire District 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 West Oxfordshire District Council to improve air quality and any progress that has been made.

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

## 2 Actions to Improve Air Quality

### 2.1 Air Quality Management Areas

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

A summary of AQMAs declared by West Oxfordshire District Council can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within West Oxfordshire District. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations with the AQMAs and across the District. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO<sub>2</sub> annual mean

**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
Witney	Declared 01/03/2005	NO <sub>2</sub> Annual Mean	An area encompassing Bridge Street and part of High Street, Witney	No	48	35.8	3	Witney Air Quality Action Plan (pending) 2023	Visit the AQAP for Witney AQMA at <a href="http://aqma.defra.gov.uk/action-plans/WODC%20AQAP%202010.pdf">http://aqma.defra.gov.uk/action-plans/WODC%20AQAP%202010.pdf</a>
Chipping Norton	Declared 01/03/2005	NO <sub>2</sub> Annual Mean	An area of the town centre encompassing Banbury Road, Horsefair and Market Place	No	49	34.3	3	Chipping Norton AQP (2008)	Visit the AQAP for Chipping Norton AQMA at <a href="https://www.westoxon.gov.uk/media/rtko5cvx/horsefair-and-high-street-chipping-norton-air-quality-action-plan.pdf">https://www.westoxon.gov.uk/media/rtko5cvx/horsefair-and-high-street-chipping-norton-air-quality-action-plan.pdf</a>

West Oxfordshire District Council confirm the information on UK-Air regarding their AQMA(s) is up to date.

West Oxfordshire District Council confirm that all current AQAPs have been submitted to Defra.

## 2.2 Progress and Impact of Measures to address Air Quality in West Oxfordshire District

Defra’s appraisal of last year’s ASR concluded ‘The report is well structured, detailed, and provides the information specified in the Guidance’. The appraisal provided the following suggested improvements to subsequent reports:

Comment	Action
Where possible, monitoring results from the “School Streets” trial should be reported to support discussions on current progress against measures to improve air quality.	NO <sub>2</sub> monitoring for the school street project is no longer carried out in West Oxfordshire, as the School Streets pilot scheme has ended.
The Council could include an image of the appropriate national bias adjustment spreadsheet to demonstrate where the chosen bias adjustment factor has come from.	This has been included in Appendix C.
The labelling in figures D.3-.8, and D.11 cover the monitoring locations and are therefore difficult to read.	The figures in Appendix D have been amended accordingly.
It has been reported that there are 30 passive monitoring sites. However, this figure appears to represent the number of diffusion tubes, as opposed to number of monitoring sites, which includes any triplicate locations.	The number of locations reported in this document takes into account triplicate locations.

### 2.2.1 Measures to improve Air Quality

West Oxfordshire District Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

Twelve measures are included within Table 2.2, with the type of measure and the progress West Oxfordshire District Council have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective scheme websites and links to these have been given within the table.

In addition, West Oxfordshire District Council expects a number of other measures that will positively affect air quality to be progressed over the course of the next reporting year. These are detailed in the following sections.

West Oxfordshire District Council has worked, and will continue to work, in partnership with the following stakeholders to implement these measures:

- Oxfordshire District and City Councils
- Oxfordshire County Council

### **Witney & Chipping Norton Air Quality Action Plans**

West Oxfordshire District Council is in the process of review the Air Quality Action Plans (AQAPs) for both Witney and Chipping Norton. The AQAPs include long term measures currently being prepared by Oxfordshire County Council, including Local Travel Plans for both towns, and Local Cycling and Walk Infrastructure Plans. Other measures relating to highways and freight are also in progress. Also included are more short-term measures such as campaigns to raise public awareness to air quality issues such as wood burners and idling vehicles, and the launch of the new Oxfordshire Air Quality Website.

### **Oxfordshire Air Quality Website**

The new Oxfordshire Air Quality Website, will replace the existing site which has become dated and no longer reflects current concerns on air quality or climate change. The new site, funded by the DEFRA Air Quality Grant scheme, is a collaboration between the district councils, city council and county council in Oxfordshire, and will deliver up to date (as far as practicable) air quality data, including alerts when air pollution is high, an interactive map, routes for active transport to avoid poor air quality, advice on reducing harmful emissions, a page specifically to help children understand air quality, poor air quality text alerts for those with health conditions, as well as many other features. The development of the website is nearing completion and is expected to go live mid 2023. The website will benefit residents of Oxfordshire, and those who travel into the county for work or leisure, and will highlight the areas where air quality needs to be improved.



## **Road Infrastructure**

### **A40 Improvement scheme**

There has been progress with the A40 Improvement Scheme around Witney and Eynsham. Construction of the Eynsham Park and ride commenced in the autumn of 2022, with works beginning on the associated bus lanes later this year. The construction of the new bus lanes will coincide with the commencement of the extension of the dual carriageway between Witney and Oxford. This work will also include, cycle lanes and junction improvements, improving the active travel and public transport experience between Witney and Oxford.

The scheme will also provide improvements to the Dukes Cut stretch of the A40 to include a dedicated eastbound bus lane, widen the existing southern (westbound) pedestrian footpath to allow use by cycle. A new link cycle path in the eastbound direction will connect the National Cycle Route 5 and the canal path. Both of these improvements will offer a traffic-free route into Oxford. This work is due to commence this year, with completion expected in 2024.

Preliminary works for the construction of west facing slip roads at the Shore Green Junction, to the south east of Witney, were conducted during the summer of 2022. The works comprised of ground investigation surveys to inform the detailed design of the new slip roads. The scheme will provide an alternative, faster route for those traveling from the north east of Witney west bound on the A40 and vice versa, removing the need to travel through the town centre and the AQMA. We understand the scheme is still in the planning process, but is expected commence later this year.

The programme is £180m of investment in the A40 corridor and the funding for this has been secured.

To summarise, the key A40 improvements within West Oxfordshire are:

- A40 dual carriageway extension: A scheme to upgrade the A40 between east of Witney to the Eynsham park and ride site into a dual carriageway.
- Eynsham park and ride: A new 850 space park and ride in Eynsham will provide easier access to improved and more reliable bus services into Oxford.
- A40 integrated bus lanes: A 6.5km proposed eastbound and westbound bus priority corridor along the A40 between Eynsham park and ride towards Duke's Cut, with improved routes for pedestrians and cyclists.

- A40 Access to Witney: The A40 Access to Witney scheme proposes improvements to the existing B4022/ A40 junction at Shores Green.

### **Local Cycling and Walking Infrastructure Plans (LCWIP)**

Witney's LCWIP was subject to public consultation earlier this year, and approved by the Cabinet Member for Highway Management in March. The plan features a range of active travel infrastructure improvements and new walking and cycling routes, to be implemented in and around Witney, making active travel a more attractive option for residents.

Implementation of the plan is due to commence this year. More information can be found [here](#).

Chipping Norton's LCWIP is currently being drafted by Oxfordshire County Council, with a draft plan expected shortly. To help encourage cycling within the town, the Town Council have funded two bike repair stations, one to be installed in the leisure centre and the second on the High Street near existing bike racks.

### **Local Transport and Connectivity Plan 2022 - 2050**

Oxfordshire County Council's Local Transport and Connectivity Plan 2022 – 2050 (LTCP5) was fully adopted in July 2022, replacing the previous plan (LTP4) which was adopted in 2015. Targets for the County include:

- reduce 1 in 4 car trips by 2030
- deliver a net-zero transport network by 2040
- and have zero, or as close as possible, road fatalities or life-changing injuries by 2050.

The plan sets out three ways to achieve the targets:

- reducing the need to travel
- reducing emissions by either encouraging improvements in vehicle fleet or reducing the number of vehicles by encouraging car clubs and car sharing
- and making walking, cycling, public and shared transport the natural first choice.

LTCP5 also includes the preparation of area strategies for each district, focusing on specific towns, including Witney and Chipping Norton.

Link: [Local Transport and Connectivity Plan 2022 - 2050](#)

## Electric Vehicle Charging

The Council has worked in close partnership with the Park and Charge team at Oxfordshire County Council and with the Charging Point Operator, EZ-Charge, to roll out all new EV charging points and essential infrastructure supporting local residents, visitors and commuters in making their transition to an electric vehicle. A minimum of six charging points, serving 12 parking bays, have been installed in each of the five public car parks owned by the Council with a total of 32 EV charging units charging 64 parking bays across the District. This makes a significant contribution towards the District Council's Climate Change Strategy and objectives under "Active Travel and Low-Carbon Transport" where the Council commits to:

"Delivering EV infrastructure across the district, at sites in Council ownership, meeting the policy ambitions and standards set out within the Oxfordshire EV Infrastructure Strategy and aspire to reach a target of 7.5% of local-authority-managed car-parking spaces providing EV charging by 2025."

In line with the project's Government funding requirements, car park locations were selected based on a variety of key criteria, including the suitability of the electrical connection to the grid, the proportion of nearby households without off-street parking, the population and car ownership levels of surrounding neighbourhoods, and consideration of the crime and vehicle crime statistics of the area. Please visit the [Park and Charge Oxfordshire](#) website to find out more.

## Freight & Logistics Strategy 2022 - 2050

The County Council's Freight & Logistics Strategy 2022 – 2050 (FLS) was developed as a supporting strategy for the LTCP5. The FLS has 5 key principles the strategy aims to deliver:

- Appropriate movement
- Efficient movement
- Net-zero movement
- Safe movement
- Partnership working

These principles will be delivered through 40 actions centred around one of three categories:

- Long distance movement
- Local movement
- Last mile movement

The Strategy covers a variety of different transport options for each category, including water, rail and cycling.

The FLS has potential to have a positive impact on Chipping Norton in particular, as the A44 runs through the town centre (including the AQMA). This means there is a significant volume of freight vehicles passing through town, frequently contributing to congestion, particularly where the road narrows within the Horse Fair section.

### **Town Centre 20mph Zones**

As part of the County Council's commitment to 'Vision Zero' (the elimination of deaths and serious injuries from road traffic collisions in Oxfordshire) communities are able to request the introduction of 20mph areas. In February 2022, Cabinet approved funding of up to £8,000,000 to deliver the 20mph areas, meaning the implementation of schemes comes at no cost to town or parish councils. The scheme is completely voluntary, and is being rolled out in three phases. Witney applied to the scheme during Phase 1 and successfully implemented the 20mph area in November 2022.

Chipping Norton town centre became 20mph in 2019, however the Town Council have applied to the scheme during Phase 2 to lower the speed limit in other areas of the town. Their application is currently waiting on a decision from the Cabinet Member.

### **Oxfordshire County Council Air Quality Strategy**

2023 will see the launch of Oxfordshire County Council's Air Quality Strategy, which has been developed with the support of the district and city council's air quality officers. The strategy will focus on improving the overall air quality across the county, by implementing three hierarchical strategic approaches:

- Reduce – Reduce emissions of indoor and outdoor air pollution e.g.:
  - Measures to reduce demand for vehicle use.
  - Measures to promote sustainable and active travel.
  - Traffic management measures to reduce congestion and vehicle idling.
- Extend – Extend distance from pollution sources e.g.:

- Reprioritisation of road space to sustainable and active travel.
- Traffic, congestion and demand management measures to help keep vehicle traffic away from residential areas.
- Working with our district and city councils on spatial planning to encourage residential, education or leisure facilities to be situated away from major roads.
- Protect – Protect those most at risk e.g.:
  - Communicating information about high air pollution days and indoor air pollution.
  - Partnership working with stakeholders such as the local NHS on joint campaigns.
  - Conducting behaviour change work with schools and influencing the design of transport schemes near school sites and location of care homes.
  - Provide energy efficiency advice and retrofit programmes for those in fuel poverty, including indoor air pollution as a consideration.

Involvement in air quality at county level, will enable a more strategic and co-ordinated approach in tackling the issue across all district and city councils. [Link: Oxfordshire County Council Air Quality Strategy.](#)

### **Challenges & Barriers**

The principal challenges and barriers to implementation that West Oxfordshire District Council anticipates facing include:

- financial constraints within Oxfordshire County Council hampering progress with highway improvements and the development of implementation plans.
- the potential for an increase in traffic in the AQMAs in the future, due to proposed residential developments.
- changing attitudes and behaviours to encourage less car use and more active travel and use of public transport.

