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Worcester
CITY COUNCIL

2026 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 2026

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Local Responsibilities and Commitment

This ASR was prepared by Worcestershire Regulatory Services (WRS) for Worcester City Council with the support and agreement of the following officers and departments:

- Worcestershire Regulatory Services
- Worcester City Council
- Worcestershire County Council Highways Department

Worcestershire Regulatory Services (WRS) is a shared service formed from the Environmental Health and Licensing departments of the six Worcestershire District Councils. Responsibility for managing (monitoring and reporting of) local air quality transferred from the partnership councils to WRS in April 2011.

This ASR has not been signed off by a Director of Public Health. A copy of ASR will be provided to the DoPH office post publication.

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

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Executive Summary: Air Quality in Our Area

Air Quality in Worcester City Council

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

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

Table ES1 (below) provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO ₂)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO ₂)	Sulphur dioxide (SO ₂) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM ₁₀ and PM _{2.5})	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.

Due to historic concentration levels of Nitrogen Dioxide (NO₂), the entire Worcester City district has been declared an Air Quality Management Area. Areas of poor air quality within Worcester City district typically coincide with the strategic road network in and around the city centre, in proximity to sensitive residential receptors. Whilst the air quality in outer Worcester falls below the national objective, there are areas in central Worcester where NO₂ concentration levels are significantly higher and at several locations, exceed the national objective, or have in the past. These generally relate to areas in proximity to

The Butts / All Saints Road / Bridge Street strategic road one way system, The Tything (A38) to The Foregate Street corridor, Lowesmoor / Rainbow Hill / Astwood Road (B4850) corridor, St Johns Bull Ring (A44) and London Road (A44).

Like many parts of the UK, poor air quality in Worcester City is linked to areas with high volumes of traffic, congestion and 'street canyon' landscapes (where height of the building is greater than width of road). Worcestershire County Council has responsibility for strategic transport issues in the county and published the fourth Local Transport Plan (LTP4) in 2017.

Monitoring data shows an overall reduction in average recorded annual mean NO₂ concentrations of 0.48µg/m³ (1.5%) between 2024 (31.02 µg/m³) and 2025 (30.54µg/m³) across Worcester City.

During 2025, 14 of the 36 sites recorded a reduction in NO₂ levels from 2024. Given the travel disruptions of 2020/21, it is difficult to draw any short-term conclusions from the data. Over the longer period the trend remains downward although during the most recent 5-year period, 2021 to 2025, the overwhelming majority of the sites recorded an increase due to the comparison with the data at the height of the covid lockdown period.

The most significant impact upon NO₂ concentration levels of the Covid restrictions, and subsequent cessation of restrictions, is likely to have been caused by the decrease and increase in traffic over the 5-year period.

In 2025, the highest recorded concentration of NO₂ across Worcester City was 43.5 µg/m³ at Ast3 (located in Astwood Road, Rainbow Hill) though this is reduced to 31.0µg/m³ when calculating back to the nearest relevant receptor. Two further diffusion tube monitoring locations recorded an exceedance of the AQS objective for annual average NO₂. These were:

- 41.8µg/m³ at location But2 (The Butts).
- 40.7µg/m³ at location Fos (Foregate Street), though this is reduced to 34.0µg/m³ when calculating back to the nearest relevant receptor

A further 3 diffusion tube monitoring locations recorded concentrations within -10% of the AQS objective for annual average NO₂, although these locations recorded concentrations below 36 µg/m³ when calculating back to the nearest relevant receptor. All concentrations are shown in Table B.1. Only 1 site (But2) remained above -10% of the AQS objective at But2 when calculated back to sensitive receptors and this showed a decline from 43.9µg/m³ (2024) to 41.8 µg/m³ (2025), a reduction of 4.8%.

Given the current data and trends recorded in 2025 no amendments to the Worcester City AQMA are proposed at this time.

No annual means greater than 60 µg/m³ have been recorded indicating that it is very unlikely that there have been any exceedances of the 1-hour mean objective for NO₂ at any diffusion tube monitoring sites.

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.

Air pollution is associated with a variety 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 Environmental Improvement Plan³ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM_{2.5}), the pollutant of most harmful to human health. The Air Quality Strategy⁴ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas. The Road to Zero⁵ details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

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. Environmental Improvement Plan 2023, January 2023

⁴ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

⁵ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

On 11th June 2019 Worcester City Council formally declared the Worcester City AQMA (Worcester City (Political Boundary)) which encompasses the whole district area as an AQMA, for likely breach of the nitrogen dioxide annual mean. Prior to 2019, there were 3 separate AQMAs declared in Worcester City district due to exceedances of the annual average objective for nitrogen dioxide (NO₂). Following further assessment, it was concluded that there were several additional areas that should be subject to an AQMA and the decision was made for a district-wide AQMA to be declared.

Worcester City Council AQMAs Variation Order 2019 consolidated the existing 2009 and 2014 AQMAs, as detailed above, into the Worcester City AQMA (Worcester City (Political Boundary)) as of 11th June 2019.

Details of the declaration and plans of the AQMAs can be found on the following pages of WRS website: [Air Quality Management Area Declarations | Worcestershire Regulatory Services \(worcsregservices.gov.uk\)](https://www.worcsregservices.gov.uk/Air-Quality-Management-Area-Declarations)

Worcester City Council has taken forward a number of direct measures during the current reporting year of 2025 in pursuit of improving local air quality. Worcester City district measures are included within Table 2.2, with the type of measure and the progress Worcester City Council have made during the reporting year of 2025 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in the Action Plan, ([Worcester City Council Air Quality Action Plan 2024 – 2029](#)) which was published in 2024 following public and statutory consultation, and approved by Defra in December 2024.

Key Developments in 2025 are:

[Worcester City Council Air Quality Action Plan 2024 – 2029](#) was published in December 2024 following public and statutory consultation and approval by DEFRA. The AQAP has informed decisions and activities through 2025.

Installation of Electric Vehicle (EV) charge points continued to roll out across the City following the Electric Vehicle Charging Strategy (2023 - 2025): This strategy sets out Worcester City Council's approach to encouraging and accelerating the transition to electric vehicles in the city, [Electric Vehicle Charging Strategy 2023-2025](#).

Publication of an [Air Quality Supplementary Planning Document](#) (SPD) in collaboration with Malvern Hills District Council and Wychavon District Council and Worcestershire County Council as part of the [South Worcestershire Development Plan Review](#) (SWDPR)

and adopted by Worcester City Council in July 2025. The SWDPR is a planning framework that aims to ensure development has a positive impact on the environment. The SPD is designed to support improvements in air quality within South Worcestershire through decision and plan making of new developments.

Continuation of a bike hire and bike share scheme: Worcester City Council introduced a bike share scheme across Worcester comprising 225 bicycles – 175 e- bikes and 50 pedal bikes – available to hire, from over 50 parking stations across the city. In 2023, the contract to deliver a bike share scheme was awarded to experienced operator [Beryl](#) with the scheme launching in June 2024 and continued to operate across the Worcester City district during 2025.

Active Travel Action Plan (2025 – 2028): In June 2023 Worcester City Council published their first ever Active Travel plan to increase rates of active travel in Worcester City. In June 2025, refreshed their Active Travel Action Plan for Worcester City, to be implemented over the next three years. A key focus of the plan is encouraging local businesses and schools to promote active travel options as well as supporting active travel by Councillors and the Council's staff.

The City Council's previous Active Travel Plan, which covered 2023 to 2025, successfully introduced the Beryl bike hire scheme – enabling over 52,000 cycle journeys in the city in the past year alone.

The City Council also promotes walking as an efficient way of moving around the city and provides details on its website, including a map giving walking distances between locations across Worcester City Centre, a separate map highlighting where benches are located, and a map of cycle parking. The aims are to increase active travel (walking, cycling, and wheeling) and reduce reliance on car journeys, aligning with the national target of 50% of urban journeys being active by 2030. The plan focuses on improving infrastructure, promoting active travel, and encouraging modal shift, with a strong emphasis on collaboration with the Worcestershire County Council, and other partners.

A local cycling and walking infrastructure plan is in development with consultation completed during 2025, alongside a number of Local Cycling and Walking Plans in South Worcestershire. Worcester City Council and Worcestershire County Council have joined forces to invest £1.5 million in creating important new routes in the city for more active travel:

- Diglis to Carrington Bridge and St Peter's

- Ronkswood to Worcestershire Royal Hospital, Warndon Villages and Red Hill
- Improvements to Diglis to Sixways route, along the canal towpath.

This major boost to active travel has been made possible by Worcester City Council securing a major Towns Fund grant from the Government, which has been invested under the Worcester Town Investment Plan.

City Centre improvements works have been completed on Foregate Street. With upgrades completed in Angel Row, Angel Place, St Swithin's Street, Trinity Passage, The Cross, Trinity Street, St Nicholas Street and The Foregate. Final works saw an upgrade to public space on Angel Street, to include a general widening of footway areas. Full access to the street will be permitted for cyclists. The construction of a new shared use path at Shrub Hill Quarter was completed as part of an exciting step forward in the regeneration of this key area of Worcester.

Funded by the UK Government and delivered in partnership with Worcester County Council, the new link significantly improves walking and cycling access in and around Shrub Hill. Designed for both cyclists and pedestrians, this shared use route will provide a safer, more accessible connection between the City Centre and key local destinations, including:

- Worcester Shrub Hill Station
- local bus services
- residential and commercial areas

The goal is to encourage more people to choose sustainable, active travel across the city.

Worcester City Council is reviewing preliminary studies for the long-term development of 'Shrub Hill' over the next 20 years to provide a further 500 homes with a new gateway into Worcester City centre providing 2 hectares of new public space, up to 5,000 jobs, and improved transport connections – redefining the city's landscape and creating a thriving new community for generations to come

During 2025, a Development Partner was sought to deliver the vision of 'one of the largest regeneration initiatives in the region' launched by Worcestershire County Council and Worcester City Council. Works started in June 2025 to remove the outdated blue corrugated unit and brick tower on the Shrub Hill Industrial Estate. This marks a key step in unlocking the site's full potential and moving forward with Worcester's ambitious regeneration plans.

Worcester City Council is seeking to transition to use of hydrotreated vegetable oil (HVO) in 42 of the Council's lorries, vans and other vehicles that are currently powered by diesel.

Worcestershire County Council has secured its full allocation from the Government's Local Electric Vehicle Infrastructure Fund to support the transition to electric vehicles and facilitate charging for owners without off road parking. A procurement exercise was undertaken to secure a charge point operator with EZO and Connected Kerb selected as experienced Charge Point Operators offering modern, easy to use and efficient charger.

EZO will deliver around 70 50+kW EV charger sockets that will give a rapid charge for those drivers that need to charge quickly and Connected Kerb will deliver around 1750 7kW EV charger sockets that will be used in locations where a longer dwell time is possible. The Electric Vehicle Infrastructure Charging Strategy will continue to support the delivery of the charge points funded through the Local Electric Vehicle Infrastructure Fund

Conclusions and Priorities

Worcester City AQMA (political boundary) covers the entirety of the district. There were fewer exceedances of the national objective in 2025, but several exceedances were observed in certain areas. In light of this, no changes to the AQMA are required at this time.

Review and assessment of the 2025 data will be conducted to help inform future projects and strategies to improve air quality across the district. Real time information will enable a better understanding of air quality in the borough to help inform decision making and requirements for further action as necessary.

An AQAP was finalised and published in 2024 incorporating actions to reduce NO₂ emissions within the AQMA. Increasing awareness and knowledge of air quality, is evolving through Behavioural Change interactions with local schools and communities, Clean Air Day 2026 campaign and working with LA teams around the county to ensure air quality is considered appropriately within local strategy and policy.

Key priorities for the next year:

- Continue to monitor air pollutants at key locations across the district utilising the existing diffusion tube network for NO_x and real-time low-cost sensors for indicative PM_{2.5}.
- Review and assess the data from local monitoring sites and available national sources and guidance to inform future projects and strategies to improve air quality across the district.
- Progressing Active Travel schemes.

- Promoting public access to the Earthsense portal of real time monitoring data on a range of air pollutants to enhance public knowledge and encourage behavioural change.
- Ensure proportionate mitigation measures are included within new developments where air quality is a relevant concern.
- Ensure air quality is considered appropriately within local strategy and policy where appropriate including working with Air Quality Partners.
- Maintain relationships with neighbouring authorities and institutions to stay abreast of issues and developments that could impact or benefit air quality in the Worcester City district, and to ensure our work is recognised in the wider West Midlands community.

How to get Involved

There are a number of ways members of the public can help to improve local air quality:

- **Walk or cycle, leave your car at home:** Leaving your car at home and walking or cycling instead will benefit in three ways - increased exercise, reduced pollution exposure and will reduce individual's pollution emissions;
- **Turn off your engine when stationary or parked,** don't 'idle', particularly outside sensitive receptors such as schools, hospitals, care homes and residential properties.
- General travel planning advice is available on [Worcestershire County Council's website](#) (including walking, cycling, bus maps and timetables, community transport and travel to school).
- **Hold meetings by Conference Call** by phone or video conference via Teams, Zoom, Skype or Facetime rather than driving to meetings. This reduces fuel and other travel costs, vehicle maintenance and hire cost, increases productivity through reduction in hours lost through unnecessary travel;
- Facilitate **Flexible Working Arrangements** for non-front-line staff to **work remotely from home** or nearer home facilities for one or more days a week thus removing or reducing any journey to work. This reduces congestion which has beneficial impacts for delivery times, reduced business costs and thus economic benefits. Additionally, provides social benefits through improved work life balance for employees, reduces local air quality and reduced emergency vehicle response times.

- **Switch Fleet to Low Emission Vehicles:** The government is currently providing grants for up to 75% of Electric Vehicle (EV) charging points, up to 40 charge points: [Workplace Charging Scheme: guidance for applicants - GOV.UK](#)
- If you have to drive follow fuel efficient driving advice, often known as ‘**Smarter Driving Tips**’, to save on fuel and reduce your emissions. A number of websites promote such advice including:
[The AA Driving Advice-The AA - Driving Advice-environment/drive-smart](#)
[Maximise fuel economy through efficient driving - Energy Saving Trust](#)
[How to save fuel - the ultimate guide | RAC Drive](#)
- **Reduce air pollution from open fires and wood-burning stoves:** Advice is available from Defra on choosing the right stove, using the right fuels and maintenance, enabling householders to reduce the impact on their health and air quality from open fires and wood burning stoves. Further information is available on the [Smokeless Zones](#) and [Public Advice](#) pages on WRS website.

Air pollution can affect all of us over our lifetime, however certain groups will be more sensitive to the effects of air pollution. Vulnerable groups include adults and children with lung or heart conditions such as asthma, chronic bronchitis, emphysema and chronic obstructive lung disease (COPD)^{6,7}. Senior citizens are more likely to be affected by respiratory diseases and children are more likely to be affected by air pollution due to relatively higher breathing and metabolic rates as well as a developing lung and immune system.

Vulnerable individuals and groups can keep informed of:

- Current levels and forecasts of air pollution from Defra at: [UK AIR](#)
- If you are sensitive to the effects of air pollution, it may be appropriate to limit the length of time spent in areas of local poor air quality – see advice from Defra at [UK AIR](#)
- WRS real-time air quality monitoring information [Earthsense - WRS Real-time Air Quality Monitors](#)

⁶ <http://www.breathelondon.org/>

⁷ <https://www.londonair.org.uk/LondonAir/guide/MyActionsForMe.aspx>

- If you are on social media, sign up to the WRS X (formerly Twitter) feed. WRS tweet when pollution is forecast by Defra to be moderate to very high.

Further information for the general public on reducing your family's exposure to poor air quality in Worcestershire and how individuals, business and schools can assist with reducing their impact on local air quality is available at [Protecting Me and Others from Air Pollution | Worcestershire Regulatory Services \(worcsregservices.gov.uk\)](https://www.worcsregservices.gov.uk/protecting-me-and-others-from-air-pollution)

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1 Local Air Quality Management

This report provides an overview of air quality in Worcester City Council during 2025. 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 Worcester City 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 (AQMA) 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 AQMA declared by Worcester City Council can be found in Table 2.1. The table presents a description of the AQMA that is currently designated within Worcester City district.

Appendix D: Map(s) of Monitoring Locations and AQMA provides a map of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation is the NO₂ annual mean concentration. There are no plans to revoke the district wide Worcester City AQMA.

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?	Highest Concentration: Declaration	Highest Concentration: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Worcester City AQMA (political boundary)	11th June 2019	NO ₂ Annual Mean	AQMA encompasses whole district within political boundary of Worcester City.	NO	55	43.5	Not compliant	Air Quality Action Plan (2024-29) December 2024	Worcester City AQAP

- ☒ Worcester City Council confirm the information on UK-Air regarding their AQMA(s) is up to date.
- ☒ Worcester City Council confirm that all current AQAPs have been submitted to Defra.

2.2 Progress and Impact of Measures to address Air Quality in Worcester City Council

Defra's appraisal of last year's ASR concluded that the report was accepted for all sources and pollutants on the proviso that the grammatical and formatting errors in the report are corrected prior to publication on the council's website. Following the completion of this report, Worcester City Council should submit an Annual Status Report in 2026.

Defra welcomed and appreciated:

- the good quality graphs and maps setting out the trends in recorded NO₂ annual mean concentrations and locations of each monitoring site.
- the in-depth discussion about the measures that WCC are putting into place to improve air quality within their administrative area indicating that WCC is taking a proactive approach to improving air quality.
- the indicative monitoring results have been included within the appendices.
- that all monitoring undertaken in 2024 has been completed in accordance with the 2024 Diffusion Tube Monitoring Calendar.
- the previous year's appraisal comments have been included and addressed in this year's ASR

Defra observed and recommended:

- that ASRs get sign off from the Director(s) of Public Health. This should be attempted in future ASRs.
- the three key measures are highlighted in yellow in Table 2.2 and resolution of formatting and subscript issues.
- for consistency a screenshot of the national bias adjustment factor database should be included so that factors can be checked.

Defra's comments and recommendations from ASR25 have been absorbed into the ASR2026. The DoPH has previously declined an invitation to sign off on the ASR since the DoPH has no involvement in production or ownership of the report but have requested a copy is provided following publication. The 3 key measures have been highlighted in yellow in Table 2.2 with formatting and subscript issues reviewed. A screenshot of the national bias adjustment factor database has been included within the body of the report.

Worcester City Council has taken forward a number of direct measures during the current reporting year of 2025 in pursuit of improving local air quality. Worcester City district measures are included within Table 2.2, with the type of measure and the progress Worcester City Council have made during the reporting year of 2025 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

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This major boost to active travel has been made possible by Worcester City Council securing a major Towns Fund grant from the Government, which has been invested under the Worcester Town Investment Plan.

City Centre improvements works have been completed on Foregate Street. With upgrades completed in Angel Row, Angel Place, St Swithin's Street, Trinity Passage, The Cross, Trinity Street, St Nicholas Street and The Foregate. Final works saw an upgrade to public space on Angel Street, to include a general widening of footway areas. Full access to the street will be permitted for cyclists. The construction of a new shared use path at Shrub Hill Quarter was completed as part of an exciting step forward in the regeneration of this key area of Worcester.

Funded by the UK Government and delivered in partnership with Worcester County Council, the new link significantly improves walking and cycling access in and around Shrub Hill. Designed for both cyclists and pedestrians, this shared use route will provide a safer, more accessible connection between the City Centre and key local destinations, including:

- Worcester Shrub Hill Station
- local bus services
- residential and commercial areas

The goal is to encourage more people to choose sustainable, active travel across the city.

Worcester City Council is reviewing preliminary studies for the long-term development of 'Shrub Hill' over the next 20 years to provide a further 500 homes with a new gateway into Worcester City centre providing 2 hectares of new public space, up to 5,000 jobs, and improved transport connections – redefining the city's landscape and creating a thriving new community for generations to come

During 2025, a Development Partner was sought to deliver the vision of 'one of the largest regeneration initiatives in the region' launched by Worcestershire County Council and Worcester City Council. Works started in June 2025 to remove the outdated blue corrugated unit and brick tower on the Shrub Hill Industrial Estate. This marks a key step in unlocking the site's full potential and moving forward with Worcester's ambitious regeneration plans.

Worcester City Council is seeking to transition to use of hydrotreated vegetable oil (HVO) in 42 of the Council's lorries, vans and other vehicles that are currently powered by diesel.

Worcestershire County Council has secured its full allocation from the Government's Local Electric Vehicle Infrastructure Fund to support the transition to electric vehicles and facilitate charging for owners without off road parking. A procurement exercise was undertaken to secure a charge point operator with EZO and Connected Kerb selected as experienced Charge Point Operators offering modern, easy to use and efficient charger.

EZO will deliver around 70 50+kW EV charger sockets that will give a rapid charge for those drivers that need to charge quickly and Connected Kerb will deliver around 1750 7kW EV charger sockets that will be used in locations where a longer dwell time is possible. The Electric Vehicle Infrastructure Charging Strategy will continue to support the delivery of the charge points funded through the Local Electric Vehicle Infrastructure Fund.

Air Quality Actions Plan and Air Quality Strategy

A new Air Quality Action Plan was produced by Worcester City Council in 2024 in accordance with the Environment Act 2021 and revised guidance published in Aug 2022 (LAQM.TG22 and PG22).

A steering group was formed in February 2023 to develop a new AQAP comprising officers from Worcester City Council, Worcestershire County Council and WRS, from public health, technical pollution (air quality), strategic planning, sustainability, highways and transport disciplines, and also representation from the NHS and University of Worcester. The Steering Group has developed an AQAP incorporating a number of improving actions to reduce NO₂ emissions within the Worcester City (Political Boundary) AQMA, which are summarised in Table 2.2. Full details of the measures and formation of the AQAP process are provided within the [WCC Air Quality Action Plan 2024 – 2029](#), published and approved by Defra in December 2024.

Real-time Air Quality Monitoring Project

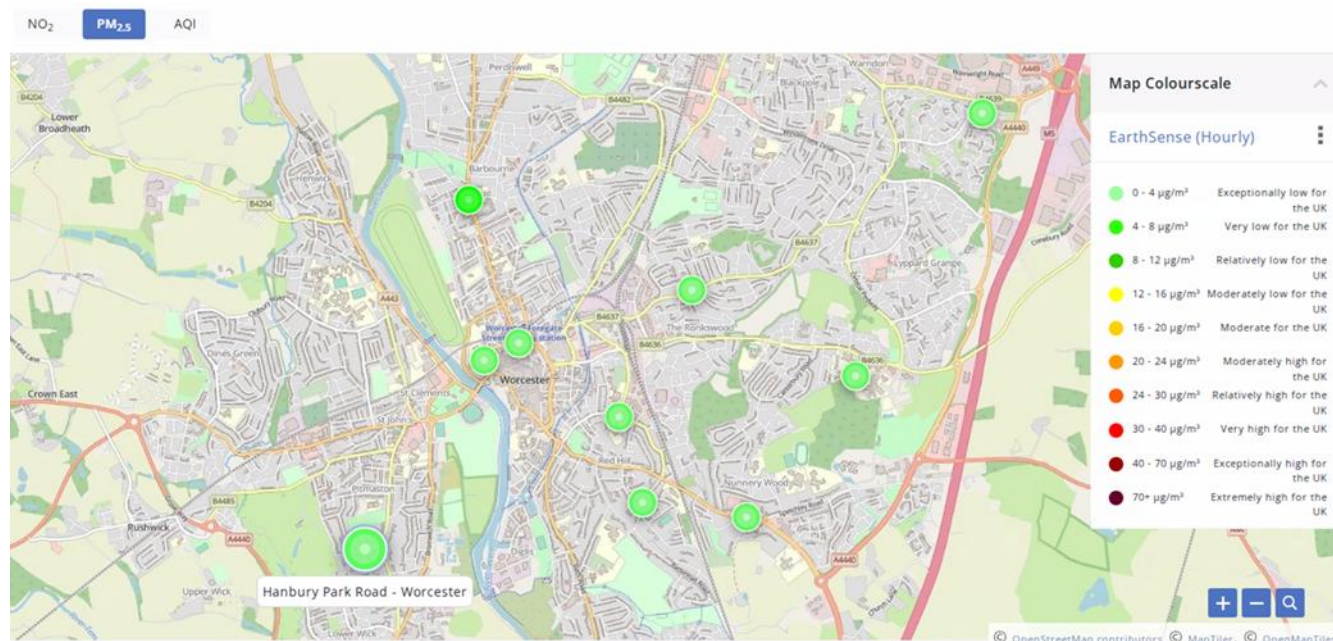
In February 2023, WRS were successful in a bid to the Defra Air Quality Grant Scheme 2022/23 to establish an enhanced real-time air quality monitoring network across Worcestershire. The scope of the bid was to establish a real-time air quality monitoring network across the main areas of air quality concern in Worcestershire for purposes of providing enhanced monitoring data on a range of pollutants. Additionally, the proposal included informing the public and vulnerable groups of the status of air pollution in real time to encourage behaviour change.

The scheme has involved the installation and operation of 26 'low-cost Air Quality Monitors' which measure NO₂, PM₁₀, PM_{2.5} across the county for a period of 3 years (with EA MCERTS standard accreditation as indicative ambient particulate matter devices). The results of monitoring will be used to inform decision making and requirements for further action as necessary.

In 2023, the experienced sensor provider, Earthsense, were appointed as the successful supplier following a rigorous procurement process. The sensors (known as 'Zephyrs') are supplied, operated and serviced by Earthsense who also provide data access. Appropriate monitoring locations were determined by WRS in collaboration with Public Health,

Worcestershire County Council Street Lighting team and Earthsense taking into consideration the requirements of Worcester City Council.

The locations have been chosen to maximise data capture within locations proximal to vulnerable communities and/or a range of sources of air pollution including transport, solid fuel burning, industry and agriculture.



Ten of the twenty-six monitors were installed in the Worcester District between January and May 2024, following completion of required structural assessments. Above is an image from the Earthsense website showing the 10 locations within Worcester City Council at the end of 2025. Four of the sites were re-located on 1st August 2025 to new locations in light of new data received, to undertake more focussed monitoring on specific sources of key pollutants or to take advantage of new opportunities.

Behavioural Change Officer (BCO) work and Improving Air Quality Communication

During 2025, the BCO at WRS supported by Technical Officers and the Air Quality Lead Officer have undertaken a range of direct and indirect interactions to raise awareness of air pollution and encourage behavioural change to improve local air quality including:

- 33 primary/secondary schools visited in Worcester
- Also visited local businesses and community centres along London Road.
- Delivery of a number of assemblies and programs at 6 local schools
- Developed the freely available Breathe Better Worcestershire Air Quality toolkit for primary schools with the University of Worcester

- Presented BC work at the International Bike Bus Summit held in Worcester in April 2025
- Produced a local promotional campaign to raise awareness of air quality, encourage use of the public portal to real-time air quality monitoring and behavioural change for Clean Air Day 2025
- Held 6 Sessions with Special Educational Needs students at Heart of Worcestershire College (HoW) utilising inclusive materials.
- The [Air Quality pages on WRS website](#) have undergone significant transformation to update information displayed and improve user friendliness following best practice examples identified in the Air Quality Information System publications

Actions and information on all Behaviour Change (BC) activities have been published [here](#). The BC work highlighted above has since been recognised nationally and included on Defra's Air Quality Hub providing guidance for local authorities across the UK.

