2025 Air Quality Annual Status Report (ASR)

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

Date: June 2025

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Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection Department of Warwick District Council.

This ASR has been approved by:

- Jim Sinnott – Warwick District Council Portfolio Holder for Safer, Healthier and Active Communities
- Marianne Rolfe – Warwick District Council Head of Community Protection
- Warwickshire County Council – Public Health
- Warwickshire County Council – Transport
- Neighbouring Local Authorities – Nuneaton and Bedworth Borough Council, Solihull Metropolitan Borough Council, Coventry City Council, Rugby Borough Council, North Warwickshire 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 Emily Woodhouse at:

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Executive Summary: Air Quality in Our Area

Air Quality in Warwick District Council

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

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

Table 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.

The main pollutants of concern in Warwick District are nitrogen dioxide (NO_2) and particulate matter (PM). These pollutants are primarily associated with road traffic – particularly on busy roads and in areas where traffic queues regularly – as well as emissions from domestic burning. The main concern is centred on housing that is in close proximity to main traffic routes with high levels of queuing traffic, particularly around busy

junctions and traffic lights. Current hotspots include W13, a high-traffic intersection in Leamington Spa which is in the Leamington Air Quality Management Area (AQMA).

During the covid-19 pandemic there was a drop in NO_2 diffusion tube and automatic station monitoring results. This has been sustained and there has been a general decline in levels of NO_2 and PM_{10}. No monitoring stations exceeded the national standards in 2024.

We have continued to work closely with neighbouring authorities in 2024 including Warwickshire County Council and government agencies. Joint projects have included the introduction of zero-emission (ZEBRA) buses in a joint bid with WCC.

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[1] 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[2] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[3] 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.

Warwick District Council continued to implement and pursue measures to improve air quality during 2024. Key completed measures are as follows:

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

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

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

- Development of the updated Air Quality Action Plan (AQAP) outlining the actions that WDC will take over the next 5 years in order to improve air quality across the district . This will be published in 2025 following a public consultation
- Installation of three real-time air quality sensors placed within the Leamington Spa AQMA to monitor PM and NOx emissions
- Following the observed year on year improvements in air quality, WDC will take steps to revoke the Warwick AQMA. The last exceedance of air quality objectives in this AQMA was recorded in 2019.
- £300,000 was contributed towards the Zero Emission Bus Regional Areas (ZEBRA) scheme in partnership with Warwickshire County Council and the Department for Transport. This will fund the introduction of electric buses onto the number 1 route which runs through both of the AQMAs declared by WDC.

Conclusions and Priorities

Monitoring locations across the district show a sustained improvement in air quality. Site W13, a monitoring location within the Leamington Spa AQMA which has exceeded air quality standards for many years, has now been compliant for two years with an annual average of 30.9 in 2024.The Warwick AQMA has been compliant with air quality standards for the previous 5 years, and we are planning to revoke this imminently.

Warwick District Council's (WDC's) Air Quality Action Plan (AQAP) has been accepted by DEFRA in draft form in November 2024 to replace the previous action plan from 2015. This incorporates updated information on the actions being carried out by WDC to improve air quality across the district. We aim for this to be published in September 2025.

How to get Involved

All enquiries pertaining to air quality should be directed to the Environmental Protection Section, either by email (pollution@warwickdc.gov.uk) or by phone (01926 456725).

An air pollution page is available on the Council website, all statutory reports and up to date information is uploaded to, and presented within this page. Additionally, the Active Travel website is available via WCC to provide information on sustainable modes of transport within the district. Information and maps showing the locations of EV charging points are also now available on the Council's website. All Warwick District Council residents can help to improve air quality in the borough by choosing sustainable travel alternatives such as walking, cycling or using public transport. Warwickshire and Coventry have an ongoing carsharing programme, available online via the Carshare Warwick website.

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1 Local Air Quality Management

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

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

A summary of AQMAs declared by Warwick District Council can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within Warwick District. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designation is as follows:

- NO_2 annual mean; and
- NO_2 1-hour mean

We propose to revoke the Warwick AQMA (see Appendix G for a detailed assessment of the current AQMAs) following a review of air quality in the area covered by this AQMA and a direction from DEFRA. Nitrogen dioxide levels have been consistently below the national standard for the last 5 years, and this AQMA will be revoked to allow full focus on improving air quality in the remaining AQMA.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Leamington Spa AQMA	Dec-04 Amended 2014	NO_2 Annual mean	An area of South Town, Leamington Spa, centered on High Street, Clemens Street and Bath Street.	NO	52.9µg/m^3	30.9µg/m^3	2 years	Air Quality Action Plan: Warwick District Council. Published June 1st 2015. Currently being revised.	Visit the AQAP for the Leamington Spa AQMA
Warwick AQMA	Dec-04 Amended 2008	NO_2 Annual and 1-Hour Mean	An area in the center of Warwick, encompassing properties along High Street, Jury Street, Bowling Green Street, Theatre Street, Northgate, The Butts, Smith Street, Church St and part of Saltisford, and also including a number of	NO	58.3µg/m^3	24.5µg/m^3	5 years	Air Quality Action Plan: Warwick District Council. Published June 1st 2015. Currently being revised	Visit the AQAP for the Warwick AQMA

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
			nearby properties.						

☒ **Warwick District Council confirm the information on UK-Air regarding their AQMA(s) is up to date**

☒ **Warwick District Council confirm that all current AQAPs have been submitted to Defra**

2.2 Progress and Impact of Measures to address Air Quality in Warwick District Council

Defra's appraisal of last year's ASR concluded that the report was well-structured and details. Issues to be addressed included:

- Example rows from the template were included in Table 2.2 This has been rectified in this report, and they have been removed.
- The figures included in Appendix D showing the location of each monitoring site and the AQMA did not include labels on the monitoring site meaning it was not possible to identify which site this was. Labels have been added to the maps of the AQMAs so these can be identified.
- Some of the concentrations in Table 2.1 did not match the concentrations reported in the excel template. This data is now consistent throughout the ASR and the excel template.

