2025 Air Quality Annual Status Report (ASR)

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

Date: June 2025

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Local Responsibilities and Commitment

This ASR was prepared by the Environmental Sustainability Team of Oxford City Council with the support and agreement of Oxfordshire County Council colleagues.

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Executive Summary

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.

Oxford's Air Quality Progress: A Decade of Improvement

The city of Oxford, as with many urban areas throughout the United Kingdom, is subject to poor air quality, particularly in areas with high levels of road traffic. In Oxford, Nitrogen dioxide (NO_2) is the pollutant of greatest concern. The entire city has been a designated an Air Quality Management Area (AQMA) for NO_2 since 2010.

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

Table 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. NO_2 has a clear local pattern and is mostly concentrated where it is emitted: in urban areas and by busy roads, due to its relatively short lifetime (a few hours).
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, sea spray, and dust from soil or volcanic activity, as well as human made sources such as smoke from fires, emissions from industry and vehicles, and wear from tyres and brakes. When emitted, these particles can stay in the air for days or weeks, and travel distances of hundreds of miles. As a result, PM concentrations measured locally are often influenced by distant activities, many of which fall outside the jurisdiction or control of local authorities. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.
Ozone (O_3)	Ozone (O_3) is not emitted directly into the atmosphere in significant quantities, but is a secondary pollutant produced by reaction between nitrogen dioxide (NO_2) and hydrocarbons, in the presence of sunlight. Peak O_3 episodes are therefore strongly linked to typical summer weather conditions (high temperatures, sunny weather), giving rise to the so called "*summer smog*".

Oxford's February 2025 source apportionment study reveals that the transport sector remains the largest contributor to nitrogen oxides (NO + NO_2) emissions, accounting for 44% of the total emissions of these pollutants. This is followed by industry and services (30%), domestic heating (26%), and other sources - including waste, agriculture, solvents, and natural sources - contributing less than 1%.

For $PM_{2.5}$ emissions, the leading source is domestic heating (35%), followed by transport (24%), industry and services (24%), waste (8%), solvents (5%), and nature and agriculture (4%).

Between 2014 and 2024, average NO_2 levels in Oxford have decreased by 50%, with 25% of that reduction occurring since 2021, the year the city launched its current Air Quality Action Plan (2021–2025). In 2024, for the second consecutive year, Oxford met all UK legal limits for NO_2 at all places considered of relevant exposure.

Citywide, NO_2 levels fell by an average of 10% in 2024, but with areas of high bus traffic - such as High Street and St Aldates - seeing reductions of up to 24%. These improvements are largely attributed to the ZEBRA scheme, which enabled the introduction of 159 new electric buses in 2024. These now cover 69% of the city's total bus mileage.

The outlook for $PM_{2.5}$ is also encouraging. Data from Oxford's AURN St Ebbes monitoring station shows a 40% reduction in urban background $PM_{2.5}$ levels over the past decade, and a 14% drop since 2021. Oxford has consistently met all UK legal limits for $PM_{2.5}$ in recent years and is now just 2 µg/m³ away from achieving the WHO-recommended annual mean of 5 µg/m³ - considered the safest level for human health.

Despite this progress, Oxford City Council recognises that more must be done. The current action plan sets an ambitious local NO_2 target of 30 µg/m^3 to achieve across the city by 2025, going beyond the UK's legal limit of 40 µg/m^3. This reflects the understanding that no level of air pollution is truly safe[1] and underscores the city's commitment to achieving the lowest and safest possible levels.

[1] In recent years, several studies seemed to indicate the existence of harmful effects of air pollution at levels below air quality standards previously considered to be safe. However, it was only on the 22nd September 2021, when the World Health Organization (WHO) updated its global air quality guidelines for outdoor air pollution, that clear evidence was finally provided of the damage air pollution inflicts on human health at much lower concentrations than previously understood.

This proactive approach is now also starting to be followed by others. In December 2024, the European Union has decided to revise their 2008 EU Ambient Air Quality Directive[2]. The new directive now sets a much stricter legal annual mean limit for NO_2 of 20 µg/m³, which is expected to be achieved across all member states by 2030, replacing the previous 40 µg/m³ standard - still the current UK limit. This shift highlights how the UK may be falling behind the EU in terms of air quality standards.

Oxford's 2024 NO_2 data shows the city is well on track to meet its local target by the end of 2025. Currently, only four of the city's monitoring locations exceed the local NO_2 target, with just one site being relevant for Local Air Quality Management (LAQM) purposes[3].

A review of the city's current local NO_2 target is currently underway as part of the development of Oxford's next Air Quality Action Plan 2026-2030, ensuring continued progress toward cleaner, healthier air for all residents.

Actions to Improve Air Quality

The following correspond to the complete list of air quality measures that the City Council and its partners have delivered over the last LAQM reporting year (June 2024 to June 2025) to improve air quality in the city. The list is presented in chronological order:

July 2024 – The 2024's edition of the EV Summit took place at the Said Business School on the 15th and 16th July 2024. The 2024 event was jointly organised between Green TV and Electric Drives and focused on *Driving EV Sales - Charging into the Early Mainstream*, with the agenda taking a deep dive into unpacking the most pertinent barriers for further EV adoption (link to press release).

[2] The new EU Air Quality Directive, Directive (EU) 2024/2881, significantly strengthens air quality standards, aiming to align with World Health Organization (WHO) recommendations by 2030. Key changes include tighter legal limit values for several pollutants, especially $PM_{2.5}$ and NO_2, and provisions for access to justice and compensation for those affected by air pollution.

[3] NO_2 levels above the city's current local annual mean target of 30 µg/m³ were only measured in 2024 at 4 locations (out of 118) in the city: Headington Hill, Oxford ring road (2 locations), and St Clements -The Plain. However, the locations at Headington Hill and ring road are not meant to directly assess relevant human exposure to air pollution, but instead to assess the potential air quality impacts from traffic displacement at these locations, as a result of future traffic schemes that are being considered for implementation in Oxford city. This means that all these fall outside of the scope of compliance with the city's local target by 2025.

December 2024 – Oxford City Council has introduced a city-wide Smoke Control Area, covering the entire administrative area of the city, following confirmation of the Secretary of State by official letter sent to the City Council on the 21st May 2024. The plans for having a city-wide Smoke Control Area constitute an effort to try to reduce (human health damaging) $PM_{2.5}$ emissions in the city, by introducing some rules on how people burn solid fuels and use wood-burning stoves (link to press release).

December 2024 – The last electric buses from a total of 159 buses which had been partly secured by the government's Zero Emission Bus Regional Areas (ZEBRA) have arrived in Oxford. This now means that 69% of the entire bus mileage of the city is made on electric buses. Each electric bus delivers significant environmental benefits, primarily through zero tailpipe emissions of nitrogen oxides and particulate matter, contributing to cleaner air and a healthier environment. Oxford City now has one of the biggest electric bus fleets in the UK, outside London (link to press release).

February 2025 – Oxfordshire County Council saw its Local EV Infrastructure (LEVI) bid approved by the Department of Transport (DfT) and so was able to secure £3.6 million to triple its number of public electric vehicle (EV) chargers. For Oxford City, the aim is to deliver a 300+ charging network that provides access to easy to use, reliable and affordable EV charging to the estimated 46% of households who don't have access to private off-street parking. It will provide a significant part of the city's overall demand which the city Council had previously identified in its EV Strategy (link to press release).

February 2025 – Oxford City Council published its new Source Apportionment Study (SAS). The report examines the contributions of different sectors to air pollution in Oxford (transport, domestic combustion, point sources, other transport, and other emissions), focusing on nitrogen oxides NO_X – a combination of nitric oxide (NO) and nitrogen dioxide (NO_2) and fine particulate matter ($PM_{2.5}$ and PM_{10}). The report will inform the council's

work for the upcoming Air Quality Action Plan, which is expected to be updated in 2026 following public consultation later this year (link to press release).

March 2025 – Oxford City Council extended its electric cargo bike delivery partnership for another year (until the end of February 2026). Cycle courier company Velocity Ltd were awarded the contract to continue to support traders in the adoption of sustainable delivery methods. Under the partnership, businesses can book deliveries to be carried out by a Velocity rider. Oxford City Council subsidises 50% of each delivery, with participating businesses paying the remaining cost. Since its launch, the partnership has made around 2236 deliveries within the Oxford ring road covering approximately 6259 miles and supporting 27 businesses. In total, the initiative is estimated to have saved an estimated 1650 tons of carbon (link to press release).

March 2025 – Oxford Zero Carbon Oxford Partnership[4] expands to cover Oxfordshire, highlighting the growing ambition collaboration across the county to tackle carbon emissions and improving air quality as a result. Participating organisations now include Oxford City Council, Oxfordshire County Council Cherwell District Council, West Oxfordshire District Council, as well as Enterprise Oxfordshire (previously Oxfordshire Local Enterprise Partnership), Abingdon and Witney College, and Oxfordshire Greentech. These organisations will now work together towards the goal to achieve net zero across Oxfordshire by 2050, in addition to their own organisation or local decarbonisation targets (link to press release).

April 2025 – Both City and County held an informal workshop, on the topic of air quality to inform the process of developing the city's next Air Quality Action Plan. The workshop brought together residents, and representatives from community action groups (CAGs) and asked their views on what type of measures could be included in the upcoming plan. Following this informal engagement with stakeholders, the AQAP is expected to be going to formal consultation later this year.

[4] The Zero Carbon Oxfordshire Partnership brings together businesses, organisations, and local authorities across the county to drive collective action towards achieving net zero by 2050. Decarbonisation across the county is informed by the actions set out in the Oxfordshire Net Zero Road Map (ONZRMAP), including vehicle electrification, retrofit, development of a Local Area Energy Plan and nature-based carbon sequestration.

May 2025 – Oxford has launched its first 'eco-moorings' outside of London at the Aristotle Lane canal, aiming to reduce air pollution along the city's waterways. In 2023, Oxford City Council and the Canal & River Trust secured £193,000 from the Government's annual Air Quality Grant to fund the installation of electric bollards at the Aristotle Lane visitor moorings. The project delivered three eco-mooring pillars, each equipped with two sockets, allowing up to six visiting boats to connect to the electricity grid. This infrastructure offers boaters a cleaner alternative to diesel engines, generators, and wood burners for their heating and energy needs. The setup includes five 16-amp sockets and one 32-amp socket, the latter also supporting the charging of electric propulsion boats (e-boats). All sockets are future-proofed, with the potential to be upgraded to 32-amp capacity based on demand (link to press release).

May 2025 - Oxford Travel Options website launches. A new website – Oxford Travel Options – has launched to help anyone who lives in, works in or visits Oxford to find alternatives to travelling by car around the city. The website covers everything from bus ticket types, online journey planners and cycling/walking routes to lift share apps, information on wheelchair bus access and cargo bike hire. The website has been created by the Zero Carbon Oxfordshire Partnership and Low Carbon Oxford North, with support from the Low Carbon Hub (link to press release).

Conclusions and Priorities

Oxford's 2024 air quality monitoring results show the following:

Nitrogen Dioxide (NO_2)

- NO_2 was monitored at a total of 118 sites in the city in 2024.
- Only one of the 118 sites was found to be in breach of the UK's legal annual mean limit value for this pollutant: Headington Hill (TF19)[5] - with an annual mean recorded of 43 µg/m^3.
- None of the 118 sites is likely to have been in breach of the hourly mean objective[6] for NO_2 (200µg/m^3) – this was the case for the eight consecutive years.
- Only four of the 118 sites were found to be in breach of Oxford's local annual mean target for NO_2 (30 µg/m^3) – a commitment laid out in the city's AQAP, and which is expected to be achieved across the city by 2025. Those locations are: St Clements (DT55), Headington Hill (TF19), and Oxford's ring road (TF31 and TF36).
- In 2024, NO_2 levels decreased (on average) by 10% across the city, and by 24% on high bus traffic routes (High Street and St Aldates) when in comparison with the previous reporting year of 2023. These positive decrease in air pollution is linked to the introduction (throughout 2024) of 159 new electric buses in the city.
- Over the last decade (2014-2024), NO_2 levels have reduced in the city (on average) by 50%, with 25% of those reductions alone occurring since 2021, the year the city launched its current Air Quality Action Plan 2021-2025.

[5] Although in breach of the UK's annual mean limit value for this pollutant (40µg/m^3), this site is not relevant to LAQM: Headington Hill is not considered a location of relevant exposure (i.e., a location where members of the public are likely to be regularly present for a period of time appropriate to the averaging period of the annual mean limit value. The purpose of monitoring at this location relates solely with the evaluation of the possible impacts' future interventions (traffic filters) can cause in terms of traffic displacement in this area.

[6] According to LAQM TG22, only annual means NO_2 that are equal or above 60 µg/m^3 represent locations where exceedances of the hourly mean of this pollutant are likely.

Impact of Botley Road Closure on Air Quality in Oxford

In April 2023, Botley Road was closed to traffic as part of broader improvement works on the western side of Oxford Railway Station. Since then, nitrogen dioxide (NO_2) levels have been monitored at four locations along Botley Road (DT33, DT35, DT36, and DT84).

- In 2022, prior to the road closure, the average NO_2 concentration at these sites was 19 µg/m³.
- In 2023, this dropped to 16 µg/m³ (a 16% decrease).
- By 2024, the average further declined to 14 µg/m³ (a 13% decrease, compared to the 10% city average).

This represents a reduction of 2 µg/m³ compared to 2023. These figures indicate a continued improvement in air quality along Botley Road following its closure.

Citywide Trends on Main Arterial Routes

Despite concerns that closing Botley Road might increase air pollution due to potential traffic displacement[7] on other major artery roads, 2024 monitoring data shows a consistent decline in NO_2 levels across Oxford's main entry routes:

- Abingdon Road: ↓ 1 µg/m³ (from 24 to 23 µg/m³).
- Woodstock Road: ↓ 1 µg/m³ (average across 3 sites, from 16 to 15 µg/m³) – (6% decrease compared to 10% city average).
- Banbury Road: ↓ 2 µg/m³ (average across 3 sites, from 18 to 16 µg/m³) – (11% decrease compared to 10% city average).
- Headington Road/London Road: ↓ 2 µg/m³ (average across 3 sites, from 20 to 18 µg/m³) -)10% decrease compared to 10% city average).
- Sunderland Avenue: ↓ 2 µg/m³ (average across 5 sites, from 22 to 20 µg/m³) – (9% decrease compared to 10% city average).

These findings clearly show that the closure of Botley Road did not result in increased air pollution on alternative artery routes. On the contrary, NO_2 levels have continued to decline citywide - including in areas much less impacted by the introduction of electric

[7] According to traffic data provided by Oxfordshire County Council, traffic levels have slightly increased (on average) within the city of Oxford by 1.3% in 2024 and decreased by -0.9% on the ring road.

buses - indicating broader improvements in air quality that extend beyond the benefits of the ZEBRA scheme.

Air Quality trends in Oxford's Zero Emission Zone (ZEZ)

The UK's first Zero Emission Zone (ZEZ) was launched in Oxford in February 2022. Monitoring data from 2024 across all locations within the ZEZ Pilot area reveal the following:

- Stable NO_2 Levels in Pedestrianised Areas Without Bus Routes: NO_2 concentrations have generally remained stable at locations that are largely pedestrianised and not part of active bus routes—namely Cornmarket, New Inn Hall Street, and St Michael's Street.
- Significant Reductions in Bus-served Areas: As anticipated, locations such as Queen Street, Bonn Square, and New Road - though pedestrianised - still accommodate city bus routes. These areas recorded the largest NO_2 reductions within the ZEZ Pilot:

  Queen Street: ↓ 4 µg/m³

  Bonn Square: ↓ 2 µg/m³

  New Road: ↓ 6 µg/m³

These improvements reflect the positive impact of the ZEBRA scheme, which introduced 159 electric buses into Oxford's fleet.

Highest and lowest NO_2 Levels:

- Lowest: New Inn Hall Street (DT87) and St Michael's Street (DT88), both with an annual mean of 14 µg/m³.
- Highest: Queen Street (DT40) and Bonn Square (DT41), with annual means of 17 µg/m³ and 18 µg/m³, respectively.

All NO_2 levels recorded within the ZEZ Pilot area remain well below both the UK's legal limit of 40 µg/m³ and Oxford's more stringent local target of 30 µg/m³.

Low Traffic Neighbourhoods (LTNs)

On the 17th October 2023 Oxfordshire County cabinet decided that the East Oxford LTNs located at St Marys, St Clements and Divinity Road would remain in place. An Oxfordshire County cabinet decision was also made on the 22nd June 2023 to approve proposals to remove LTN bollards on three roads in Cowley (Littlemore Road, Crescent Road and

Littlehay Road) and to enforce the traffic restrictions using Automatic Number Plate Recognition (ANPR) cameras.

Air Quality on LTN boundary roads

Air quality monitoring on roads bordering LTNs showed continued improvements in 2024. Most locations recorded modest reductions of 1–2 µg/m³, but some areas experienced more significant improvements:

- St Clements - historically Oxford's most polluted area - saw notable NO_2 reductions at: DT55 (4 µg/m³), DT77 (5 µg/m³), DT85 (3 µg/m³).
- In Between Towns Road DT7 (5 µg/m³).

These areas, which experience high bus traffic, particularly benefited from the ZEBRA electric bus fleet rollout.

Detailed boundary road Improvements

- Hollow Way (DT80) – Temple Cowley LTN: reduction of 2 µg/m³ (from 31 to 29 µg/m³), now meeting Oxford's local air quality target for the first time.
- Oxford Road (DT8) and Garsington Road/St Luke's Road (TF32) – Temple Cowley & Florence Park LTNs: reductions of 1 and 3 µg/m³ respectively.
- Church Cowley Road (TF38) – Florence Park & Church Cowley LTNs: reduction of 1 µg/m³ (to 20 µg/m³).
- Iffley Road/Henley Avenue (A4158): DT4 (Boundary Brook Road): reduction of 2 µg/m³, TF17 (Stanley Road): reduction of 3 µg/m³, Morrel Avenue – St Clements & Divinity Road LTNs: LT4: reduction of 2 µg/m³ and of 1 µg/m³ at TF18.
- Cowley Road – St Clements, St Mary's & Divinity Road LTNs: DT72 (James Street): reduction of 2 µg/m³, DT81 (Union Street): reduction of 1 µg/m³

Air Quality inside Low Traffic Neighbourhoods (LTNs)

Similar to the trends observed on boundary roads, all the monitoring locations within Oxford's LTNS recorded reductions in NO_2 levels in 2024, with average decreases ranging from 1 to 2 µg/m^3.

- St Marys LTN saw NO_2 reductions of 2 and 1 µg/m^3 at Howard St and Hurst St respectively.
- St Clements LTN saw an NO_2 reduction of 2 µg/m^3 at Prince St and East Oxford Primary school.
- Divinity Road (within Divinity Road LTN) saw an NO_2 reduction of 1 µg/m^3.

None of the NO_2 levels measured both inside and on the boundary roads of Oxford's LTNS was above the UK legal limit value for this pollutant, and only 1 monitoring location (St Clements: DT55 - 34 µg/m^3) showed NO_2 levels above the city's local annual mean target for NO_2 (30 µg/m^3)**.**

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM_{10} and $PM_{2.5}$ were both monitored by automatic continuous monitors at AURN St Ebbes (urban background) and Oxford High Street (roadside) in 2024.

- The PM_{10} annual means obtained for these sites were of 9 and 13 µg/m^3. respectively. These values are both below the current UK legal annual mean limit of this pollutant (40 µg/m^3) and of the WHO recommended annual mean (15 µg/m^3).
- These PM_{10} measurements represent reductions of 0% and 7% when compared with the levels measured at these sites in 2023.
- The $PM_{2.5}$ annual means obtained for these sites were of 6 and 7 µg/m^3 respectively. These values are below the current UK legal annual mean limit of this pollutant (10 µg/m^3) and slightly above (at Oxford High Street) the WHO recommended annual mean (5 µg/m^3).
- These $PM_{2.5}$ measurements represent a reduction of 0% (at AURN St Ebbes) and 12.5% (at Oxford High Street) when compared with the levels measured at these sites in 2023.

Ozone (O_3)

Ozone measurements obtained from the automatic monitor at AURN St Ebbes exceeded the legal air quality objectives for this pollutant 114 times, during a total of 15 days in 2024. All these breaches were caused by periods of warm weather, linked with south-eastern winds coming from Europe, which brought pollutants that contributed to ozone formation. AURN St. Ebbes has therefore not met the AQ objectives for this pollutant in 2024.

Priorities for 2025

Oxford City Council's priorities for the next reporting year are well defined. Overall, during the next reporting year, Oxford City Council and its partners will be developing the city's new AQAP for the city, covering the period 2026-2030, and which is expected to be in place from January 2026.

How to get Involved

One key to changing the current threat of air pollution is educating the communities most impacted by it, providing them with the knowledge that allows them to make more informed choices, not only on how they can reduce their personal exposure to air pollution, but also on how they can contribute to the reduction of air pollution levels in the city.

In September 2023, Oxford City Council (in partnership with all the Districts in Oxfordshire and Oxfordshire County Council) launched the new air quality website for Oxfordshire: OXONAIR

This platform provides residents and visitors with a wealth of useful information and guidance on Oxford's air quality. It includes access to real-time data from all current air quality monitoring locations, historical data, pollution trends, air quality forecasts, and a free subscription-based alert system. Users can also find updates on the latest air quality projects, as well as access to relevant policy documents, modelling studies, and reports.

Both the City and County Councils are strongly committed to reducing air pollution in the city, and very good progress has been made over the last few years to that regards. However, air pollution is not a problem that the City Council and its partners are able to completely solve on their own - everyone deserves to breathe clean air, but it is important to highlight that everyone also has a role to play in improving air quality levels in the city, as our everyday decisions can have a powerful impact on the air we breathe. Some of the questions to ask ourselves are:

- Do I burn wood for a nice ambiance or for disposal?
- Can I pledge to replace a quarter of my car journeys with cycling or public transport?
- How can I prioritise other ways of getting my children to school like walking or cycling or car sharing.

We all have a huge role to play, and we can all be part of the solution. Encouraging walking and cycling in the city not only has a positive impact on air quality levels, but it also has multiple other benefits, including increasing the health of wellbeing of all those who live, work and visit Oxford.

Other ways of getting involved

- If you are a science teacher or a person responsible for running an environment club at your primary school, please have a look at our Air Quality Toolkit which

contains a series of interesting scientific air quality activities (linked with the national curricula), and which promote an understanding of the causes and impacts of air pollution with the aim to reduce children's exposure to air pollutants, within the school and through their travel;

- If you live in an area where idling of car engines is a concern, please have a look at the design resources that Oxford City Council has made available to the general public, and which you can download and use to run anti-idling campaigns in your local area;
- Do you have a wood burner or thinking of getting one? Please be aware that the entire administrative area of Oxford is now a Smoke Control Area since December 2024. Have a look at our website to understand what are the steps you need to take in order to use your wood burner in a much cleaner and efficient way.
- Look out within your local communities for active groups which have specific interest in air quality matters (ex: Local Friends of the Earth or CAG Oxfordshire);
- You can also contact Oxford City Council's air quality team directly at any time for any air quality related matter via the following email: airquality@oxford.gov.uk;

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1 Local Air Quality Management

This report provides an overview of air quality in Oxford during 2024. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Oxford City Council and its partners 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 16

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Oxford City Council can be found in Table 2. The table presents a description of the AQMA that is currently designated within the city of Oxford. Appendix D: Map of the city's AQMA, provides a map of Oxford's current AQMA and also a link to Oxfordshire's air quality website (OXONAIR), where all the air quality monitoring locations in relation to this AQMA and latest values measured can be found. The air quality objective pertinent to the current AQMA designation is:

- NO_2 annual mean.
- NO_2 hourly mean.