West Oxfordshire District Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in both the Witney and Chipping Norton AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Oxfordshire Local Transport and Connectivity Plan 2022 – 2050	Policy Guidance and Development Control	Other policy	2022	2040	Oxfordshire County Council	Oxfordshire County Council	No	Fully funded	Not known	Implementation	Reduced traffic density	Public awareness Increasing awareness within health monitoring policy	Published Link to <a href="https://www.oxfordshire.gov.uk/residents/roads-and-transport/connecting-oxfordshire/ltcp">https://www.oxfordshire.gov.uk/residents/roads-and-transport/connecting-oxfordshire/ltcp</a>	Replaced the previous Local Transport Plan 2015-2031 in 2022
2	Oxfordshire Active & Healthy Travel Strategy 2022	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2022	2031	Oxfordshire County Council and LA	Oxfordshire County Council	NO	Fully funded	Not known	Implementation	Reduced traffic density	Reducing car use and thus emissions. Increased cycle network	Published <a href="https://www.oxfordshire.gov.uk/sites/default/files/file/roads-and-transport-policies-and-plans/ActiveTravelStrategy.pdf">https://www.oxfordshire.gov.uk/sites/default/files/file/roads-and-transport-policies-and-plans/ActiveTravelStrategy.pdf</a>	Implemented to support Measure 1 above
3	Witney Active Travel Scheme	Transport Planning and Infrastructure	Cycle network	2020	2021	Oxfordshire County Council and Oxfordshire Local Enterprise Partnership	Government Active Travel Fund, Oxfordshire Local Enterprise Partnership, S106 funding	NO	Fully funded	£1 million - £10 million	Completed	Reduced vehicle emissions	Increased cycling	Complete <a href="https://www.oxfordshire.gov.uk/residents/roads-and-transport/connecting-oxfordshire/active-travel/witney-active-travel-route">https://www.oxfordshire.gov.uk/residents/roads-and-transport/connecting-oxfordshire/active-travel/witney-active-travel-route</a>	None to date
4	New Park & Ride at A40 Eynsham	Alternatives to private vehicle use	Bus based Park & Ride	2019	2024	Oxfordshire County Council and its partners	Department for Transport retained Local Growth Fund Housing Growth Deal Oxfordshire Local Enterprise Partnership S106 contributions	NO	Fully funded	> £10 million	Implementation	Fewer vehicles travelling on A40	Usage of facility	Construction work has begun - <a href="https://www.oxfordshire.gov.uk/residents/roads-and-transport/roadworks/future-transport-projects/a40-improvements/eynsham-park-and-ride">https://www.oxfordshire.gov.uk/residents/roads-and-transport/roadworks/future-transport-projects/a40-improvements/eynsham-park-and-ride</a>	None to date

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
5	A40 Highway improvement (ext of dual carriageway between Witney and Eynsham Park and Ride	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2022	Estimated 2024	Oxfordshire County Council and its partners	Department for Transport retained Local Growth Fund (LGF) Homes England Housing Infrastructure Fund (HIF) Oxfordshire Local Enterprise Partnership The Housing Growth Deal (HGD) various S106 developer contributions	No	Fully funded	>£10m	Planning	Reduced traffic density	Reduction in local concs NO2	Planning has now been approved, with works expected to start in Autumn 2023 - <a href="https://www.oxfordshire.gov.uk/residents/roads-and-transport/roadworks/future-transport-projects/a40-improvements/a40-dual-carriageway-extension">https://www.oxfordshire.gov.uk/residents/roads-and-transport/roadworks/future-transport-projects/a40-improvements/a40-dual-carriageway-extension</a>	None to date
6	Oxfordshire Park & Charge - Electric vehicle charging points scheme	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	Completed 2021	The Office for Zero Emission Vehicles and Innovate UK, and delivered by Oxfordshire County Council, SSE Enterprise, Zeta Specialist Lighting, Urban Integrated [ui]uk, EZ Charge and University of Oxford	The Office for Zero Emission Vehicles and Innovate UK	No	Fully funded	£1m - £10m	Implementation	Increase in low emission vehicles	Uptake by EV users	Installation complete <a href="https://parkandchargeoxfordshire.co.uk/faqs/">https://parkandchargeoxfordshire.co.uk/faqs/</a>	None to date
7	Improvements at B4022/A40 Shores Green junction in Witney.	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high	2022 (planning application submitted)	Estimated 2024	Oxfordshire County Council and its partners	Housing and Growth Deal (HGD) funds and Section 106 developer contributions.	No	Fully funded	> £10 million	Planning	Reduced traffic density	Reduction in local concs NO2	Construction expected to start mid 2023, and be completed 2024 - <a href="https://www.oxfordshire.gov.uk/residents/roads-and-transport/roadworks/future-transport-projects/a40-improvements/a40-access-witney">https://www.oxfordshire.gov.uk/residents/roads-and-transport/roadworks/future-transport-projects/a40-improvements/a40-access-witney</a>	None to date

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												
8	Oxfordshire Air Quality Information Website	Public Information	Via the Internet	2020	2023	Oxfordshire County Council and all District LAs	DEFRA AQ Grant and LAs	Yes	Fully funded	£100-500k	Implementation	Information on local air quality to impact lifestyle choice	"Hits" on website	Due to be complete and launched mid 2023	Officer time constraints
9	Burford speed restriction	Traffic Management	Other policy	2020	2020	Oxfordshire County Council	Oxfordshire County Council	No	Fully funded	Not known	Implemented	Reduced vehicle emissions	Reduction in local concs NO2	Completed	N/a
10	Local Cycling and Walking Infrastructure Plans	Promoting Travel Alternatives	Promotion of cycling	2023	2031	Oxfordshire County Council	Various including Central Government and OxLEP	NO	Partially Funded	Not known	Implemented for Witney; Draft being prepared for Chipping Norton	Increase in active travel and reduction in vehicle emissions	Reduction in local concs NO2	Ongoing Witney LCWIP - <a href="https://www.oxfordshire.gov.uk/sites/default/files/file/roads-and-transport-policies-and-plans/Witney_LCWIP.pdf">https://www.oxfordshire.gov.uk/sites/default/files/file/roads-and-transport-policies-and-plans/Witney_LCWIP.pdf</a>	The success will depend on changing attitudes and behaviours of residents and businesses
11	Freight & Logistics Strategy 2022 - 2050	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2022	2040	Oxfordshire County Council	Oxfordshire County Council	No	Partially Funded	£1 million - £10 million	Planning	Reduction in number of HGV travelling through Chipping Norton	Reduction in local concs NO2	Strategy published, actions yet to be implemented. Strategy can be found at - <a href="https://www.oxfordshire.gov.uk/sites/default/files/file/roads-and-transport-connecting-oxfordshire/FreightandLogisticsStrategy.pdf">https://www.oxfordshire.gov.uk/sites/default/files/file/roads-and-transport-connecting-oxfordshire/FreightandLogisticsStrategy.pdf</a>	Complexity of freight system, need for goods, amounts of goods transported, market forces, modal shift, impacts on businesses and consumers
12	Electric vehicle car club trial	Alternatives to private vehicle use	Car club	2023	2024	Oxfordshire County Council, LAs and commercial car clubs	Commercial partners	No	Fully funded	Not known	Implemented	Reduced vehicle emissions	Reduction in local concs NO2	Ongoing <a href="https://www.oxfordshire.gov.uk/residents/roads-and-transport/electric-vehicle-pilot">https://www.oxfordshire.gov.uk/residents/roads-and-transport/electric-vehicle-pilot</a>	Success will depend on cost to the consumer and availability of vehicles and charging stations.



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
13	Oxfordshire Air Quality Strategy	Policy Guidance and Development Control	Other Policy	2023	2030	Oxfordshire County Council, supported by all District LAs	Oxfordshire County Council	No	Fully funded	<£20	Implemented	Improvement in air quality	Reduction in local concs NO2 & exposure to air pollution	Ongoing <a href="https://news.oxfordshire.gov.uk/download/2cc66521-8108-4b7e-9143-2ef812745a6f/oxfordshirecountycouncilcleanairstrategy-onepagesummary.pdf">https://news.oxfordshire.gov.uk/download/2cc66521-8108-4b7e-9143-2ef812745a6f/oxfordshirecountycouncilcleanairstrategy-onepagesummary.pdf</a>	Changing attitudes and behaviours; availability of funding for associated projects; spatial limitations for developments.
14	20mph Transformation Programme	Traffic Management	Reduction of speed limits, 20mph zones	2022	2025	Oxfordshire County Council	Oxfordshire County Council	No	Fully funded	£8 million	Implemented	Reduced vehicle emissions and improved traffic flow	Reduction in local concs NO2	Ongoing <a href="https://www.oxfordshire.gov.uk/residents/roads-and-transport/traffic/20mph-scheme/20mph-transformation-programme">https://www.oxfordshire.gov.uk/residents/roads-and-transport/traffic/20mph-scheme/20mph-transformation-programme</a>	Changing attitudes and behaviours; availability of funding for associated projects; spatial limitations for developments.

## **2.2.2 Forthcoming developments impacting air quality - Active housing developments**

### East Witney Strategic Development Area

Some 450 homes are planned in this area of land south east of Oxford Hill, Witney. A planning application was received during 2020 at this location and is still under consideration. Air quality modelling accompanies this application which has demonstrated that the development will not have a significant impact on the air quality with Witney's AQMA.

### North Witney Strategic Development Area

Some 1400 homes are planned. Initial proposals for 110 homes on land west of Hailey Road have been brought forward. A Secretary of State's decision dated 30 July 2020 has directed that the proposed development of 110 homes is "EIA development" within the meaning of the Town and Country (Environmental Impact Assessment) Regulations 2017. We understand this development is moving forward, with construction expected to begin in 2026.

## **2.2.3 Forthcoming developments impacting air quality - Planned housing developments**

In addition to the above there are other major developments planned, which are in the process of being brought forward.

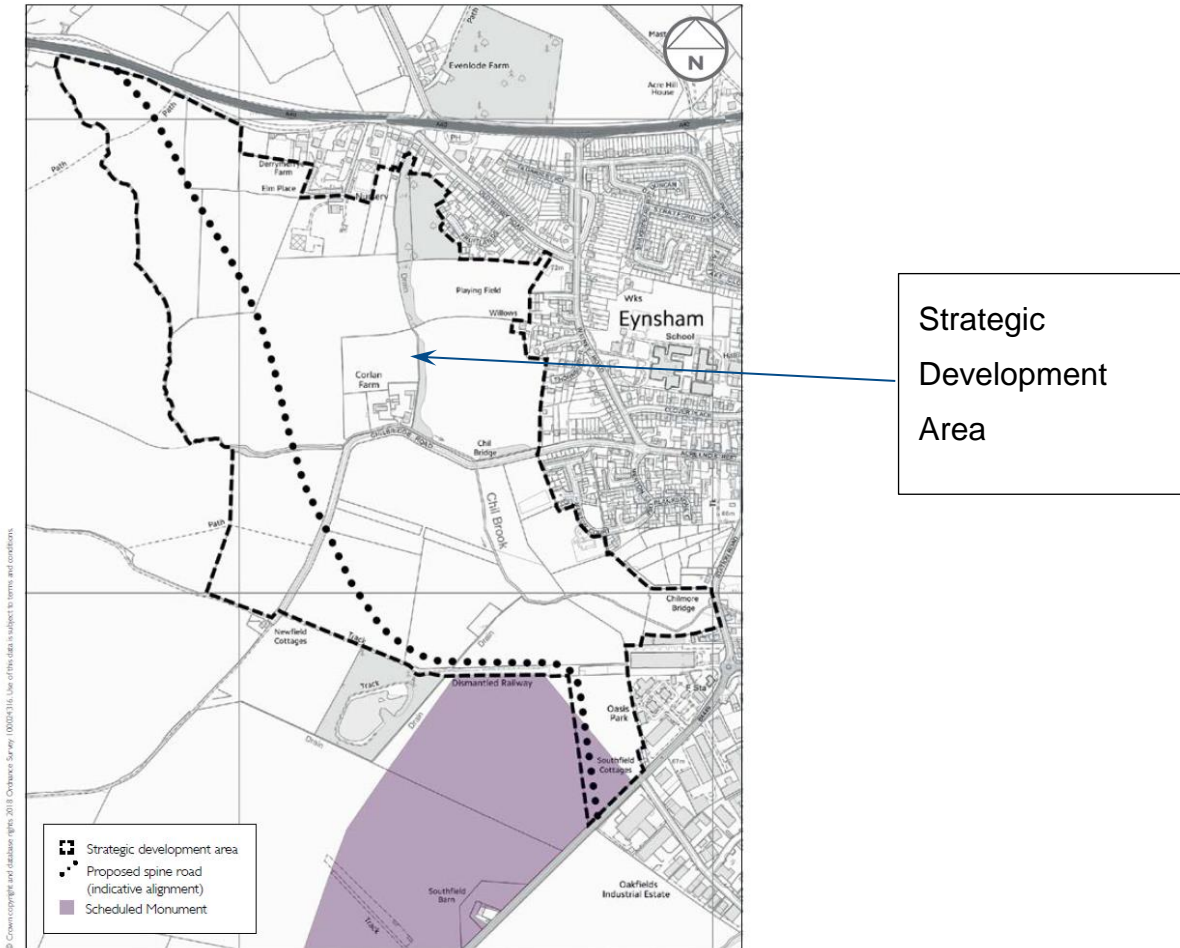
### West Eynsham Strategic Development Area (SDA)