Warwick District Council has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 33 measures are included within Table 2.2, with the type of measure and the progress Warwick District Council have made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans. Key completed measures are:

- Installation of 3 Airly air quality sensors in the high pollution area around Bath Street/High Street in Leamington Spa. These provide real-time data for NOx and particulate emissions.
- Provision of a £300,000 grant to Warwickshire County Council for the introduction of electric buses and associated charging infrastructure to serve bus route 1 which runs through both AQMAs.
- Funding for a closed-road cycle event on Clean Air Day (Sunday June 16th 2024) to promote active travel in the community

Warwick District Council expects the following measures to be completed over the course of the next reporting year:

- Publication of the updated Air Quality Action Plan in partnership with WDC stakeholders.
- Legal steps to be undertaken for the revocation of the Warwick AQMA.
- Focus measures on the Leamington Spa AQMA. The real-time sensors will provide more detailed information.
- Steps to be taken to introduce a new, district-wide smoke control area (SCA) to provide consistently across the district
- Publication of an Air Quality Mission Statement, setting out the strategic priorities chosen by the cabinet of Warwick District Council

Warwick District Council's priorities for the coming year are:

- Completion of the 2025 AQAP. The previous version is out-of-date and does not reflect the current state of air quality in the district
- Focus on measures which will support active travel in the district to promote alternative forms of transport to private cars
- Produce a public awareness campaign to encourage residents to think about air pollution and the actions they can take to reduce air pollution

Warwick District Council worked to implement these measures in partnership with the following stakeholders during 2024:

- Warwickshire County Council
- Department for Transport
- Clean Air Warwickshire

The principal challenges and barriers to implementation that Warwick District Council anticipates facing are limitations of funding required to complete all the desired projects, and the capacity for staff to implement projects.

Progress on the following measures has been slower than expected due to:

- lack of resources

    - including the capacity of officers
- funding
- Requirement for coordination with neighbouring local authorities

Warwick District Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in the remaining two AQMAs, namely Leamington Spa AQMA and Warwick AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Continuation of monitoring within Warwick District Council, focussed on AQMAs, but also in other strategic locations	N/A	N/A	Ongoing	Ongoing	WDC	WDC	Funded (S106 contributions)	£950 for new air quality monitors	Implementation	n/a	n/a	Monitoring results reported in this report. Three additional real-time air quality monitors have been introduced near the Bath Street Junction in Leamington Spa to provide further monitoring of this AQMA (See Appendix F for a map of the locations of these monitors).	Ongoing
2	Work towards implementing Park and Ride south of Warwick and Leamington.	Alternatives to private vehicle use	Bus based Park & Ride	Ongoing	Ongoing	WDC, WCC, Developers	Developer S106 Funded	Part funded	>£10 million	Planning	Difficult to quantify, but should increase bus patronage, hence reducing vehicle emissions within the AQMAs	Implementation of P&R	500 space park and ride scheme at Europa Way has been committed and is required to be developed prior to occupation of residential development along this corridor. Collaboration between WDC as planning authority, WCC as Transport Authority and Developer. Discussions ongoing. Needs to be implemented in combination with parking charge increases in town centre (which is WDC issue). There have been various car parks redeveloped, reducing parking provision overall.	Some of the assumptions on which P&R have been based (through feasibility study) may need to be reviewed in light of future working patterns for key employers in the area post-Covid. Ideally should be implemented with electric bus fleet (not agreed). Collaboration between developer, WCC and WDC. Could be the subject of a future funding bid application to contribute towards the cost of operating all-electric buses should funding streams become available virtue of the Government. The scheme is subject to a reserved matters planning application which is currently being determined by WDC
3	Area wide improvements to walking and cycling infrastructure	Promoting travel alternatives	Promotion of Cycling and Promotion of Walking	Ongoing	Ongoing	WDC, WCC	WCC, possible CIL contribution to some schemes	Part-funded	-	Implementation	Reduced emissions from private vehicle use	N/A	1 .Corridor Improvements commenced in May 2018 and are ongoing. 2. Shared use cycle path created on Priory Road, Warwick. 3. Improvements to the Myton Footpath are being assessed 4. Proposed new	Europa Way corridor improvements are ongoing with section between Tachbrook Park Road and Olympus Avenue now open. The Stanks Island scheme in Warwick is complete including improved cycle connectivity

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													cycle path in Abbey Fields (Kenilworth) 5. Stage 1 of K2L delivered along Kenilworth Road between Clarendon Avenue and Northumberland Road 6. First phase of Harbury Lane cycle route delivered between Tachbrook Road and Earl Rivers Way 7. First phase of Coventry Road scheme in Warwick delivered between St John's and canal.	
4	Prioritise and implement projects as set out in the Local Cycling and Walking Infrastructure Plan	Promoting Travel Alternatives	Promotion of cycling	Ongoing	2034	WCC, WDC	TBC	Funded by WCC	-	Planning	N/A	Projects completed	Warwickshire Local Cycling and Walking Infrastructure Plan was adopted in February 2024. The LCWIP reviews and updates the walking and cycling network development plans for each of the five boroughs and districts and sets out proposals and priorities for a countywide programme of walking, wheeling and cycling schemes for the next 10 years and beyond.	Over 300 LCWIP schemes: implementation is dependent on external funding.
5	Smarter Choices and Travel Planning programme	Promoting Travel Alternatives	School Travel Plans and Workplace Travel Planning	Ongoing	Ongoing implementation of schemes	WCC	WCC, DfT	-	-	Implementation	Reduced emissions from private vehicle use	N/A	1. Engagement with large employers at Warwick Technology Park in relation to active travel. A lift share scheme introduced by local employer Wolseley has proved to be successful, with significant uptake by employees. WCC have since taken this example of a successful scheme to the Coventry and Warwickshire LEP and have promoted the concept to other	WCC's Road Safety Education continue to engage with employers and schools to promote active travel in partnership with road safety initiatives.

