Tewkesbury Borough Council

Air Quality Annual Status Report

Bureau Veritas

December 2024

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2024 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: December 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Tewkesbury Borough Council

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[1].

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[2].

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.

[1] UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

[2] Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

The main pollutant of concern within Tewkesbury Borough Council (TBC) is nitrogen dioxide (NO_2). In December 2008, an Air Quality Management Area (AQMA) was designated for exceedance of the annual mean NO_2 Air Quality Strategy (AQS) objective of 40 µg/m^3. However, due to continuous improvements in NO_2 levels and no exceedances of the objective level in since 2015 the AQMA within Tewkesbury has now been revoked as of the 1st August 2022.

Further details of the revoked AQMA can be found at https://uk-air.defra.gov.uk/aqma/details?aqma_ref=587.

The conclusions from annual Government reports regarding Tewkesbury Borough Council have consistently shown good air quality.

Latest reported NO_2 annual mean concentrations have been found to be below the AQS objective, and continue to show a general downwards trend each year. While there is no requirement to declare an AQMA, Tewkesbury Borough Council are committed to improving air quality and monitoring using the diffusion tube network.

This report covers the monitoring period of 2023. The NO_2 annual mean concentration data for 2023 shows a downward trend of NO_2 at over half of sites monitored which is similar to findings in 2022. The remainder of the sites monitored demonstrated the same NO_2 levels or a marginal increase compared to 2022 data.

Actions to Improve Air Quality

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

The Environmental Improvement Plan[3] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant of most harmful to human health. The Air Quality Strategy[4] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

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

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

The Road to Zero[5] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of AQMAs are designated due to elevated concentrations heavily influenced by transport emissions.

Air quality is TBC is generally good, all diffusion tubes are reporting below AQS objectives. Diffusion tube monitoring will continue to ensure this remains the case. If the results of monitoring indicate an upward trend with exceedance(s) of the air-quality objective, then TBC will take the steps required by the Local Air Quality Management (LAQM) Policy Guidance[6].

In response to planning consultations, air quality is considered in the borough within the existing policy framework. Where appropriate, planning conditions are included to require electric vehicle charging points into new developments; provision for safe storage of cycles and encouraging cycle routes. Section 106 agreements are secured where possible for Travel Plans and contributions to off-site mitigation to minimise emissions.

The core strategy in TBC is encourage low emission transport alternatives. Within the borough, this has currently been facilitated by installing electric car charging points in TBC owned and operated on-street parking and car parks. TBC is currently replacing its own vehicles with electric alternatives.

As an employer, TBC has introduced two salary sacrifice schemes for Ultra Low Emission Vehicles (ULEVs) and push bikes. Another scheme encouraging the use of electric bikes is currently being trialled. These schemes are designed to help encourage staff to use low emission transport.

Conclusions and Priorities

All monitored sites met the NO_2 annual mean AQS objective of 40 µg/m^3 in 2023. Recorded 2023 data levels remain very similar to 2022 but continue to show an overall downward trend. A minor increase was recorded at two sites. Levels are still considerably

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

[6] Defra. Local Air Quality Management Policy Guidance (PG22) August 2022

lower than 2019. It is unlikely that there was an exceedance of the hourly mean AQS objective in the last five years.

Generally, concentrations of NO_2 are steadily declining year on year. This tends to indicate that the actions and measures within the old Air Quality Action Plan (AQAP) have had a positive effect.

Priorities for the upcoming year include:

- Continue to monitor NO_2 concentration throughout the borough and consider relocation and/or deployment of additional diffusion tubes to identify areas of concern;
- Develop local schools anti-idling and active travel engagement and education campaign; and
- Continue to keep up to date with statutory reporting.

The main challenge to the improvement of air quality in the borough will be the extent of the continuing recovery following COVID-19, the cost-of-living crisis and the behavioural changes as a result of the cost-of-living crisis.

Local Engagement and How to get Involved

Tewkesbury Borough Council (TBC) is part of the wider Gloucester County Council (GCC) Sustainable Transport Plan & Fund. The plan's overarching aim is to achieve a modal shift from private vehicle use to public transport, cycling & walking. The Gloucestershire initiative, Thinktravel, provides information and resources for sustainable travel in Gloucestershire. One of the schemes run by Thinktravel is Modeshift STARS which is an acclaimed program dedicated to promoting sustainable and active travel in schools while enhancing air quality through reduced vehicle emissions. Further information on the initiative can be found here: https://www.thinktravel.info/schools-business-and-community/schools/.

TBC has recently secured funding for an engagement project in local schools. This project aims to engage children in understanding air quality and also educating motorists about the dangers of emissions from cars when idling and support active travel. This will be done through the creation of advertising materials to be displayed in schools; signage instructing motorists to turn off engines and consider travelling actively and school children designing education banners about air quality. A full project plan is to be developed from January 2025. The outcomes of this project are to be shared with other Local Authorities after completion as learning.

GCC provide information for all residents of the county to access and how they can reduce their impact on the climate, carbon footprint and impact on air quality. Further information can be found at: https://www.gloucestershire.gov.uk/planning-and-environment/greener-gloucestershire-climate-dashboard/what-can-you-do/.

Residents can also calculate their air pollution footprint, create a personalised clean air planner, use how to guides to reduce air pollution and view air quality forecasts by visiting Clean Air Hub which works in partnership with Clean Air Day. Further information can be found at: https://www.cleanairhub.org.uk/home.

Nationally, the Energy Saving Trust provides advice on fuel saving, energy saving at home, car buying advice, low carbon travel and much more which all have the added benefits of reducing an individual's contribution to air pollution.
Additional information can be found at: https://energysavingtrust.org.uk/.

