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: 11th September 2025

Information	Cambridge City Council Details
Local Authority Officer	Elizabeth Bruce
Department	Environmental Health
Address	PO Box 700, Cambridge CB1 0JH
Telephone	01223 457735
E-mail	Elizabeth.bruce@cambridge.gov.uk
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Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Cambridge City Council with the support and agreement from colleagues within Cambridgeshire County Council, Greater Cambridgeshire Partnership, Greater Cambridge Shared Planning Service, Cambridge & Peterborough Combined Authority and Public Health.

This ASR has been approved by:

Robert Pollock	Chief Executive, Cambridge City Council
Sam Scharf	Director, Communities, Cambridge City Council
Jeremy Smith	Group Manager, Transport Strategy and Funding, Cambridgeshire County Council
Stephen Kelly	Joint Director of Greater Cambridge Shared Planning & 3C Building Control
Sally Cartwright	Director of Public Health, Cambridgeshire County Council
Niamh Matthews	Assistant Director for Strategy and Programme, Greater Cambridgeshire Partnership

If you have any comments on this ASR please send them to the Environmental Quality and Growth Team at: Cambridge City Council, PO Box 700, Cambridge CB1 0JH; Telephone: 01223 457735 or Email: eqg@cambridge.gov.uk

Executive Summary: Air Quality in Our Area

Air Quality in Cambridge City

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

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

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

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

Local Air Quality Management (LAQM) requires Local Authorities to monitor key pollutants; Nitrogen Dioxide (NO_2) and Particulates (PM_{10}) across their district against national target levels. The annual average objective level for both NO_2 and PM_{10} is 40µg/m^3. Cambridge City Council has an extensive monitoring network established predominantly at roadside locations to measure levels of NO_2, PM_{10} & $PM_{2.5}$. This includes five automatic monitors at

fixed locations and over 70 diffusion tubes located predominantly on lampposts at roadside locations across the city. Whilst there are currently no legal limits for $PM_{2.5}$ adopted under LAQM, there is a national target of 10µg/m^3 annual average which local authorities have a responsibility to help achieve within their district.

If key pollutants exceed objective levels, then an Air Quality Management Area (AQMA) must be declared alongside the development of an Air Quality Action Plan (AQAP) outlining how pollutants will be reduced.

Whilst monitored levels of PM_{10} have never breached objective levels in Cambridge an AQMA was declared in 2004 within the core city centre area due to exceedances of NO_2 against statutory objective levels. This exceedance was predominantly attributed to road transport emissions including cars and buses. An AQAP was developed detailing the actions to be taken to reduce NO_2 levels within the boundary of the AQMA.

Since its declaration in 2004 Cambridge City Council, along with wider partners including Cambridgeshire County Council (CCC), Cambridge and Peterborough Combined Authority (CPCA), Greater Cambridge Partnership (GCP), Greater Cambridge Combined Planning Authority (GCCPA) and Public Health have been actively working to deliver measures to improve air quality. This coupled with improvements within the vehicle fleet as older vehicles are replaced with new vehicles, and most notably low emission and electric vehicles means that levels of NO_2 have significantly improved.

Prior to the COVID-19 pandemic, levels of NO_2 had already declined to near the objective levels. During 2020 and 2021, further significant reductions in NO_2 were observed, largely as expected due to decreased vehicle movements during lockdown periods. In contrast, levels of particulate matter (PM_{10} and $PM_{2.5}$) showed a less pronounced decline, as their sources are more varied and transient.

Although 2022 saw a marked increase in pollutant levels following the return to post-COVID normality, monitored concentrations in 2023 and again in 2024 have remained stable well below objective levels. This aligns with national trends, which show NO_2 levels plateauing below pre-COVID measurements. Traffic volumes also remained steady in 2024, reinforcing the continued stability observed across all monitored pollutants within the city. Meanwhile,

particulate matter (PM_{10} and $PM_{2.5}$) has shown a modest but consistent downward trend during this period, supported by broader national data and mapping.

We were advised by DEFRA in 2023 to move forward with revoking our AQMA following five years of compliant measured levels. This was completed during 2024 with the formal revocation coming into effect in January 2025.

It is worth noting that this improvement has continued against a backdrop of both population and economic growth, with Cambridge amongst the fastest growing local authorities in England. According to the 2021 Census, Cambridge grew by 14.2% since the 2011 Census, compared with a national increase of just over 6%. The Cambridge economy also grew faster (2.5% per annum in real terms) than the national average (2.2%) pre-COVID, 2011-2019.

Whilst it is a great achievement that air quality has improved significantly in Cambridge City it is widely accepted that there is no safe level of air pollution. Greater Cambridge is a major growth area with continuing large scale development and population increases proposed and expected in the next 10-20 years. The greatest challenge faced by Cambridge City is to continue to deliver improved air quality to its residents and visitors whilst continuing to support the productivity, economy, and prosperity of Greater Cambridge.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

Whilst Cambridge City Council is the local authority with the legal responsibility to improve air quality within its district, delivering improved air quality involves partnership working between a range of public sector partners, as different authorities are responsible for different areas of activity.

We have been working closely with CCC who have the responsibility for traffic management, highways, public transport and improving public health for over 15 years and more recently with the GCP, CPCA and the GCSPS.

The GCP with City Deal funding from Central government focusses on improvements to public transport and active travel modes such as cycling and walking across the city. The CPCA, led by an elected Major has adopted the strategic responsibilities for highways, traffic and public transport.

In response to the planned revocation of the AQMA and associated AQAP the Greater Cambridge Air Quality Strategy was developed during 2023 and formally adopted in 2024. This sets out the vision by Cambridge City Council, South Cambridgeshire District Council and wider partners for continuing to deliver improvements to air quality across Greater Cambridge. Whilst historically traffic emissions have been the primary focus due to the elevated levels of NO_2, focus is now shifting at both a national and local level to other key pollutants most notably $PM_{2.5}$. The adoption of the Air Quality Strategy which includes a commitment to work towards World Health Organisation (WHO) Air Quality Guidelines with interim targets to be achieved within the lifetime of the strategy (2024-2029) ensures the continued commitment of Cambridge City Council to deliver air quality improvements across the city.

This strategy aligns the approach of the two councils in minimising impact on air quality (particularly in relation to new developments). The emerging Greater Cambridge Local Plan will seek to address air quality issues, including considering the transport accessibility and air quality impacts in the identification of the emerging development strategy as well as through design and infrastructure policies supported by the Greater Cambridge Sustainable Design and Construction SPD (2020), which will be updated to reflect the changes in local plan policy in air quality for both districts.

Conclusions and Priorities

The AQMA has now been revoked, and levels of monitored pollutants are below national objective levels. Whilst this represents a significant achievement it is widely acknowledged that there is no safe level of air pollution. Cambridge City Council remains committed to pursuing the WHO Air Quality Guidelines, as outlined in the adopted Greater Cambridge Air Quality Strategy (2024). These guidelines are based on robust evidence linking pollutant concentrations to adverse health outcomes.

The strategy serves as the primary mechanism for driving continued improvements in air quality across Greater Cambridge. It will integrate with the relevant pollution policy in the

forthcoming Greater Cambridge Local Plan, thereby strengthening the delivery of air quality objectives. This will be further supported by the Greater Cambridge Sustainable Design & Construction Supplementary Planning Document (SPD, 2020) which is scheduled to be updated to reflect the new local plan.

The alignment of local planning policy and strategic initiatives is essential to sustaining air quality improvements, particularly as Cambridge continues to experience significant growth. Achieving a modal shift away from private vehicle use toward public transport and active travel is central to this goal. The development and implementation of infrastructure projects, alongside the Greater Cambridge Transport Strategy, are key mechanisms for enabling this transition.

Priorities for 2025

During 2025 we will continue to deliver the actions and priorities committed to in the Greater Cambridge Air Quality Strategy. Key priorities include:

- *Smoke Control Area (SCA)* – The consultation on the expansion of the SCA took place early 2025. Following review of the findings we will take the recommendation to Cabinet in June 2025. At the time of writing the proposal is to recommend the expansion of the SCA city wide but excluding permanent residential moored vessels. Should this recommendation be accepted at Cabinet we plan to begin revocation of the existing SCA's in the latter half of 2025 and implementation of a city wide SCA early in 2026. This will be delivered in parallel to a robust awareness raising campaign to ensure residents and businesses understand the changes, potential impacts, health implication of burning and how to improve burning techniques to minimise smoke and health impacts.

- *Strategic Transport Planning & Infrastructure Projects* – continuing work by key partners on strategic transport planning and infrastructure investment to deliver projects which will improve access to public transport and opportunities for cycling and active travel.

- *Emerging Greater Cambridge Local Plan* - Work will continue with the emerging Local Plan which is hoped will go out for consultation in Late 2025. The timetable for updating the Greater Cambridge Sustainable Design and Construction SPD is unknown but the

intention is for this to be updated in line with the adoption of the new local plan. The shared planning service is already providing support to developers and key landowners in the City to push for low and zero carbon energy solutions (including innovative retrofits of historic buildings) alongside ambitious new building performance standards that will further reduce the need to burn fuel for heating across the City.

- *Awareness raising* - Undertake awareness raising activities with members of the public to improve understanding of air quality and how the public can improve air quality and minimise their exposure to poor air quality. This will include updating our website and including a 1-page overview of air quality data and progress against actions in our quarterly magazine sent to all residents. We also aim to run a mini competition to have local school children design artwork for our monitoring cabinets to raise awareness of air quality issues.

- *Diffusion Tube Monitoring Network Review* - Cambridge City Council deploys over 70 diffusion tubes across the City. Historically, these have been sited to monitor pollutant levels within the AQMA, focussed on the core city centre. Whilst we will continue to monitor levels within the core area, focus is increasingly shifting to major development sites to ensure air quality improvements are sustained.

The greatest air quality challenge facing Cambridge City is the need to maintain and further improve air quality in the context of significant population growth and development anticipated over the next decade. Addressing this requires close collaboration with the planning department. However, there are concerns that national planning policy may hinder local efforts, as current legislation does not adequately support air quality improvements beyond the statutory Local Air Quality Management (LAQM) objective levels. It is hoped that the emerging local plan will help address this concern.

Cambridge City Council continues to work closely with the Greater Cambridge Shared Planning Service and key partners to implement local policies that promote a shift away from private vehicle use toward public transport and active travel. In parallel, efforts are underway to deliver the infrastructure necessary to support the transition to low-emission vehicles across both private and public fleets which is an essential step toward achieving wider air quality improvements.

How to get Involved

Local Engagement

Cambridge City Council is committed to making air quality information as accessible and transparent as possible. All monitoring data including links to national platforms such as *UK-Air*[1] and *Air Quality England*[2] as well as the Annual Status Report (ASR)[3], are available on the City Council website. Additionally, Cambridgeshire County Council provides air quality data through its *Cambridgeshire Insight information portal*[4].

To further raise awareness, we regularly publish articles on air quality in our resident magazine, *Cambridge Matters*, which is delivered free of charge to all households. Notably, we now include an annual 'Air Quality Summary' following the completion of the ASR, highlighting key findings, the Council's monitoring efforts and priorities for the coming year. In the lead-up to the burning season, we also promote 'better burning' practices to support cleaner air.

Standalone initiatives such as the revocation of Air Quality Management Areas (AQMAs) and consultations on the expansion of Smoke Control Areas (SCAs) are supported by robust promotional campaigns to maximise public engagement and awareness.

The Cambridge City Council website is updated regularly, with a full review planned for 2025. We strive to ensure that all relevant information is clearly presented and accessible, including details of roles and responsibilities, and we work with partner organisations to effectively signpost residents to additional resources.

We are fortunate to have well-established partnerships with key delivery organisations, and we collaborate closely with them to promote and disseminate air quality information. Cambridge residents are highly engaged on this issue and frequently contact us with questions and suggestions via our dedicated email: eqg@cambridge.gov.uk.

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[1] https://uk-air.defra.gov.uk

[2] www.airqualityengland.co.uk

[3] www.cambridge.gov.uk/air-pollution-measurements

[4] www.cambridgeshireinsights.org.uk

How everyone can help to improve air quality

Everyone is affected by the quality of the air that we breathe, and everyone has a role to play in helping to improve air quality across Cambridge. Focus on reducing pollution from transport, home and waste. Here are some examples of what you can do:

1. Reduce Pollution from transport

- Replace short car trips with walking or cycling. It reduces traffic and emissions, boosts your health, and saves on fuel.
- Consider using public transport where possible instead of driving you own vehicle
- Consider working from home if you can and car share where possible
- Switch off the engine when waiting – avoid idling
- Regular maintenance of your vehicle
- When walking on roads, choose less busy routes to minimise exposure to pollution
- When it is time to change your car consider purchasing an electric vehicle - these are becoming increasingly more popular and attractive. Most brands now offer at least one electric vehicle within their ranges. The number of charge points across Cambridge continues to increase

2. Reduce Emissions at Home

- Use energy efficient appliances and devices eg lightbulbs
- Switch off home appliances (at the plug) and lights when not using
- Maintain your heating systems properly
- If you are considering changing your boiler consider an air source heat pump so there are no emissions to air.
- Regularly ventilate your property to avoid damp and mould which can produce pollutants
- Do not burn household waste – consider recycling, donating or arranging collections of certain items
- Reduce Waste – minimise waste by reducing consumption and reusing items.
- If burning solid fuel for heating use smokeless fuel or if burning wood ensure wood is well seasoned, stoves are maintained and chimneys swept.

3. *Other actions*

- Trees and Green spaces – planting trees and green spaces can help absorb pollutants
- Support policies for Clean Air – advocate for policies that promote clean energy, transport and other measures to reduce air pollution
- Raise Awareness – educate yourself and others about the importance of air quality and the steps that can be taken to improve it.

By implementing these actions, you can contribute to a cleaner, healthier environment in your district

If you would like to know more about air quality in Cambridge, please visit our air quality pages at www.cambridge.gov.uk/air-quality or contact us by phone on 01223 457900 or email eqg@cambridge.gov.uk.

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1 Local Air Quality Management

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

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (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.

An AQMA was declared within the core city centre area of Cambridge in 2004 because the Nitrogen Dioxide (NO_2) annual mean was above the air quality objective level (annual average of 40µg/m^3). This high level of NO_2 was primarily attributed to vehicle emissions. An Air Quality Action Plan was prepared, with Cambridge City Council working in partnership to deliver actions to improve air quality across the city.

Monitoring data shows that the level of NO_2 has reduced significantly. No levels above the objective level have been recorded at any of the monitored locations in the last five years. Following advice from DEFRA in the 2024 ASR Appraisal Report we took action to revoke the AQMA during 2024. This was officially revoked on 16th January 2025 following due process as required under the Cambridge City Council constitution and wider promotion to the general public. Due to the proposed revocation of the AQMA the AQAP was not updated in 2023 but remained in place for the duration of 2024.

A Joint Air Quality Strategy was developed during 2023/24 with South Cambridgeshire District Council. The Greater Cambridge Air Quality Strategy was adopted at the March 2024 Environmental & Community Scrutiny Committee and is available at:
www.cambridge.gov.uk/media/i3eh0kvd/greater-cambridge-air-quality-strategy-2024.pdf
The Strategy outlines measures to prevent and reduce polluting activities.

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

Defra's appraisal of last year's ASR accepted the conclusions of the report. It welcomed the proposal to revoke the AQMA and the inclusion of wider discussion of results within the context of traffic, weather and active travel. Further to this it welcomed the wider review of diffusion tube locations and the addition of the ongoing wind cap project. It suggested given the number of automatic monitoring sites additional co-location studies are completed to give greater confidence to the local bias adjustment study. We can confirm that whilst this was not implemented during 2024, as of 2025 a review of tube locations was completed and there are now three co-location sites in place.