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													local companies. 2. Active travel website is operational and being maintained.	
6	Targeted bus stop infrastructure upgrades on key public transport corridors	Transport Planning and Infrastructure	Bus Route Improvements	Ongoing	Ongoing implementation of schemes	WCC, DfT, WDC, Stagecoach	WCC, DfT, WDC, Stagecoach	Fully funded	£4,277, 261 (+ £300,000 contribution from WDC)	Implementation	Difficult to quantify, but should increase bus patronage, hence reducing vehicle emissions within the AQMAs	Delivery of full scheme in partnership with WCC and CCC.	WCC has been successful in obtaining funding from DfT for electric buses to be introduced on cross boundary routes between Warwick, Leamington and Coventry as part of the Coventry All Electric Bus City (CEBC) project. The buses will be rolled out by 2025/26. Additional DfT funding has been secured for 10 electric buses to be rolled out on town services (service no. 1 and 67) in Leamington and Warwick in 2025/26 as part of a wider WCC funding bid. As part of this project, WDC have approved a £300,000 grant to support the project and provide electric buses on the number 1 bus route which runs through both AQMAs monitored by WDC.	Feasibility work has been undertaken to upgrade bus infrastructure along key corridors as part of a wider Quality Bus Corridor (QBC) initiative
7	Hearts and Minds campaign to encourage modal shift away from private car use	Public Information	Other	Ongoing	Ongoing campaigns	WCC	WCC, S106 monies	WCC	-	Implementation	Reduced emissions from private vehicle use	N/A	WCC Public Health actively promote air quality awareness on social media to inform the public of the effects of poor air quality and how this can be improved.	The 'Choose How You Move in Warwick District' programme, in conjunction with Betterpoints has now been suspended.
8	Schools' education campaign to promote anti-idling initiatives	Public Information	Other	Ongoing	Unknow at this time	WDC, Clean Air Warwickshire	WDC	-	-	Planning	Reduced emissions surrounding schools	N/A	WDC are investigating the feasibility of an anti-idling campaign in schools which may include posters outside common areas for idling and leaflets which can be passed on to parents.	Enforcement of anti-idling is not being considered as this is not considered to be feasible.

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9	Publicising CarShare Coventry and Warwickshire	Alternatives to private vehicle use	Car and lift sharing schemes	Ongoing	Ongoing	WCC	WCC	Part-funded	-	Implementation	Reduced emissions from private vehicle use	Number of car clubs available in the district.	The CarShare Coventry and Warwickshire website and the Active Travel website publicise car sharing opportunities in local organisations (e.g. South Warwickshire NHS Foundation Trust, Coventry City Council). WCC have presented to the Cov and Warks LEP with a view to expanding the scheme to other local employers. Signage in Leamington Spa and Warwick being explored to further promote scheme	Many companies still operating a hybrid working policy for their employees, reducing the number of employees commuting to Warwick.
10	Supporting future opportunities for funding for Low Emission Vehicles, in particular for vehicle charging infrastructure	Promoting Low Emission Transport	n/a	Ongoing	Ongoing implementation	WDC / WCC	WCC, OLEV grant	Part-funded	-	Implementation	Reduced emissions from private vehicle use	Number of EV charging points available on WDC-owned land. Number of visits per charge point.	WCC currently developing an Electric Vehicle Charging Strategy. OLEV funding secured for approximately 100 twin-headed charging points to be installed across Warwickshire. Five of WDCs off-street carparks have electric vehicle charging infrastructure; this was funded by the OZEV electric vehicle ChargePoint grant.	Further funding has been secured from the LEP which will allow charging points to be introduced in on-street locations within the District. The on-street locations are currently being finalised.
11	Use of the planning system to ensure a more widespread infrastructure for low emission vehicles	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	Ongoing implementation	WDC	WDC	-	-	Implementation	Reduced emissions from private vehicle use	N/A	Implementation of Low Emission Strategy Guidance, and more recently WDC's Air Quality Supplementary Planning Document which was adopted by WDC in 2019. The SPD requires developers to use reasonable endeavours to minimise emissions and, where necessary, offset the impact of development on the environment.	EV infrastructure continues to be sought and implemented as part of the planning process and in line with the Air Quality SPD.

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12	Moving the Warwick DC fleet to electric vehicles where practicable	Promoting Low Emission Transport	Public Vehicle procurement	Ongoing	Vehicles in place as of 2016. Ongoing commitment where feasible	WDC	WDC, grant funding	Funded	-	Implementation	Reduced emissions from WDC vehicles	N/A	There are currently 13 electric vehicles available to WDC increased to be used by Lifeline, Housing, Planning and Neighbourhood Services. This accounts for >85% of the fleet of vehicles available to the council.	There are no chargers at council buildings as these are leased buildings. This may make charging more complicated. Each team has their own vehicles rather than an overall fleet strategy.
13	Working with Warwickshire County Council and bus operators to encourage lower emission buses (either retrofitting existing buses or use of alternative fuels).	Vehicle fleet efficiency	Promoting Low Emission Public Transport	Ongoing	March 2026	WCC, DfT, WDC	Zero Emission Bus Regional Areas (ZEBRA) scheme gran funding from Dft and £300,000 from WDC via S106	Funded	£4,277, 261 (+ £300,000 contribution from WDC)	Implementation	Reduced emissions from bus operator fleet	N/A	Warwickshire County Council were successful in their bid for Zero Emission Bus Regional Areas (ZEBRA) scheme grant funding. The funding will deliver 10 electric buses on town services (service no. 1 and 67) in Leamington and Warwick in 2025/26. As part of this project WDC have provided a £300,000 grant via S106 monies to support an electric bus service on the number 1 bus route which runs through both of the AQMAs managed by WDC. The grant money has now been provided to WCC.	The associated charging infrastructure for electric buses will be installed at bus depots across the district. WCC and WDC have also secured funding for electric buses on a route at Gateway South.
14	Promotion of electric vehicles through the Warwickshire Drive Electric Website. http://www.warwickshire.gov.uk/driveelectric	Promoting Low Emission Transport	Other	Ongoing	Ongoing implementation	WCC	WCC	Funded	-	Implementation	Reduced emissions from private vehicle use	N/A	Website is updated and maintained. The website offers residents the option to suggest locations for new EV charging points, allowing WCC to identify the locations where charging is most needed.	Ongoing. WDC website includes links to maps showing the locations of EV charging points in the District. It also provides a link to Zap Map which shows locations across the UK.
15	Use the taxi and private hire licensing system to try and reduce emissions from taxis and private hire vehicles.	Promoting Low Emission Transport	Taxi emission incentive	Ongoing	To be confirmed	WDC	WDC, grant funding	-	-	Implementation		Proportion of electric taxis in the fleet	WDC licensing team are planning a review of their taxi policy to ensure all taxis adhere to the Euro 6 level of CO_2 emissions and encourage the use of hybrid vehicles.	An electric taxi exploration project was discontinued in 2019 due to lack of funding. Licensing has no control over Ubers or out-of-county vehicles. Electric vehicles are limited by lack of charging infrastructure, estimated cost of £82 million to install electric charging for hackney carriages.