Worcester City Council collaborated with the Malvern Hills and Wychavon districts to review the South Worcestershire Development Plan, which includes detailed policy to address the impact of air pollution from new development including prioritisation of active travel and corridor improvements. The Local Plan (entitled the South Worcestershire Development Plan Review 2021-2041) was submitted to the Secretary of State on 27 September 2023. The Local Plan was subject to independent examination carried out by two Planning Inspectors appointed by the Secretary of State. The Inspectors chaired public meetings during 2025 and following further consultations was adopted in 2026.

Key Progress in 2025

Worcester City Council has:

- Continued to promote active travel.
- Proposed the use of Hydrotreated Vegetable Oil (HVO) in all compatible vehicles as a lower carbon alternative to diesel with mutual benefits in reducing NO₂ from internal combustion engines.
- Worked with Worcestershire County Council on the development and delivery of Local Cycling & Walking Infrastructure Plans.
- Supported the roll out of electric vehicle charging infrastructure, including supporting Worcestershire County Council on the roll out the LEVI scheme.

- Continued to implement the conclusions and recommendations of the AQAP (2024 – 2029)
- Publication and adoption of an [Air Quality Supplementary Planning Document](#) (SPD) as part of the [South Worcestershire Development Plan Review](#) (SWDPR) in July 2025.
- Activated Public EV charge points in Tallow Hill, King Street and St Martin's Gate.
- 10 low-cost sensors in Worcester City were installed in 2024 providing real time data on a range of air pollutants. During 2025 4 monitors were re-located to provide data on different locations proximal to sensitive receptors, and targeted pollutant sources following review and assessment of first 12 months of data.
- Promotion of the public access portal ([Earthsense - WRS Real-time Air Quality Monitors](#)) allowing access to the real time data to enhance public knowledge and encourage behavioural change through Clean Air Day 2025 and other Behavioural Change Officer (BCO) activities.
- Increasing awareness and knowledge of air quality through Behavioural Change interactions with local school assemblies and community events
- Air Quality pages on WRS website have undergone significant transformation.
- Promoted utilisation of a bike hire and bike share scheme in Worcester City launched.

Worcester City Council's priorities for the coming year are::

- Continue to monitor air pollutants at key locations across the district utilising the existing diffusion tube network for NO_x and real-time low-cost sensors for indicative PM_{2.5}.
- Review and assess the data from local monitoring sites and available national sources and guidance to inform future projects and strategies to improve air quality across the district.
- Progressing measures within the Air Quality Action Plan.
- Developing a business case to move part or all council fleet to Hydrotreated Vegetable Oil (HVO) during 2025/26 with a report for committee presentation during Summer 2025
- Progressing Active Travel schemes.
- Encouraging uptake of the bike hire and bike share scheme in Worcester

- Promoting public access to the Earthsense portal of real time monitoring data on a range of air pollutants to enhance public knowledge and encourage behavioural change.
- Ensure proportionate mitigation measures are included within new developments where air quality is a relevant concern.
- Ensure air quality is considered appropriately within local strategy and policy where appropriate including working with Air Quality Partners.
- Continue to support the WRS Behavioural Change Officer (BCO) focussing on working with schools and other community settings, providing information and advice about local air quality, and encouraging sustainable behaviours, such as switching from short car journeys to active travel modes of transport.
- Maintain relationships with neighbouring authorities and institutions to stay abreast of issues and developments that could impact or benefit air quality in the Worcester City district, and to ensure our work is recognised in the wider West Midlands community.

The principal challenge and barrier to implementation that Worcester City Council anticipates facing is the availability of funding for potential AQAP measures to improve air quality. It is anticipated the measures outlined above and in Table 2.2 will help to achieve compliance within the lifetime of the AQAP based on assumptions and modelling outcomes outlined in the plan. Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Worcester City Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of Worcester City AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
Priority Air Quality Actions														
1	Public EV Charging Points	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023	2025	WCC, City Council	On Street Residential ChargePoint Scheme and council investment	Funded	£50k-£100k	Implementation	30.4%*	Number of vehicles charging / number of new users	Kings' car park completed 2023. Tallow Hill operational in July 2024. Two EV ChargePoint's in Astwood Crematorium redevelopment plan	
8	Countywide AQ Strategy - Encouraging awareness and behavioural change interventions linked to focussed real time monitoring data	Public Information	Via other mechanisms	2024	2027	WRS, WCC, District Councils	Not Yet Identified	To Be Confirmed	£10k-50k	Planning	<1%	Number of responses to survey, hits on website, data captured. Changed behaviour identified from repeat survey in future	33 Schools were visited and 6 engagements in Worcester were strengthened through the delivery of air quality assemblies at primary and secondary schools. These assemblies raised awareness of local air pollution, highlighted the environmental impacts of Bonfire Night, and provided practical guidance to reduce emissions. Engagement was also achieved through visits to community centres and local businesses along London Road in Worcester.	
17	Worcester City Vehicle Fleet Upgrade - Refuse Collection Vehicle	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2024	2029	City Council	City Council	Funded	£100k-£500k	Implementation	<1%	Replacement of vehicles	Trialled Electric Refuse Truck, but issues with battery. Converting fleet to HVO fuel with installation of tank into depot Summer 2026. Full HVO fleet anticipated in next few years	
2	EV Charging Strategy	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2025	2025	WCC, City Council	LEVI capability fund	Fully Funded	£50k - £100k	Planning	30.4%*	Publication of Strategy	Public consultation took place June 2025 - now adopted	A low risk but change in central govt policy could impact the efficacy of the strategy
3	LEVI Capacity Funding	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low	2025	2029	WCC, City Council	£3.4m LEVI Fund	Fully Funded (subject to business case process)	>£10million	Planning	30.4%*	Number of EV chargers installed	£3.5m Funding secured. Procuring of EV ChargePoint operator completed.	Public opposition to charge point locations, Cost of deploying ChargePoint's,

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			Emission Vehicles, EV recharging, Gas fuel recharging											contract management etc
4	Air Quality Planning and Policy Guidance	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2025	2025	WCC, City Council, WRS	WCC, South Worcestershire Authorities, WRS	Not funded	£10k - £50k	Planning	30.4%*	Adoption of plan by South Worcestershire Councils	Updated and Final version completed May 2025. Presentation to committees June-Sept	Difficult to determine contribution of future development on improving current air quality concentrations
5	Advisory Signage	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2025	2030	WCC	Not Yet Identified	To Be Confirmed	£100k-£500k	Planning	8.31%	Scheme delivery monitoring (e.g. City centre HGV counts)	Planning Phase. Freight strategies considered in refresh of Local Transport Plan (LTP5) to be developed 2026-27	Funding availability - none currently
6	Countywide AQ Strategy - Behavioural Change Officer Post	Public Information	Via other mechanisms	2024	2026	WRS	WRS funding, S106	Funded	£100k - £500k	Implementation	<3%	Future Stakeholder engagement	Post fulfilled Feb 2024. Has visited 66 primary and secondary schools, undertaken 2 targeted surveys, worked directly with 16 schools across the county delivering assemblies, participation in number of events and festivals, developed AQ toolkit for schools. We delivered 6 inclusive sessions with SEN Students at HoW College in Worcester	
7	Countywide AQ Strategy - Encouraging awareness via Public Portal of real time monitoring data	Public Information	Via the Internet	2024	2027	WRS, Earthsense, WCC, District Councils	Defra, Districts	Fully Funded	£100k - £500k	Completed	<3%	Number of website hits on public portal	Monitors deployed Jan 2024, Public Portal available May 2024. 1500 hits from 362 users in 2025. Promotion in schools, events and campaigns for CAD2025-26	
9	Bike hire and bike share	Transport Planning and Infrastructure	Public cycle hire scheme	2024	2029	City Council, WCC	Towns Fund	Fully Funded	£500k - £1 million	Implementation	<1%	Number of journeys / number of journeys replacing vehicle use	Supplier secured, Implementation Stage	4 year minimum contract, intended to be financially sustainable after the upfront capital funding
10	Bus fleet improvements (local bus services)	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2026	2029	Bus Operators, WCC, WRS	Not Yet Identified	To Be Confirmed	£1 million-£10million	Planning	14.66%	% of bus fleet Euro 6	Enhanced Partnership (EP) with bus operators formalised and published March 2025	Funding availability, Operator Agreement

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
11	Travel Choices	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2025	2030	WCC incl Public Health/ City Council, key stakeholders - schools, UoW	Not Yet Identified	To Be Confirmed	£500k-£1million	Planning	<3%	Number of walking, cycling, scooting and number of participating organisations and activities delivered	Planning Phase. Worcester City LCWIP to be published Spring 2026	Funding availability
12	Active Travel Guides for business	Promoting Travel Alternatives	Other	2025	2027	WCC, City Council	Not yet identified	To be confirmed	£10k-50k	Planning	<0.2%	Number of businesses engaged, number of downloads of guides or website hits, behavioural change confirmed through surveys	Planning	Funding availability
13	Countywide AQ Strategy - Raising awareness events	Public Information	Other	2023	Ongoing	WCC Public Health, WRS	Not yet identified	To be confirmed	£10k-50k	Implementation	<0.2%	Support minimum of 3 national events. Number of events attended. Number of people engaged	Heart of Worcestershire College community 2025, WRS campaign for CAD 06/2025, WRS Participation Drop-in Day for Tenants - Worcester 10/2025.	Reduced PH resource to support.
14	Countywide AQ Strategy - Communications Plan	Policy Guidance and Development Control	Other	2025	Ongoing	WCC Public Health, WRS	Not yet identified	To be confirmed	£10k-50k	Planning	<0.2%	Production of communication plan	Significant update to AQ info on WRS website June 2025 following AQIS review	Reduced resource to pursue a formal strategy in 2025. Delayed until outcome of LGR
15	Worcester Local Cycling and Walking Infrastructure Plan (Development)	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2025	2025	WCC incl Public Health/City Council/key stakeholders, Active Travel England	WCC, Active Travel England	Fully funded	£50k-£100k	Planning	<0.2%	Final LCWIP completed by Summer 2026	Consultation completed 2025. Reports to be published Spring/Summer 2026	subject to public engagement July-Sept 2025
16	Travel to school	Promoting Travel Alternatives	School Travel Plans	2025	2030	WCC incl Public Health/City Council/Schools & Colleges	Not Yet Identified	To Be Confirmed	£100k-£500k	Planning	<1%	Number of walking, cycling, scooting, car, and park & stride trips; Number of participating schools and of activities delivered	No specific plans but linked to LCWIP	Funding availability - none currently
18	Additional cycle parking / storage	Promoting Travel Alternatives	Promotion of Cycling	2026	2026	City Council	Not yet identified	To be confirmed	£100k-£500k	Planning	<0.2%	Number of new secure bike parking spaces provided	Planning	Funding and site availability, responsibility for ongoing maintenance
19	Bus stop infrastructure – bus shelter provision	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2025	2030	WCC, Bus operators	BSIP	To Be Confirmed	£500k-£1million	Planning	<0.2%	Bus patronage (passenger demand)	New bus infrastructure framework is live (Spring 2026). Includes shelters and stops that provide better passenger information, improved wayfinding and onward travel	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
													options, including walking and cycling connections.	
20	Worcester Local Cycling and Walking Infrastructure Plan (Scheme Delivery)	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2025	2035	WCC incl Public Health/City Council/key stakeholders, Active Travel England	Active Travel England	To Be Confirmed	>£10million	Planning	<3%	Scheme delivery monitoring (e.g. cycle counts)	Live active travel schemes include - Diglis-Norton ATC; Worcester-Powick improvements at Powick village (MHDC); misc active travel crossing improvements; misc dropped crossing improvements; misc bus stop infrastructure enhancements; Shrub Hill shared use link - part of Shrub Qtr; Worcester City LCWIP to be published Spring 2026	Funding availability
21	Remove City Centre HGV Parking	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2025	2026	City Council	Not Funded	Not funded	£10k - £50k	Planning	<0.2%	Removal of Parking	Not progressing	Shortage of local HGV parking and city centre provides safe environment for drivers. Worcester BID advised bays vitally important for Coaches bringing tourism to city. Sell approx. 1000 tickets for HGV bays, 30% Lorries and 70% Coaches per annum. Action dropped due to the concerns raised by business, health and Highways partners.
22	Anti Idling awareness for Taxis	Traffic Management	Anti-idling enforcement	2025	Ongoing	City Council, WRS	Not Funded	Not funded	£10k - £50k	Planning	<0.2%	Reduction in penalty points issued	Included as specific penalty point in Taxi Policy	

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy⁸, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM_{2.5}). There is clear evidence that PM_{2.5} (particulate matter smaller than 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Prior to April 2025 there were no automatic PM_{2.5} monitoring stations in Worcestershire that are recognised by Defra for measuring against ambient air quality directives. The nearest AURN PM_{2.5} monitoring station was the Birmingham Ladywood site approximately 46 kilometres to the north-east of Worcester City. However, WRS have assisted the Defra AURN expansion project team with locations for two PM_{2.5} monitors in Worcestershire, including one within Worcester City district. The new AURN site, located in the Tolladine area of Worcester, is now operational (from April 2025) and will provide data which may be utilised in next year's ASR.

WRS has reviewed the DEFRA national background maps to determine projected PM_{2.5} concentrations across Worcester City area for the 2025 calendar year. The annual average total PM_{2.5} at 32 locations (centre points of 1km x 1km grids) across Worcester City is 6.60 (2024 – 6.66) µg/m³, with a minimum concentration of 6.26 (2024 – 6.32) µg/m³ and a maximum concentration of 7.11 (2024 – 7.17) µg/m³. This indicates that PM_{2.5} concentrations within the Worcester City are below the annual average limit value for PM_{2.5} target of 10µg/m³ to be met across England by 2030.

Following the success of the bid for funding from the Defra Air Quality Grant 2022/23, ten low-cost sensors offering publicly accessible real time monitoring data were deployed within the Worcester City Council area in 2024.

The sensors, known as 'Zephyrs' provide data on a range of pollutants including PM₁, PM_{2.5} and PM₁₀. Results for the measured average of PM for 2024 and 2025 are summarised in table below:

⁸ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

Location	2024 Average PM _{2.5} (µg/m ³)	2025 Average PM _{2.5} (µg/m ³)	Installation/Relocation Date
All Saints Road (1554)	6.9	7.8	January 2024
Barbourne Road (1588)	7.2	7.9	January 2024
Foregate Street (1562)	7.7	7.9	January 2024
Hastings Drive (1552)	6..7	9.6*	January 2024/August 2025
Newark Green (1552*)	-	5.0^	August 2025
London Road (1551)	6.5	7.4	January 2024
Malvern Road (1566)	6.8	9.4*	January 2024/August 2025
Hanbury Park Road (1556*)	-	4.8^	August 2025
Newtown Road (1546)	6.6	9.2*	January 2024/August 2025
Worcestershire Royal Hospital (1546*)	-	4.5^	August 2025
Rose Avenue (1587)	7.0	7.7	January 2024
Sidbury (1544)	7.1	10.0*	January 2024/August 2025
Sebright Avenue (1544*)	-	5.9^	August 2025
Wylids Lane (1573)	6.5	7.4	January 2024

*Average from January – July 2025 only, relocated 1st August 2025

^Average from August to December 2025 only

These low-cost sensors have been certified as suitable for indicative monitoring for particulate matter within the UK using the Environment Agency's Indicative instrument certification scheme (MCERTS). However, the following advice from Defra is

acknowledged: 'While low-cost sensors can provide useful indicative data, at present they are not approved for use in statutory legal reporting (LAQM) of data against the National air quality objectives as they are not accurate enough to meet the expanded uncertainty requirements of equivalent [scientific reference] instruments.

The measured data from the low-cost sensor network and Defra background pollution maps indicate that PM_{2.5} concentrations within the Worcester District are well below the interim and legally binding targets set out in the Air Quality Strategy (England) 2023:

Pollutant and Metric	Target	Target Year
PM_{2.5} annual mean concentration	Interim target: 12µg/m ³	2028
PM_{2.5} annual mean concentration	Legally binding target: 10µg/m ³	2030

WRS has reviewed the fraction of mortality attributable to particulate air pollution (indicator D01) as published by Public Health England as part of the Public Health Outcomes Framework. The fraction of mortality attributable to particulate emissions in Worcester City in April 2024 (the most recent year available) was 4.8% for WCC. This falls below the national figure for England (5.3% in 2024) and below the figure for the West Midlands region (5.3% in 2024). [Fingertips | Department of Health and Social Care](#)

The Public Health Outcomes Framework examines statistics and indicators that helps explain trends in public health. More information can be found at: [Public Health Outcomes Framework - PHE](#)

The whole district area of Worcester City Council is a Smoke Control Area. More information, maps and guides on the type of fuels that can be used can be found at:

[Smoke Control Areas | Worcestershire Regulatory Services \(worcsregservices.gov.uk\)](#)

WRS hold 5 records of complaints of nuisance from smoke attributable to wood burning stoves in residential developments in Worcester City in 2025 which were either unsubstantiated, not pursued or resolved without requirement for enforcement action or advice was offered.

In light of the above, no additional actions are currently planned by Worcester City in relation to the reduction of PM_{2.5} levels. However, it is anticipated that any actions taken to improve NO₂ levels across the District as part of the current Worcester City AQAP will likely result in a linked improvement in PM_{2.5} levels.

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

This section sets out the monitoring undertaken within 2025 by Worcester City Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2021 and 2025 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Worcester City Council did not undertake any automatic (continuous) monitoring that is recognised by Defra for measuring against ambient air quality directives during 2025.

However, there is an automatic monitoring station (AURN) within the district with the AURN monitoring results available through the [UK AIR website for Worcester Tolladine](#).

Table A.1 below provides details of the AURN monitor.

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

Worcester City Council undertook non- automatic (i.e. passive) monitoring of NO₂ at 36 sites during 2025. 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.

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 (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2025 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.

The number of NO_x tubes within the Worcester City district increased from 34 to 36 in 2025 with the addition of 2 locations. The new locations were determined due to local information upon existing and/or anticipated changes in sources of potential air pollution. The two new tube locations are at:

- Henwick Road
- Nightingale Avenue

The data collected during the past 5 years includes 2021, a period impacted by significant disruption to everyday life caused by restrictions and lockdowns affecting social and commercial activity imposed due to Covid-19. The data collected during this period shows an exaggerated reduction in levels of NO₂ greater than would have been expected and is highlighted by the subsequent increase in the following year's data. It is observed that concentration trends have normalised between 2023-2025. It appears that the trend in recent history of a small but steady decline in NO₂ concentration levels over the wider area has resumed, although there are several localised increases.

Monitoring data shows an overall reduction in average recorded annual mean NO₂ concentrations of 0.48µg/m³ (1.5%) between 2024 (31.02 µg/m³) and 2025 (30.54µg/m³) across the Worcester City area.

During 2025, 14 of the 36 sites recorded a reduction in NO₂ levels from 2024. Over the longer period the trend remains downward although during the most recent 5-year period, 2021 to 2025, the overwhelming majority of the sites recorded an increase due to the

comparison with the data at the height of the covid lockdown period. The period between 2022-2025 recorded a reduction in NO₂ levels in 20 of the 34 comparable sites.

The most significant impact upon NO₂ concentration levels of the Covid restrictions, and subsequent cessation of restrictions, is likely to have been caused by the decrease and increase in traffic over the 5-year period.

In 2025, the highest recorded concentration of NO₂ across Worcester City was 43.5 µg/m³ at Ast3 (located in Astwood Road, Rainbow Hill) though this is reduced to 31.0µg/m³ when calculating back to the nearest relevant receptor. Two further diffusion tube monitoring locations recorded an exceedance of the AQS objective for annual average NO₂. These were:

- 41.8µg/m³ at location But2 (The Butts),.
- 40.7µg/m³ at location Fos (Foregate Street), though this is reduced to 34.0µg/m³ when calculating back to the nearest relevant receptor

A further 3 diffusion tube monitoring locations recorded concentrations within -10% of the AQS objective for annual average NO₂, although these locations recorded concentrations below 36 µg/m³ when calculating back to the nearest relevant receptor. All concentrations are shown in Table B.1. Only 1 site (But2) remained above -10% of the AQS objective at But2 when calculated back to sensitive receptors and this showed a decline from 43.9µg/m³ (2024) to 41.8 µg/m³ (2025), a reduction of 4.8%.

Given the current data and trends recorded in 2025 no amendments to the Worcester City AQMA are proposed at this time.

No annual means greater than 60 µg/m³ have been recorded indicating that it is very unlikely that there have been any exceedances of the 1-hour mean objective for NO₂ at any diffusion tube monitoring sites.

3.2.2 Particulate Matter (PM₁₀)

Worcester City Council did not undertake any automatic (continuous) monitoring that is recognised by Defra for measuring against ambient air quality directives during 2025.

Table A.6 in Appendix A: Monitoring Results shows measured concentrations recorded by the Worcester Tolladine AURN but have only been available since late March 2025 so it is not possible to provide a comparison with previous years at this time. The annual mean concentration for 2025 is within the air quality objective of 40µg/m³.

Table A.7 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for 2025 with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

In 2025 there have been no reported exceedances of the annual mean PM₁₀ AQS objective of 40µg/m³ at the automatic monitoring site AURN1 (within an AQMA) - see Table A.1 for details of this monitoring site.

In 2025, AURN1 recorded an annual mean concentration of 10.5µg/m³. In terms of the 24-hour average PM₁₀ AQS objective of no more than 35 exceedances of 50µg/m³ per year, AURN1 site reported 0 exceedances in 2025, and the site remained compliant with air quality objectives with no exceedance of >50µg/m³ in a 24-hour period.

3.2.3 Particulate Matter (PM_{2.5})

Worcester City Council did not undertake any automatic (continuous) monitoring that is recognised by Defra for measuring against ambient air quality directives during 2025.

PM_{2.5} is the pollutant which has the biggest impact on public health and on which the Public Health Outcomes Framework (PHOF) indicator is based. However, PM_{2.5} is not currently covered by the LAQM regulations and objectives.

Table A.8 in Appendix A includes monitoring data for PM_{2.5} collated from the AURN1 site within the district, details of the site are provided in Table A.1. Due to the recent installation, it is not possible to provide commentary relating to annual trends. AURN1 observed an annual average concentration in 2025 of 6.2µg/m³

3.2.4 Sulphur Dioxide (SO₂)

Worcester City Council have not undertaken any monitoring of SO₂ in 2025.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? ⁽¹⁾	Monitoring Technique	Distance to Relevant Exposure (m) ^(1,2)	Distance to kerb of nearest road (m) ⁽¹⁾	Inlet Height (m)
AURN1	Worcester Tolladine	Urban Background	387759	256809	PM ₁₀ , PM _{2.5}	Yes	Worcester City AQMA	FIDAS	6.0	7.0	2.0

Notes:

(1) N/A if not applicable

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

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
But1	Magdala Court, The Butts, WR1 3PB	Roadside	384776	255107	NO ₂	Worcester City AQMA	0.0	1.2	No	2.5
But2	Magdala Court, The Butts, WR1 3PB	Roadside	384724	255086	NO ₂	Worcester City AQMA	0.0	1.7	No	2.4
Dd1	Ambirak, Dolday 1 (opp Bus Station), WR1 3PL	Roadside	384652	254986	NO ₂	Worcester City AQMA	0.0	2.2	No	2.2
DDASH	All Saints House, WR1 3NX	Roadside	384682	254924	NO ₂	Worcester City AQMA	2.0	2.3	No	2.1

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
BrS	Bridge Street, John Gwen House, WR1 3NJ	Kerbside	384666	254818	NO ₂	Worcester City AQMA	2.0	0.7	No	2.2
BrS2	Bridge Street, WR1 3NJ	Roadside	384695	254840	NO ₂	Worcester City AQMA	1.0	2.0	No	2.1
Tyn3	No. 26 Upper Tything, WR1 1HT	Roadside	384679	255998	NO ₂	Worcester City AQMA	0.1	2.0	No	2.2
Tyn2	Lamp & Flag PH Upper Tything (LP) 934, WR1 1JL	Roadside	384767	255606	NO ₂	Worcester City AQMA	2.6	2.3	No	2.2
Tyn	925 - HAMMERCHILDS, Upper Tything, WR1 1JT	Roadside	384833	255461	NO ₂	Worcester City AQMA	2.1	1.6	No	2.2
Fos2	Hewitt Recruitment, 35 Foregate Street, WR1 1EE	Roadside	384866	255367	NO ₂	Worcester City AQMA	3.5	3.2	No	2.1
Fos3	Café Mela, 22 Foregate Street, WR1 1DN	Roadside	384899	255329	NO ₂	Worcester City AQMA	2.4	2.2	No	2.5
Fos	Foregate Street junction with Shaw Street, WR1 1EB	Kerbside	384941	255140	NO ₂	Worcester City AQMA	1.9	1.0	No	2.5
Crs1	29 The Cross, WR1 3PZ	Roadside	384967	255012	NO ₂	Worcester City AQMA	3.6	3.4	No	2.2
Swth1	St. Swithin's Street, WR1 2PS	Roadside	385013	254987	NO ₂	Worcester City AQMA	2.5	2.1	No	2.2
Lwm2	Lowesmoor 2 (City Walls Road end), WR1 2SG	Roadside	385164	255134	NO ₂	Worcester City AQMA	2.1	1.9	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)
Lwm1	Lowesmoor 1 Rainbow Hill End, WR1 2SE	Roadside	385268	255191	NO ₂	Worcester City AQMA	1.7	1.4	No	2.6
StJ1	1A St. Johns, WR2 5AE	Roadside	384136	254511	NO ₂	Worcester City AQMA	3.1	2.7	No	2.0
Brm	10 Bromyard Road, WR2 5BS	Roadside	383967	254483	NO ₂	Worcester City AQMA	0.0	8.8	No	1.9
KCP	King Charles Place, WR2 5AJ	Roadside	384016	254399	NO ₂	Worcester City AQMA	2.6	2.2	No	2.1
StJ2	The Fortune House, 65 St. Johns, WR2 5AG	Roadside	384013	254356	NO ₂	Worcester City AQMA	2.7	2.2	No	2.0
StJ3	The Bell, 35 St. Johns, WR2 5AG	Roadside	384046	254424	NO ₂	Worcester City AQMA	2.6	2.1	No	2.0
Mcl	McIntyre Road, WR2 5LQ	Suburban	383454	254606	NO ₂	Worcester City AQMA	4.5	1.2	No	2.3
Ast4	246 Astwood Road, WR3 8HD	Roadside	386097	256565	NO ₂	Worcester City AQMA	0.0	9.9	No	2.0
Ast3	Astwood Road 3 Rainbow Hill, WR3 8NL	Roadside	386022	256401	NO ₂	Worcester City AQMA	6.6	1.7	No	2.3
OAK	22 Oaklands, WR5 1SL	Roadside	387810	254993	NO ₂	Worcester City AQMA	0.0	7.0	No	1.9
LRW	London Road Waitrose, WR5 2JN	Kerbside	386654	253761	NO ₂	Worcester City AQMA	4.0	0.5	No	1.9
LR2	London Road Royal Court LP 6561, WR5 2DL	Roadside	385428	254238	NO ₂	Worcester City AQMA	3.0	1.5	No	2.2
LR3	London Road Commandery Road Junction, WR5 2DL	Roadside	385357	254272	NO ₂	Worcester City AQMA	0.5	1.8	No	2.3

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)
LR5	London Road Bus stop SL6554 opp Bath Road, WR5 2DH	Roadside	385325	254329	NO ₂	Worcester City AQMA	0.3	1.5	No	2.2
LR4	London Road SL6565 adj No 61, WR5 2DS	Roadside	385525	254219	NO ₂	Worcester City AQMA	3.1	1.9	No	2.1
SIDFG	Sidbury Street o/s Fisher German Estate Agents, WR1 2LS	Roadside	385146	254474	NO ₂	Worcester City AQMA	6.2	2.3	No	2.2
RH	Nursery Rainbow Hill LP5196, WR3 8LX	Roadside	385420	255413	NO ₂	Worcester City AQMA	7.8	1.5	No	2.4
Bkc	Berkeley Court, Foregate Street, Worcester, WR1 3QF	Roadside	384948	255111	NO ₂	Worcester City AQMA	0.2	4.1	No	2.5
GS	54 George Street Worcester WR1 2DY	Roadside	385358	254969	NO ₂	Worcester City AQMA	0.0	2.0	No	2.3
WI1	The Wheatsheaf Inn, 192 Henwick Road Worcester, WR2 5PF	Roadside	383776	255777	NO ₂	Worcester City AQMA	0.0	2.1	No	2.0
NR18	18 Nightingale Avenue Worcester, WR4 0LZ	Suburban	388052	255015	NO ₂	Worcester City AQMA	5.0	19.0	No	1.9

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 NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Worcester City Council has not undertaken automatic NO₂ monitoring in 2025.

