



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: April, 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Telford & Wrekin

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 year¹.

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 pollution².

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})	<p>Particulate matter is everything in the air that is not a gas.</p> <p>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.</p> <p>PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.</p>

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

Air quality in the borough of Telford and Wrekin is overall very good however there are locations where pollutants build close to the kerbside of busy roads. The main pollutant of concern in the borough is nitrogen dioxide (NO₂) which is mainly linked to road traffic emissions.

The borough of Telford and Wrekin is a predominantly rural area on the north-eastern edge of Shropshire. The borough has a population of 185,600 (2021 census, Office for National Statistics) covering 29,000 hectares with its major settlement being Telford, which incorporated the existing towns of Dawley, Madeley, Oakengates and Wellington upon its construction as a 'new town'.

The M54 traverses the borough across the main central urban area, and the majority of the main roads within the borough are also focussed in this area, including the A41, the A518, the A5, A442, A4169, and the A4640. There is a main railway line crossing the centre of the borough, as well as an unused rail freight terminal.

In 2023 there were 9 Part A2 permitted processes, 1 schedule 13 SWIP and 53 part B permitted processes (including petrol filling stations, dry cleaners and mobile plant) within the borough, which are regulated for emissions to the environment by Telford and Wrekin Council. There are more permitted sites that are regulated by the Environment Agency.

Monitoring undertaken in 2023 for nitrogen dioxide shows that air quality within the borough is below the national objective levels set out in law. Historically there has been a hotspot for higher pollutant levels for nitrogen dioxide at the Mill Bank in Wellington, near to the Watling Street Junction and again at Coach Central, the bus station in Telford Town centre. Neither of these sites are considered to expose the public to long term exposure of pollutants such as a school or a person's home would. Levels at these locations are still below the levels recorded in 2019.

Telford and Wrekin do not have any Air Quality Management Areas but there is an Air Quality Strategy, which ensures that air quality is given due consideration and demonstrates the Council's commitment to air quality review and management. Telford & Wrekin Council have recently reviewed and updated their Air Quality Strategy to ensure that a proactive approach to Air Quality is taken within the borough, the Strategy has been approved by Cabinet in February 2024, details of its implementation and objectives will be included in the ASR for 2024.

Many methods employed to improve air quality are council wide initiatives and cross over a number of teams including Public Protection, Public Health, Transport and Highways, all of these teams are considered stakeholders for the revised Air Quality Strategy and have been instrumental to developing the new strategy and will continue to feed into the strategies implementation and delivery going forward.

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 Plan³ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM_{2.5}), the pollutant of most harmful to human health. The Air Quality Strategy⁴ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁵ details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

During 2022, as part of the air quality strategy review, Telford & Wrekin Council undertook a review of their diffusion tube monitoring locations to ensure that the most relevant data is being captured, the new monitoring locations have been in place since January 2023, this is the full reporting year for these new locations.

Although Telford & Wrekin Council are meeting national air quality objectives and do not have any Air Quality Management Areas (AQMAs) within their borough, Telford & Wrekin

³ Defra. Environmental Improvement Plan 2023, January 2023

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

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

Council do not wish to be complacent in their approach to air quality, particularly given the expectation of new proposed development within the borough and would like to ensure a proactive approach in its efforts to improve air quality, and the inherently linked public health outcomes and narrowing health inequalities, Telford & Wrekin Council have developed a new Air Quality Strategy, for which cabinet approval has been granted in February 2024, to achieve these aims. This is in line with DEFRA guidance which recommends that all local authorities should consider drawing up an Air Quality Strategy.

In September 2022 Telford & Wrekin Council applied for Air Quality Grant funding from Defra to complete a project to monitor air quality (NO₂, PM₁₀, PM_{2.5}, PM₁) at 4 primary schools within the borough. This project has been running since June 2023 and has seen the development and circulation of educational materials to parents of children attending the schools, the delivery of assemblies to the children to raise awareness on Air Quality. The project will also deliver a no car day where emissions will be monitored to demonstrate the impact vehicles have on air quality in June 2024. The funding application also included the procurement of an electric vehicle for use by the Environmental Health Team when conducting air quality monitoring surveys, school visits and other promotional activities. Telford & Wrekin Council were successful in their bid application, the project is in the process of being delivered, with a view to being completed in March 2025.

In September 2023 Telford & Wrekin Council applied for further Air Quality Grant funding from Defra to complete a project to address domestic solid fuel burning, including a review of our 2 smoke control areas, unfortunately Telford & Wrekin Council were unsuccessful in their bid application on this occasion.

Conclusions and Priorities

Monitoring data from 2023 has shown overall that air quality in relation to NO₂ concentrations is fairly stable. NO₂ concentrations are not completely stable and do fluctuate slightly year to year due to many influencing factors i.e. weather conditions and road use, however the levels have remained lower than that of 2019.