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													Policy will also include expectations regarding anti-idling around taxi ranks. This is already being enforced by the licensing team.	
16	Investigation with procurement colleagues to produce a sustainable procurement guide to ensure transport emissions are as low as possible	Policy Guidance and Development Control	Sustainable Procurement Guidance	TBC	2018	WDC (Procurement)	WDC	-	-	Implementation	Reduced emissions from WDC vehicles	n/a	WDC declared a Climate Emergency in 2019 which includes a commitment to becoming a net-zero carbon organisation by 2025, including all contracted out services. The Procurement Strategy 2025-2028 ensures that sustainability is at the heart of decision-making throughout the procurement cycle.	Ongoing Sustainable procurement will be considered as part of a Climate Emergency Action Programme and that this will impact positively on local air quality at the same time as reducing carbon emissions.
17	Ensuring that the Warwick Low Emission Strategy Guidance for Developers is kept up to date, and implemented	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	Ongoing	WDC	WDC	-	-	Implementation	Reduced emissions from private hire vehicles And reduced particulate emissions from developments within the district	n/a	1. Good progress in implementing mitigation through development control. 2. The Low Emission Strategy (2014) has now been superseded by the Air Quality Supplementary Planning Document (SPD) which has been implemented to provide guidance to developers in reducing emissions and introducing mitigation.	The SPD makes similar requirements of developers to those made under the previous guidance but with some changes. Additional trigger criteria have been added for major developments which must now be considered when determining the classification of a proposed development, and therefore the level of assessment and mitigation required. Also, a requirement for construction emission control measures, including non-road mobile machinery (NRMM) controls, is now included where type 2 mitigation is necessary. SPD may soon need alteration to comply with any new guidance on $PM_{2.5}$
18	Working with planning policy colleagues to ensure that the Local Plan fully addresses air quality issues with appropriate policies included	Policy Guidance and Development Control	Other policy	Ongoing	Ongoing	WDC	WDC	Funded	-	Completed	N/A	N/A	Planning policy relevant to air quality included in new Local Plan. Development proposals should demonstrate how mitigation can be undertaken to prevent	Ongoing

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													contributing to poor air quality.	
19	Working with planning colleagues and developers to ensure that new developments are based around the 'five-minute walkable neighbourhood', thereby encouraging active travel as the preferred methods of transport to access local facilities	Policy Guidance and Development Control	Other policy	Ongoing	Ongoing encouragement of active travel	WCC Public Health	WCC Public Health	-	-	Implementation	N/A	N/A	WCC are currently working with colleagues in district and borough council planning departments to support the development of the Health Impact Assessment process, both as part of the Local Plan development and as part of the planning application process. This includes supporting the inclusion of active travel within new developments.	Ongoing Likely to be a relatively long timescale
20	Ensure that green infrastructure is integrated into all residential and commercial developments, in line with the National Planning Policy Framework (NPPF)	Policy Guidance and Development Control	Other policy	Ongoing	Ongoing	WDC	WDC	Funded	-	Implementation	N/A	N/A	NPPF followed for new developments to contribute to the achievement of sustainable development. New developments should be prevented from contributing to unacceptable levels of air pollution and take into account the presence of any AQMAs.	Ongoing Green infrastructure included where relevant
21	Ensuring that planning applications with potential air quality impacts are fully assessed for their impacts, at relevant locations using appropriate methodologies	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	Ongoing	WDC	WDC	Funded	-	Implementation	N/A	N/A	Air quality assessments asked for on a regular basis and mitigation sought where necessary. Type 1, 2, and 3 mitigation should be included when submitting planning applications to ensure developers are taking steps to mitigate air quality impacts	Ongoing
22	Ensuring that where possible, cumulative impacts are taken into account. Any committed developments should be included within a given air quality assessment	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	Ongoing	WDC	WDC	-	-	Implementation	n/a	n/a	Ongoing work required where large areas of development are allocated in Local Plan. Potential cumulative impacts raised at pre-application and outline planning	Ongoing