Table 2 – Declared Air Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
The city of Oxford	Declared 2010	NO_2 annual and hourly mean	The whole administrative area of Oxford City Council	YES	78 µg/m^3	34 µg/m^3	NO_2 hourly mean: 8 years NO_2 annual mean: 2 years	AQAP (2021-2025) January 2021	Visit the AQAP for Oxford's city-wide AQMA here

☒ **Oxford City Council confirm the information on UK-Air regarding their AQMA is up to date.**

☒ **Oxford City Council confirm that all current AQAPs have been submitted to Defra.**

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

Defra's appraisal of last year's ASR concluded that the evidence provided by Oxford City Council in its latest AQ ASR, and the conclusions reached were accepted for all sources and pollutants. Oxford was also commended for being proactive and creative in its efforts to improve air quality. A couple of suggestions have been highlighted by DEFRA to help inform the development of this AQ ASR. All of those relate with formatting aspects within the report, and we have sought to address them all in this new AQ ASR.

Oxford City Council has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. A complete list of thirty measures is included in Table 3, together with an update on the progress Oxford City Council and its partners have made during the reporting year of 2024 to deliver them.

Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within this table. More detail on these measures can be found in Oxford City Council's current Air Quality Action Plan (2021-2025).

Oxford City Council's key completed measures since last year's ASR can be found in more detail in this report's section "Actions to Improve Air Quality" (pages v-vii above).

Oxford City Council expects the following measures to be completed or progressed over the course of the next reporting year:

- ✓ To deliver the city's new Air Quality Action Plan for the City, covering the period 2026-2030.
- ✓ To continue the expansion of the City Council's fleet of electric vehicles
- ✓ To progress the preparation of ZEZ expansion, with the development of a comprehensive engagement programme with a wide range of stakeholders and resident groups across the city - a public consultation is expected for late 2025.
- ✓ To continue the roll out of EV chargers across the city.
- ✓ Implementation of the traffic filters trial.
- ✓ The use of the AQ LAT tool and policy scenarios to inform policy and growth ambitions

Oxford City Council's priorities for the next reporting year are well defined.

Overall, during the course of the next reporting year, Oxford City Council and its partners will continue to delivery of the air quality measures committed in our Air Quality Action Plan 2021-2025 and will also initiate work to prepare a new AQAP for the city.

Oxford City Council has worked to implement the air quality measures highlighted in this report, in partnership with the following stakeholders in 2024/2025:

✓ Neighbouring local authorities (South, Vale, Cherwell, and West Oxfordshire District Councils);
✓ Oxfordshire County Council (The Highways Authority);
✓ Canal & River Trust;
✓ Birmingham University;
✓ Oxford University;
✓ Oxford Direct Services;
✓ Ricardo Energy & Environment.
✓ Velocity Cycle Couriers Ltd

The potential challenges and barriers to implementation that Oxford City Council and its partners anticipate facing are:

- The closure of Botley Road (at the point the rail bridge crosses the road near Oxford station) to traffic from 11 April 2023 (and now recently extended to the end of August 2026), to enable station and track improvements and highways redevelopment. This is causing a significant impact in the way traffic moves around the city, has already resulted on traffic and air pollution displacement to other entry points of the city, and is putting on hold the delivery of Oxford's traffic filters.
- The potential for long term lack of central government funding to help local authorities implementing future air quality measures – the fact that the new air quality minister have decided not to immediately reinstate DEFRA's Air Quality grant in 2024/2025, maintaining the decision that the previous government had already taken of withholding DEFRA's Air Quality grant in 2023/2024 (Around £6m in funding promised to local authorities to help tackle air pollution) still constitutes an important motive of concern as it may negatively impact the capacity for the City Council to continue to deliver important measures to reduce air pollution at local level in future years.

Table 3 - Progress on Measures to Improve Air Quality

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15	Electrification of Oxford's city bus fleet	Promoting Low Emission Transport	Company vehicle procurement - prioritising uptake of low emission vehicles	2021	2024	Department for Transport (DfT) + Oxfordshire County Council Transport Planning Team + Local bus operators	DfT via Zero Emission Bus Regional Area (ZEBRA) (£32.8m) + Local sus Operators (£43.7m) + Oxfordshire County Council (£6m)	Partially funded	>£10 million	**Completed**	Oxford's new Source Apportionment Study (published in February 2025) estimates a reduction of 28% (from 32% to 4%) in the contribution of buses to the city's total road NOx emissions Our two automatic roadside monitoring stations (AURN Oxford Centre and Oxford High Street show in 2024 an average NO_2 annual mean reduction of 24% at these locations	Number of buses delivered	The ZEBRA project has been delivered between Jan-Dec 2024 159 new electric buses have been put in operation in Oxford City during this period	The new 159 buses correspond to 69% of the entire bus mileage of the city of Oxford A study is currently underway to determine the environmental impact of the ZEBRA scheme on air and noise pollution as well as impacts on health and the wider community.
22	Implementation of a new city-wide Smoke Control Order	Promoting Low Emission Plant	Other Policy	2021	2024	Oxford City Council (Environmental Sustainability and Regulatory Services Teams)	DEFRA (via Air Quality New Burdens Smoke Control Areas grant (£11,710 x3) + Oxford City Council's own budget	Partially Funded	£10k - £50k	**Completed**	PM reductions not measured yet given the fact that its only in place for 4 months – Effective air quality impacts expected to be measured over the next reporting period	Reduction of the amount of nuisance complaints	The new city-wide Smoke Control Area is in place from 1st December 2024	Official approval of the new city-wide SCA was granted by the Secretary of State on the 21st of May 2024.
18	Delivery of eco-moorings (electric bollards) at the visitor moorings in Aristotle Lane	Promoting Low Emission Transport + Promoting Low Emission Plant	Other Policy	2021	2024	Oxford City Council (Environmental Sustainability Team) + Canal & River Trust	DEFRA Air Quality Grant	Fully Funded	£100k - £500k	**Completed**	Reduced NOx and $PM_{2.5}$ emissions from diesel generators and wood burning	Electricity usage Number of boats using eco-moorings Number of smoke nuisance complaints	On the 23rd May 2025, Oxford City Council and the Canal and River Trust delivered six "eco-moorings" at the towpath visitors' moorings of Aristotle Lane, on the Oxford Canal. The power points at these moorings can now provide electric power for up to six visiting boaters to reduce their reliance on diesel engines, generators and wood burners for their day-to-day energy needs	The sockets will have range of capacity, with five 16-amp sockets and one 32-amp socket which will support the charging of electric propulsion boats (e-boats). All sockets will also have the capability to become 32-amp in the future, based on demand.
1	Work with schools, vulnerable groups and hard to reach communities to raise awareness of air pollution and promote Active Travel	Public Information + Promoting Travel Alternatives	Student Assemblies + Air Quality campaigns + Promotion of Cycling and Walking	2021	Annually 2021-2025	Oxford City Council + Oxfordshire County Council + Friends of the Earth	Active Travel Fund, LAs annual budget	Fully Funded	< £10k	**Completed**	NOx reduction not estimated, but increase of up to 23% in walking rates and reduction of up to 30% car journeys was observed with the delivery of the active travel programme WOW + communication campaigns can increase awareness of up to 12% and behaviour change of up to 6% (Clean Air Day)	Number of walking, cycling, scooting, car, and park & stride trips, Number of participating schools and deprived areas and of activities delivered	School engagement officers at Oxfordshire County Council have engaged with schools in Oxford City. Nine of these schools implemented active travel initiatives in 2024. The County Council is working on a community activation project in Oxfordshire to help people overcome barriers to walking and cycling, targeting priority areas of high deprivation such as Blackbird Leys, Barton, and Littlemore in Oxford, as well as Banbury, Bicester, Witney, and Abingdon. OCC commissioned Active Oxford to deliver the scheme in 2023. Oxford Travel Options website launched in May 2025. A new website – Oxford Travel Options – has launched to help	Primary schools are very busy, and it is difficult for teachers sometimes to find the time to embrace new projects. Support is on-going and delivered on an annual basis.

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													anyone who lives in, works in or visits Oxford to find alternatives to travelling by car around the city. The website covers everything from bus ticket types, online journey planners and cycling/walking routes to lift share apps, information on wheelchair bus access and cargo bike hire. The website has been created by the Zero Carbon Oxfordshire Partnership and Low Carbon Oxford North, with support from the Low Carbon Hub Active Oxfordshire has been commissioned by Oxfordshire County Council to support the delivery of Community Outreach Active Travel (COAT) Programme. The most up to date Community Outreach Active Travel Progress Report (2023/2024) can be found here	
2	Support city-wide events that aim to accelerate the uptake of sustainable transport	Public Information/ Promoting Low Emission Transport/ Freight and Delivery Management	Webinars/ Summits Physical Events	2021	Annually 2021-2025	Oxford City Council + Other Partners (ex: Green TV)	Sponsorship	Fully Funded	Not estimated	**Completed**	NOx reduction not estimated, but communication campaigns can increase awareness of up to 12% and behaviour change of up to 6% (Clean Air Day)	Total amount of attendees and Businesses participating, number of businesses adopting sustainable delivery options, number of business compliant with the ZEZ	The 2024's edition of the EV Summit took place at the Said Business School on the 15th and 16th July in Oxford. This year's master narrative was *Driving EV Sales - Charging into the Early Mainstream*, with the agenda taking a deep dive into unpacking the most pertinent barriers for further EV adoption.	Support is on-going and delivered on an annual basis.
3	Support projects that increase Oxford's Air Quality/AQ & Health evidence base	Public Information	Other	2021	Annually 2021-2025	Oxford City Council + Oxfordshire County Council (Public Health/Innovation Teams)	Several types of funding possible (Innovate UK, DEFRA AQ Grant, UKRI)	Partially funded	Not estimated (Successful bids and projects will be added on a regular basis)	**Completed**	Not directly applicable – NOx reduction not estimated	Total amount of partnerships created; number of AQ/health studies delivered	Updates from 2024: AQ-LAT: Oxfordshire County Council and Oxford City Council are working in partnership with researchers at the University of Birmingham and Cambridge Environmental Research Consultants to develop a new 'Air Quality Lifecourse Assessment Tool' for the county. The tool will provide estimates of health and economic impacts of air pollution at a small-area level, including contribution to new cases of asthma, coronary heart disease, stroke, lung cancer and premature mortality among those living in the city and wider county. The tool will also be extended to assess the benefits of policies which may be introduced to reduce NHS pressures and improve health of those living in Oxfordshire. The project is expected to be completed by summer 2025.	Oxfordshire County Council and Oxford City Council are also working in partnership with researchers at the University of Birmingham to understand impacts of introduction of electric buses in and around Oxford City. The Zero Emission Bus Regional Area (ZEBRA) evaluation funded by the National Institute of Health and Care Research (NIHR) will assess air and noise quality changes along key routes and identify lessons learned through interviews with key stakeholders and focus groups involving bus operator staff and members of the wider public who use a wide range of transport modes.

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													School Streets: Oxfordshire County Council public health team are working in partnership with researchers at the University of Birmingham to undertake an evaluation of the impact of School Streets schemes on air quality at Oxfordshire Primary Schools. The School Streets scheme involves timed road closures at school pick-up and drop-off time to and is intended to reduce congestion, incentivise increased walking and cycling to school and improve local air quality. The study is utilising data obtained from air quality sensors managed by Oxfordshire County Council including those at both intervention and control school locations. The study will be completed in summer 2025.	Key findings from the evaluation are expected in late 2025
4	Develop partnership work with NHS, commissioners, and providers to increase awareness of air pollution amongst patients and reduce their personal exposure to air pollution	Public Information	Via the Internet/ Via other mechanisms	2021	2021-2025	Oxford City Council + Oxfordshire County Council (Public Health Team)	LAs annual budget	Not funded yet	Not estimated	Implementation	NOx reduction not estimated, but communication campaigns can increase awareness of up to 12% and behaviour change of up to 6% (Clean Air Day)	Number of workshops /training sessions delivered, reduction in number of hospital admissions for COPD patients	In 2024, NHS partners have been contacted to explore opportunities for collaboration to improve air quality and reduce emissions from integrated care systems. OCC has also shared thunderstorm asthma messaging through Oxonair and provided indoor air quality monitors to primary care patients whose families had admissions to A&E for respiratory conditions. These monitors were specifically loaned to patients affected by housing problems.	
5	Improve air quality communication on our website and associated websites to assist the public in accessing reliable information about air pollution	Public Information	Via the Internet	2021	Q1 2023	Oxford City Council + all other DCs in Oxfordshire + Oxfordshire County Council	DEFRA AQ Grant	Fully Funded	£162,500	**Completed**	NOx reduction not estimated, but communication campaigns can increase awareness of up to 12% and behaviour change of up to 6% (Clean Air Day)	Number of website visitors, Number of website downloads, Reduction of public requests for AQ information,	Oxonair website was launched in September 2023 In 2024, we have published two new air quality newsletters: one for thunderstorm asthma and another for bonfire night and domestic wood burning. The website has a budget allocated for ongoing improvements and updates. In 2024, there have been 4,300 active users of the website, and the total amount of visitors was of 14,568	Oxford City Council and all the other local authorities in Oxfordshire are still actively working with Ricardo to improve some of the tools within the website
6	Explore opportunities to use green infrastructure to reduce exposure to poor AQ levels	Public Information	Other	2021	2021-2025	Oxford City Council + Oxfordshire County Council + Highways England	LA annual budget + Other sources of funding (still to be identified)	Partially funded	Not estimated (Successful bids and projects will be added on a regular basis)	Planning	Reduction of up to 50% in exposure to air pollution levels where green infrastructure is installed (Greater London Authority)	Air Quality data, number of species planted	Oxford City Council published its Urban Forest Strategy in November 2021 Oxfordshire County Council promotes (on its Tree Policy Planting 21) the use of tree planting and recognises the impact of correct choice of species to maximise air pollution improvements.	Defra acknowledges that vegetation can help to reduce air pollution in cities. However, they state this is primarily by affecting how these pollutants are dispersed and not by the removal of pollution. The delivery of the Urban Forest Strategy

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														for Oxford, is likely to bring opportunities for the use of vegetation as air quality buffer which will contribute to a reduction of human exposure to air pollution.
7	Delivery of city-wide campaign on how to implement DEFRA's best practice on the use of open fires and wood burning stoves, and on how to reduce burning of inappropriate fuel	Public Information	Via Leaflets/ Via the Internet/ Via other mechanisms	2021	2022	Oxford City Council + Friends of the Earth+ River Trust	DEFRA AQ Grant	Fully Funded	£45,000	**Completed**	NOx reduction not estimated, but communication campaigns can increase awareness of up to 12% and behaviour change of up to 6% (Clean Air Day)	Reduction of nuisance complaints, Reduction of NOx, PM_{10} and $PM_{2.5}$ concentrations	This campaign has been relaunched on social media during wintertime 2024/2025	Oxford's "Do You Fuel Good?" campaign website available here
9	Introducing a Euro VI LEZ for buses in Oxford	Promoting Low Emission Transport	Low Emission Zone (LEZ) or Clean Air Zone (CAZ)	2021	2022	Oxford City Council + Oxfordshire County Council + local bus operators	LAs annual budget, CBTF	Fully Funded	Staff time only	Withdrawn	Estimated reductions of between 5% to 12.8% of total city Road NOx emissions (Ricardo's Source Apportionment Study)	LEZ Euro VI Approved bus database	This measure has been superseded by AQAP measure 15	
10	Introducing Ultra Low emission standards for Hackney Carriage Vehicles	Promoting Low Emission Transport	Taxi Licensing conditions	2021	2025	Oxford City Council	LAs annual budget	Fully Funded	Staff time only	**Completed**	Up to 0.1% total city Road NOx emissions (From Ricardo EE's latest source Apportionment Study – February 2025)	Amount of New HCV Applications, enforcement stats	Delivery already in progress	In February 2024, Oxford City Council has agreed to postpone the introduction of the final ULEV new emission standards for Hackney Carriage Vehicles by a year. The move came in response to a detailed review by the General Purposes Licensing Committee, which heard numerous appeals for flexibility amid rising economic pressures on the taxi industry.
11	Delivery of Zero Emission Zone (measures to incentivise zero emission vehicles or place restrictions on other vehicles in Oxford)	Promoting Low Emission Transport/ Traffic Management	Low Emission Zone (LEZ) or Clean Air Zone (CAZ) / Road User Charging (RUC)/ Congestion charging	2021	2021-2025	Oxford City Council + Oxfordshire County Council	LAs annual budget, DEFRA AQ Grant and other sources of funding	Partially Funded	ZEZ Pilot - £267,400	**Completed**	recorded NO_2 reductions of up to 18% on the affected streets ZEZ Pilot evaluation monitoring report published here	Behavioural responses, AQ monitoring, ANPR counts	The city centre ZEZ Pilot was launched on 28th February 2022. Details of this now active scheme can be found here	
12	Increase the amount of EV charging infrastructure in the City.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging,	2021	2021-2025	Oxford City Council + Oxfordshire County Council	Innovate UK, AQ DEFRA Grant, OLEV Grant scheme, LAs budget	Fully Funded	Not estimated	**Completed**	NOx reduction not estimated	Number of EV Chargers Installed	In February 2025, Oxfordshire County Council saw its £3.6 million worth Local EV Infrastructure (LEVI) bid approved by the Department for Transport (DfT). This bid was put together by Oxfordshire County Council, in close collaboration with Oxford City Council and the other DCs in Oxfordshire.	A map of all EV charging point locations in Oxford can be found here

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													This means that the County Council will now be able to triple its number of public electric vehicle (EV) chargers in Oxfordshire. For Oxford, the aim is to deliver a 300+ charging network by 2026/2027 that provides access to easy to use, reliable and affordable EV charging to the estimated 46% of households who don't have access to private off-street parking. It will provide a significant part of the city's overall demand which has been identified in the city Council's EV Strategy. More details are available here.	
13	Expansion of City Council's EV Fleet (Electrification of 25% of vehicle fleet)	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2021	2023	Oxford City Council	Innovate UK, LAs annual budget	Fully Funded	Not estimated	**Completed**	NOx reduction not estimated	Number of Electric vehicles purchased	Oxford City Council's EV fleet is composed by: 18 cars, 80 vans, 11 tippers, 9 specialist EVs (including a sweeper, a milk float, a digger, a refuse collection vehicle, one RCV). .	By April 2025, 35% of Oxford City Council's fleet was EV (118 out of 338 vehicles)
14	Development of an EV Strategy for Oxfordshire	Policy Guidance and Development Control	Other Policy	2021	2021	Oxfordshire County Council + other DCs	LAs own budget	Fully Funded	Not estimated	**Completed**	NOx reduction not estimated	Publication of EV strategy and adoption of Strategy by all District Councils	Oxfordshire EV Infrastructure Strategy (OEVIS) was adopted and published on March 21.	Oxford City Council has also published in July 2022 an EV strategy specific for the city of Oxford, which sets out EV infrastructure targets for 2026, 2030, and 2040 to meet our Net Zero targets. This includes metrics for ensuring car clubs are situated in city car parks to encourage the move away from car ownership, residential electric charging to stay in step with the increase in EV ownership and the move to electric for the council fleet.
16	Delivery of Oxford's Energy Super Hub	Promoting Low Emission Transport/ Promoting Low Emission Plant	Procuring alternative Refuelling infrastructur to promote Low Emission Vehicles, EV charging. Replacement of combustion sources	2021	2022	Oxford City Council + Partners	Innovate UK	Fully Funded	£41 million	**Completed**	10,000 tonnes of CO_2 per year saving by 2021, rising to 25,000 tonnes per year by 2032 + up to 22% reduction of NO2 emissions from transport by 2032	Number of EV chargers and Ground Source Heat Pumps (GSHP) installed, number of EVs purchased, AQ monitoring	Oxford City Council delivered 42 new fast and ultra-rapid charging points (powered entirely by renewable energy). .	All relevant info about this project can be found at the ESO website here
17	Delivery of Air Quality Benefits through Planning System (Reduce amount of car parking in the city + increase EV charging infrastructure +	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance/ Other Policy	2021	Annually 2021-2025	Oxford City Council	LAs own budget	Fully Funded	Not estimated	**Completed**	NOx and PM reductions not estimated	Number of developments with EV chargers /number of EV chargers installed number of Planning conditions discharged	Already being delivered through Oxford's Local Plan. New air quality policies under Oxford's proposed new local plan 2040 include the obligation of developers to comply with the city's current and future local annual mean targets for NO_2.	In September 2024, the examinators of Oxford's proposed new Local Plan gave their recommendation for the City to withdraw the draft plan from public examination, because they identified a failure of the duty to

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	require more efficient/less pollutant domestic heating technologies)													cooperate in production of the housing evidence base to support the Plan Oxford City Council's formal response to the planning inspectors can be found here. The new Plan is now expected to be submitted for evaluation around April 2026.
19	Upgrade Energy Efficiency of City Council's Housing stock	Promoting Low Emission Plant	Other Policy	2021	Annually 2021-2025	Oxford City Council	LAs own budget	Partially funded	Not estimated	Implementation ongoing	NOx and PM reductions not estimated	Number of boiler upgrades, insulations and high efficiency storage heaters installed per year	In 2024/25 200 properties had insulation installed as part of the Social Housing Decarbonisation Fund (SHDF) to bring them up to EPC C. This included the installation of around 10 ASHPs, with further ASHPs planned to be installed in 25/26. Since June of 2024, 433 boilers have been upgraded.	Access to properties and refusals continue to be the major barrier to the role out of retrofit in the Council's housing stock.
20	Provide Energy advice services: employ Energy advice Officers to visit Council homes and advise tenants, whilst also identifying energy saving improvements to the properties	Promoting Low Emission Plant	Other Policy	2021	Annually 2021-2025	Oxford City Council	LAs own budget	Fully Funded	Not estimated	Implementation ongoing	NOx and PM reductions not estimated	Total amount of home visits and of energy savings per year	Since 1 November 2024 Better Housing Better Health have conducted 237 warm and well assessments as well as 56 home visits in Oxford. BHBH have also had 70 partner referrals into BHBH, 120 new incomes identified, 50 PSR sign-ups, 75 energy supplier/tariff enquiries and 19 energy efficiency referrals.	In house energy advice services for our own tenants are no longer resourced. City Council tenants and all residents in Oxford can access the BHBH service which provides free energy and cost of living advice.
21	Use of central government's ECO Flexible Eligibility funding to identify and designate households as eligible under the Affordable Warmth Scheme	Promoting Low Emission Plant	Other Policy	2021	Annually 2021-2025	Oxford City Council	ECO Flexible Eligibility funding	Partially funded	Not estimated	Implementation ongoing	NOx and PM reductions not estimated	Total amount of households being granted with energy efficiency improvements	In 2024/2025 financial year the City Council signed 18 declarations for ECO4 Flex. A further 13 properties (3 still in progress) benefited from the Home Upgrade Grant (HUG2) Scheme which saw 37 retrofit measures including: solar PV, Cavity Wall Insultation, Ventilation, Loft Insulation, ASHP, Wet Central Heating, Heating Controls installed.	The main barriers to the uptake of ECO Flex remain the same, mainly due to lack of installers and overly complicated application process. To address these barriers Oxford City Council has been promoting these schemes as well as the recently launched Warm Homes: Local Grant funding.
23	Encourage the development of local heat networks	Promoting Low Emission Plant	Other Policy	2021	Annually 2021-2025	Oxford City Council	LAs own budget	Fully Funded	Not estimated	Implementation	NOx and PM reductions not estimated	Number of planning applications using heat networks	District heat networks are already being encouraged and delivered through Oxford's Local Plan and Planning System. A partnership has been established in early 2025 to scope the potential for a District Heat Network in Oxford. Oxford City Council, Oxfordshire County Council, University of Oxford and Oxford Brookes University are actively working in Partnership to scope the potential for scheme/s in the city and how a DHN could provide a decarbonisation solution.	If a District Heat Network is developed, successful, it could provide low or zero carbon heat to major heat users in Oxford, providing a key deliverable of the Zero Carbon Oxford Action Plan and removing a large number of gas boilers, supporting air pollution targets.