2.2.1 Local Plan and Development Management

Given the significant development predicted across Greater Cambridge over the coming decades, development management has a key role to play in both maintaining and continuing to improve air quality despite major growth. Cambridge City Council and South Cambridgeshire District Council operate under a Greater Cambridge Shared Planning service operating over their combined area of Greater Cambridge.

Cambridge City Council has been successful in driving improved air quality in the district through local planning policy and through planning decision making. The Cambridge City Council Local Plan (2018), Policy 36 'Air Quality, Odour & Dust', which specifically references our AQMA and AQAP, has been the mechanism for driving improvements in air quality further supported by detail included in the Greater Cambridge Sustainable Design & Construction Supplementary Planning Document (2020).

Work is now underway on the emerging Greater Cambridge Local Plan. Air quality will be addressed through a consolidated 'Pollution, Health and Safety' policy, referencing the Greater Cambridge Air Quality Strategy (2023). This will continue to be supported by the Sustainable Design & Construction SPD, which will be updated to reflect the new Local Plan and align both district councils' approaches to air quality management. The likely timetable at time of writing is for consultation on the Draft Plan late 2025, further consultation on the proposed submission in Summer 2026 aiming for submission to the Secretary of State for independent examination in December 2026.

Meanwhile, officers in the Strategic sites and Area Development Management Teams, supported by specialists in the Built and Natural Environment Team have sought to both encourage and support the progressive removal of fossil fuels to meet the energy requirements of new development in the City and to enable innovate retrofit projects for existing buildings across the City. Alongside the negotiation of planning projects, Members of the Planning Committee and the Design Review Panel support officers in pressing for higher building performance standards that in turn will reduce the energy demand for heating within existing and new buildings – contributing positively to the reduction in fossil fuel use for heating in the City.

2.2.2 Revocation of the Air Quality Management Area (AQMA)

The AQMA was officially revoked in January 2025. Members were keen to ensure that a robust strategy was in place prior to the revocation, to help maintain momentum and focus on continued air quality improvements.

The process of revoking the AQMA began in the latter half of 2024. As the decision to revoke was based on guidance from DEFRA, a full public consultation was not undertaken. Instead, the intention to revoke was communicated through a range of channels: it was advertised in local newspapers, widely promoted on our website and social media platforms, and featured in Cambridge Matters, the publication distributed to all Cambridge residents.

2.2.3 Greater Cambridge Air Quality Strategy (2024)

Although the AQMA and its associated AQAP remained in place throughout 2024, we have reported progress against direct measures in the adopted Greater Cambridge Air Quality Strategy. This is because the AQAP was not updated in 2023, following DEFRA's advice to revoke the AQMA.

The Greater Cambridge Air Quality Strategy was approved unanimously at the March 2024 Environment & Community Scrutiny Committee and adopted at the equivalent South Cambridgeshire District Council Cabinet in April 2024. The scope of the existing AQAP Steering Group was widened to include relevant partners from across both districts and meets three time per year. Priorities for the coming year are agreed at the first meeting in the calendar year. We are fortunate to have proactive and engaged members across all key partner organisations making delivery of measures more easily achievable. Direct measures to improve air quality are listed against four key priorities:

- Regulatory Polices and Development Control

- Infrastructure Improvements
- Community Engagement, Promotion & Research
- Monitoring

These measures do not easily dovetail into the measure category and classification as defined under Table 2.2. Taking this into account when completing Table 2.2 we have focussed on the direct measures the Steering Group has focussed on during 2024 or identified as key priorities for 2025. A full breakdown of measures which are either completed, in progress or planned are available in Appendix B of the Greater Cambridge Air Quality Strategy (2024)[5].

2.2.4 Completed or ongoing direct measures to improve air quality during 2024

- *Smoke Control Area* – Cambridge City Council commissioned an independent report in 2024 to assess the potential environmental, health, and socio-economic impacts of expanding the SCA to cover the entire city both including and excluding permanent residential moored vessels. The report concluded that expanding the SCA citywide would result in a net societal benefit, primarily from health improvements due to reduced air pollution and greenhouse gas emissions. These benefits were found to outweigh the associated costs, which include the financial burden on homeowners and vessel owners to switch fuels or upgrade appliances, as well as implementation and enforcement costs for the Council. The socio-economic analysis highlighted that few residents rely solely on solid fuel for heating and hot water. Most use wood-burning stoves for leisure or to supplement other heating methods. However, evidence suggests this is not the case for residents of moored vessels, who are more dependent on solid fuel, may have lower incomes and be more vulnerable. Permission to proceed with public consultation was obtained at the Environment & Community Scrutiny Committee on 26th September 2024. The public consultation took place early 2025.
- *Infrastructure Projects* - Led by the GCP there are a range of major infrastructure projects at varying stages of delivery across Greater Cambridge which will improve public transport, cycle, and active travel opportunities. Further information is available at www.greatercambridge.org.uk. Key progress of note during 2024 includes:

[5] www.cambridge.gov.uk/media/i3eh0kvd/greater-cambridge-air-quality-strategy-2024.pdf

- *Bus Priority Schemes* – Completion of Milton Road public transport and active travel scheme
- *Greater Cambridge Green Ways (GW)* – encourages non-motorised travel into Cambridge. The programme involves the design and construction of 12 Greenways with the majority now in the early stages of delivery. The Horningsea GW is functionally complete and the Linton GW is operational, with further improvements along the route to follow. The Cowley Road stretch of Waterbeach GW is now complete, providing a fully segregated 4m wide bi-directional cycleway with separate walking provision.
- *Transport Corridor Schemes* – These offer public transport improvements plus active travel opportunities. Transport and Works Act Order (TWAO) for Cambridge to Cambourne was submitted, with public inquiry scheduled for early Autumn 2025. The TWAO for the Cambridge South East Transport phase II (CSET II) Scheme has also been submitted, with the scheme delivery to follow subject to approval and funding.
- *Cycling Plus Improvements* – design and consultation work undertaken including on Hills Road

➢ *Greater Cambridge Transport Strategy (GCTS)* – Development is in partnership but led by CPCA as the Transport Authority for the City. It has a dual role: as a dedicated sub-strategy guiding transport investment in Greater Cambridge, and as the transport evidence base supporting the Greater Cambridge Local Plan to 2045. To date work has focused on building a strong evidence base through data reviews and analysis, appointing consultants to identify site-specific transport needs, and developing a long list of potential interventions. A multi-criteria assessment framework is being created, alongside governance structures and stakeholder engagement plans. Wider consultation is scheduled for late 2025.

➢ *Freight Study* - the proposed GCP freight work is on hold at present as priority has been given to the Greater Cambridge Transport Strategy. However, the CPCA are looking to undertake a region-wide freight strategy during 2025 / 2026.

➢ *Electric vehicle Charge Points (EVCP) in Cambridge City Council Car Parks* – This is a 15-year initiative to install up to 600 charging points over the first 6 to 7 years across 14 Council car parks. Work began in 2023 with the installation 75 EVCP including 40 at the Queen Anne Terrace MSCP. During 2024 installation has continued and we now have 187 EVCP installed with a further 77 in Grand Arcade MSCP and Grafton East MSCP coming forward over the next 12 months. The supplier provides the charge points at no cost to the Council, with 60% of costs funded by the Department of Transport's on street

residential charge point scheme (ORCS) and 40% by Connected Kerb. Residents can access these points overnight without parking fees from 6pm to 8am, encouraging uptake of zero emission vehicles, especially for those without private driveways

- *Car Clubs* - Cambridge City Council operates a Car Club in partnership with Cambridgeshire County Council, promoting the use of the Enterprise Car Club. This club now offers access to 58 car club vehicles with roll out across the city continuing as planned major residential development sites come forward. We continue to work with Enterprise Car Club to ensure new vehicles are low emissions and with increased access to electric vehicle charging infrastructure in council car parks, fully electric.
- *Other Infrastructure Projects of Note* - Construction continues on Cambridge South Station
- *Wider Cambridgeshire County Council Traffic Management*
- *Taxi Charge Point Project* – A charge point was installed at Eddington in 2024 and commissioned in early 2025. This is the final charge point to be installed as part of this project which is now completed.

2.2.5 Cambridge City Council priorities for the coming year

- *Smoke Control Area* – The consultation on the expansion of the SCA took place early 2025. Following review of the findings we will take the recommendation to Cabinet in June 2025. At the time of writing the proposal is to recommend the expansion of the SCA city wide but excluding permanent residential moored vessels. Should this recommendation be accepted at Cabinet we plan to begin revocation of the existing SCA's in the latter half of 2025 and implementation of a city wide SCA early in 2026. This will be delivered in parallel to a robust awareness raising campaign to ensure residents and businesses understand the changes, potential impacts, health implication of burning and how to improve burning techniques to minimise smoke and health impacts.
- *Infrastructure Projects* – work will continue by key partners in delivering planned infrastructure projects which will improve opportunities for public transport, cycling and active travel.
- *Emerging Greater Cambridge Local Plan and updating of Sustainable Design & Construction SPD* - Work will continue on the emerging Local Plan which is expected to go out for consultation in Late 2025. The timetable for updating the SPD is unknown but the intention is for this to be updated following the adoption of the new local plan.

- *Adoption of Greater Cambridge Health Impact Assessment SPD*
- *Awareness raising* - Undertake awareness raising activities with members of the public to improve understanding of air quality and how the public can improve air quality and minimise their exposure to poor air quality. This will include updating our website and including a 1-page overview of air quality data and progress against actions in our quarterly magazine sent to all residents. We also aim to run a mini competition to have local school children design artwork for our monitoring cabinets to raise awareness of air quality issues.
- *Cambridge City Heat Network* – Continued investigation into the delivery of a city centre local district heating system serving council and university buildings with potential for future expansion. The system would be powered by a combination of water and air source heat pumps.

Cambridge City Council worked to implement these measures in partnership with the following stakeholders during 2024:

- South Cambridgeshire District Council
- Greater Cambridgeshire Partnership
- Cambridgeshire County Council
- Cambridgeshire and Peterborough Combined Authority
- Cambridgeshire Public Health
- Greater Cambridge Shared Planning Service

The principal challenges and barriers to implementation that Cambridge City Council face are the continued lack of ambitious statutory requirements from National Government with regards to air quality. This could mean that the Greater Cambridge Air Quality Strategy is not given enough weight when planning decisions are made.

The proposed corridor schemes and wider raft of pedestrian, cycle and bus lane improvement represent a package of measures to encourage modal shift away from private vehicles towards public transport schemes and more active travel. These public transport schemes need to be operated by zero emission vehicles to avoid major routes used by these schemes seeing an increase in pollution due to the increased volumes of public vehicles.

Progress on the following measures has been slower than expected:

- On Street Charging Project - The trial was due to start during 2024 however there have been complications around procurement of services and associated costs, resulting in higher than expected costs for residents involved. A decision was made

to halt the trial while further investigations are made and a better value option for residents can be found.

- Smoke Control Area Consultation – we had hoped to complete the consultation in 2024 however, this slipped into 2025 due to the longer than expected lead in times for development of promotional material and preparation of the promotional programme for the consultation.
- Greater Cambridge Transport Strategy – This was impacted by the recent Mayoral Elections and the election of a new Mayor. The CPCA have nevertheless indicated that they are committed to supporting the emerging Joint Local Plan's forecast growth through the continued work on the strategy through 2025 and 2026.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Revocation of the Air Quality Management Area (AQMA)	Policy Guidance & Development Control	Air Quality Planning & Policy Guidance	N/A	January 2025	Cambridge City Council	Cambridge City Council	Funded		Completed	Reduction in Nitrogen Dioxide	Pollutant levels of Nitrogen Dioxide below national objective levels for over 5 consecutive years	completed	N/A
2	Greater Cambridge Air Quality Strategy	Policy Guidance & Development Control	Regional Groups co-ordinating programmes to develop area wide strategies to reduce emissions & improve air quality	N/A	March 2024	Cambridge City Council, South Cambridgeshire District Council, Cambridgeshire County Council, Greater Cambridge Shared Planning service, Cambridge & Peterborough Combined Authority, Greater Cambridge Partnership and Public Health	Cambridge city Council & south Cambridgeshire District Council	Funded		Completed	Range of measures identified to reduce emissions of all pollutants across Greater Cambridge	Reduction in pollutant levels across existing monitoring network	5 year plan in place (2025-2029)	Many of the measures identified are reliant on partners and / or external funding. Delivery timescales can be impacted by changes in political leadership
3	Smoke Control Area (SCA) Expansion Consultation including consideration of bringing permanently moored vessels under the legislation	Promoting low emission plant	Other Policy	N/A	End of 2025	Cambridge City Council	Cambridge City Council plus DEFRA Air Quality Grant	Promotion funded through grant	<£10,000	Implementation	Reduce emissions of PM2.5 at source.	Monitoring	Smoke Control Area Impact Study Completed in 2024. Agreed at committee in October 2024 to progress with public consultation. Consultation will consider whether to expand SCA to cover whole city and whether permanently moored residential vessels should be included. Planning in progress. Consultation to be held early 2025	There is no barrier to the delivery of the consultation as the consultation has been approved at committee and funding secured from DEFRA Air Quality Grant. It is unknown what the outcome of the consultation will be and whether committee will support the recommendations by officers once all responses and wider research has been reviewed.
4	Delivery of Infrastructure projects to promote use of public transport, cycle lanes and active travel opportunities	Alternatives to private vehicle use	Other	N/A	Ongoing	Led by Greater Cambridge Partnership with Cambridgeshire County Council, Cambridgeshire & Peterborough Combined, Greater Cambridge Shared Planning Service, Cambridge City Council and South Cambridgeshire District Council	Central Government and partner organisations	Partially Funded		Implementation	Reduce number of private vehicles on road leading to decrease in pollutants including NO2 and PM (10 & 2.5)	Reduction in private vehicles on road / increase in alternative travel methods (bus passengers, walking, cycle numbers) plus ongoing air quality monitoring across network	Long Term Delivery of key projects. Of note in 2024 and continuing into 2024 are ongoing delivery of Greenways, completion of Milton Road bus priority scheme, submission of Transport & Works Act Order for Transport Corridor Schemes including Cambridge to Cambourne busway and Cambridge Southeast Trasport Phase 2	Projects can be delayed for various reasons including change s in political leadership and subsequent priorities, delays in planning and changing costs affecting budgets and delivery
5	Emerging Greater Cambridge Local Plan	Policy Guidance & Development Control	Air Quality Planning & Policy Guidance	N/A	2026	Greater Cambridge Shared Planning Service	Greater Cambridge Shared Planning Service, Cambridge City Council & South Cambridgeshire District Council	Funded		Implementation	Reduce development emissions via the Local Plan's 'Pollution' policy, and delivered through local policy and planning controls	Minimised emissions	Development is ongoing. The current schedule is for the draft plan to go out to public consultation at the end of 2025 with submission in late 2026	Uncertainty of steer and policy coming out of central government