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
													application stages as necessary.	
23	Ensuring that appropriate mitigation is implemented where any relevant impacts are identified	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	Ongoing	WDC	WDC	-	-	Implementation	n/a	n/a	Mitigation asked for on a regular basis as part of the Air Quality SPD. Developments are classified as minor, medium, or major to determine the level of mitigation required to make the scheme acceptable.	Ongoing
24	Junction improvements on key travel corridors in Warwick and Leamington Spa AQMAs are proposed which include junction/ highway modifications, improvements for walking and cycling and bus priority measures	Traffic Management	Strategic Highway Improvements	Ongoing	Ongoing for different corridors, Europa Way works commenced in 2018 and are continuing.	WCC (Transport)	WCC (Transport) / CIL contribution	-	-	Implementation	Reduced emissions from queuing vehicles. Pedestrianisation reduces emissions from private vehicle use and encourages active transport.	Delivery of full scheme.	A concept design for Bath St has been developed and will be subject to public engagement in 2025/26. A scheme for pedestrian priority along the Parade is being developed with WDC and the town council Work on the Europa Way corridor has begun and is ongoing. The Warwick town centre scheme continues to be progressed, with the next phase of junction improvements at St John's scheduled for delivery in 2025/26. The scheme will improve conditions for pedestrians and provide connectivity for cyclists	The Bath St / Parade schemes will be subject to wider engagement in 2025/26. Feedback from the engagement will inform the future design stages.
25	An investigation of 20 mph zones as part of the wider transport strategy, where this will smooth traffic flow	Traffic Management	Reduction of Speed Limits, 20 mph zones	Ongoing	2022	WCC (Transport)	WCC (Transport)	-	-	Implementation	Reduced emissions from queuing vehicles	n/a	Good progress	No update
26	Targeted re-allocation of road space to prioritise and facilitate movement of pedestrians, cyclists, public transport and car share users	Traffic Management	Strategic Highway Improvements	Ongoing	Ongoing for different corridors, Europa Way works commenced in 2018 and are continuing. Shared use cycle link completed on Priory Road, Warwick which is to be expanded to	WCC (Transport)	WCC (Transport)	-	-	Implementation	Reduce emission from private vehicle use	n/a	Good progress on planning and starting to implement corridor proposals. Northgate pedestrian improvement works were completed in 2019 as an early phase of the wider scheme for Warwick town centre. The next phase will see a	Work on the Europa Way corridor is ongoing. Funding secured for Warwick town centre scheme, including road space reallocation to improve pedestrian and cycle facilities

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
					Northgate, Eastgate, Westgate, St. Johns, and Emscote Road								junction improvement scheme at St John's which is scheduled for delivery in 2025/26. The scheme will improve conditions for pedestrians and provide connectivity for cyclists. A review of the modelling for Warwick town centre is being carried out to reflect the changing traffic flows post Covid. The results will help inform the development and delivery of wider proposals for the town centre	
27	Manage deliveries across Warwick District Council to ensure that no additional congestion is caused by stationary delivery vehicles in busy locations	Traffic Management	Congestion Management	Ongoing	n/a	WCC (Transport)	WCC (Transport)	-	-	Planning	Reduced emissions from queuing vehicles	n/a	Will review at future Steering Group meetings	No update, ongoing
28	Re-investigate funding for a website to engage with the public on air quality, the health impacts of poor air quality, sustainable transport and strategies to improve air quality	Public Information	Via the internet	Ongoing	Ongoing implementation	WCC Public Health	WCC Public Health	-	-	Implementation	n/a	n/a	Air quality information incorporated into Active Travel website. Active travel maps are available to show cycling and walking routes in the district.	Ongoing
29	Working with planners and developers to embed Public Health's Evidence for Planning guidance, thereby encouraging any new developments to support access to active travel	Policy Guidance and Development Control	Other policy	Ongoing	Ongoing	WCC Public Health	WCC Public Health	-	-	Implementation	n/a	n/a	The guidance document is used when responding to planning applications, pre-planning applications and local plan consultations on an ad-hoc basis. WCC are in the progress of developing guidance on Health Impact Assessments and refreshing some of the existing messaging around the links between public health, planning, and active travel.	Ongoing
30	Investigate implementing a campaign aimed at vulnerable members of the public (i.e. those with existing respiratory or cardiovascular conditions) in order that they	Public Information	Via the internet	Ongoing	Ongoing	WCC Public Health	WCC Public Health	-	-	Implementation	n/a	n/a	Instead, will embed active travel in everything we do, aimed at whole population.	Funding for personal air monitors was secured and an initial project completed, however these are no longer in use

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	could change behaviour to reduce exposure when pollution levels are high												WCC Public Health will continue to share communications on social media channels to improve public awareness of air quality and its impact and mitigation	due to the monitors being out-of-date models.
31	Regular assessment of air quality against air quality objectives as specified by the LAQM process with reports to Defra and the public	n/a	n/a	Ongoing	Ongoing	WDC	WDC	-	-	Implementation	n/a	n/a	Undertaken in this report	
32	Review of measures set out in this Air Quality Action Plan on a regular basis to ensure they are up to date and being implemented	n/a	n/a	Ongoing	Ongoing	WDC	WDC	-	-	Implementation	n/a	n/a	Undertaken in this report	
33	Implement a district-wide smoke control area and ensure that all new development is inside a SCA	Policy Guidance and Development Control	Other policy.	Ongoing	2026	WDC	WDC, DEFRA grant	-	-	Planning		Order approved for district-wide SCA	Briefing note for councillors completed. Research being undertaken into properties not on mains gas/electricity network and whether these properties can be supported by a DEFRA grant.	Requires approval by committee and public consultation.

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[4], 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.

Warwick District Council is taking the following measures to address $PM_{2.5}$:

The existing AQAP and AQMAs focus on reducing NO_2 emissions as this is the pollutant responsible for the declaration of our AQMAs, however many of these will also lead to reductions in $PM_{2.5}$ emissions. Much of the NO_2 and $PM_{2.5}$ emissions in the district comes from transport sources, with brake wear and tear contributing mostly to the latter. Measures focusing on the reduction of NO_2 emissions – such as promotion of alternative travel sources and active travel – will have an additional impact on $PM_{2.5}$ by reducing overall vehicle trips and usage.

Alongside this, the Council continues to monitor and review combustion emissions from industrial processes and domestic appliances, whilst enforcing statutory controls through the use of permitting etc.