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
But1	384776	255107	Roadside	100.0	100.0	31.0	35.7	35.0	35.6	37.1
But2	384724	255086	Roadside	100.0	100.0	39.1	43.9	44.3	43.9	41.8
Dd1	384652	254986	Roadside	100.0	100.0	25.3	29.9	29.8	30.7	32.5
DDASH	384682	254924	Roadside	100.0	100.0	30.5	35.9	34.3	35.6	34.6
BrS	384666	254818	Kerbside	100.0	100.0	29.4	31.7	31.4	31.9	30.5
BrS2	384695	254840	Roadside	100.0	92.3	33.8	39.1	37.1	36.6	36.5
Tyn3	384679	255998	Roadside	100.0	84.6	26.2	31.0	28.6	27.4	29.9
Tyn2	384767	255606	Roadside	100.0	92.3	34.6	38.8	37.6	38.2	35.4
Tyn	384833	255461	Roadside	100.0	100.0	34.3	38.7	36.8	38.3	36.3
Fos2	384866	255367	Roadside	100.0	100.0	25.6	30.0	26.8	28.5	25.8
Fos3	384899	255329	Roadside	100.0	90.4	24.3	29.4	27.3	26.4	28.8
Fos	384941	255140	Kerbside	100.0	100.0	33.1	37.6	35.6	40.6	40.7
Crs1	384967	255012	Roadside	100.0	100.0	22.9	26.2	25.6	27.1	24.8
Swth1	385013	254987	Roadside	100.0	90.4	19.0	21.5	21.3	23.1	23.0
Lwm2	385164	255134	Roadside	100.0	100.0	24.5	29.2	28.0	28.4	30.1
Lwm1	385268	255191	Roadside	100.0	92.3	31.6	36.2	35.8	36.2	34.2
StJ1	384136	254511	Roadside	100.0	100.0	28.0	34.6	34.5	34.7	35.1
Brm	383967	254483	Roadside	100.0	100.0	22.0	24.9	25.0	26.5	28.8
KCP	384016	254399	Roadside	100.0	100.0	24.5	28.1	27.4	27.5	29.0
StJ2	384013	254356	Roadside	100.0	100.0	21.1	24.8	25.1	24.4	27.1
StJ3	384046	254424	Roadside	100.0	100.0	25.0	29.2	28.0	28.9	33.0
Mcl	383454	254606	Suburban	100.0	100.0	12.7	10.9	11.1	11.7	12.1
Ast4	386097	256565	Roadside	100.0	100.0	19.8	21.3	22.1	21.1	21.3

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 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
Ast3	386022	256401	Roadside	100.0	100.0	38.1	41.5	42.2	42.4	43.5
OAK	387810	254993	Roadside	100.0	100.0	13.1	15.6	15.2	14.5	14.5
LRW	386654	253761	Kerbside	100.0	100.0	30.4	34.5	33.1	33.5	31.9
LR2	385428	254238	Roadside	100.0	100.0	32.3	32.5	31.0	31.4	32.0
LR3	385357	254272	Roadside	100.0	100.0	31.0	34.0	32.0	32.6	33.4
LR5	385325	254329	Roadside	100.0	90.4	30.5	33.2	30.4	31.7	35.2
LR4	385525	254219	Roadside	100.0	100.0	27.8	32.4	28.9	28.3	31.1
SIDFG	385146	254474	Roadside	100.0	100.0	29.7	35.6	33.6	34.1	31.5
RH	385420	255413	Roadside	100.0	100.0	27.8	30.5	28.2	29.5	27.5
Bkc	384948	255111	Roadside	100.0	100.0	32.9	38.8	36.0	37.5	36.1
GS	385358	254969	Roadside	100.0	100.0	32.5	38.3	37.6	36.1	36.9
W11	383776	255777	Roadside	100.0	100.0	-	-	-	-	22.9
NR18	388052	255015	Suburban	100.0	100.0	-	-	-	-	14.4

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

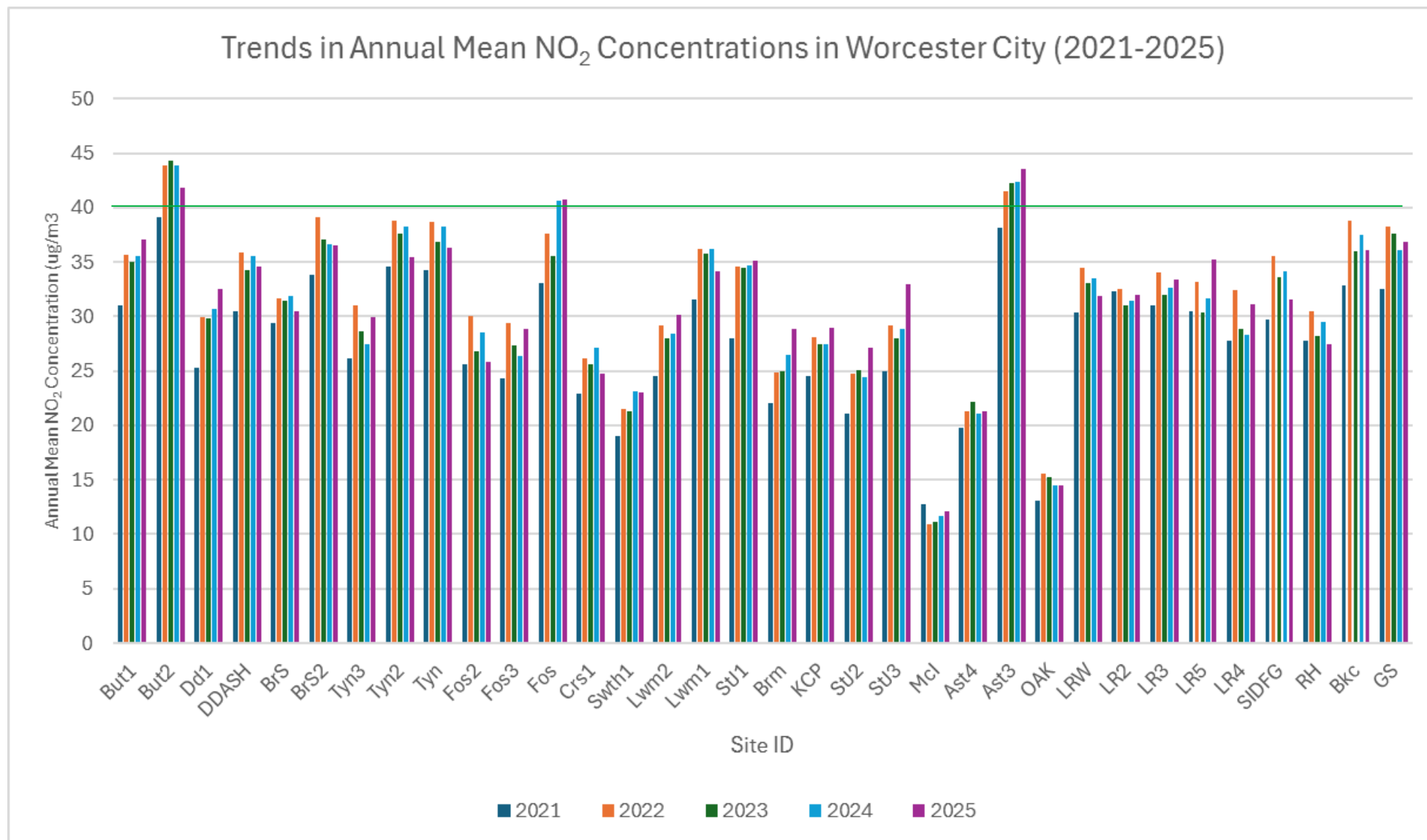
NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

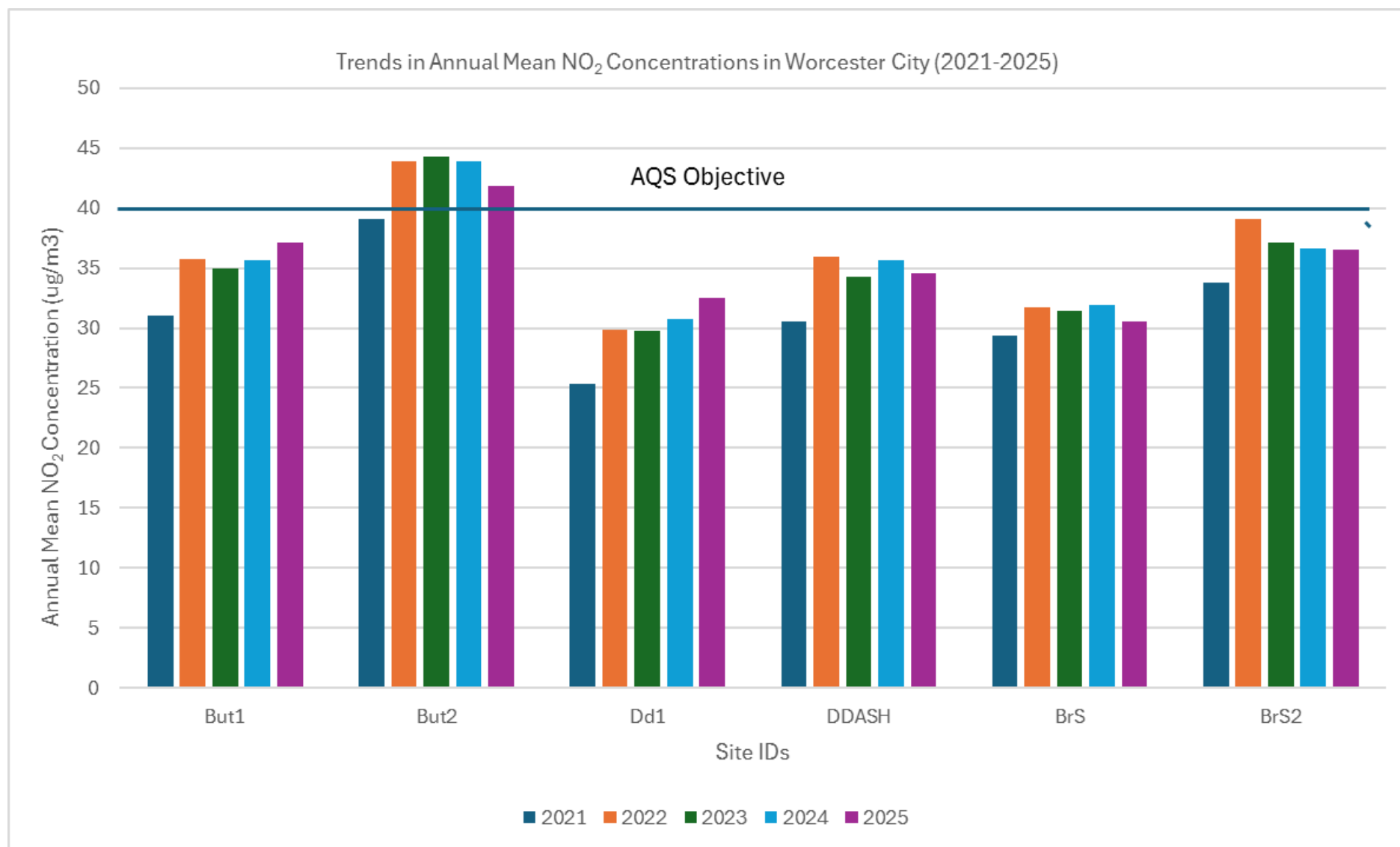
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

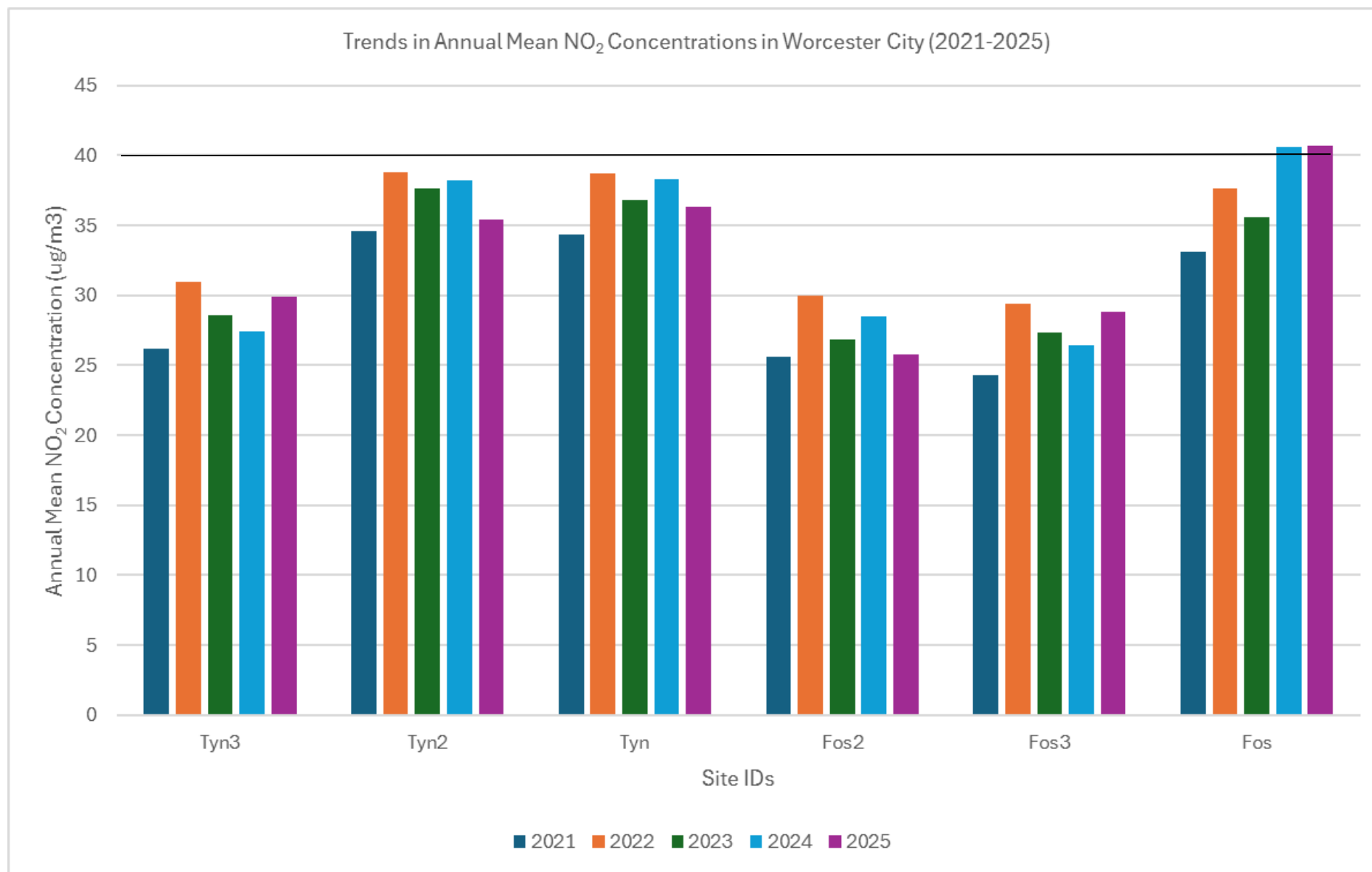
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

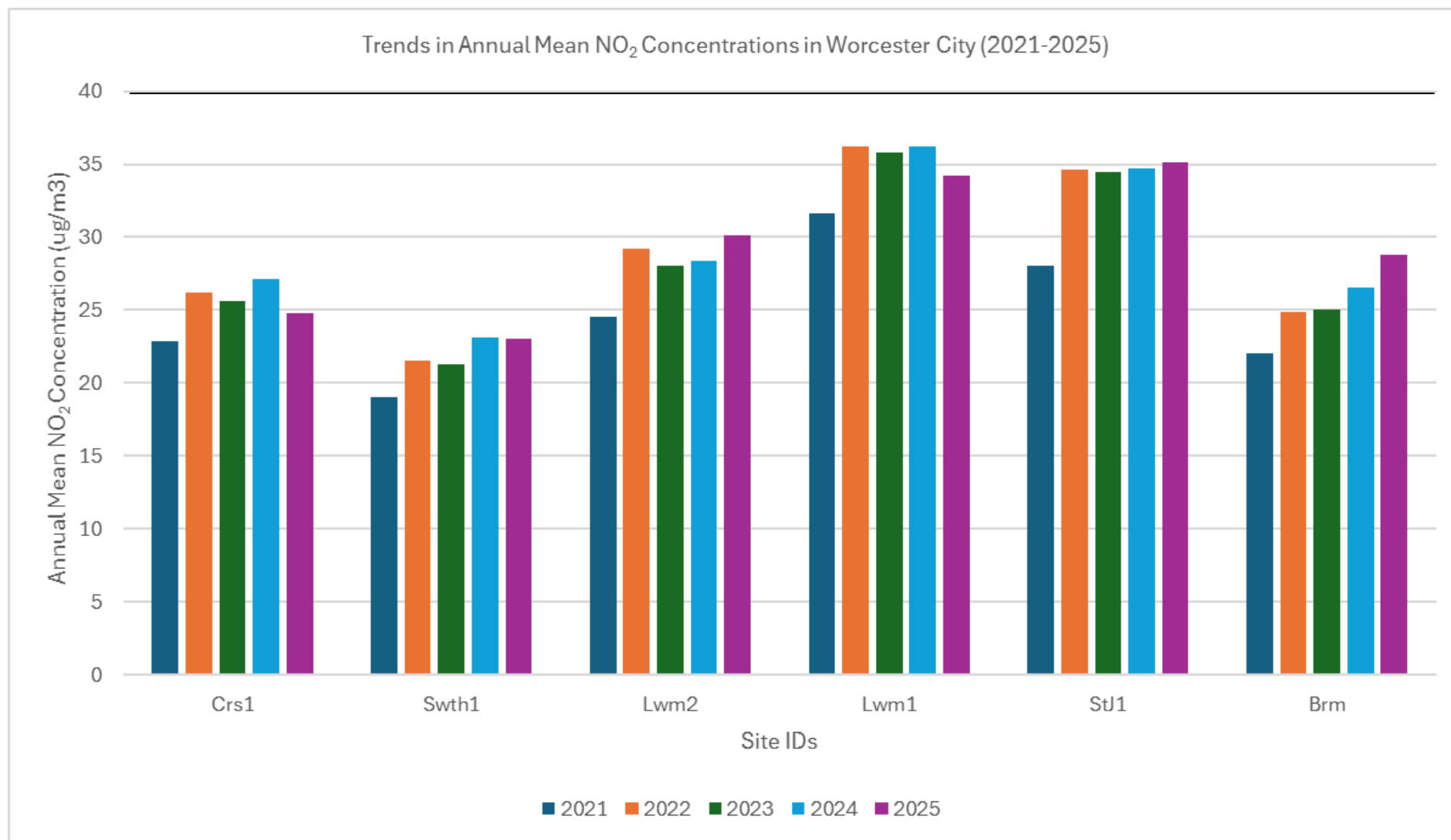
- (1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
- (2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

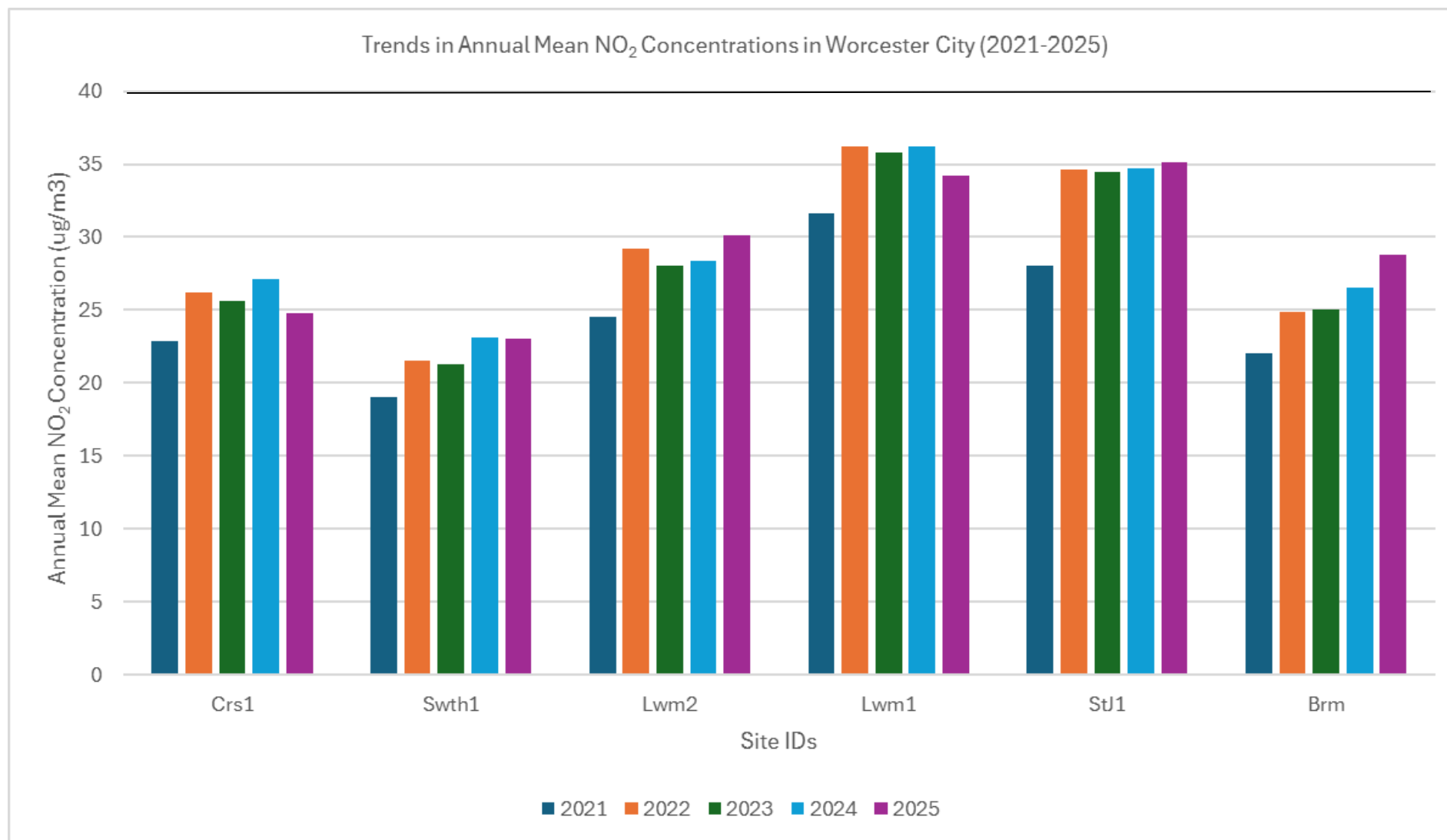
Figure A.1 – Trends in Annual Mean NO₂ Concentrations