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
6	Greater Cambridge Transport Strategy	Policy Guidance and Development Control	Other Policy	N/A	2026	Cambridge & Peterborough Combined Authority	Cambridge & Peterborough Combined Authority, Cambridgeshire County Council & Greater Cambridge Shared Planning Service	Funded		Implementation	Enable effective transition away from private vehicle to more sustainable forms of travel	Increased bus services, increased bus tickets brought, reduced private vehicles on road, increased walking and cycling	In Development	Access to funds
7	Awareness Raising	Public Information	Other	N/A	ongoing	Cambridge City Council	Department of Transport on street residential charge point scheme and Cambridge city Council	Funded		Implementation	Key in helping to raise awareness and help reduce all emissions through changes in behaviour	Hard to quantify as whilst can record numbers of promotional campaigns, hits on social media etc it is impossible to calculate the impact.	Ongoing	Officer Time
8	Freight Study	Freight & Delivery Management	Other	N/A	On Hold	Greater Cambridge Partnership	Central Government, City Deal and wider partners	Partially funded		On Hold	Looking at options for consolidation of freight in city centre, reduction in vehicle numbers and options of zero emissions delivery	Reduction in LGV & HGV vehicle movements in Cambridge centre	paused	Priority is currently being given to development of GCTS, however, the CPCA are looking to undertake a region wide freight strategy during 2025/2026
7	Electric Vehicle Charge Points in council owned car parks	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote low emission vehicles, EV recharging, Gas Fuel recharging	N/A	15 year project	Cambridge City Council	Cambridge City Council	Funded		Implementation	Reduction in exhaust pipe emissions as the availability of charging infrastructure supports the transition to zero emission cars	Increase in use of charge points / increase in electric vehicles on road	ongoing	187 or 700 in place with a further 77 coming forward in next 12 months. As partnered with private company reliant on viability of business model.
8	Car Club Contract	Alternatives to private vehicle use	Car Clubs	N/A	ongoing	Cambridge City Council & Cambridgeshire County Council	Cambridge City Council & Cambridgeshire County Council	Funded		Implementation	Reduce reliance on private vehicle ownership by having reliable and close access to car club.	Car Club bookings	ongoing	Access to 58 vehicles, with more planned as part of roll out across the city as major developments become occupied. As partnership with private company reliant on viability of delivery but continue to work on promotion and encourage uptake of low emission or electric vehicles.
9	Cambridge South Train Station	Alternatives to private vehicle us	Other	N/A	2025	Network Rail	Private	Funded		Implementation	Reduce exhaust emissions but increasing rail use and reduce reliance on private vehicles	Footfall at station/ reduction in vehicles using Addenbrookes car parks	ongoing	
11	Electric vehicle On Street Charing Project	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote low emission vehicles, EV recharging, Gas Fuel recharging	N/A	On Hold	Cambridgeshire County council	Cambridgeshire County Council & Private Residents	Not Funded		On Hold	Reduction in tail pip emissions by encouraging transition to electric vehicles	Number of installations / increases in electric vehicles on road	On Hold	Pilot project on hold as upfront cost to residents coming in too high. Currently looking at alternatives to bring the costs down

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
12	Licensing conditions to require low emission taxis	Promoting Low Emission Transport	Taxi Licensing conditions	N/A	Introduced 2019	Cambridge City Council	Cambridge City Council	Funded		Implementation	1.5-4.5% reduction in NOx emissions	All taxis are low emission by 2029		Concerns amongst taxi drivers to source low emission vehicles. Agreed emission rate at 75gkm CO2 for taxis until 2025. Review policy in 2025.
13	Installation of rapid and fast EV charge points for taxis Taxi Charge Point Project	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote low emission vehicles, EV recharging, Gas Fuel recharging	N/A	2025	Cambridge City Council, Greater Cambridge Partnership and Cambridgeshire County Council	Funding from OLEV, Greater Cambridge Partnership, Cambridge City Council	Funded	£500k - £1 million	Completed	1.5 - 4.5 % reduction in Nox emissions	Installation of 18 Rapid and 3 fast EV charge points in Cambridge	All charge points now installed.	Project has faced delays firstly due to COVID and then later with issues of finding suitable sites, access issues and connection costs

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[6], 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.

Cambridge City Council is taking the following measures to address $PM_{2.5}$:

$PM_{2.5}$ Monitoring In Cambridge

Cambridge City Council has monitored $PM_{2.5}$ in its district since 2008 however, changes to the monitoring network in the past couple of years has led to loss of historical trend data. This has been further compounded by issues with data capture and delays to the monitor replacement programme of council owned sites which will see all monitors measuring PM_{10} and $PM_{2.5}$. These issues continued into 2024, but as of early 2025 all council owned sites are now measuring $PM_{2.5}$.

During 2024 $PM_{2.5}$ was measured at four locations in Cambridge; the newly located Gonville Place monitor (since March 2024) Montague Road (since March 2023), Newmarket Road (since 2008) and Parker Street (since July 2024) All are roadside locations.

In addition, the lease for the installation of an urban background $PM_{2.5}$ monitor which will form part of the AURN expanded network has now been signed. We hope this will be installed and operational during 2025.

$PM_{2.5}$ Levels in Cambridge

Source apportionment using the DEFRA Background maps shows that most background $PM_{2.5}$ in Cambridge has a regional component (around 75%). The background estimates in Cambridge are around 7 micrograms per cubic metre (2024) so predicted levels have fallen in recent years.

This is supported by the measured levels across Cambridge in 2024 which recorded annual averages between 7µg/m^3 and 8µg/m^3 and remained stable when compared with last year.

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

It is worth noting that two of those sites needed to be annualised due to low data capture and there are still questions about the reliability of the data capture at Newmarket Road.

These results continue to be unexpected given the roadside location of the automatic monitoring sites and the continuing high levels of vehicle movements within Cambridge during 2024.

The Public Health Outcomes Framework measurement D01 Fraction of Mortality attributable to Particulate Air Pollution data shows that 51 deaths in Cambridge could be attributed to air pollution in 2023 (latest data available).

Measures in place specific to reducing particulate matter levels include:

- Control of demolition and construction dust via planning conditions
- Annual awareness campaign highlighting the importance of burning solid fuel correctly. This includes article in council magazine (delivered to every household), social media, posters and articles in local papers.

While our work has historically focused on reducing nitrogen dioxide levels, particularly within our designated AQMA and through transport-based mitigation, our attention is now increasingly turning to other key pollutants, including $PM_{2.5}$.

Great Cambridge Air Quality Strategy (2024)

The Greater Cambridge Air Quality Strategy was adopted in March 2024 with a commitment to work towards World Health Organisation Air Quality Guidelines with an interim target within the lifetime of the strategy (2024-2029). The strategy details measures for delivering continued improvements within the context of planned large scale growth within the Greater Cambridge area; focusing on controls through regulatory policies and development control, infrastructure improvements, community engagement and promotion. All measures offer air quality benefits including for $PM_{2.5}$.

Smoke Control Area Review

Cambridge City Council has three small existing SCA's to the west of the city that were established in the 1960's. Cambridge has expanded rapidly since this time with these areas now only incorporating a small part of the city. During 2024 an independent report was commissioned to look at the health, environmental and social impact of expanding the SCA to cover the whole city, with consideration to include permanent residential moored vessels. The report concluded that solid fuel burning is the largest single source of $PM_{2.5}$ in the city, with minimal residents primarily dependent on solid fuel for their heating and hot water. The

report concluded that the environmental and health benefits exceeded any financial burdens placed on residents which would not target lower income residents, as the use of wood burning stoves is primarily focussed on higher income residents. The report recommended expanding the SCA to cover the whole city including permanent residential moored vessels.

Recommendation to proceed with a public consultation on the expansion to expand the SCA city wide with the option to include residential moored vessels was approved at the Environment & Scrutiny Committee in September 2024. During the latter part of 2024 officers undertook a targeted survey of moored vessel residents and carried out interviews to fully understand the implication any changes would have on these residents. The finding of this work will feed into the wider decision making process. A consultation was held at the start of 2025 with plans to take recommendations to committee in June 2025.

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

This section sets out the monitoring undertaken within 2024 by Cambridge 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.

Under advice from DEFRA Cambridge City Council has been preparing to revoke the existing AQMA following five years of compliant monitoring data. The Greater Cambridge Air Quality Strategy was adopted in March 2024 and supersedes the Air Quality Action Plan following the formal revocation of the AQMA. Members were keen for an Air Quality Strategy to be in place prior to the revocation to maintain momentum in delivering improvements in air quality across the city. Whilst measured levels have fallen in recent years the continued challenge faced by Cambridge is continuing to deliver improvements when faced with the scale of growth and development coming forward across Greater Cambridge over the next 10 years.

Cambridge City Council is upgrading its air quality monitoring network. All four sites will measure nitrogen dioxide, $PM_{10,}$ and $PM_{2.5}$. Montague Road was upgraded in March 2023. The Gonville Place monitor, decommissioned due to a site sale, was relocated and became operational in March 2024. At Parker Street, access issues led to refurbishing the existing cabinet with new equipment, completed in July 2024. The final site, Newmarket Road, is being relocated to the public highway due to overgrown vegetation and will be completed in early 2025.

The diffusion tube monitoring network remained unchanged in 2024. This will be reviewed fully in 2025 following the formal revocation of the AQMA. We will be looking to reduce the number of tubes, redeploy to areas of major growth and as requested by DEFRA increase the number of triplicate tubes.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Cambridge City Council undertook automatic (continuous) monitoring at 5 sites during 2024. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The Air pollution measurements - Cambridge City Council page presents automatic monitoring results for Cambridge City Council, with automatic monitoring results also publicly available through the UK-Air website .

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Cambridge City Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 72 sites during 2024.

Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D and on the 'Air Quality Monitoring Stations' map located at Air pollution measurements - Cambridge City Council.

Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2024 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Measured levels remain typically stable or show a small decrease in 2024 across both the automatic and diffusion tube monitoring network. There are no exceedences of the NO_2 air quality objectives for either the annual mean objective of 40 µg/m^3 or NO_2 hourly mean concentrations of 200µg/m^3 in 2024.

All trend graphs show monitored levels against the National Air Quality Objective and demonstrate that levels at all monitoring locations have remained below this level for five consecutive years. Whilst not statutory the trend graphs also show how we are performing against the interim target and WHO air quality guidelines adopted in the Greater Cambridge Air Quality Strategy in 2024.

Given that we have an extensive network of diffusion tubes across the city we have split the results into groups based on the type of location or specific area of interest (typically in response to areas of major growth). It is not practical to provide trend data for each of the individual tubes.

Figure A.1 – Trends in Annual Mean NO_2 concentrations between 2020 and 2024 for Suburban and Urban Background sites

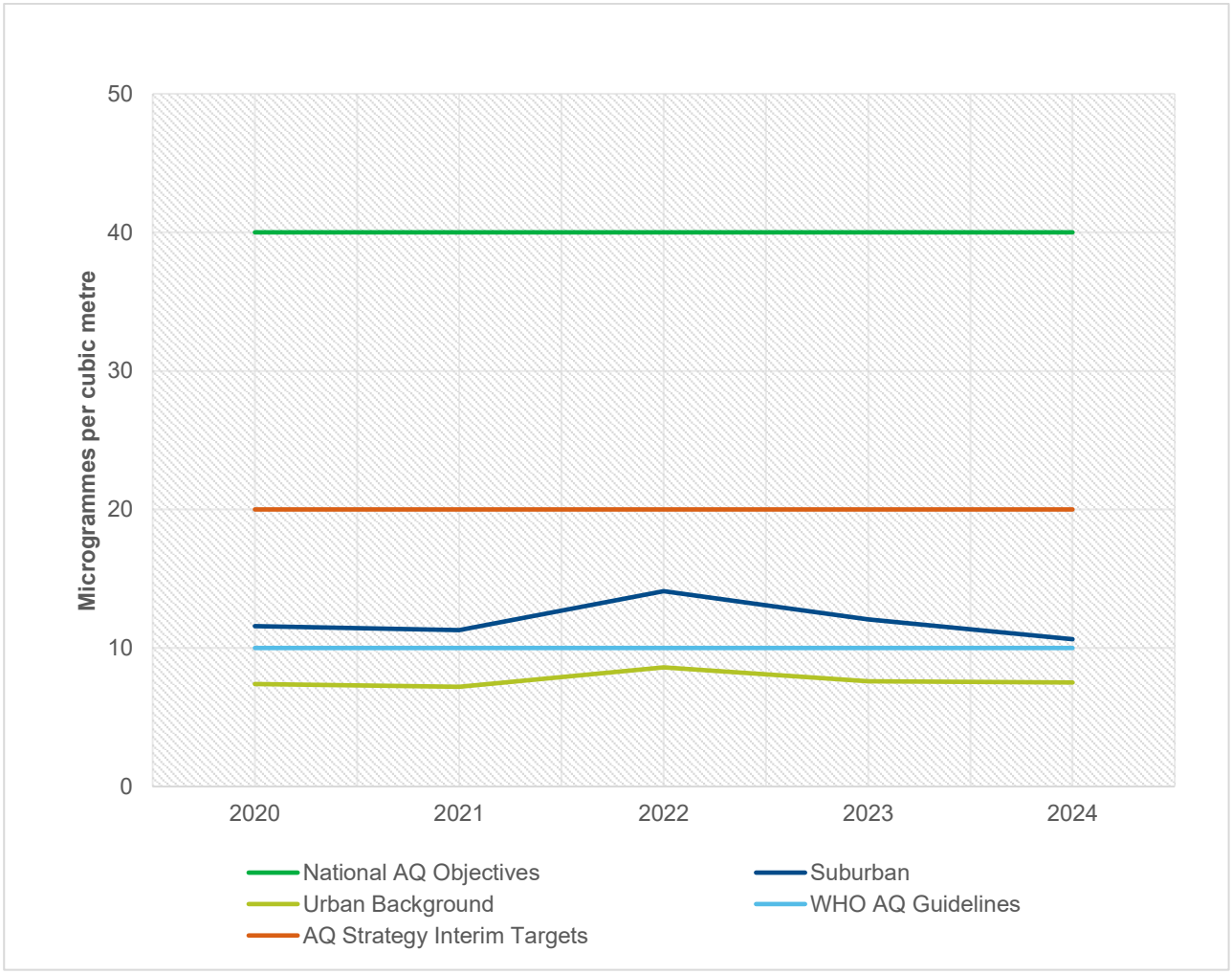


Figure A.1 presents the trends in NO_2 annual averages for Suburban and Urban Background sites between 2020 and 2024. The urban background site (tube located well away from any roads or traffic sources has remained stable and the average of all suburban tubes has fallen slightly.