Locally, Severn Wye Energy Agency a sustainability charity working across Wales and the West of England. They offer advice, guidance, and support on a range of matters relating to sustainability, energy conservation, energy efficiency and fuel poverty etc which the public can access. Additional information can be found at: https://severnwye.org.uk/.

All front-line Tewkesbury Borough Council staff are required to attend training relating to fuel poverty and energy use in the home. Which in turn allows staff to give information to local residents on fuel poverty support and how to reduce energy use in the home which have the added benefits of reducing an individual's contribution to air pollution.

Members of the public can get involved with air quality by participating in the Clean Air Day events. Further information regarding Clean Air Day and how to get involved can be found at: https://www.actionforcleanair.org.uk/.

The Environmental Protection Team can provide advice to internal departments, external agencies, and public enquiries regarding air quality in accordance with relevant legislation.

Residents of Tewkesbury Borough Council are increasingly aware of the impact of air quality in the UK and local area. Local residents actively report incidents of unauthorised or problematic burning from commercial and residential premises. This type of public knowledge and information sharing is welcomed by officers. It provides a mechanism for further education and awareness raising with the public regarding individual actions and their impact on local air quality.

TBC provides information on air quality which includes the previous air quality reports, NO_2 tube results and links to other related information resources. Additional information can be found at: https://www.tewkesbury.gov.uk/air-quality.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Tewkesbury Borough Council with the support and agreement of the following officers and departments:

Kathryn Griffiths – Principal Environmental Health Officer.

This ASR has been approved by:

Director of Communities, Tewkesbury Borough Council

This ASR has not been signed off by a Director of Public Health.

If you have any comments on this ASR please send them to the Environmental Health Team at:

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Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Tewkesbury Borough Council during 2023. 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 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 Tewkesbury Borough 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 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.

Tewkesbury Borough Council currently does not have any declared AQMAs. On the 1st August 2022 Tewkesbury AQMA was revoked.

A local Air Quality Strategy is under development to prevent and reduce polluting activities. It is likely this will be a Gloucestershire wide strategy working alongside other local Councils in Gloucestershire.

2.2 Progress and Impact of Measures to address Air Quality in Tewkesbury Borough Council

Defra's appraisal of last year's ASR concluded, which was 2023, concluded on the basis of the evidence provided by the local authority the conclusions reached are acceptable for all sources and pollutants. The following comments were made to support the development of future reports:

1. *The ASR has not been signed off by the Director of Public Health. Collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all.*

    - This ASR has not been signed off by the Director of Public Health. However, it has been signed off by the Director of Communities, Tewkesbury Borough Council.

2. *Tewkesbury Borough Council have made reference to the UK Public Health Outcome Framework relating to air quality and have provided the D01 indicator, with a comparison to the wider area as a whole and to the rest of England. The Council have also detailed a list of measures which they are taking to address $PM_{2.5}$ concentrations.*

    - Reference to the latest available indicator has been made in this year's report.

3. *The Council has provided a detailed summary with trend graphs of the monitoring results from 2022, this is appreciated, and it is encouraged that the Council continue to do this. The Council has included information for a new monitoring location which is welcomed, and monitoring locations should be regularly reviewed to ensure that they are at locations of maximum exposure, and any new potential hotspots are identified.*

    - We have provided graphs of annual mean concentrations trends in the last five years. There has been no update to the monitoring network, but we will continue to review it on a regular basis to ensure identification of potential hotspots.

4. *QA/QC procedures of diffusion tube monitoring is robust and detailed, with appropriate justifications provided.*

- These procedures have been continued in this ASR.

5. *The Council has included additional appendices which are fit for purpose, which include the Revocation Order for the Tewkesbury AQMA, national and regional influences and predicted trends. This is welcomed.*

    - No additional appendices were relevant for this ASR.

6. *The Council have responded to and addressed to comments made following last year's appraisal. This is appreciated, and it is encouraged that the Council continue to do this.*

    - This has been continued in this ASR.

7. *The Council are currently considering a Local Air Quality Strategy to prevent and reduce polluting activities. The Council is encouraged to produce a Local Air Quality Strategy to prevent air pollution exceedances within their Borough.*

    - The Local Air Quality Strategy is still being developed.

8. *Overall, the report is detailed and concise, providing a good overview of the work Tewkesbury Borough Council is undertaking to improve air quality within their Borough, and satisfies the criteria of the relevant reporting standard. Tewkesbury Borough Council should continue with their good work.*

    - We will continue to prepare reports satisfying the relevant standards.

Tewkesbury Borough Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. 14 measures are included within Table 2.1, with the type of measure and the progress Tewkesbury Borough Council have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

More detail on these measures can be found in the old AQAP. Key completed measures are:

- Completed TBC Taxi Licensing Policy: all vehicles within the council's licensed taxi fleet are Euro 6 standard.
- Installed 4 publicly accessible Electric Car Charging Points: resulted in increased usage of electric car charging points and thus electric cars. This helps TBC to promote low emission transport.

- Replacing fossil fuel vehicles with electric vehicles: all four pool cars used by Tewskesbury Borough Council are now electric. This has helped with promotion of low emission transport alternatives.

Tewkesbury Borough Council expects the following measures to be completed over the course of the next reporting year:

- Continue the installation and utilisation of Electric Vehicle Charge Points in TBC owned public car parks and on street locations.
- Continue the replacement of council vehicles from fossil fuel to electric.
- Introduction of electric bikes for use by staff.
- Keep improving the air quality information on the TBC website.
- Proceed with pledge to become carbon neutral by 2030.

These measures encourage both staff and the public in TBC to use low emission transport options.

Tewkesbury Borough Council's priorities for the coming year are to continue installation of Electric Vehicle Charging Points in TBC-owned public car parks and street locations. Also, carry out project plan associated with recently secured Air Quality Grant from Gloucestershire County Council.