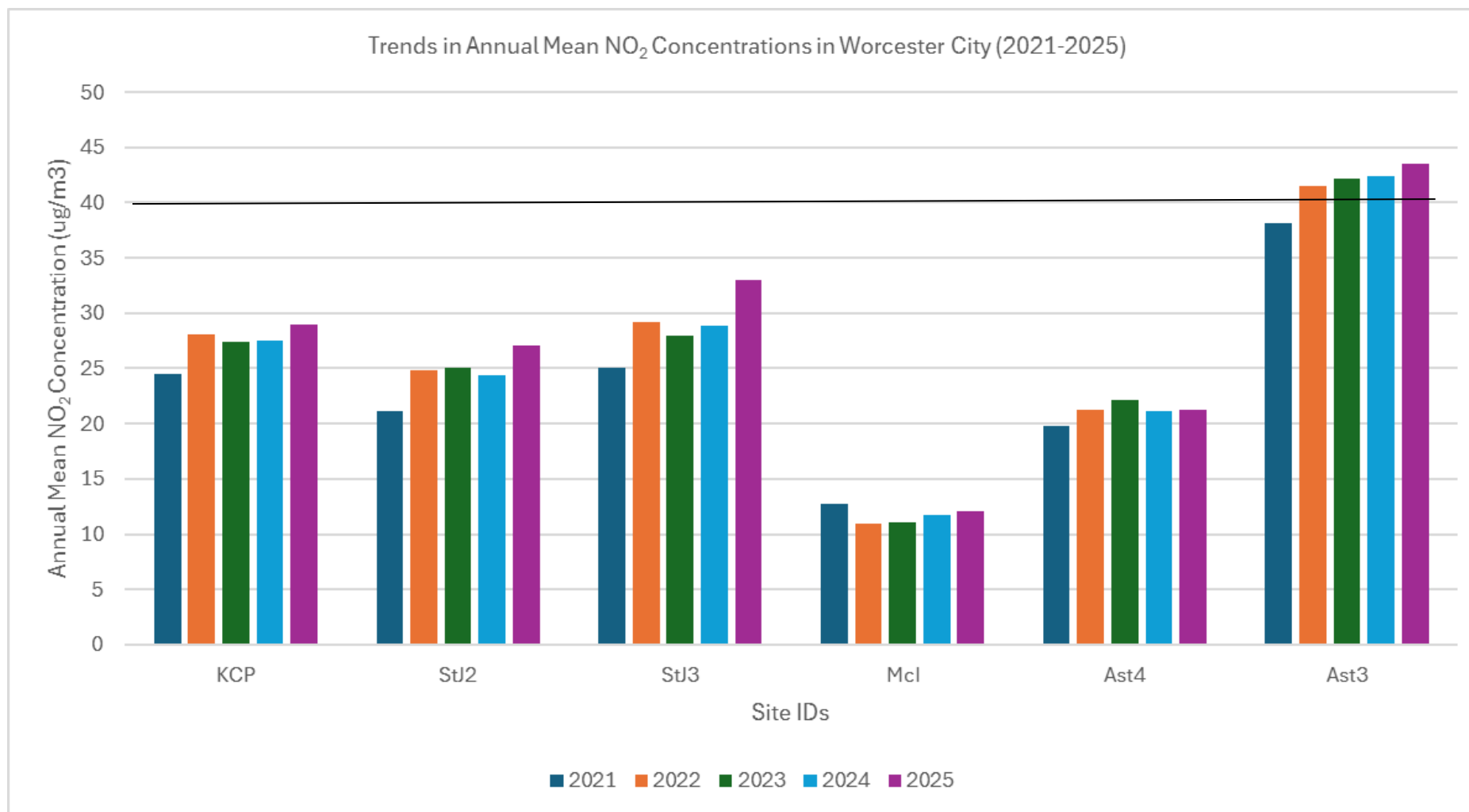


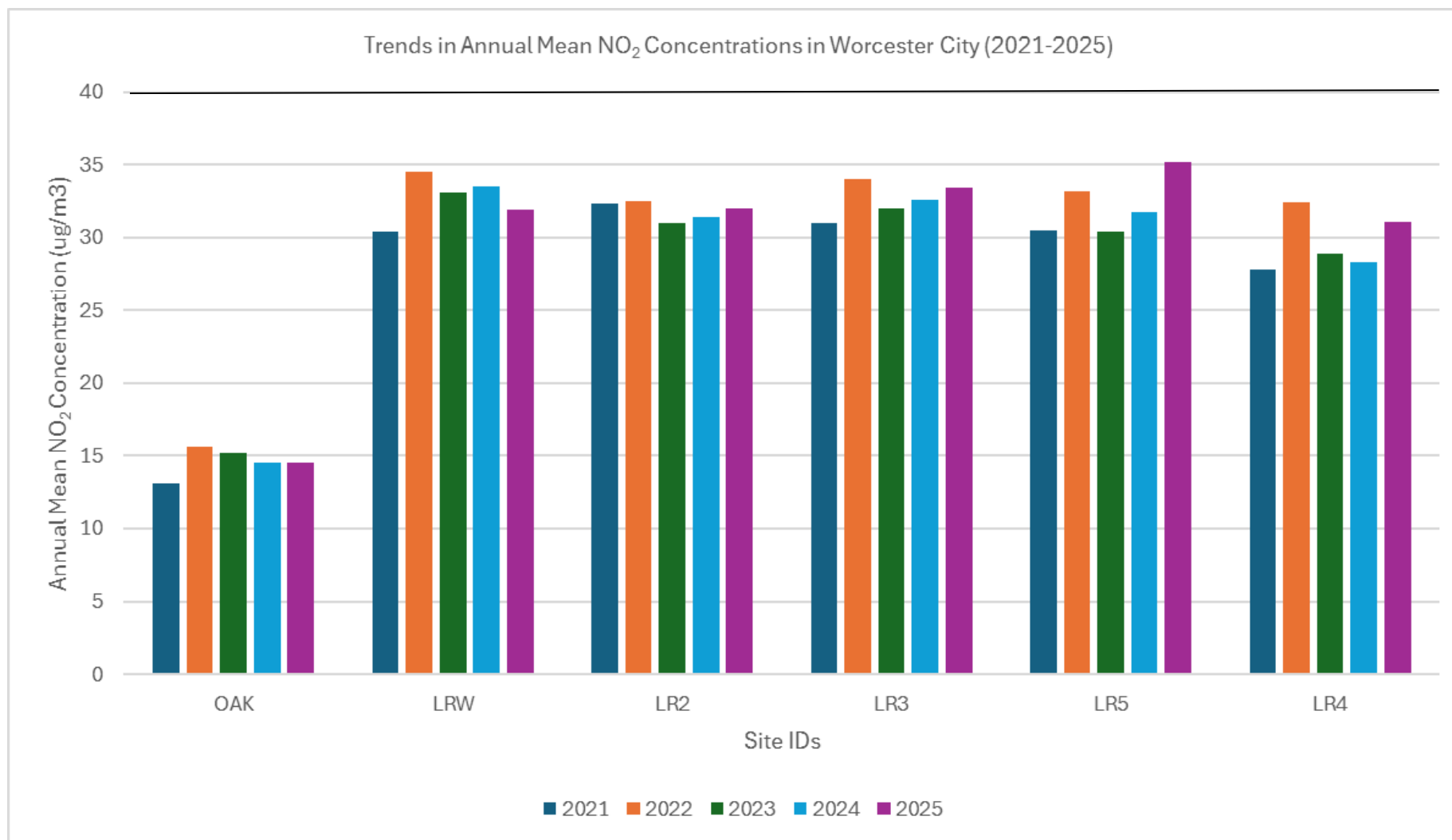












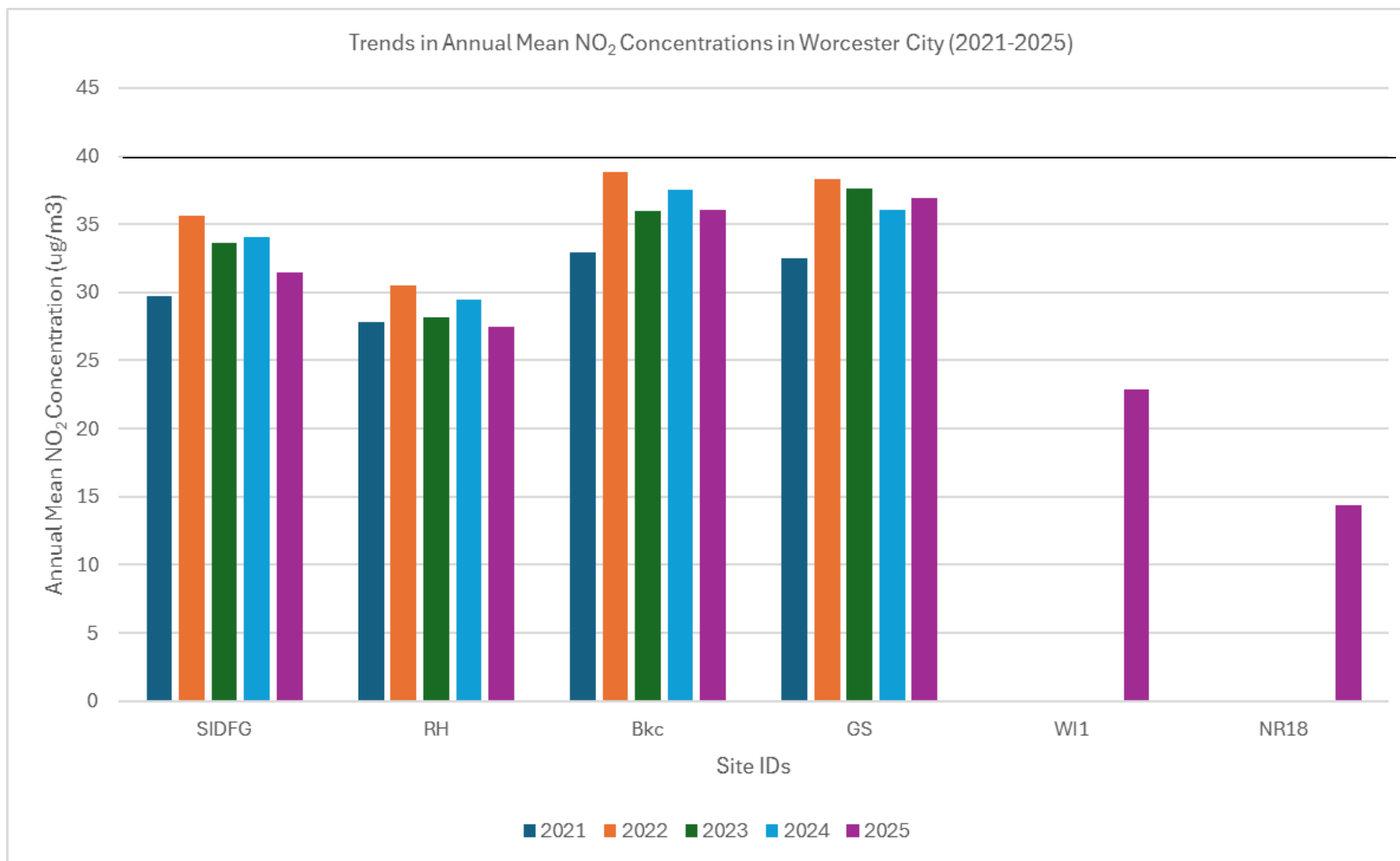


Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Worcester City Council has not undertaken automatic NO₂ monitoring in 2025.

Table A.6 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
AURN1	387759	256809	Urban Background	100.0	77.1	-	-	-	-	10.5

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

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

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

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
AURN1	387759	256809	Urban Background	100.0	77.1	-	-	-	-	0(19)

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.8 – Annual Mean PM_{2.5} Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2025 (%) ⁽²⁾	2021	2022	2023	2024	2025
AURN1	387759	256809	Urban Background	100.0	77.1	-	-	-	-	6.2

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

Notes:

The annual mean concentrations are presented as µg/m³.

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

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Appendix B: Full Monthly Diffusion Tube Results for 2025

Table B.1 – NO₂ 2025 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
But1	384776	255107	36.7	40.3	37.7	39.6	35.8	39.7	31.3	33.0	32.8	34.5	28.6	28.3	34.8	37.1	-	
But2	384724	255086	45.5	40.5	46.5	42.1	36.0	30.3	37.0	39.7	36.4	36.2	41.5	40.3	39.3	41.8	-	
Dd1	384652	254986	28.0	34.4	38.7	40.9	35.2	28.1	23.9	33.5	26.7	27.2	21.0	28.6	30.5	32.5	-	
DDAS H	384682	254924	39.9	35.6	38.6	33.2	30.8	34.6	26.9	18.9	28.4	33.8	36.1	33.3	32.5	34.6	-	
BrS	384666	254818	31.2	36.6	34.6	32.6	29.8	21.6	24.7	24.1	25.4	27.0	26.5	29.6	28.7	30.5	-	
BrS2	384695	254840	40.0	35.7	41.2	42.6	33.6	23.3	26.4	33.4	30.8	35.2	-	35.5	34.3	36.5	33.9	
Tyn3	384679	255998	35.8	35.8	35.7	29.6	22.7	-	17.1	23.3	24.8	26.5	-	29.4	28.1	29.9	-	
Tyn2	384767	255606	42.4	36.9	34.8	33.0	30.4	31.9	27.7	30.5	32.3	35.3	-	30.8	33.3	35.4	-	
Tyn	384833	255461	42.8	35.3	36.6	31.3	28.7	33.4	30.4	29.5	31.2	31.5	45.0	33.4	34.1	36.3	31.3	
Fos2	384866	255367	35.8	31.9	28.8	24.9	19.5	28.9	20.3	23.5	26.7	29.6	14.1	7.1	24.3	25.8	-	
Fos3	384899	255329	29.8	33.8	33.8	30.8	23.3	21.6	18.1	24.6	0.7	-	37.9	43.5	27.1	28.8	-	
Fos	384941	255140	43.8	44.8	47.3	40.0	36.9	31.5	30.3	36.6	38.5	39.0	36.9	33.7	38.3	40.7	34.0	
Crs1	384967	255012	27.9	26.7	28.1	21.2	21.5	18.7	21.0	19.5	20.9	22.4	26.2	25.2	23.3	24.8	-	
Swth1	385013	254987	26.2	28.3	28.5	24.0	-	11.2	16.2	16.9	18.0	18.4	23.5	26.2	21.6	23.0	-	
Lwm2	385164	255134	33.5	33.9	33.3	31.0	27.0	21.6	21.3	26.1	26.0	26.8	29.1	29.4	28.2	30.1	-	
Lwm1	385268	255191	36.3	35.3	-	35.2	33.7	21.0	30.6	31.0	29.7	33.1	32.2	35.3	32.1	34.2	-	
StJ1	384136	254511	39.5	36.4	32.1	38.2	28.9	32.8	23.8	33.7	32.5	32.4	34.4	31.1	33.0	35.1	-	
Brm	383967	254483	41.1	37.5	26.8	26.2	16.7	21.9	15.0	21.6	21.4	24.8	37.8	33.6	27.0	28.8	-	
KCP	384016	254399	34.1	31.2	29.4	27.4	24.7	23.0	22.5	24.3	26.7	27.5	29.0	27.9	27.3	29.0	-	
StJ2	384013	254356	32.7	32.3	28.7	30.8	23.1	19.2	15.5	20.6	24.2	24.3	28.6	25.3	25.4	27.1	-	
StJ3	384046	254424	38.3	38.8	36.2	39.1	27.5	23.3	20.2	25.8	29.7	28.8	34.9	29.2	31.0	33.0	-	
Mcl	383454	254606	17.0	17.3	13.5	12.2	7.1	6.9	5.4	9.4	11.0	9.4	13.5	13.9	11.4	12.1	-	
Ast4	386097	256565	25.4	25.6	22.2	22.8	17.5	14.7	12.2	16.7	19.7	20.3	22.3	20.7	20.0	21.3	-	
Ast3	386022	256401	51.4	52.9	42.0	48.4	37.1	31.9	29.6	36.5	40.1	36.9	45.2	38.9	40.9	43.5	31.0	
OAK	387810	254993	20.5	18.9	14.0	14.0	8.5	9.3	7.9	10.9	14.0	13.6	16.7	15.1	13.6	14.5	-	
LRW	386654	253761	30.8	38.7	34.0	32.0	30.2	26.7	26.9	26.6	29.7	28.6	29.4	26.6	30.0	31.9	-	
LR2	385428	254238	36.0	35.1	32.9	28.9	26.4	28.5	23.3	26.2	28.6	28.6	34.5	32.3	30.1	32.0	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
LR3	385357	254272	41.3	34.5	37.2	31.1	27.4	27.1	23.1	26.9	30.1	31.6	37.2	29.2	31.4	33.4	-	
LR5	385325	254329	37.1	38.9	40.2	36.6	30.6	24.7	-	28.8	29.3	31.2	31.5	35.4	33.1	35.2	-	
LR4	385525	254219	34.9	36.6	33.7	30.9	26.5	21.8	23.8	22.7	26.6	31.2	30.5	31.7	29.2	31.1	-	
SIDFG	385146	254474	37.0	31.3	33.8	31.1	25.7	28.1	23.9	25.9	27.0	28.9	34.0	29.0	29.6	31.5	-	
RH	385420	255413	31.9	28.4	27.5	24.4	22.4	30.0	17.7	21.2	24.6	25.5	30.8	25.4	25.8	27.5	-	
Bkc	384948	255111	40.1	37.5	39.6	35.7	34.3	17.4	31.5	34.1	32.8	33.9	33.9	36.8	33.9	36.1	35.8	
GS	385358	254969	40.8	39.2	39.5	38.8	33.1	29.6	28.2	32.4	30.3	32.2	38.5	34.3	34.7	36.9	-	
WI1	383776	255777	27.0	29.3	25.6	27.9	21.3	11.2	13.2	17.4	19.3	20.2	25.4	20.8	21.5	22.9	-	
NR18	388052	255015	19.4	19.1	14.3	13.3	9.8	10.3	9.3	11.5	13.2	12.2	16.0	13.7	13.5	14.4	-	

- ☒ All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1
- ☐ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22
- ☒ Local bias adjustment factor used
- ☐ National bias adjustment factor used
- ☒ Where applicable, data has been distance corrected for relevant exposure in the final column
- ☒ Worcester City District Council confirm that all 2025 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

A local bias adjustment factor has been determined by WRS. This has been calculated using the 'Diffusion Tube Data Processing Tool spreadsheet' which has been uploaded to the Defra LAQM portal. All calculations and data are presented within the relevant sections of the spreadsheet. The calculation details have also been provided in 'Table C.2 – Local Bias Adjustment Calculation' within the 2025 ASR. Further details are set out below under the heading Diffusion Tube Bias Adjustment Factors.

New or Changed Sources Identified Within Worcester City Council During 2025

Worcester City Council has not identified any new sources relating to air quality within the reporting year of 2025.

Additional Air Quality Works Undertaken by Worcester City Council During 2025

Worcester City Council has not completed any additional works within the reporting year of 2025.

QA/QC of Diffusion Tube Monitoring

The following UKAS accredited company provided Worcester City Council with nitrogen dioxide diffusion tubes and analysis in 2024:

Gradko International Limited of St. Martins House, 77 Wales Street, Winchester,
SO23 0RH diffusion@gradko.com

The 20% Triethanolamine (TEA) / De-ionised Water preparation method is used.

Gradko International Limited participate in the AIR NO₂ Proficiency Testing Scheme (AIR-PT). All monitoring undertaken has been completed in accordance with the 2025 Diffusion Tube Monitoring Calendar, i.e. on or within ± 2 days of the specified date.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Worcester City recorded data capture of 75% therefore it was not required to annualise any monitoring data. All monitoring has been completed in adherence with the 2025 Diffusion Tube Monitoring Calendar.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2026 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/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Worcester City Council have applied a local bias adjustment factor of 1.06 to the 2025 monitoring data.

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/26					
Follow the steps below <u>in the correct order</u> to show the results of <u>relevant</u> co-location studies						This spreadsheet will be updated at the end of June 2026 LAQM Helpdesk Website					
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods											
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet											
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.											
The LAQM 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.						Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.					
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 ³ 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 method at this laboratory.	If a year is not shown, we have no data.	If you have your own co-location study then see footnote ⁴ . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953							
Analysed By ¹		Method ²	Year ³	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ⁵	Bias Adjustment Factor (A) (Cm/Dm)
▼		▼	▼								
		To make your selection, choose All from the pop-up list	To make your selection, choose All								

WRS has determined the appropriate local bias adjustment factor utilising the Diffusion Tube Data Processing Tool v6.0. The site used is the colocation study at Wyre Forest House, Kidderminster which is the head office for WRS. The installation is collocated with three diffusion tubes and is largely run and managed for the purpose of undertaking a local bias adjustment factor for the county. WRS are responsible for maintaining the monitoring network across the six-district councils within Worcestershire and therefore the handling and processing of the diffusion tubes is the same for each area.

The local bias adjustment factor has also been utilised for this assessment as it is more conservative compared with the national bias adjustment factor (0.89, Defra published National Diffusion Tube Bias Adjustment Spreadsheet Version 03/26). This approach is consistent with previous ASRs and undertaken, following consultation with Defra LAQM helpdesk and technical guidance.

Notes:

A single local bias adjustment factor has been used to bias adjust the 2025 diffusion tube results. A summary of bias adjustment factors used by Worcester City Council over the past five years is presented in Table C.1 below.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2025	Local	-	1.06
2024	Local	-	1.03
2023	Local	-	0.97
2022	Local	-	0.97
2021	National	03/21	0.84

Table C.2 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1
Periods used to calculate bias	12
Bias Factor A	1.06 (1.01 - 1.12)
Bias Factor B	-6% (-11% - -1%)
Diffusion Tube Mean ($\mu\text{g}/\text{m}^3$)	12.3
Mean CV (Precision)	3.2%
Automatic Mean ($\mu\text{g}/\text{m}^3$)	13.1
Data Capture	98%
Adjusted Tube Mean ($\mu\text{g}/\text{m}^3$)	13 (12 - 14)

Notes:

A single local bias adjustment factor has been used to bias adjust the 2025 diffusion tube results.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1 and the distance calculations are shown below in Table C.4.

Table C.3 – Non-Automatic NO₂ Fall off With Distance Calculations (concentrations presented in µg/m³)

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
BrS2	2.0	3.0	36.5	9.1	33.9	
Tyn	1.6	3.7	36.3	9.3	31.3	
Fos	1.0	2.9	40.7	9.3	34.0	
Ast3	1.7	8.3	43.5	8.8	31.0	
Bkc	4.1	4.3	36.1	9.3	35.8	

QA/QC of Automatic Monitoring

All automatic monitoring sites in Worcester City district are attended every 4 weeks by WRS as the Local Site Operator (LSO) for AURN1 Worcester Tolladine. The QA/QC of the AURN1 is undertaken through its status as part of the AURN and therefore conforms to AURN standards (undertaken by Ricardo-Energy and Environment and Bureau Veritas), The service contract for AURN1 is arranged by Bureau Veritas and Defra and is provided by Enviro Technology Services. Live and historic data for AURN1 may be accessed and viewed at [Air Quality England](#)

PM₁₀ and PM_{2.5} Monitoring Adjustment

The type of monitor utilised within Worcester City district does not require the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within Worcester City Council 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.

There were no accredited, automatic monitoring locations for NO₂ within the Worcester City district.

Summary of Low Cost Air Quality Sensor Monitoring

Table C.4 – Details of Low Cost Sensor Sites (Nb* denotes relocated monitoring site)

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Sensor Type	In AQMA?	Which AQMA? ⁽¹⁾	Distance to Relevant Exposure (m) ^(1,2)	Distance to kerb of nearest road (m) ⁽¹⁾	Inlet Height (m)
1554	All Saints Road	Roadside	384672	254946	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	2	2	0.235
1588	Barbourne Road	Roadside	384583	256263	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	2	2	0.235
1562	Foregate Street	Kerbside	384943	255155	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	4	1	0.235
1552	Hastings Drive	Kerbside	388553	257024	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	15	1	0.235
1552*	Newark Green	Urban background	388632	256942	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	12	1	0.235
1551	London Road	Roadside	386752	253682	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	29	3	0.235
1566	Malvern Road	Roadside	383982	254295	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	7	2	0.235

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Sensor Type	In AQMA?	Which AQMA? ⁽¹⁾	Distance to Relevant Exposure (m) ^(1,2)	Distance to kerb of nearest road (m) ⁽¹⁾	Inlet Height (m)
1566*	Hanbury Park Road	Roadside	383736	253514	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	6	1.5	0.235
1546	Newtown Road	Roadside	387016	255143	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	17	1.5	0.235
1546*	Worcestershire Royal Hospital	Roadside	387612	254851	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	8	2	0.235
1587	Rose Avenue	Roadside	386340	255565	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	6	2	0.235
1544	Sidbury	Roadside	385293	254354	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	3	3	0.235
1544*	Sebright Avenue	Roadside	385949	253917	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	5	2	0.235
1573	Wylds Lane	Roadside	385763	254557	NO, NO ₂ , O ₃ , PM ₁ , PM _{2.5} , PM ₁₀	Earthsense Zephyr	Yes	Worcester City AQMA	49	3	0.235

(Nb* denotes relocated site)

Table C.1 – Monthly Air Quality Sensor Monitoring Results

Monthly and annual average for PM_{2.5} in µg/m³ (Nb* denotes relocated site and ^ denotes missing data)

Site ID	X OS Grid Ref (Eastin g)	Y OS Grid Ref (Northi ng)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean Data
1554	384672	254946	12.0	13.0	13.6	10.4	7.0	5.9	5.2	5.8	4.0	5.8	4.8	6.2	7.8
1588	384583	256263	12.6	12.8	13.7	10.7	6.9	5.9	5.5	5.9	4.1	6.0	5.2	5.9	7.9
1562	384943	255155	12.8	13.6	14.2	10.6	7.1	5.9	5.4	6.0	4.6	6.3	5.6	6.6	7.9
1552	388553	257024	12.0	12.8	14.2	10.4	6.9	5.6	5.1	-	-	-	-	-	9.6
1552*	388632	256942	-	-	-	-	-	-	-	5.6	3.9	5.4	4.6	5.3	5.0
1551	386752	253682	11.4	12.6	13.7	10.1	6.6	5.5	4.9	5.4	3.7	5.4	4.4	5.2	7.4
1566	383982	254295	12.0	12.7	13.7	10.3	6.8	5.6	5.0	-	-	-	-	-	9.4
1566*	383736	253514	-	-	-	-	-	-	-	5.4	3.5	5.4	4.3	5.5	4.8
1546	387016	255143	11.1	12.3	13.5	10.1	6.8	5.6	5.1	-	-	-	-	-	9.2
1546*	387612	254851	-	-	-	-	-	-	-	5.3	3.6	5.1	3.8	4.7	4.5
1587	386340	255565	12.0	13.0	14.9	10.8	7.2	5.8	5.2	5.3	3.6	5.1	4.2	5.2	7.7
1544	385293	254354	14.0	13.7	14.4	10.4	7.0	5.7	5.1	-	-	-	-	-	10.0
1544*	385949	253917	-	-	-	-	-	-	-	5.1	^	^	^	6.8	5.9
1573	385763	254557	12.0	12.6	13.6	10.1	6.6	5.4	4.9	5.4	3.6	5.5	4.4	5.6	7.4

Monthly and annual average for PM₁₀ in µg/m³ (Nb* denotes relocated site and ^ denotes missing data)

Site ID	X OS Grid Ref (Eastin g)	Y OS Grid Ref (Northi ng)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean Data
1554	384672	254946	18.1	19.7	20.3	14.8	9.3	8.1	7.1	7.8	6.1	9.1	7.9	9.9	11.5
1588	384583	256263	18.7	19.4	20.4	14.3	9.2	8.1	7.4	8.0	6.2	9.2	8.3	9.4	11.5
1562	384943	255155	19.3	20.6	21.2	15.0	9.5	8.2	7.3	8.1	6.8	9.6	8.8	10.3	12.1
1552	388553	257024	18.7	20.8	21.8	15.5	9.6	8.1	7.3	-	-	-	-	-	14.5
1552*	388632	256942	-	-	-	-	-	-	-	8.0	6.1	8.9	7.8	9.1	8.0
1551	386752	253682	17.1	19.2	20.3	14.3	8.9	7.6	6.7	7.2	5.7	8.4	7.4	8.6	10.9
1566	383982	254295	18.1	19.5	20.6	14.7	9.1	7.8	6.9	-	-	-	-	-	13.8
1566*	383736	253514	-	-	-	-	-	-	-	7.4	5.6	8.6	7.4	9.1	7.6
1546	387016	255143	16.5	18.5	20.0	14.4	9.2	7.9	7.0	-	-	-	-	-	13.4
1546*	387612	254851	-	-	-	-	-	-	-	7.3	5.7	8.3	6.9	8.3	7.3
1587	386340	255565	18.3	20.4	23.0	16.0	9.8	8.3	7.2	7.1	5.4	8.1	7.0	8.6	11.6
1544	385293	254354	21.0	20.9	21.6	14.9	9.3	7.8	6.9	-	-	-	-	-	14.6
1544*	385949	253917	-	-	-	-	-	-	-	6.9	^	^	^	11.1	9.0
1573	385763	254557	17.8	19.2	20.2	14.3	9.0	7.6	6.7	7.4	5.8	8.7	7.5	9.2	11.1