The Department of Health's Public Health Outcomes Framework has a number of public health indicators that are used focus public health action, identify areas of health inequality and concern and monitor the differences in health impacts across regions in the UK. This framework includes an indicator "D01- Fraction of Mortality Attributable to Particulate Air Pollution (new method)" which is calculated using background annual average $PM_{2.5}$ concentrations, modelled at a $1km^2$ resolution based on measured concentrations from the AURN. Warwick has a 5.1% fraction of mortality calculated for the most recent data in 2023, which is lower than the average for England at 5.2% and lower than the average for the West Midlands region at 5.2%.

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

Measures to improve air quality often have shared wins with other public health indicators, a good example being the encouragement of active travel and commuting leading to increased physical activity and increased wellbeing.

Domestic burning contributes to emissions of particulate matter, with this source being the biggest contributor across the UK. There are a number of Smoke Control Areas (SCA) within the Council's boundary. In these areas, only authorised and smokeless fuels are allowed to be burnt, unless being used in an exempt appliance. This helps control and reduce $PM_{2.5}$ emissions in these areas. Further information on these, including authorised fuels, can be found on Warwick District Council's website. Warwick District Council are currently reviewing the current smoke control areas with a view to updating these. The current smoke control orders predate the formation of the council and don't accurately reflect the areas where they are needed to control smoke emissions. A revocation of these and an introduction of a district-wide smoke control area will give consistency across the district and enhance the councils ability to limit smoke emissions.

Monitoring of $PM_{2.5}$ is completed at two Automatic Urban and Rural Network (AURN) sites within the District; Leamington Spa Hamilton Terrace (UKA00265) and Leamington Spa Rugby Road (UKA00564), referred to as AURN1 and AURN2 respectively within this report. AURN1 and AURN2 concentrations have generally remained consistent across the last five-year period. AURN1 and AURN2 concentrations have generally shown a steady decrease across the last five-year period, and the large reduction observed in 2020 (most likely as a result of the covid-19 pandemic restricting production processes and travel) has generally remained consistent. This was in keeping with results across the UK in general. A general downward trend has been maintained over the previous 10-year period.

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Warwick District Council undertook automatic (continuous) monitoring at one site during 2024. Table A.1 in Appendix A shows the details of the automatic monitoring sites. Additionally, there are two automatic monitoring stations (AURN) within the district. Table A.3 presents automatic monitoring results for Warwick District Council, with the AURN monitoring results available through the UK-AIR website. All automatic monitoring data carried out in the district is also available on request from WeCare4Air.

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

3.1.2 Non-Automatic Monitoring Sites

Warwick District Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 65 sites during 2024. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

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

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

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

In 2024, all monitoring sites, both automatic and passive, have recorded an annual mean concentration below the objective of 40µg/m^3. All of the sites also recorded a bias-adjusted mean concetration below 10% of the annual mean air quality objective for NO_2 (<36µg/m^3).

No diffusion tube monitoring locations required distance correction, as all sites either reported an annual mean NO_2 concentration below 10% of the annual mean air quality objective for NO_2, in accordance with LAQM TG(22), or is already located at a site of relevant exposure.

Following a review and assessment of air quality in the Warwick and Leamington areas over the last five years, nitrogen dioxide levels have been shown to be consistently below the national standard. As of March 15th 2024, three AQMAs were revoked as a result of improvement in air quality; these were:

- Kenilworth New Street AQMA (Order no.5) for NO_2 annual mean.
- Kenilworth Warwick Road AQMA (Order no.4) for NO_2 annual mean.

- Warwick Coventry Road AQMA (Order no.7) for NO_2 annual mean.

Warwick District Council aims to revoke one of the two remaining AQMAs this year, namely the Warwick AQMA. For the last 5 years (2020-2024), there has been no exceedances of NO_2 concentrations reported within this AQMA, with the last exceedance recorded in 2019 at the W43 monitoring site. The revocation on an AQMA should be considered when there has been three consecutive years of compliance 10% below the relevant objective at the point of exposure (e.g. an annual mean of 36µg/m^3). The Warwick AQMA has been compliant with this 10% margin for four consecutive years. The Leamington Spa AQMA has remained compliant with air quality standards of an annual mean of <40µg/m^3 for two consecutive years; the last recorded exceedance was in 2022 at the W13 monitoring site. When factoring in the requirement for three consecutive years below the 10% margin before consideration of a revocation of an AQMA, 2024 is the first year of compliance with this.

In regard to the 1-hour mean NO_2 AQS objective, there should be no more than 18 hourly NO_2 concentrations greater than 200µg/m^3. All three of the automatic monitoring stations within Warwick District – AURN1 Hamilton Terrrace in Leamington Spa; AURN2 Rugby Road in Leamington Spa; CM1 Jury Street/Pageant House in Warwick – recorded no exceedances of 200µg/m^3. The latest exceedances at CM1 in 2019 (25 exceedances) suggest this data may be attributed to the impacts of the covid-19 pandemic, however the Warwick AQMA has remained compliant with this additional designation for five consecutive years.

3.2.2 Particulate Matter (PM_{10})

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

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

In 2024 there have been no reported exceedances of the annual mean PM_{10} AQS objective of 40µg/m^3 at either of the automatic monitoring sites AURN1 (within an AQMA) or AURN2 (not within an AQMA); see table A.1 for details of these monitoring sites. In

terms of the 24-hour average PM_{10} AQS objective of no more than 35 exceedances of 50µg/m^3 per year, both AURN sites reported one exceedance in 2024. Prior to 2024, at the AURN1 site, there had been no reported exceedances since 2021 and none at the AURN2 site since 2019. Both sites remained compliant with air quality objectives despite this singular exceedance of >50µg/m^3 in a 24-hour period.

AURN1 and AURN2 concentrations have generally shown a steady decrease across the last five-year period. However, there was a large reduction in 2020 and 2021 levels also remained lower than expected. This is most likely due to Covid-19 and the restrictions on production processes and travel followed by a rise in 2022 as work and travel patterns began to return to normal. This was in keeping with results across the UK in general. In 2024, AURN1 recorded an annual mean concentration of 10.6µg/m^3, whilst AURN2 recorded a concentration of 10.2µg/m^3. This shows a small reduction in comparison to 2023 where figures of 10.9µg/m^3 and 10.3µg/m^3 were recorded respectively at each monitoring site.