Tewkesbury Borough Council worked to implement these measures in partnership with the following stakeholders during 2023:

- Gloucestershire County Council

Gloucester County Council's (GCC) Local Transport Plan[7] (LTP) (2020- 2041) sets the strategic transport vision for the county to 2041. The LTP is structured around a number of travel corridors, each of which have distinctive transport issues and opportunities set out in six spatial strategies entitled Connecting Place Strategies[8] (CPS). Tewkesbury is included in this as a CPS.

[7] Gloucestershire Local Transport Plan (2020-2041). Available at: https://www.gloucestershire.gov.uk/media/2105626/ltp-policy-document-final-v131.pdf

[8] Gloucestershire County Council. Connecting Place Strategies (CPS). Available at: https://www.gloucestershire.gov.uk/transport/gloucestershires-local-transport-plan-2020-2041/connecting-places-strategy-cps-areas-map/

Within this plan, policy LTP PD 0.1 – Reducing Transport Carbon Emissions and Adapting to Climate Change, aims to reduce transport carbon emissions by 2045 and improve air quality in the county by addressing travel demand, promoting the use of sustainable modes of transport and the uptake of ultra-low emission vehicles to tackle climate change. Other policies which also have impact on the air quality include: Policy LTP PD0.2 – Local Environmental Protection, Policy LTP PD 0.5 Community Health and Wellbeing, and Policy LTP PD 1.6 – Transport Interchange Hubs.

The principal challenges and barriers to implementation that Tewkesbury Borough Council anticipates facing are the continued recovery challenges relating to the COVID-19 pandemic and the cost-of-living crisis. Many of the measures TBC are/propose to implement involve installation or replacement of infrastructure and vehicles to promote low emission transport within the borough. These measures have had and will continue to have a substantial impact on resource availability and come with significant cost. This can result in slow progress. Equally, the success of many of these measures depends on behavioural change and uptake from the staff and public in Tewkesbury Borough Council. The cost-of-living continues to have major implications on the wider population, which means personal behavioural changes, for example choosing to buy an electric car and use the new charging points, come at significant cost to the individual which may not be feasible in the current state of play.

The measures stated above and in Table 2.1 have already helped achieve compliance in Tewkesbury Town Centre AQMA and the subsequent revocation of the AQMA.

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	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Tewkesbury Borough Council has pledged to become carbon neutral by 2030	Other	Other	2021	2030	Tewkesbury Borough Council	N/A	No	Not Funded	-	Implementation	N/A	Reduction in CO_2	Ongoing – longer term project	In 2022 a solar panel canopy was erected above TBC car park. Approx 90m long, 12.5m wide. Feeding power to council building and leisure centre.
2	Installation and utilisation of Electric Vehicle Charge Points in TBC owned public car parks and on street locations	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging.	2021	Ongoing	Tewkesbury Borough Council & Gloucestershire County Council	N/A	No	Not Funded	-	Implementation	N/A	Increased number of electric charging points	Ongoing – working with GCC to identify and install new chargers	Cost of installing points
3	Improvement of Air Quality information on Tewkesbury Borough Council's website	Public Information	Via the Internet	2018	Ongoing	Tewkesbury Borough Council	N/A	N/A	N/A	N/A	Planning	N/A	Improvements of Air Quality Information on the Council Website including a How you can help section	Ongoing	Initially delayed due to COVID and resources
4	5% reduction in overall traffic	Transport Planning and Infrastructure	Other	2008	2013	Gloucestershire County Council	N/A	N/A	N/A	N/A	Completed	N/A	Traffic volume	Complete	Implemented as part of the Tewkesbury High Street Road Safety Scheme
5	Remove all heavy goods vehicles (HGV's) exceeding 7.5 tonnes	Traffic Management	Other	2008	2013	Gloucestershire County Council	N/A	N/A	N/A	N/A	Completed	N/A	HGV numbers	Complete	Implemented as part of the Tewkesbury High Street Road Safety Scheme
6	Introduce air quality measures into Tewkesbury Borough Council Taxi Licensing Policy	Promoting Low Emission Transport	Taxi Licensing conditions	2018	Ongoing	Tewkesbury Borough Council	N/A	N/A	N/A	N/A	Completed	N/A	All vehicles Euro 6 standard within the taxi fleet	Taxi Policy implemented	-
7	Air Quality Action Day	Public Information	Other	2018	2018	Tewkesbury Borough Council	N/A	N/A	N/A	N/A	Completed	N/A	Attendance	Complete	-
8	Installed 4 publicly accessible Electric Car Charging Points	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging	2021	2021	Tewkesbury Borough Council & Gloucestershire County Council	N/A	No	Not Funded	£10 – 50k	Completed	N/A	Usage of charging points	Complete	-
9	Replacing fossil fuel vehicles with electric vehicles	Promoting Low Emission Transport	Company Vehicle Procurement – Prioritising uptake of low emission vehicles	2021	Ongoing	Tewkesbury Borough Council	N/A	No	Not Funded	£100 – 500k	Completed	N/A	Removing all fossil fuel council used vehicles	All 4 pool cars are now electric	Progress has been slowed due to cost and vehicle availability
10	Introduction of Staff Car Salary Sacrifice scheme for ULEVs	Promoting Low Emission Transport	Other	2022	Ongoing	Tewkesbury Borough Council	N/A	No	Not Funded	N/A	Completed	N/A	N/A	Complete	Dependant on staff uptake of the scheme. The aim is to encourage low emission transport.
11	Introduction of Staff Push Bike	Promoting Travel Alternatives	Promotion of cycling	2022	Ongoing	Tewkesbury Borough Council	N/A	No	Not Funded	N/A	Completed	N/A	N/A	Complete	Dependant on staff uptake of the

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	Salary Sacrifice scheme														scheme. The aim is to encourage low emission transport.
12	Introduction of electric bikes for use by staff	Promoting Low Emission Transport	Promotion of cycling	2023	Ongoing	Tewkesbury Borough Council	N/A	No	Not Funded	N/A	Implementation	N/A	Usage of electric bikes	Trial being carried out	-
13	Air Quality Grant application to Gloucestershire County Council.	Promoting Low Emission Transport	Other	2022	2027	Tewkesbury Borough Council	Gloucestershire County Council	No	Partially Funded	< £10k	Planning	N/A	Number of schools provided with Air Quality Grants	Funding secure, project plan in place	-
14	Ubico (waste contractor) have converted 26 vehicles from diesel to HVO fuel	Promoting Low EmissionTransport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging	2022	2023	Tewkesbury Borough Council	N/A	No	Not Funded	-	Completed	-	-	-	-

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[9], 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.