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24	Delivery of Oxford Core Transport Schemes (explore opportunities for implementation of Workplace Paring levy + introduction of Traffic Filters)	Traffic Management	Workplace Parking Levy/ Traffic Filters	2021	2023-2024	Oxford City Council + Oxfordshire County Council	LAs own budgets, Bus Service Improvement Plan (BSIP), future income raised by the WPL	Partially funded	£5-8m (excludes funding for complimentary bus and walking and cycling improvements)	Planning	NOx and PM reductions have been estimated here	Traffic counts, numbers of people travelling by bus, cycling, or walking, number of businesses enrolled, enforcement stats. Reduction of NOx, PM_{10} and $PM_{2.5}$ concentrations	The traffic filters were approved in November 2022 and are now due to be implemented in August 2026 (once Botley Road reopens). £3,359 million funding was secured in Feb 2024 for the Workplace parking levy scheme development and future delivery. Ongoing engagement has initiated with major employers and other stakeholders to help shape the scheme definition and transport improvements the WPL would help fund. OCC appointed a consultant team to support with scheme development and future engagement and consultation.	Network rail have announced that they will only reopen Botley Road in August 2026. The traffic filters trial will start as planned when Botley Road reopens. More details on our traffic filters page. Workplace parking Levy's Indicative timeline: - Now to Spring 2025 – Ongoing stakeholder engagement - Summer 2025 – Wider stakeholder & public engagement - Summer 2026 – Public consultation - Spring 2027 – Cabinet decision on WPL scheme - Spring 2027 – Submit WPL to Department for Transport for approval - Autumn 2027 – Implementation, if approved, with no charging for 6 months - Spring 2028 – Charges start
25	Delivery of sustainable transport measures such as cycling improvements and bus priority lanes	Transport Planning and Infrastructure/ Traffic management	Cycle network/ Bus priority	2021	2021-2025	Oxford City Council + Oxfordshire County Council	DfT Active Tranche 2 & Growth Deal	Fully funded	£44m approx. for sustainable transport schemes on three Oxford radial routes and other locations	Implementation	NOx and PM reductions not estimated	Local cycling and walking infrastructure plans (LCWIP) 50% increase by 2030 (Active Lives Survey)	Updates in 2024: Approximately £10m was invested into new or enhanced bus services: - Extended provision of combined park & ride discounted fares. - Bus signal priority has been implemented at 14 junctions across the County, with more in the pipeline. To complement this on-board tracking equipment is being rolled out across the bus fleet. Together these will offer passengers improved bus journey times and real time bus information. - Woodstock Road - bus lane alterations, implemented as an ETRO in September 2024 alongside pedestrian and cycle improvements along the Woodstock Road. - Safer Roads Oxford: Banbury Road and Iffley Road – includes provision of better pedestrian and	East Oxford mini holland scheme that will deliver enhanced pedestrian and cycle and public realm currently in early design, due to be delivered by March 2027.

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													cycle facilities. Construction in 2025.	
26	Roll-out of Controlled Parking Zones (CPZ) and Low Traffic Neighbourhoods (LTN)	Traffic Management	Traffic reduction	2021	2021-2023	Oxfordshire County Council	Department for Transport (Emergency Active Travel Fund); LAs own budget	Fully Funded	£1m approx. for CPZs £311,000 for LTNs	**Completed**	NOx and PM reductions measured	Implementation of the new CPZs and LTNs	Most of the city is now covered by a CPZ, no new CPZs were introduced in 2024 calendar year. Plans are in place to introduce recently approved schemes for Iffley and a small section around Rose Hill shops before the end of 2025. LTNs were made permanent in Cowley and east Oxford in July 2022 and October 2023 respectively. No further LTNs are currently planned.	A number of new proposed schemes were deferred in 24/25 due to high numbers of objections received from the local community. Officers will continue to work with local members to bring forward new CPZ's where there is an identified need. Full Evaluation reports for LTN East Oxford and LTN Cowley are available here.
27	Work with businesses to explore the inclusion of innovative sustainable travel modes into their current business models	Freight and Delivery Management	Delivery and Service plans/ Freight Partnerships for city centre deliveries	2021	Annually 2021-2025	Oxfordshire County Council + Oxford City Council	DEFRA AQ Grant; LAs own budget, Energy Saving Trust	Partially funded	Not estimated	Implementation ongoing	NOx and PM reductions not estimated	Number of businesses adopting sustainable travel modes	In March 2025, Oxford City Council has decided to extend its partnership for another year with Velocity Cycle Couriers to continue to offer to Oxford businesses same-day and next-day zero-emission deliveries by electric cargo bike to destinations within the ring road. Under the partnership, businesses can book deliveries to be carried out by a Velocity rider using the dedicated Oxford's Covered Market e-cargo bike, supported by Velocity's fleet of e-cargo bikes. Oxford City Council subsidises 50% of each delivery, with participating businesses paying the remaining cost. This subsidy has allowed the partnership to continue for as long as possible, enabling businesses to continue to explore zero emission deliveries for longer.	The current contract will be in place until 28th February 2026, with the possibility to be extended for a further year (up to February 2027) 28 businesses have signed up so far to the trial.
28	Explore opportunities for implementation of consolidation centre to address city centre freight emissions	Freight and Delivery Management	Freight Consolidation Centre	2021	2026	Oxfordshire County Council + Oxford City Council+ Oxford University	LAs annual budget, and other sources of funding, Horizon Europe/Innovate UK	Partially funded	Not estimated (pending feasibility)	Planning/Implementation	NOx reduction not estimated	estimated CO2 savings; parcels delivered by cargobike per day by m2 of consolidation hub; number of businesses enrolled	Oxfordshire County Council is partner in the GreenLog project along with local patterns Pedal & Post, FEED, and University of Wolverhampton. The project will trial an e-commerce platform in which covered market traders can offer their most popular products and local customers can pick and choose items from multiple traders in one purchase and one delivery fee through Pedal & Post. Purchases will be consolidated into a single delivery—which will be completed by cargo bike and EV across Oxfordshire.	Additionally, new technologies to increase the efficiency of ecargo bike delivery are being developed and demonstrated including a remote driven vehicle and means to quickly and affordably convert underused space for use as micro consolidation hubs. Q4 2024, a temporary structure was demonstrated for use as a micro consolidation hub. This will be extended to a second location in the

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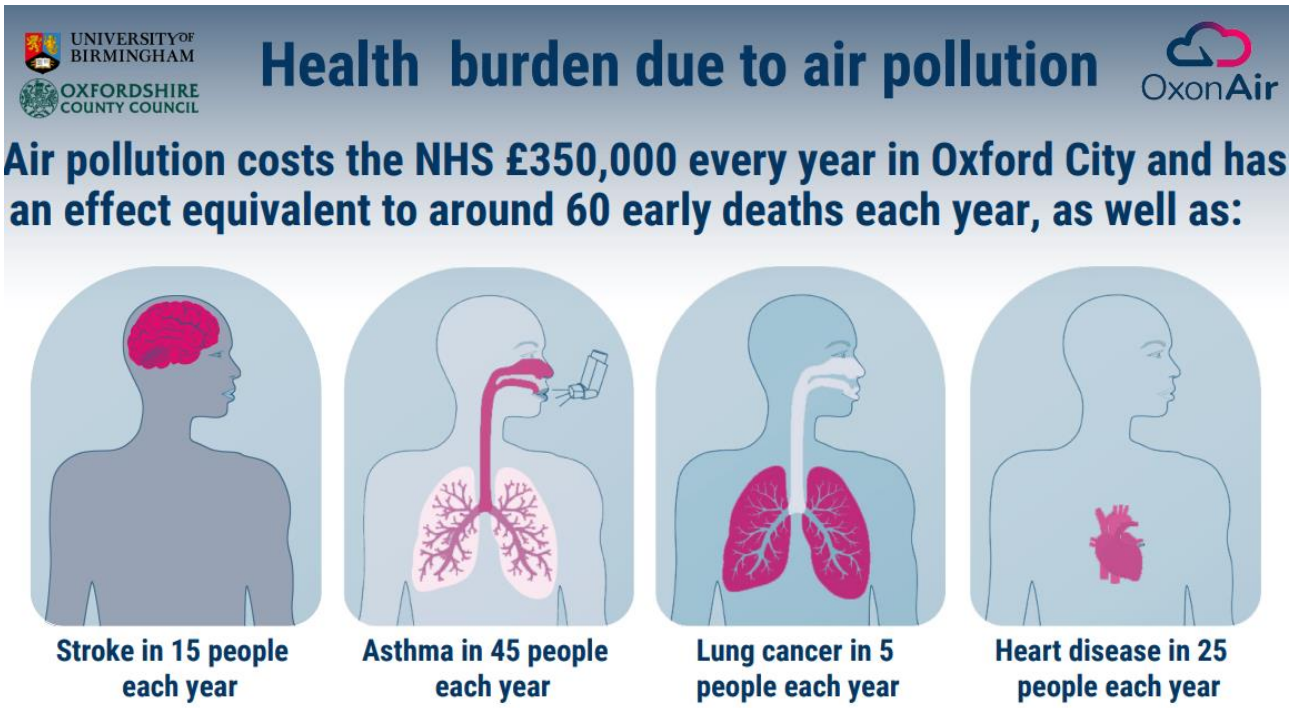
													Joining the platform will be free to covered market traders.	second demonstration period timeline: first demonstration completed in Q4 2024. Second demonstration to be completed in Q4 2025 and Q1 2026.
29	Work with schools to reduce exposure to air pollution by reducing the need to travel during drop off/pick up times (ex: School Streets)	Alternatives to private vehicle use/ Promoting Travel Alternatives	Other	2021	2025	Oxfordshire County Council	Active Travel fund for LAs in England	Partially funded	£60,000 approx. for School Streets	Implementation ongoing	NOx reduction not estimated	Number of streets closed; schools enrolled	2024 updates Tyndale Primary School Street trial began on 13/05/24 with ANPR Camera intervention made permanent from January 2025. Sandhills Primary School Street trial began on 04/06/24 with ANPR Camera intervention made permanent from January 2025. St Mary and St John Primary School Street trial began on 13/05/24 with ANPR Camera intervention made permanent from January 2025. New Hinskey School Street trial began on 04/06/24 with ANPR Camera intervention made permanent from January 2025.	The team continues to engage with a number of schools on potential future active travel initatives, including school streets and school zones A review of all schools across Oxfordshire will be carried out in 2025 to see which schools would benefit from a School Street, to help form a longer-term programme for School Street Programme delivery and funding allocations.
30	Support Bikeability (free cycling lessons provided to pupils)	Promoting Travelling alternatives	Promotion of Cycling	2021	2021-2025	Oxfordshire County Council	DfT via The Bikeability Trust charity	Partially funded	Not estimated	Implementation	NOx reduction not estimated	Number of schools enrolled	Implementation (On-going)	The complete Bikeability figures for the entire Oxfordshire in 2024/2025 are of 6113 children trained. From those, 914 are from deliveries in Oxford city.

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

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

Figure 1 – Beta version AQLAT Modelled results of the health burden to Air Pollution in Oxford



Recently, Oxfordshire County Council has acquired the Air Quality Life course Assessment Tool (AQLAT) from the University of Birmingham. This initiative, jointly funded by the five districts in Oxfordshire and the county council, will integrate county-wide air quality modelling with the AQLAT tool. This integration aims to provide detailed health and economic benefits of reducing air pollution at a ward-level resolution.

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

Figure 1 shows the results from the beta version of the AQLAT tool. This tool utilizes modelled air pollution data from Defra's background maps and indicates that the annual health burden attributable to air pollution in Oxford includes up to 60 early deaths, 15 strokes, 45 cases of asthma, 5 cases of lung cancer, and 25 cases of heart disease.

These insights will support evidence-based decision-making and targeted interventions to improve air quality and public health outcomes in Oxford.

In Oxford, $PM_{2.5}$ is measured at two automatic monitoring locations within the city: AURN St Ebbes (Urban Background) and Oxford High Street (Roadside site).

In 2024, AURN St Ebbes and Oxford High Street measured $PM_{2.5}$ annual means of 6 and 7 µg/m^3 respectively. These results are significantly below the UK's $PM_{2.5}$ national annual mean limit value of 10 µg/m^3 (which was introduced by the Environment Act 2021 and is expected to be achieved by all local authorities in the UK by 2040) and are just slightly above WHO's recommended $PM_{2.5}$ annual mean guidance level of 5 µg/m^3 (considered to be the safest level to date to human health).

Oxfordshire's new air quality website (OXONAIR) also shows the latest modelled map of the annual mean $PM_{2.5}$ levels for Oxford (year 2023). These modelled map concentrations seem to indicate that $PM_{2.5}$ levels across the entire city are within the light blue band (6-8 µg/m^3). These results appear to be consistent with the levels monitored at our two monitoring stations and referred to above[9].

The Public Health Outcomes Framework provides a list of indicators that provide useful insight on how well public health is being improved and protected and concentrates on two high-level outcomes (healthy life expectancy and differences in life expectancy and healthy life expectancy between communities) to be achieved across the public health system. The latest version of this framework was published in February 2025 and present useful air quality metrics for the year 2023. It estimates that in Oxford, 5.2% of deaths from all causes in those aged 30+ are attributable to $PM_{2.5}$ alone.

Figures 1 and 2 below show the most up to date existing relationships between the level of mortality attributed to $PM_{2.5}$ and life expectancy at birth for females and males in Oxford. A

[9] These findings align with a recent modelling study commissioned by the County, City, and District Councils in Oxfordshire. In May 2025, Cambridge Environmental Research Consultants (CERC) modelled PM2.5 concentrations in Oxford for the year 2023 at a 5-metre resolution. The average modelled concentration for Oxford City was 8.03 µg/m^3.

comparison is also made between Oxford's data and the data obtained for other District Councils (DCs) in Oxfordshire and for England.

Figure 2 – Mortality attributable to $PM_{2.5}$ vs female's life expectancy at birth

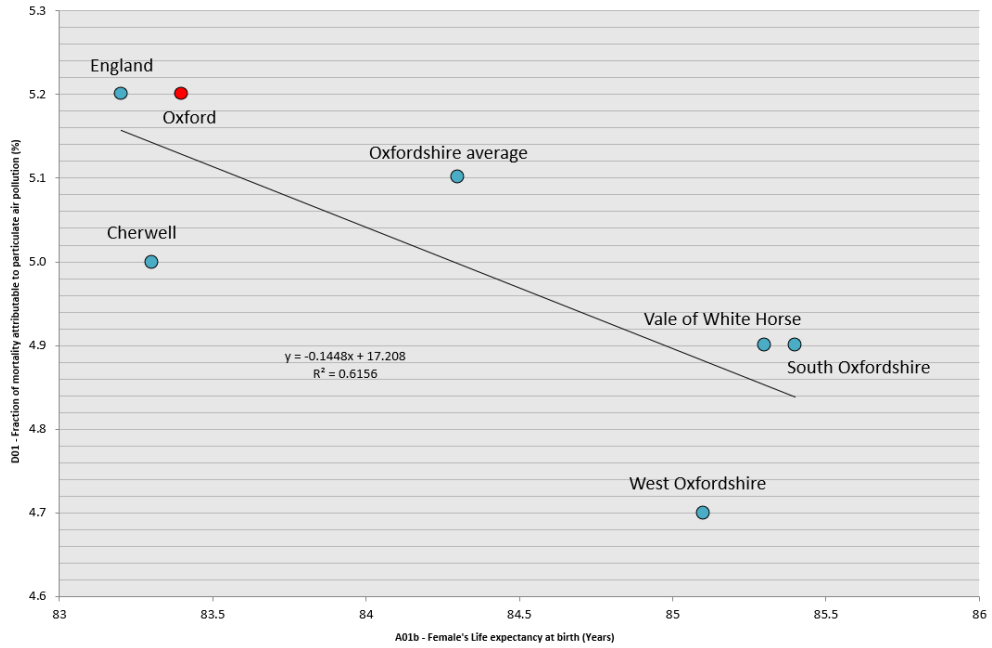
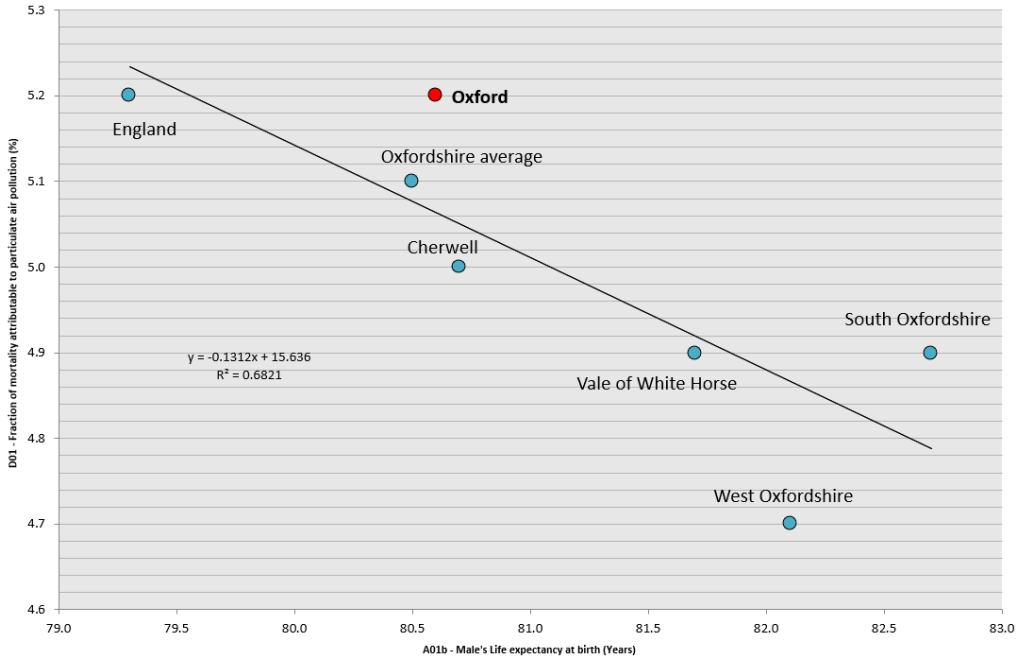


Figure 3 – Mortality attributable to $PM_{2.5}$ vs male's life expectancy at birth



Similar to what has been observed in previous years, Oxford's performance is, in general, worse when compared with the other DCs in Oxfordshire for these types of indicators. This should not come as a surprise, given that air pollution tends to be typically much higher in

highly urbanised areas when in comparison with the rest of Oxfordshire which is much more rural in nature.

While the Public Health Outcomes Framework provides valuable data on air quality and health, it is not the only source. The Oxfordshire Data Hub - hosted by the County Council - is a publicly accessible platform offering a wide range of data and intelligence about Oxfordshire. It serves as a go-to resource for detailed information on Oxford City, including population, health, deprivation, environment, and more.

According to the city's latest source apportionment study (published in February 2025, and which already includes data from the most recent National Atmospheric Emissions Inventory – NAEI 2022), domestic combustion is the sector that contributes the most to total $PM_{2.5}$ emissions in the city, with domestic wood burning, contributing to a staggering 70% of those emissions within that sector.

On 1st December 2024, the entire administrative area of the city of Oxford became a Smoke Control Area (SCA). This is a very important step for the reduction of local $PM_{2.5}$ emissions associated to the burn of poor quality, unauthorised fuels and inefficient wood burning appliances.

Oxford City Council considers that many of the measures designed to reduce levels of nitrogen dioxide set out in the city's current AQAP will also contribute to reducing levels of $PM_{2.5}$, and the City Council will always continue to develop AQAPs that include air quality measures that can contribute to a reduction of local $PM_{2.5}$ emissions.

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Oxford City Council undertook automatic (continuous) monitoring at three sites during 2024. Table 4 in Appendix A shows the details of the automatic monitoring sites. The OXONAIR website also presents the monitoring locations, results and stats (current and historic) for all of Oxford City Council's automatic monitoring sites.

Details on how the monitors are calibrated and how the air quality data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Oxford City Council undertook non-automatic (i.e. passive) monitoring of NO_2 at 117 sites during 2024. Table 5 in Appendix A presents the details of the non-automatic sites.

For the purposes of deciding which locations to monitor, the City Council considers in the first instance locations where there is relevant public exposure. It is important that assessments focus on locations where members of the public are likely to be regularly present for a period of time appropriate to the averaging period of the objective. Monitoring is carried out in line with DEFRA's Technical Guidance LAQM.TG22.

Approximately half of the monitoring locations are within central Oxford at locations where the City Council believes relevant exposure is most likely to be significant. The remaining locations are outside of the central area, again prioritised by locations where relevant exposure is most likely.

The monitoring of NO_2 via diffusion tubes, cannot be undertaken at every location on a continuous basis. The City Council therefore makes the most of available resources by

implementing a rotational system on a percentage of monitoring sites every year, ensuring such sites are covered on average every 2 to 3 years.

One important aspect of monitoring is to be able to demonstrate trends in air quality over long time periods. To do so, the City Council continues monitoring at several of the same sites' year on year, so that the results reported can show long-term temporal trends.

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. Details of the UK air quality objectives for protection of human health, as well as of the WHO recommended guideline levels can be found in Appendix E.

3.2.1 Nitrogen Dioxide (NO_2)

In 2024, NO_2 was monitored at three locations in Oxford using automatic continuous monitors and at 117 locations using passive monitoring (diffusion tubes).

The UK's annual mean air quality objective for NO_2 is 40 µg/m^3.

In 2024, Oxford High Street measured annual mean for NO_2 was of 21 µg/m^3. At AURN Oxford Centre Roadside of 23 µg/m^3, and at AURN St Ebbes of 9 µg/m^3. This objective was therefore met at all automatic monitoring stations in 2024.

Table 6 in Appendix A compares all the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years from our 3 automatic monitoring sites with the air quality objective of 40µg/m^3. Figure 3 below shows the 20-year long term trend for levels of measured NO_2 at Oxford's three automatic monitoring stations. The results are expressed in µg/m^3.

Figure 4 – Long term trends of annual mean NO_2 of Oxford's automatic monitoring sites, 2004-2024

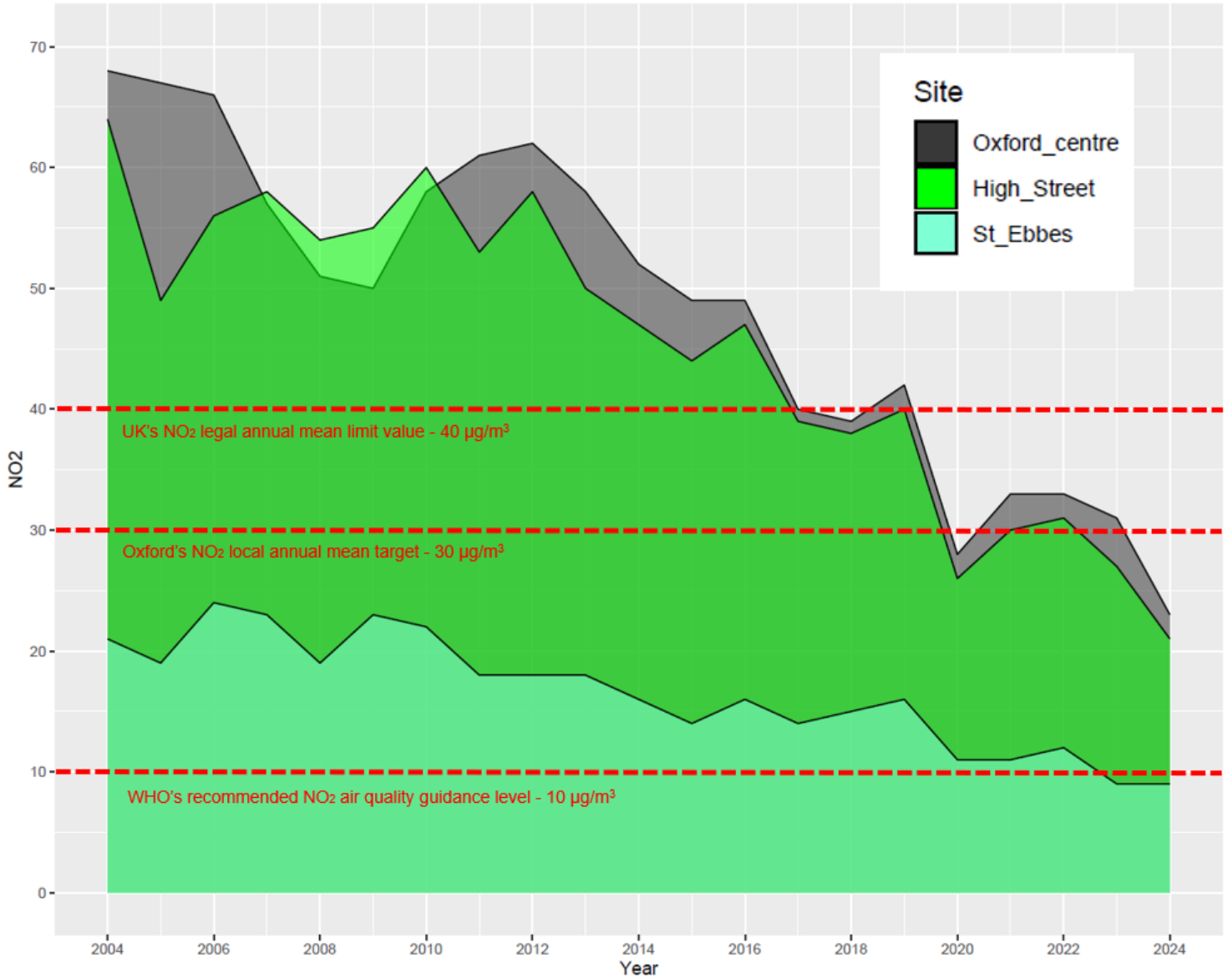


Figure 3 shows that overall, the NO_2 levels measured in Oxford at the locations of our automatic monitoring sites have been decreasing since 2004.