The West Eynsham SDA is located to the west of the existing settlement at Eynsham and will provide an urban extension of Eynsham, comprising around 1000 new homes by 2031. The location is shown in Figure 2.1. Some of these (450 homes) are to contribute to West Oxfordshire District's own housing needs whilst the balance is to meet the housing needs of Oxford City. The proposal forms District planning policy EW2. An additional point is the provision of a new western spine road funded by and provided as an integral part of the proposed development and to link the A40 and B4449 highways.

A draft masterplan for the first phase of the development has been published for consultation. A link is here: [West Eynsham proposed phase-one](#).

Construction has begun with the 77 dwelling Abbey Green development, with a further 110 dwelling development current in planning.

**Figure 2.1 – Location of West Eynsham SDA (from District Plan)**



**Eynsham Garden Village (Salt Cross)**

A key element of the West Oxfordshire Local Plan 2031 is the establishment of a new garden village to the north of the A40 near Eynsham. Salt Cross Garden Village is a large, proposed development north of Eynsham and the A40, to the east of the new Eynsham Park and Ride. The development will include 2,200 dwellings, leisure, hotel and retail facilities and a science park.

An Area Action Plan (AAP) for the development was first submitted to the Planning Inspectorate in 2021. WODC received the Inspectorates final report in March 2023, and is now in the process of reviewing the recommendations. An outline planning application was submitted in 2020 and has yet to be determined.

**East Chipping Norton Strategic Development Area**

The East Chipping Norton SDA is allocated for development under Policy CN1 of the West Oxfordshire Local Plan 2031 This comprises land east of Chipping Norton and comprises around 1200 homes.

## **2.3 PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations**

### **2.3.1 General Approach**

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Other than the potential source from vehicles, no other significant source of PM<sub>2.5</sub> has been identified within the District. Therefore the control at this stage is aligned with the measures designed to achieve a reduction in vehicular emissions.

In addition, West Oxfordshire District Council is taking the following measures to address PM<sub>2.5</sub>:

- As part of the AQAP review process, the Council has carried out an PM<sub>2.5</sub> assessment, using published data;
- Highlight the issues of PM<sub>2.5</sub> including the impacts on health and activities which generate the particles. This will be achieved through the new Oxfordshire Air Quality Website, and other campaigns such as responsible use of wood burners, fire pits, garden bonfires etc.
- Seek funding to install PM<sub>2.5</sub> monitors within the AQMAs and other areas of West Oxfordshire.

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

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

#### 3.1 Summary of Monitoring Undertaken

##### 3.1.1 Automatic Monitoring Sites

West Oxfordshire District Council has no automatic (continuous) monitoring sites within its area.

##### 3.1.2 Non-Automatic Monitoring Sites

West Oxfordshire District Council undertook non- automatic (i.e. passive) monitoring of NO<sub>2</sub> at 25 sites during 2022. **Error! No bookmark name given.**<sup>1</sup> 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.

The survey focused upon locations where there is “relevant public exposure”, in accordance with Defra LAQM Technical Guidance Note TG(22) (Reference E). This year, changes were made to some of the locations of monitoring.

Two diffusion tubes were relocated at the beginning of 2022, NAS14 and NAS25. NAS14 (referred to as NAS14b) was moved from High Street, Woodstock where NO<sub>2</sub> concentrations have been consistently low, to Oxford Street, Woodstock, where there have been reports of congestion. NAS25 was moved from Garner Close, Carterton to Black Bourton Road, Carterton following concerns from a member of the public regarding air quality around their property, and the consistently low NO<sub>2</sub> Concentrations at Garner Close.

To the knowledge of the Council, no third party monitoring was carried out in the District during 2022.

## 3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

### 3.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

Table A.2 in Appendix A compare the ratified and adjusted, non-automatic, monitored NO<sub>2</sub> annual mean concentrations for the past five years with the air quality objective of 40µg/m<sup>3</sup>. 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.

Overall NO<sub>2</sub> levels are somewhat lower across the District in comparison with 2021 data, which was unexpected in the first year following the Covid-19 pandemic years, when no travel restrictions were in place. This is thought to be a result in the increase in the number of people working from home, coupled with improvements in engine technology and the uptake of hybrid and fully electric vehicles. It is too early to say if this is the 'new norm', however we will be watching the data of the next 2-3 years to see if this trend continues.

Trends in NO<sub>2</sub> concentrations are presented in Appendix A, Figures A.1 – A.3 illustrating the effect on local (raw, unadjusted) NO<sub>2</sub> concentrations in both of the District's AQMAs as the pandemic took hold, and compare concentrations between 2019, 2020, 2021 and 2022.

Although the results from 2022 are positive and indicate a general improvement in the air quality withing both Witney's and Chipping Norton's AQMAs, we are also mindful that both towns will see large housing developments constructed in the coming years.

Consequently, the uncertainty of whether air quality will continue to improve over the coming years, coupled with the potential impact of increased housing, it is unlikely West Oxfordshire District Council will seek to revoke these AQMA in the near future. The Council will continue to work with the County and Town Councils to implement measures to tackle air pollution in these areas.

It is also noted that during 2021 no annual means greater than  $60\mu\text{g}/\text{m}^3$  were measured, which indicates that an exceedance of the 1-hour mean objective was unlikely at any of the locations.

### 3.2.2 Particulate Matter (PM<sub>10</sub> & PM<sub>2.5</sub>)

Measurements of particulate matter were not made within the District during 2022.

Particulate matter can enter the respiratory system and have consequential health implications. Particulates which are routinely monitored in the UK are PM<sub>10</sub> and PM<sub>2.5</sub>. PM<sub>10</sub> are particles that have a diameter of  $10\mu\text{m}$  or less, and can pass through the upper respiratory system and travel deep into the lungs. PM<sub>2.5</sub> particles have a diameter of  $2.5\mu\text{m}$  or less, and can pass into the deepest parts of the lungs, and potentially through the lung walls into the blood stream. These particles have been strongly connected with respiratory problems such as asthma, chronic obstructive pulmonary disease and cardiovascular disease.

The Environment Act 2021 required the Secretary of State to set PM<sub>2.5</sub> objectives for the UK, which were laid out in The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. The targets set within the 2023 Regulations are:

- *The annual mean concentration target is that by the end of 31st December 2040 the annual mean level of PM<sub>2.5</sub> in ambient air must be equal to or less than  $10\mu\text{g}/\text{m}^3$*
- *The population exposure reduction target is that there is at least a 35% reduction in population exposure by the end of 31st December 2040, as compared with the average population exposure in the three-year period from 1st January 2016 to 31st December 2018.*

To monitor progress in meeting these objectives, new monitors are expected to be installed across the country to provide concentration data for fine particles in the air. These will predominantly be in urban areas.



Trends in PM<sub>2.5</sub> in the UK between 2009 and 2022 have been published by DEFRA. Annual average concentration of the fine particles peaked in 2011, and have since shown a steady decline. Despite a decline, data from 2020 to 2022 have shown a small increase. The data for 2022 showed temporal changes in PM<sub>2.5</sub>, with concentrations peaking during the winter and spring months. This is thought to be attributed to elevated airborne nitrates from European agricultural activities being transported to the UK, and the increase in the use of solid fuel stoves and open air fires both in Europe and the UK. The contribution of solid fuel stoves is further reflected in the average hourly concentrations, which show the highest emissions of PM<sub>2.5</sub> occurred mid to late evening. [Link to: Particulate matter \(PM10/PM2.5\)](#).

The impact of solid fuel stoves and open fires demonstrates the importance of the Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020, which stipulates that wet wood (that is, wood having a moisture content of more than 20%) cannot be sold in units of less than 2m<sup>3</sup>. The same legislation outlaws sale of bags of coal for domestic fireplaces. This is intended to encourage use of approved kiln-dried logs which produce much less smoke and thus particulates.

### 3.2.3 Public Health Outcomes Framework

Public Health England publishes various information related to public health, in particular in relation to particulate matter.

The importance of the effect of air pollution on public health is reflected by the inclusion of an indicator of mortality associated with air pollution in the Public Health Outcomes Framework. This is a series of “indicators” prepared by Central Government as a measure of public health in various categories and across the regions of the UK. One category of data is “D01 - Fraction of mortality attributable to particulate air pollution” (2020<sup>7</sup>).

---

<sup>7</sup> Footnote Source: Background annual average PM<sub>2.5</sub> concentrations for the year of interest are modelled on a 1km x 1km grid using an air dispersion model, and calibrated using measured concentrations taken from background sites in Defra’s Automatic Urban and Rural Network (<http://uk-air.defra.gov.uk/interactive-map>.) Data on primary emissions from different sources and a combination of measurement data for secondary inorganic aerosol and models for sources not included in the emission inventory (including re-suspension of dusts) are used to estimate the anthropogenic (human-made) component of these concentrations. By approximating LA boundaries to the 1km by 1km grid, and using census population data, population



For Oxfordshire as a whole, the estimated Fraction of Mortality attributable to particulate air pollution is ranked relatively well, having the seventh lowest mortality rate out of 19 areas in the South East of England. This equates to a percentage of 5.5% compared with the regional average of 5.4%.

For the West Oxfordshire District, the estimated Fraction of Mortality attributable to particulate air pollution is relatively low with the area ranked 21 out of 64 areas in the South East of England. This equates to a percentage of 5.2% compared with the regional average of 5.4%. Link: [Public Health England Public Health Profiles data.](#) Oxfordshire level data on the number of deaths attributable to PM<sub>2.5</sub> can also be found on the [Oxfordshire Joint Strategic Needs Assessment on Air Quality.](#)

---

weighted background PM<sub>2.5</sub> concentrations for each lower tier LA are calculated. This work is completed under contract to Defra, as a small extension of its obligations under the Ambient Air Quality Directive (2008/50/EC). Concentrations of anthropogenic, rather than total, PM<sub>2.5</sub> are used as the basis for this indicator, as burden estimates based on total PM<sub>2.5</sub> might give a misleading impression of the scale of the potential influence of policy interventions (COMEAP, 2012).

## Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NAS1	25 Bridge Street, Witney	Roadside	435872	210318	NO <sub>2</sub>	Witney AQMA	0.1	1.6	No	2.3
NAS2	10 Bridge Street, Witney	Roadside	435821	210243	NO <sub>2</sub>	Witney AQMA	0.6	2.5	No	2.6
NAS3	20 Bridge Street, Witney	Roadside	435849	210280	NO <sub>2</sub>	Witney AQMA	0.2	2.2	No	2.3
NAS4	9 Mill Street, Witney	Roadside	435682	210195	NO <sub>2</sub>		1.0	1.4	No	2.7
NAS5	4A West End, Witney	Roadside	435911	210380	NO <sub>2</sub>	Witney AQMA	0.1	1.2	No	2.3
NAS6	Woodgreen Hill, Witney	Roadside	435955	210362	NO <sub>2</sub>	Witney AQMA	0.1	3.1	No	2.3
NAS7	Newland, Witney	Roadside	435946	210326	NO <sub>2</sub>	Witney AQMA	1.0	2.7	No	2.3
NAS9	A40 j/w Southleigh Turn	Roadside	440082	210435	NO <sub>2</sub>		>50	3.3	No	2.2
NAS10	Park Street, Bladon	Roadside	444783	214667	NO <sub>2</sub>		0.1	3.0	No	2.7
NAS11	Heath Lane, Bladon	Rural	427758	206141	NO <sub>2</sub>		14.0	0.5	No	2.2

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NAS12	Grove Rd, Bladon	Roadside	444873	214977	NO <sub>2</sub>		8.2	2.1	No	2.3
NAS13	3 Hensington Road, Woodstock (New from 1/1/19)	Urban Background	444667	216727	NO <sub>2</sub>		0.0	2.3	No	2.7
NAS14B	42 Oxford Street, Woodstock (new 06/01/2022)	Roadside	444576	216800	NO <sub>2</sub>		0.1	3.5	No	2.5
NAS15	Woodstock, Rosamund Drive	Urban Background	444182	217345	NO <sub>2</sub>		6.8	1.8	No	2.3
NAS16	Withers Way, Chipping Norton	Urban Background	431203	226866	NO <sub>2</sub>		4.5	1.9	No	2.4
NAS17	West St , Chipping Norton	Roadside	431299	226975	NO <sub>2</sub>		0.3	1.8	No	2.7
NAS21	7 Horsefair, Chipping Norton	Roadside	431453	227316	NO <sub>2</sub>	Chipping Norton AQMA	0.1	5.1	No	2.7
NAS22	Horsefair (opp No.7), Chipping Norton	Roadside	431436	227326	NO <sub>2</sub>	Chipping Norton AQMA	0.1	1.0	No	2.4
NAS23	Lower High Street, Burford	Roadside	425179	212443	NO <sub>2</sub>		0.7	2.0	No	2.3
NAS24	High Street (Near Barclays Bank), Burford	Roadside	425153	212178	NO <sub>2</sub>		1.0	1.2	No	2.2
NAS25A	Black Bourton Road, Carterton (new 06/01/2022)	Urban Background	428153	206588	NO <sub>2</sub>		7.4	2.6	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NAS40	Witney Road, Eynsham (New 1/5/19)	Roadside	442728	209942	NO <sub>2</sub>		6.0	1.3	No	2.4
NAS41	Hanborough Road, Eynsham. (New 1/5/19)	Roadside	443664	210024	NO <sub>2</sub>		28.0	2.0	No	2.3
NAS44	83 Oxford Hill, Witney (New from 06/01/21)	Roadside	436759	209830	NO <sub>2</sub>		5.0	1.7	No	2.3
NAS45, NAS46, NAS47	23 High St Chipping Norton (new 06/05/2021)	Roadside	431414	227217	NO <sub>2</sub>	Chipping Norton AQMA	3.0	2.4	No	2.3

**Notes:**

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

(2) N/A if not applicable.

**Table A.2 – Annual Mean NO<sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m<sup>3</sup>)**

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NAS1	435872	210318	Roadside		92.6	<b>48.2</b>	<b>44.8</b>	36.8	37.6	36.1
NAS2	435821	210243	Roadside		100.0	<b>40.5</b>	37.1	27.5	31.8	30.5
NAS3	435849	210280	Roadside		100.0	<b>41.8</b>	<b>41.9</b>	32.2	35.1	32.6
NAS4	435682	210195	Roadside		91.2	31.9	33.9	26.2	26.9	26.5
NAS5	435911	210380	Roadside		92.3	35.5	33.1	25.9	28.4	29.7
NAS6	435955	210362	Roadside		100.0	34.4	35.5	26.6	29.9	27.9
NAS7	435946	210326	Roadside		92.3	34.5	34.3	27.0	28.0	26.3
NAS9	440082	210435	Roadside		100.0	-	18.7	14.9	17.0	15.7
NAS10	444783	214667	Roadside		100.0	27.5	27.0	19.7	21.2	21.0
NAS11	427758	206141	Rural		100.0	10.0	9.0	7.5	6.4	6.9
NAS12	444873	214977	Roadside		100.0	17.6	16.6	12.3	13.2	12.3
NAS13	444667	216727	Urban Background		90.7	-	22.3	19.2	16.0	14.6
NAS14B	444576	216800	Roadside		92.3	-	14.5	10.4	10.7	14.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NAS15	444182	217345	Urban Background		100.0	10.2	10.1	9.1	7.0	8.2
NAS16	431203	226866	Urban Background		100.0	9.0	8.6	7.0	6.7	6.4
NAS17	431299	226975	Roadside		82.2	23.6	21.5	17.7	18.9	18.5
NAS21	431453	227316	Roadside		91.8	21.7	19.8	16.4	16.5	15.6
NAS22	431436	227326	Roadside		100.0	<b>47.3</b>	<b>43.9</b>	37.8	38.2	34.3
NAS23	425179	212443	Roadside		100.0	29.0	28.2	21.3	21.4	21.0
NAS24	425153	212178	Roadside		100.0	23.2	21.0	16.5	16.9	16.9
NAS25A	428153	206588	Urban Background		100.0	-	-	-	-	12.8
NAS40	442728	209942	Roadside		92.3	-	18.3	14.6	16.3	15.1
NAS41	443664	210024	Roadside		91.2	-	16.3	14.1	14.4	14.6
NAS44	436759	209830	Roadside		100.0	-	-	-	18.1	15.9
NAS45, NAS46, NAS47	431414	227217	Roadside		100.0	-	-	-	24.7	21.4

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

Diffusion tube data has been bias adjusted.

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

**Notes:**

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

Exceedances of the NO<sub>2</sub> annual mean objective of  $40\mu\text{g}/\text{m}^3$  are shown in **bold**.

NO<sub>2</sub> annual means exceeding  $60\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

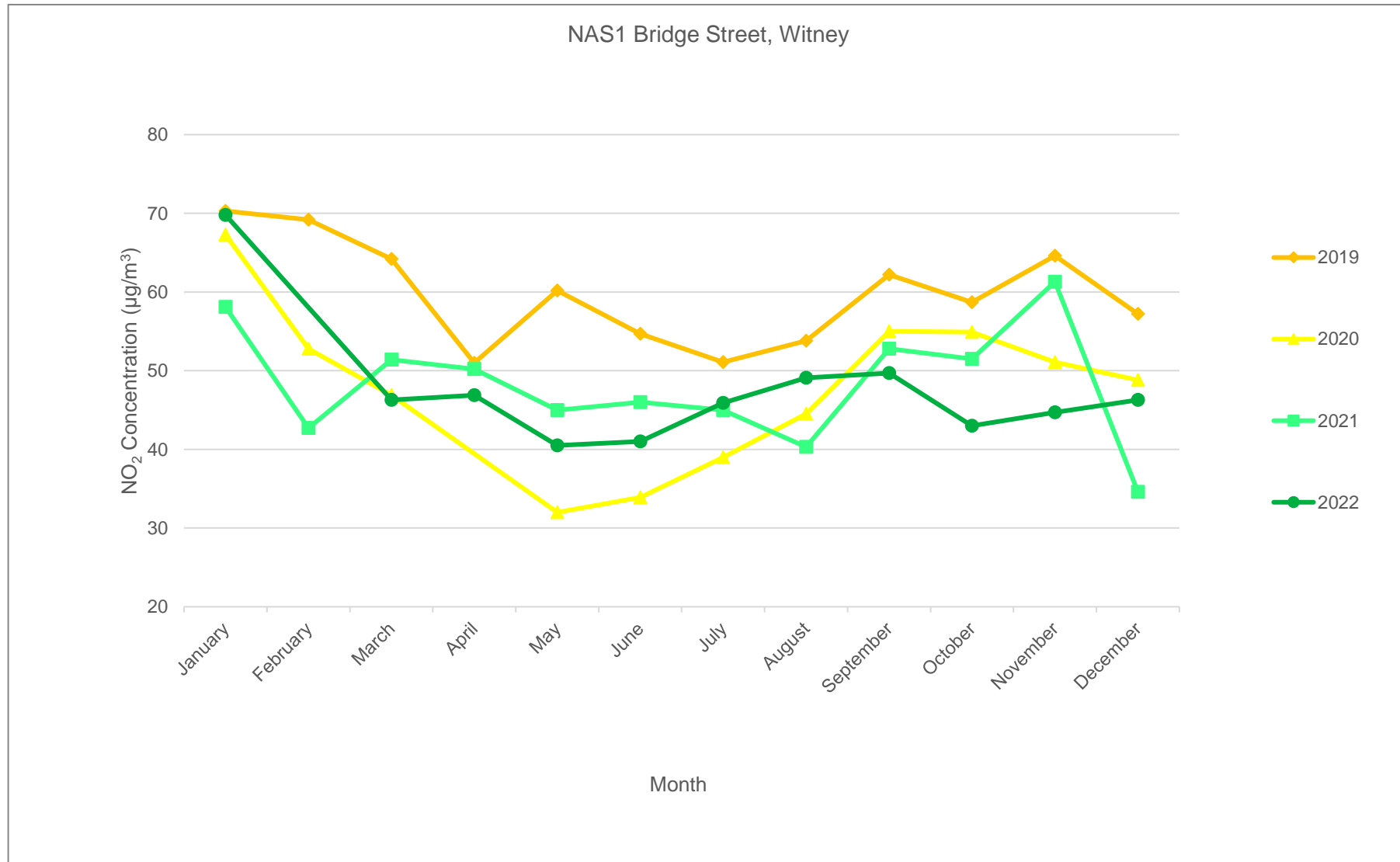
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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 Monthly Unadjusted NO<sub>2</sub> Concentrations at Bridge St, Witney.**