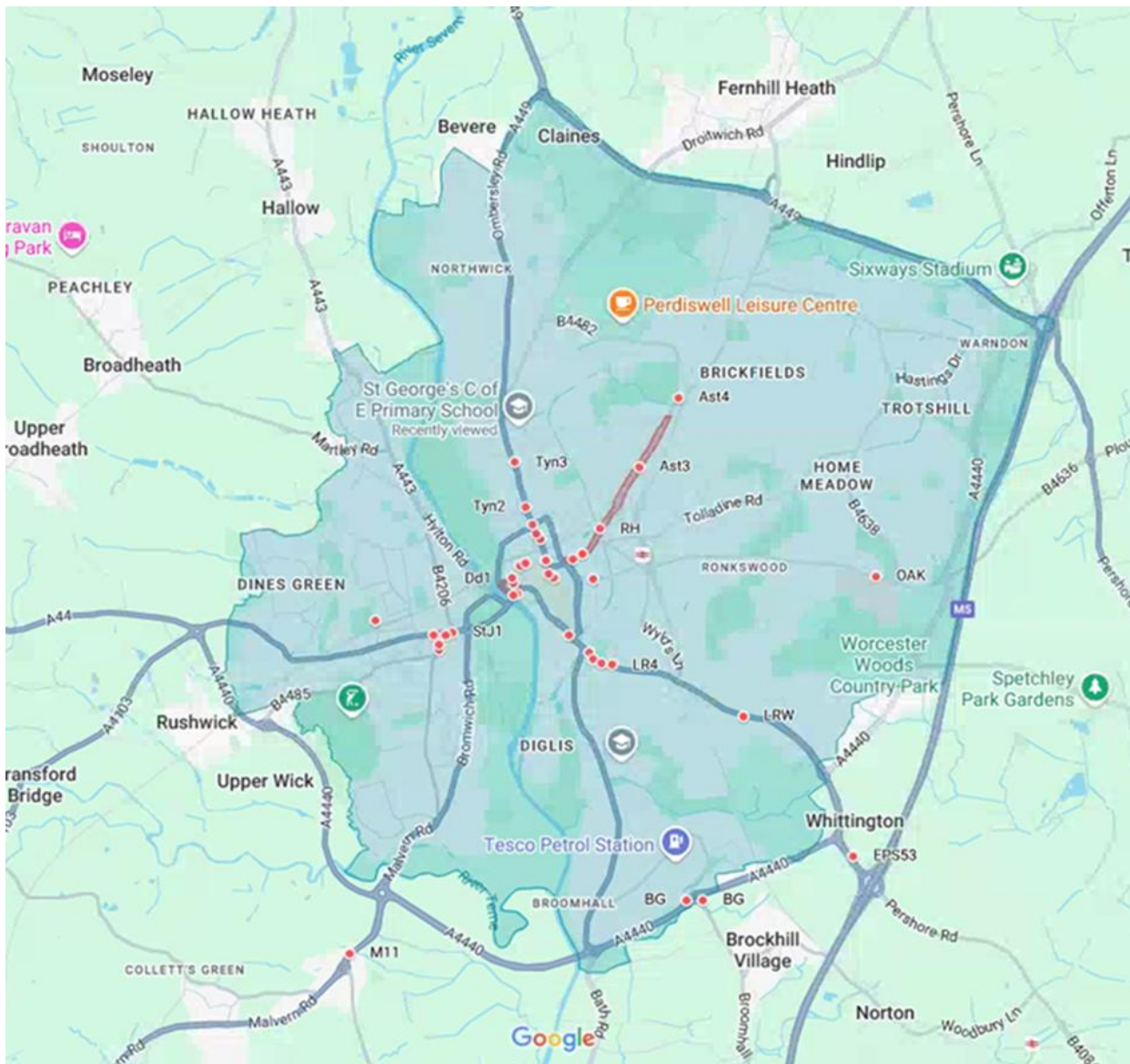
Monthly and annual average for NO₂ in µg/m³ (Nb* denotes relocated site and ^ denotes missing data)

Site ID	X OS Grid Ref (Eastin g)	Y OS Grid Ref (Northi ng)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean Data
1554	384672	254946	38.7	35.1	31.9	26.0	20.6	18.4	12.9	18.1	22.1	25..3	30.3	33.1	26.1
1588	384583	256263	44.6	37.0	37.8	28.3	24.1	23.5	20.7	20.7	26.0	30.0	34.8	34.7	30.2
1562	384943	255155	41.6	37.3	35.8	29.0	24.7	18.8	11.0	7.0	8.3	24.7	32.1	33.8	25.3
1552	388553	257024	31.3	24.8	27.5	21.0	15.1	8.7	8.9	-	-	-	-	-	19.6
1552*	388632	256942	-	-	-	-	-	-	-	9.2	13.0	15.5	21.9	24.5	16.8
1551	386752	253682	34.0	26.7	24.6	17.0	11.6	8.9	7.0	8.5	14.0	16.9	21.2	23.9	17.9
1566	383982	254295	31.8	28.4	24.6	18.9	15.9	11.6	9.3	-	-	-	-	-	20.1
1566*	383736	253514	-	-	-	-	-	-	-	9.7	12.3	15.0	18.4	21.8	15.4
1546	387016	255143	35.3	28.7	25.9	19.0	14.8	14.7	12.2	-	-	-	-	-	21.5
1546*	387612	254851	-	-	-	-	-	-	-	11.8	15.7	19.1	23.7	26.5	19.4
1587	386340	255565	30.7	24.1	23.7	17.2	12.9	11.4	9.3	9.9	13.2	16.8	20.1	20.9	17.5
1544	385293	254354	36.4	32.2	32.0	23.3	18.9	12.9	11.6	-	-	-	-	-	23.9
1544*	385949	253917	-	-	-	-	-	-	-	8.7	^	^	^	15.8	12.2
1573	385763	254557	30.7	25.2	25.0	15.6	12.3	7.1	6.0	6.7	11.1	13.5	18.7	21.7	16.1

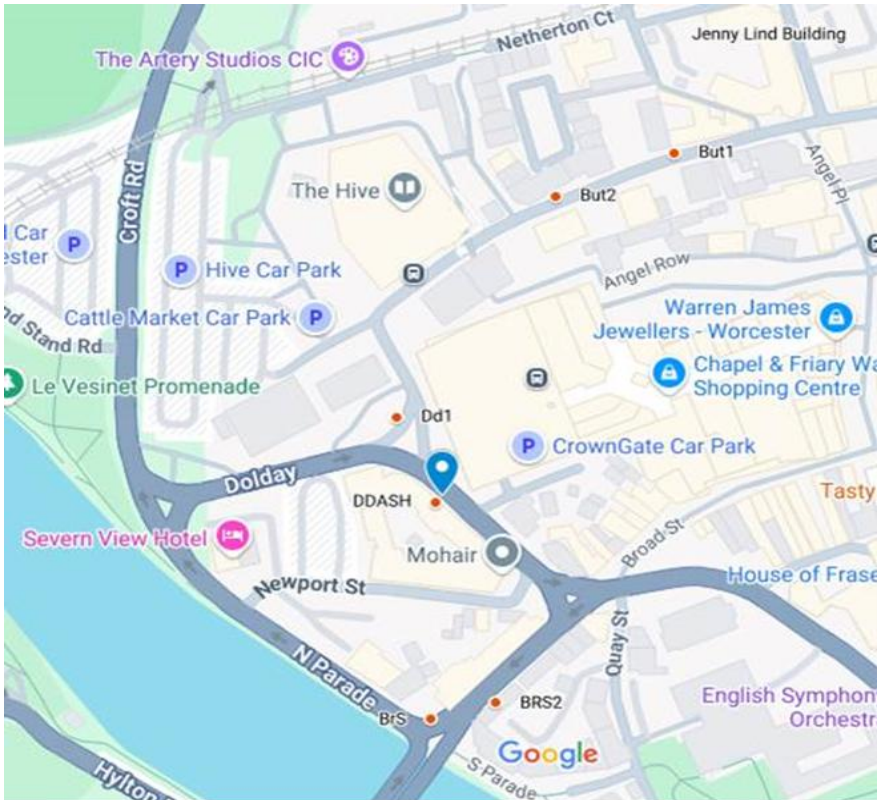
Appendix D: Map(s) of Monitoring Locations and AQMAs

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

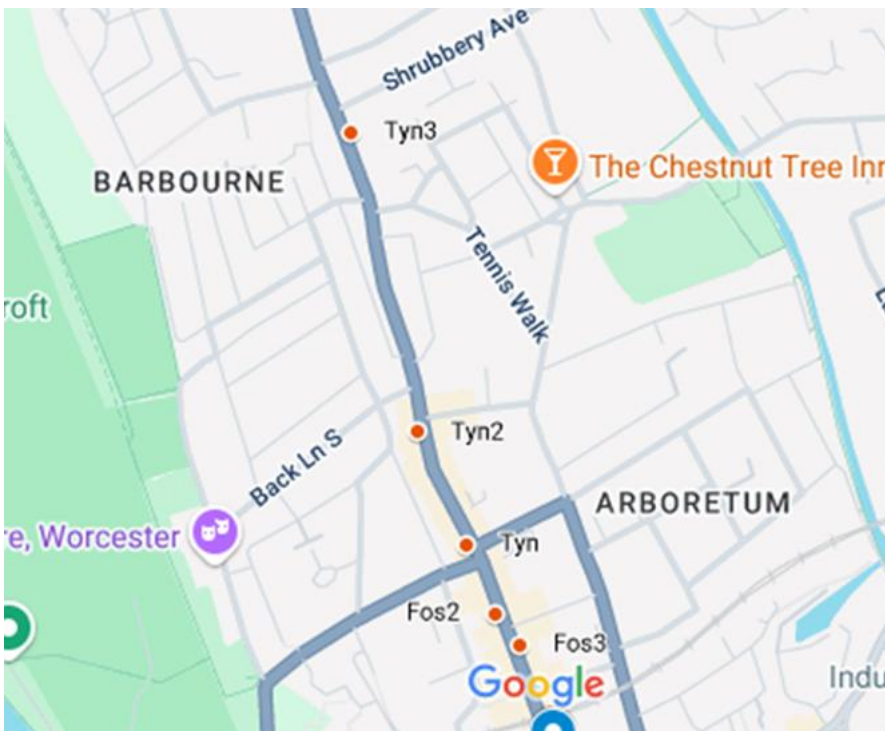
Worcester City AQMA (Political Boundary). The shaded area in the map above shows the current district wide AQMA



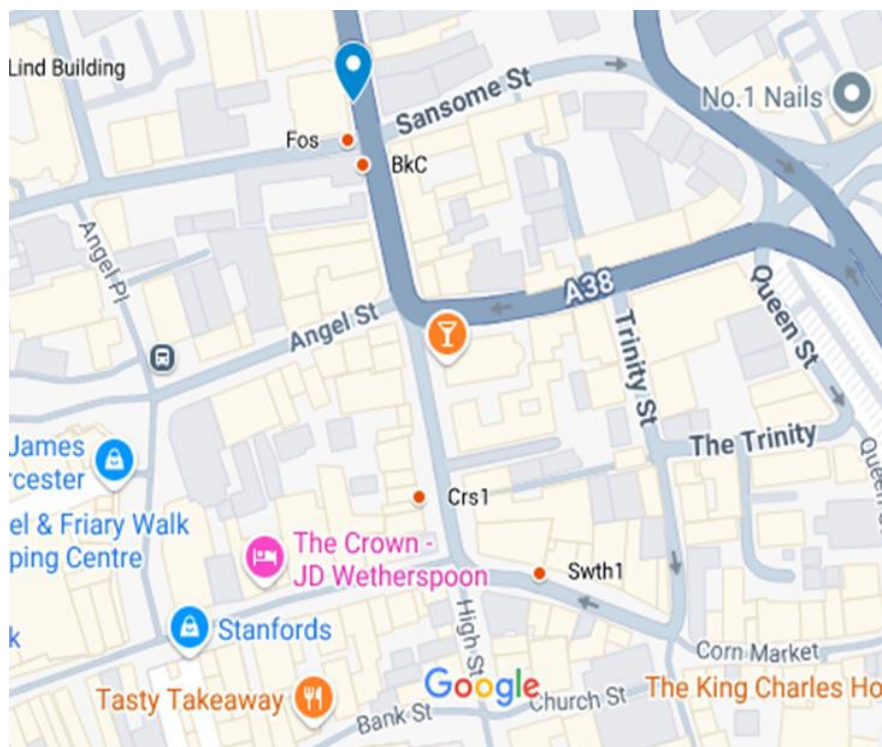
Dolday and The Butts including tubes referenced - **But1, But2, Dd1, DDASH, BrS and BRS2.**



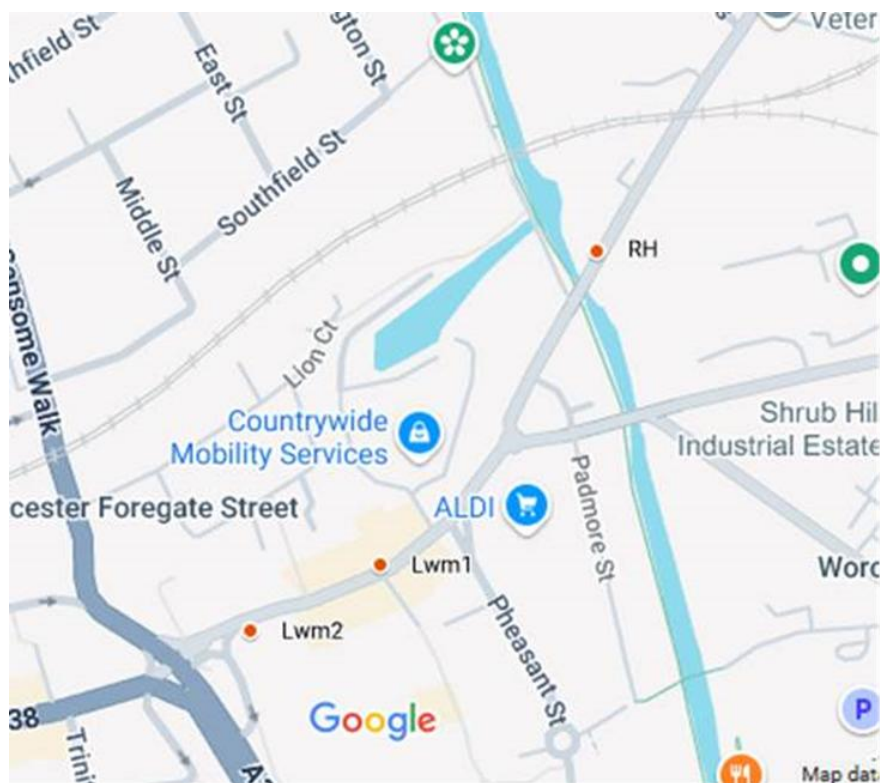
Foregate Street and the Tything including tubes referenced - **Tyn3, Tyn2, Tyn, Fos2, Fos3**



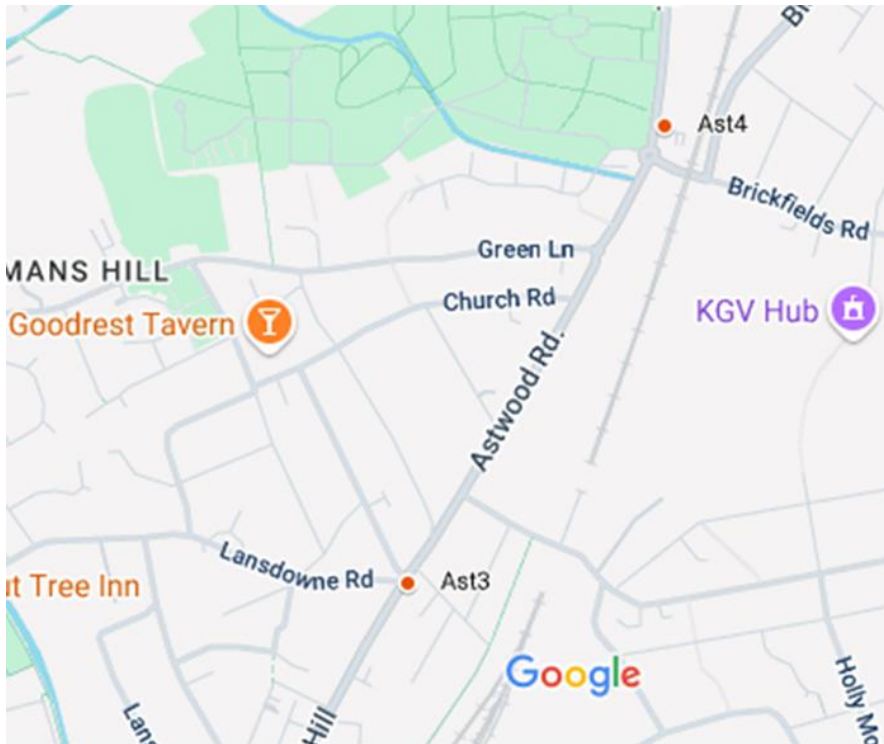
Foregate Street to St Swithins Street including tubes referenced - **Fos**, **BkC**, **Crs1**, **Swth1**



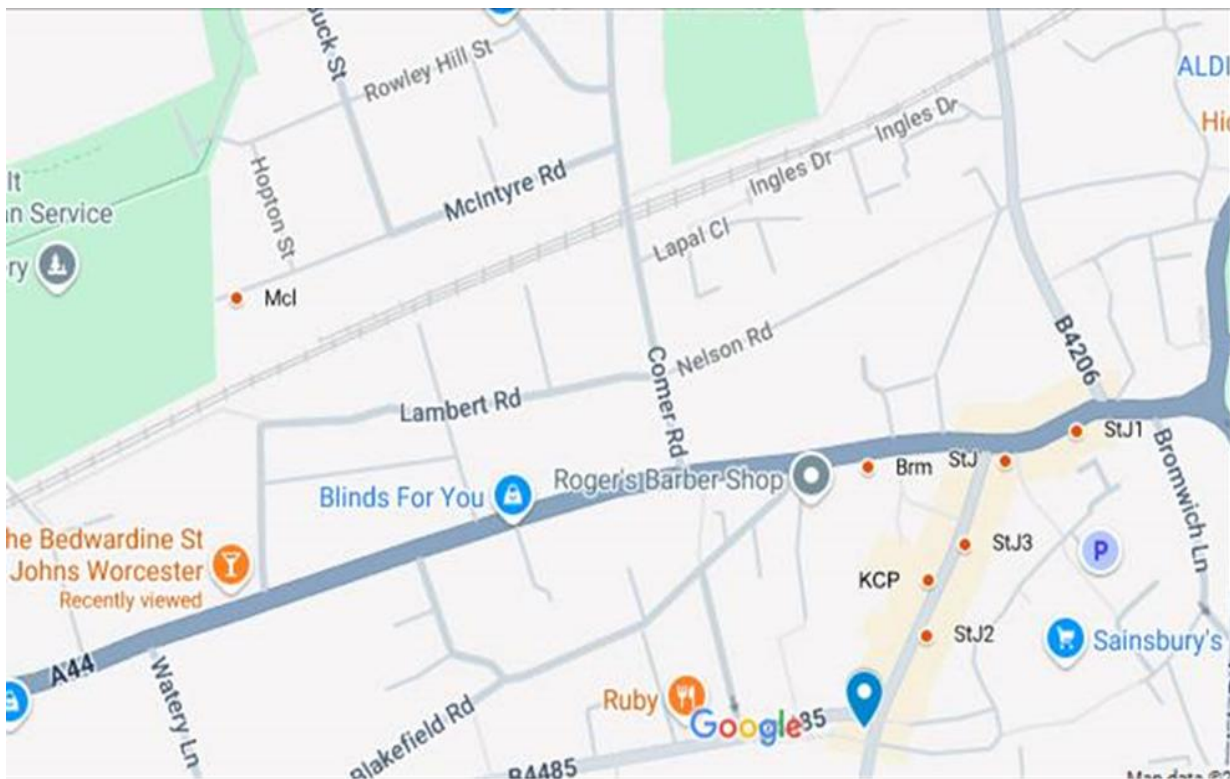
Lowesmoor including tubes referenced – **Lwm1**, **Lwm2**, **RH**



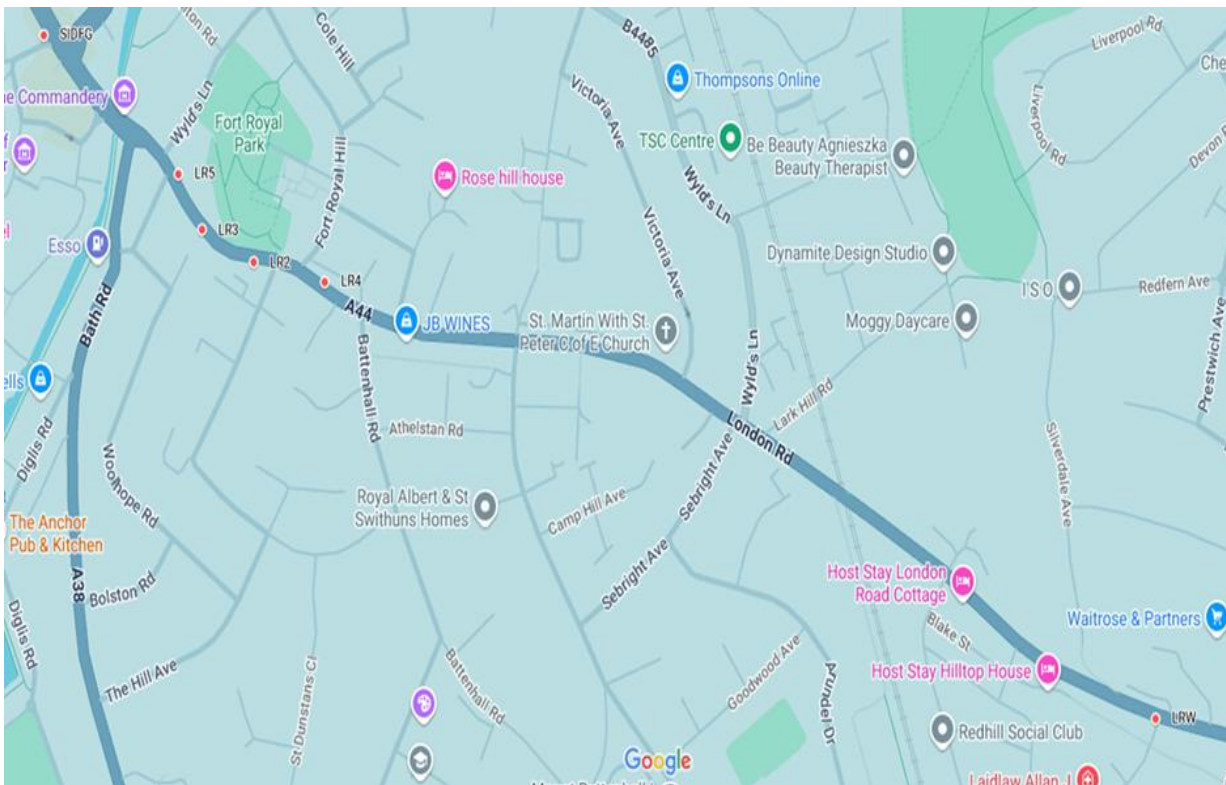
Astwood Road including tubes referenced – **Ast 3, Ast4**



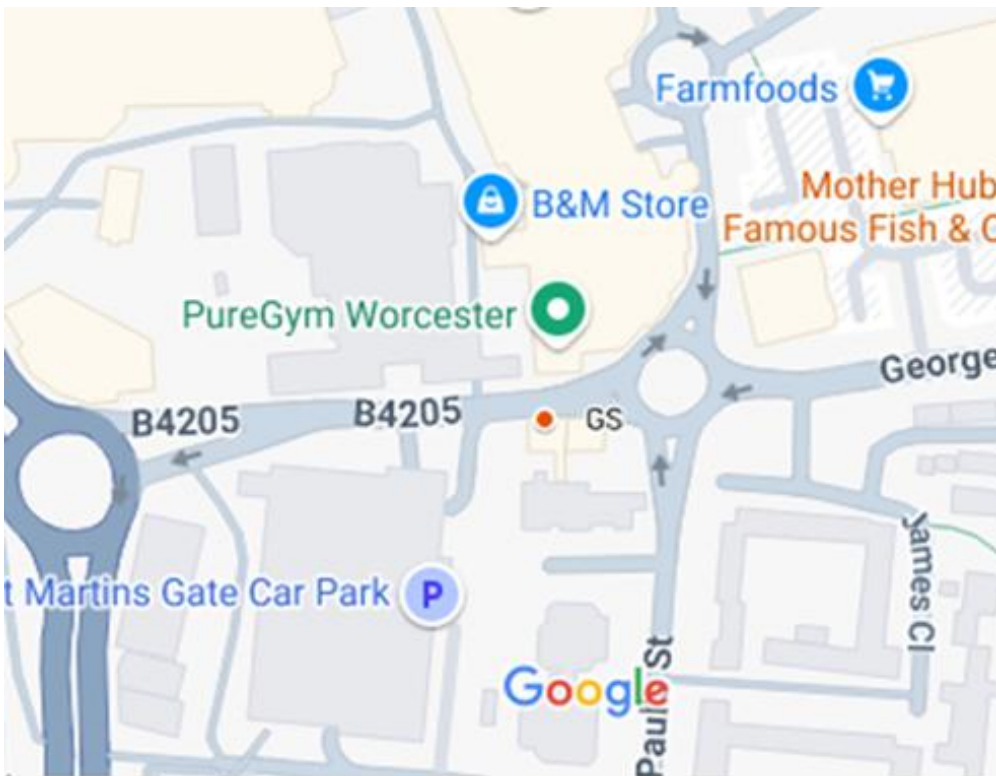
Henwick and St Johns including tubes referenced – **Mcl, StJ1, StJ2, StJ3, KCP, Brm**