Although this year there has been no exceedances of the National Air Quality Objectives, the Council is making progress in identifying areas of poorer air quality within the borough through air quality review. The Council's main priorities for the coming year are to continue diffusion tube monitoring for NO₂. The Council will continue to take a pragmatic approach in addressing any further locations identified to have poorer air quality and where necessary liaise with DEFRA. The main aims for the coming year are;

- Continued implementation of the now approved air quality strategy which includes strengthening links between inequalities of health and air quality, a review of our current LAQM monitoring, a review of planning policy to ensure that Air Quality is appropriately considered during development and an action plan to improve air quality levels in the borough with the ambition of meeting the World Health Organisation's new Air Quality targets.
- The ongoing delivery of an air quality project within 4 schools in the borough aimed at reducing emissions from cars around schools.
- Re-apply for grant funding to raise awareness of particulate matter emissions from domestic solid fuel burning and to allow review of our smoke control areas.
- Continue with parking enforcement across the borough with the intention that parked vehicles do not disrupt traffic flow and cause congestion.
- Continued inspection and maintenance review of the borough cycling and walking routes to identify immediate and longer term improvements as part of the £2.6m Travel Telford Sustainable Transport Fund; and
- Continued consideration and engagement with external stakeholders to improve our electric vehicle charging network across the borough;

Local Engagement and How to get Involved

To reduce air pollution and contribution to clean air everyone living, working and visit the area has the ability to contribute. Every individual and business can promote clean air and help make a difference by considering the following actions:

- Consider using walking, cycling or using public transport for trips including to school, when moving around the borough
- Utilise walking and cycling route maps (available here https://www.telford.gov.uk/downloads/file/1743/walking_and_cycling_map_of_telford_and_wrekin)
- Consider car sharing where possible
- Consider electric/low emission/hybrid vehicle as an option for your next car purchase.
- When travelling by vehicle, try to utilise less busy and congested routes.

- Switch engine off and don't leave it running when your car is waiting stationary.
- Maintain your vehicle by having it serviced regularly and ensure an optimum tyre pressure

For further information please see the information on Telford and Wrekin's website:

http://www.telford.gov.uk/info/20150/pollution/104/air_quality

https://www.telford.gov.uk/info/20465/walking/3621/cycling_and_walking_strategy

Or contact us by phone on 01952 381818

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection Team at Telford and Wrekin Council with the support and agreement of the following officers and departments:

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This ASR has been approved by:

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This ASR has been signed off by a Director of Public Health.

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Table of Contents

Executive Summary: Air Quality in Our Area	i
Air Quality in Telford & Wrekin.....	i
Actions to Improve Air Quality	iii
Conclusions and Priorities	iv
Local Engagement and How to get Involved.....	v
Local Responsibilities and Commitment	vii
1 Local Air Quality Management	1
2 Actions to Improve Air Quality	2
2.1 Air Quality Management Areas	2
2.2 Progress and Impact of Measures to address Air Quality in Telford & Wrekin ..	4
2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations	8
3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance	9
3.1 Summary of Monitoring Undertaken	9
3.1.1 Automatic Monitoring Sites	9
3.1.2 Non-Automatic Monitoring Sites	9
3.2 Individual Pollutants	9
3.2.1 Nitrogen Dioxide (NO ₂)	10
3.2.2 Particulate Matter (PM ₁₀)	10
3.2.3 Particulate Matter (PM _{2.5}).....	10
3.2.4 Sulphur Dioxide (SO ₂).....	10
Appendix A: Monitoring Results	11
Appendix B: Full Monthly Diffusion Tube Results for 2023	18
Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC	20
New or Changed Sources Identified Within Telford & Wrekin During 2023	20
Additional Air Quality Works Undertaken by Telford & Wrekin Council During 2023	20
QA/QC of Diffusion Tube Monitoring	20
Diffusion Tube Annualisation	20
Diffusion Tube Bias Adjustment Factors	20
NO ₂ Fall-off with Distance from the Road.....	21
Appendix D: Map(s) of Monitoring Locations and AQMAs	22
Appendix E: Summary of Air Quality Objectives in England	23
Glossary of Terms	24
References	25

Figures

Figure A.1 – Trends in Annual Mean NO₂ Concentrations.....17

Figure D.1 – Map of Non-Automatic Monitoring Site.....22

Tables

Table 2.2 – Progress on Measures to Improve Air Quality.....6

Table A.2 – Details of Non-Automatic Monitoring Sites11

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)14

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)18

Table C.1 – Annualisation Summary (concentrations presented in µg/m³)20

Table C.2 – Bias Adjustment Factor21

Table E.1 – Air Quality Objectives in England23

1 Local Air Quality Management

This report provides an overview of air quality in Telford & Wrekin 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 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 Telford & Wrekin 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.

Telford & Wrekin Council currently does not have any declared AQMAs. A local Air Quality Strategy is in the process of being implemented to prevent and reduce polluting activities.