Tewkesbury Borough Council is taking the following measures to address $PM_{2.5}$:

- Tewkesbury Borough Council works closely with other local authorities within GCC particularly holding regular air quality meetings to discuss latest developments and partnership working.
- Continue working closely with GCC to identify areas within the Local Transport Plan that will contribute towards a reduction in $PM_{2.5}$
- Work with TBC's health and well-being colleagues with a view to identifying and incorporating measures which will contribute towards a reduction in $PM_{2.5}$
- Continue to increase the procurement of council electric vehicles across the Borough.
- Continue working with GCC to identify and install new public car chargers.
- Continued regulation of industrial processes under the Environmental Permitting Regulations to ensure that emissions to atmosphere are controlled and utilise best practise for the industry sector.
- Utilisation of the planning regime to identify new sources of $PM_{2.5}$ and apply relevant planning conditions to ensure emissions to the air are controlled and minimised.

The UK Public Health Outcomes Framework has reported new 2022 data for the D01 – Fraction of mortality attributable to air pollution using a new method, as presented in the below table.

The new indicator is defined as the fraction of annual all-cause adult mortality attributable to particulate air pollution (concentrations of total $PM_{2.5}$). It can be viewed as the mortality

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

burden associated with long-term exposure to particulate air pollution at current levels, expressed as the percentage of annual deaths from all causes in those aged 30 and over.

Table 2.2 - 2022 UK Public Health Outcomes Framework, D01 - Fraction of mortality attributable to air pollution[10]

	Tewkesbury	Region	England
Fraction %	5.4	4.6	5.8

Tewkesbury Borough Council does not currently monitor $PM_{2.5}$. The most up to date DEFRA background mapping data (2021)[11] was used to present the maximum annual mean $PM_{2.5}$ concentration for Tewkesbury Borough Council for the monitoring period of 2023. The highest annual mean $PM_{2.5}$ concentration within Tewkesbury Borough is 10.1 $\mu g/m^3$ (grid square: 391500, 234500).

The annual mean $PM_{2.5}$ concentrations vary between 6.1 $\mu g/m^3$ and 10.1 $\mu g/m^3$.

The current UK targets for $PM_{2.5}$ are[12]:

- Air Quality Standards Regulations 2010 - An annual average of 20 $\mu g/m^3$ for $PM_{2.5}$.
- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 require that in England by the end of 2040:
    - An annual average of 10 $\mu g/m^3$ for $PM_{2.5}$ is not exceeded at any monitoring station.
    - Population exposure to $PM_{2.5}$ is at least 35% less than in 2018.
- The Environmental Improvement Plan 2023 for England set interim targets that by January 2028:
    - An annual average of 12 $\mu g/m^3$ for $PM_{2.5}$ is not exceeded at any monitoring station.
    - Population exposure to $PM_{2.5}$ is at least 22% less than in 2018.

[10] Public Health Outcomes Framework - at a glance summary. Available at: Public Health Outcomes Framework - at a glance summary (phe.org.uk)

[11] Background Mapping data for local authorities – 2021. Available at: https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021

[12] Particulate Matter (PM_{10}/$PM_{2.5}$). Available at: Particulate matter (PM10/PM2.5) - GOV.UK (www.gov.uk)

The annual mean $PM_{2.5}$ concentrations within Tewkesbury Borough are well below current targets and close to or below future targets.

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

This section sets out the monitoring undertaken within 2023 by Tewkesbury Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Tewkesbury Borough Council undertook no automatic (continuous) monitoring during 2023.

3.1.2 Non-Automatic Monitoring Sites

Tewkesbury Borough Council undertook non-automatic (i.e. passive) monitoring of NO_2 at 19 sites during 2023. Table A. in Appendix A presents the details of the non-automatic sites. There was no change in the monitoring network in 2023.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compares 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 2023 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.

All monitoring data presented has been properly ratified and corrected for bias. Data for one diffusion tube was annualised as the data capture was below 75% but above 25%. This has been summarised in Appendix C, Table C.1. There were no locations which required distance correction.

Across the monitoring network, all monitoring locations met the NO_2 annual mean AQS objective of 40 µg/m^3. Levels have remained under 40 µg/m^3 since 2015.

The highest recorded NO_2 concentration recorded in 2023 was 24.6 µg/m^3 at diffusion tube 6N and 35N. Diffusion tube 35N also recorded the largest NO_2 concentration in the previous monitoring period, 2022.

Overall NO_2 concentrations have decreased at a majority of locations in 2023 when compared with 2022 data. Of 19 sites, 14 (62%) showed a decrease in annual mean concentrations in 2023 when compared with 2022. Two of the sites have remained the same as 2022 and the remaining three sites showed a minor increase (less than 0.9 µg/m^3).

Measured annual mean concentrations remain substantially lower in 2023 when compared with pre-COVID pandemic levels (2019).

A summary of bias adjustment factors used by Tewkesbury Borough Council over the past five years is presented in Appendix 2, Table C.2. The national bias factor showed a minor increase this year in comparison to 2022 (0.83 compared to 0.82) yet annual mean NO_2 concentrations still decreased in TBC.