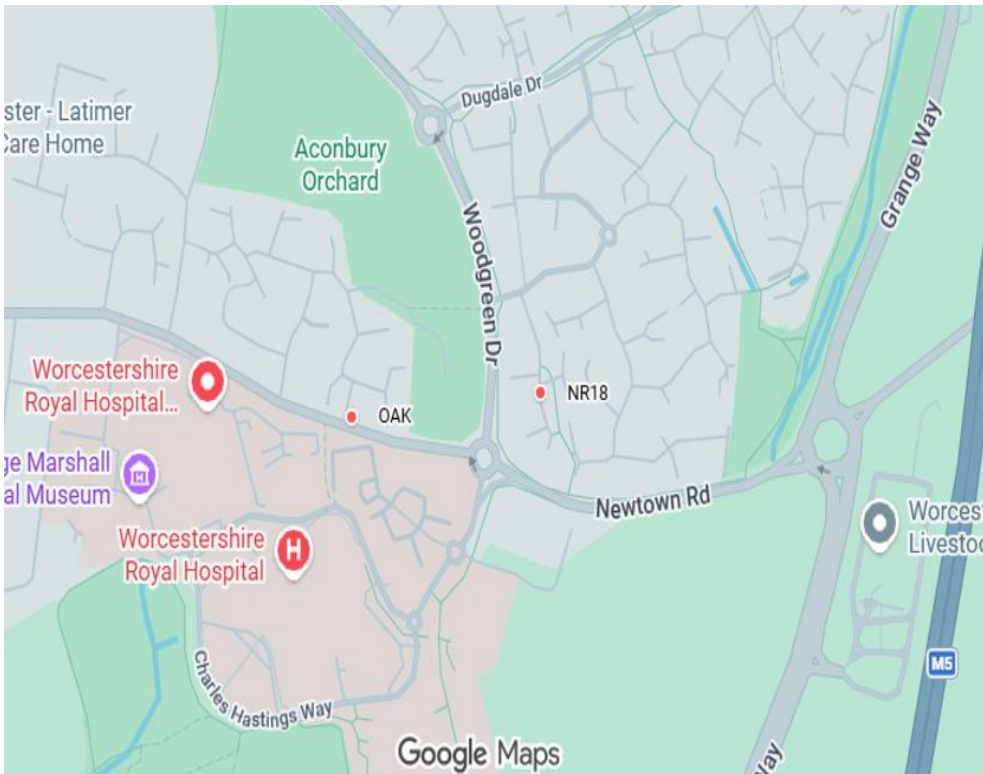
London Road and Sidbury including tube references – **SIDFG, LRW, LR2, LR3, LR4, LR5**



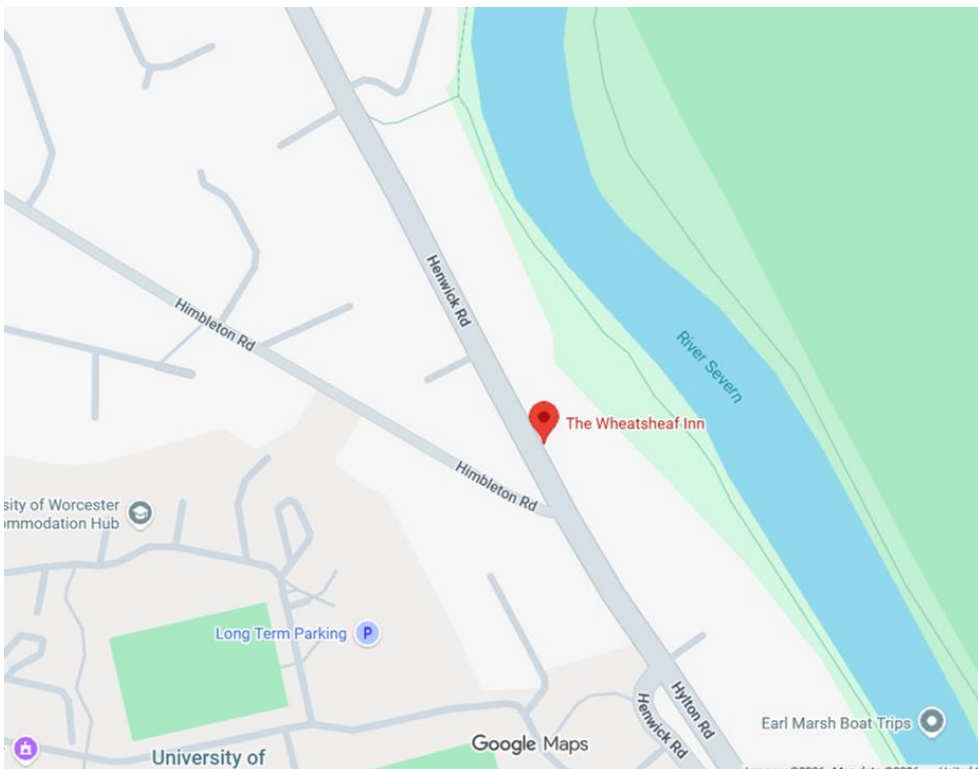
George Street reference – **GS**



Oaklands reference – **OAK** and **NR18**



WI1 at Wheatsheaf Inn



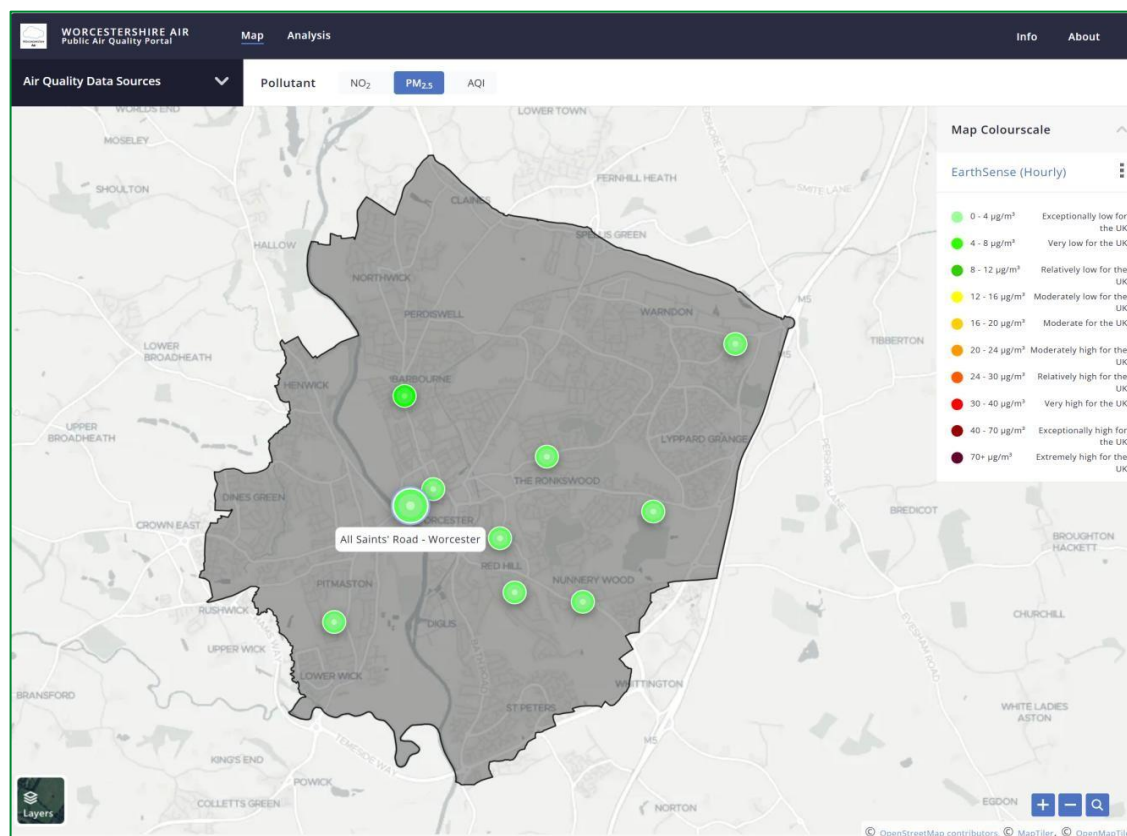
Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁹

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

⁹ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Appendix F: Low-cost Sensor Results 2025



Public Portal: [Worcestershire Air | EarthSense](https://www.worcestershireair.co.uk/)

Project Information

Real time air quality monitoring for 3-year period funded by Defra Air Quality Grant (2022-23) and 10% match funding by each Worcestershire district council. Low-cost sensors (Zephyrs) installed and maintained by Earthsense who also provide real time data portal. Sensors were installed between January and May 2024.

General information

Zephyrs are one of the available low-cost sensors that have been certified as suitable for indicative monitoring for particulate matter within the UK using the Environment Agency's Indicative instrument certification scheme (MCERTS).

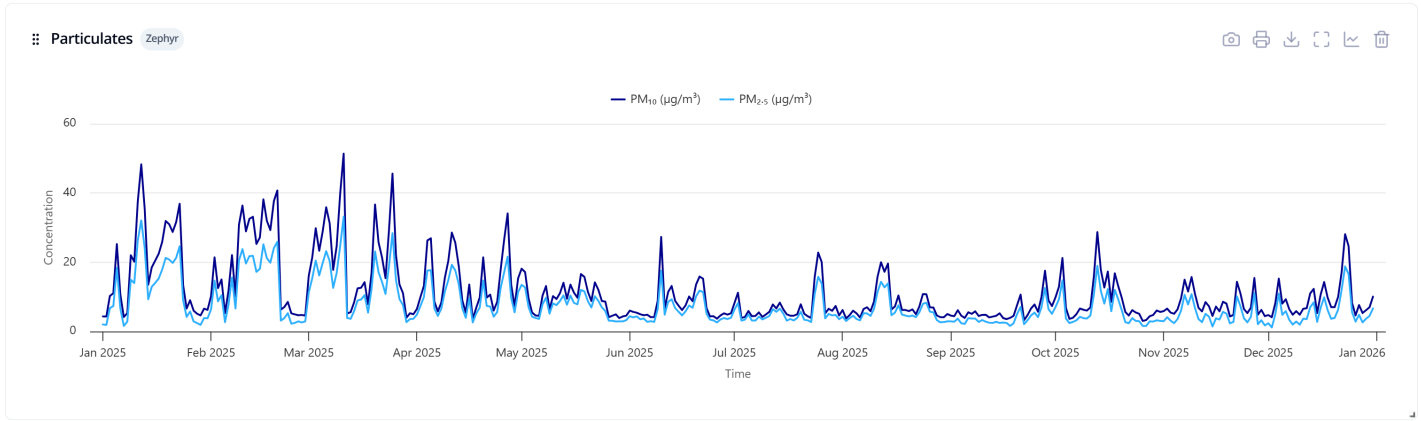
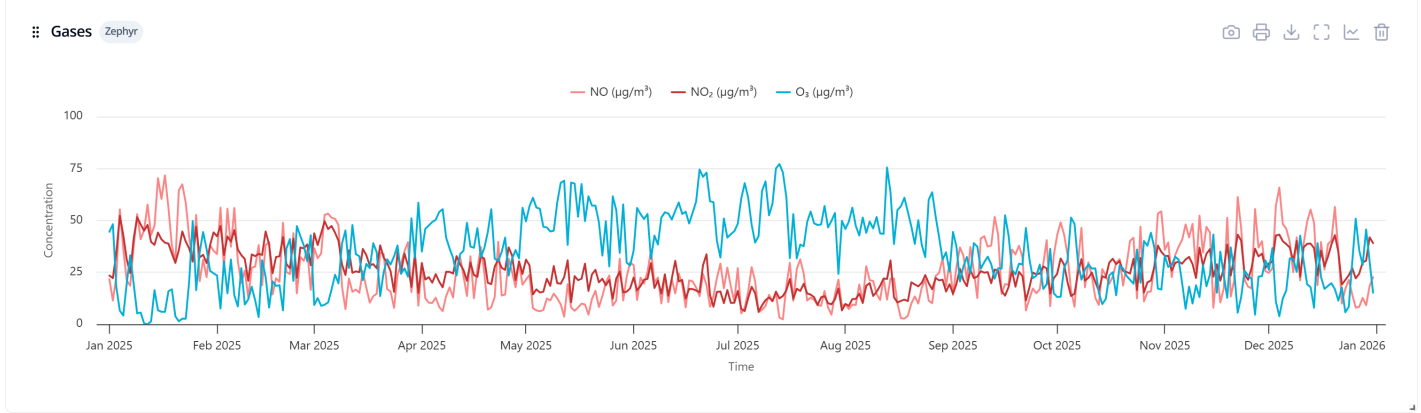
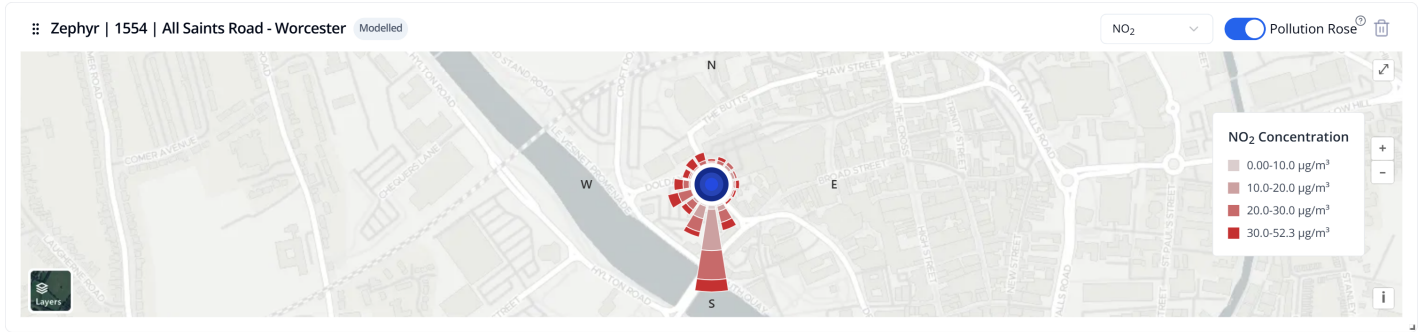
These low-cost sensors have been certified as suitable for indicative monitoring for particulate matter within the UK using the Environment Agency's Indicative instrument certification scheme (MCERTS). However, the following advice from Defra is acknowledged: 'While low-cost sensors can provide useful indicative data, at present they are not approved for use in statutory legal reporting (LAQM) of data against the National air quality objectives as they are not accurate enough to meet the expanded uncertainty requirements of equivalent [scientific reference] instruments.'

MyAir Analysis Report

Device: All Saints Road - Worcester

Time Period: 1 Jan 2025 - 1 Jan 2026

Time Average: 24 Hour



Gas Averages

A bar chart titled 'Gas Averages' comparing the concentrations of three gases: NO₂, NO, and O₃. The y-axis represents concentration in µg/m³, with a scale from 0 to 100. The x-axis lists the gases. NO₂ has a concentration of 26 µg/m³ (pink bar), NO has a concentration of 25 µg/m³ (light pink bar), and O₃ has a concentration of 35 µg/m³ (light blue bar). A trash can icon is in the top right corner.

Gas	Concentration (µg/m³)
NO ₂	26
NO	25
O ₃	35

Particulate Averages

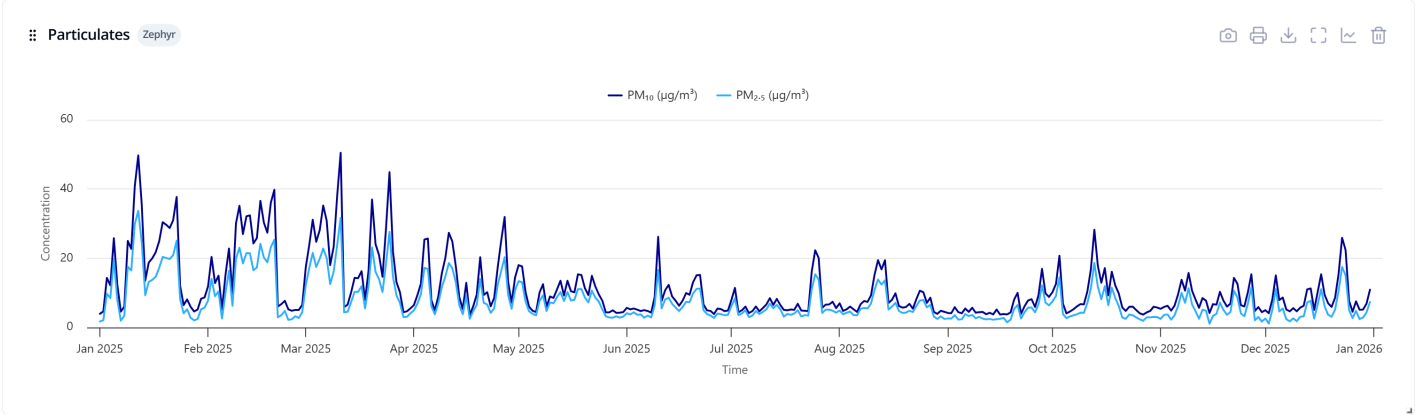
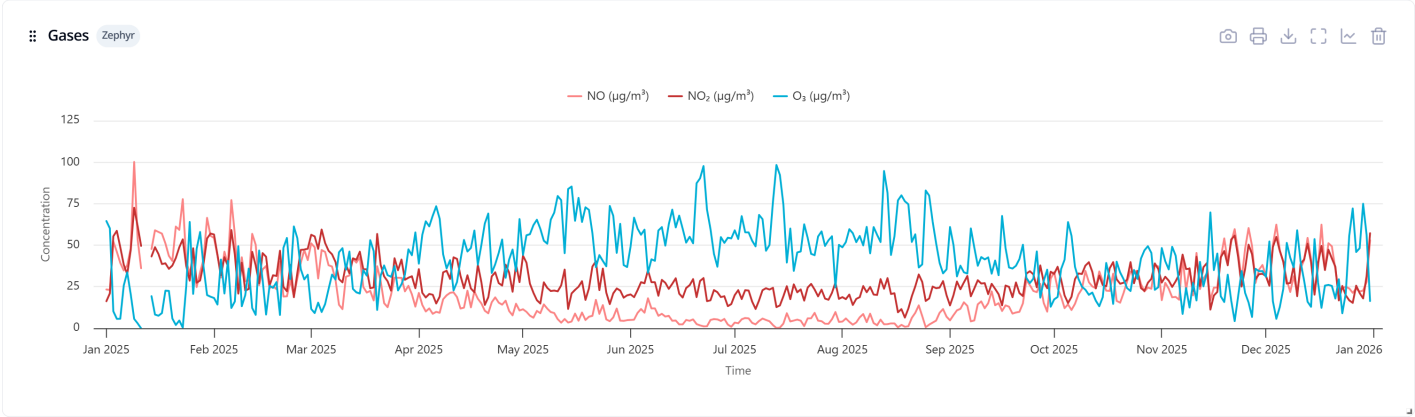
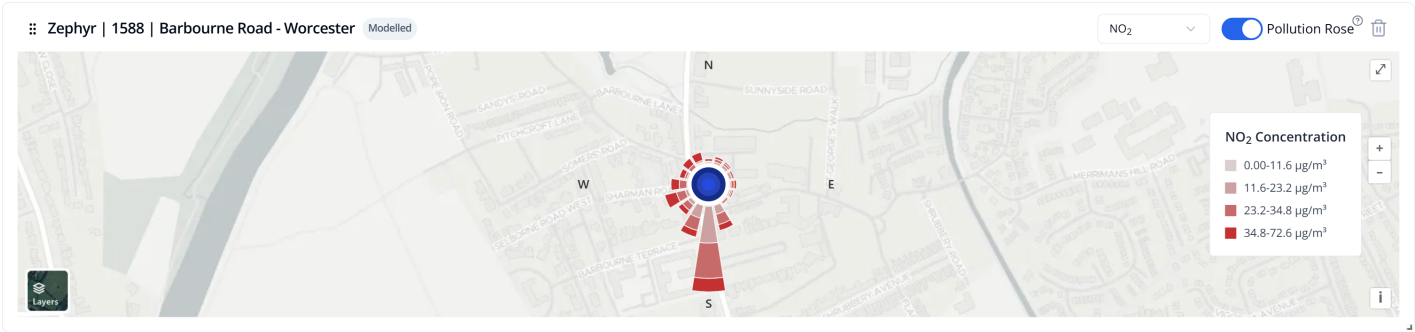
Particulate	Average (µg/m³)
PM _{2.5}	8
PM ₁₀	11

MyAir Analysis Report

Device: Barbourne Road - Worcester

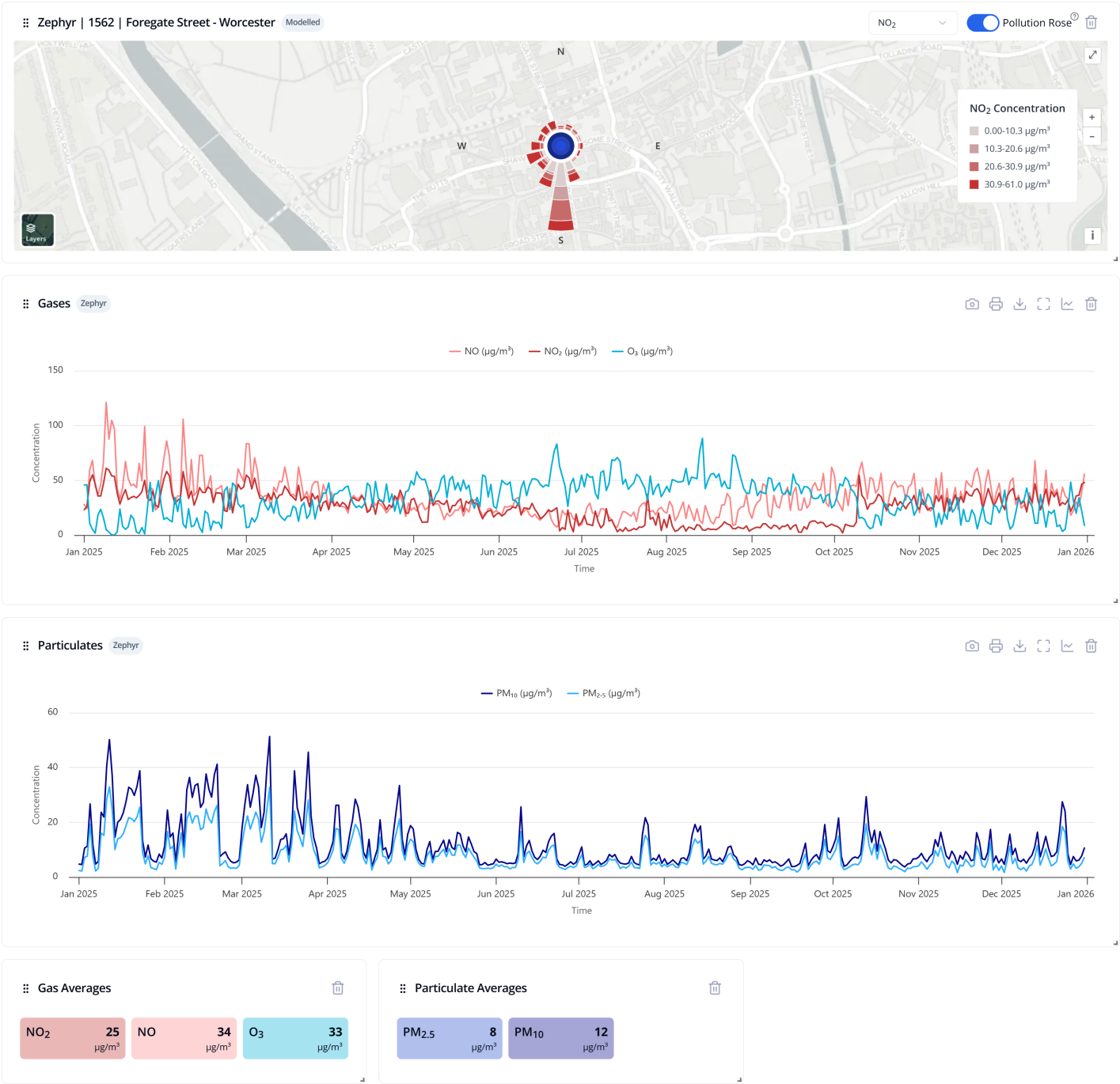
Time Period: 1 Jan 2025 - 1 Jan 2026

Time Average: 24 Hour



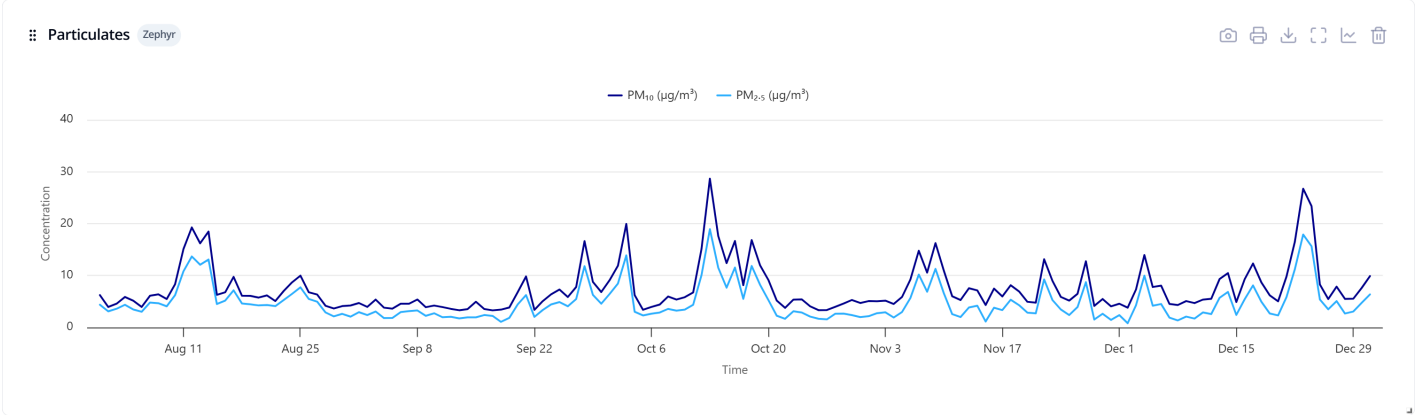
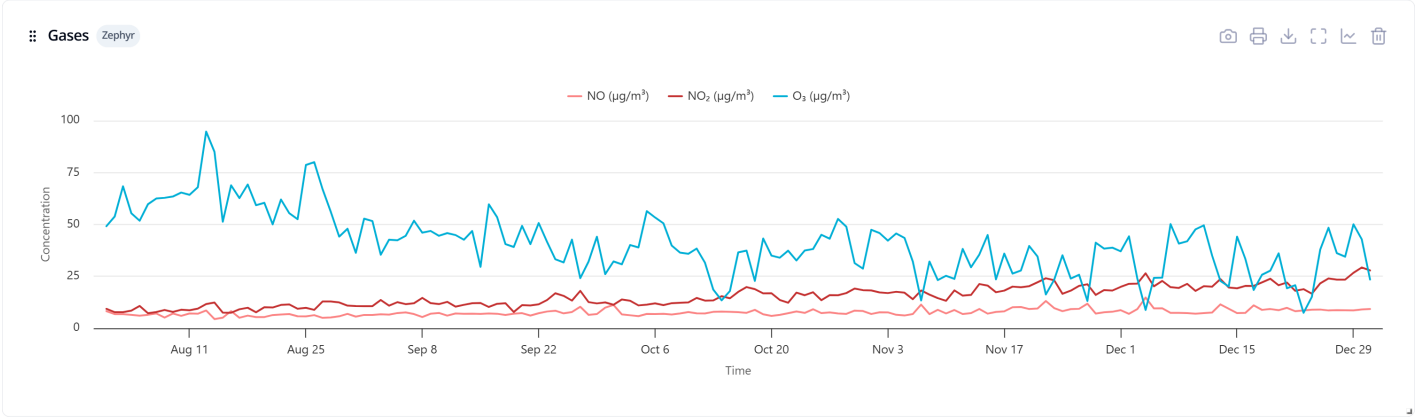
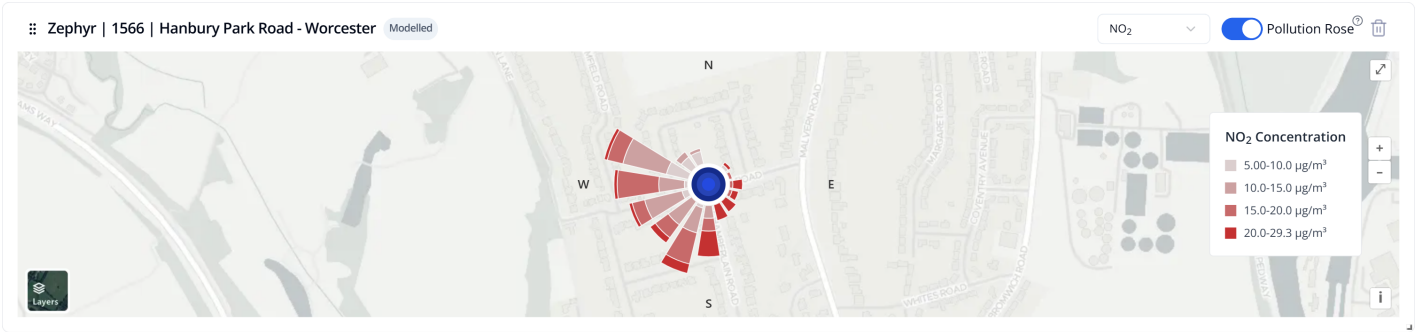
MyAir Analysis Report