The Local Air Quality Strategy is available at

https://www.telford.gov.uk/info/20358/pollution/803/air_quality_-_reviews_and_assessments

Telford & Wrekin Council has monitored NO₂ using diffusion tubes for many years at a range of locations across the borough. Over the period 2016-2023, monitored concentrations ranged from 8-42 µg/m³ as an annual average. However, concentrations at the nearest exposure location were all estimated to be below national air quality objectives and levels have remained under the 2019 values for a number of years now. As such, there are no Air Quality Management Areas (AQMAs) within the borough. This has been supported by Defra's Pollution Climate Mapping (PCM) model, which estimates concentrations on key road links. Whilst NO₂ concentrations in the borough are within national objectives, however they do exceed the WHO 2021 Guideline Level for NO₂ (10 µg/m³ as an annual mean).

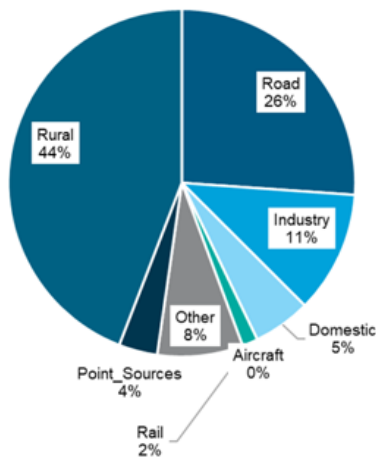
Telford & Wrekin Council does not currently undertake any PM₁₀ monitoring. Defra estimates on average background PM₁₀ and PM_{2.5} concentrations in 2018 were 12.5 µg/m³ and 7.4 µg/m³ respectively, within the UK's national air quality objectives, but exceeding the WHO's 2021 Air Quality Guideline Level for PM_{2.5} (5 µg/m³ as an annual mean).

Defra also uses the background maps to calculate a 'population-weighted' annual mean PM_{2.5} concentration, by local authority area. This figure forms the basis of public health calculations in relation to particulate mortality. In 2018, the population-weighted annual

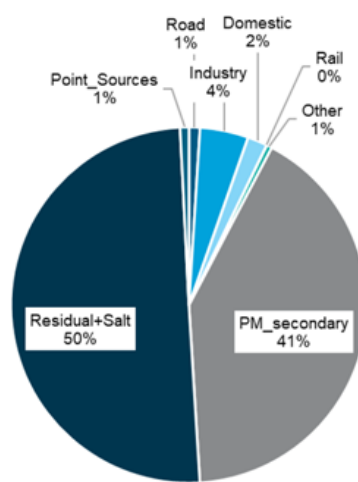
mean PM_{2.5} concentration for Telford & Wrekin was 7.7µg/m³; again, exceeding the WHO’s 2021 Air Quality Guideline Level.

Source apportionment of Defra’s background concentrations shows that concentrations of NO_x, PM₁₀ and PM_{2.5} are affected both by emissions that are produced within the borough itself, as well as more regional sources from beyond the borough’s administrative boundaries. These regional sources are particularly important for PM₁₀ and PM_{2.5}, and highlight the need for collective regional, national and international action on air quality.

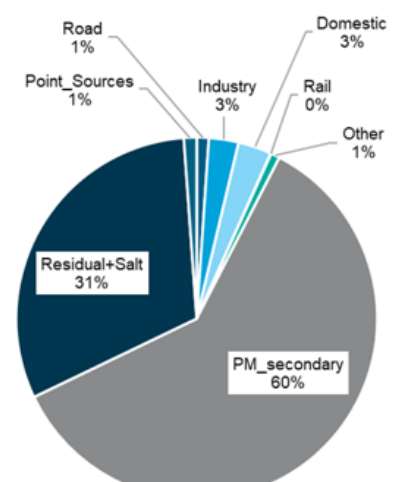
Source Apportionment of NO_x Background Concentrations within Telford & Wrekin 2018 (Defra)



Source Apportionment of PM₁₀ Background Concentrations within Telford & Wrekin 2018 (Defra)



Source Apportionment of PM_{2.5} Background Concentrations within Telford & Wrekin 2018 (Defra)



A further complication for PM₁₀ and PM_{2.5} concentrations, is that they are affected by both ‘direct’ primary emissions, as well as secondary particulates, formed through chemical reactions of precursor pollutants. For example, there is increasing recognition of the role of emissions of ammonia (primarily from agriculture) in the formation of secondary particulate matter in the atmosphere. Reducing PM₁₀ and PM_{2.5} concentrations will therefore require action across a number of sectors.