In 2024, a significant reduction in nitrogen dioxide (NO_2) levels was recorded at both of Oxford's automatic roadside monitoring stations - High Street and AURN Oxford Centre. This improvement is largely attributed to the introduction of 159 fully electric buses, which now account for approximately 69% of the city's total bus mileage.

The electric bus rollout was made possible by a successful £32.5 million funding bid submitted by Oxfordshire County Council, in collaboration with local bus operators Oxford Bus Company and Stagecoach. The funding was awarded by the Department for Transport (DfT) in March 2022 under the Zero Emission Bus Regional Area (ZEBRA) scheme.

Both monitoring stations are in central Oxford, an area with high bus traffic and subject to a bus gate on High Street that operates daily from 7:30 a.m. to 6:30 p.m. Given the area's heavy reliance on bus transport, the air quality improvements from electrification were anticipated to be especially pronounced - and the data now confirms this expectation

In 2024, average NO_2 levels at these two locations fell by 24%, clearly demonstrating the positive environmental impact of transitioning to a cleaner, electric bus fleet.

For detailed information on time variations, daily means, and basic statistics of NO_2 at Oxford's three automatic monitoring stations please refer to Appendix F.

The AQ objective for hourly mean NO_2 concentration is 200 µg/m^3 and may be exceeded up to 18 times per calendar year. The time series of hourly averaged concentrations of NO_2 for the 3 automatic monitoring sites is compared against the UK's legal hourly mean limit value (dashed red line) in Figure 4 below. The results are expressed in µg/m^3.

Table 8 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Figure 5 – Time series of hourly averaged concentrations of NO_2 at Oxford's automatic monitoring sites, 2024

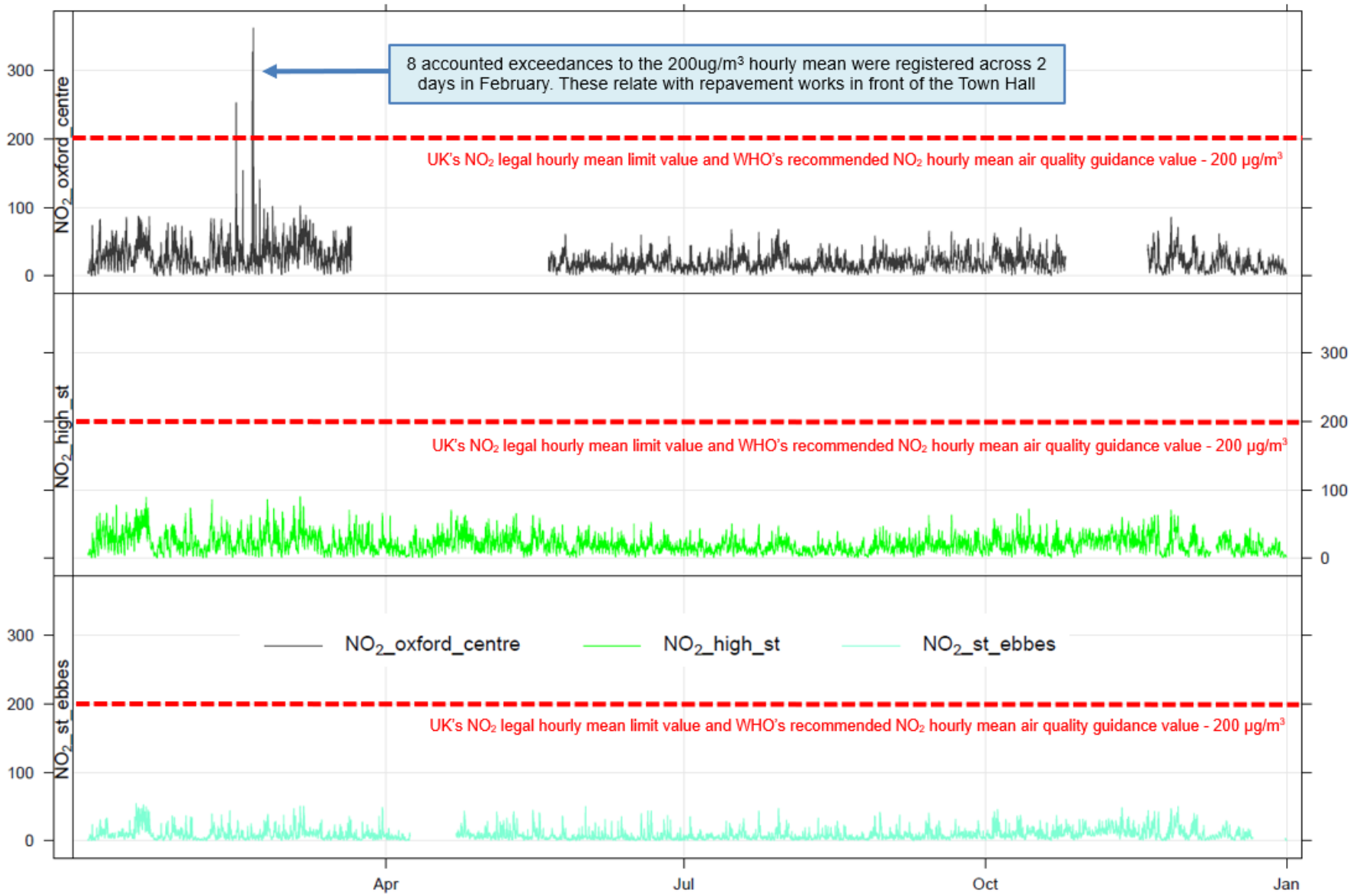


Figure 4 shows that there was a total of 8 accounted exceedances of the hourly mean NO_2 limit value (200 µg/m^3) in 2024. These exceedances were all observed at AURN Oxford Centre Roadside during 2 days in February (15th and 20th) and relate with re-pavement works conducted at St Aldates. The highest hourly mean NO_2 measured at this location was of 361.4 µg/m^3 and was registered on the 20th of February 12:00.

The threshold of the "Moderate" air quality index band as set out by DEFRA for the NO_2 hourly mean ranges from 201 to 400 µg/m^3. NO_2 at all 3 sites were always recorded within the DEFRA "Low" Air Quality band in 2024 (except for those two days at AURN Oxford Centre roadside, where levels - due to the re-pavement works- were reported as "Moderate"). As none of the automatic monitoring sites have registered more than 18 exceedances of the AQ hourly objective for NO_2, this objective was fully met in 2024.

NO_2 Results from the non-automatic monitoring (diffusion tubes)

The main observations of the monitoring carried out in 2024 using non-automatic monitoring are as follow:

- NO_2 was monitored at a total of 118 sites in the city in 2024.
- Only one of the 118 sites was found to be in breach of the UK's legal annual mean limit value for this pollutant: Headington Hill (TF19)[10] - with an annual mean recorded of 43 µg/m^3.
- None of the 118 sites is likely to have been in breach of the hourly mean objective[11] for NO_2 (200µg/m^3) – this was the case for the eight consecutive years.
- Only four of the 118 sites were found to be in breach of Oxford's local annual mean target for NO_2 (30 µg/m^3) – a commitment laid out in the city's AQAP, and which is expected to be achieved across the city by 2025. Those locations are: St Clements (DT55), Headington Hill (TF19), and Oxford's ring road (TF31 and TF36).

[10] Although in breach of the UK's annual mean limit value for this pollutant (40µg/m^3), this site is not particularly relevant to LAQM: Headington Hill is not considered a location of relevant exposure (i.e., a location where members of the public are likely to be regularly present for a period of time appropriate to the averaging period of the annual mean limit value. The purpose of monitoring at this location relates solely with the evaluation of the possible impacts' future interventions (traffic filters) can cause in terms of traffic displacement in this area.

[11] According to LAQM TG22, only annual means NO_2 that are equal or above 60 µg/m^3 represent locations where exceedances of the hourly mean of this pollutant are likely.

- In 2024, NO_2 levels decreased (on average) by 10% across the city, when in comparison with the previous reporting year of 2023.
- Over the last decade (2014-2024), NO_2 levels have reduced in the city (on average) by 52%, with 25% of those reductions alone occurring since 2021, the year the city launched its current Air Quality Action Plan 2021-2025.

Impact of Botley Road Closure on Air Quality in Oxford

In April 2023, Botley Road was closed to traffic as part of broader improvement works on the western side of Oxford Railway Station. Since then, nitrogen dioxide (NO_2) levels have been monitored at four locations along Botley Road (DT33, DT35, DT36, and DT84).

- In 2022, prior to the road closure, the average NO_2 concentration at these sites was 19 µg/m³.
- In 2023, this dropped to 16 µg/m³ (a 16% decrease).
- By 2024, the average further declined to 14 µg/m³ (a 13% decrease, compared to the 10% city average).

This represents a reduction of 2 µg/m³ compared to 2023. These figures indicate a continued improvement in air quality along Botley Road following its closure.

Citywide Trends on Main Arterial Routes

Despite concerns that closing Botley Road might increase air pollution due to potential traffic displacement[12] on other major artery roads, 2024 monitoring data shows a consistent decline in NO_2 levels across Oxford's main entry routes:

- Abingdon Road: ↓ 1 µg/m³ (from 24 to 23 µg/m³)
- Woodstock Road: ↓ 1 µg/m³ (average across 3 sites, from 16 to 15 µg/m³) – (6% decrease compared to 10% city average).
- Banbury Road: ↓ 2 µg/m³ (average across 3 sites, from 18 to 16 µg/m³) – (11% decrease compared to 10% city average).
- Headington Road/London Road: ↓ 2 µg/m³ (average across 3 sites, from 20 to 18 µg/m³) – (10% decrease compared to 10% city average).

[12] According to traffic data provided by Oxfordshire County Council, traffic levels have slightly increased (on average) within the city of Oxford by 1.3% in 2024 and decreased by -0.9% on the ring road.

- Sunderland Avenue: ↓ 2 µg/m³ (average across 5 sites, from 22 to 20 µg/m³) – (9% decrease compared to 10% city average).

These findings clearly show that the closure of Botley Road did not result in increased air pollution on alternative artery routes. On the contrary, NO_2 levels have continued to decline citywide - including in areas much less impacted by the introduction of electric buses - indicating broader improvements in air quality that extend beyond the benefits of the ZEBRA scheme.

Air Quality Trends in Oxford's Zero Emission Zone (ZEZ)

The UK's first Zero Emission Zone (ZEZ) was launched in February 2022. Monitoring data from 2024 across all locations within the ZEZ Pilot area reveal the following:

- Stable NO_2 Levels in Pedestrianised Areas Without Bus Routes: NO_2 concentrations have generally remained stable at locations that are largely pedestrianised and not part of active bus routes—namely Cornmarket, New Inn Hall Street, and St Michael's Street.
- Significant Reductions in Bus-Served Areas: As anticipated, locations such as Queen Street, Bonn Square, and New Road - though pedestrianised - still accommodate city bus routes. These areas recorded the largest NO_2 reductions within the ZEZ Pilot:

  Queen Street: ↓ 4 µg/m³

  Bonn Square: ↓ 2 µg/m³

  New Road: ↓ 6 µg/m³

These improvements reflect the positive impact of the ZEBRA scheme, which introduced 159 electric buses into Oxford's fleet.

Highest and Lowest NO_2 Levels:

- Lowest: New Inn Hall Street (DT87) and St Michael's Street (DT88), both with an annual mean of 14 µg/m³
- Highest: Queen Street (DT40) and Bonn Square (DT41), with annual means of 17 µg/m³ and 18 µg/m³, respectively

All NO_2 levels recorded within the ZEZ Pilot area remain well below both the UK's legal limit of 40 µg/m³ and Oxford's more stringent local target of 30 µg/m³.

Low Traffic Neighbourhoods (LTNs)

On the 17th October 2023 Oxfordshire County cabinet decided that the East Oxford LTNs located at St Marys, St Clements and Divinity Road would remain in place. An Oxfordshire County cabinet decision was also made on the 22nd June 2023 to approve proposals to remove LTN bollards on three roads in Cowley (Littlemore Road, Crescent Road and Littlehay Road) and to enforce the traffic restrictions using Automatic Number Plate Recognition (ANPR) cameras.

Air Quality on LTN boundary roads

Air quality monitoring on roads bordering LTNs showed continued improvements in 2024. Most locations recorded modest reductions of 1–2 µg/m³, but some areas experienced more significant improvements:

- St Clement's - historically Oxford's most polluted area - saw notable NO_2 reductions at: DT55 (4 µg/m³), DT77 (5 µg/m³), DT85 (3 µg/m³).
- In Between Towns Road DT7 (5 µg/m³).

These areas, which experience high bus traffic, particularly benefited from the ZEBRA electric bus fleet rollout.

Detailed Boundary Road Improvements

- Hollow Way (DT80) – Temple Cowley LTN: reduction of 2 µg/m³ (from 31 to 29 µg/m³), now meeting Oxford's local air quality target for the first time.
- Oxford Road (DT8) and Garsington Road/St Luke's Road (TF32) – Temple Cowley & Florence Park LTNs: reductions of 1 and 3 µg/m³ respectively.
- Church Cowley Road (TF38) – Florence Park & Church Cowley LTNs: reduction of 1 µg/m³ (to 20 µg/m³).
- Iffley Road/Henley Avenue (A4158): DT4 (Boundary Brook Road): reduction of 2 µg/m³, TF17 (Stanley Road): reduction of 3 µg/m³, Morrel Avenue – St Clement's & Divinity Road LTNs: LT4: reduction of 2 µg/m³ and of 1 µg/m³ at TF18.
- Cowley Road – St Clement's, St Mary's & Divinity Road LTNs: DT72 (James Street): reduction of 2 µg/m³, DT81 (Union Street): reduction of 1 µg/m³

Air Quality inside Low Traffic Neighbourhoods (LTNs)

Similar to the trends observed on boundary roads, all the monitoring locations within Oxford's LTNS recorded reductions in NO_2 levels in 2024, with average decreases ranging from 1 to 2 µg/m^3.

- St Marys LTN saw NO_2 reductions of 2 and 1 µg/m^3 at Howard St and Hurst St respectively.
- St Clements LTN saw an NO_2 reduction of 2 µg/m^3 at Prince St and East Oxford Primary school.
- Divinity Road (within Divinity Road LTN) saw an NO_2 reduction of 1 µg/m^3.

None of the NO_2 levels measured both inside and on the boundary roads of Oxford's LTNS were above the UK legal limit value for this pollutant, and only 1 monitoring location (St Clements: DT55 - 34 µg/m^3) showed NO_2 levels above the city's local annual mean target for NO_2 (30 µg/m^3)**.**

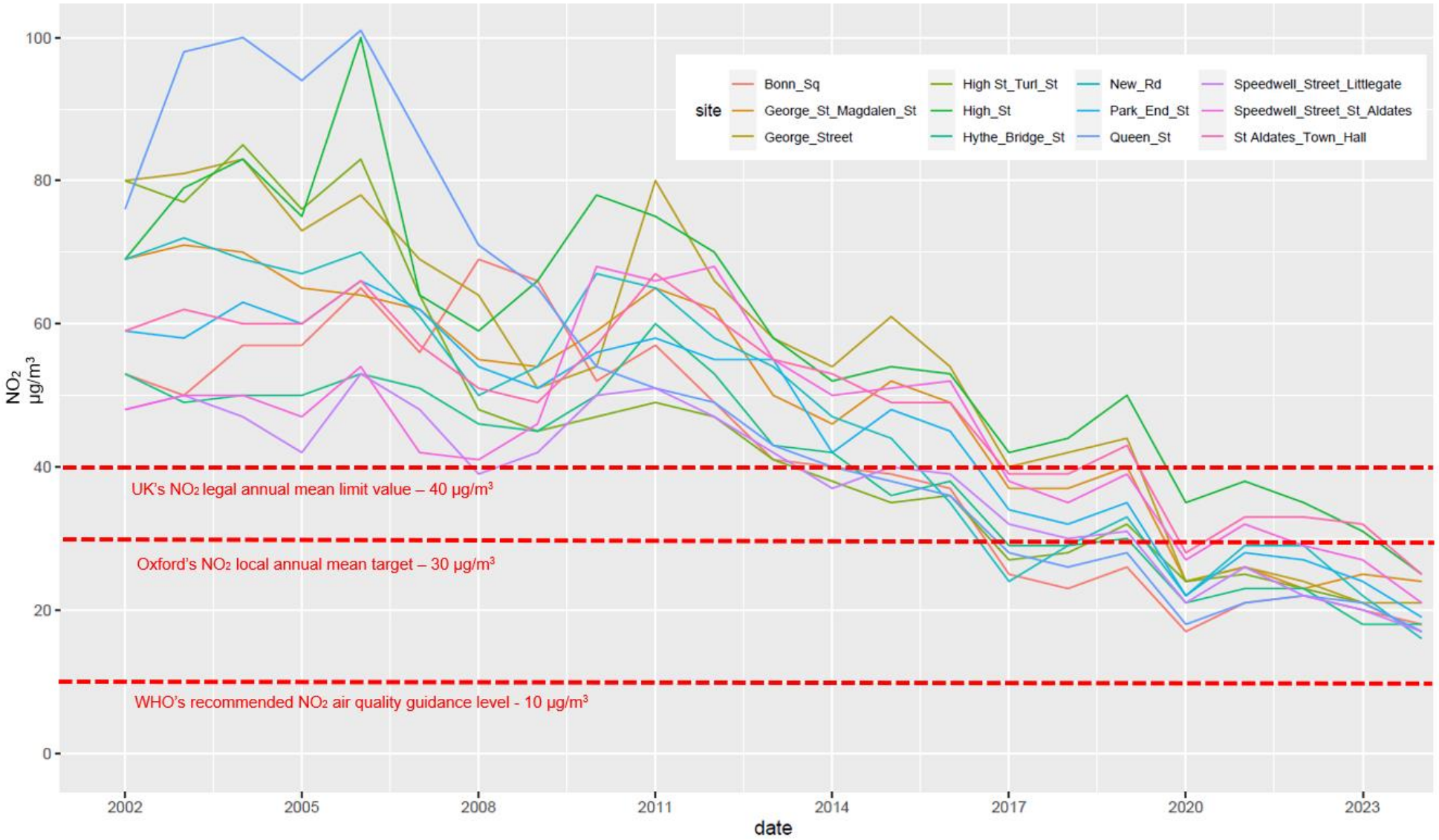
The full 2024 dataset of diffusion tube monthly mean values is provided in Table 12 (Appendix B).

Figure 5 below shows the long term trend for levels of measured NO_2 at a number of historic diffusion tube monitoring stations. The results are expressed in µg/m^3.

It is quite clear that there has been a significant historic downward trend in measured levels of NO_2 at most of these locations since monitoring began in 2003. In 2024, we can see a continued decrease in NO_2 levels at these location, which can be explained by the electrification of 69% of the bus fleet in Oxford throughout 2024 (via the ZEBRA scheme).

Overall, NO_2 levels have decreased (on average) by 10% at all the diffusion tube monitoring locations in the city in 2024, and up to 24% in high bus traffic locations (High Street and St Aldates) when compared to the previous year.

Figure 6 - Long term trends of annual mean NO_2 at Oxford's diffusion tube monitoring locations, 2002-2024



3.2.2 Particulate Matter (PM_{10} and $PM_{2.5}$)

In 2024, PM_{10} and $PM_{2.5}$ data were monitored by automatic continuous monitors at AURN St Ebbes and Oxford High Street.

The annual mean AQ objective for PM_{10} is 40 µg/m^3. Table 9 (Appendix A) compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40 µg/m^3.

In 2024, Oxford High Street (roadside) registered a PM_{10} annual mean of 13 µg/m^3. AURN St. Ebbes (urban background) of 9 µg/m^3. The annual mean PM_{10} concentration tends to be slightly higher at roadside sites, when compared to urban background sites, due to the contribution of PM_{10} emissions from road transport sources, predominantly from non-exhaust sources (brakes, tyres, and road wear), as well as the impact of resuspension due to vehicle movements.

This objective was fully met at both these monitoring sites in 2024. These levels also show full compliance with the WHO recommended guidelines for this pollutant (15 µg/m^3).

Figure 6 below show the 14-year long term trend for levels of measured PM_{10} at continuous monitoring stations in Oxford, along with the current recommended WHO guideline value for this pollutant, which is significantly lower than the current UK legal limit value. The overall trend of PM_{10} levels measured at our 2 automatic monitoring sites has been generally going downward since 2011.