Device: Foregate Street - Worcester
Time Period: 1 Jan 2025 - 1 Jan 2026
Time Average: 24 Hour



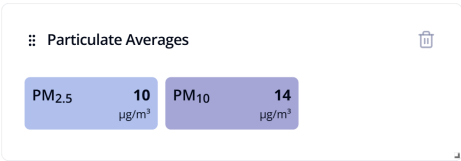
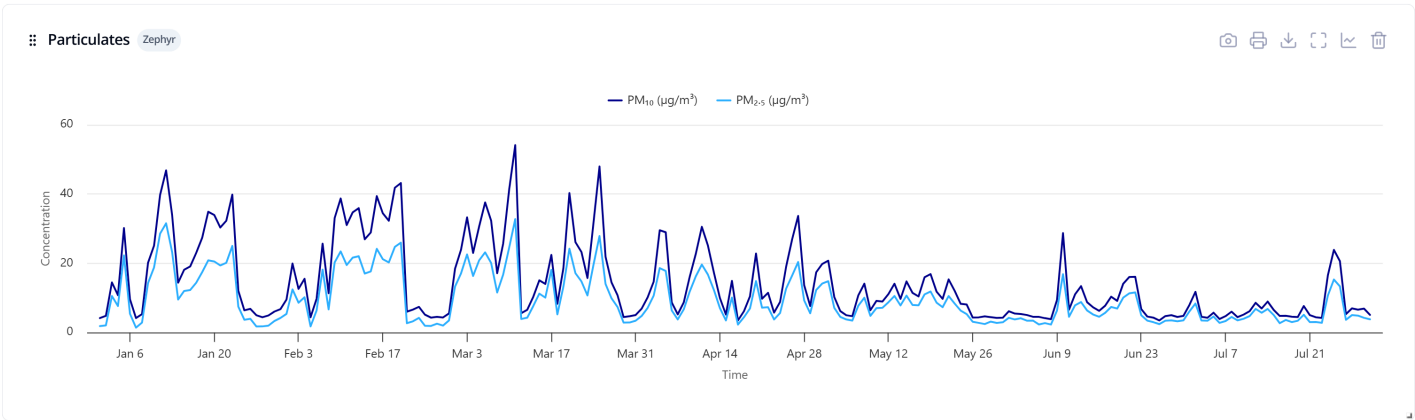
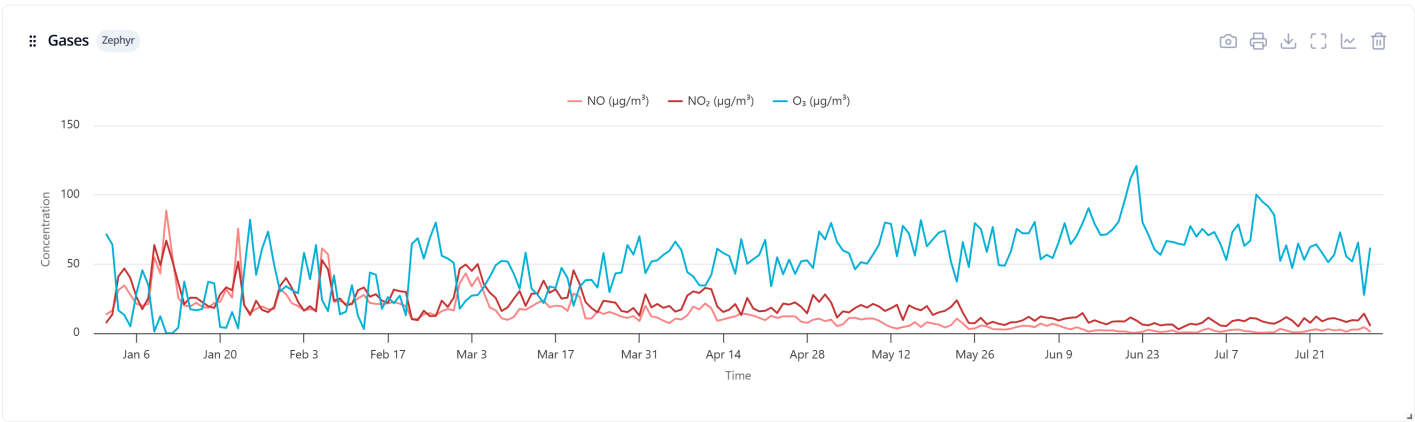
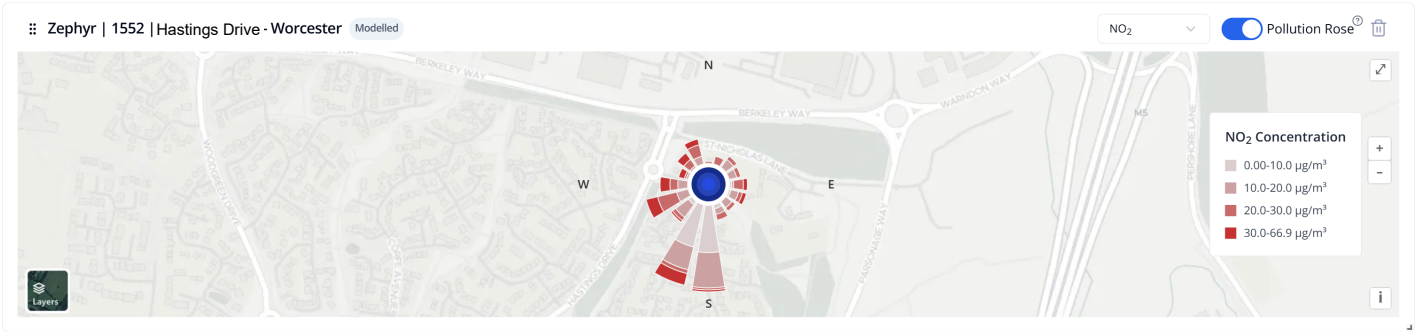
MyAir Analysis Report

Device: Hanbury Park Road - Worcester
Time Period: 1 Aug 2025 - 1 Jan 2026
Time Average: 24 Hour



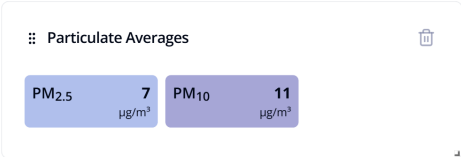
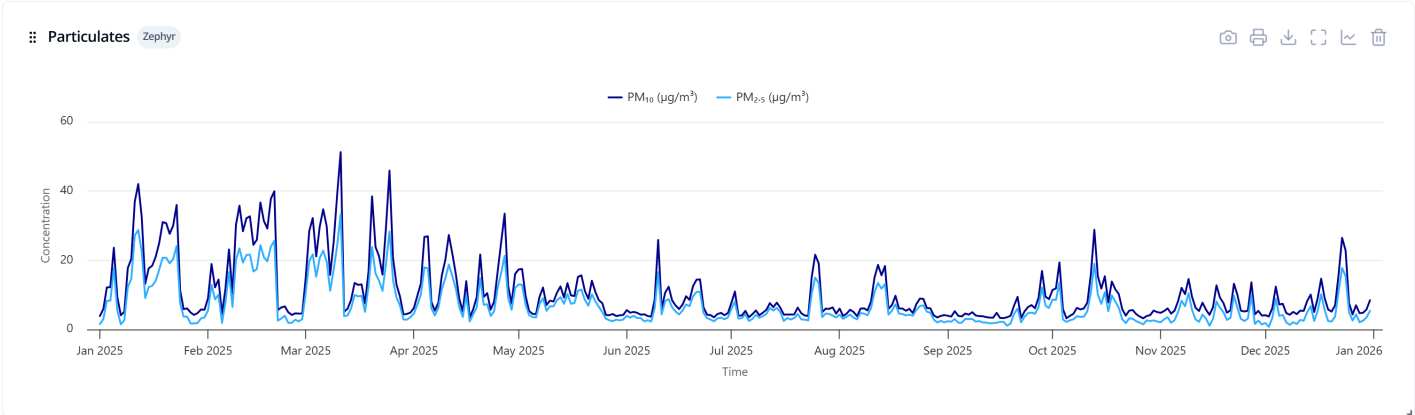
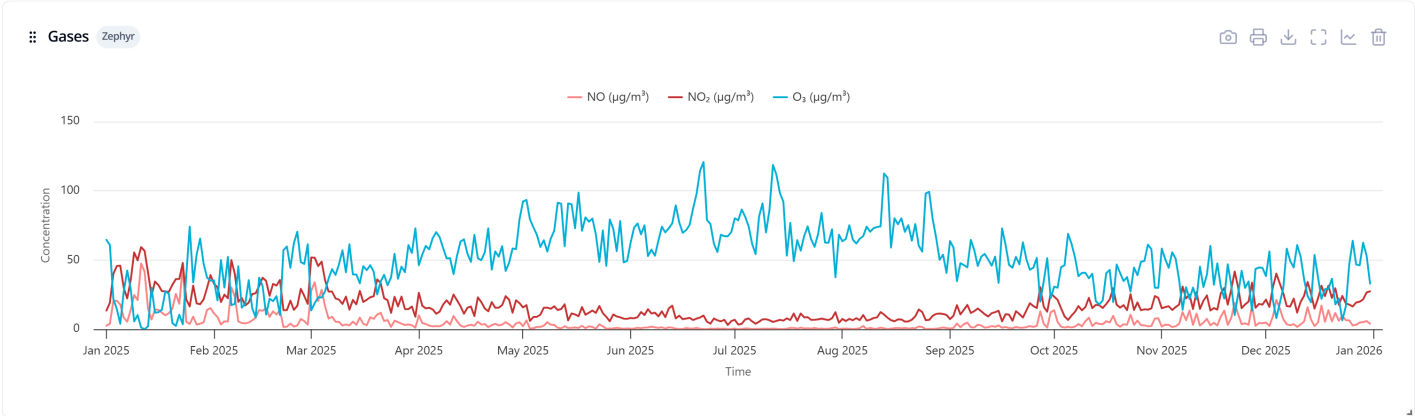
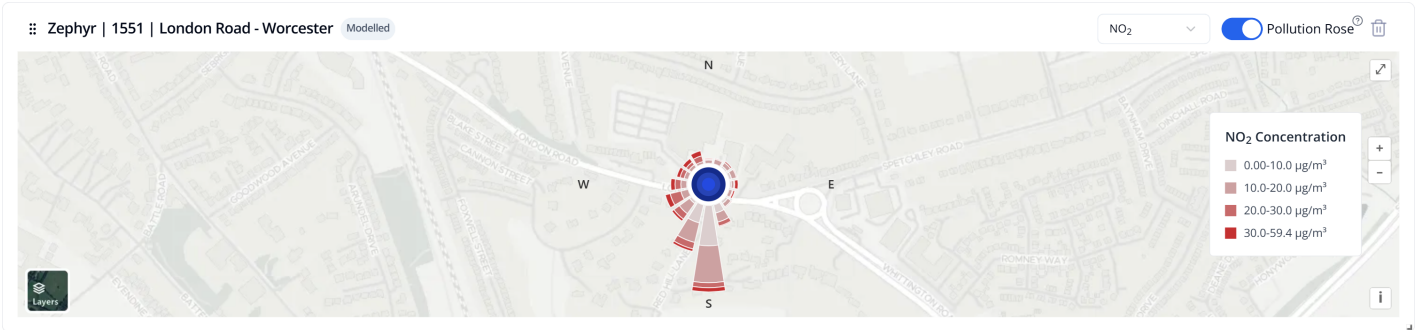
MyAir Analysis Report

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Time Period: 1 Jan 2025 - 1 Aug 2025
Time Average: 24 Hour



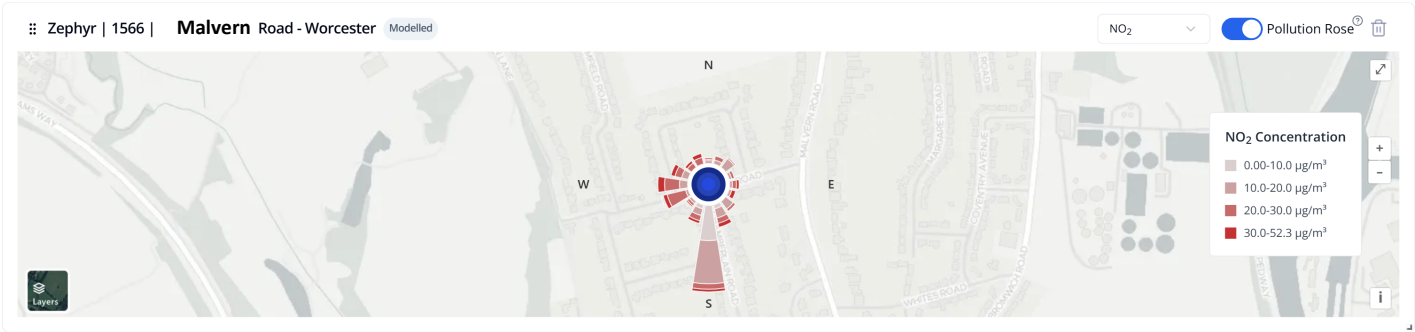
MyAir Analysis Report

Device: London Road - Worcester
Time Period: 1 Jan 2025 - 1 Jan 2026
Time Average: 24 Hour



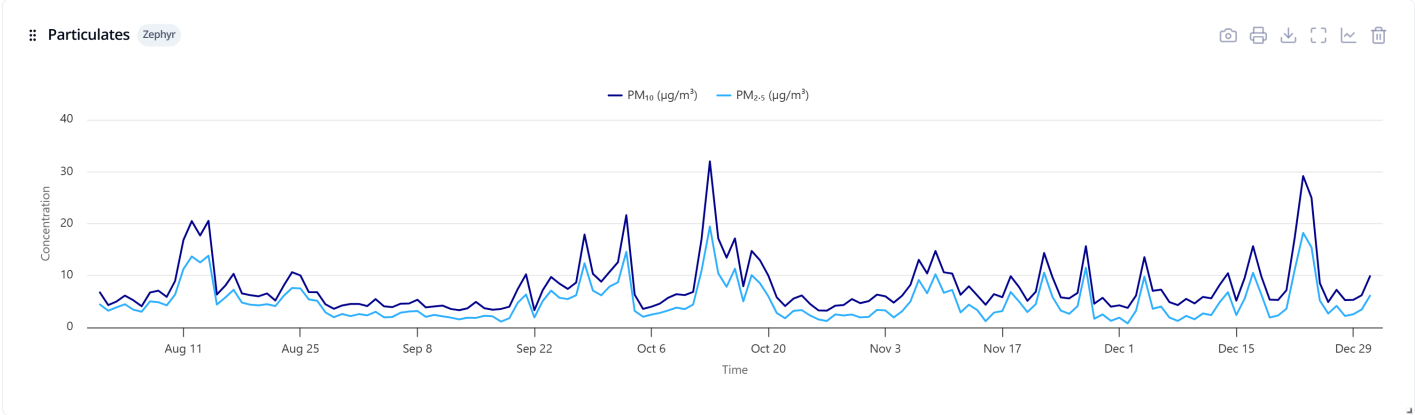
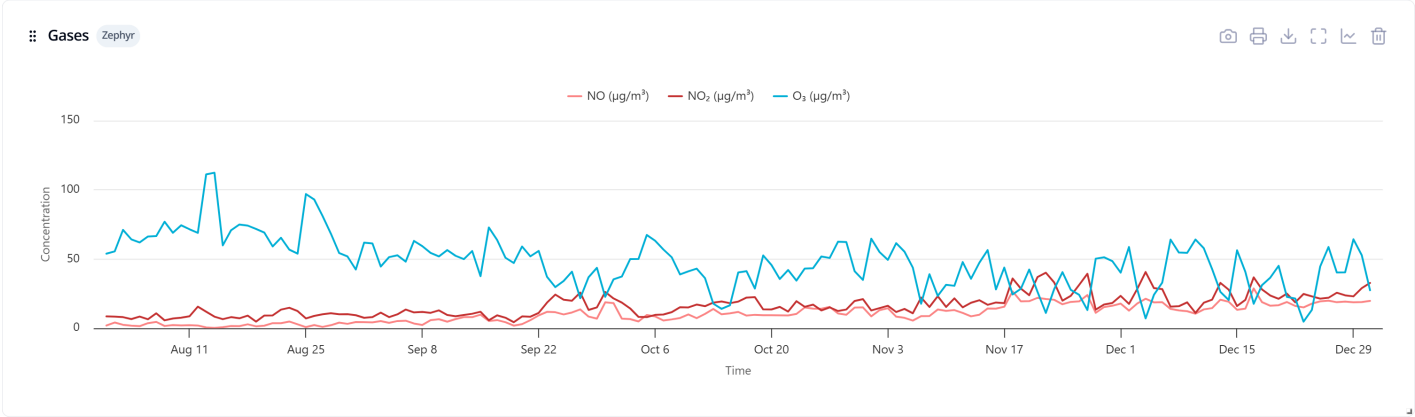
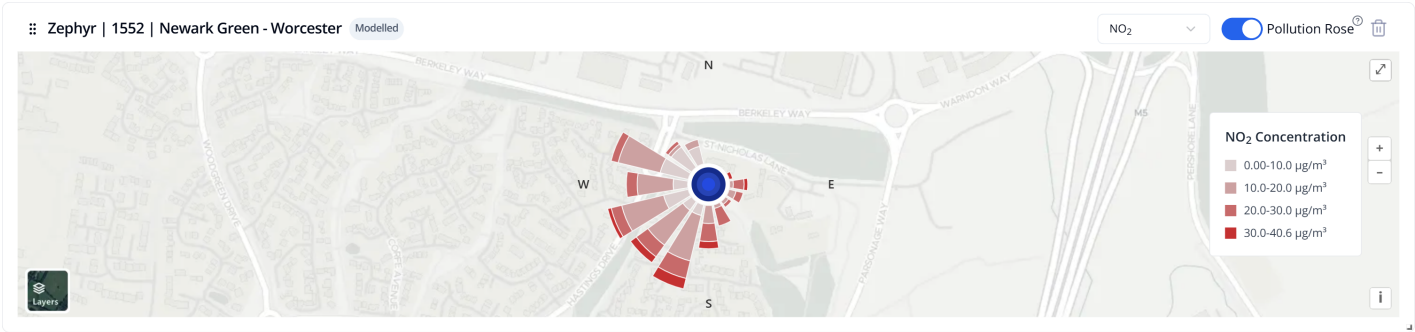
MyAir Analysis Report

Device: Malvern Road - Worcester
Time Period: 1 Jan 2025 - 1 Aug 2025
Time Average: 24 Hour



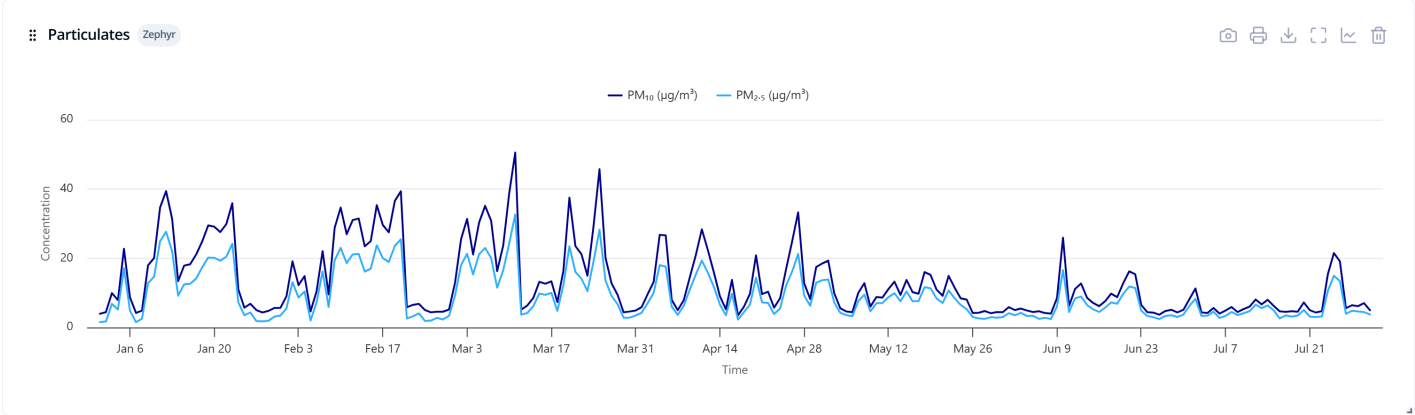
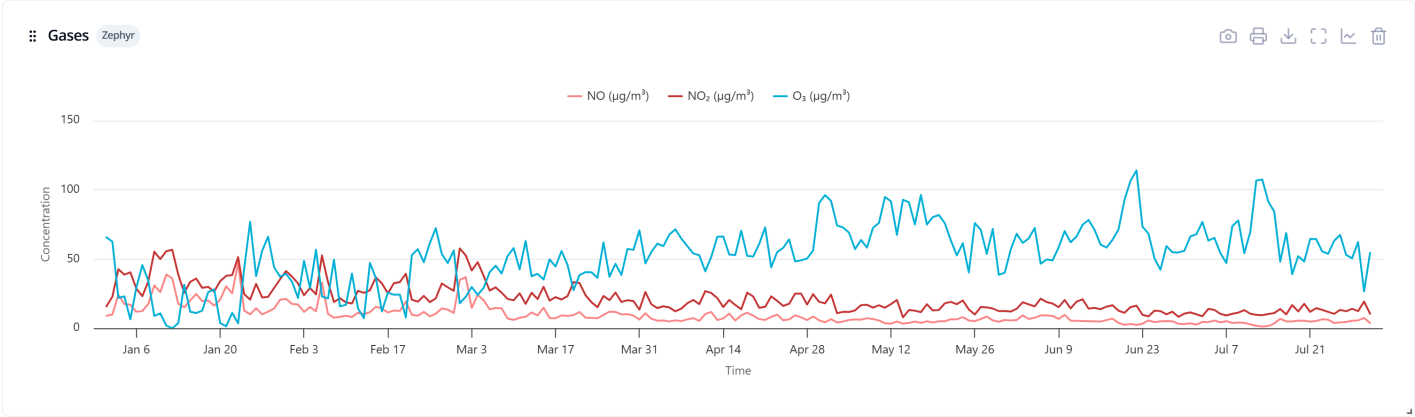
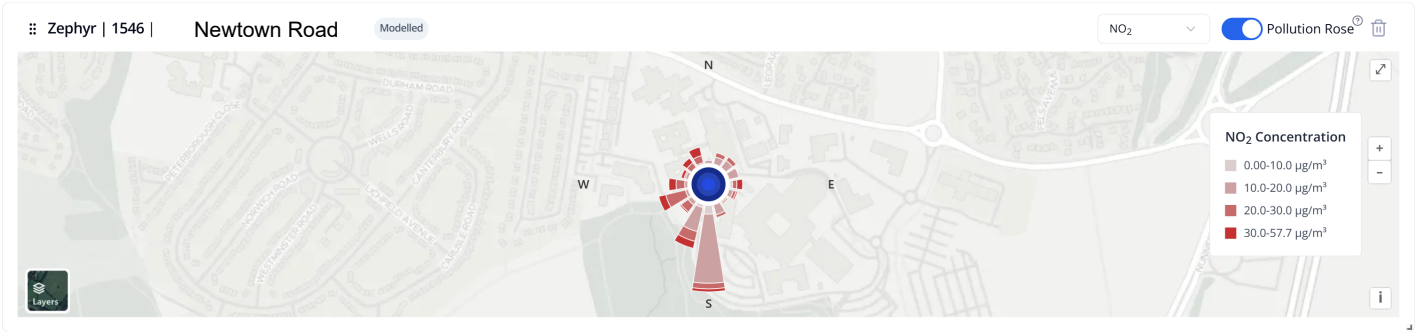
MyAir Analysis Report

Device: Newark Green - Worcester
Time Period: 1 Aug 2025 - 1 Jan 2026
Time Average: 24 Hour