2.2 Progress and Impact of Measures to address Air Quality in Telford & Wrekin

Defra's appraisal of last year's ASR concluded:

The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports:

1. The Council provide clear maps of the AQMA boundaries and monitoring sites, which is encouraged to continue in future ASRs.
2. In the report, the Council provide a well-presented graph to illustrate the trends in NO₂ concentrations, with robust comparisons to air quality objectives provided.
3. The Council list a number of measures in place to address PM_{2.5} emissions. This includes applying for funding for a project to raise awareness of particulate emissions from solid fuel burning and a review of their smoke control areas. They also refer to the Public Health Outcomes Framework and indicator D01 (the fraction of mortality attributed to particulate air pollution). This shows the Council's dedicated and proactive approach to addressing air quality within their jurisdiction and is to be commended.
4. A detailed list of measures to be completed in the next reporting year is included in the report. This includes the delivery of an air quality project to reduce vehicular emissions at 4 schools within the borough, and the continued development of "Urban Traffic Control"; a Local Authority funded initiative to improve traffic flow and reduce congestion. As above, this highlights the Council's sustained dedicated approach to monitoring and addressing air quality with the borough and is encouraged to continue in the future.
5. The report contains a typographical error on page 8, whereby the Council refer to 2021 data, rather than 2022 data. The Council are encouraged to review the report for such errors and to rectify these prior to submissions of future reports.

Telford and Wrekin has taken forward a single direct measure 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. one measure is included within Table 2.1, with the type of measure and the progress Telford & Wrekin 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.

Telford & Wrekin Council expects the following measures to be completed over the course of the next reporting year:

- Begin to implement the new air quality strategy which includes strengthening links between inequalities of health and air quality, a review of our current LAQM monitoring, a review of planning policy to ensure that Air Quality is appropriately considered during development and an action plan to improve Air Quality levels in the borough with the ambition of meeting the World Health Organisation's new Air Quality targets.
- Continued development of Urban Traffic Control, which is a LA funded initiative to improve traffic flow rates and reduce congestion.
- Continued inspection and maintenance review of the borough cycling and walking routes to identify immediate and longer term improvements as part of the £2.6m Travel Telford Sustainable Transport Fund.
- Ensure air quality comments continue to be provided to the development team of the Local Plan to help prioritise potential development sites and highlight methods to ensure future developments do not negatively impact the local air quality.
- Continued consideration and engagement with external stakeholders to improving our electric vehicle charging network across the borough.
- Continued delivery of an Air Quality project to reduce emissions at 4 schools within the borough.

Whilst the measures stated above will help to contribute towards compliance, Telford & Wrekin Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance, particularly at hotspot locations and continue to improve air quality across the Borough of Telford & Wrekin as a whole, it is hoped that this will be achieved through the implementation of our new Air Quality Strategy and associated Air Quality Action Plan.

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	Reducing Emissions Around Schools	Promoting Travel Alternatives	School Travel plans	2023	2025	Local Authority Environmental Health, Local Authority Highways Dept.	Defra AQ grant funding & match funding from Telford & Wrekin Council	Yes	Funded	£100K - £500k	Implementation	Unknown at this stage	% reduction of pollutants measured	Questionnaires have been completed with students and parents. Air Quality workshops and assemblies have been delivered within the schools.	The project will continue to be delivered over the coming months with a view to the project being completed by March 2025.
2	Public EV chargepoint Scheme in Council owned car parks	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023	2026	Local Authority, Chargepoint Operator	On-street Residential Chargepoint Scheme - Office for Zero Emission Vehicles & match from Chargepoint Operator (private investment)	NO	Funded	£1 million - £10 million	Planning	Unknown	Number of EV chargepoint sockets	Bid submitted beginning of 2023 for the installation of 140 sockets in locations identified through detailed analysis. Funding was awarded in March 2023 to support residential charging. Competitive tender undertaken in Summer 2023. Through this opportunity the chargepoint operator bid included the installation of additional EV chargepoints across the Borough. The number of sockets will be in excess of 200. Currently in the planning stages of installation of EV chargepoints.	The installation of EV chargepoints will take place over the next two years (2024-2026) with priority given to the locations identified in the bid which received grant funding. These EV chargepoints must be completed by March 2025.

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
3	Local EV Infrastructure Scheme	Promoting Low Emission Transport	Procurng alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023	2030	Local Authority, Midlands Connect	LEVI Fund - Office for Zero Emission Vehicles & match from chargepoint operator when appointed	NO	Funded	£1 million - £10 million	Planning	Unknown	Number of EV chargepoint sockets	T&WC are part of Midlands Connect LEVI consortium. We are currently working towards stage 2 approval from LEVI.	Following stage 2 approval, procurement is planned for summer 2024. If successful, the project will move to stage 3 in September 2024 for LEVI approval and award of contract. The first on-street EV chargepoints would then be installed from 2025 onwards. The largest risk is an unsuccessful procurement exercise and not securing an operator for the consortium.
4	Active SMiles	Promoting Travel Alternatives	Promotion of cycling	2022	2024	LA Health Protection Hub	Health and Wellbeing	NO	Funded	< £10k	Completed	Unknown at this stage	Miles converted to active travel	Nearly 2000 miles of car commutes converted to active commutes over several month-long runs of the scheme	Extremely well-received by participants

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 Strategy⁶, 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.