**Figure A.2 – Trends in Monthly Unadjusted NO<sub>2</sub> Concentrations at Horsefair, Chipping Norton.**

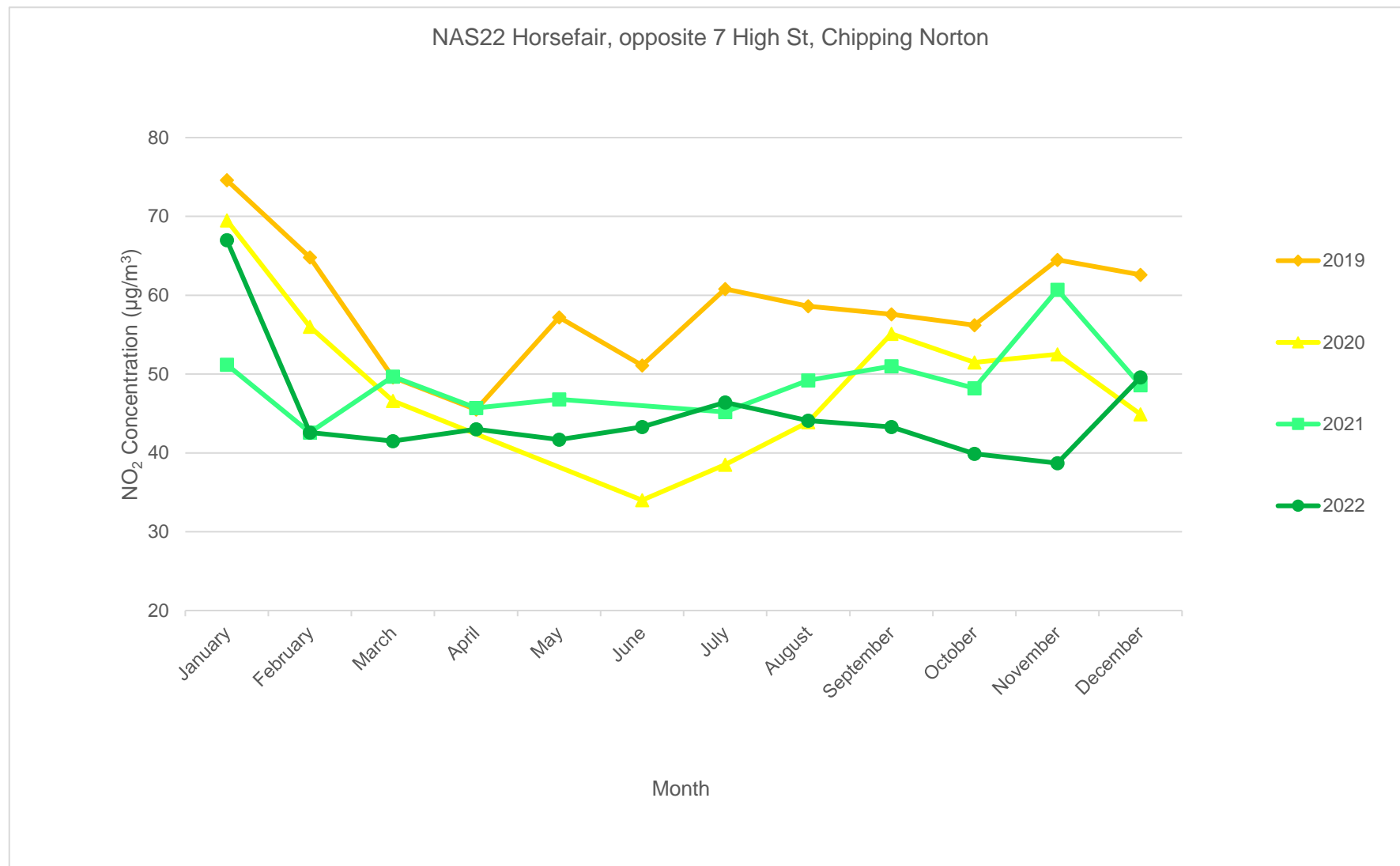
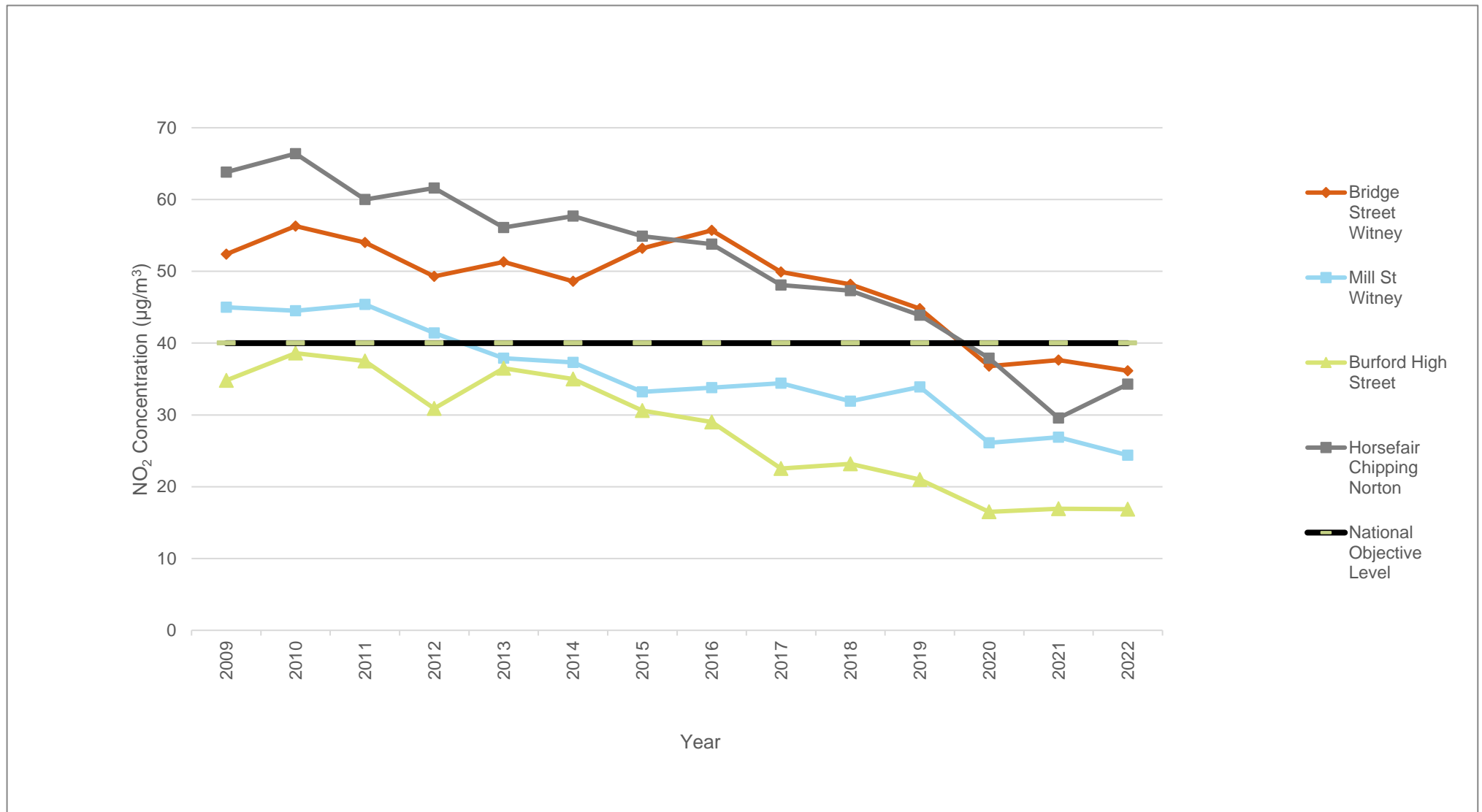


Figure A.3 - Trend in NO<sub>2</sub> Concentrations (adjusted) at selected locations between 2009 and 2022



## Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO<sub>2</sub> 2022 Diffusion Tube Results (µg/m<sup>3</sup>)

DT ID	X OS Grid Ref (Eastin g)	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 <(0.76)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NAS1	435872	210318	69.8	Missin g	46.3	46.9	40.5	41.0	45.9	49.1	49.7	43.0	44.7	46.3	47.6	36.1	35.7	
NAS2	435821	210243	52.7	32.7	45.1	44.2	40.0	31.0	38.3	43.5	36.6	40.6	36.4	40.1	40.1	30.5	-	
NAS3	435849	210280	53.1	37.9	47.2	44.2	38.3	38.3	44.4	42.2	35.8	46.8	43.0	42.9	42.8	32.6	-	
NAS4	435682	210195	48.8	38.4	35.5	29.5	28.7	29.2	35.6	30.8	33.3	37.0	Outlier	37.2	34.9	26.5	-	
NAS5	435911	210380	46.0	36.0	41.2	40.1	30.9	28.4	66.9	Outlier	31.8	34.9	36.4	37.9	39.1	29.7	-	
NAS6	435955	210362	48.1	34.4	43.7	41.2	32.3	29.3	37.5	41.5	35.4	35.8	26.8	34.6	36.7	27.9	-	
NAS7	435946	210326	49.0	45.5	33.9	32.0	32.6	31.5	33.5	29.0	Missin g	36.7	28.1	28.6	34.6	26.3	-	
NAS9	440082	210435	28.4	18.7	23.6	24.1	17.6	15.6	19.5	24.2	22.0	13.2	18.6	21.9	20.6	15.7	-	
NAS10	444783	214667	39.7	27.3	30.6	27.2	23.4	23.3	24.0	25.0	25.4	26.7	29.7	29.6	27.7	21.0	-	
NAS11	427758	206141	17.7	8.9	11.2	10.3	6.4	5.1	6.4	6.9	7.7	2.7	10.4	15.3	9.1	6.9	-	
NAS12	444873	214977	15.1	15.5	20.2	15.6	13.4	13.1	13.0	13.6	18.3	17.7	19.0	19.1	16.1	12.3	-	
NAS13	444667	216727	31.3	17.3	Missin g	9.8	17.9	18.5	20.0	17.5	21.3	20.1	19.3	18.7	19.2	14.6	-	
NAS14B	444576	216800	Missin g	16.4	26.9	21.3	13.7	13.8	17.3	20.6	17.6	18.0	16.9	23.4	18.7	14.2	-	
NAS15	444182	217345	18.3	9.6	13.1	19.2	6.1	5.2	6.6	6.3	8.3	9.7	12.5	14.8	10.8	8.2	-	
NAS16	431203	226866	14.9	8.7	12.2	9.0	5.6	4.5	5.9	7.0	6.4	7.6	8.1	11.7	8.5	6.4	-	
NAS17	431299	226975	36.9	21.1	26.7	<0.6	Missin g	17.8	22.4	22.3	25.3	21.4	23.4	26.5	24.4	18.5	-	
NAS21	431453	227316	27.3	18.7	28.1	Missin g	17.2	16.1	18.5	23.9	18.5	18.1	17.9	22.2	20.6	15.6	-	

DT ID	X OS Grid Ref (Eastin g)	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 <(0.76)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NAS22	431436	227326	67.0	42.6	41.5	43.0	41.7	43.3	46.4	44.1	43.3	39.9	38.7	49.6	45.1	34.3	-	
NAS23	425179	212443	36.3	30.2	23.8	25.4	26.4	29.4	29.8	21.9	24.2	27.1	26.8	29.9	27.6	21.0	-	
NAS24	425153	212178	26.8	19.6	26.5	25.4	17.8	6.8	21.6	26.5	21.2	22.4	24.7	26.9	22.2	16.9	-	
NAS25A	428153	206588	27.1	15.3	21.1	15.8	8.3	26.0	12.7	13.8	14.8	9.0	16.5	21.2	16.8	12.8	-	
NAS40	442728	209942	29.2	16.5	25.9	22.7	15.6	17.4	18.5	22.2	Missing	14.9	17.3	18.6	19.9	15.1	-	
NAS41	443664	210024	27.3	15.7	23.0	22.3	14.9	14.7	18.5	22.1	18.9	16.8	outlier	17.4	19.2	14.6	-	
NAS44	436759	209830	34.3	20.4	23.7	19.5	17.7	16.0	20.4	17.9	17.1	18.5	21.2	23.9	20.9	15.9	-	
NAS45	431414	227217	32.1	19.3	38.0	33.8	21.9	20.6	25.9	30.4	27.0	27.0	31.7	23.9	-	-	-	Triplicate Site with NAS45, NAS46 and NAS47 - Annual data provided for NAS47 only
NAS46	431414	227217	34.1	20.5	42.2	32.5	21.6	20.3	23.5	32.8	27.3	28.1	30.3	31.5	-	-	-	Triplicate Site with NAS45, NAS46 and NAS47 - Annual data provided for NAS47 only
NAS47	431414	227217	34.5	20.7	41.3	37.0	19.0	21.5	22.8	32.4	26.6	26.9	28.3	25.1	28.1	21.4	-	Triplicate Site with NAS45, NAS46 and NAS47 - Annual data provided for NAS47 only

All erroneous data has been removed from the NO<sub>2</sub> 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.

West Oxfordshire District Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

#### Notes:

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 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 West Oxfordshire District Council During 2022**

West Oxfordshire District Council has not identified any new sources relating to air quality within the reporting year of 2022.

### **Additional Air Quality Works Undertaken by West Oxfordshire District Council During 2022**

West Oxfordshire District Council has not completed any additional works within the reporting year of 2022.

### **QA/QC of Diffusion Tube Monitoring**

#### **Diffusion Tube Annualisation**

All diffusion tube monitoring locations recorded data capture of >75% and therefore annualisation was not required.

#### **Diffusion Tube Bias Adjustment Factors**

The diffusion tube data presented within the 2023 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<sub>x</sub>/NO<sub>2</sub> continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

West Oxfordshire District Council have applied a national bias adjustment factor of 0.76 to the 2022 monitoring data. A summary of bias adjustment factors used by West Oxfordshire District Council over the past five years is presented in Table C.1.