Figure A.2 – Trends in Annual Mean NO_2 Concentrations between 2020 and 2024 for continuous Automatic Monitors

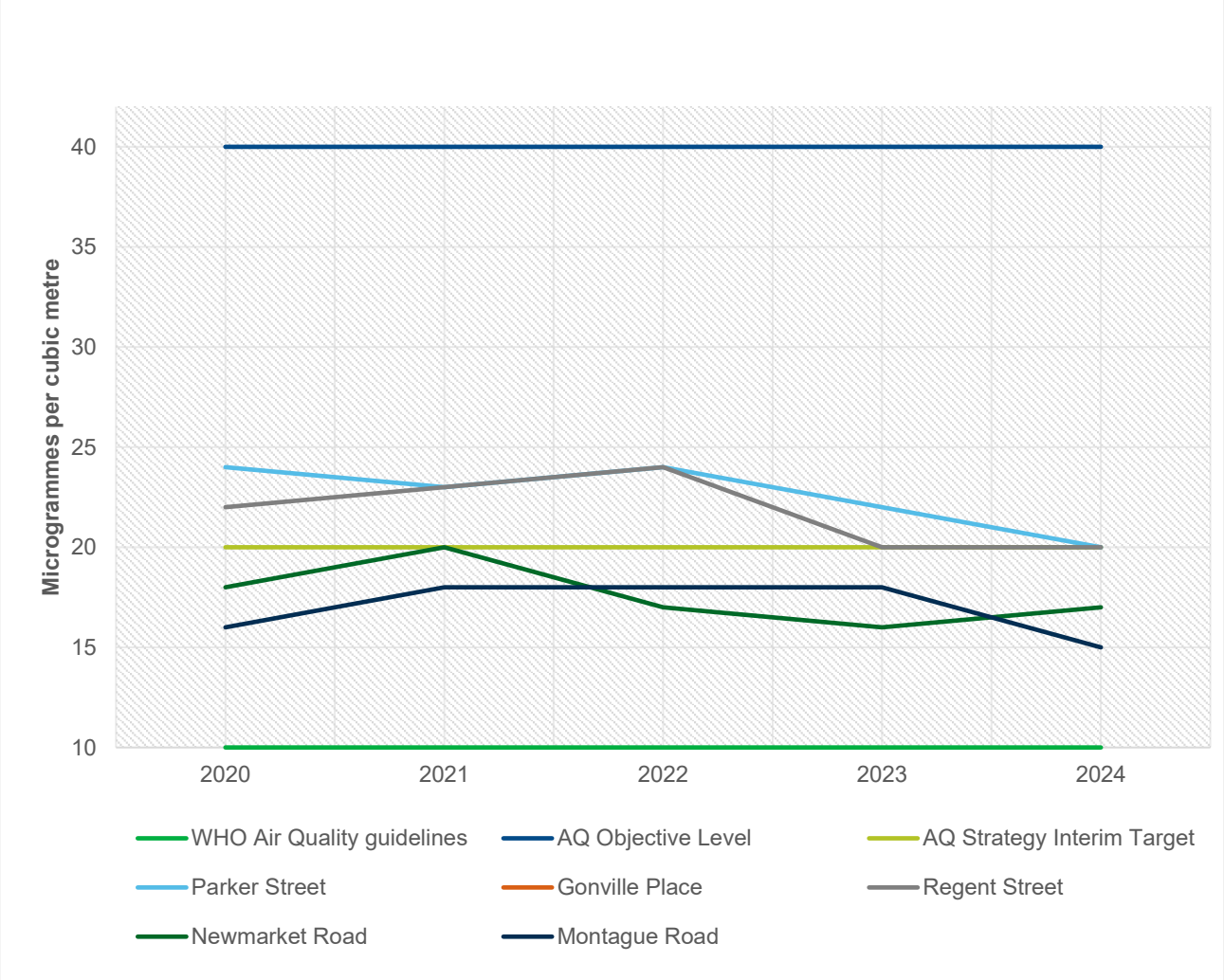


Figure A.2 presents NO_2 annual mean concentrations for the continous monitoring sites between 2020 and 2024. All automatic monitors are located at roadside. The monitored levels across the sites has remained predominantly stable with only small movements either up or down. This trend has continued across the wider monitoring network at roadside and kerbside tubes. Vehicle movements on the local road network within Cambridge City remained fairly stable when compared with 2023.

As in previous years, there has been ongoing uncertainty surrounding the air quality results from the Newmarket Road monitor due to its location behind mature dense hedges and tree canopies. However, as of 2025, this monitor has been relocated to a more representative position on the public highway. While Newmarket Road has shown a slight increase in pollution levels, it still records lower values compared to the city centre monitors at Parker

Street, Regent Street, and the newly operational Gonville Place, which is situated at a busy junction.

Given the increasing traffic and congestion along Newmarket Road, and the higher concentrations recorded by nearby diffusion tubes—Tube 61 at 25 µg/m³ and Tube 7 at 23 µg/m³ it is evident that readings from the monitor are not likely to be fully representative of actual conditions. Montague Road levels remain consistently lower than the other monitors and it is still unclear if this is due to reduced traffic movement, despite completion of works on Milton Road or the more exposed located of the monitor promoting dispersion. We have triplicate tubes located at the Montague monitor and the results measured via these are consistent with the automatic monitor readings also at 15µg/m^3.

Figure A.3 – Trends in Annual Mean NO_2 concentrations between 2020 and 2024 for Radial Roads, Inner Ring Roads and Inner City Streets

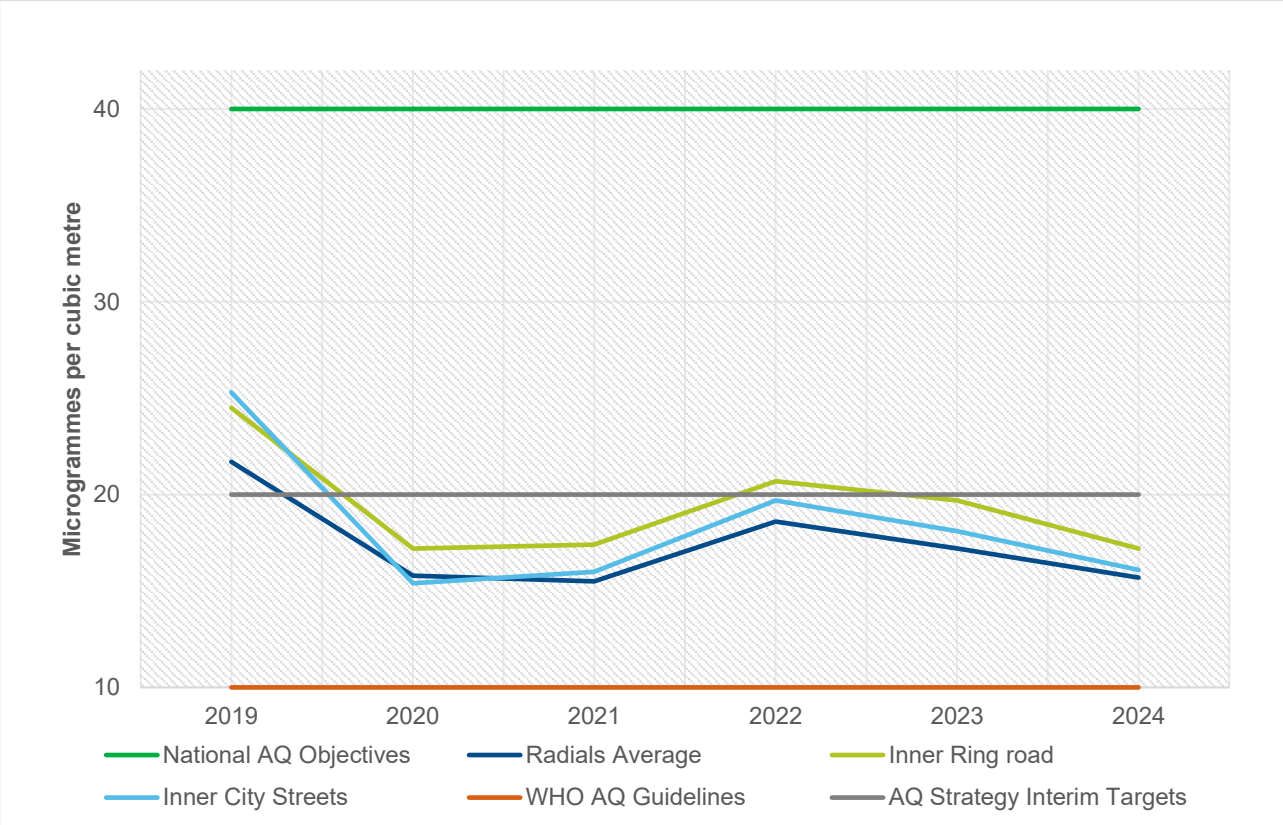


Figure A.3 presents the trends in NO_2 averages for the roads classified as Radials, Inner Ring and Inner City Streets. There continues to be a small downward trend in concentrations across these groupings.

All radial roads saw a small reduction or remained stable in concentrations when compared with 2023, following the marked increase across all the radials in 2022 when compared with 2021.

Again there is an overall decrease in the inner ring roads, with only one tube (Victoria Road, Tube 21) showing a small increase. This is not large and could easily be accounted for by changing traffic movements due to ongoing roadworks in the area.

The inner city roads have a large number of buses on them when compared with cars, with buses identified historically as a major source of NO_2 pollution. There is a continued small downward trend across all the inner city tubes, which whilst not as marked when compared to 2022/23 following the introduction of 30 electric buses on city centre routes it reinforces that as emissions from buses reduce levels within the city centre will continue to fall.

Figure A.4 - Trends in Annual Mean Concentrations between 2020 – 2024 for the roads around Drummer Street Bus Station

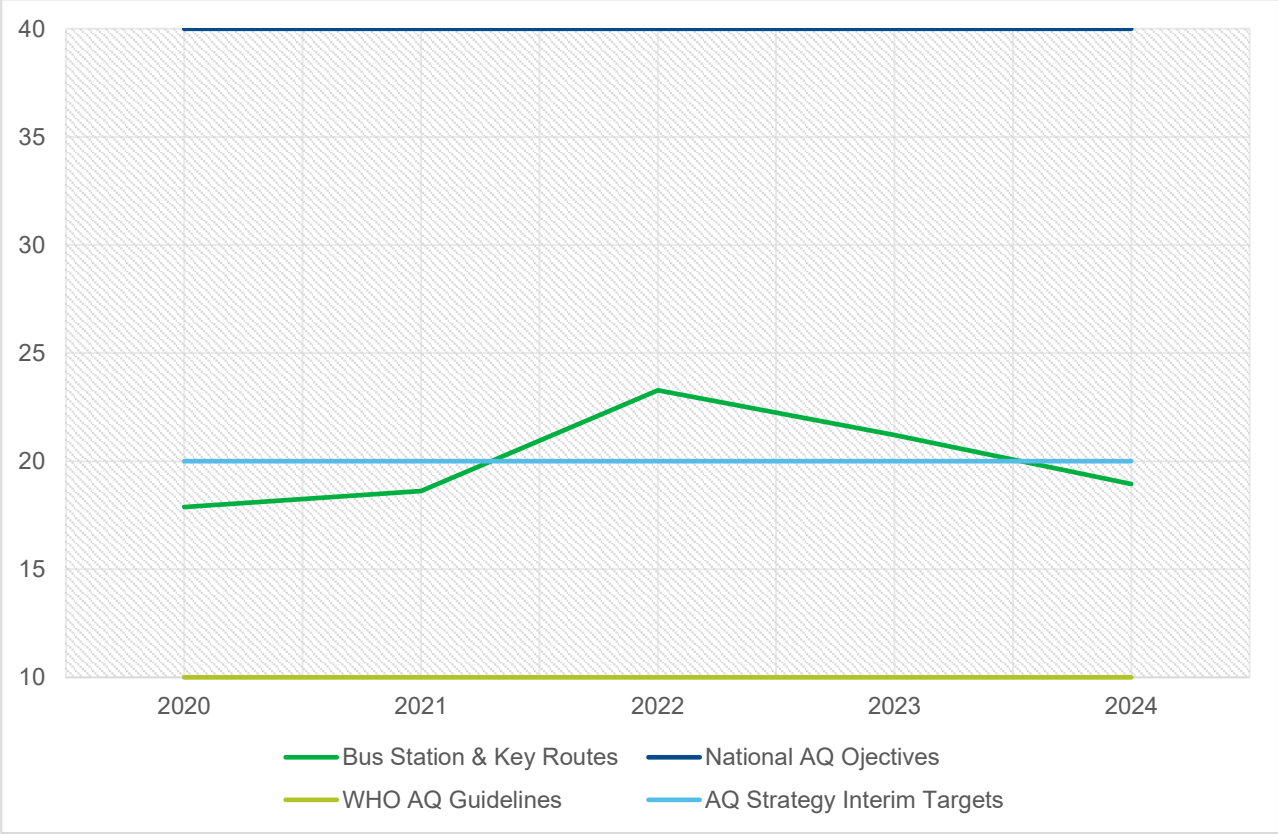


Figure A.4 presents the trends in NO_2 annual averages for the roads around Drummer Street Bus Station including inside the Bus Station. There continues to be a signifcant downward trend across the majoirty of these sites including inside the Bus Station with the only exception being Park Terrace (Tube 44) which saw a marked increase. This cannot easily be explained and is inconsistent with the findings of the surrounding tubes and the nearby Parker and Regent Street Automatic monitors. As with the inner city streets this trend is likely to be attributable to the large number of electric buses which came on line in 2023 and ongoing improvments in the bus fleet.

Bus Passenger figures across Cambridgeshire are now close to pre-COVID levels with a 11% increase in 2024 compared with 2023. Park and Ride figures remain very strong with levels well above pre-COVID and up a further 10% in 2024 compared with 2023. It is suggested in the Cambridgeshire County Council Quarterly Transport updates that this large increase in P&R passenger numbers could offset the reduced use of the MSCP's.

Figure A.5 – Trends in Annual Mean NO2 Concentrations between 2020 – 2024 for the roads around Cambridge Central Train Station

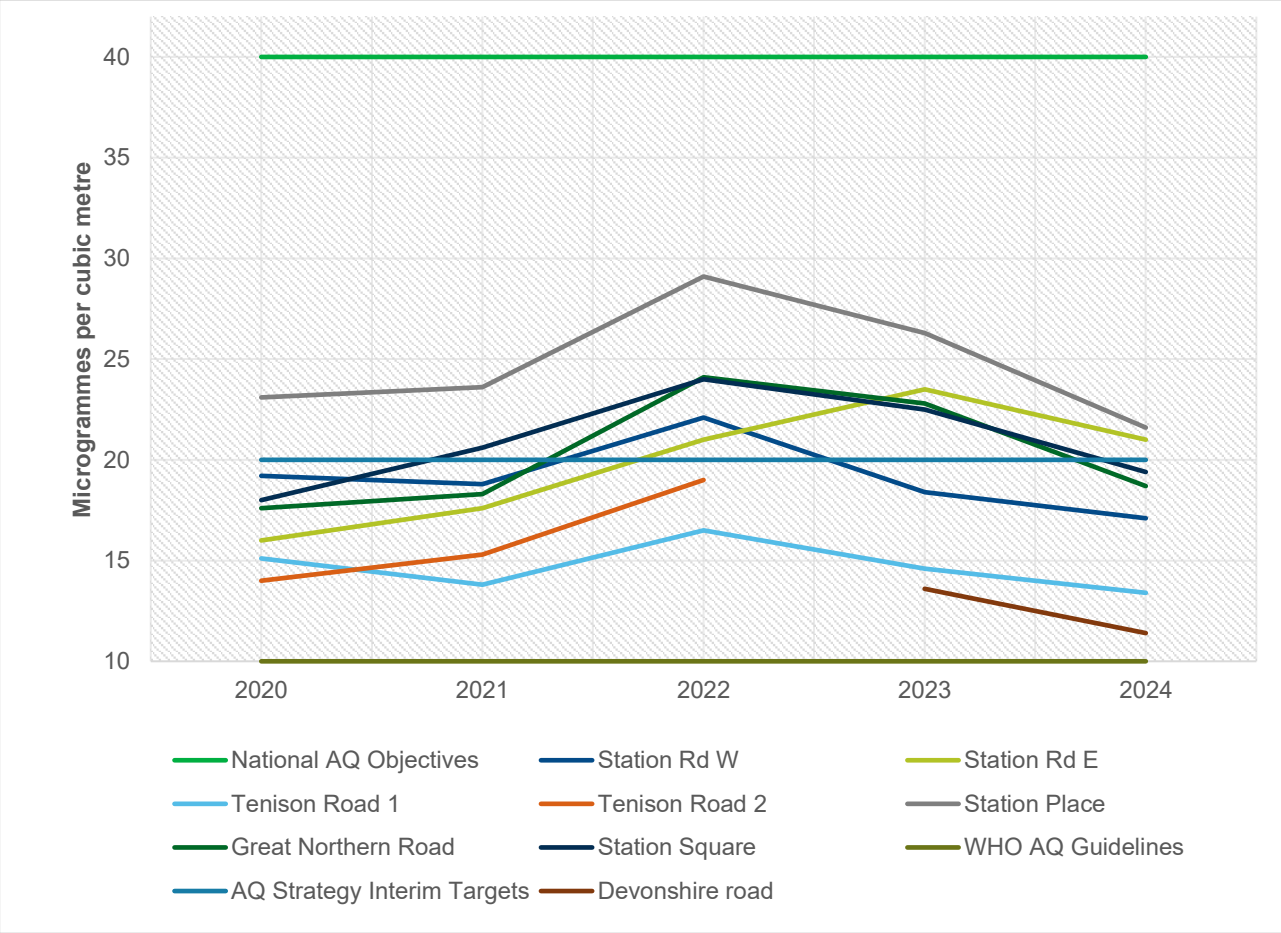


Figure A.5 presents the trends in NO_2 annual averages for the roads around Cambridge Central Train Station. A decrease in concentrations was seen across all streets. Passenger numbers on trains continues to be well below pre-COVID levels (-16%).