Telford & Wrekin Council is taking the following measures to address PM_{2.5}:

PM_{2.5} emissions are regulated across the Borough through various legislative framework. This includes the LAPPC and LA-IPPC regimes under the provision of the Environmental Permitting (England and Wales) Regulations 2016 and smoke control areas brought in under the Clean Air Act 1993. More information relating on the locations of Telford and Wrekin Council Smoke Control Areas are found here:

https://www.telford.gov.uk/info/20358/pollution/1038/smoke_control_zones/2

Telford & Wrekin Council applied for funding from Defra to undertake a project to review their smoke control areas, unfortunately the funding was not granted on this occasion. Telford & Wrekin Council will review the bid application in line with DEFRA's comments/feedback and resubmit when bid applications open again.

In considering the need for additional actions relating to PM_{2.5} it is noted that the Public Health Outcomes Framework Indicator number 3.01 – Fraction of mortality attributable to particulate air pollution for the borough of Telford and Wrekin was noted to be 4.8% in 2022/23-2023/24. This is the third lowest for the whole of the West Midlands region which has an average of 5.7% for 2022/23-2023/24. The two authorities, both with lower values of 4.4% in Shropshire Council and 4.5% in Herefordshire. The West Midlands figure is the same as England's average of 5.8%. As the PHOF indicator for PM_{2.5} shows the mortality due to human-made PM_{2.5}, the fraction is significantly below the national and regional levels and as such it is not considered necessary for any specific actions to be carried out while there are other non-specific interventions taking place which will contribute to reducing anthropogenic PM_{2.5}. However, evidence suggests there is no safe exposure

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

level to PM_{2.5} and in order for Telford and Wrekin to meet national targets there is a commitment to not be complacent, particularly with regard to addressing inequalities within the borough.

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

This section sets out the monitoring undertaken within 2023 by Telford & Wrekin 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

Telford & Wrekin Council does not have any automatic monitoring sites.

3.1.2 Non-Automatic Monitoring Sites

Telford & Wrekin Council undertook non-automatic (i.e. passive) monitoring of NO₂ at 23 sites during 2023. Table A.1 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO₂)

Error! Reference source not found. and Table A.2 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 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.

Error! Reference source not found. in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

3.2.2 Particulate Matter (PM₁₀)

Telford & Wrekin Council do not currently monitor for this pollutant. There is no evidence that PM₁₀ annual mean concentrations for the past 5 years is likely to exceed the air quality objective of 40µg/m³.

3.2.3 Particulate Matter (PM_{2.5})

Telford & Wrekin Council do not currently monitor for this pollutant.

3.2.4 Sulphur Dioxide (SO₂)

Telford & Wrekin Council do not currently monitor for this pollutant. There are no concerns that air quality objectives for SO₂ are likely to be exceeded.

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) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
4	Wellington Road (A518)/ Barrack Lane, Newport	Roadside	373202	316555	NO2	NO	5.1	1.6	No	2.3
7	Haybridge Road, Hadley	Roadside	366626	311627	NO2	NO	10.0	2.5	No	2.5
8	Watling Street, Wellington - Outside Swan.	Roadside	365918	311056	NO2	NO	5.4	2.0	No	2.6
9	Mill Bank, Wellington	Roadside	365820	311096	NO2	NO	2.8	1.5	No	2.3
13	Watling Street/Regent Street, Wellington	Roadside	366096	311071	NO2	NO	4.4	3.8	No	2.4
15	Newdale/Lawley Junction	Kerbside	367521	308766	NO2	NO	11.2	1.0	No	2.6
22	Stafford Road, Oakengates	Roadside	369674	311159	NO2	NO	2.0	1.2	No	2.3
23	Cockshutt Road/Station Hill, Oakengates	Roadside	369831	310984	NO2	NO	4.0	1.5	No	2.3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
24	Chapel Terrace, Oakengates	Roadside	370132	312268	NO2	NO	15.0	1.3	No	2.2
25	Wellington Road, Newport	Roadside	374394	318413	NO2	NO	12.0	2.5	No	2.2
26	Jubilee Terrace, Trench Road	Roadside	368465	312616	NO2	NO	10.0	2.6	No	2.3
27	Ryebank Road, Ketley Bank	Suburban	368899	310031	NO2	NO	8.0	1.5	No	2.2
28	Garfield Road, Overdale	Roadside	368310	310051	NO2	NO	23.0	2.5	No	2.2
29	Ironbridge Road, Madeley	Roadside	368532	304237	NO2	NO	8.0	3.4	No	2.3
30	Southwater Square	Urban Centre	369832	308596	NO2	NO	8.0	80.0	No	2.3
31	Berkeley Close, Priorslee	Suburban	371717	310838	NO2	NO	5.0	1.8	No	2.3
32	Priorslee Avenue, Priorslee	Roadside	371243	309903	NO2	NO	45.0	1.5	No	2.2
33	Shifnal Road, Priorslee	Suburban	371038	309495	NO2	NO	8.0	0.8	No	2.3
34	A41, Newport	Roadside	375694	319290	NO2	NO	56.0	3.3	No	2.2
35	Downmead, Hollinswood	Suburban	370530	308551	NO2	NO	9.0	0.4	No	2.3
36	Bridge Road, Horsehay	Suburban	367510	307324	NO2	NO	14.0	1.5	No	2.2