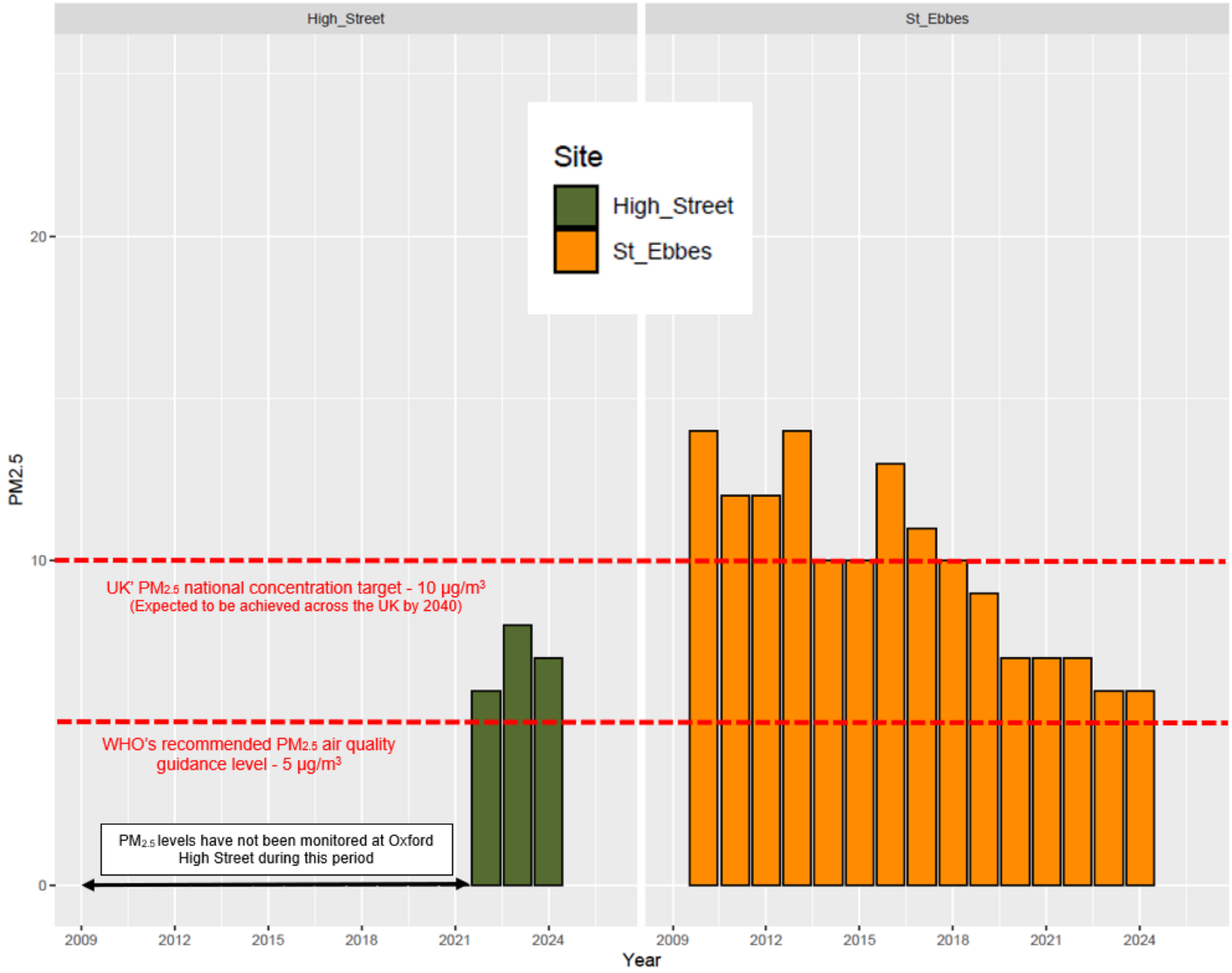
A new UK air quality target now exists for $PM_{2.5}$, as a result of the official publication of the UK's Environmental Improvement Plan (EIP) on the 31st of January 2023. The legal target requires for a maximum annual mean concentration of 10 µg/m^3 to be achieved by 2040, with a new interim target of 12 µg/m^3 expected to be achieved by the end of January 2028.

The monitored annual mean of $PM_{2.5}$ that was obtained in 2024 was of 6 µg/m^3 at AURN St. Ebbes and of 7 µg/m^3 at Oxford High Street. These annual means are very similar, both of them are in compliance with the new UK air quality target and relatively close to the annual mean of the 5 µg/m^3 which is recommended by WHO guidelines for this pollutant.

Figure 7 below shows the long-term trends of $PM_{2.5}$ concentrations measured at Oxford's AURN St Ebbes and (more recently) Oxford High Street. Table 11 (Appendix A) presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations at these sites for the past five years.

Figure 7 – Long term trends in annual mean PM_{10} at Oxford's continuous monitoring locations, 2011-2024

Figure 8 – Long term trends of annual mean $PM_{2.5}$ at Oxford's continuous monitoring stations, 2009-2024



3.2.3 Ozone

In Oxford, O_3 is measured at AURN St. Ebbes. The UK's Air Quality objective for daily maximum on an 8-hour running mean is 100 µg/m^3 not to be exceeded more than 10 days a year.

The data capture of O_3 at AURN St. Ebbes in 2024 was of 94.9%.

In 2024, this site exceeded the AQ daily objective for ozone 114 times, during a total of 15 days during the year. AURN St. Ebbes has not met the AQ objectives for this pollutant in 2024.

The highest concentrations measured in 2024 were registered on the 30th July between 14:00 and 19:00. During this period, ozone's hourly averages variated between 148 and 157 µg/m^3.

OXONAIR's page registers the biggest air pollution episodes affecting Oxfordshire, and makes note of an increased ozone episode from the 29th July to the 1st August 2024.

According to the report, these ozone pollution peaks happened:

"*during **warm weather** when winds from **southeastern Europe** brought air pollutants that contribute to ozone formation*."

A detailed report on how Oxfordshire was impacted by these ozone episodes can be viewed here.

Appendix A: Monitoring Results

Table 4 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? (1)	Monitoring Technique	Distance to Relevant Exposure (m) (2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
CM1	AURN Oxford Centre	Roadside	451359	206157	NO_2	Yes	Oxford city-wide AQMA	Chemiluminescence	1	3	2.5
CM2	Oxford High Street	Roadside	451677	206272	NO_2 PM_{10} $PM_{2.5}$	Yes	Oxford city-wide AQMA	Chemiluminescence and Mass spectrometry	1	2	1.5
CM3	AURN St Ebbes	Urban Background	451118	205353	NO_2 PM_{10} $PM_{2.5}$ O_3	Yes	Oxford city-wide AQMA	Chemiluminescence, Mass spectrometry and UV Absorption	10	2	2.5

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 5 – 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)
DT1	St Ebbe's	UB	451118	205353	NO2	YES/Oxford city-wide AQMA	10	2	YES	2.5
DT2	Weirs Lne./Abingdon Rd. LP1	RS	451904	204215	NO2	YES/Oxford city-wide AQMA	2	2	NO	3
DT3	LP 52 Abingdon Rd.	RS	451914	204154	NO2	YES/Oxford city-wide AQMA	3	2	NO	3
DT4	Boundary Brook Rd/ Iffley Rd	RS	452961	204662	NO2	YES/Oxford city-wide AQMA	3	2	NO	3
DT5	Lenthall Rd Allotments	UB	452818	203448	NO2	YES/Oxford city-wide AQMA	5	N/A	NO	1.5
DT7	Oxford Rd/ Between Towns Rd	RS	454472	204246	NO2	YES/Oxford city-wide AQMA	3	2	NO	3
DT8	Oxford Rd(Cowley) LP13	RS	454355	204296	NO2	YES/Oxford city-wide AQMA	3	1	NO	3
DT14	Windmill Rd. W	RS	454554	207102	NO2	YES/Oxford city-wide AQMA	0	2.5	NO	3
DT15	London Rd./BHF	RS	454433	207058	NO2	YES/Oxford city-wide AQMA	0	2.5	NO	3
DT16	Headley Way/London Rd. LP2	RS	453982	206817	NO2	YES/Oxford city-wide AQMA	1	2	NO	3
DT18	The Roundway	RS	455596	207367	NO2	YES/Oxford city-wide AQMA	0	5	NO	3
DT20	Barton Lane LP2	RS	454999	207759	NO2	YES/Oxford city-wide AQMA	3	1	NO	3
DT25	Cuttleslowe Rbout 3 Elsfield Rd.	RS	450419	210256	NO2	YES/Oxford city-wide AQMA	5	2	NO	3
DT26	Cuttleslowe 3 Summers Place	RS	450389	210189	NO2	YES/Oxford city-wide AQMA	1	2	NO	3
DT27	Wolvercote 78 Sunderland Ave.	RS	449824	210198	NO2	YES/Oxford city-wide AQMA	1	1	NO	3
DT28	Wolvercote 51 Sunderland Ave	RS	449856	210162	NO2	YES/Oxford city-wide AQMA	1	1	NO	3
DT29	Pear Tree P&R N Gateway	RS	449530	210734	NO2	YES/Oxford city-wide AQMA	10	4	NO	3
DT30	Osney Lne/Hollybush Row	RS	450668	206053	NO2	YES/Oxford city-wide AQMA	2	2	NO	3
DT31	Beckett St.	RS	450566	206227	NO2	YES/Oxford city-wide AQMA	5	2	NO	3
DT32	Royal Oxford Hotel	RS	450674	206273	NO2	YES/Oxford city-wide AQMA	0	2.5	NO	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)
DT33	Botley RD/ Mill St	RS	450409	206224	NO2	YES/Oxford city-wide AQMA	1	1	NO	3
DT35	Botley Rd /Hillview Rd	RS	450029	206207	NO2	YES/Oxford city-wide AQMA	1	2	NO	3
DT36	Botley Rd N (Prestwich Place)	RS	449657	206245	NO2	YES/Oxford city-wide AQMA	1	2	NO	3
DT39	St Aldates	RS	451359	206157	NO2	YES/Oxford city-wide AQMA	0	2	YES	2.5
DT40	Queen St.	RS	451270	206144	NO2	YES/Oxford city-wide AQMA	0	2	NO	3
DT41	Bonn Square	RS	451216	206133	NO2	YES/Oxford city-wide AQMA	0	2	NO	3
DT42	New Rd.	RS	451073	206191	NO2	YES/Oxford city-wide AQMA	2	3.5	NO	3
DT43	Park End St.	RS	450885	206275	NO2	YES/Oxford city-wide AQMA	2	1	NO	3
DT44	Hythe Bridge St.	RS	450795	206343	NO2	YES/Oxford city-wide AQMA	0	2	NO	3
DT45	Worcester St.	RS	450942	206424	NO2	YES/Oxford city-wide AQMA	2	2	NO	3
DT46	Beaumont St.	RS	451167	206519	NO2	YES/Oxford city-wide AQMA	2	1	NO	3
DT47	George St. / Magdalen St.	RS	451222	206387	NO2	YES/Oxford city-wide AQMA	2	0.5	NO	3
DT48	George St.	RS	450981	206344	NO2	YES/Oxford city-wide AQMA	1	0.5	NO	3
DT49	Cornmarket St.	RS	451322	206242	NO2	YES/Oxford city-wide AQMA	0	2	NO	3
DT50	High St. / Turl St.	RS	451467	206222	NO2	YES/Oxford city-wide AQMA	1	2.5	NO	3
DT51	50 High St.	RS	451900	206250	NO2	YES/Oxford city-wide AQMA	0	2.5	NO	3
DT52	Longwall St.	RS	451972	206283	NO2	YES/Oxford city-wide AQMA	1	1	NO	3
DT53	Magdalen Bridge	RS	452099	206117	NO2	YES/Oxford city-wide AQMA	10	2	NO	3
DT55	St Clements	RS	452326	205992	NO2	YES/Oxford city-wide AQMA	2	0.5	NO	3
DT56	High St.	RS	451576	206232	NO2	YES/Oxford city-wide AQMA	2.5	0.2	NO	3
DT57	Speedwell St. / St. Aldates	RS	451407	205807	NO2	YES/Oxford city-wide AQMA	1	3	NO	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)
DT58	Folly Bridge	RS	451437	205529	NO2	YES/Oxford city-wide AQMA	1	1	NO	3
DT59	Thames St.	RS	451353	205643	NO2	YES/Oxford city-wide AQMA	1	3	NO	3
DT60	New Butterwyke P./ Thames St.	RS	451248	205710	NO2	YES/Oxford city-wide AQMA	5	2	NO	3
DT64	Thames St. / Oxpens Rd.	RS	450887	205825	NO2	YES/Oxford city-wide AQMA	5	1	NO	3
DT65	Speedwell St. / Littlegate	RS	451206	205780	NO2	YES/Oxford city-wide AQMA	1	2	NO	3
DT68	Norfolk St.	RS	451030	205962	NO2	YES/Oxford city-wide AQMA	0	1.5	NO	3
DT69	Paradise Square	RS	450982	205973	NO2	YES/Oxford city-wide AQMA	0	1	NO	3
DT70	Castle St.	RS	451062	206067	NO2	YES/Oxford city-wide AQMA	0	1.5	NO	3
DT71	BP City Motors	RS	449617	210216	NO2	YES/Oxford city-wide AQMA	5	5	NO	3
DT72	Cowley Rd./ James Street	RS	452761	205745	NO2	YES/Oxford city-wide AQMA	1	1	NO	3
DT73	Walton Street LP18	RS	450960	206590	NO2	YES/Oxford city-wide AQMA	1	1	NO	3
DT76	St Gilles	RS	451226	206504	NO2	YES/Oxford city-wide AQMA	0	2	NO	3
DT77	St Clements 2	RS	452451	205999	NO2	YES/Oxford city-wide AQMA	0	1	NO	3
DT79	Old Abingdon Rd.	RS	451908	203919	NO2	YES/Oxford city-wide AQMA	5	1.5	NO	3
DT80	Hollow way Road	RS	454651	204270	NO2	YES/Oxford city-wide AQMA	4	1	NO	3
DT81	Cowley Rd/ Union Street	RS	452805	205731	NO2	YES/Oxford city-wide AQMA	0	2	NO	3
DT82	Summertown Parade	RS	450806	208978	NO2	YES/Oxford city-wide AQMA	2	1	NO	3
DT83	A44 Woodstock Rd.	RS	449681	210263	NO2	YES/Oxford city-wide AQMA	8	0.5	NO	2
DT84	226 Botley Rd.	RS	449273	206274	NO2	YES/Oxford city-wide AQMA	10	1.5	NO	3
DT85	St Clements 3	RS	452625	206068	NO2	YES/Oxford city-wide AQMA	2.5	1	NO	3
DT86	72 Blackbird Leys	RS	455134	202841	NO2	YES/Oxford city-wide AQMA	6	1.5	NO	2

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT87	New Inn Hall St	RS	451164	206246	NO2	YES/Oxford city-wide AQMA	0	0.5	NO	2
DT88	St Michaels St	RS	451205	206341	NO2	YES/Oxford city-wide AQMA	0	0.5	NO	2
DT89	Turl St/Market St	RS	451439	206330	NO2	YES/Oxford city-wide AQMA	1	0.5	NO	2
DT90	Rose Hill (Ashhurst Way)	RS	453368	203323	NO2	YES/Oxford city-wide AQMA	7	2	NO	2.5
DT91	Garsington Rd (Premier Place)	RS	455267	203719	NO2	YES/Oxford city-wide AQMA	2	0.5	NO	2
DT92	BB Leys (Cuddesdon Way)	RS	455702	203062	NO2	YES/Oxford city-wide AQMA	6	3	NO	2.5
DT93	Marston Ferry Rd	RS	451363	208785	NO2	YES/Oxford city-wide AQMA	15	1	NO	2.5
DT94	Broad St LP6	RS	451360	206427	NO2	YES/Oxford city-wide AQMA	4	0.1	NO	2.2
DT95	Broad S -Lbay	RS	451433	206438	NO2	YES/Oxford city-wide AQMA	4	0.1	NO	2.2
DT96	45 Oxford Road	RS	453698	203059	NO2	YES/Oxford city-wide AQMA	1	1.5	NO	2.6
DT97	14 Green Road flats	RS	455540	207352	NO2	YES/Oxford city-wide AQMA	0	5.5	NO	2.4
TF1	Oxey Mead Lake 1	UB	447817	210695	NO2	NO	(2) (3)	19	NO	1.5
TF2	Oxey Mead Lake 2	RS	447945	210710	NO2	NO	(2) (3)	6	NO	1
TF3	Oxey Mead Lake 3	RS	448247	210661	NO2	NO	(2) (3)	1	NO	2
TF4	Wolvercote Village	RS	449145	209732	NO2	YES/Oxford city-wide AQMA	10	2	NO	3
TF5	Wolvercote Primary School	RS	449740	209866	NO2	YES/Oxford city-wide AQMA	8	2	NO	2.5
TF6	306 Woodstock Road	RS	450300	209379	NO2	YES/Oxford city-wide AQMA	10	2	NO	3
TF7	339 Banbury Road	RS	450602	209634	NO2	YES/Oxford city-wide AQMA	10	2	NO	3
TF8	191 Woodstock Road	RS	450695	208278	NO2	YES/Oxford city-wide AQMA	9	2	NO	2.5
TF9	48 Woodstock Road	RS	451009	207199	NO2	YES/Oxford city-wide AQMA	6	2	NO	2.5
TF10	99 Banbury Road	RS	451035	207953	NO2	YES/Oxford city-wide AQMA	10	2	NO	2.5
TF11	9 S. Park Road	RS	451626	206893	NO2	YES/Oxford city-wide AQMA	5	1	NO	2.5
TF12	15 Banbury Road	RS	451170	207087	NO2	YES/Oxford city-wide AQMA	10	2	NO	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)
TF13	Walton Street 76	RS	450625	207212	NO2	YES/Oxford city-wide AQMA	2	1	NO	3
TF14	69 Kingston Road	RS	450545	207728	NO2	YES/Oxford city-wide AQMA	3	1	NO	2.5
TF15	Park End Street	RS	450789	206269	NO2	YES/Oxford city-wide AQMA	2	1	NO	2.5
TF16	St Aldates 61	RS	451420	205729	NO2	YES/Oxford city-wide AQMA	1	0.5	NO	2
TF17	23 Iffley Rd/Stanley Rd	RS	452718	205090	NO2	YES/Oxford city-wide AQMA	6	1	NO	2.5
TF18	143 Morrell Avenue	RS	453263	205962	NO2	YES/Oxford city-wide AQMA	6	1	NO	2.5
TF19	Headington Hill	RS	453248	206468	NO2	YES/Oxford city-wide AQMA	(2) (3)	0.5	NO	2
TF20	Marston Rd/St Michaels Primary	RS	452853	206925	NO2	YES/Oxford city-wide AQMA	10	1.5	NO	2.5
TF21	189 Headley Way	RS	453795	207074	NO2	YES/Oxford city-wide AQMA	10	1	NO	2.5
TF22	255 London Rd/Gladstone Rd	RS	455154	207362	NO2	YES/Oxford city-wide AQMA	10	1.5	NO	2.5
TF23	JR Hospital	RS	453861	207513	NO2	YES/Oxford city-wide AQMA	5	1	NO	2
TF24	Marston Ferry Rd/Cherwell Drive	RS	452739	208351	NO2	YES/Oxford city-wide AQMA	(2) (3)	1	NO	2.5
TF25	39 Marsh Lane	RS	453186	208209	NO2	YES/Oxford city-wide AQMA	10	1.5	NO	2.5
TF26	Northway/Cutteslowe Park	RS	451091	210175	NO2	YES/Oxford city-wide AQMA	(2) (3)	1	NO	1.5
TF27	Northern Bypass/Phillips Tyres	RS	452691	209225	NO2	YES/Oxford city-wide AQMA	(2) (3)	0.5	NO	1.5
TF28	Horspath Driftway	RS	455454	205164	NO2	YES/Oxford city-wide AQMA	10	1	NO	2
TF29	109 Old Road	RS	455138	206375	NO2	YES/Oxford city-wide AQMA	9	2	NO	2.5
TF30	99 Oliver Road	RS	455405	204262	NO2	YES/Oxford city-wide AQMA	10	2.5	NO	2.5
TF31	Brasenose Farm/Eastern Bypass	RS	455602	204986	NO2	YES/Oxford city-wide AQMA	(2) (3)	1	NO	2
TF32	22 Garsington Road	RS	454690	204160	NO2	YES/Oxford city-wide AQMA	9	2	NO	3
TF33	119 Barns Road	RS	454490	203748	NO2	YES/Oxford city-wide AQMA	4	1.5	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)
TF34	Oxford Road/Newmans Road	RS	453717	203250	NO2	YES/Oxford city-wide AQMA	10	1	NO	2.5
TF36	Wolvercote Meadows 1	RS	448095	208830	NO2	NO	(2) (3)	1	NO	1.5
TF37	Wolvercote Meadows 2	RS	448688	210123	NO2	NO	(2) (3)	1.5	NO	2
TF38	Church Cowley Rd	RS	453417	204026	NO2	YES/Oxford city-wide AQMA	4	2.5	NO	2
LT1	26 Prince St	RS	452786	205860	NO2	YES/Oxford city-wide AQMA	4	0.5	NO	2.5
LT4	138-146 Morrell Av	RS	453575	206037	NO2	YES/Oxford city-wide AQMA	4	2	NO	2.5
LT5	189 Divinity Rd	RS	453576	205938	NO2	YES/Oxford city-wide AQMA	2	1	NO	2.5
LT7	126 The Slade	RS	454930	206287	NO2	YES/Oxford city-wide AQMA	3	0.5	NO	2.5
LT8	East Oxford Primary School	UB	452903	205776	NO2	YES/Oxford city-wide AQMA	3	12	NO	2.5
LT14	94 Howard St	RS	453138	204917	NO2	YES/Oxford city-wide AQMA	3	1	NO	2.5
LT16	103-139 Hurst St	RS	452985	205185	NO2	YES/Oxford city-wide AQMA	4	1	NO	2.5

Notes:

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

(2) N/A if not applicable

(3) These sites have not been put in place to directly assess the level of human exposure to air pollution, but instead to measure the potential impact of future transport schemes on traffic displacement. They are located in isolated areas, (mostly around Oxford's ring road), at a considerable distance from residential zones, and hence they are not relevant for the direct purposes of the LAQM regime.