**Table C.2 – Bias Adjustment Factor**

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.76
2021	National	03/22	0.78
2020	National	03/21	0.77
2019	National	03/20	0.75
2018	National	03/19	0.76

A copy of the National Diffusion Tube Bias Adjustment Factor Spreadsheet is provided below.

National Diffusion Tube Bias Adjustment Factor Spreadsheet							Spreadsheet Version Number: 03/23			
<p>Follow the steps below <b>in the correct order</b> to show the results of <b>relevant</b> co-location studies</p> <p>Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods</p> <p>Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet</p> <p>This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use.</p> <p>The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.</p>							<p>This spreadsheet will be updated at the end of June 2023</p> <p>LAQM Helpdesk Website</p> <p>Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.</p>			
Step 1:	Step 2:	Step 3:	Step 4:							
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor <sup>2</sup> shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this laboratory.	If a year is not shown, we have no data <sup>2</sup>	If you have your own co-location study then see footnote <sup>1</sup> . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953							
Analysed By	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m <sup>3</sup> )	Automatic Monitor Mean Conc. (Cm) (µg/m <sup>3</sup> )	Bias (B)	Tube Precision <sup>3</sup>	Bias Adjustment Factor (A) (Cm/Dm)
Socotec Didcot	50% TEA in acetone	2022	UB	Torfaen County Borough Council	13	13	10	33.4%	G	0.75
Socotec Didcot	50% TEA in acetone	2022	R	Bridgend Council	12	37	27	40.6%	G	0.71
Socotec Didcot	50% TEA in Acetone	2022	R	Cardiff Council / Shared Regulatory Services	11	42	33	27.3%	G	0.79
Socotec Didcot	50% TEA in Acetone	2022	R	Dacorum Borough Council	12	24	18	30.8%	G	0.76
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	22	18	19.6%	G	0.84
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	26	22	17.0%	G	0.85
Socotec Didcot	50% TEA in acetone	2022	R	Kingston Upon Hull City Council	12	30	23	27.9%	G	0.78
Socotec Didcot	50% TEA in acetone	2022	UB	Kingston Upon Hull City Council	12	24	18	35.0%	G	0.74
SOCOTEC Didcot	50% TEA in acetone	2022	UB	City Of York Council	12	16	13	31.6%	G	0.76
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	12	25	19	28.7%	G	0.78
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	23	17	37.2%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	37	27	37.6%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	R	East Suffolk Council	11	32	23	38.6%	G	0.72
SOCOTEC Didcot	50% TEA in acetone	2022	R	Ipswich Borough Council	11	42	28	50.4%	G	0.66
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Marylebone Road Intercomparison	12	60	42	40.7%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	46	31	49.4%	G	0.67
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	28	27	3.7%	G	0.96
SOCOTEC Didcot	50% TEA in acetone	2022	R	Wrexham County Borough Council	12	16	14	15.5%	G	0.87
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Horsham District Council	11	25	22	14.4%	G	0.87
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	40	29	37.8%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Leeds City Council	11	33	23	44.6%	G	0.69
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	43	34	26.0%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	11	41	30	34.2%	G	0.75
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	30	22	36.9%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2022	UC	Leeds City Council	12	30	22	34.1%	G	0.75
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Thanet District Council	12	23	17	29.1%	G	0.77
Overall Factor <sup>2</sup> (26 studies)							Use		0.76	

### Other QA/QC Information

Socotec laboratories participate in the AIR NO<sub>2</sub> Proficiency Scheme, which assesses the analytical performance of laboratories analysing NO<sub>2</sub> diffusion tubes. In 2022, two rounds of proficiency testing were carried out, round 49 between January and February, and round 50 between May and June. During both rounds, Socotec laboratories scored 100%, which provides confidence in the diffusion tube analysis for the district. The full results from 2020 onwards can be found at [https://laqm.defra.gov.uk/wp-content/uploads/2022/07/LAQM-NO2-Performance-data\\_Up-to-June-2022\\_V2.1.pdf](https://laqm.defra.gov.uk/wp-content/uploads/2022/07/LAQM-NO2-Performance-data_Up-to-June-2022_V2.1.pdf).

DEFRA dictate the dates when the diffusion tubes are exchanged, and the local authority are expected to adhere to these dates +/- 2 days. All tubes were exchanged within the acceptable timeframe throughout 2022.

### NO<sub>2</sub> Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO<sub>2</sub> concentrations corrected for distance are presented in Table B.1.

Fall off with distance calculation was applied to one location, NAS1. This was calculated using the Diffusion Tube Data Processing Tool and is presented in Table C.2.

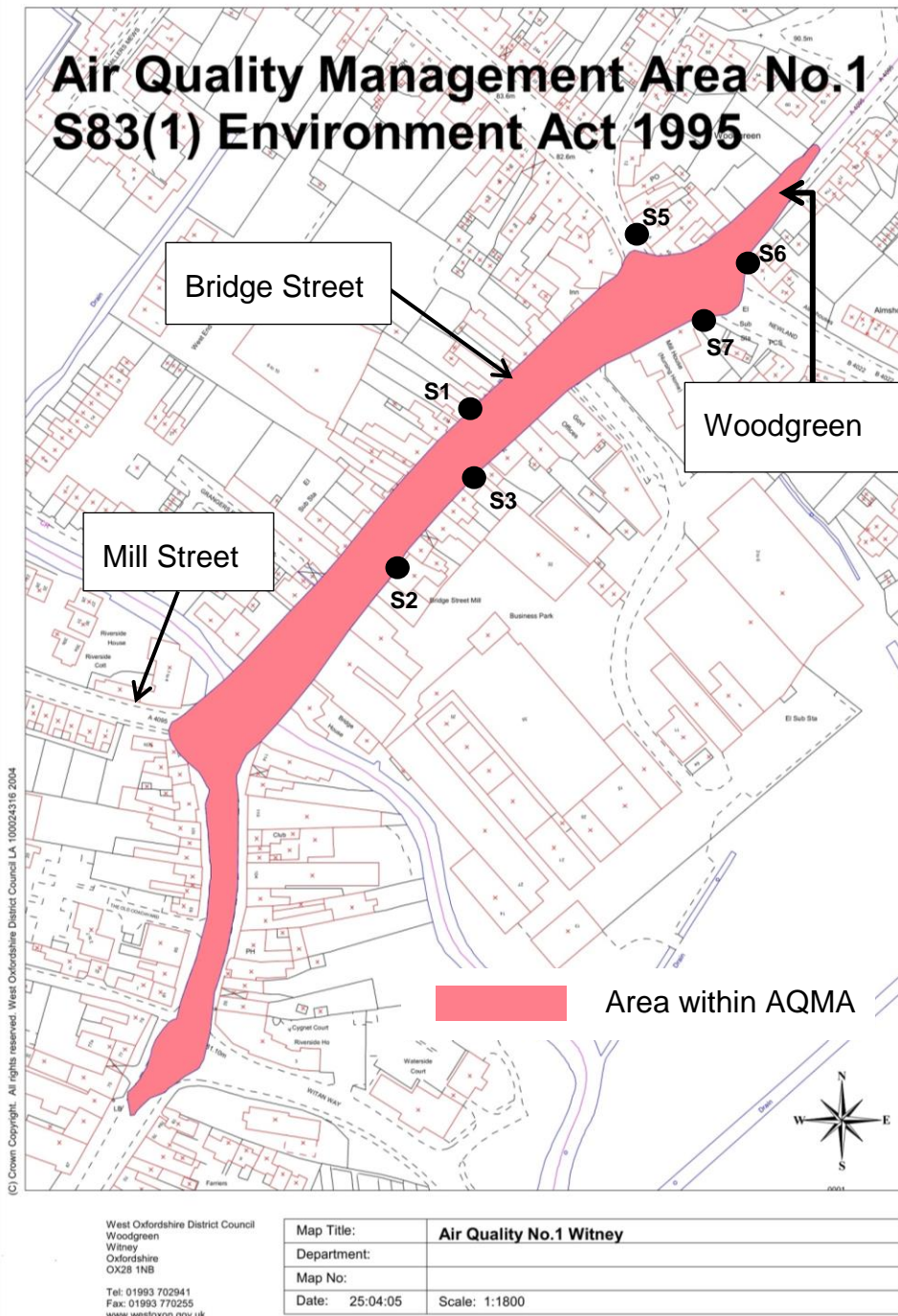
**Table C.1 – NO<sub>2</sub> Fall off With Distance Calculations (concentrations presented in µg/m<sup>3</sup>)**

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
NAS1	1.6	1.7	36.1	8.0	35.7	



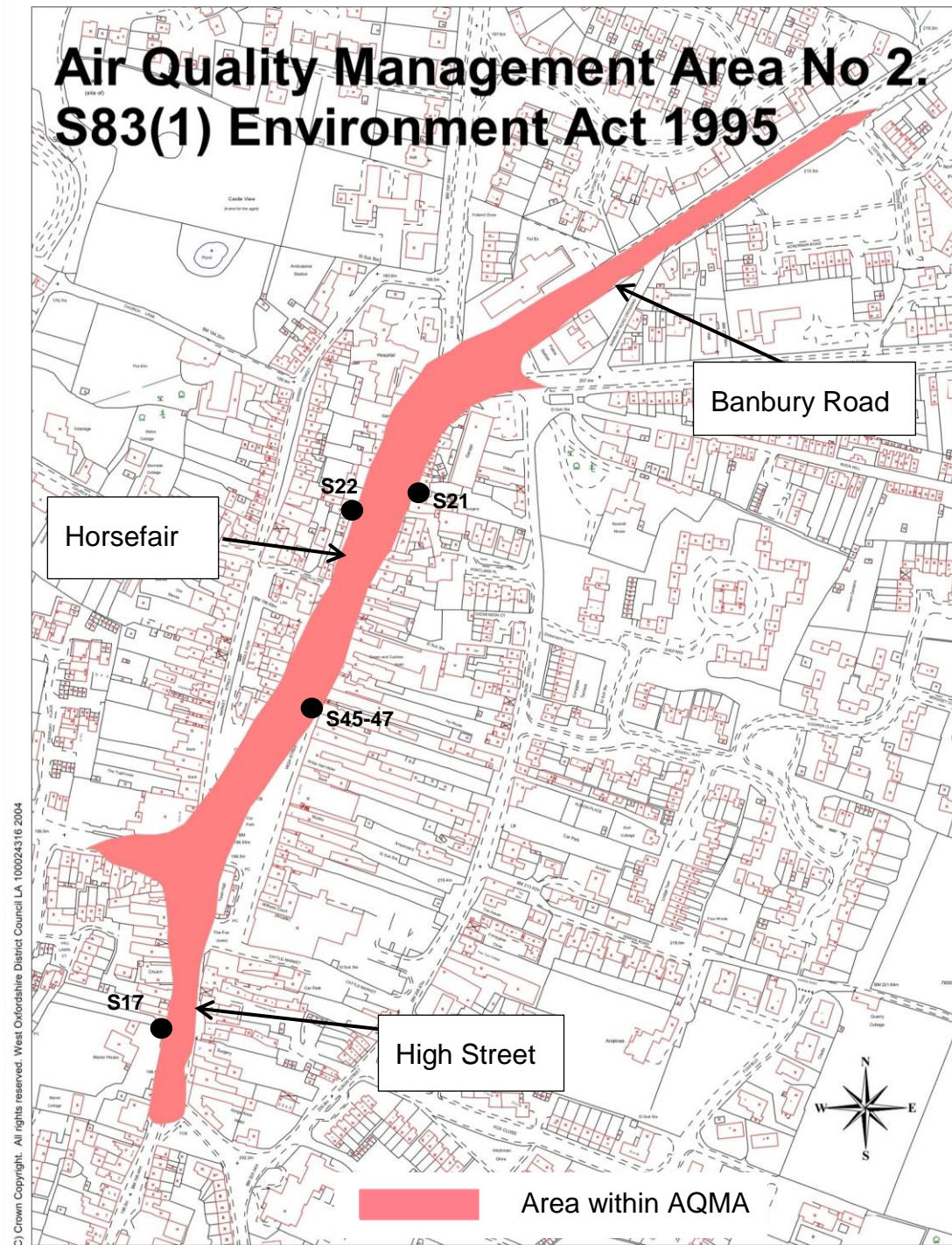
# Appendix D: Map(s) of Monitoring Locations and AQMAs