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
37	Grainger Drive/Kingfisher Way, Apley	Roadside	365630	312671	NO2	NO	27.0	1.7	No	2.3
38	Apley Avenue, Wellington	Roadside	365221	312473	NO2	NO	20.0	3.0	No	2.3

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
4	373202	316555	Roadside	100.0	84.6	17.0	12.3	12.6	12.2	15.8
7	366626	311627	Roadside	100.0	84.6		24.3	24.8	22.0	20.9
8	365918	311056	Roadside	100.0	84.6	31.2	24.6	27.4	25.4	25.3
9	365820	311096	Roadside	100.0	84.6	40.0	28.4	33.5	32.1	30.9
13	366096	311071	Roadside	100.0	84.6	32.2	23.9	25.8	24.1	23.8
15	367521	308766	Kerbside	100.0	84.6	15.7	11.9	12.4	11.1	9.6
22	369674	311159	Roadside	100.0	84.6					16.9
23	369831	310984	Roadside	100.0	84.6					21.4
24	370132	312268	Roadside	100.0	84.6					14.2
25	374394	318413	Roadside	90.6	76.9					12.2
26	368465	312616	Roadside	90.9	76.9					18.3
27	368899	310031	Suburban	100.0	84.6					14.5

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 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
28	368310	310051	Roadside	100.0	84.6					13.6
29	368532	304237	Roadside	100.0	84.6					18.1
30	369832	308596	Urban Centre	79.6	67.3					11.4
31	371717	310838	Suburban	100.0	84.6					11.1
32	371243	309903	Roadside	100.0	84.6					12.7
33	371038	309495	Suburban	88.3	75.0					14.6
34	375694	319290	Roadside	100.0	84.6					22.6
35	370530	308551	Suburban	88.7	75.0					11.2
36	367510	307324	Suburban	68.0	57.7					8.9
37	365630	312671	Roadside	82.2	69.2					16.6
38	365221	312473	Roadside	88.7	75.0					20.6

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

Diffusion tube data has been bias adjusted.

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

Notes:

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

Exceedances of the NO_2 annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

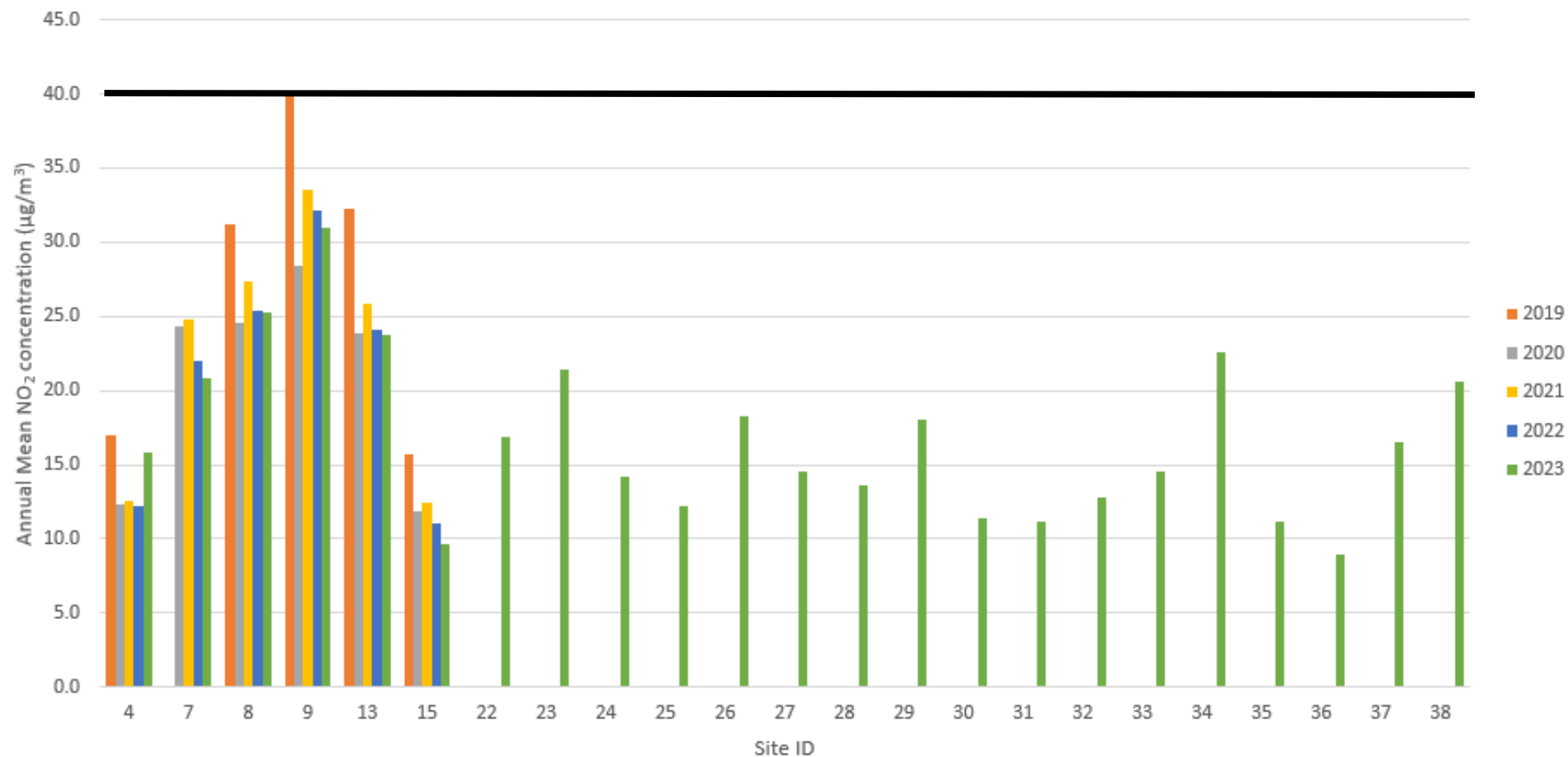
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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 NO₂ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
4	373202	316555		24.2	18.4	18.1	19.5	17.6	14.1	16.8	18.8	20.8	27.0		19.5	15.8	-	
7	366626	311627		27.8	25.5	27.1	24.1	22.0	20.9	23.8	25.8	28.4	32.6		25.8	20.9	-	
8	365918	311056		33.5	30.9	32.9	30.8	29.5	23.7	27.2	32.3	35.3	35.8		31.2	25.3	-	
9	365820	311096		42.5	36.7	40.2	34.9	34.3	32.3	32.9	41.2	42.3	44.5		38.2	30.9	-	
13	366096	311071		28.3	30.0	32.4	27.9	31.3	21.5	24.8	31.7	34.2	31.5		29.3	23.8	-	
15	367521	308766		13.8	12.0	12.3	10.2	9.7	7.2	9.6	11.1	15.5	17.3		11.9	9.6	-	
22	369674	311159		23.9	21.4	22.5	16.9	18.1	13.6	17.0	23.0	26.5	25.7		20.9	16.9	-	
23	369831	310984		34.3	25.9	23.7	22.0	22.1	24.8	23.5	28.4	27.3	32.5		26.5	21.4	-	
24	370132	312268		21.9	17.9	17.7	14.1	14.0	11.5	14.3	19.0	20.1	24.7		17.5	14.2	-	
25	374394	318413		18.3	15.9	14.8	12.0	13.2	9.2	10.8		19.1	21.9		15.0	12.2	-	
26	368465	312616			26.4	23.1	19.5	15.9	16.7	20.2	23.1	27.6	31.0		22.6	18.3	-	
27	368899	310031		23.0	19.1	17.0	11.4	12.3	13.9	16.1	19.5	23.5	23.9		18.0	14.5	-	
28	368310	310051		18.7	17.2	18.4	16.3	15.3	9.7	13.5	16.6	19.5	22.6		16.8	13.6	-	
29	368532	304237		23.4	22.6	22.3	18.3	20.0	17.0	20.4	24.6	27.5	27.0		22.3	18.1	-	
30	369832	308596			14.0	14.2	12.3	12.3	6.6		11.3	17.2	21.4		13.7	11.4	-	
31	371717	310838		19.5	15.4	13.5	10.7	9.0	8.6	10.2	12.4	16.9	21.2		13.7	11.1	-	

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
32	371243	309903		21.4	17.3	14.8	10.9	11.4	10.6	10.6	16.5	19.4	24.4		15.7	12.7	-	
33	371038	309495		22.0		16.8	12.7	12.9	15.4	14.7	19.9	21.7	25.7		18.0	14.6	-	
34	375694	319290		30.6	28.0	27.5	27.7	25.6	24.0	21.4	30.1	30.3	34.2		27.9	22.6	-	
35	370530	308551		18.1	14.5	14.0	10.6	9.6	7.6		12.9	16.6	20.4		13.8	11.2	-	
36	367510	307324		12.9	11.7	12.3	8.9		6.6			14.0	16.5		11.8	8.9	-	
37	365630	312671			21.7		14.1	15.2	14.1	15.6	21.3	23.1	26.7		19.0	16.6	-	
38	365221	312473		28.5	25.3	27.1	21.4	27.5	15.4	21.8	30.3	31.0			25.4	20.6	-	

All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.

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

Local bias adjustment factor used.

National bias adjustment factor used.