There were no recorded instances of annual means greater than 60 µg/m^3, which according to the empirical relationship stated in LAQM.TG22 indicates that an exceedance of the 1-hour mean AQS objective is also unlikely at these sites.

3.2.2 Particulate Matter (PM_{10})

Tewkesbury Borough Council undertook no PM_{10} monitoring during 2023.

3.2.3 Particulate Matter ($PM_{2.5}$)

Tewkesbury Borough Council undertook no $PM_{2.5}$ monitoring during 2023.

3.2.4 Sulphur Dioxide (SO_2)

Tewkesbury Borough Council undertook no SO_2 monitoring during 2023.

Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
1N	Scrivens	Roadside	389314	232807	NO_2	No	0.0	1.5	No	4.0
2N	Corner of Oldbury Road/East Street	Roadside	389399	232788	NO_2	No	0.0	1.5	No	3.0
5N	Kellands	Roadside	389356	232705	NO_2	No	0.0	1.5	No	4.0
6N	Age Concern	Roadside	389294	232806	NO_2	No	0.0	1.5	No	4.0
14N	69 Sussex Gardens	Roadside	387915	217389	NO_2	No	0.0	7.0	No	2.0
15N	Comus	Roadside	389714	221845	NO_2	No	0.0	3.0	No	1.5
16N	15 Withybridge Gardens	Roadside	390461	225544	NO_2	No	5.0	3.0	No	1.5
20N	Snowshill Hill Farm	Rural	412224	233012	NO_2	No	50.0	1.0	No	1.5
35N	Peacocks	Roadside	389283	232769	NO_2	No	0.0	1.5	No	3.0
37N	Whetherspoons	Roadside	389254	232670	NO_2	No	1.0	2.0	No	3.0

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)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
38N	Avonside	Roadside	389331	232950	NO_2	No	0.0	1.5	No	3.0
41N	Tackle Shop	Roadside	389462	232721	NO_2	No	0.0	2.0	No	2.5
47N	65 Barton St	Roadside	389400	232600	NO_2	No	0.0	2.0	No	2.0
50N	White Hart, Castle Street	Roadside	402476	228456	NO_2	No	0.5	1.5	No	2.0
52N	43 Stocken Close	Roadside	387570	216935	NO_2	No	0.0	12.0	No	2.0
53N	Ashchurch Road	Roadside	393281	233305	NO_2	No	57.0	5.0	No	1.8
55N	Stoke Road	Roadside	395123	227638	NO_2	No	25.0	5.0	No	1.8
56N	Tewkesbury Church of England Primary School	Suburban	389622	232907	NO_2	No	9.0	3.0	No	1.5
57N	15 Kestrel Way, Northway	Suburban	391805	234256	NO_2	No	0.0	5.0	No	1.5

Notes:

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

(2) N/A if not applicable.

Table A.2 – 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 (%)	Valid Data Capture 2023 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
						2019	2020	2021	2022	2023
1N	389314	232807	Roadside	100.0	100.0	29.4	16.7	20.1	20.7	19.3
2N	389399	232788	Roadside	100.0	100.0	20.6	12.5	12.8	12.5	12.5
5N	389356	232705	Roadside	100.0	100.0	23.0	15.8	20.1	18.9	17.3
6N	389294	232806	Roadside	100.0	100.0	27.7	18.7	24.3	24.9	24.6
14N	387915	217389	Roadside	100.0	100.0	23.6	17.7	18.1	17.7	16.1
15N	389714	221845	Roadside	100.0	100.0	25.7	14.8	14.7	14.0	13.7
16N	390461	225544	Roadside	100.0	100.0	22.0	16.7	19.4	18.1	15.8
20N	412224	233012	Rural	90.4	90.4	5.5	3.9	4.0	4.1	3.6
35N	389283	232769	Roadside	100.0	100.0	32.3	22.3	25.6	25.1	24.6
37N	389254	232670	Roadside	67.3	67.3	22.7	15.5	18.5	18.5	16.5
38N	389331	232950	Roadside	92.3	92.3	23.4	16.9	19.0	19.2	19.4
41N	389462	232721	Roadside	100.0	100.0	30.2	20.2	24.9	24.4	24.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2023 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
						2019	2020	2021	2022	2023
47N	389400	232600	Roadside	84.6	84.6	27.4	19.1	20.0	20.1	19.1
50N	402476	228456	Roadside	92.3	92.3	20.4	12.1	14.1	12.5	12.5
52N	387570	216935	Roadside	100.0	100.0	21.2	16.0	17.0	16.5	15.2
53N	393281	233305	Roadside	100.0	100.0	19.4	14.7	16.1	16.1	15.0
55N	395123	227638	Roadside	100.0	100.0	18.8	14.3	14.8	14.3	15.1
56N	389622	232907	Suburban	100.0	100.0	**N/A**	**N/A**	9.0	9.5	8.9
57N	391805	234256	Suburban	100.0	100.0	**N/A**	**N/A**	**N/A**	13.8	13.3

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

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

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

Notes:

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

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

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

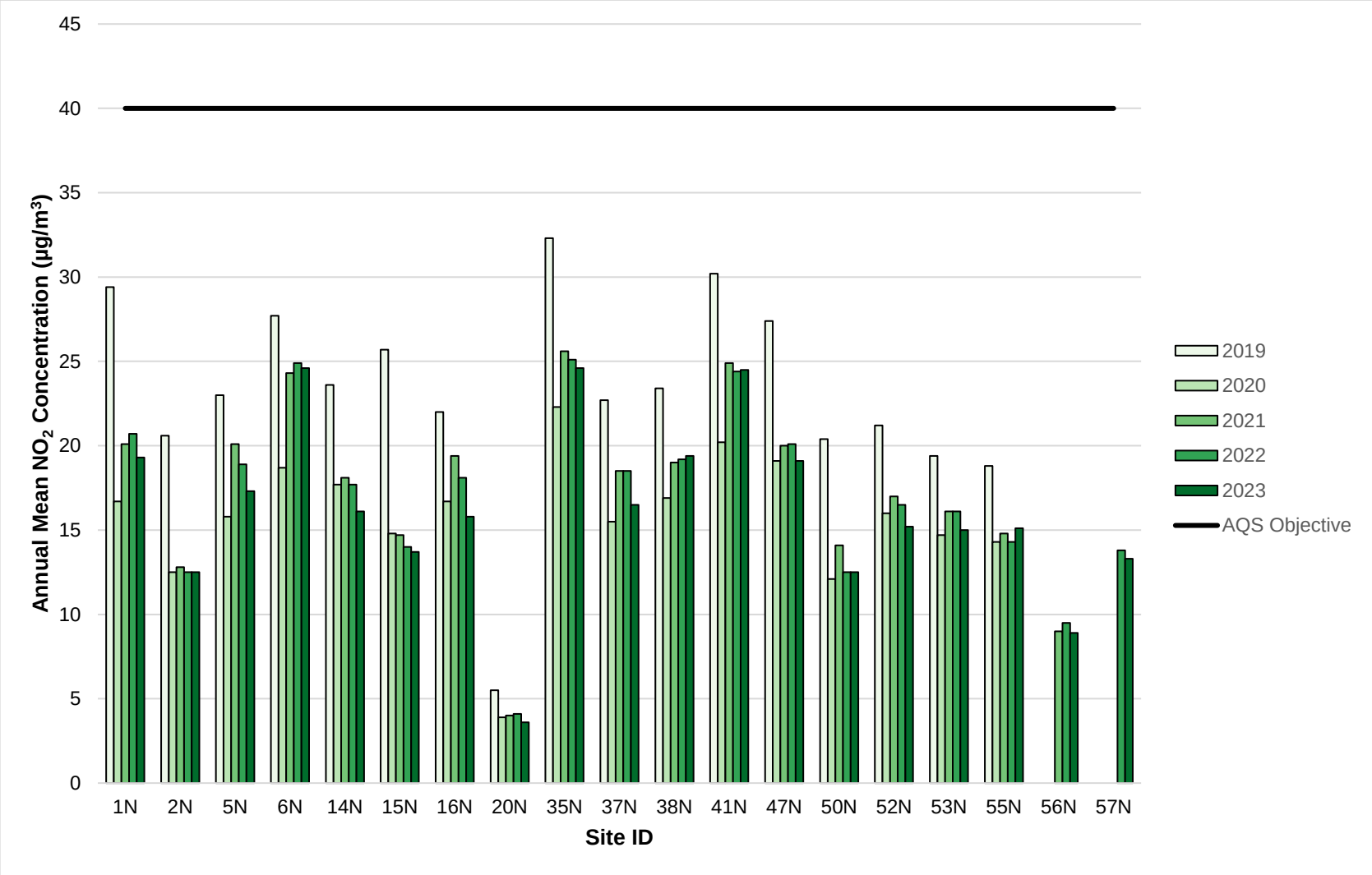
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Diffusion Tube Results (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.83) and Annualised	Distance Corrected to Nearest Exposure	
1N	389314	232807	24.6	30.8	24.7	22.8	23.6	23.6	15.3	20.5	26.7	19.3	27.4	19.8	23.3	19.3	-	
2N	389399	232788	21.8	19.5	14.5	14.2	10.8	10.9	9.7	11.9	16.0	18.2	20.4	13.2	15.1	12.5	-	
5N	389356	232705	24.7	28.1	19.8	23.4	18.8	17.0	14.4	18.9	22.7	21.2	23.7	17.8	20.9	17.3	-	
6N	389294	232806	35.2	38.9	29.3	29.2	25.6	24.9	25.2	27.6	31.3	28.2	33.7	27.1	29.7	24.6	-	
14N	387915	217389	33.7	27.9	19.3	19.3	16.1	13.9	13.8	18.7	18.1	7.0	26.1	18.9	19.4	16.1	-	
15N	389714	221845	23.7	21.5	17.5	14.2	10.5	10.4	14.7	13.9	17.0	16.9	20.5	17.6	16.5	13.7	-	
16N	390461	225544	17.0	26.5	20.0	20.3	24.0	22.4	13.8	18.8	16.8	14.6	19.8	14.8	19.1	15.8	-	
20N	412224	233012	5.6	4.5	N/A	3.8	4.1	3.4	2.4	3.2	4.0	5.5	7.3	4.6	4.4	3.6	-	
35N	389283	232769	36.0	38.9	30.6	28.5	24.9	25.2	25.2	28.3	30.3	30.8	30.8	26.5	29.7	24.6	-	
37N	389254	232670	25.7	29.2	21.0	23.1	N/A	N/A	N/A	19.8	N/A	21.4	25.9	17.0	22.9	16.5	-	
38N	389331	232950	29.7	30.9	21.2	21.7	19.2	18.4	18.5	20.9	25.8	N/A	28.7	22.4	23.4	19.4	-	
41N	389462	232721	34.5	35.2	28.5	33.3	29.9	29.8	20.3	27.2	31.6	27.7	31.9	23.9	29.5	24.5	-	
47N	389400	232600	26.4	31.5	26.1	24.7	19.7	21.5	20.1	21.5	N/A	N/A	15.1	23.0	23.0	19.1	-	
50N	402476	228456	N/A	20.2	12.9	15.3	16.9	15.5	11.1	12.8	13.9	14.1	19.5	14.0	15.1	12.5	-	
52N	387570	216935	26.0	26.0	15.4	16.9	13.5	15.1	14.8	17.9	16.5	16.3	23.9	17.4	18.3	15.2	-	
53N	393281	233305	25.6	26.7	16.2	17.7	18.2	15.4	11.1	16.0	17.2	15.6	22.2	15.0	18.1	15.0	-	
55N	395123	227638	24.6	23.5	20.6	15.5	11.8	12.2	14.7	15.4	17.9	17.7	25.9	18.8	18.2	15.1	-	
56N	389622	232907	16.9	12.9	10.7	10.3	7.3	6.6	6.5	8.2	10.9	11.1	16.8	11.1	10.8	8.9	-	