Figure D.1 – Map of Witney AQMA with Diffusion Tube Monitoring Locations





**Figure D.2 – Map of Chipping Norton AQMA with Diffusion Tube Monitoring Locations**



West Oxfordshire District Council  
Woodgreen  
Witney  
Oxfordshire  
OX28 1NB  
Tel: 01993 702941  
Fax: 01993 770255  
www.westoxon.gov.uk

Map Title:	<b>Air Quality Management Area No 2. Chipping Norton</b>
Department:	
Map No:	
Date: 25:04:05	Scale: 1:3000

Figure D.3 - Bladon Monitoring Locations

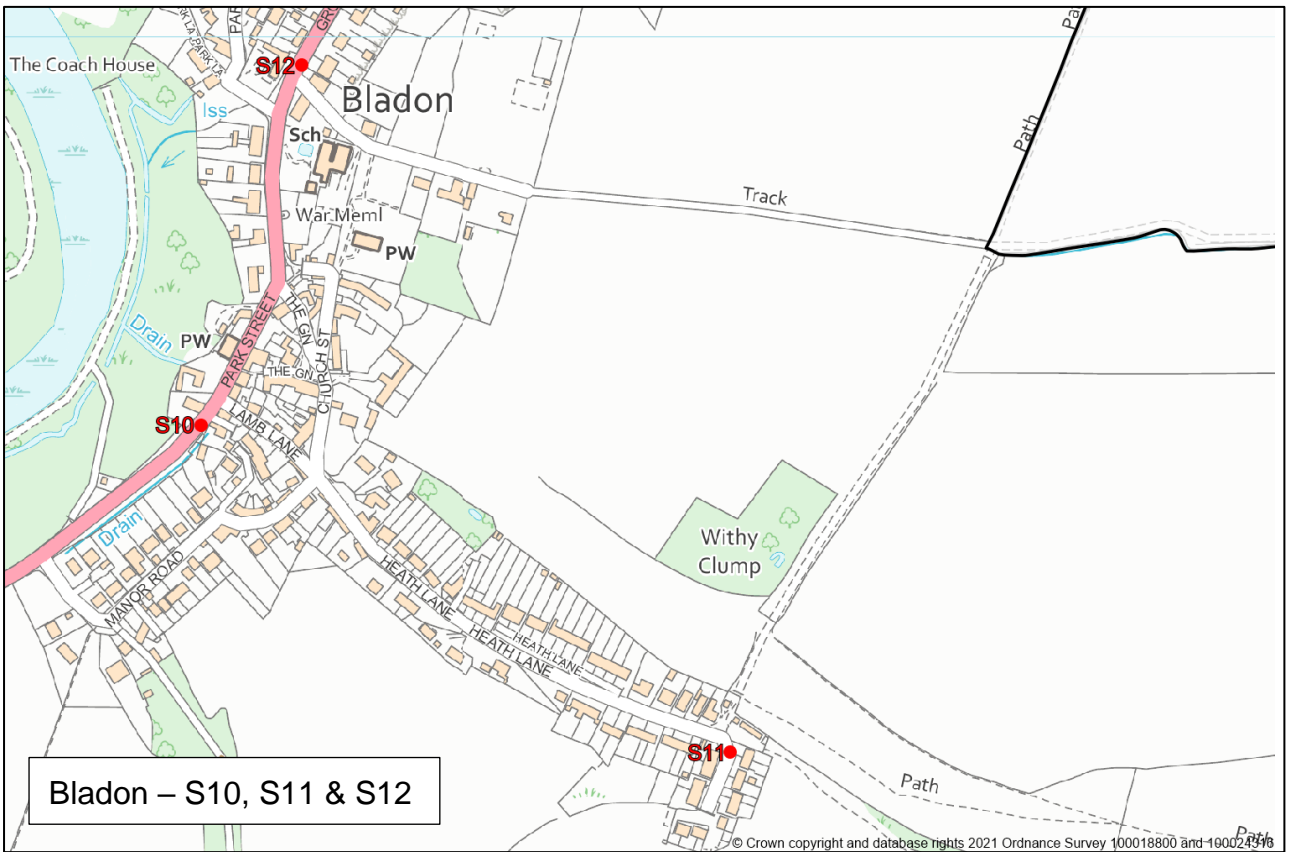


Figure D.4 - Burford Monitoring Locations





Figure D.5 - Carterton Monitoring Locations

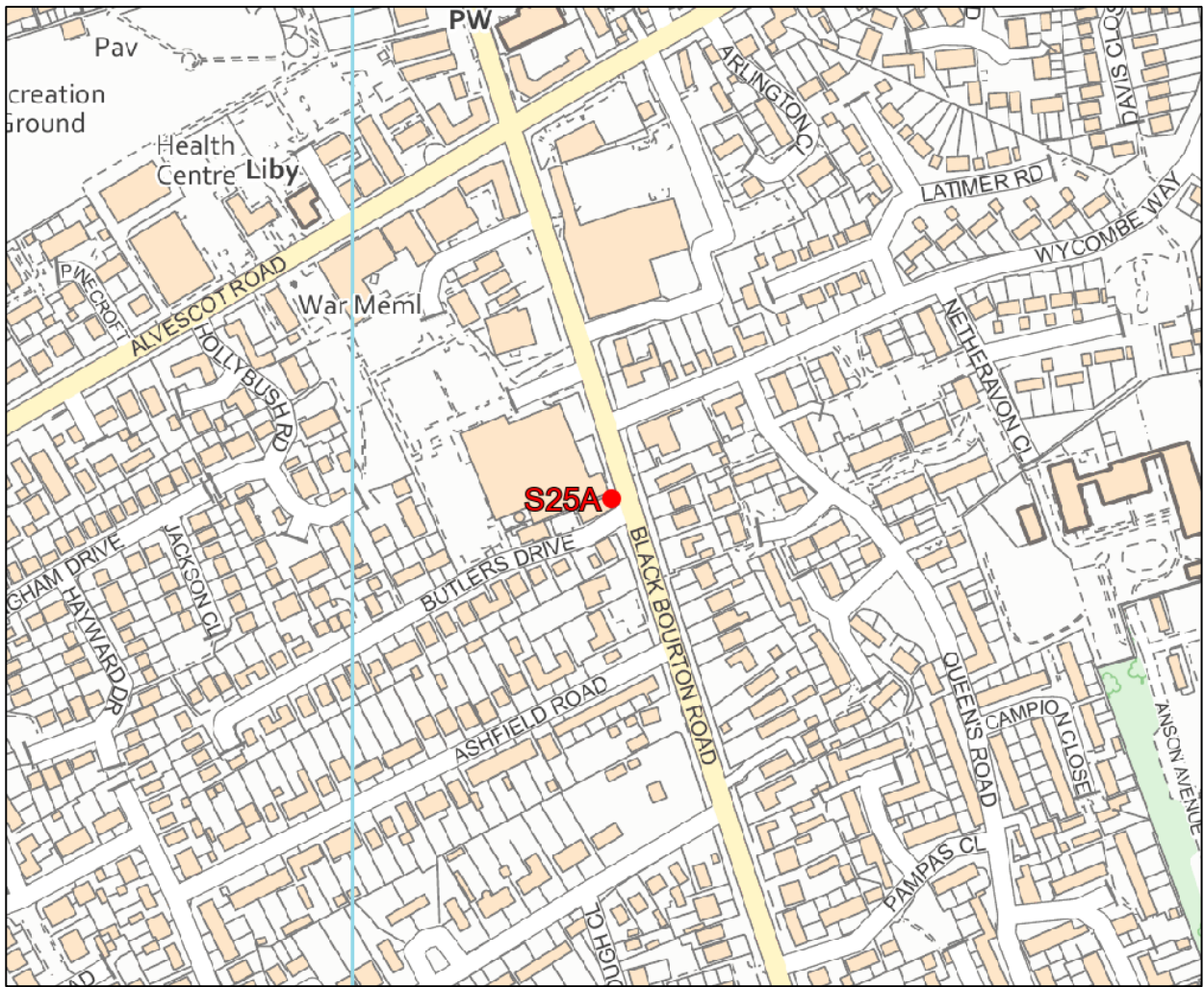


Figure D.6 - Chipping Norton Monitoring Locations

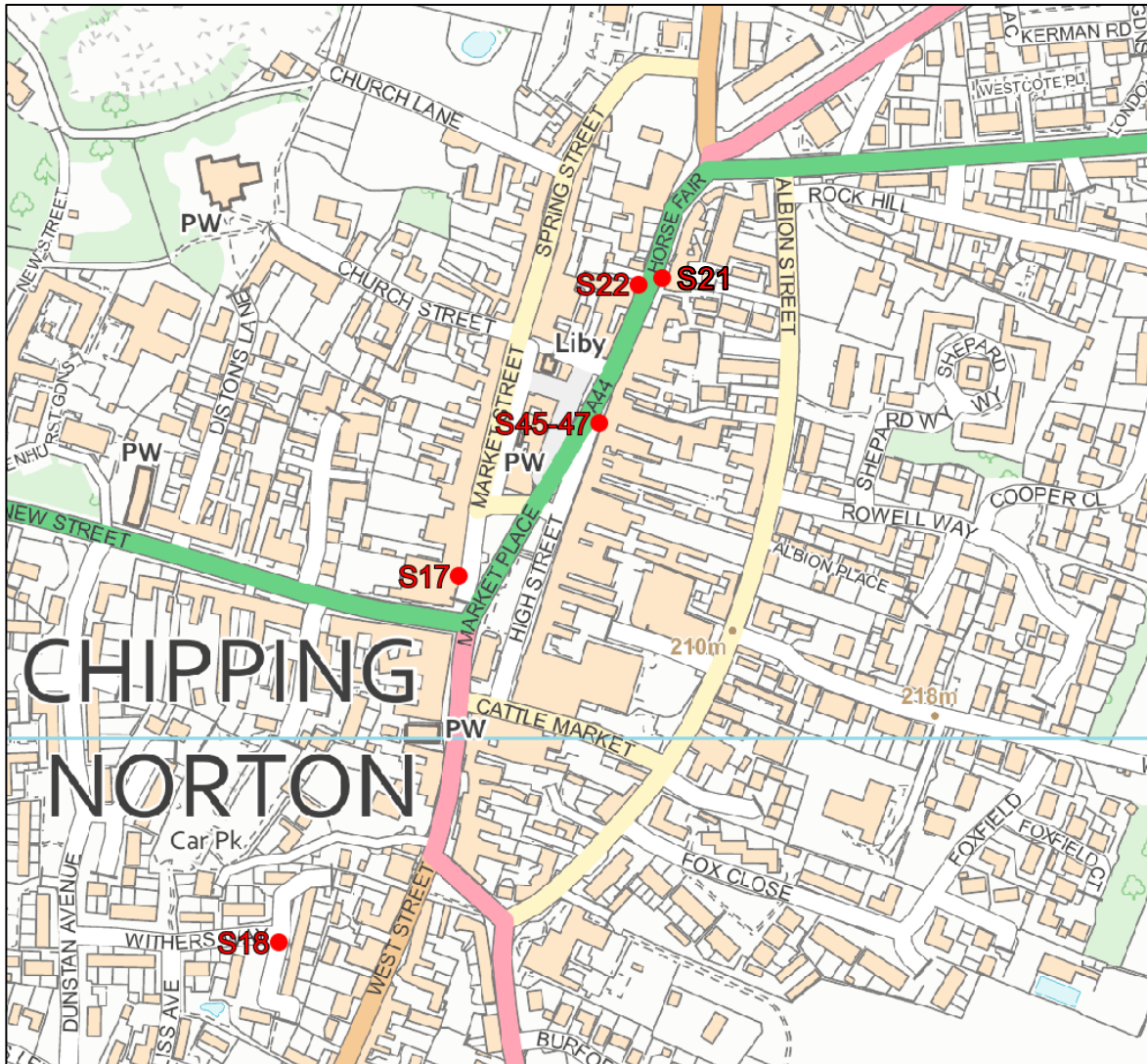




Figure D.7 - Eynsham Monitoring Locations

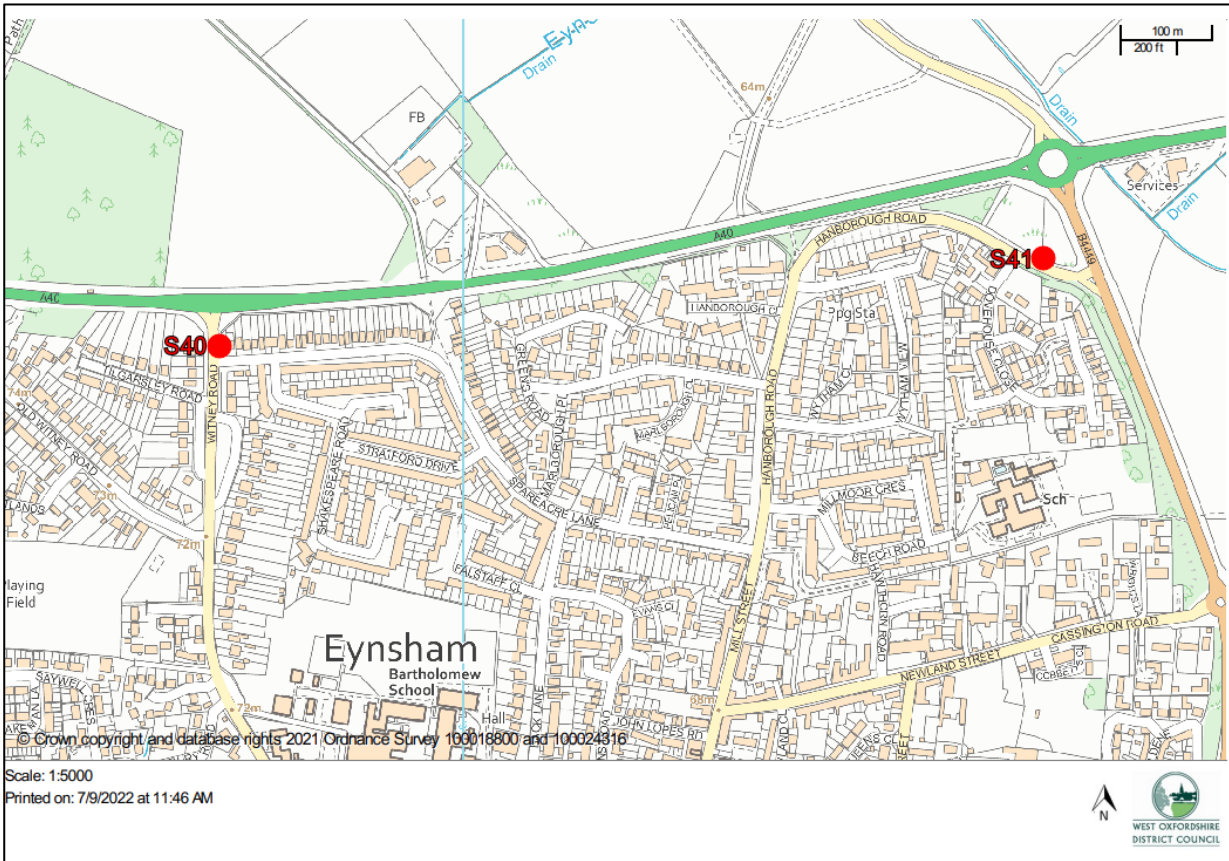