3.2.3 Particulate Matter ($PM_{2.5}$)

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

$PM_{2.5}$ is the pollutant which has the biggest impact on public health and on which the Public Health Outcomes Framework (PHOF) indicator is based. However, there are no Local Air Quality Management objectives which this pollutant is covered by.

Monitoring of $PM_{2.5}$ is completed at two Automatic Urban and Rural Network (AURN) sites in the district; see table A.1 for details. Concentrations of $PM_{2.5}$ have generally shown a decrease in concentrations over the last 4-year period. 2020 can be considered an anomalous year where there was a large reduction in $PM_{2.5}$ concentrations, likely related to the restrictions on travel and production processes during the covid-19 pandemic, subsequently leading to an increase of concentrations in 2021 as work and travel activities began to return to normal. This trend was observed across the UK.

In 2024, there has been no change reported since the 2023 figures, with both sites remaining identical to the previous year. AURN1 observed concentrations of 6.7µg/m^3, with AURN2 reporting a yearly average of 6.5µg/m^3. Although the level has been

maintained over the previous two years, this is a reduction since 2022 where concentrations of 7.6µg/m^3 and 7.3µg/m^3 were recorded respectively.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? (1)	Monitoring Technique	Distance to Relevant Exposure (m) (2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
AURN1	Hamilton Terrace, Leamington Spa	Urban Background	431943	265730	NO	NO	N/A	Chemiluminescence, Ultra-violet fluorescence (UVF), FDMS	9	50	4
AURN2	Rugby Road, Leamington Spa	Roadside	431271	266404	NO_2, PM_{10}, $PM_{2.5}$	NO	N/A	Chemiluminescence, FDMS	23	8	3.5
CM1	Jury St/Pageant House, Warwick	Roadside	428263	264877	NO_2	YES	Warwick AQMA	Chemiluminescence	13	2.8	2.4

Notes:

(1) N/A if not applicable

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

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W1	Bath Street	Kerbside	431978	265280	NO_2	Y - Leamington Spa AQMA	3.4	0.7	No	2.7
W2	High Street	Roadside	432075	265234	NO_2	Y - Leamington Spa AQMA	0.0	2.2	No	2.7
W5	Hampton Street (3)	Roadside	427615	264563	NO_2	No	2.4	2.0	No	1.5
W6, W7, W8	Hamilton Terrace	Urban Background	431943	265730	NO_2	No	9.0	n/a	Yes	3.1
W10	Farley Street	Roadside	432560	265254	NO_2	No	11.0	0.1	No	2.9
W11	Clemens Street	Roadside	432051	265060	NO_2	Y - Leamington Spa AQMA	2.0	3.2	No	2.9
W12	Spencer Street	Roadside	431866	265371	NO_2	Y - Leamington Spa AQMA	2.9	5.0	No	2.8
W13	Wise Street	Roadside	431900	265189	NO_2	Y - Leamington Spa AQMA	0.0	1.0	No	2.7
W14	Tachbrook Road	Roadside	431862	265169	NO_2	No	2.9	5.2	No	2.8
W15a	Old Warwick Road	Roadside	431861	265196	NO_2	No	2.9	0.6	No	2.5
W16	Parade	Roadside	431951	265397	NO_2	Y - Leamington Spa AQMA	6.3	7.5	No	2.8
W17	Coventry Road (Woodville Road)	Kerbside	428704	265236	NO_2	No	12.7	1.0	No	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W18	Coventry Road (Coachouse Mews)	Roadside	428735	265362	NO_2	No	2.3	1.5	No	1.5
W19	West Street Torry's	Roadside	427937	264586	NO_2	No	6.1	3.2	No	1.5
W23	Moorlands Road Junction	Roadside	429078	271207	NO_2	No	8.8	4.2	No	1.5
W24	Waverley Road	Roadside	428974	271402	NO_2	No	4.7	2.8	No	4.5
W25	New Street No 1	Roadside	428707	272556	NO_2	No	0.0	0.4	No	1.5
W26	New Street No 2	Roadside	428733	272578	NO_2	No	0.0	1.7	No	1.5
W27	New Street No 3	Kerbside	428750	272612	NO_2	No	8.8	1.1	No	4.5
W28	Fieldgate Lane Junction	Roadside	428652	272524	NO_2	No	0.0	0.7	No	4.5
W30	The Square	Roadside	428714	271769	NO_2	No	0.0	3.4	No	4.5
W31	Barrow Road	Kerbside	428816	271618	NO_2	No	2.1	1.4	No	4.5
W32	Warwick Road	Roadside	428906	271497	NO_2	No	0.0	1.3	No	1.5
W33, W34, W35	Pageant House	Roadside	428263	264877	NO_2	Y - Warwick AQMA	13.0	2.8	Yes	1.5
W36	Jury Street	Roadside	428391	264966	NO_2	Y - Warwick AQMA	10.0	2.1	No	1.5
W37	High Street	Roadside	428132	264799	NO_2	Y - Warwick AQMA	0.0	2.9	No	1.5
W38	West Street	Kerbside	427959	264624	NO_2	No	4.5	0.6	No	1.5
W39	Crompton Street/ West Street	Roadside	427910	264541	NO_2	No	0.0	4.1	No	1.5
W40	Bowling Green Street	Kerbside	427992	264695	NO_2	Y - Warwick AQMA	0.0	0.9	No	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W41	Friars Street	Roadside	427905	264682	NO_2	No	1.8	1.0	No	1.5
W42	Theatre Street	Roadside	427938	264947	NO_2	Y - Warwick AQMA	0.0	2.3	No	4.5
W43	Saltisford/Northgate	Roadside	428026	265158	NO_2	Y - Warwick AQMA	0.0	1.5	No	2.5
W44	West Rock	Roadside	427930	265200	NO_2	Y - Warwick AQMA	3.6	2.3	No	2.6
W45	Albert Street/Saltisford Junction	Roadside	427867	265275	NO_2	Y - Warwick AQMA	0.0	2.7	No	2.5
W46	The Butts	Roadside	428240	265088	NO_2	Y - Warwick AQMA	1.9	1.6	No	2.5
W48	Smith Street	Roadside	428522	265039	NO_2	Y - Warwick AQMA	0.0	2.0	No	3.0
W50	St Nicholas Church Street	Roadside	428600	264983	NO_2	Y - Warwick AQMA	0.0	1.7	No	2.6
W51	St Marys Churchyard	Urban Background	428270	264982	NO_2	No	7.8	n/a	No	2.7
W52	Coventry Road, Crown Hotel	Kerbside	428710	265165	NO_2	No	17.5	1.0	No	2.5
W53	Coventry Road, St Johns (1)	Roadside	428715	265202	NO_2	No	1.2	1.8	No	2.4