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.83) and Annualised	Distance Corrected to Nearest Exposure	
57N	391805	234256	23.2	17.7	16.6	14.6	11.6	10.7	12.7	13.7	14.5	17.0	23.1	16.9	16.0	13.3	-	

☒ **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.**

☐ **TBC confirm that all 2023 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 Tewkesbury Borough Council During 2023

Tewkesbury Borough Council has not identified any new source relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Tewkesbury Borough Council During 2023

Tewkesbury Borough Council has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

All diffusion tubes, in 2023, were from Gradko and used a mixture of 50% TEA in acetone method. Gradko International Ltd is a UKAS accredited laboratory. Gradko participates in the AIR Proficiency Testing (PT) scheme for diffusion tubes, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL), which provides a Quality Assurance / Quality Control (QA/QC) framework for local authorities carrying out diffusion tube monitoring as a part of their local air quality management process.

Changeover of the diffusion tubes was completed in accordance with the 2023 national calendar. Diffusion tubes are deployed in accordance with LAQM Guidance to ensure correct installation over the specified exposure time period.

Diffusion Tube Annualisation

Monitoring data capture for 2023 was greater than 75% at all the monitoring locations apart from 37N. The data capture for 37N was higher than 25% for 2023 thus annualisation was performed. This is in accordance with Defra's LAQM.TG22.

Details for the annualisation have been provided in Table C.1.

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

Diffusion Tube ID	Annua-lisation Factor Leominster	Annua-lisation Factor Bristol St. Paul's	Annua-lisation Factor Leamington Spa	Annua-lisation Factor Swindon Walcot	Average Annua-lisation Factor	Raw Data Simple Annual Mean (µg/m3)	Annualised Data Simple Annual Mean (µg/m3)
37N	0.8720	0.8763	0.8538	0.8591	0.8653	22.9	19.8

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_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.

Tewkesbury Borough Council does not undertake any collocation monitoring and have therefore applied a national bias adjustment factor of 0.83 to the 2023 monitoring data. A summary of bias adjustment factors used by Tewkesbury Borough Council over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	09/24	0.83
2022	National	06/23	0.82
2021	National	06/22	0.82
2020	National	03/21	0.89
2019	National	03/21	0.89

Figure C.1 – National Bias Adjustment Factor Spreadsheet (09/24)

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 09/24

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of March 2025

LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1:	Step 2:	Step 3:	Step 4:								
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.								
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data[2]	If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953								
Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in acetone	2023	R	Royal Borough Of Windsor And Maidenhead	11	27	23	21.6%	G	0.82
Gradko	50% TEA in acetone	2023	R	Royal Borough Of Windsor And Maidenhead	12	24	24	0.6%	G	0.99
Gradko	50% TEA in acetone	2023	R	London Borough Of Richmond Upon Thames	11	18	16	15.6%	G	0.86
Gradko	50% TEA in acetone	2023	UB	Westminster City Council	10	29	21	35.1%	G	0.74
Gradko	50% TEA in acetone	2023	R	Westminster City Council	12	40	35	14.6%	G	0.87
Gradko	50% TEA in acetone	2023		Overall Factor[3] (17 studies)				Use		0.83

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 Tewkesbury Borough Council required distance correction during 2023.

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

Figure D.1 – Map of Non-Automatic Monitoring Site (Borough-Wide)