Table 6 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM1	451359	206157	Roadside	76%	76%	28	33	33	31	23
CM2	451677	206272	Roadside	99%	99%	26	30	31	27	21
CM3	451118	205353	Urban Background	93%	93%	11	11	12	9	9

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

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

☒ **Where exceedances of the NO_2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2024.**

Notes:

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

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

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

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

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

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

Table 7 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
DT1	St Ebbes	451118	205353	UB	100	100	11	11	11	9	8
DT2	Weirs Lne./Abingdon Rd. LP1	451904	204215	RS	83	83	23	25	21	18	17
DT3	LP 52 Abingdon Rd.	451914	204154	RS	100	100	26	27	27	24	23
DT4	Boundary Brook Rd/ Iffley Rd	452961	204662	RS	92	92	23	26	27	23	21
DT5	Lenthall Rd Allotments	452818	203448	UB	100	100	10	11	10	8	8
DT7	Oxford Rd/ Between Towns Rd	454472	204246	RS	83	83	27	30	30	28	23
DT8	Oxford Rd(Cowley) LP13	454355	204296	RS	92	92	24	29	29	25	24
DT14	Windmill Rd. W	454554	207102	RS	100	100	28	30	28	27	24
DT15	London Rd./BHF	454433	207058	RS	100	100	21	23	23	21	19
DT16	Headley Way/London Rd. LP2	453982	206817	RS	100	100	19	22	21	18	16
DT18	The Roundway	455596	207367	RS	100	100	22	24	23	20	19
DT20	Barton Lane LP2	454999	207759	RS	100	100	22	23	20	18	17
DT25	Cuttleslowe Rbout 3 Elsfield Rd.	450419	210256	RS	92	92	26	28	25	24	23
DT26	Cuttleslowe 3 Summers Place	450389	210189	RS	100	100	31	34	32	28	26
DT27	Wolvercote 78 Sunderland Ave.	449824	210198	RS	100	100	22	22	20	19	16
DT28	Wolvercote 51 Sunderland Ave	449856	210162	RS	92	92	22	24	20	20	18
DT29	Pear Tree P&R N Gateway	449530	210734	RS	100	100	20	21	21	18	17
DT30	Osney Lne/Hollybush Row	450668	206053	RS	100	100	19	22	20	17	14
DT31	Beckett St.	450566	206227	RS	100	100	21	25	23	17	17
DT32	Royal Oxford Hotel	450674	206273	RS	92	92	24	27	25	21	19
DT33	Botley RD/ Mill St	450409	206224	RS	100	100	19	22	18	16	16
DT35	Botley Rd /Hillview Rd	450029	206207	RS	100	100	23	26	24	19	17
DT36	Botley Rd N (Prestwich Place)	449657	206245	RS	100	100	17	19	16	13	11
DT39	St Aldate's	451359	206157	RS	100	100	28	33	33	32	25
DT40	Queen St.	451270	206144	RS	100	100	18	21	22	21	17
DT41	Bonn Square	451216	206133	RS	92	92	17	21	22	20	18

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
DT42	New Rd.	451073	206191	RS	92	92	22	29	29	22	16
DT43	Park End St.	450885	206275	RS	92	92	22	28	27	24	19
DT44	Hythe Bridge St.	450795	206343	RS	100	100	21	23	23	18	18
DT45	Worcester St.	450942	206424	RS	92	92	26	29	31	25	25
DT46	Beaumont St.	451167	206519	RS	92	92	20	24	22	18	19
DT47	George St. / Magdalen St.	451222	206387	RS	83	83	24	26	23	25	24
DT48	George St.	450981	206344	RS	83	83	24	26	24	21	21
DT49	Cornmarket St.	451322	206242	RS	100	100	18	21	18	16	15
DT50	High St. / Turl St.	451467	206222	RS	92	92	24	25	23	21	17
DT51	50 High St.	451900	206250	RS	100	100	25	35	31	25	21
DT52	Longwall St.	451972	206283	RS	92	92	30	34	32	26	25
DT53	Magdalen Bridge	452099	206117	RS	100	100	16	19	17	16	13
DT55	St Clements	452326	205992	RS	100	100	36	39	**43**	38	34
DT56	High St.	451576	206232	RS	100	100	35	38	35	31	25
DT57	Speedwell St. / St. Aldate's	451407	205807	RS	100	100	27	32	29	27	21
DT58	Folly Bridge	451437	205529	RS	100	100	24	27	23	23	20
DT59	Thames St.	451353	205643	RS	100	100	18	22	19	17	15
DT60	New Butterwyke P./ Thames St.	451248	205710	RS	83	83	22	27	23	20	17
DT64	Thames St. / Oxpens Rd.	450887	205825	RS	100	100	15	18	16	13	13
DT65	Speedwell St. / Littlegate	451206	205780	RS	100	100	21	26	22	20	17
DT68	Norfolk St.	451030	205962	RS	75	75	19	24	22	22	16
DT69	Paradise Square	450982	205973	RS	100	100	18	20	18	16	13
DT70	Castle St.	451062	206067	RS	100	100	22	27	22	18	15
DT71	BP City Motors	449617	210216	RS	100	100	28	28	27	24	24
DT72	Cowley Rd./ James Street	452761	205745	RS	100	100	22	20	27	23	21
DT73	Walton Street LP18	450960	206590	RS	100	100	15	18	18	15	15
DT76	St Gilles	451226	206504	RS	100	100	23	24	22	23	21
DT77	St Clements 2	452451	205999	RS	100	100	28	30	35	34	29
DT79	Old Abingdon Rd.	451908	203919	RS	100	100	17	20	18	17	15
DT80	Holloway Road	454651	204270	RS	92	92	31	35	34	31	29
DT81	Cowley Rd/ Union Street	452805	205731	RS	92	92	19	30	19	16	15
DT82	Summertown Parade	450806	208978	RS	92	92	20	21	17	17	16
DT83	A44 Woodstock Rd.	449681	210263	RS	100	100	30	32	30	27	28
DT84	226 Botley Rd.	449273	206274	RS	100	100	18	20	18	15	12

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
DT85	St Clements 3	452625	206068	RS	92	92	26	29	30	28	25
DT86	72 Blackbird Leys	455134	202841	RS	100	100	16	18	16	15	13
DT87	New Inn Hall St	451164	206246	RS	100	100	15	17	15	13	14
DT88	St Michaels St	451205	206341	RS	100	100	15	17	14	13	14
DT89	Turl St/Market St	451439	206330	RS	92	92	17	19	15	13	12
DT90	Rose Hill (Ashhurst Way)	453368	203323	RS	92	92	NM	20	19	17	14
DT91	Garsington Rd (Premier Place)	455267	203719	RS	100	100	NM	36	28	25	24
DT92	BB Leys (Cuddesdon Way)	455702	203062	RS	100	100	NM	19	16	14	13
DT93	Marston Ferry Rd	451363	208785	RS	100	100	NM	15	13	11	10
DT94	Broad St LP6	451360	206427	RS	92	92	NM	NM	14	13	14
DT95	Broad S -Lbay	451433	206438	RS	75	75	NM	NM	14	16	14
DT96	45 Oxford Road	453698	203059	RS	92	92	NM	NM	NM	25	21
DT97	14 Green Road flats	455540	207352	RS	100	100	NM	NM	NM	18	16
TF1	Oxey Mead Lake 1	447817	210695	UB	100	100	NM	NM	9	11	7
TF2	Oxey Mead Lake 2	447945	210710	RS	92	92	NM	NM	13	14	11
TF3	Oxey Mead Lake 3	448247	210661	RS	100	100	NM	NM	25	21	19
TF4	Wolvercote Village	449145	209732	RS	100	100	NM	NM	13	11	9
TF5	Wolvercote Primary School	449740	209866	RS	100	100	NM	NM	14	12	10
TF6	306 Woodstock Road	450300	209379	RS	100	100	NM	NM	15	13	13
TF7	339 Banbury Road	450602	209634	RS	100	100	NM	NM	23	21	20
TF8	191 Woodstock Road	450695	208278	RS	100	100	NM	NM	20	17	16
TF9	48 Woodstock Road	451009	207199	RS	100	100	NM	NM	20	18	16
TF10	99 Banbury Road	451035	207953	RS	75	75	NM	NM	19	18	16
TF11	9 S. Park Road	451626	206893	RS	83	83	NM	NM	17	15	15
TF12	15 Banbury Road	451170	207087	RS	100	100	NM	NM	17	14	13
TF13	Walton Street 76	450625	207212	RS	92	92	NM	NM	20	16	14
TF14	69 Kingston Road	450545	207728	RS	100	100	NM	NM	15	11	11
TF15	Park End Street	450789	206269	RS	83	83	NM	NM	36	29	21
TF16	St Aldates 61	451420	205729	RS	100	100	NM	NM	28	21	18
TF17	23 Iffley Rd/Stanley Rd	452718	205090	RS	100	100	NM	NM	26	20	17
TF18	143 Morrell Avenue	453263	205962	RS	100	100	NM	NM	16	13	12
TF19	Headington Hill	453248	206468	RS	75	75	NM	NM	**70**	**53**	**43**
TF20	Marston Rd/St Michaels Primary	452853	206925	RS	100	100	NM	NM	16	12	10
TF21	189 Headley Way	453795	207074	RS	100	100	NM	NM	22	18	15

Diffusion Tube ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
TF22	255 London Rd/Gladstone Rd	455154	207362	RS	100	100	NM	NM	25	21	19
TF23	JR Hospital	453861	207513	RS	100	100	NM	NM	23	20	17
TF24	Marston Ferry Rd/Cherwell Drive	452739	208351	RS	100	100	NM	NM	16	12	11
TF25	39 Marsh Lane	453186	208209	RS	100	100	NM	NM	17	15	13
TF26	Northway/Cutteslowe Park	451091	210175	RS	100	100	NM	NM	23	19	17
TF27	Northern Bypass/Phillips Tyres	452691	209225	RS	75	75	NM	NM	**42**	32	29
TF28	Horspath Driftway	455454	205164	RS	100	100	NM	NM	22	18	16
TF29	109 Old Road	455138	206375	RS	100	100	NM	NM	15	13	12
TF30	99 Oliver Road	455405	204262	RS	92	92	NM	NM	34	25	24
TF31	Brasenose Farm/Eastern Bypass	455602	204986	RS	100	100	NM	NM	**43**	34	32
TF32	22 Garsington Road	454690	204160	RS	100	100	NM	NM	20	17	14
TF33	119 Barns Road	454490	203748	RS	92	92	NM	NM	16	16	13
TF34	Oxford Road/Newmans Road	453717	203250	RS	100	100	NM	NM	35	27	26
TF36	Wolvercote Meadows 1	448095	208830	RS	100	100	NM	NM	36	29	31
TF37	Wolvercote Meadows 2	448688	210123	RS	83	83	NM	NM	**42**	26	24
TF38	Church Cowley Rd	453417	204026	RS	75	75	NM	NM	NM	21	20
LT1	26 Prince St	452786	205860	RS	83	83	NM	17	13	11	9
LT4	138-146 Morrell Av	453575	206037	RS	100	100	NM	16	13	12	10
LT5	189 Divinity Rd	453576	205938	RS	92	92	NM	18	12	10	9
LT7	126 The Slade	454930	206287	RS	100	100	NM	26	22	19	16
LT8	East Oxford Primary School	452903	205776	UB	100	100	NM	15	13	12	10
LT14	94 Howard St	453138	204917	RS	100	100	NM	16	13	11	9
LT16	103-139 Hurst St	452985	205185	RS	92	92	NM	16	13	11	10

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

☒ **Diffusion tube data has been bias adjusted.**

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

Notes:

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

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

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

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

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

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

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

Table 8 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM1	451359	206157	Roadside	76%	76%	0	0	1	0	8 (112)
CM2	451677	206272	Roadside	99%	99%	1	0	0	0	0
CM3	451118	205353	Urban Background	93%	93%	0	0	0	0	0

Notes:

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

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

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

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

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

Table 9 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM2	451677	206272	Roadside	85%	85%	16	14	16	14	13
CM3	451118	205353	Urban Background	99%	99%	11	11	12	9	9

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

Notes:

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

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

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

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

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

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM2	451677	206272	Roadside	85%	85%	0	0	2	0	0
CM3	451118	205353	Urban Background	99%	99%	0	1	0	0	0

Notes:

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

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

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

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

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

Table 11 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM2	451677	206272	Roadside	85%	85%	NM	NM	6	8	7
CM3	451118	205353	Urban Background	99%	99%	9	7	7	6	6

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

Notes:

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

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

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

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

NM – Not Monitored

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table 12 – NO_2 2024 Diffusion Tube Results ($\mu g/m^3$)

DT ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT1	St Ebbes	451118	205353	13.3	11.2	11.4	8.5	9.6	8.6	8.4	7.5	9.2	13.6	14.0	8.3	10.3	8		
DT2	Weirs Lne./Abingdon Rd. LP1	451904	204215	27.5	23.2	23.1	20.9	20.6	18.7	17.4	17.9	16.9	24.5	26.0	NA	21.5	17		
DT3	LP 52 Abingdon Rd.	451914	204154	35.0	35.1	26.6	27.4	30.5	26.7	24.8	23.9	24.5	32.2	32.4	NA	29.0	23		
DT4	Boundary Brook Rd/ Iffley Rd	452961	204662	35.6	33.5	26.0	19.9	23.5	23.0	22.5	20.8	21.0	30.2	34.3	NA	26.4	21		
DT5	Lenthall Rd Allotments	452818	203448	13.9	11.3	11.6	8.7	8.9	6.8	7.0	6.8	5.8	14.7	18.7	9.2	10.3	8		
DT7	Oxford Rd/ Between Towns Rd	454472	204246	41.1	38.6	31.9	29.1	31.3	31.9	25.2	28.8	27.2	31.6	20.1	24.4	30.1	23		
DT8	Oxford Rd(Cowley) LP13	454355	204296	40.5	31.6	33.1	30.0	30.4	27.3	24.9	22.8	27.0	37.6	31.1	NA	30.6	24		
DT14	Windmill Rd. W	454554	207102	42.2	41.3	33.1	31.4	30.2	NA	30.3	27.9	26.4	28.4	22.5	23.3	30.6	24		
DT15	London Rd./BHF	454433	207058	30.6	14.4	28.8	23.1	26.9	20.5	23.2	19.5	22.3	34.2	28.6	NA	24.7	19		
DT16	Headley Way/London Rd. LP2	453982	206817	24.7	19.6	21.6	21.9	22.2	19.5	18.3	15.3	21.8	19.6	23.0	NA	20.7	16		
DT18	The Roundway	455596	207367	31.3	25.1	23.6	22.0	24.3	21.7	18.7	19.6	22.7	27.0	29.1	NA	24.1	19		
DT20	Barton Lane LP2	454999	207759	32.0	21.0	21.4	18.5	21.9	18.7	16.9	13.9	19.6	23.9	27.9	NA	21.4	17		
DT25	Cuttleslowe Rbout 3 Elsfield Rd.	450419	210256	41.9	NA	32.2	25.1	27.6	26.5	26.0	25.3	31.7	37.4	24.2	27.5	29.6	23		
DT26	Cuttleslowe 3 Summers Place	450389	210189	NA	34.8	26.7	32.5	39.4	30.6	27.5	26.8	NA	NA	24.8	NA	30.4	26		
DT27	Wolvercote 78 Sunderland Ave.	449824	210198	24.9	26.3	14.4	20.7	18.3	20.7	19.9	NA	13.8	24.1	23.3	20.9	20.7	16		
DT28	Wolvercote 51 Sunderland Ave	449856	210162	34.1	25.7	25.9	23.8	22.8	22.0	20.5	18.5	23.9	24.5	20.2	20.0	23.5	18		
DT29	Pear Tree P&R N Gateway	449530	210734	29.0	28.3	24.1	18.7	21.8	20.7	17.2	15.3	16.1	24.6	27.4	16.5	21.6	17		
DT30	Osney Lne/Hollybush Row	450668	206053	25.3	20.0	17.8	15.4	19.7	16.2	16.7	13.5	18.4	21.0	11.5	13.6	17.4	14		
DT31	Beckett St.	450566	206227	22.9	22.3	22.0	20.2	21.8	21.3	18.3	15.1	22.6	27.4	27.7	16.5	21.5	17		
DT32	Royal Oxford Hotel	450674	206273	26.7	28.9	24.2	21.0	24.7	25.1	21.3	19.5	23.9	30.8	23.4	NA	24.5	19		
DT33	Botley RD/ Mill St	450409	206224	29.0	20.3	19.0	20.3	21.3	16.7	16.7	10.7	23.6	24.6	28.0	21.3	21.0	16		
DT35	Botley Rd /Hillview Rd	450029	206207	25.8	24.4	22.5	16.2	20.1	17.6	18.4	16.2	21.3	28.6	30.0	NA	21.9	17		
DT36	Botley Rd N (Prestwich Place)	449657	206245	17.4	15.3	NA	9.2	NA	10.3	10.6	10.6	11.9	19.4	19.5	10.3	13.5	11		
DT39	St Aldate's	451359	206157	41.7	45.0	38.7	31.1	34.7	24.5	26.0	23.4	26.6	35.2	28.2	NA	32.3	25		
DT40	Queen St.	451270	206144	28.5	26.6	28.5	21.5	21.3	17.3	19.0	16.4	17.4	28.0	21.6	NA	22.4	17		
DT41	Bonn Square	451216	206133	31.8	27.8	24.0	19.5	21.9	18.2	19.4	16.1	19.1	25.8	23.4	NA	22.5	18		
DT42	New Rd.	451073	206191	28.7	19.4	25.9	NA	19.7	16.6	16.6	13.6	21.1	24.1	22.6	14.7	20.3	16		

DT ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT43	Park End St.	450885	206275	32.6	29.0	24.0	24.4	24.0	24.0	21.0	17.6	23.7	28.0	19.4	19.1	23.9	19		
DT44	Hythe Bridge St.	450795	206343	20.9	24.8	22.9	19.2	23.7	24.5	21.6	17.2	27.7	27.8	29.5	NA	23.6	18		
DT45	Worcester St.	450942	206424	36.6	37.4	34.2	19.1	33.4	31.8	29.6	25.8	39.0	37.6	37.8	19.8	31.8	25		
DT46	Beaumont St.	451167	206519	26.9	31.1	29.9	21.2	22.9	16.7	21.4	18.4	22.7	30.6	31.9	19.0	24.4	19		
DT47	George St. / Magdalen St.	451222	206387	39.5	27.2	19.4	22.7	35.7	29.1	40.4	28.7	24.6	38.3	36.8	NA	31.1	24		
DT48	George St.	450981	206344	29.1	29.8	29.9	NA	24.6	23.9	24.0	19.5	22.7	33.5	30.6	22.4	26.4	21		
DT49	Cornmarket St.	451322	206242	24.8	25.4	24.3	17.3	18.6	13.2	14.2	8.5	16.3	24.3	23.8	NA	19.2	15		
DT50	High St. / Turl St.	451467	206222	NA	26.3	NA	23.4	21.8	16.3	18.6	16.0	19.1	26.1	25.9	NA	21.5	17		
DT51	50 High St.	451900	206250	31.9	32.8	28.6	25.4	29.7	22.5	21.5	18.5	26.8	28.7	25.5	NA	26.5	21		
DT52	Longwall St.	451972	206283	44.8	38.6	32.8	30.5	29.6	29.3	29.5	18.8	31.8	34.2	35.7	NA	32.3	25		
DT53	Magdalen Bridge	452099	206117	23.6	17.9	16.9	14.2	16.6	12.7	12.5	11.2	16.7	22.4	24.0	NA	17.2	13		
DT55	St Clements	452326	205992	NA	56.9	44.3	39.4	49.1	44.9	36.2	37.9	39.8	46.5	45.7	NA	44.1	34		
DT56	High St.	451576	206232	43.3	41.0	37.9	28.3	33.5	29.5	28.3	23.5	27.8	33.1	29.0	NA	32.3	25		
DT57	Speedwell St. / St. Aldate's	451407	205807	39.3	32.4	26.4	28.0	31.2	28.5	22.5	20.2	26.7	24.9	27.8	19.7	27.3	21		
DT58	Folly Bridge	451437	205529	31.4	28.2	25.9	23.1	27.8	24.4	21.9	19.5	24.6	25.2	30.3	NA	25.7	20		
DT59	Thames St.	451353	205643	26.8	19.8	14.9	17.7	19.4	18.6	16.2	13.7	14.2	23.1	25.4	NA	19.1	15		
DT60	New Butterwyke P./ Thames St.	451248	205710	31.3	23.6	18.4	21.7	24.7	NA	19.5	15.8	17.3	26.7	24.0	NA	22.3	17		
DT64	Thames St. / Oxpens Rd.	450887	205825	20.2	15.1	14.0	14.6	17.8	15.9	13.5	11.5	16.6	19.5	21.9	NA	16.4	13		
DT65	Speedwell St. / Littlegate	451206	205780	29.8	24.0	20.6	17.1	20.9	16.0	18.0	14.8	19.1	26.9	27.6	NA	21.3	17		
DT68	Norfolk St.	451030	205962	30.0	34.2	23.2	21.8	18.6	16.1	14.6	14.0	15.1	19.3	21.7	NA	20.8	16		
DT69	Paradise Square	450982	205973	22.5	21.6	20.2	14.5	15.7	12.7	13.5	11.4	9.0	22.1	21.1	13.9	16.5	13		
DT70	Castle St.	451062	206067	24.9	22.9	20.4	20.2	20.2	15.9	14.7	12.3	19.0	22.4	12.9	NA	18.7	15		
DT71	BP City Motors	449617	210216	34.1	31.0	33.8	27.2	32.0	27.9	28.3	28.3	29.4	35.2	32.4	NA	30.9	24		
DT72	Cowley Rd./ James Street	452761	205745	32.8	28.3	28.0	27.4	25.6	23.4	20.8	NA	27.4	31.6	29.7	NA	27.5	21		
DT73	Walton Street LP18	450960	206590	24.7	22.2	21.9	16.0	16.9	12.9	13.9	13.8	15.4	27.9	23.2	15.7	18.7	15		
DT76	St Gilles	451226	206504	30.9	33.9	37.5	31.4	24.3	27.0	26.8	26.1	18.5	18.2	27.4	NA	27.5	21		
DT77	St Clements 2	452451	205999	NA	53.6	44.2	36.4	39.1	35.2	34.8	30.9	30.0	40.3	30.3	NA	37.5	29		
DT79	Old Abingdon Rd.	451908	203919	26.0	NA	21.3	17.8	18.3	17.0	17.6	17.8	14.9	25.2	22.1	NA	19.8	15		
DT80	Holloway Road	454651	204270	42.0	44.4	33.5	34.5	41.8	38.5	33.2	34.1	36.8	36.8	NA	NA	37.6	29		
DT81	Cowley Rd/ Union Street	452805	205731	17.5	23.1	19.5	17.2	NA	15.5	15.9	14.4	17.0	24.9	23.2	NA	18.8	15		
DT82	Summertown Parade	450806	208978	30.4	NA	22.1	18.3	19.6	18.9	16.2	14.9	NA	22.7	NA	17.0	20.0	16		

DT ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT83	A44 Woodstock Rd.	449681	210263	43.9	42.2	36.4	34.1	32.1	35.6	34.1	31.6	30.6	40.2	29.3	NA	35.5	28		
DT84	226 Botley Rd.	449273	206274	21.3	20.1	NA	13.0	14.2	13.0	14.0	13.1	13.8	16.7	20.8	NA	16.0	12		
DT85	St Clements 3	452625	206068	39.0	NA	29.5	34.2	37.3	31.2	28.3	24.1	32.0	30.7	36.5	NA	32.3	25		
DT86	72 Blackbird Leys	455134	202841	29.2	19.2	16.3	15.1	15.4	13.1	11.5	11.3	14.8	19.7	NA	13.9	16.3	13		
DT87	New Inn Hall St	451164	206246	22.9	21.7	44.0	19.2	12.5	10.7	10.1	10.0	13.3	20.1	19.2	10.7	17.9	14		
DT88	St Michaels St	451205	206341	21.1	21.4	27.9	19.5	12.9	NA	NA	NA	14.2	17.3	17.3	14.1	18.4	14		
DT89	Turl St/Market St	451439	206330	23.2	17.1	19.3	16.8	11.2	11.1	11.4	7.9	14.3	19.2	19.4	14.1	15.4	12		
DT90	Rose Hill (Ashhurst Way)	453368	203323	25.6	20.0	17.4	14.5	15.8	11.8	13.5	11.4	16.2	22.7	22.1	NA	17.4	14		
DT91	Garsington Rd (Premier Place)	455267	203719	40.9	38.3	26.9	28.5	29.0	28.1	26.1	26.6	28.8	31.1	36.4	NA	31.0	24		
DT92	BB Leys (Cuddesdon Way)	455702	203062	24.3	20.4	15.2	15.7	16.5	13.1	11.0	11.2	16.6	20.9	24.1	NA	17.2	13		
DT93	Marston Ferry Rd	451363	208785	21.3	16.1	13.6	10.4	11.5	10.9	NA	8.2	14.0	16.7	11.5	10.0	13.1	10		
DT94	Broad St LP6	451360	206427	19.0	20.6	21.9	15.5	11.4	NA	NA	13.3	14.8	20.8	26.1	NA	18.2	14		
DT95	Broad S -Lbay	451433	206438	24.7	24.3	22.3	NA	NA	15.4	NA	11.1	NA	22.0	25.2	15.8	20.1	14		
DT96	45 Oxford Road	453698	203059	41.8	19.1	25.2	25.9	27.2	27.2	24.8	20.1	28.9	29.2	35.5	19.7	27.1	21		
DT97	14 Green Road flats	455540	207352	20.5	23.7	14.2	20.7	21.0	20.5	19.8	17.8	19.3	22.0	26.2	NA	20.5	16		
TF1	Oxey Mead Lake 1	447817	210695	NA	11.0	8.0	4.3	7.9	5.7	6.4	6.1	6.7	13.0	16.2	NA	8.5	7		
TF2	Oxey Mead Lake 2	447945	210710	NA	14.2	12.1	12.1	13.6	13.8	11.5	8.9	13.4	17.0	18.4	NA	13.5	11		
TF3	Oxey Mead Lake 3	448247	210661	24.8	18.6	17.2	19.7	29.4	25.9	26.5	18.7	29.1	31.5	25.9	NA	24.3	19		
TF4	Wolvercote Village	449145	209732	18.1	14.2	11.1	8.8	11.8	9.1	8.7	7.7	7.6	15.6	19.2	NA	12.0	9		
TF5	Wolvercote Primary School	449740	209866	21.5	12.8	9.9	9.7	11.9	11.1	10.5	9.2	9.8	17.8	21.9	8.7	13.3	10		
TF6	306 Woodstock Road	450300	209379	22.5	20.5	17.7	13.8	16.2	13.2	14.2	12.9	12.4	18.9	22.6	NA	16.8	13		
TF7	339 Banbury Road	450602	209634	33.8	33.9	25.6	21.9	25.4	22.5	21.5	20.4	21.7	NA	31.7	NA	25.8	20		
TF8	191 Woodstock Road	450695	208278	27.4	29.2	22.1	17.0	20.1	18.6	18.2	16.4	16.9	26.4	16.7	NA	20.8	16		
TF9	48 Woodstock Road	451009	207199	29.2	19.0	22.6	16.1	18.3	16.5	16.4	15.6	16.7	25.7	28.1	NA	20.4	16		
TF10	99 Banbury Road	451035	207953	25.5	20.6	15.6	NA	22.8	22.4	18.3	16.3	18.7	25.2	25.4	NA	21.1	16		
TF11	9 S. Park Road	451626	206893	25.1	27.5	21.2	16.1	16.1	13.2	15.0	12.4	16.8	24.5	23.6	NA	19.2	15		
TF12	15 Banbury Road	451170	207087	19.3	20.8	18.8	11.6	16.6	10.9	13.9	13.1	13.0	21.8	26.6	11.3	16.5	13		
TF13	Walton Street 76	450625	207212	23.6	21.1	18.4	15.8	15.1	16.8	15.7	10.1	17.5	18.3	24.2	18.5	17.9	14		
TF14	69 Kingston Road	450545	207728	19.2	19.0	14.8	10.5	11.3	10.8	10.5	9.5	10.3	17.0	19.8	11.2	13.7	11		
TF15	Park End Street	450789	206269	34.8	28.2	26.8	22.2	30.6	30.4	26.9	15.5	29.4	29.8	NA	17.1	26.5	21		
TF16	St Aldates 61	451420	205729	33.1	30.6	25.5	23.1	23.9	22.9	NA	14.4	16.9	22.7	24.2	NA	23.7	18		