Figure A.6 – Trends in Annual Mean NO_2 Concentrations between 2020 and 2024 on the Roads in South Cambridge around Addenbrookes Hospital

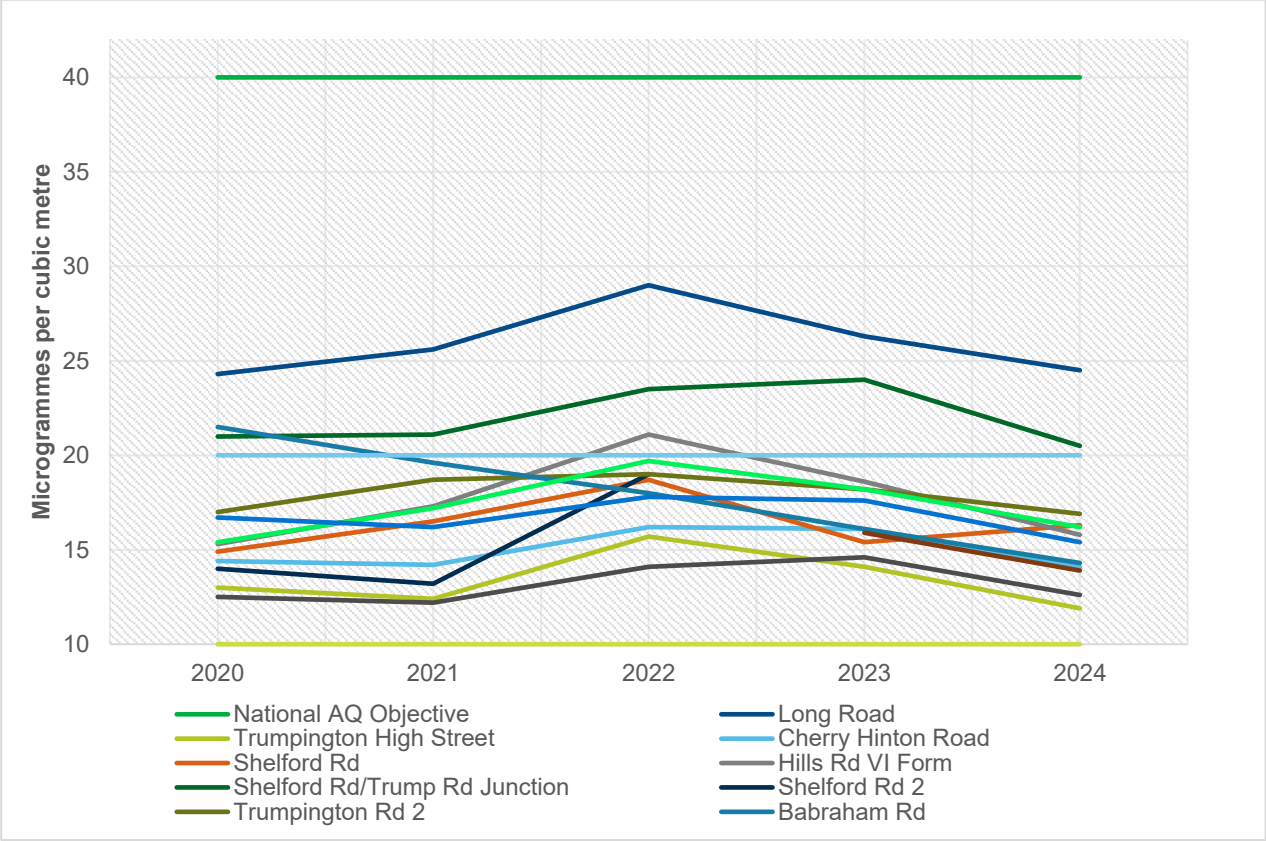


Figure A.6 presents the trends in NO_2 annual averages for the roads within south Cambridge and around Addenbrookes Hospital both of which are major growth sites. There is a downward / stable trend in concentration measurements with the exception of Shelford Road (Tube 51) which saw a marked increase. Whilst this is located at a busy strategic junction there are no obvious reasons why this tube increased whilst others decreased.

Construction of South Cambridge Station which will predominantly serve the Biomedical Campus continues and is due for completion in 2025.

➢ **Discussion of the Results**

The stable to downward trend in air pollution observed in 2023, following the post-COVID 'return to normal' in 2022, has continued into 2024. This trend was consistent across the entire monitoring network, including both automatic monitors and diffusion tubes.

Vehicle numbers in 2024 remained steady compared to 2023, with a slight shift toward more LGVs, likely due to continued growth in online shopping and deliveries rather than increased High Street visits. Despite high traffic volumes, air quality has improved, possibly due to the rising uptake of electric vehicles, particularly in Cambridge and surrounding commuter districts, which exceeds the national average with residents of neighbouring South

Cambridgeshire triple the national average[7]. Additionally, the ongoing renewal of the vehicle fleet with newer, cleaner models contributes to this improvement.

Weather also played a role. Like 2023, 2024 was unsettled, with multiple storms in January and again from October to December. These conditions likely aided pollutant dispersion, especially in winter months, which typically show higher pollution levels. Notably, December 2024 recorded lower levels than some summer months, likely due to milder, stormy weather. Emerging research suggests that the influence of climate change on weather patterns can influence air quality both positively and negatively.

The broader 'AM' and 'PM' peaks seen in 2023 persisted in 2024, reflecting continued flexible working patterns and stable levels of home working. This has helped reduce the risk of hourly exceedances with none recorded again in 2024.

Bus passenger numbers remained stable but below pre-COVID levels, while Park and Ride usage continued to rise. This may explain the 8% increase in vehicle movements on the Strategic Road Network, with local road traffic remaining stable. It suggests more visitors are driving to the outskirts of Cambridge and using Park and Ride services to access the city centre.

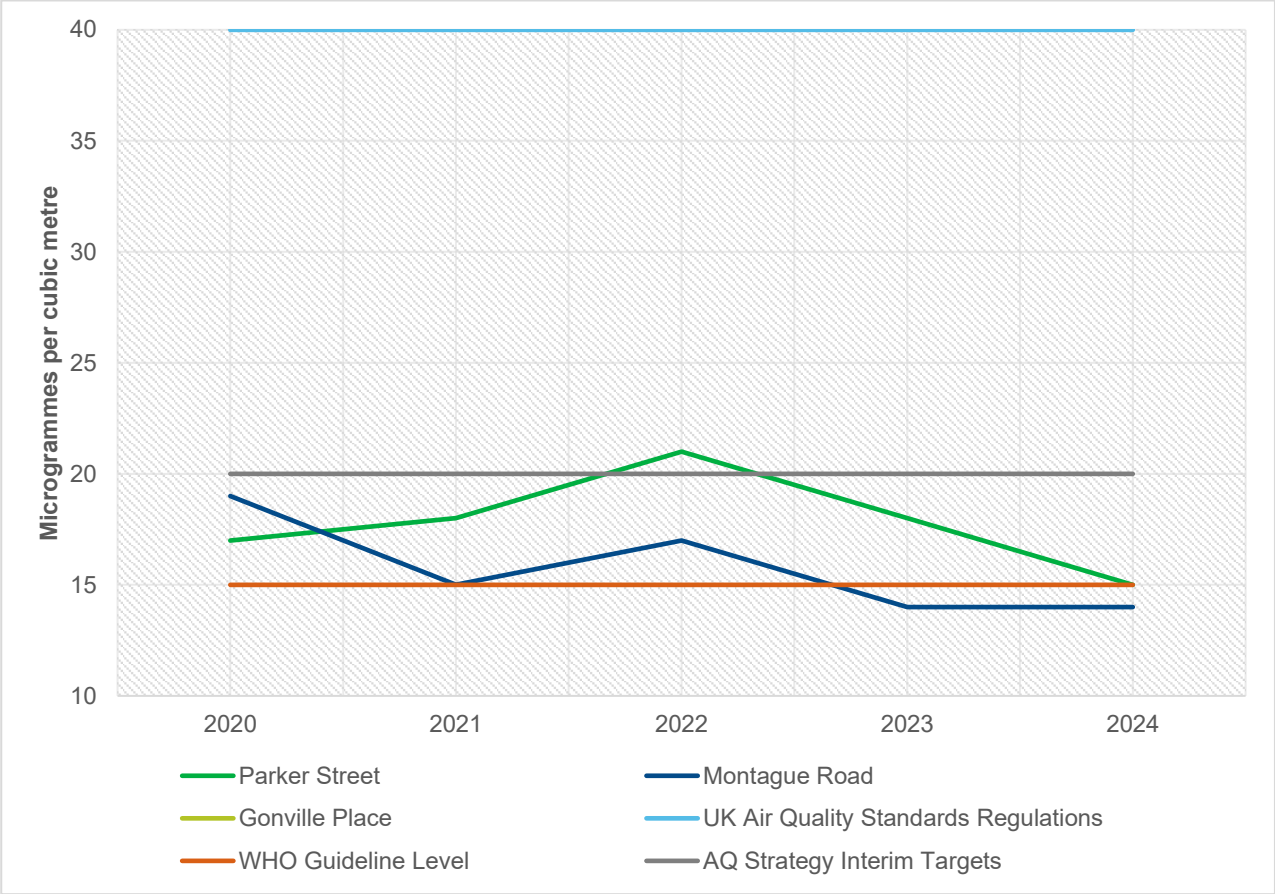
Despite ongoing congestion, NO_2 levels have stabilised and / or slightly declined post-COVID. As a result, the AQMA was revoked in 2024, with levels remaining well below objective thresholds for another year. This improvement is likely due to a combination of factors rather than a single cause, but overall, it represents a positive trend in air quality and public health.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

[7] Local area data: Electric vehicles and charging points (parliament.uk)

Figure A.7 – Trends in Annual Mean PM_{10} levels between 2020 and 2024



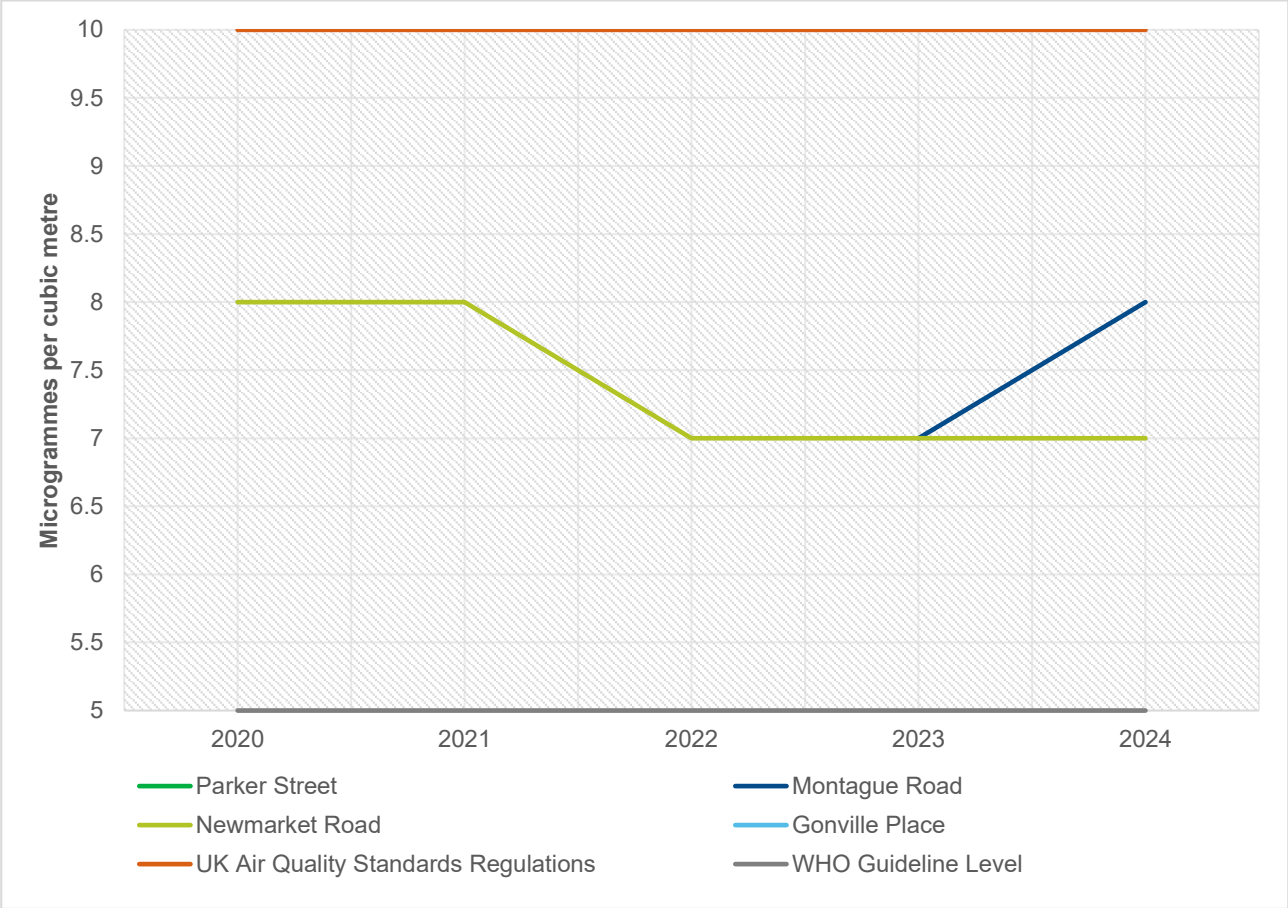
PM_{10} is monitored at Parker Street, Montague Road and from 2024 the relocated Gonville Place monitor has been operational. Measured levels either fell slightly or remained stable when compared with 2023, with levels again sitting between the Air Quality Strategy Interim targets and WHO Air Quality guidelines.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year. There was a single exceedance at Parker Street and Montague Road in 2024, with hourly exceedances remaining well below the hourly objective level .

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

Figure A.8 – Trends in Annual Mean $PM_{2.5}$ levels between 2020 and 2024



$PM_{2.5}$ was monitored at four locations within the city in 2024 although two of those sites were new. However, where there is trend data available levels have remained stable and there is a consistency in monitored levels across all four sites with levels at around 7 or 8µg/m^3. Levels sit between the Air Quality Strategy Interim targets and WHO Air Quality guidelines.