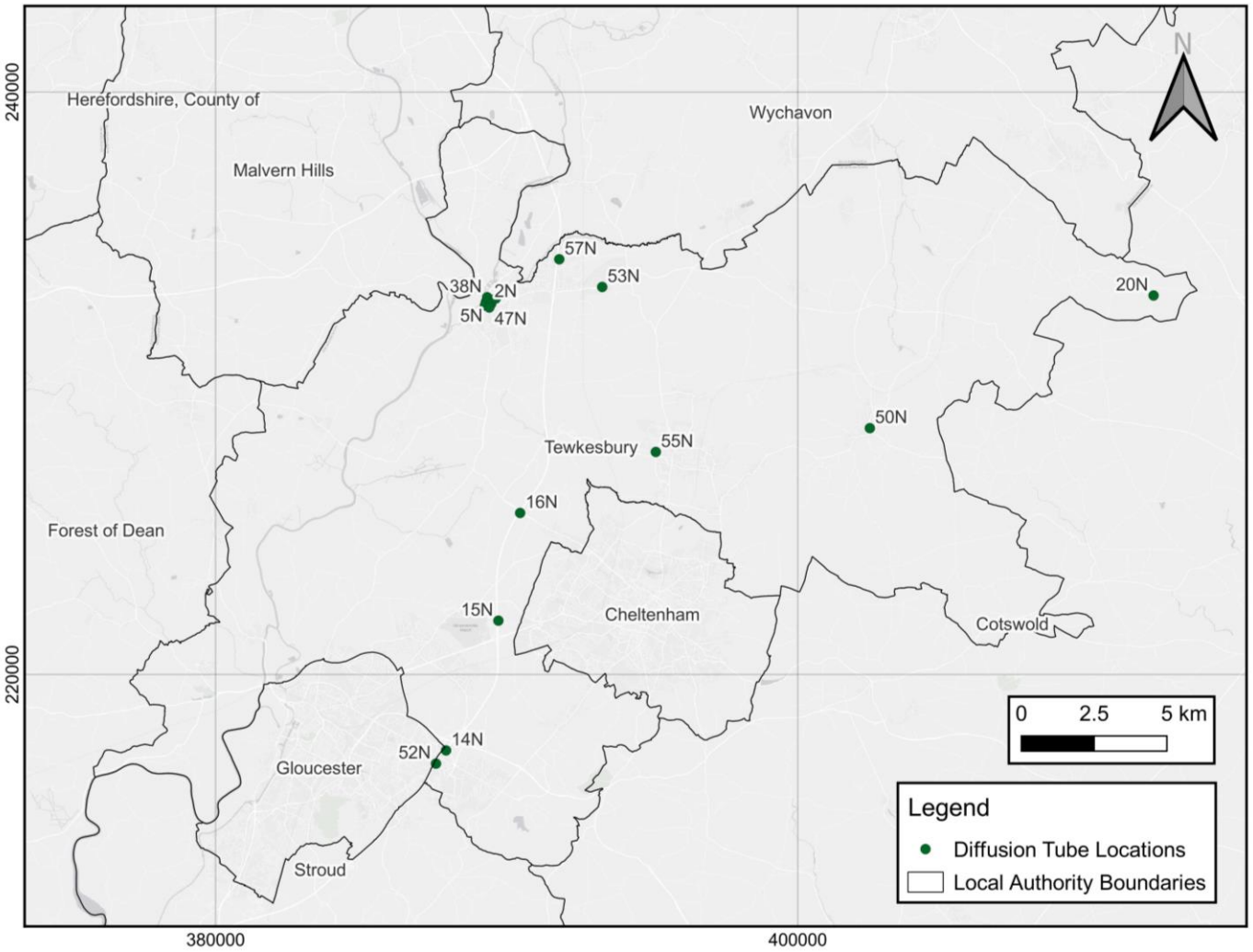
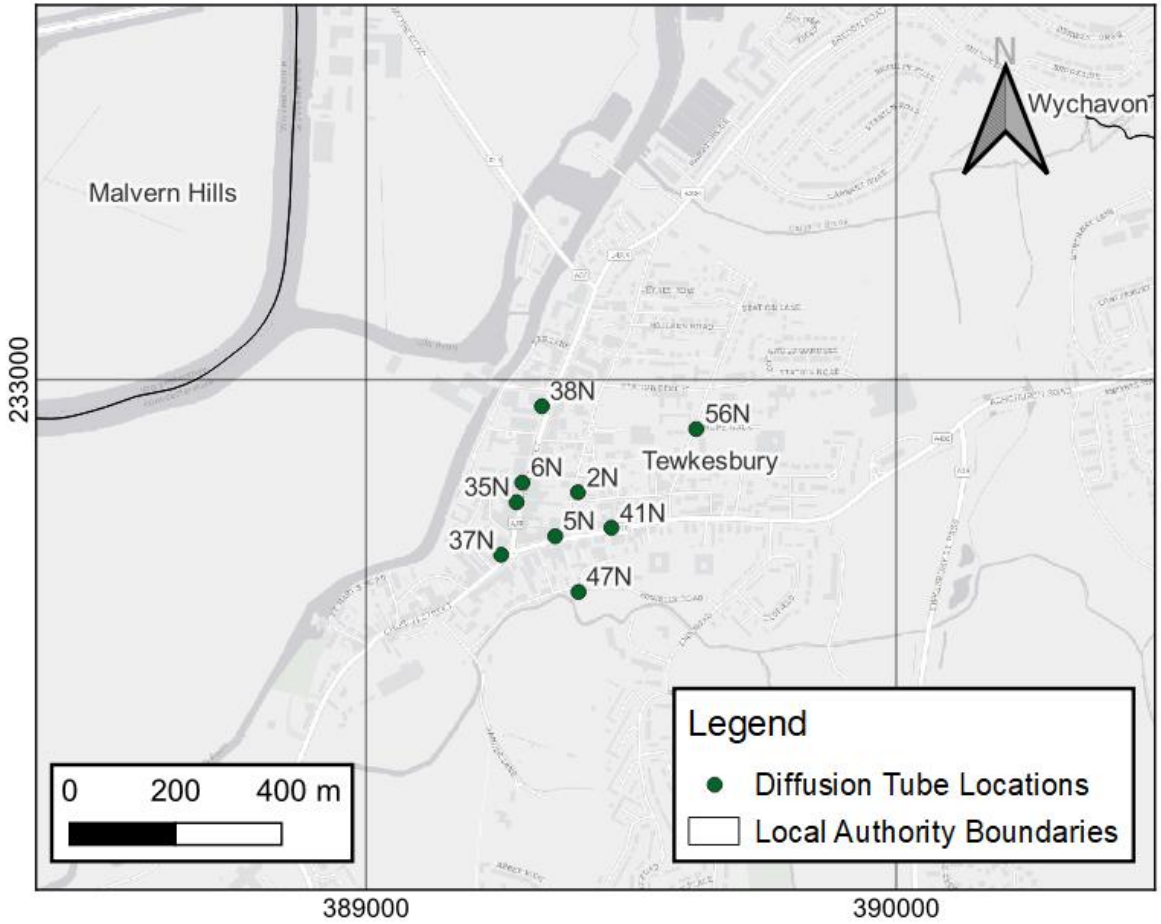


Figure D.2 – Map of Non-Automatic Monitoring Site (Town Centre)



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[13]

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

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

Glossary of Terms

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

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
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- Environmental Improvement Plan 2023, January 2023. Published by Defra.
- The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018. Published by DfT.
- Gloucestershire Local Transport Plan (2020-2041). Published by Gloucester County Council.
- Connecting Place Strategies (CPS). Published by Gloucester County Council.