MyAir Analysis Report

Device: Newtown Road
Time Period: 1 Jan 2025 - 1 Aug 2025
Time Average: 24 Hour

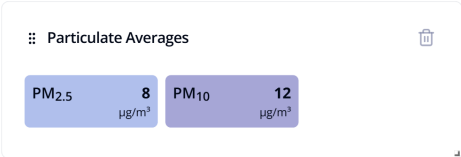
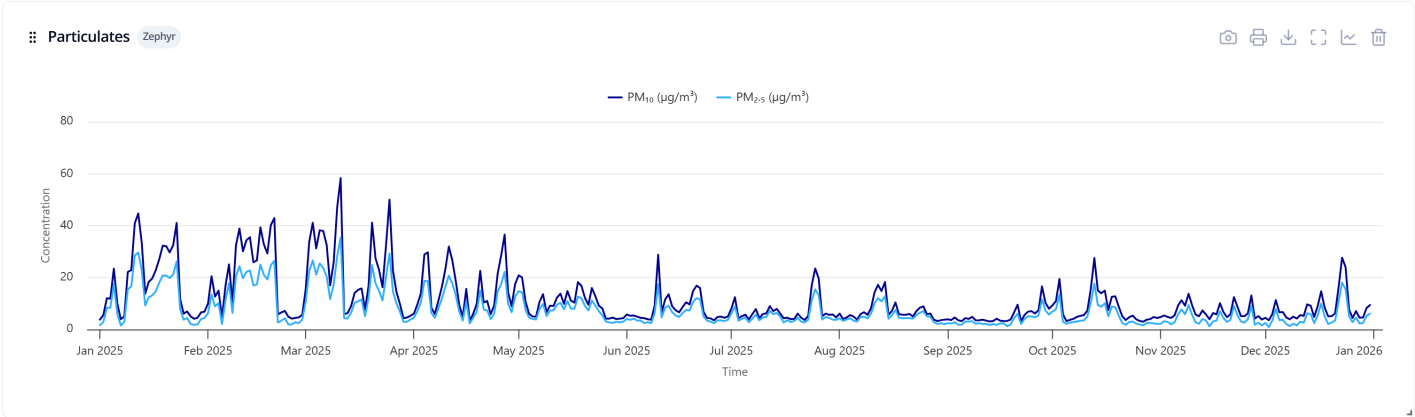
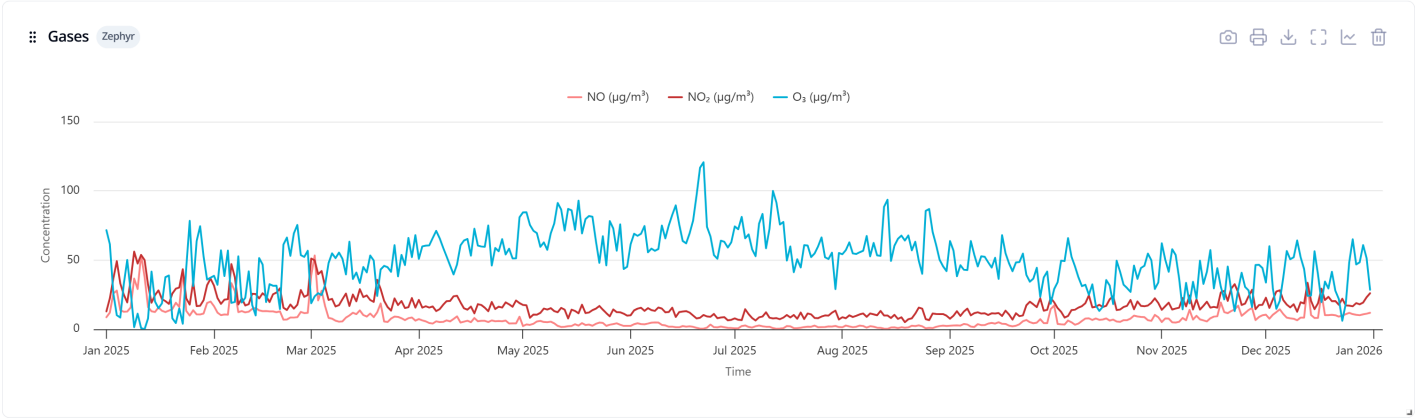
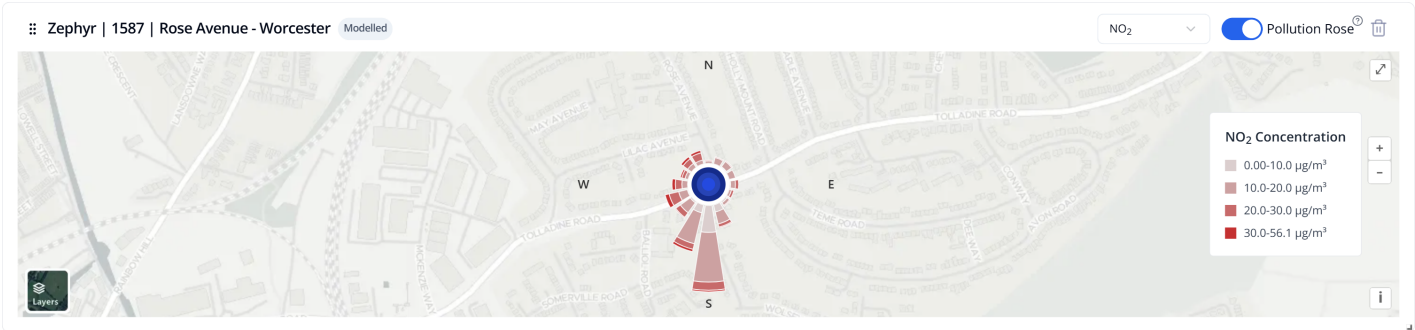


MyAir Analysis Report

Device: Rose Avenue - Worcester

Time Period: 1 Jan 2025 - 1 Jan 2026

Time Average: 24 Hour

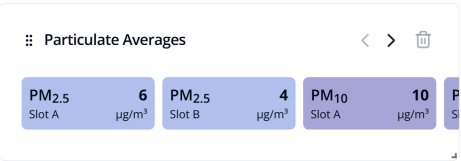
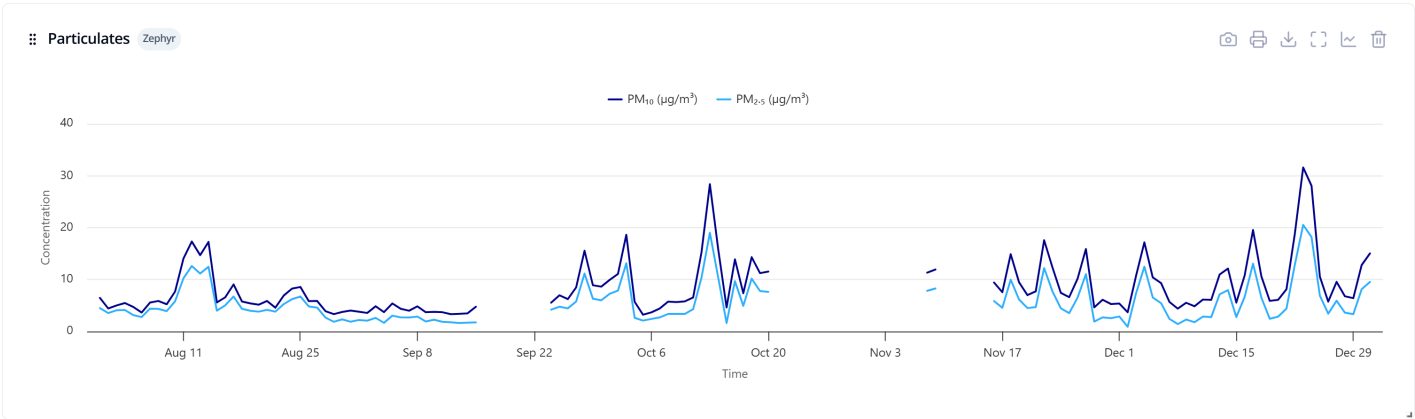
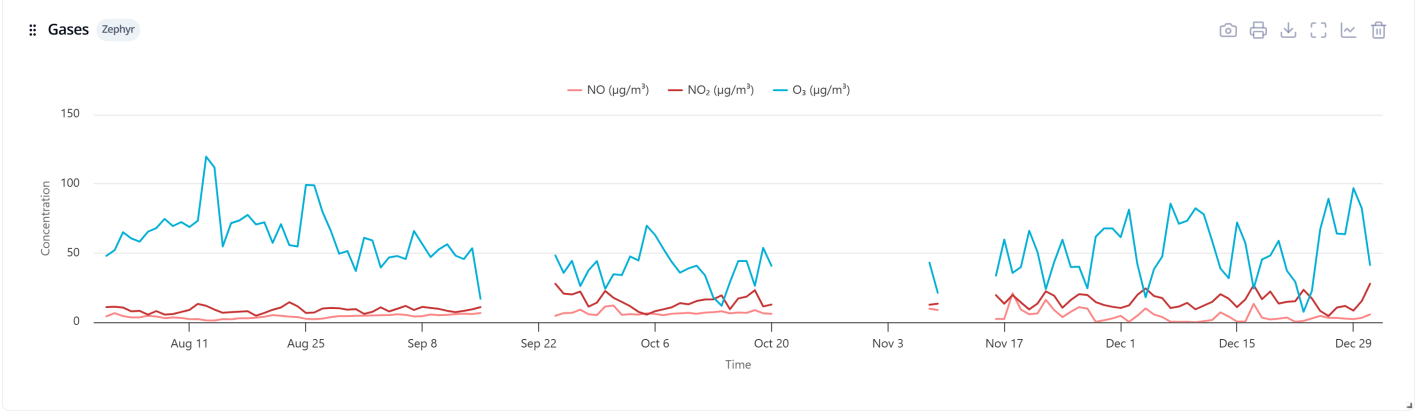
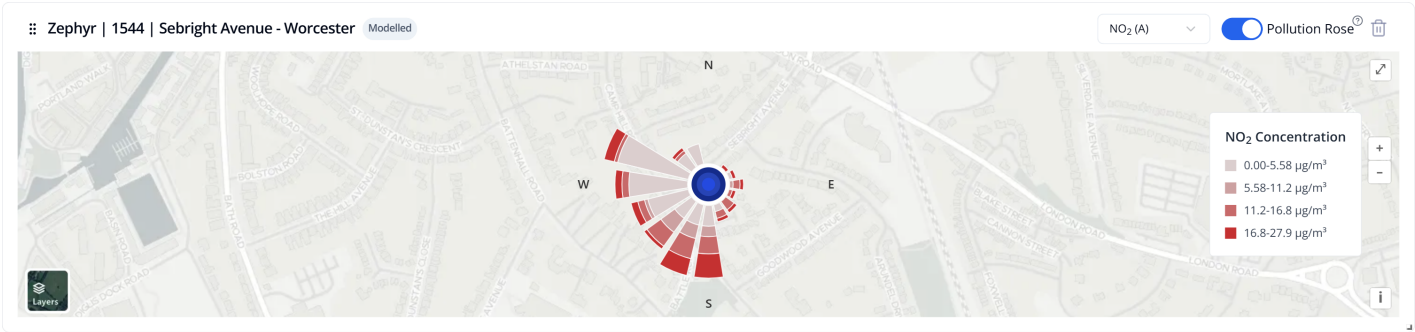


MyAir Analysis Report

Device: Sebright Avenue - Worcester

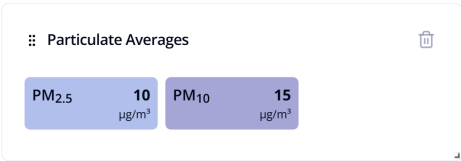
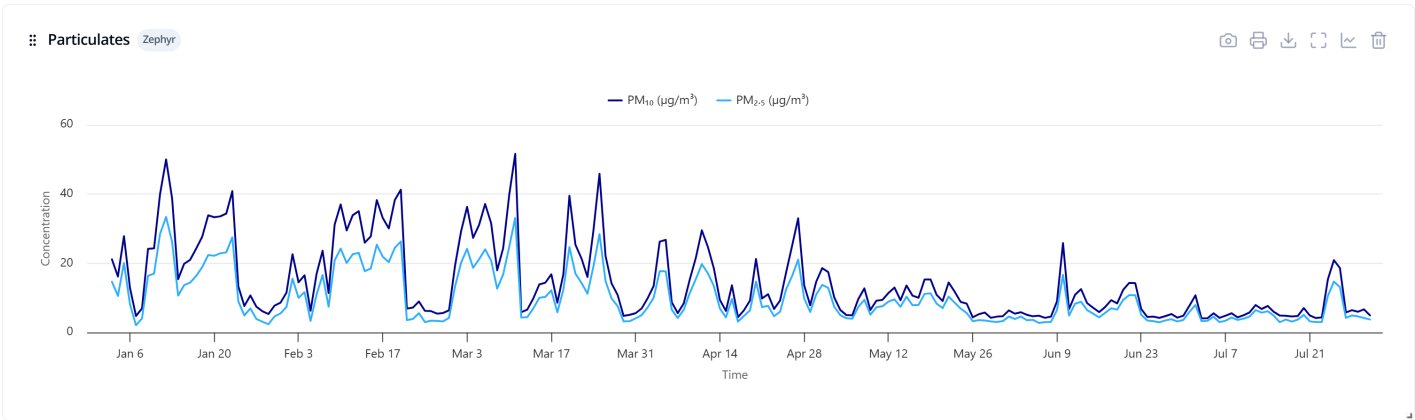
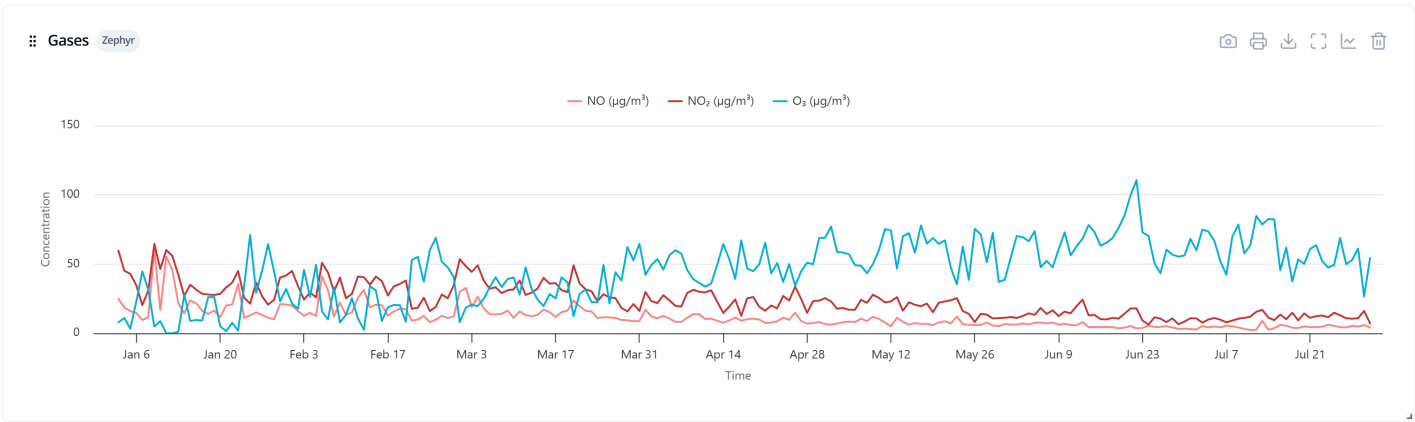
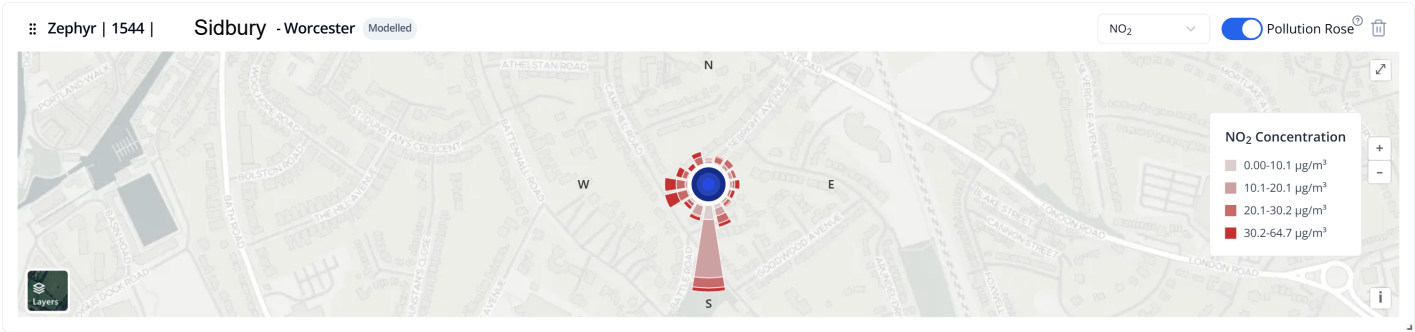
Time Period: 1 Aug 2025 - 1 Jan 2026

Time Average: 24 Hour



MyAir Analysis Report

Device: Sidbury - Worcester
Time Period: 1 Jan 2025 - 1 Aug 2025
Time Average: 24 Hour

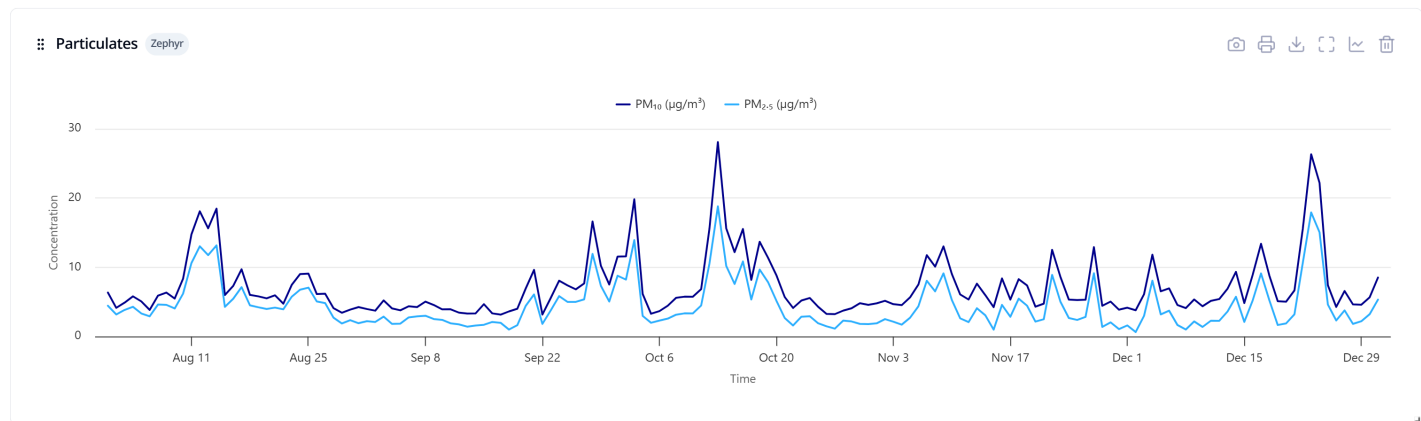
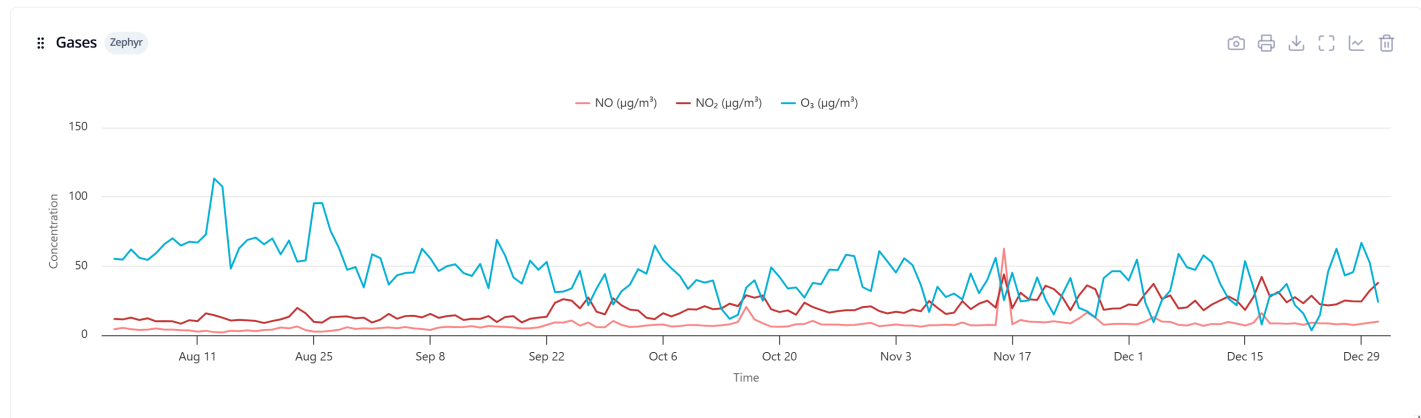
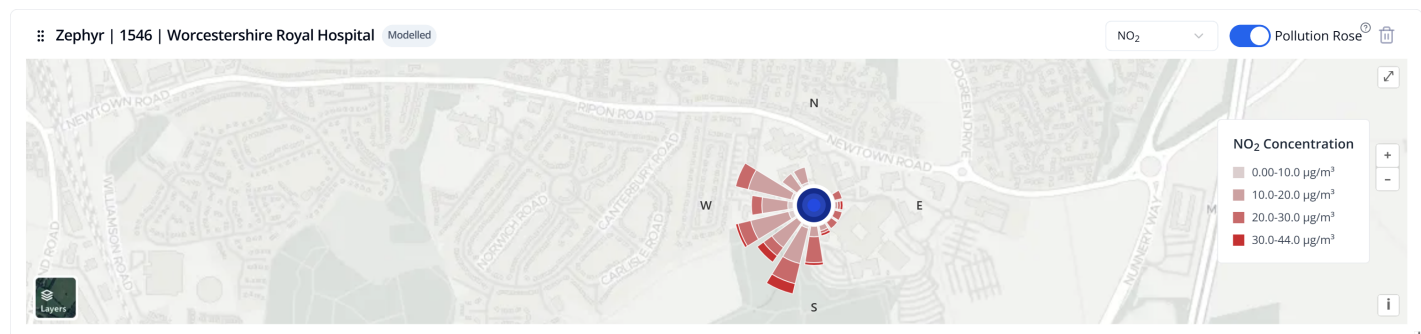


MyAir Analysis Report

Device: Worcestershire Royal Hospital

Time Period: 1 Aug 2025 - 1 Jan 2026

Time Average: 24 Hour



Gas Averages

Gas	Concentration (µg/m³)
NO ₂	19
NO	8
O ₃	44

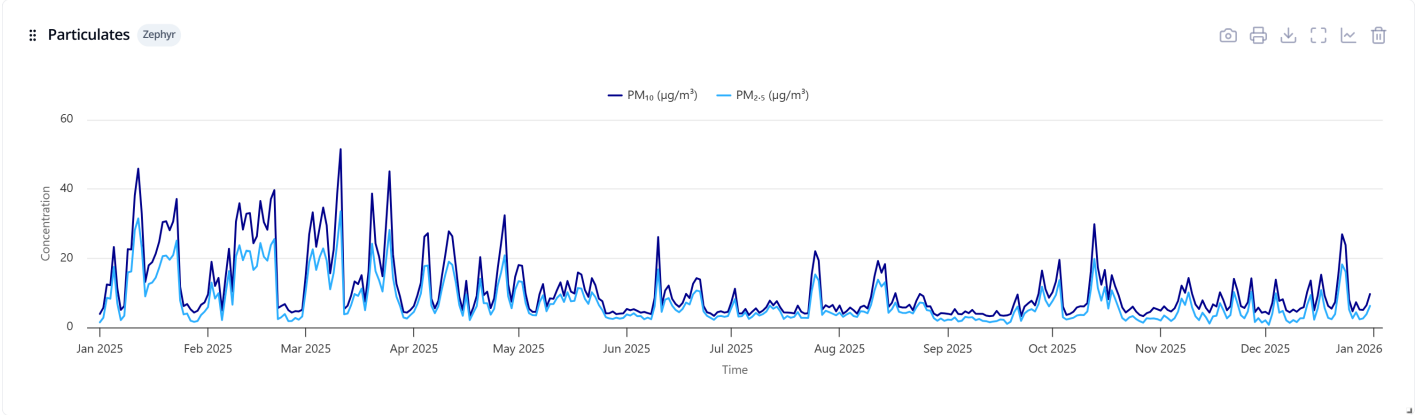
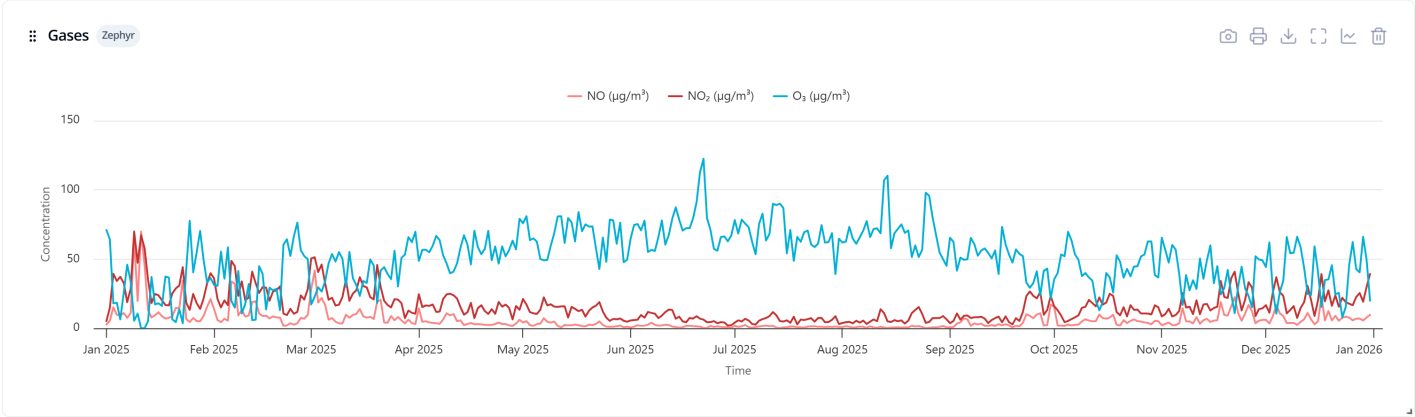
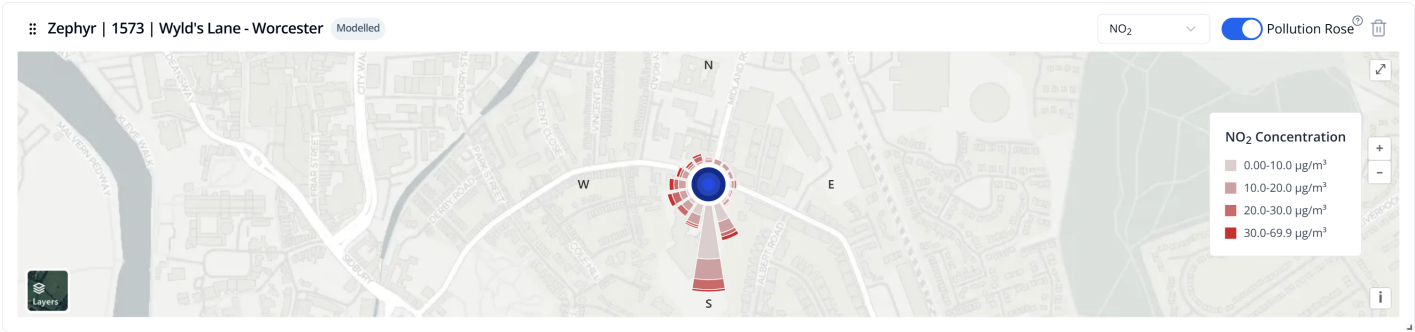
Particulate Averages

The diagram shows two light blue rounded rectangular boxes. The left box contains the text 'PM_{2.5}' followed by a large bold '4' and then 'µg/m³' below it. The right box contains the text 'PM₁₀' followed by a large bold '7' and then 'µg/m³' below it.

PM _{2.5}	PM ₁₀
4 µg/m³	7 µg/m³

MyAir Analysis Report

Device: Wyld's Lane - Worcester
Time Period: 1 Jan 2025 - 1 Jan 2026
Time Average: 24 Hour



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
AQS	Air Quality Strategy
ASR	Annual Status Report
AURN	Automatic Urban and Rural Network
Defra	Department for Environment, Food and Rural Affairs
DoPH	Director of Public Health
EV	Electric Vehicles
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
WCC	Worcester City Council
WRS	Worcestershire Regulatory Services

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