As with 2023 these results should be used with caution, both of the new sites (Parker Street and Gonville Place) had to be annualised due to poor data capture and there continues to be reservations about the Newmarket Road site due to its location.

- **Discussion of the Results for Particulates (PM_{10} & $PM_{2.5}$)**

The levels of particulates (both PM_{10} and $PM_{2.5}$) remained mostly stable in 2024 when compared with 2023. It is recognised that levels of particulates (most notably $PM_{2.5}$) are influenced by sources outside our district and it is too early to know if wider trends both nationally and internationally reflect trends seen in the city.

As discussed previously some uncertainty exists in the reliability of data due to the loss of longer term trend data, poor data capture and location of monitors however, as with NO_2 the more unsettled wet windy weather at the end of 2024 may have influenced the annual results. Measured levels of particulates are typically high in the winter months, windier

weather as seen in January and October to December can lead to greater dispersion and there is some research that suggests rain leads to a decrease in particulates.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? (1)	Monitoring Technique	Distance to Relevant Exposure (m) (2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
CAM1	Parker Street	Roadside	545366	258391	NO2, PM10, PM2.5	Yes	Cambridge	Chemiliminescent, TEOM	0.5	3.3	2.0
CAM5	Montague Road	Roadside	546057	259487	NO2, PM10, PM2.5	Yes	Cambridge	Chemiliminescent, TEOM	1.4	3.9	2.5
CAM4	Newmarket Road	Roadside	546317	258900	NO2, PM2.5	Yes	Cambridge	Chemiliminescent, TEOM	1.0	3.3	2.0
CAM07	Gonville Place	Roadside	545508	257827	NO2, PM10, PM2.5	Yes	Cambridge	Chemiliminescent, TEOM	3.0	1.7	2.5
AURN1	Regent Street	Roadside	545289	258118	NO2	Yes	Cambridge	Chemiliminescent	0.5	2.3	5.0

Notes:

(1) N/A if not applicable

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

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
1	Emmanuel Street	Roadside	545220	258357	NO2	Cambridge AQMA	0.0	2.4	No	2.5
2	Histon Road 2 north	Roadside	544307	261135	NO2	No	20.0	1.7	No	2.5
3	Magdalene Street	Roadside	544677	258992	NO2	Cambridge AQMA	0.0	2.0	No	3.5
4	Northampton Street	Roadside	544492	259008	NO2	Cambridge AQMA	0.0	2.0	No	2.5
5	Silver Street	Roadside	544770	258112	NO2	Cambridge AQMA	0.0	1.0	No	2.0
6	Long Road	Kerbside	544867	255709	NO2	No	20.0	0.1	No	2.0
7	Newmarket Road 1	Kerbside	546181	258886	NO2	Cambridge AQMA	10.0	1.0	No	2.0
8	Milton Road	Roadside	545979	260357	NO2	No	7.0	14.0	No	2.0
9	Drummer Street	Roadside	545235	258485	NO2	Cambridge AQMA	0.0	2.1	No	2.5
10	Gilbert Road	Kerbside	545314	259777	NO2	No	10.0	1.0	No	2.0
11	Latham Road	Urban Background	544811	256744	NO2	No	10.0	20.0	No	2.0
12	Newmarket Road 2	Roadside	547998	259349	NO2	Cambridge AQMA	30.0	3.7	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
13	East Road	Kerbside	545904	258431	NO2	Cambridge AQMA	4.5	0.5	No	2.5
14	Mill Road	Roadside	546080	257944	NO2	Cambridge AQMA	0.0	2.0	No	2.0
15	Eddington	Suburban	542748	260049	NO2	No	2.0	0.4	No	2.0
16	Regent Street	Roadside	545289	258133	NO2	Cambridge AQMA	0.0	2.3	No	2.5
17	Coldhams Lane	Roadside	547216	258286	NO2	No	10.0	3.5	No	2.0
18	Pembroke Street	Kerbside	544884	258098	NO2	Cambridge AQMA	0.0	1.0	No	2.0
19	Huntingdon Road 2 west	Roadside	543010	260344	NO2	No	25.0	2.5	No	2.0
N20	Northfield Avenue	Kerbside	545543	261367	NO2	No	3.0	0.5	No	2.5
21	Victoria Road (outside 208a)	Roadside	544425	259560	NO2	Cambridge AQMA	0.0	1.8	No	2.0
22	Madingley Road	Kerbside	543784	259093	NO2	No	20.0	0.8	No	2.0
23	Huntingdon Road 1	Kerbside	543761	259813	NO2	No	15.0	1.0	No	2.0
24	Histon Road 1	Kerbside	544308	259664	NO2	No	2.0	0.5	No	2.0
25	Barton Road	Roadside	544100	257473	NO2	No	20.0	2.2	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
26	Fen Causeway	Roadside	544943	257567	NO2	Cambridge AQMA	50.0	2.1	No	2.0
27	Trumpington Road	Roadside	544575	255307	NO2	No	5.0	2.7	No	2.0
28	Babraham Road	Roadside	546961	255132	NO2	No	20.0	1.2	No	2.0
29	Cherry Hinton Road	Kerbside	548331	256252	NO2	No	10.0	0.8	No	2.5
30	Arbury Road	Kerbside	545693	260473	NO2	No	5.0	0.8	No	2.0
31	Newnham Road	Roadside	544529	257730	NO2	Cambridge AQMA	0.0	1.6	No	2.0
32	Hills Road 2 VI form	Roadside	545893	257234	NO2	No	2.0	3.6	No	2.5
33	Victoria Avenue	Roadside	545333	259439	NO2	Cambridge AQMA	0.0	1.4	No	2.0
34	Parker Street	Roadside	545390	258390	NO2	Cambridge AQMA	0.0	1.4	No	2.5
35	Abbey Road	Roadside	546163	258983	NO2	Cambridge AQMA	1.0	1.7	No	2.0
36	Cockburn Street	Suburban	546596	257594	NO2	Cambridge AQMA	0.0	1.5	No	2.0
37	Oaktree Avenue	Suburban	545885	260088	NO2	Cambridge AQMA	10.0	1.0	No	2.0
38	Chesterton Road	Roadside	545566	259579	NO2	Cambridge AQMA	2.0	2.7	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
39	Maids Causeway	Kerbside	545710	258782	NO2	Cambridge AQMA	5.0	0.8	No	2.0
40	Emmanual Road	Roadside	545405	258521	NO2	Cambridge AQMA	0.0	1.5	No	2.0
41	Downing Street	Roadside	545162	258240	NO2	Cambridge AQMA	0.0	1.3	No	2.0
42	Trumpington Street	Roadside	544981	257890	NO2	Cambridge AQMA	2.0	1.4	No	2.0
43	Lensfield Road	Roadside	545271	257675	NO2	Cambridge AQMA	5.0	1.8	No	2.0
44	Park Terrace	Roadside	545271	258271	NO2	Cambridge AQMA	3.0	1.9	No	2.5
45	St Andrew's St	Kerbside	545135	258391	NO2	Cambridge AQMA	1.0	0.8	No	2.5
46	Parkside	Kerbside	545549	258283	NO2	Cambridge AQMA	5.0	0.5	No	2.0
N47	Gonville Place	Roadside	545511	257837	NO2	Cambridge AQMA	5.0	1.5	No	2.5
N48	New Chesterton High Street	Roadside	546214	259845	NO2	Cambridge AQMA	5.0	1.5	No	2.5
N49	Milton Road 2	Roadside	546709	261054	NO2	No	5.0	2.0	No	2.5
50	Hills Road 3 Botanic	Roadside	545854	257229	NO2	Cambridge AQMA	3.0	3.0	No	2.0
51	Shelford Road	Roadside	544960	257152	NO2	Cambridge AQMA	5.0	2.0	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
52	Station Road 2 East - Station	Kerbside	546019	257300	NO2	No	10.0	0.4	No	2.0
53	Station Road 1 West - Jupiter	Kerbside	545897	257325	NO2	No	10.0	0.4	No	2.0
54	Tenison Road 1 96	Kerbside	546027	257683	NO2	Cambridge AQMA	4.0	0.2	No	2.5
55	Cherry Hinton Road 2	Roadside	545504	261492	NO2	No	5.0	2.0	No	2.5
56	Coldhams Lane 2 Silverwood	Roadside	546602	258796	NO2	Cambridge AQMA	8.0	1.7	No	2.5
57	Great Northern Road	Kerbside	546060	257389	NO2	Cambridge AQMA	3.0	0.2	No	2.5
58	Station Place	Kerbside	546080	257092	NO2	Cambridge AQMA	3.0	0.5	No	2.0
59	Coldhams Lane 3	Roadside	548858	257162	NO2	No	7.5	2.5	No	2.5
60	Barnwell Road	Kerbside	547917	258942	NO2	No	7.5	0.2	No	2.5
61	Newmarket Road 3	Roadside	546341	258882	NO2	No	10.0	2.0	No	2.5
62	Mill Road 2	Roadside	547181	257566	NO2	No	0.0	2.5	No	2.5
63	Station Square	Kerbside	546177	257309	NO2	Cambridge AQMA	3.0	1.0	No	2.5
64	Park Street	Roadside	544952	258856	NO2	No	8.0	2.0	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
65	Brooklands Avenue	Kerbside	545896	257025	NO2	Cambridge AQMA	3.0	1.0	No	2.5
66	Shelford/Trumpington	Kerbside	544614	254646	NO2	Cambridge AQMA	15.0	1.0	No	2.5
N67	Devonshire Road	Kerbside	546246	257598	NO2	Cambridge AQMA	0.5	1.0	No	2.5
68	Addenbrookes Road	Roadside	545211	254217	NO2	No	10.0	3.0	No	2.5
69	Fendon Road	Kerbside	546854	255405	NO2	No	20.0	0.5	No	2.5
70	Hills Road 4	Roadside	546693	255379	NO2	No	30.0	3.0	No	2.5
71	Trumpington Road 2	Kerbside	545245	256860	NO2	No	20.0	0.5	No	2.5
72, 73, 74	Montague	Roadside	546055	259486	NO2	Cambridge AQMA	1.4	3.9	Yes	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.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CAM1	545366	258391	Roadside	100.0	92.3	24	23	24	22	20
CAM5	546057	259487	Roadside	100.0	98.4	16	18	18	18	15
CAM4	546317	258900	Roadside	100.0	93.4	18	20	17	16	17
CAM07	545508	257827	Roadside	100.0	76.0					19
AURN1	545289	258118	Roadside	100.0	97.8	22	23	24	20	20

☒ **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 A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
1	545220	258357	Roadside	75.0	75.0	20.2	22.0	28.5	27.6	23.8
2	544307	261135	Roadside	90.6	90.6	13.8	12.0	15.1	15.1	13.6
3	544677	258992	Roadside	100.0	100.0	12.4	13.6	16.6	15.1	14.3
4	544492	259008	Roadside	83.0	83.0	20.1	19.8	20.1	22.6	18.9
5	544770	258112	Roadside	92.5	92.5	13.0	13.7	16.8	15.3	11.4
6	544867	255709	Kerbside	92.5	92.5	24.3	25.6	28.7	26.3	24.5
7	546181	258886	Kerbside	100.0	100.0	26.0	22.7	27.4	26.0	23.8
8	545979	260357	Roadside	75.0	75.0	14.0	12.7	15.3	12.2	11.8
9	545235	258485	Roadside	100.0	100.0	16.7	17.7	21.2	20.3	16.9
10	545314	259777	Kerbside	90.6	90.6	15.7	13.9	16.9	16.6	14.7
11	544811	256744	Urban Background	92.5	92.5	7.4	7.2	8.6	7.6	7.5
12	547998	259349	Roadside	92.5	92.5	20.4	19.1	21.1	20.6	18.8
13	545904	258431	Kerbside	75.0	75.0			25.4	23.4	21.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
14	546080	257944	Roadside	83.0	83.0	15.8	14.9	17.7	17.5	15.9
15	542748	260049	Suburban	100.0	100.0	12.7	11.6	14.6	13.1	11.7
16	545289	258133	Roadside	75.0	75.0	17.0	18.8	22.1	20.0	19.7
17	547216	258286	Roadside	100.0	100.0	15.1	17.6	18.6	14.8	13.8
18	544884	258098	Kerbside	100.0	100.0	17.9	17.9	21.0	21.5	18.2
19	543010	260344	Roadside	83.0	83.0	11.7	12.1	15.5	13.0	13.7
N20	545543	261367	Kerbside	90.6	90.6				13.2	11.6
21	544425	259560	Roadside	100.0	100.0	15.8	15.5	18.2	15.8	16.6
22	543784	259093	Kerbside	90.6	90.6	18.1	17.5	21.2	20.6	18.8
23	543761	259813	Kerbside	90.6	90.6	11.7	10.7	15.0	13.2	12.3
24	544308	259664	Kerbside	67.9	67.9	19.0	16.5	20.2	19.6	19.0
25	544100	257473	Roadside	66.0	66.0	11.2	11.9	13.8	13.0	11.6
26	544943	257567	Roadside	90.6	90.6	12.0	12.5	14.0	13.1	12.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
27	544575	255307	Roadside	90.6	90.6	13.0	12.4	15.7	14.1	11.9
28	546961	255132	Roadside	90.6	90.6	21.5	19.6	18.1	16.1	14.3
29	548331	256252	Kerbside	100.0	100.0	14.4	14.2	16.2	16.1	14.1
30	545693	260473	Kerbside	100.0	100.0	14.9	14.9	17.6	15.4	14.2
31	544529	257730	Roadside	100.0	100.0	20.3	21.3	25.7	22.7	19.4
32	545893	257234	Roadside	83.0	83.0	15.3	17.3	21.1	18.6	15.8
33	545333	259439	Roadside	100.0	100.0	21.4	23.5	27.9	26.2	21.5
34	545390	258390	Roadside	100.0	100.0	19.3	20.9	28.0	24.6	20.9
35	546163	258983	Roadside	92.5	92.5	13.5	13.2	14.3	13.4	12.3
36	546596	257594	Suburban	100.0	100.0	11.1	10.9	14.7	11.2	9.6
37	545885	260088	Suburban	100.0	100.0	11.0	11.4	13.0	11.9	10.6
38	545566	259579	Roadside	90.6	90.6	15.9	14.4	18.3	18.7	15.0
39	545710	258782	Kerbside	90.6	90.6	18.7	18.1	22.0	21.6	19.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
40	545405	258521	Roadside	92.5	92.5	23.0	25.1	28.6	24.6	23.9
41	545162	258240	Roadside	92.5	92.5	16.3	16.9	22.9	20.6	18.7
42	544981	257890	Roadside	100.0	100.0	13.1	13.0	16.4	15.0	13.3
43	545271	257675	Roadside	100.0	100.0	18.6	19.6	22.9	23.4	17.9
44	545271	258271	Roadside	100.0	100.0	13.9	14.6	18.0	15.4	16.6
45	545135	258391	Kerbside	90.6	90.6	20.6	17.8	26.0	23.3	19.3
46	545549	258283	Kerbside	92.5	92.5	13.9	13.7	13.6	14.5	10.7
N47	545511	257837	Roadside	100.0	100.0				28.3	24.7
N48	546214	259845	Roadside	83.0	83.0				20.8	19.2
N49	546709	261054	Roadside	75.0	75.0				18.3	17.3
50	545854	257229	Roadside	83.0	83.0	15.9	17.6	21.3	18.7	16.6
51	544960	257152	Roadside	83.0	83.0	14.9	16.5	18.7	15.4	16.3
52	546019	257300	Kerbside	90.6	90.6	15.8	17.6	20.9	23.5	21.0