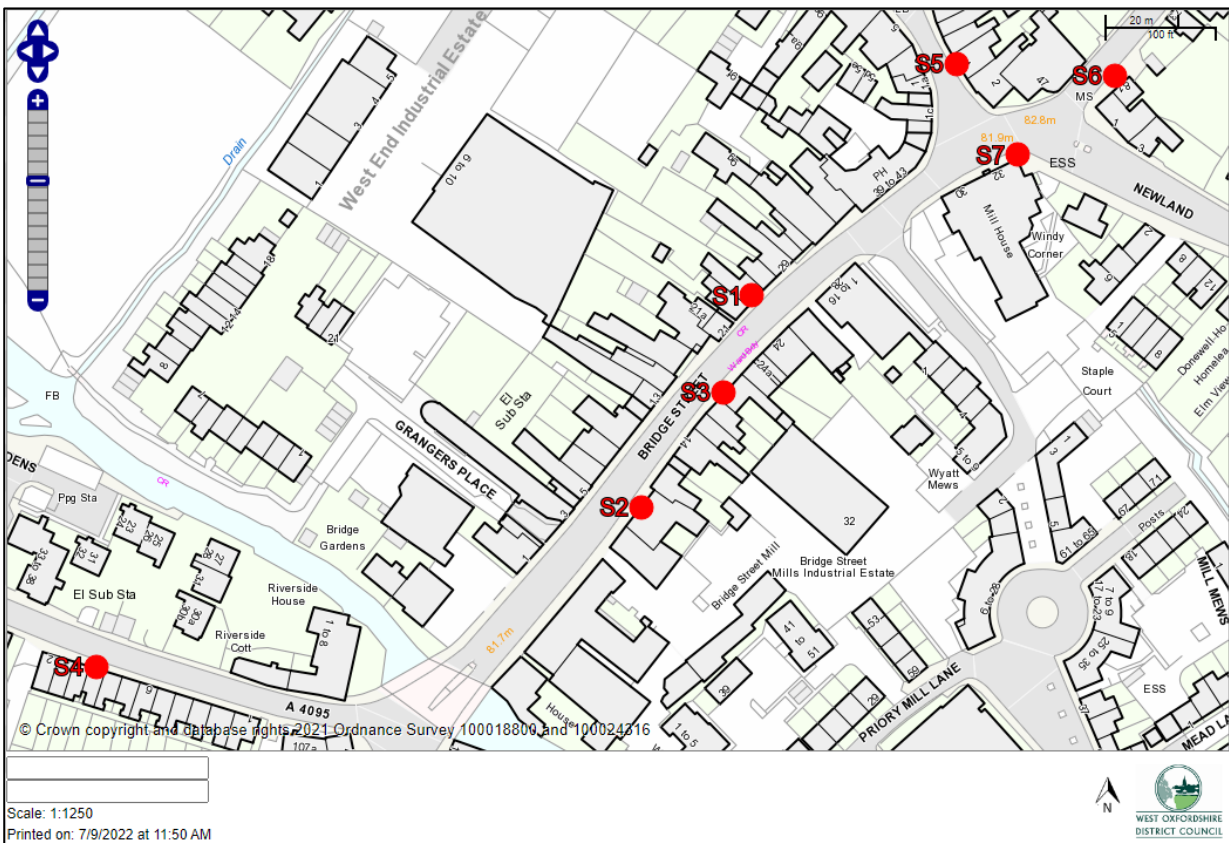
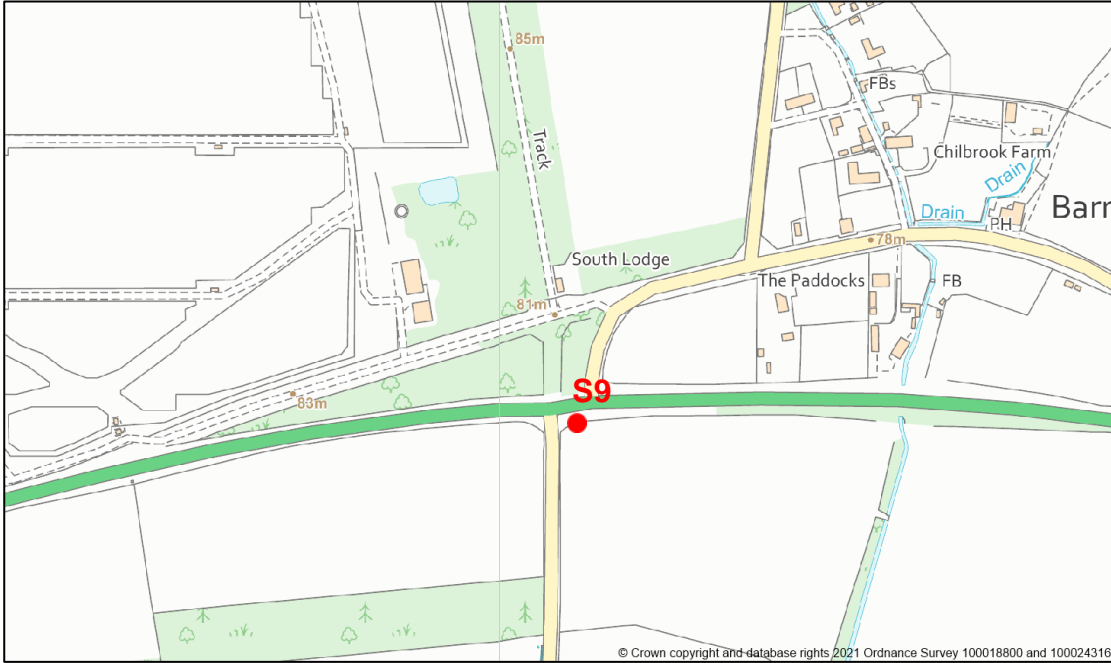


Figure D.8 Witney Monitoring Locations (including AQMA)



**Figure D.9 - A40 East of Witney Monitoring Location**



**Figure D.10 - East of Witney Monitoring Location (near Proposed SDA)**

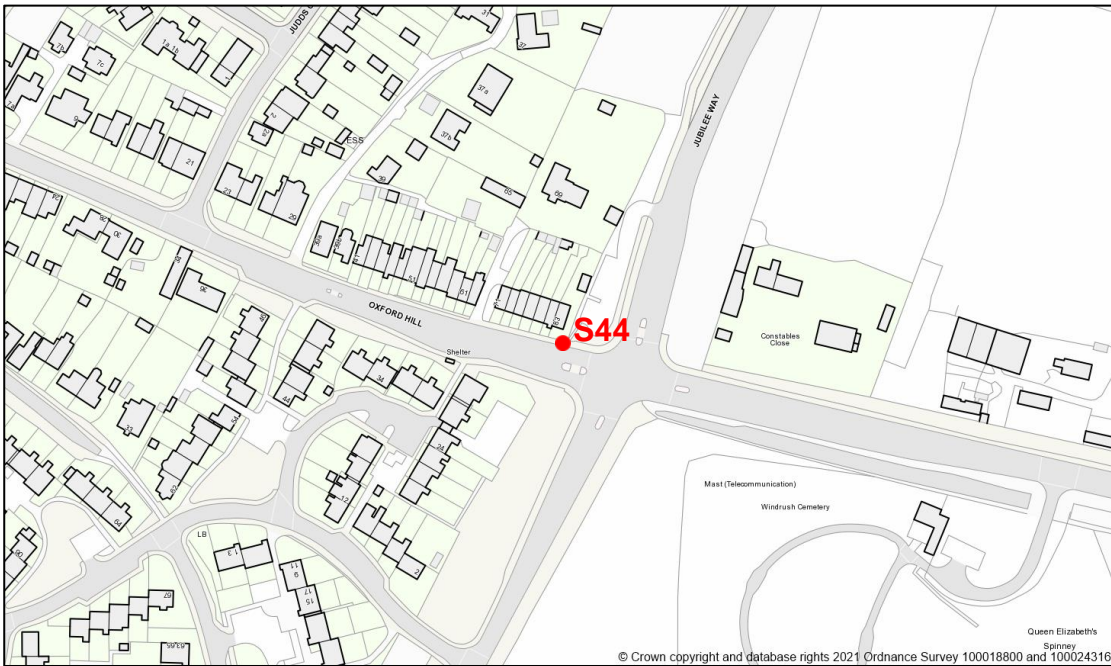




Figure D.11 - Woodstock Monitoring Locations





## Appendix E: Summary of Air Quality Objectives in England

**Table E.1 – Air Quality Objectives in England<sup>8</sup>**

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

<sup>8</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## 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 <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO <sub>2</sub>	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.