DT ID	Site Name	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
TF17	23 Iffley Rd/Stanley Rd	452718	205090	31.5	27.6	20.8	18.1	21.4	19.8	21.0	17.4	16.1	NA	25.9	NA	22.0	17		
TF18	143 Morrell Avenue	453263	205962	22.3	18.3	14.7	13.0	13.5	11.6	10.9	10.7	12.8	20.6	19.6	NA	15.3	12		
TF19	Headington Hill	453248	206468	43.3	57.7	59.7	63.6	66.2	65.5	59.6	41.4	51.6	50.4	41.2	NA	54.6	**43**		
TF20	Marston Rd/St Michaels Primary	452853	206925	14.1	17.3	14.2	12.2	10.3	10.3	10.8	10.4	NA	16.8	17.2	NA	13.4	10		
TF21	189 Headley Way	453795	207074	30.9	25.6	19.4	14.1	17.4	14.0	14.6	12.7	18.1	24.6	24.8	NA	19.7	15		
TF22	255 London Rd/Gladstone Rd	455154	207362	34.4	33.5	26.3	21.4	21.9	19.2	19.8	18.2	18.2	28.8	31.2	20.7	24.5	19		
TF23	JR Hospital	453861	207513	24.0	25.6	22.0	19.9	20.4	17.9	20.3	14.9	19.9	26.8	28.1	NA	21.8	17		
TF24	Marston Ferry Rd/Cherwell Drive	452739	208351	18.0	20.9	15.5	9.0	12.4	NA	12.1	6.9	10.1	19.2	22.1	NA	14.6	11		
TF25	39 Marsh Lane	453186	208209	22.5	19.2	16.3	14.7	15.3	15.3	14.1	12.0	15.7	20.2	21.6	NA	17.0	13		
TF26	Northway/Cutteslowe Park	451091	210175	29.4	20.9	16.5	21.3	24.1	22.3	18.6	12.0	19.3	24.9	26.2	20.5	21.3	17		
TF27	Northern Bypass/Phillips Tyres	452691	209225	44.9	43.7	32.3	32.8	41.7	38.5	37.8	31.3	NA	46.2	25.0	NA	37.4	29		
TF28	Horspath Driftway	455454	205164	29.2	27.9	21.1	19.1	19.9	18.0	17.7	15.6	10.1	28.0	21.8	13.7	20.2	16		
TF29	109 Old Road	455138	206375	22.4	18.6	16.0	12.8	11.1	NA	13.0	9.0	6.9	17.4	20.8	NA	14.8	12		
TF30	99 Oliver Road	455405	204262	42.5	36.6	34.3	27.1	25.8	25.2	29.4	23.5	19.5	40.9	37.1	NA	31.1	24		
TF31	Brasenose Farm/Eastern Bypass	455602	204986	46.0	43.4	34.4	42.1	45.9	42.7	40.6	37.0	34.1	36.3	46.2	NA	40.8	32		
TF32	22 Garsington Road	454690	204160	26.4	19.2	17.6	14.6	17.4	15.5	11.8	14.0	17.1	25.1	25.8	14.7	18.3	14		
TF33	119 Barns Road	454490	203748	26.8	NA	16.3	NA	NA	12.1	12.9	12.3	13.6	23.3	24.0	14.2	17.3	13		
TF34	Oxford Road/Newmans Road	453717	203250	39.6	36.1	32.4	28.6	NA	32.3	28.4	NA	34.8	33.1	37.0	NA	33.6	26		
TF36	Wolvercote Meadows 1	448095	208830	37.0	45.3	35.0	36.1	37.0	40.2	37.7	39.9	43.7	51.4	38.7	NA	40.2	31		
TF37	Wolvercote Meadows 2	448688	210123	27.9	32.1	28.1	29.0	31.0	39.0	33.2	33.9	NA	34.2	24.8	NA	31.3	24		
TF38	Church Cowley Rd	453417	204026	32.9	29.8	23.0	21.0	24.8	21.2	22.8	19.1	26.0	28.7	32.1	NA	25.6	20		
LT1	26 Prince St	452786	205860	17.9	15.6	NA	8.5	10.1	8.0	8.6	7.9	5.2	17.5	19.2	11.2	11.8	9		
LT4	Morrell Av Bus Stop	453575	206037	20.5	16.0	11.8	11.7	13.0	9.9	9.1	9.8	10.8	15.8	20.1	11.2	13.3	10		
LT5	189 Divinity Rd	453576	205938	15.8	14.4	10.3	7.7	8.2	7.0	7.8	NA	8.6	14.9	16.0	8.7	10.9	9		
LT7	126 The Slade	454930	206287	27.9	19.5	10.2	17.9	22.3	19.9	19.1	15.1	20.9	20.8	28.3	NA	20.2	16		
LT8	East Oxford Primary School	452903	205776	18.0	14.6	14.0	9.0	10.2	9.4	10.3	9.7	9.5	18.6	21.6	NA	13.2	10		
LT14	94 Howard St	453138	204917	18.8	14.4	10.7	8.2	9.1	7.1	9.2	9.7	8.1	NA	17.9	12.1	11.4	9		
LT16	103-139 Hurst St	452985	205185	21.4	15.8	11.4	8.4	10.0	8.6	9.8	9.0	6.0	17.7	20.9	NA	12.6	10		

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**

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

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column*.**

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

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

*According to paragraph 7.84 of the LAQM TG (22), considerations should be given to distance correct all the diffusion tubes that are not representative of human exposure, and whose concentrations fall within 10% of the NO_2 annual mean objective (i.e. > 36µgm^3), to account for the inherent uncertainty in diffusion tube monitoring concentration data. In 2024, only 1 of the diffusion tube monitoring results showed NO_2 concentration levels > 36µgm^3 (Diffusion tube TF19).

However, TF19 has been installed not to directly assess relevant human exposure to air pollution, but instead to assess the potential air quality impacts from traffic displacement, that may occur in the area, as a result of future traffic schemes that are being considered for implementation in Oxford city. As such, this tube has not been corrected for distance.

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

New or changed sources identified within Oxford City during 2024

Oxford City Council has not identified any new sources relating to air pollution within the reporting year 2024

Additional air quality works undertaken by Oxford City Council during 2024

No extra monitoring locations were added to the network in 2024.

Ten diffusion tubes were removed from the network in 2024 due Oxfordshire County Council's withdraw of the original plans to implement Low Traffic Neighbourhoods in Headington.

Oxford City Council is now monitoring air quality at a total of 118 locations (117 with diffusion tubes, 3 with automatic monitors, and 2 locations where both techniques are used simultaneously)

QA/QC of Diffusion Tube Monitoring

Oxford's diffusion tubes were supplied and analysed in 2024 by the accredited laboratory (SOCOTEC), using a 50% Triethanolamine (TEA) in acetone method, and using a standard operating procedure (ANU/SOP/1015) that meets the guidelines set out in DEFRA's Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance.

SOCOTEC is subject to quality assurance testing as part of their accreditation. This involves an independent comparison to other laboratories, under the independent AIR-PT scheme. The results of the latest inter-comparisons are publicly available for scrutiny here.

All the diffusion tubes used in the 2024 monitoring campaign were replaced according to DEFRA's 2024 diffusion tube monitoring calendar ± 2 days due date tolerance.

Diffusion Tube Annualisation

Only two of the 117 diffusion tube monitoring locations have not recorded data capture of a minimum of 75% in 2024 (which is equivalent to a minimum of 9 or more valid monthly averages throughout the 12-month calendar year). Those monitoring sites were Broad St (DT95) and Cutteslowe Summers Place (DT26), both with a total data capture of 67%.

Table 13 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Oxford St Ebbes	Annualisation Factor Swindon Walcot	Annualisation Factor Reading New Town	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
DT26	1.08	1.12	1.09	1.10	30.4	33.4
DT95	0.92	0.91	0.90	0.91	20.1	18.3

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within this 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 regarding the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Oxford City Council have applied a national bias adjustment factor of **0.78** to its 2024 diffusion tube monitoring data. This bias adjustment factor results from averaging the bias adjustment factors obtained from 33 studies conducted in 2024 from SOCOTEC Didcot (the same laboratory used by Oxford City Council) and using the same Acetone method (50% TEA).

This figure was obtained by consulting DEFRA's latest National Bias Adjustment Factor Spreadsheet, available here, (published in April 2025).

A summary of bias adjustment factors used by Oxford City Council over the past five years is presented in Table 14 below.

Table 14 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor	Laboratory Associated
2024	National	April 2025	0.78	SOCOTEC Didcot
2023	Local	-	0.75	SOCOTEC Didcot
2022	Local	-	0.74	SOCOTEC Didcot
2021	Local	-	0.98/0.98	South Yorkshire Samplers
2020	Local	-	0.96/0.97	South Yorkshire Samplers

Oxford City Council has decided to use for the first time a national bias adjustment factor (**0.78**) to adjust its diffusion tube data (rather than using the bias obtained by its local co-location study at AURN Oxford centre, which in 2024 was of **0.76**), due to:

- The poor data capture obtained by this automatic monitoring station for NO_2 in 2024 (only of 76%), and which has resulted in only 7 periods of data (out of the normal 12) being considered valid for use in the calculation of Oxford's local bias adjustment factor – potentially bringing poor robustness to the analysis.
- Adoption of a more conservative approach, with regards to the NO_2 data reported, as the national bias obtained (0.78) is slightly higher than our local one (0.76).

Table 15 below shows the calculations of the council's local bias, which ended up being disregarded, in detriment of the adoption of the national one.

Table 15 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1
Periods used to calculate bias	7
Bias Factor A	0.76 (0.7-0.84)
Bias Factor B	31% (19% - 43%)
Diffusion Tube Mean (µg/m^3)	29
Mean CV (Precision)	6
Automatic Mean (µg/m^3)	22
Data Capture	99%
Adjusted Tube Mean (µg/m^3)	22 (20-25)

NO_2 Fall-off with Distance from the Road

According to paragraph 7.84 of the LAQM TG (22), considerations should be given to distance correct all the diffusion tubes that are not representative of human exposure, and

whose concentrations fall within 10% of the NO_2 annual mean objective (i.e. > 36µgm^3), to account for the inherent uncertainty in diffusion tube monitoring concentration data.

In 2024, the only diffusion tube that showed NO_2 concentration levels above 36 µgm^3 was diffusion tube TF19, located at Headington Hill. This was installed at this location not to directly assess relevant human exposure to air pollution, but instead to assess the potential air quality impacts from traffic displacement, that may occur as a result of future traffic schemes that are being considered for implementation in Oxford city.

The annual mean NO_2 obtained at TF19 is therefore not considered to be representative of human exposure, and as such it has not been corrected for distance.

None of the NO_2 annual mean results obtained from the city's 117 diffusion tube monitoring locations have been corrected for distance in 2024.

QA/QC of Automatic Monitoring

Oxford City Council currently operates three automatic monitoring sites. All routine calibrations and maintenance are carried out by members of Oxford City Council's Environmental Quality team and performed in accordance with manufacturers' and Automated Urban Monitoring Network site operators' manual. Instrument drift is routinely checked by:

- a daily internal instrument calibration which is carried out automatically using an electronic calibration check;
- every two to four weeks a manual external instrument calibration is carried out by Oxford City Council using gas cylinders that can be traced back to reference standards for each pollutant;
- every six months an audit of instrument response is carried out by an external organization using independent gas calibration standards.

The above checks enable data to be examined subsequently for instrument drift, which is expected, or for faulty data which is usually not expected. Before final publication of the air quality annual monitoring results for comparison against current legislation, the air quality data needs to be ratified.

Data Ratification is a detailed manual check of the data set carried out on a quarterly basis in all our automatic monitoring stations covered by the full QA/QC process. It requires a longer-term view of the dataset, incorporating the results from the independent QA/QC audits of the monitoring stations.

All the automatic monitoring data obtained in 2024 and presented within this ASR has been fully ratified by Ricardo Energy & Environment, following in full all the national AURN QA/QC procedures**.** Live and Historic data from our 3 automatic monitoring sites can be found on the following websites:

- OXONAIR
- UK-Air
- AQ England

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

The instruments used at AURN St Ebbes and Oxford High Street to measure PM_{10} and $PM_{2.5}$ data (FIDAS), do not require the application of any correction factor.

$PM_{2.5}$ data reported by the FIDAS instrument is automatically corrected to gravimetric equivalent by Ricardo Energy & Environment using the procedure described in TG22.

Automatic Monitoring Annualisation

All automatic monitoring locations within Oxford City recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data.

NO_2 Fall-off with Distance from the Road

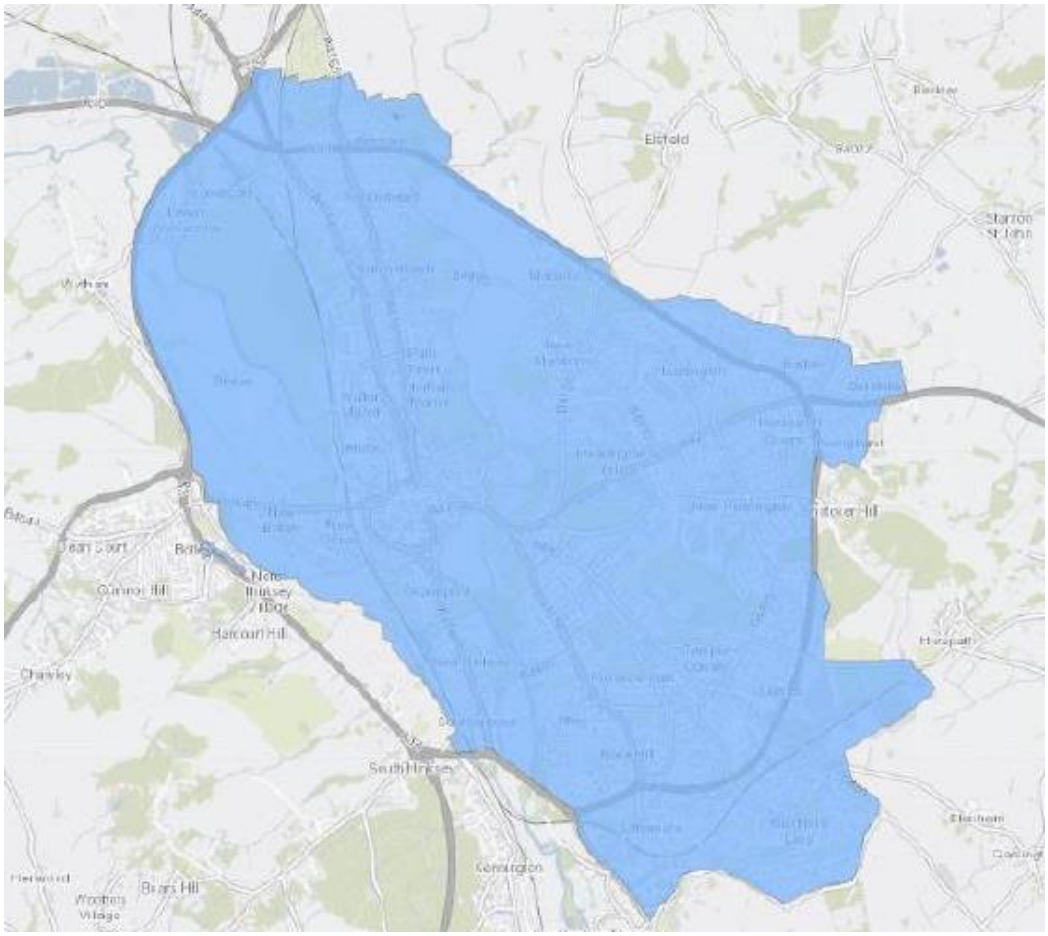
No automatic NO_2 monitoring locations within Oxford City required distance correction during 2024.

Appendix D: Map of the City's AQMA

The Council previously declared Air Quality Management Areas (AQMA's) in central Oxford (2003) and at Green Road roundabout (2005), as those were the locations where the UK nitrogen dioxide objectives were not being met at the time. Following further detailed assessments (2008 and 2009); several additional areas were identified where the nitrogen dioxide objectives were being breached.

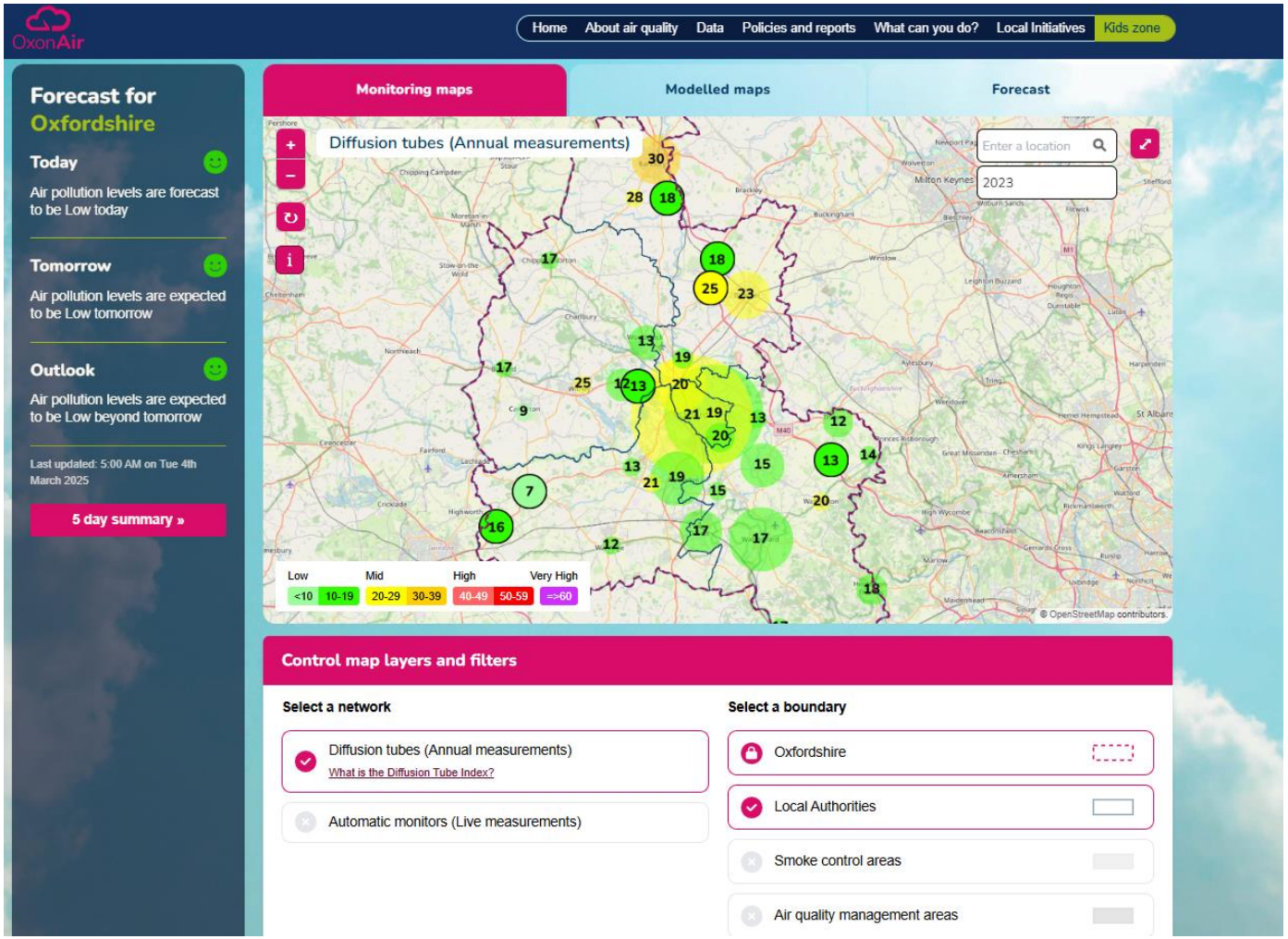
As such, in September 2010 the City Council made an Air Quality Management Order declaring the whole city an AQMA for NO_2. Figure 8 below shows (in blue) the area of the city currently covered by the AQMA for NO_2 and its boundaries. Figures 9 shows a print screen of OXONAir's interactive map, a resource where residents can identify all the locations where air quality monitoring was conducted throughout 2024 and the levels of NO_2 measured. All the monitoring locations are within Oxford's current AQMA, apart from the locations of diffusion tubes TF1, TF2, TF3.

Figure 9 – Boundary of Oxford's current city-wide AQMA for NO_2



Source: DEFRA's national AQMA Interactive map

Figure 10 – Landing page and mapping tool of OXONAIR's website.



All of Oxford City Council's diffusion tube locations and concentrations measured for the year 2024 can be consulted at Oxfordshire's new air quality website OXONAIR.

Appendix E: Air Quality Objectives and WHO recommended guidelines

Table 16 – Air Quality Objectives in England[13]

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
Particulate Matter (PM_{25})	10µg/m^3	Annual mean
Ozone (O_3)	100 µg/m^3 not to be exceeded more than 10 times a year	8-hour mean

Table 17 – World Health Organisation recommended air pollution guidelines.

	Recommended guidelines for each pollutant	
Pollutant	Concentration (µg/m^3)	Measured as
Nitrogen Dioxide (NO_2)	200	1-hour mean
Nitrogen Dioxide (NO_2)	25	24-hour mean
Nitrogen Dioxide (NO_2)	10	Annual mean
Particulate Matter (PM_{10})	45	24-hour mean
Particulate Matter (PM_{10})	15	Annual mean
Particulate Matter ($PM_{2.5}$)	15	24-hour mean
Particulate Matter ($PM_{2.5}$)	5	Annual mean
Ozone (O_3)	60	Peak season[14]
Ozone (O_3)	100	8-hour mean

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

14 Average of daily maximum 8 hour mean O_3 concentration in the six consecutive months with the highest six-month average O_3 concentration.