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
53	545897	257325	Kerbside	81.1	81.1	19.2	18.8	22.1	18.4	17.1
54	546027	257683	Kerbside	75.0	75.0	15.1	13.8	16.5	14.6	13.4
55	545504	261492	Roadside	83.0	83.0				15.9	13.9
56	546602	258796	Roadside	92.5	92.5	17.3	16.9	19.9	18.0	15.5
57	546060	257389	Kerbside	100.0	100.0	17.6	18.3	24.1	22.8	18.7
58	546080	257092	Kerbside	75.0	75.0	23.1	23.6	29.1	26.3	21.6
59	548858	257162	Roadside	54.7	54.7	12.1	11.3	14.7	13.6	11.7
60	547917	258942	Kerbside	100.0	100.0	16.4	17.5	20.5	17.5	16.8
61	546341	258882	Roadside	100.0	100.0	21.8	26.3	30.7	27.0	25.7
62	547181	257566	Roadside	92.5	92.5	14.6	15.1	18.6	15.8	14.0
63	546177	257309	Kerbside	92.5	92.5	17.9	20.6	23.8	22.5	19.4
64	544952	258856	Roadside	100.0	100.0	15.4	15.3	18.6	15.9	14.0
65	545896	257025	Kerbside	100.0	100.0	16.1	16.1	19.6	20.7	17.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
66	544614	254646	Kerbside	100.0	100.0	20.9	21.1	23.5	24.0	20.5
N67	546246	257598	Kerbside	92.5	92.5				13.6	11.4
68	545211	254217	Roadside	100.0	100.0	12.5	12.2	14.1	14.6	12.6
69	546854	255405	Kerbside	100.0	100.0	15.4	17.2	19.7	18.2	16.2
70	546693	255379	Roadside	100.0	100.0	16.7	16.2	17.8	17.6	15.4
71	545245	256860	Kerbside	75.0	75.0	14.5	18.7	18.9	18.2	15.9
72, 73, 74	546055	259486	Roadside	100.0	100.0			16.6	17.5	15.2

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

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

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

Notes:

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

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

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

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

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

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

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

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

	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
CAM1	545366	258391	Roadside	100.0	92.3	0	0	0	0	0
CAM5	546057	259487	Roadside	100.0	98.4	0	1	0	0	0
CAM4	546317	258900	Roadside	100.0	93.4	0	0	0	0	0
CAM07	545508	257827	Roadside	100.0	76.0					0
AURN1	545289	258118	Roadside	100.0	97.8	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 A.6 – 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
CAM1	545366	258391	Roadside	100.0	89.7	17	18	21	18	15
CAM5	546057	259487	Roadside	100.0	84.2	19	15	17	14	14
CAM07	545508	257827	Roadside	95.8	69.0					13

☒ **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 A.7 – 24-Hour Mean PM_{10} Monitoring 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
CAM1	545366	258391	Roadside	100.0	89.7	0	2	2	1	1
CAM5	546057	259487	Roadside	100.0	84.2	0	0	0	0	1
CAM07	545508	257827	Roadside	95.8	69.0					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 A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
CAM1	545366	258391	Roadside	94.9	43.1					7
CAM5	546057	259487	Roadside	84.2	84.2				7	8
CAM4	546317	258900	Roadside	100.0	93.4	8	8	7	7	7
CAM07	545508	257827	Roadside	95.7	69.2					7

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

Notes:

The annual mean concentrations are presented as µg/m³.

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

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO_2 2024 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	545220	258357	36.1	36.9		29.8	29.2		21.9		31.0	30.7	30.1	29.2	30.5	23.8	-	
2	544307	261135	19.1	19.4	18.3	13.1	17.1	14.5	15.6	15.2	19.9	20.4	19.1		17.4	13.6	-	
3	544677	258992	21.2	19.3	17.8	25.5	17.4	14.5	16.2	14.2	10.8	21.7	24.2	17.7	18.4	14.3	-	
4	544492	259008			28.5	19.4	21.0	22.1	22.8	22.6	24.9	26.0	29.8	25.3	24.2	18.9	-	
5	544770	258112		19.5	15.6	11.5	12.5	6.8	13.4	11.8	14.2	21.6	19.5	14.5	14.6	11.4	-	
6	544867	255709	39.0	33.0	28.8		29.2	32.1	25.1	26.1	32.5	31.0	36.9	32.2	31.4	24.5	-	
7	546181	258886	31.8	35.3	33.2	23.3	26.5	27.0	27.6	26.9	31.5	37.3	34.3	32.0	30.6	23.8	-	
8	545979	260357	14.4	19.3	14.6	11.5				10.8	13.6	17.7	19.0	15.7	15.2	11.8	-	
9	545235	258485	26.8	21.9	23.6	17.9	24.4	16.8	12.5	19.6	24.7	26.6	25.2	20.7	21.7	16.9	-	
10	545314	259777	20.2	27.8	17.9	16.3	15.9	14.9	14.4		17.7	24.4	22.7	15.1	18.8	14.7	-	
11	544811	256744	12.8	10.7	11.2		6.9	4.7	5.5	7.3	11.3	11.2	13.8	10.1	9.6	7.5	-	
12	547998	259349	23.6	31.0	26.0		19.5	20.4	22.4	21.3	19.7	28.8	26.6	25.8	24.1	18.8	-	
13	545904	258431	36.3		31.9	20.6	24.9		22.7	25.4	25.3	30.2		30.8	27.6	21.5	-	
14	546080	257944	21.6	23.3		19.3		16.5	17.8	15.4	21.1	24.4	25.4	18.7	20.4	15.9	-	
15	542748	260049	22.3	19.0	16.2	12.4	10.3	10.7	10.0	11.6	13.2	18.3	19.9	16.2	15.0	11.7	-	
16	545289	258133	29.0	27.2	23.5	20.3		23.9	21.2			29.8	28.8	23.6	25.3	19.7	-	
17	547216	258286	24.4	22.1	18.5	14.5	12.0	13.3	13.4	11.2	17.3	20.8	24.3	20.4	17.7	13.8	-	
18	544884	258098	28.3	31.2	24.1	19.8	22.1	20.4	18.4	20.5	21.9	23.4	28.3	21.7	23.3	18.2	-	
19	543010	260344	24.3	20.2	16.6	15.2	12.2	11.7			14.4	20.3	22.7	18.4	17.6	13.7	-	
N20	545543	261367	15.9	18.0	15.6	11.4	12.9	10.3	10.6	11.7	16.3		22.0	19.3	14.9	11.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
21	544425	259560	28.4	26.9	20.6	17.1	18.0	14.7	16.6	16.8	22.9	24.1	28.1	20.8	21.3	16.6	-	
22	543784	259093	30.0	28.1	22.7	16.4	20.8	19.0	22.0	20.4	27.6	30.0	28.3		24.1	18.8	-	
23	543761	259813	18.7	17.9	16.2	10.9		13.8	11.6	13.1	17.5	18.2	22.9	12.3	15.7	12.3	-	
24	544308	259664	30.0	27.2	24.1		19.1		21.5	21.0	23.2	32.2			24.8	19.0	-	
25	544100	257473	17.6			12.4			13.3	11.4	18.2	18.5	20.6	12.1	15.5	11.6	-	
26	544943	257567	20.3		17.7	13.8	15.9	10.6	10.8	10.2	18.7	18.7	22.5	14.5	15.8	12.3	-	
27	544575	255307	20.5	20.6	17.3	11.3	11.4	8.9	9.1	10.2	16.9	20.8	20.4		15.2	11.9	-	
28	546961	255132	22.2	16.3	17.1	19.1	22.3	13.3	14.0	11.0	23.3	23.3	19.3		18.3	14.3	-	
29	548331	256252	23.5	19.8	16.4	15.1	16.4	13.7	16.8	13.8	18.9	21.7	25.9	15.1	18.1	14.1	-	
30	545693	260473	25.0	23.7	16.5	13.3	14.3	12.6	14.5	14.7	15.1	22.8	26.1	19.4	18.2	14.2	-	
31	544529	257730	29.0	33.3	30.1	19.6	24.7	21.3	24.2	24.1	23.3	25.1	26.6	17.7	24.9	19.4	-	
32	545893	257234	23.6	23.2	18.6	18.9	20.9		17.5	14.9	24.3		28.6	11.6	20.2	15.8	-	
33	545333	259439	29.7	32.6	27.6	15.5	30.7	26.1	26.3	26.4	32.1	35.6	31.5	17.2	27.6	21.5	-	
34	545390	258390	30.8	32.8	26.9	22.9	26.9	23.1	21.7	22.5	28.2	29.8	33.0	23.7	26.9	20.9	-	
35	546163	258983	20.7	20.3	16.2		11.0	10.6	9.9	13.1	13.7	19.9	19.9	18.8	15.8	12.3	-	
36	546596	257594	12.2	15.2	12.7	11.2	10.5	8.6	7.5	9.4	12.0	16.3	19.4	13.3	12.4	9.6	-	
37	545885	260088	19.6	18.7	12.7	10.5	11.1	10.2	8.6	8.8	13.9	14.9	19.9	14.7	13.6	10.6	-	
38	545566	259579	22.9	26.0	16.5	15.4		16.7	14.1	13.5	20.0	22.8	26.3	17.4	19.2	15.0	-	
39	545710	258782	31.0	30.0	22.2	20.3	22.0	21.7	20.7	20.3	24.4	28.0	33.4		24.9	19.4	-	
40	545405	258521	33.2	36.0	29.1	24.4	23.0		28.4	28.3	37.0	33.9	36.7	27.2	30.7	23.9	-	
41	545162	258240	33.0	29.2	24.6	19.2	22.7		18.9	17.6	25.4	25.3	28.1	20.1	24.0	18.7	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
42	544981	257890	24.6	21.0	15.6	11.1	13.6	13.3	13.7	13.1	19.9	21.8	21.7	15.2	17.1	13.3	-	
43	545271	257675	30.2	29.2	17.1	21.5	24.4	22.2	20.5	19.4	14.1	25.8	28.9	22.0	22.9	17.9	-	
44	545271	258271	25.5	23.8	21.9	17.7	18.6	17.6	17.5	15.0	23.8	25.9	25.0	23.6	21.3	16.6	-	
45	545135	258391	32.6		31.4	23.3	21.8	18.8	21.1	22.2	23.5	33.3	28.2	15.4	24.7	19.3	-	
46	545549	258283		17.7	18.5	11.1	11.7	9.3	9.5	10.9	14.3	16.4	15.7	16.1	13.7	10.7	-	
N47	545511	257837	36.5	35.9	37.0	27.8	24.4	28.2	29.7	26.3	36.5	33.9	34.7	29.7	31.7	24.7	-	
N48	546214	259845	28.7	31.5	30.1	18.2			20.3	14.9	22.4	28.5	30.1	21.4	24.6	19.2	-	
N49	546709	261054	25.5	27.1				20.5	19.2	22.0	22.3	24.7	17.2	20.7	22.1	17.3	-	
50	545854	257229	27.1	20.8	18.5		21.2	16.4	16.5	18.4	23.0	26.0	25.3		21.3	16.6	-	
51	544960	257152	22.5	19.6	21.5	18.8	18.7	18.2		18.4	22.1	23.1	25.7		20.9	16.3	-	
52	546019	257300	31.8	25.8	27.0	25.8	29.0	23.7	23.2	27.4	26.8	27.9	28.2		27.0	21.0	-	
53	545897	257325	27.2	19.0	21.2	19.0		17.3	15.9		23.4	23.6	29.1	23.9	22.0	17.1	-	
54	546027	257683	24.7		19.4		14.8	13.4	13.9	12.6	17.8		23.2	15.0	17.2	13.4	-	
55	545504	261492	27.4		18.2	16.0	15.5	13.1		12.9	16.0	19.9	25.4	13.8	17.8	13.9	-	
56	546602	258796	26.9	21.6	22.3		19.3	16.2	17.1	14.6	18.3	19.6	25.3	17.2	19.9	15.5	-	
57	546060	257389	29.0	31.0	27.9	19.3	22.4	21.6	24.1	21.8	22.4	25.6	25.9	16.4	24.0	18.7	-	
58	546080	257092	27.0	26.8	17.8		25.3	26.9		20.2		27.9	36.7	40.6	27.7	21.6	-	
59	548858	257162	21.0		18.6			11.0	11.6		15.2	19.8	20.0		16.7	11.7	-	
60	547917	258942	32.3	25.8	21.2	16.6	18.3	18.7	17.6	15.7	21.8	25.0	21.8	23.6	21.5	16.8	-	
61	546341	258882	34.6	41.7	30.4	27.6	28.8	26.7	31.2	28.4	31.9	40.6	39.2	33.9	32.9	25.7	-	
62	547181	257566	20.0	24.4		11.8	16.1	12.7	13.5	14.4	19.6	23.5	22.8	18.2	17.9	14.0	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
63	546177	257309	25.6	32.1	29.4	22.6	22.2	20.9	22.3	21.6		25.1	27.1	24.3	24.8	19.4	-	
64	544952	258856	19.5	20.9	20.6	15.0	16.1	13.4	14.0	11.4	19.0	23.7	24.2	17.8	18.0	14.0	-	
65	545896	257025	30.2	26.1	23.4	19.7	21.1	18.3	18.1	15.4	24.4	24.0	24.7	20.2	22.1	17.3	-	
66	544614	254646	31.5	32.2	27.5	20.1	22.3	24.8	21.7	22.9	27.0	26.6	32.1	27.2	26.3	20.5	-	
N67	546246	257598	12.9	19.4	17.8	12.7	11.1	11.4	10.4	12.1		17.2	21.1	14.8	14.6	11.4	-	
68	545211	254217	19.4	18.7	16.2	14.0	13.8	11.9	11.1	11.9	16.0	19.6	23.8	17.2	16.1	12.6	-	
69	546854	255405	27.6	23.1	24.2	25.2	17.8	16.3	15.6	17.2	16.6	23.0	24.2	18.5	20.8	16.2	-	
70	546693	255379	25.6	24.1	18.6	18.8	18.0	15.4	15.3	16.4	20.5	22.3	23.2	19.2	19.8	15.4	-	
71	545245	256860	10.0		13.0	20.3	24.1	22.3			25.5	18.7	27.7	21.9	20.4	15.9	-	
72	546055	259486	26.0	21.4	20.2	18.1	18.9	16.3	16.2	15.5	19.6	22.1	24.3	18.5	-	-	-	Triplicate Site with 72, 73 and 74 - Annual data provided for 74 only
73	546055	259486	25.4	22.7	22.4	18.0	19.5	14.9	14.3	14.8	20.8	23.3	24.3	17.1	-	-	-	Triplicate Site with 72, 73 and 74 - Annual data provided for 74 only
74	546055	259486	21.3	23.2	20.5	17.4	16.1	14.2		15.8	19.6	22.0	23.2	18.5	19.5	15.2	-	Triplicate Site with 72, 73 and 74 - Annual data provided for 74 only

☒ **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**

☒ **Cambridge 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.

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

New or Changed Sources Identified Within Cambridge City During 2024

Cambridge City Council has not identified any new sources relating to air quality within the reporting year of 2024.

Additional Air Quality Works Undertaken by Cambridge City Council During 2024

Diffusion Tube Wind Cap Project

Nitrogen dioxide (NO_2) levels experienced a significant decline during the COVID-19 lockdowns and notably, have remained well below pre-COVID levels even after the return to 'normal' conditions. In parallel to this we have observed greater variability in diffusion tube results. Although reduced NO_2 levels can be partially attributed to behavioural changes, they have continued to stay low despite increasing traffic levels.