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

Telford & Wrekin Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Telford & Wrekin During 2023

Telford & Wrekin Council has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by Telford & Wrekin Council During 2023

Telford & Wrekin Council has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

Details in relation to the aspects of non-automatic (i.e. passive) monitoring using diffusion tubes are as follows:

- Supplier – Gradko
- Preparation method - 20% TEA in water;
- Monitoring has been completed in adherence with the 2023 Diffusion Tube Calendar

Diffusion Tube Annualisation

Table C.1 – Annualisation Summary (concentrations presented in $\mu\text{g}/\text{m}^3$)

Site ID	Annualisation Factor Burton-on-Trent Horninglow	Annualisation Factor Telford Hollinswood	Annualisation Factor <Site 3 Name>	Annualisation Factor <Site 4 Name>	Average Annualisation on Factor	Raw Data Annual Mean	Annualised Annual Mean
30	1.0442	1.0175			1.0308	13.7	14.1
36	0.9459	0.9105			0.9282	11.8	11.0
37	1.0777	1.0754			1.0766	19.0	20.5

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

Telford & Wrekin Council have applied a national bias adjustment factor of 0.81 to the 2023 monitoring data. A summary of bias adjustment factors used by <Telford & Wrekin 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	03/24	0.81
2022	National	03/23	0.83
2021	National	03/22	0.84
2020	National	03/21	0.81
2019	National	06/20	0.92

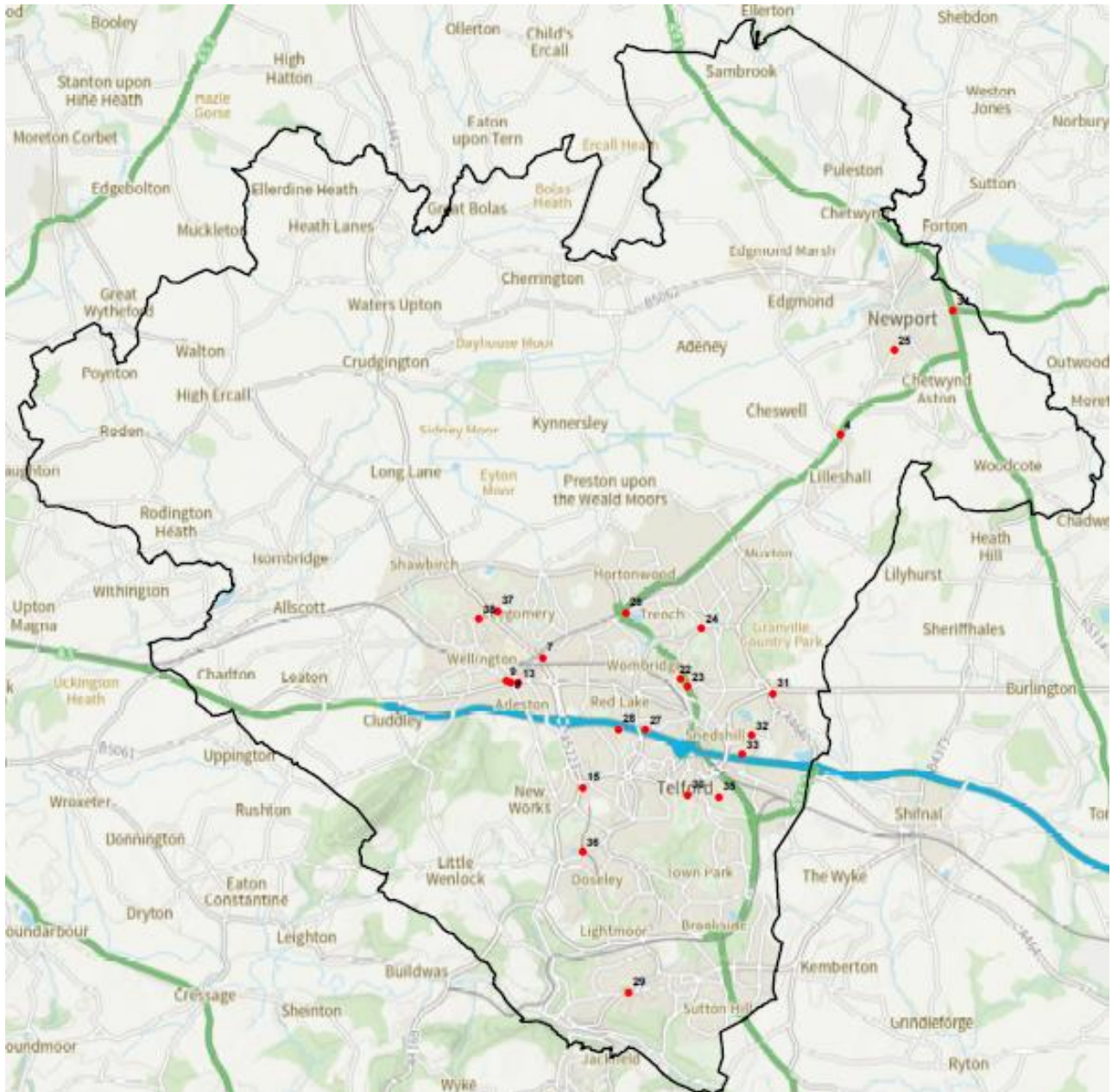
NO₂ Fall-off with Distance from the Road

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

No diffusion tube NO₂ monitoring locations within Telford & Wrekin Council required distance correction during 2023.

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

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



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

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

⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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.
- 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.