Appendix F: Time variations and calendar plots of Oxford's automatic monitoring

Figure 11 – NO_2 time variations at Oxford' automatic monitoring sites along calendar year 2024

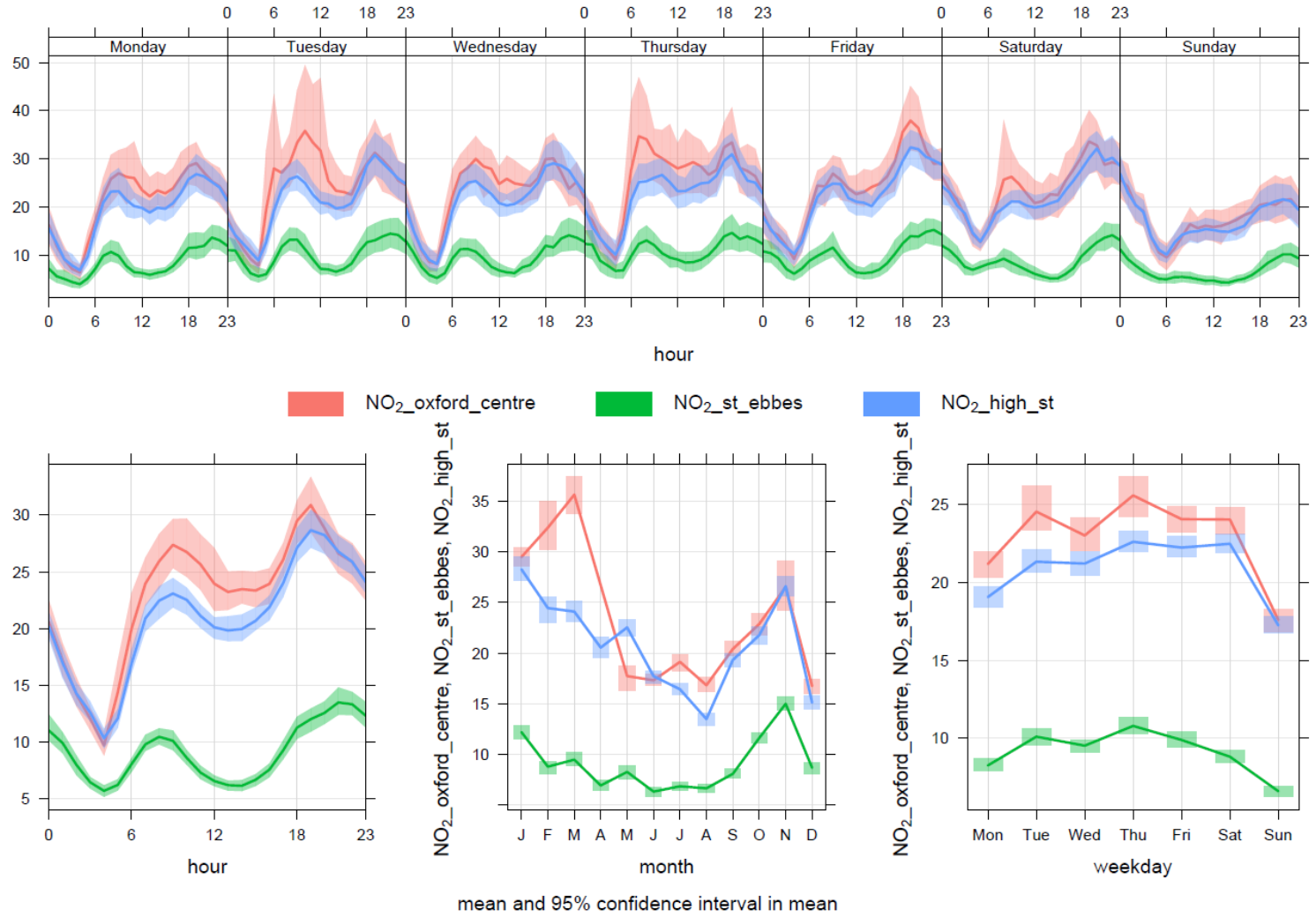


Figure 12 – Oxford's 3 NO_2 automatic monitoring sites (basic statistics 2024)

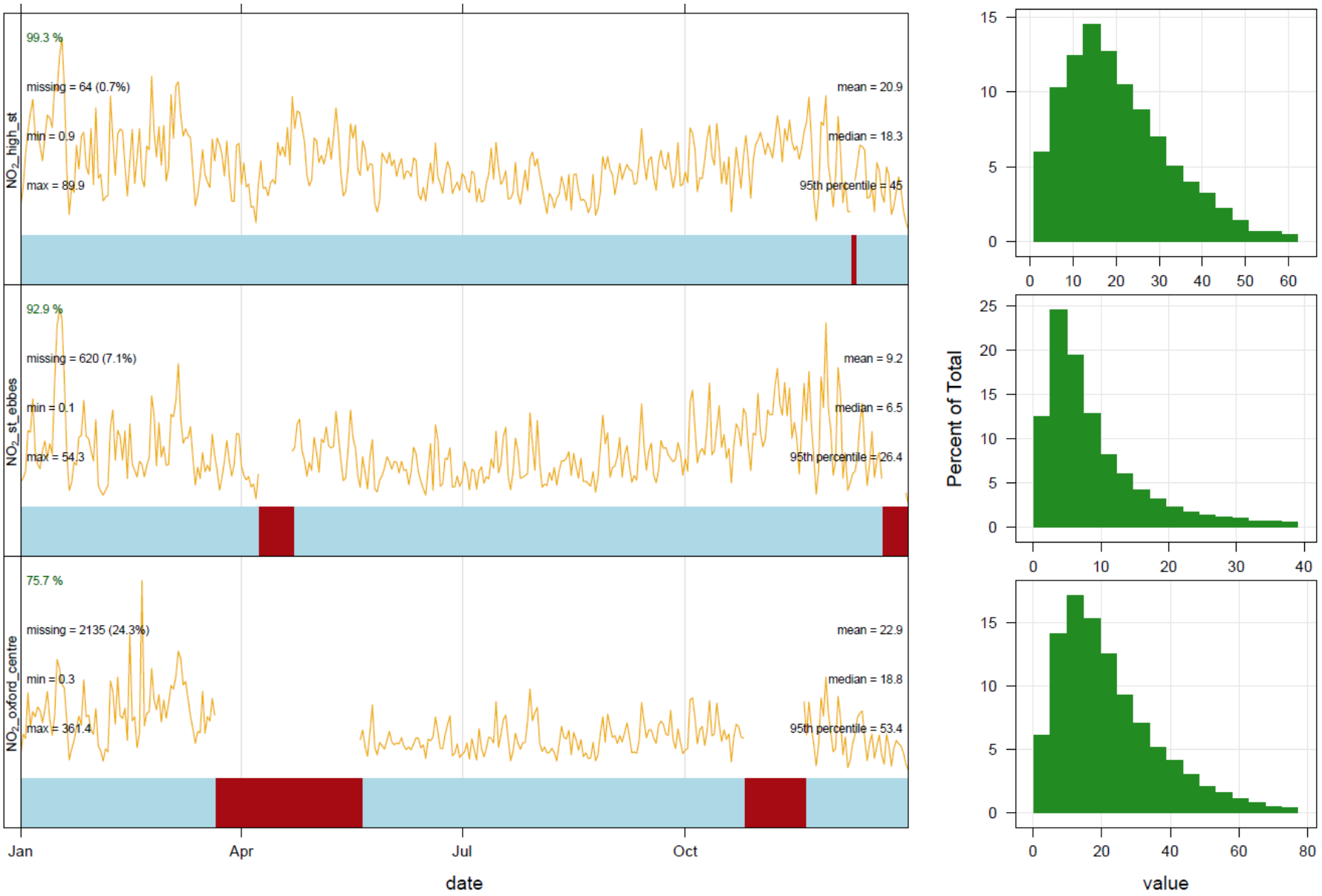


Figure 13 – Daily NO_2 average (Calendar Plot) at AURN Oxford Centre in 2024

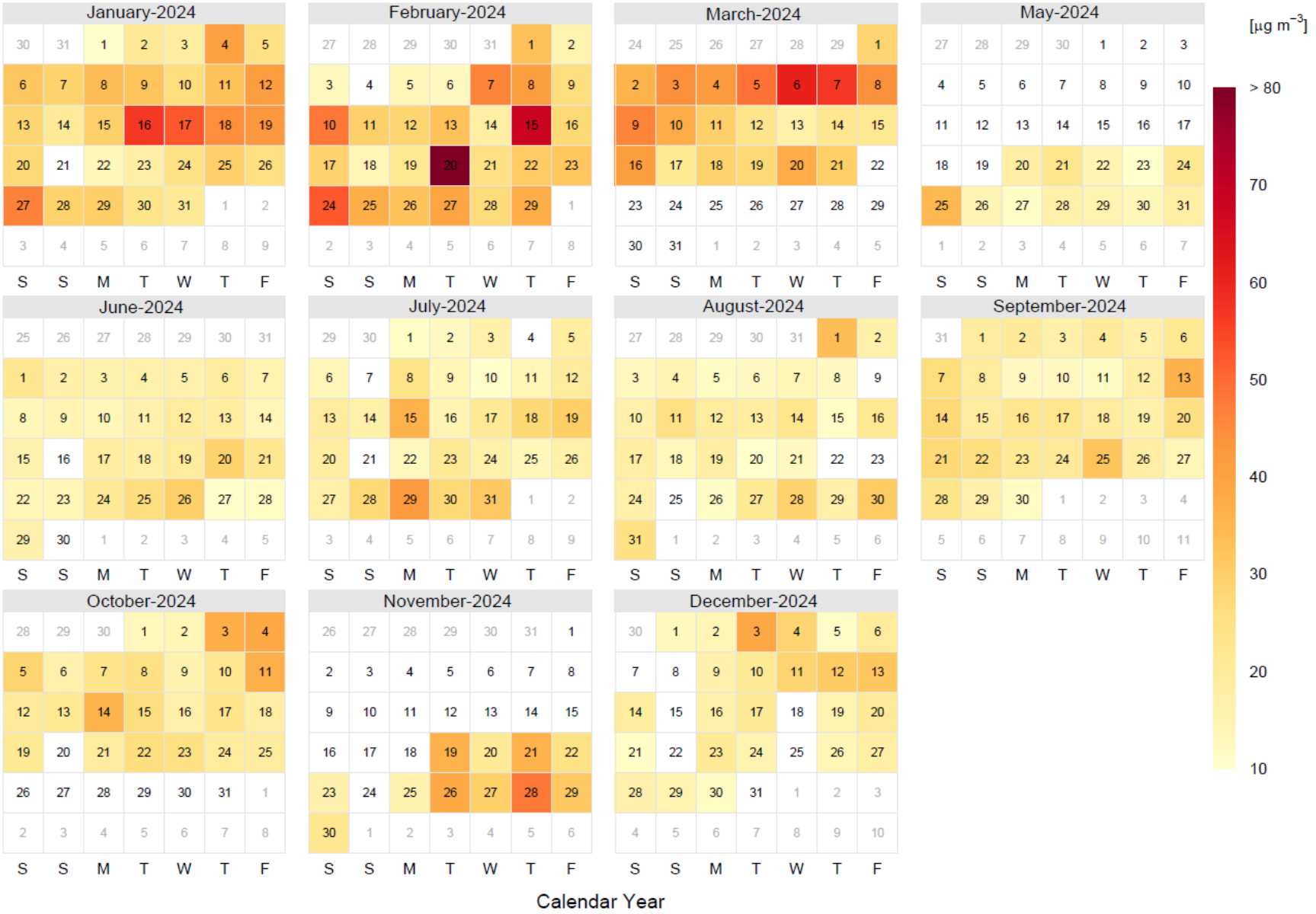


Figure 14 – Daily NO_2 averages (Calendar Plot) at AURN ST Ebbes in 2024

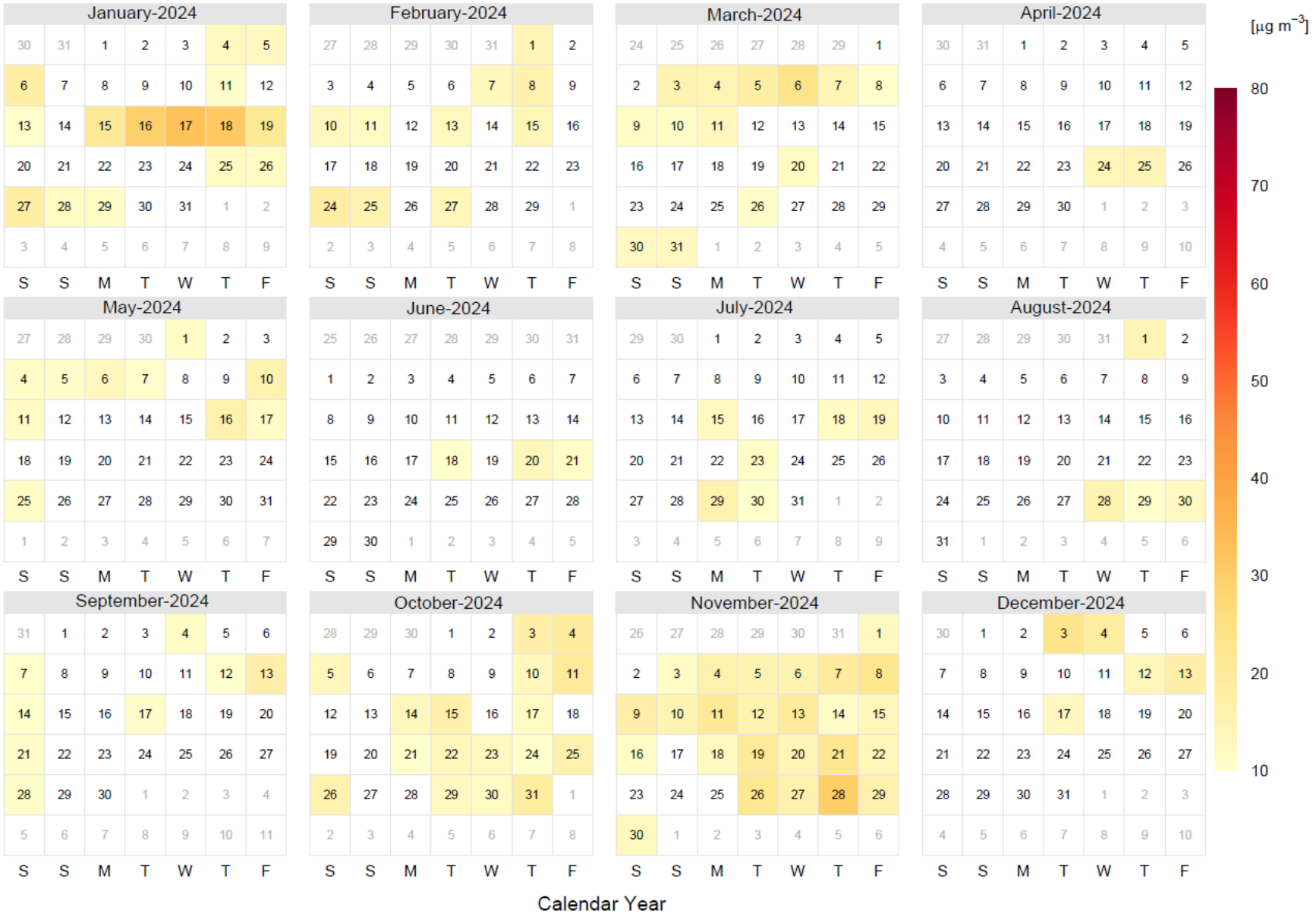
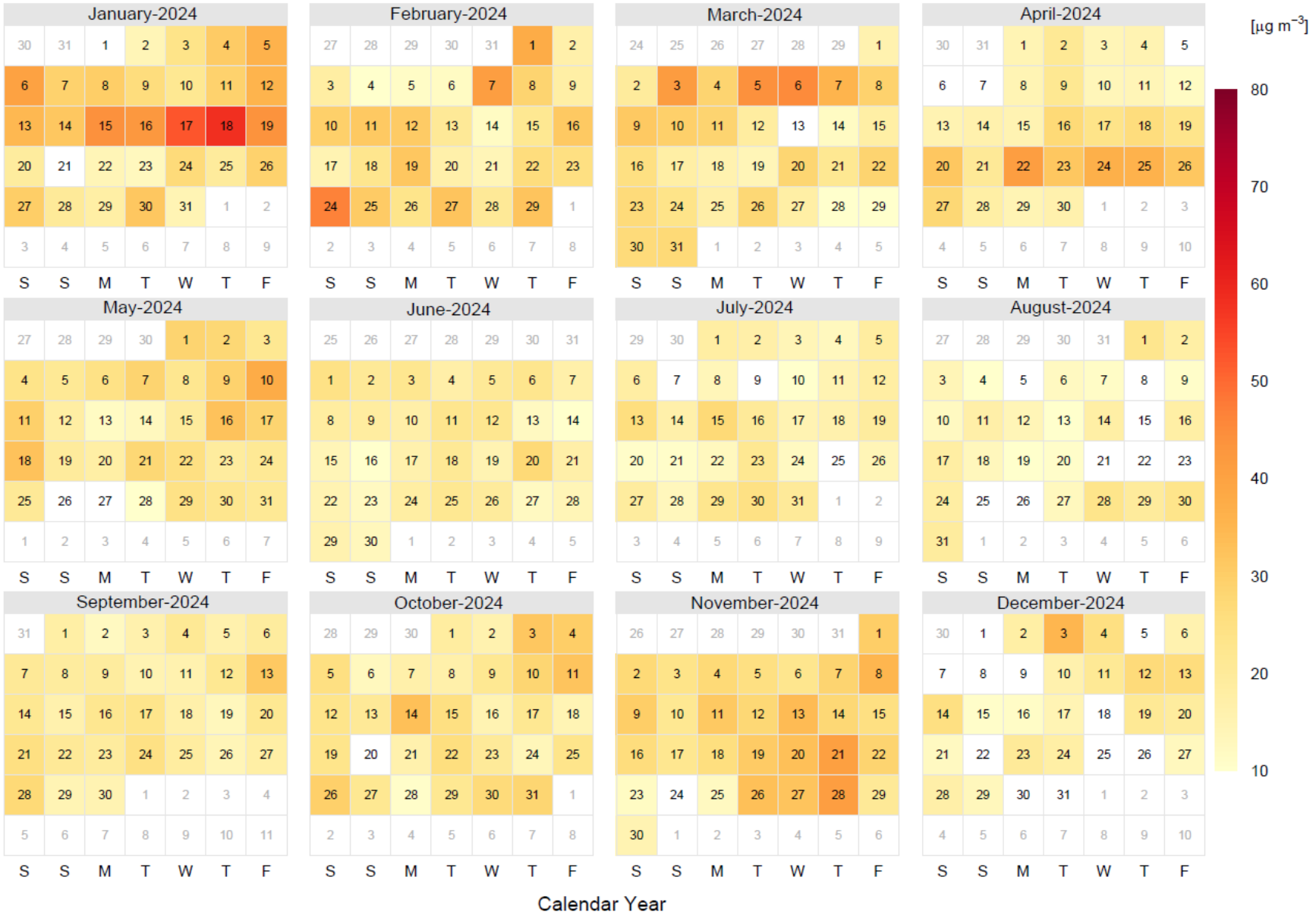


Figure 15 – Daily NO_2 averages (Calendar Plot) at Oxford High Street in 2024



Glossary of Terms

Abbreviation	Description
AIR-PT	Independent analytical Proficiency Testing Scheme that offers a number of test samples designed to test the proficiency of laboratories undertaking analysis of chemical pollutants in ambient indoor, stack and workplace air.
ANPR	Automatic Number Plate Recognition technology.
AQ	Air Quality
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'
AQI	Air Quality Index – The AQI Tells you about levels of air pollution and provides recommended actions and health advice. The index is numbered 1-10 and divided into four bands, low (1) to very high (10).
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
ASHP	Air Source Heat Pump
ASR	Annual Status Report
AURN	Automatic Urban & Rural Network.
BHBH	Better House Better Health is a service supporting residents to keep warm, stay safe & live well in their homes.
CAZ	Clean Air Zone.
COPD	Chronic obstructive pulmonary disease - a chronic inflammatory lung disease that causes obstructed airflow from the lungs. Symptoms include breathing difficulty, cough, mucus (sputum) production and wheezing.
CPZs	Controlled parking zones - areas where parking is only permitted in designated parking bays, and the rest of the kerbside space is restricted by yellow lines. Any illegally parked cars are issued with a parking ticket.
DCs	District Councils
DEFRA	Department for Environment, Food and Rural Affairs.
DfT	Department for Transport.
ECO	The Energy Company Obligation (ECO) is a government energy efficiency scheme in Great Britain to tackle fuel poverty and help reduce carbon emissions
EIP	Government's Environmental Improvement Plan
ETRO	Experimental traffic regulation order

Abbreviation	Description
EVs	Electric Vehicles.
FIDAS	Fine Dust Monitor System that uses optical light scattering to detect and measure aerosol particles.
GBIS	Great British Insulation Scheme
GSHP	Ground Source heat Pump
HCV	Hackney Carriage Vehicle
LAQM	Local Air Quality Management – A UK Government policy framework that requires local authorities to periodically review and assess the current and future air quality in their areas.
Las	Local Authorities.
LCWIP	Local Cycling and Walking Infrastructure Plan.
LEVI	Local Electric Vehicle Infrastructure funding
LEZ	Low Emission Zone - defined area where access by some polluting vehicles is restricted or deterred with the aim of improving air quality. This may favour vehicles such as (certain) alternative fuel vehicles, hybrid electric vehicles, plug-in hybrids, and zero-emission vehicles such as all-electric vehicles.
LTNs	Low Traffic Neighbourhoods –residential areas where vehicles not stopping in the area are prevented or discouraged from driving through them.
LV	Limit Value – Legally binding pollution levels that must not be exceeded. LVs are set for individual pollutants and are made up of a concentration value, an averaging time over which it is to be measured, the number of exceedances allowed per year, if any, and a date by which it must be achieved. Some pollutants have more than one limit value covering different endpoints or averaging times.
NAEI	National Atmospheric Emissions Inventory
NHS	National Health System
NO	Nitric Oxide – Formed from nitrogen (N) in the atmosphere during high temperature combustion
NO_2	Nitrogen Dioxide – Formed in small amounts in the atmosphere during high temperature combustion, but the majority is formed in the atmosphere through conversion of nitric oxide (NO) in the presence of ozone (O_3)
NO_x	Nitrogen Oxides – collective term used to refer to nitric oxide (NO) and nitrogen dioxide (NO_2). Nitrogen oxides are produced from fuel combustion in mobile (e.g., cars) and stationary (e.g., power plants) sources.
NRMM	Non-Road Mobile Machinery
O_3	Ozone
ODS	Oxford Direct Services Limited commenced trading on 1st April 2018 and is wholly owned by Oxford City Council. The company brings together the majority of Oxford City Council's front line operational services.

Abbreviation	Description
OLEV	UK Government's Office for Low Emission Vehicles
OXONAIR	Name of the new air quality website for Oxfordshire, developed by Oxford City Council in partnership with County and all the districts in Oxfordshire
PM	Particulate Matter.
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.
RCV	Refuse Collection Vehicle
SAS	Source Apportionment Study
SCAs	Smoke Control Areas – legally defined area where only approved solid fuels or exempted appliances can be used within buildings.
SHDF	Social Housing Decarbonisation Fund
STOP	Schools Tackling Oxford's Air Pollution
TEA	Triethanolamine – Viscous organic compound that is used in diffusion tubes as an absorbent for NO_2.
µg	Microgramme – One millionth of a gram
$\mu g/m^3$	Microgrammes per cubic metre of air – A unit for describing the concentration of air pollutants in the atmosphere, as a mass of pollutant per unit volume of clean air.
UK	United Kingdom.
UKRI	United Kingdom Research and Innovation
ULEV	Ultra Low Emission Vehicle
WHD	Warm Housing Scheme
WHO	World Health Organisation.
WPL	Workplace Parking Levy – Charge that a local authority can place on private business commuter parking to both manage peak time traffic congestion, improve air quality, and generate revenue for transport investment.
ZEBRA	Zero Emission Bus Regional Areas scheme.
ZEV	Zero Emission Vehicle
ZEZ	Zero Emission Zone – area designed to reduce traffic volumes, encourage the uptake of zero emission vehicles and lead to other positive behavioural changes; all of these would reduce vehicle emissions and hence air pollution whilst maintaining access for those who need it.

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