Since June 2023, we have been conducting a small-scale wind cap study, funded by Cambridge City Council, to explore whether increasingly unsettled and windier weather conditions are influencing diffusion tube readings. Our wider monitoring network uses diffusion tubes with 50% TEA in acetone, supplied by Socotec. However, as Socotec does not offer wind-capped tubes, we are using 20% TEA in water tubes from Gradko for this project.

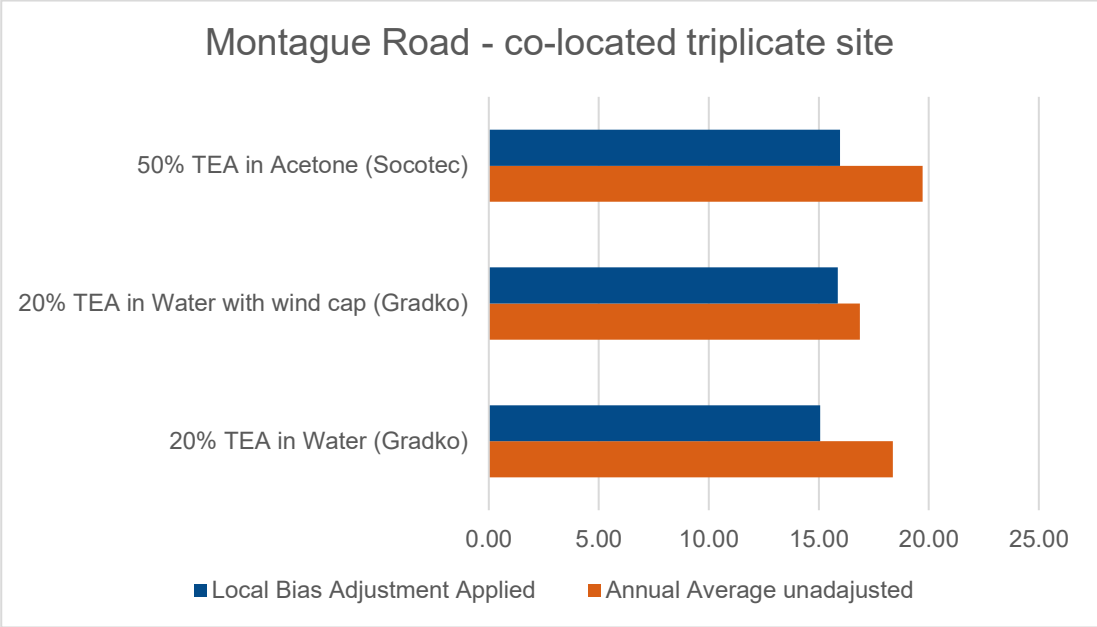
The study includes nine monitoring locations (with triplicate tubes at one site), representing a range of site classifications: rural, urban background, roadside, kerbside, and suburban. The aim is to determine whether windier conditions are affecting diffusion tube performance or whether the observed NO_2 reductions are due to other factors—such as improvements in the vehicle fleet, shifts in travel behaviour post-pandemic, and increased active travel.

Preliminary results from the first year of data (June 2023 to May 2024) indicate that, once an appropriate local bias adjustment factor is applied, wind-capped tubes report NO_2 levels comparable to standard tubes. For reference, the local bias adjustment factors are as follows:

- 50% TEA in Acetone: 0.81
- 20% TEA in Water: 0.82
- 20% TEA in Water with Wind Cap: 0.94

When these adjustments are applied, all three tube types yield similar results. For illustrative purposes, results from the triplicate tubes co-located with the Montague Road automatic monitor are shown below:

Figure C.1: Annual Average for Montague Road Triplicate Tubes both bias and non-bias adjusted



QA/QC of Diffusion Tube Monitoring

Socotec UK Ltd supply and analyse the nitrogen dioxide tubes for Cambridge City Council. The tubes are prepared by spiking acetone: triethanolamine (50:50) onto the grids prior to being assembled. The tubes are desorbed with distilled water and the extract is analysed using a segmented flow auto-analyser with ultraviolet detection. Socotec UK Ltd, Didcot is one of the laboratories that follows the AIR PT inter-comparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes; SOCOTEC currently holds the highest rank of a **Satisfactory** laboratory.

Exposure periods for the diffusion tubes are those of the UK Nitrogen Dioxide Diffusion Tube Network run by National Physical Laboratory, with the tubes being changed every four or five weeks.

QA/QC procedures are as detailed in the UK NO_2 Diffusion Tube Network Instruction Manual. Some diffusion tube data were rejected from the dataset in line with guidance. Low concentrations are rare at urban background or roadside sites and are likely to result from an analytical problem or a faulty tube and therefore are rejected, particularly if they are an isolated occurrence. High concentrations are included unless there is a reason to reject them.

Monitoring was completed in adherence with the Diffusion Tube Monitoring Calendar in 2024.

Diffusion Tube Annualisation

Three tubes required annualisation Tube number 24 (Histon Road 1), Tube 25 (Barton Road) and Tube 59 (Coldhams Lane 3) with data capture of either 58.3% or 66.7%. The Diffusion Tube Data Entry System template was used to annualise the tubes.

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

Site ID	Annualisation Factor Wicken Fen	Annualisation Factor Boreham Wood Meadow Park	Annualisation Factor Northampton Spring park	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
24	0.9998	0.9637	0.9859	0.9831	24.8	24.4
25	0.9720	0.9340	0.9628	0.9563	15.5	14.8
59	0.9301	0.8772	0.8752	0.8942	16.7	15.0

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Cambridge City council have applied a national bias adjustment factor of 0.78 to the 2024 monitoring data taken from the April 2025 Bias Adjustment Factor Spreadsheet of which 33 studies were applicable. A summary of bias adjustment factors used by Cambridge City council over the past five years is presented in Table C.2.

Cambridge City Council has historically used a Local factor, with the exception of 2022 due to insufficient data capture. We have opted to use the National factor this year for several reasons:

- The data capture for our co-located triplicate tubes had an overall ‘poor precision’

- A review of Socotec procedures by DEFRA and the subsequent feedback received by all relevant Local Authorities alongside feedback from the 2023 Appraisal report was that to increase confidence in the diffusion tube results we should consider having multiple co-located tubes. We were unable to implement this for 2024 but have increased the number of co-located sites to three for 2025.

Based on this feedback from DEFRA a national co-location factor has been used for 2024. This will be reviewed next year.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	04/25	0.78
2023	Local	-	0.80
2022	National	03/23	0.76
2021	Local	-	0.67
2020	Local	-	0.68

Table C.3 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1
Periods used to calculate bias	11
Bias Factor A	0.76 (0.73-0.8)
Bias Factor B	31% (26% - 37%)
Diffusion Tube Mean (µg/m^3)	20
Mean CV (Precision)	5
Automatic Mean (µg/m^3)	15
Data Capture	98
Adjusted Tube Mean (µg/m^3)	15 (15-16)

Notes:

A single local bias adjustment factor has been used to bias adjust the 2024 diffusion tube results.

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure

has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO_2 monitoring locations within Cambridge City Council required distance correction during 2024.

QA/QC of Automatic Monitoring

Cambridge City Council had five continuous monitors operating during 2024; all are at roadside sites.

Regent Street (AURN1) is located within the office of Cambridge City Council in Mandela House. It is part of the National Automatic Urban Network (AURN) on behalf of DEFRA and has been in place since 1993.

Since 2023 we have been undertaking a replacement programme upgrading all sites to measure NO_2, PM_{10} and $PM_{2.5}$. Montague (CAM5) was replaced in March 2023, Gonville Place (CAM07) March 2024 and Parker street (CAM1) July 2024. The remaining site, Newmarket Road (CAM4) was upgraded in April 2025.

Each of the sites is calibrated and maintained every 2 (Regent street), 3 (Newmarket Road) or 4 (Montague Road, Gonville Place and Parker Street) weeks by the Local Site Operator (LSO), Cambridge City Council. The sites are serviced every six months. Our Equipment Support Unit (ESU) services are provided by Matts Monitors. The sites are audited by Ricardo Energy & Environment either as part of the AURN or through the 'Calibration Club'. All data is collated and ratified externally by Ricardo Energy & Environment. The results are ratified and returned as hourly sequential data.

Both live and historical data is available at UK Air (Home - Defra, UK) for the Regent Street Monitor (Cambridge Roadside) and Air quality England (www.airqualityengland.co.uk) for the other sites.

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

During 2024 Particulate Matter Monitoring was undertaken at four sites within Cambridge:

- **Newmarket Road (CAM43)** – $PM_{2.5}$ monitoring is undertaken at this site. The $PM_{2.5}$ monitor at Newmarket Road has had the conventional TEOM Gravimetric Equivalent correction factor applied by the QA/QC contractor.

- **Montague Road (CAM5), Gonville Place (CAM07) & Parker Street (CAM1)** – PM_{10} and $PM_{2.5}$ monitoring is undertaken at this site using Dynamics Measurement System (TEOM-FDMS). The FDMS1405DF has been declared equivalent to the reference method. And can be used without the need for correction for slope and/or intercept.

Automatic Monitoring Annualisation

All automatic monitoring locations recorded data capture of greater than 75% for Nitrogen Dioxide so no annualization was required. Gonville Place required annualization for both PM_{10} and $PM_{2.5}$ as this was a new monitor location that was installed in March 2024. Whilst the nitrogen dioxide achieved just over the 75% data capture requirement both the PM_{10} and $PM_{2.5}$ for Gonville place fell just short. The new monitors were put into Parker Street in July 2024. Whilst this was a replacement for both nitrogen dioxide and PM10, this was a new site for $PM_{2.5}$ so annualization was required.

Table C.4 – Automatic PM_{10} Annualisation Summary (concentrations presented in $\mu g/m^3$)

Background Site	Annual Data Capture (%)	Annual Mean (A_m)	CAM07	
			Period Mean (P_m)	Ratio (A_m / P_m)
Wicken Fen	100.0	10.8	11.4	0.943
Boreham Wood	100.0	10.7	10.8	0.994
Norwich Lakenfield	100.0	11.1	11.2	0.993
Average (R_a)			0.977	
Raw Data Annual Mean (M)			13.3	
Annualised Annual Mean (M x R_a)			13.0	

Table C.5 – Automatic $PM_{2.5}$ Annualisation Summary (concentrations presented in $\mu g/m^3$)

Background Site	Annual Data Capture (%)	Annual Mean (A_m)	CAM1		CAM07	
			Period Mean (P_m)	Ratio (A_m / P_m)	Period Mean (P_m)	Ratio (A_m / P_m)
Wicken Fen	100.0	6.6	6.5	1.008	6.7	0.985
Boreham Wood	100.0	6.9	7.1	0.975	6.9	1.008
Norwich Lakenfield	100.0	7.2	7.6	0.952	7.1	1.020

Background Site	Annual Data Capture (%)	Annual Mean (A_m)	CAM1		CAM07	
			Period Mean (P_m)	Ratio (A_m / P_m)	Period Mean (P_m)	Ratio (A_m / P_m)
Average (R_a)			0.979		1.004	
Raw Data Annual Mean (M)			7.4		7.1	
Annualised Annual Mean (M x R_a)			7.3		7.1	

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO_2 concentrations corrected for distance are presented in Table A.3.

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

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

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

The Cambridge City Council website has a map showing the locations of the monitoring stations in Cambridge which can be zoomed in and out to discover the specific locations. A click on the icon will provide the name and number of each site.

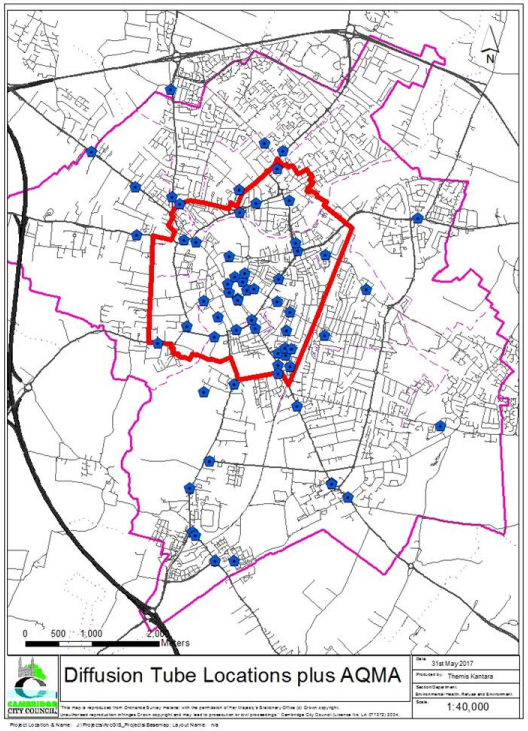
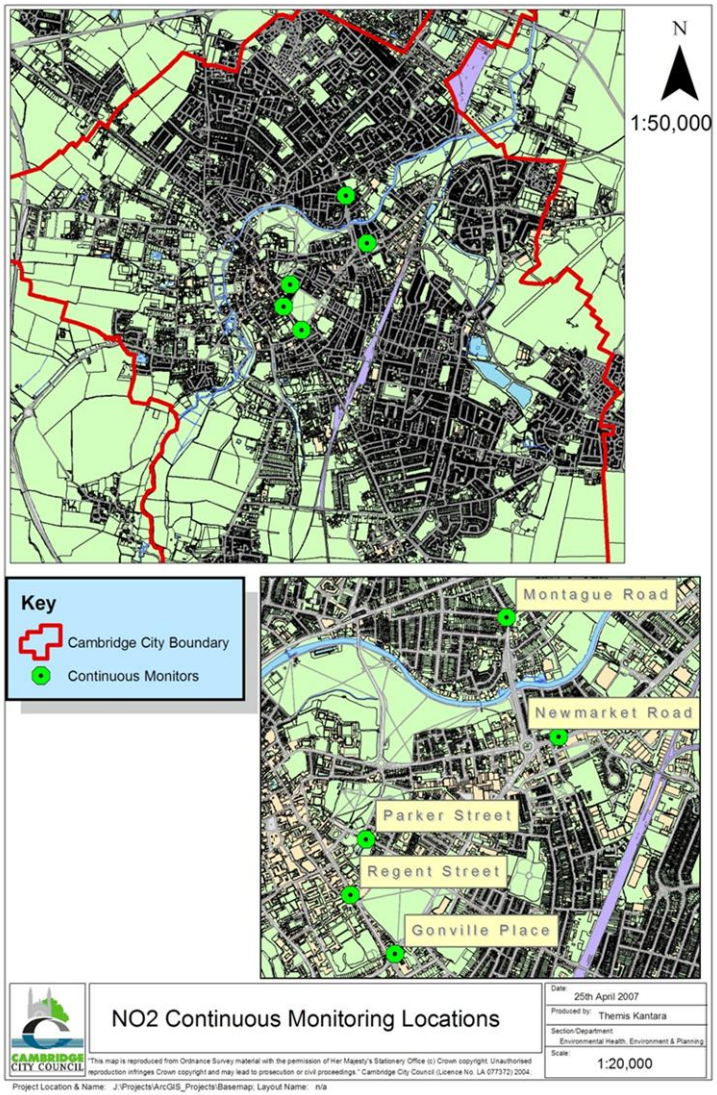


Figure D.2 – Map of Automatic Monitoring Sites


N
1:50,000
Key
Cambridge City Boundary
Continuous Monitors
Montague Road
Newmarket Road
Parker Street
Regent Street
Gonville Place
NO2 Continuous Monitoring Locations
25th April 2007
Themis Kantara
Environmental Health, Environment & Planning
1:20,000
CAMBRIDGE CITY COUNCIL

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[8]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.