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)
W54	Coventry Road, St Johns (2)	Roadside	428715	265285	NO_2	No	0.0	1.9	No	2.4
W55	Coventry Road, St Johns (3)	Roadside	428710	265341	NO_2	No	3.3	1.2	No	2.5
W56	St Johns	Roadside	428619	265113	NO_2	No	0.0	1.1	No	2.5
W57	Coten End	Roadside	428748	265166	NO_2	No	0.0	3.0	No	2.5
W59	Charles Street	Roadside	429501	265494	NO_2	No	1.5	2.0	No	2.6
W60	Bridge Street	Roadside	430015	265718	NO_2	No	6.7	2.4	No	2.6
W62	St Nicholas Church Street (2)	Roadside	428608	265042	NO_2	Y - Warwick AQMA	0.0	2.1	No	3.0
W67	Castle Hill	Roadside	428477	264939	NO_2	No	1.2	3.2	No	2.5
W69	Castle Hill (2)	Roadside	428513	264921	NO_2	No	1.5	2.1	No	2.5
W70	Mill Street	Roadside	428554	264870	NO_2	No	9.8	3.1	No	2.4
W71	Banbury Road	Roadside	428599	264857	NO_2	No	20.4	2.1	No	2.5
W72	Dale Street East	Roadside	431464	265903	NO_2	No	2.9	3.1	No	2.5
W74	Warwick Street	Roadside	431753	260091	NO_2	No	32.3	1.2	No	2.5
W75	Christchurch Gardens	Kerbside	431714	266269	NO_2	No	12.8	0.7	No	2.6
W76	Lillington Avenue	Kerbside	431720	266739	NO_2	No	15.5	0.8	No	2.5
W77	Clarendon Street	Roadside	432067	266283	NO_2	No	1.5	1.7	No	2.5
W78	Newbold Terrace	Roadside	432339	265865	NO_2	No	35.8	1.4	No	2.5
W79	Radford Road	Roadside	432850	265340	NO_2	No	10.7	1.6	No	2.5
W80	Leamington Spa Station	Roadside	431710	265223	NO_2	No	46.8	1.7	No	2.5
W81	Tachbrook Road	Roadside	431840	265090	NO_2	No	14.3	3.1	No	2.5
W82	Warwick Prep School	Roadside	428854	264601	NO_2	No	49.1	2.1	No	2.5

Notes:

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

(2) N/A if not applicable.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
AURN1	431943	265730	Urban Background	99%	99%	12.8	15	15.7	13.7	12.7
AURN2	431271	266404	Roadside	99%	99%	10.6	12.1	13.3	12.7	11.0
CM1	428263	264877	Roadside	96%	96%	27.5	33.83	31.3	25.19	17.8

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

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

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

Notes:

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

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

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
W1	431978	265280	Kerbside	66.0	66.0	33.9	30.5	35.4	28.6	28.7
W2	432075	265234	Roadside	100.0	100.0	30.3	29.8	33.1	28.1	23.6
W5	427615	264563	Roadside	100.0	100.0	22.8	20.7	22.8	19.6	16.0
W6, W7, W8	431943	265730	Urban Background	100.0	100.0	14.1	13.1	14.6	12.5	10.9
W10	432560	265254	Roadside	100.0	100.0	18.4	17.2	19.7	16.5	13.1
W11	432051	265060	Roadside	100.0	100.0	17.6	18.0	20.8	15.9	13.8
W12	431866	265371	Roadside	100.0	100.0	26.3	23.8	28.0	15.9	21.4
W13	431900	265189	Roadside	100.0	100.0	36.8	37.2	42.5	36.8	30.9
W14	431862	265169	Roadside	90.6	90.6	30.6	30.2	35.4	30.0	26.7
W15a	431861	265196	Roadside	100.0	100.0	33.2	33.1	37.4	32.6	27.8
W16	431951	265397	Roadside	75.0	75.0	22.2	21.4	24.1	20.0	16.4
W17	428704	265236	Kerbside	92.5	92.5	20.1	18.3	22.4	18.3	14.8
W18	428735	265362	Roadside	100.0	100.0	17.7	17.3	20.7	17.0	13.8
W19	427937	264586	Roadside	100.0	100.0	20.4	24.4	26.1	21.0	17.3
W23	429078	271207	Roadside	90.6	90.6	18.1	19.7	22.6	18.7	14.9
W24	428974	271402	Roadside	100.0	100.0	19.6	21.7	23.8	21.4	14.2
W25	428707	272556	Roadside	90.6	90.6	19.6	21.7	23.8	21.4	16.0
W26	428733	272578	Roadside	90.3	90.3	18.1	16.4	18.0	17.2	12.7
W27	428750	272612	Kerbside	100.0	100.0	15.4	14.3	14.8	13.0	10.2
W28	428652	272524	Roadside	100.0	100.0	22.9	23.8	25.3	22.5	17.1
W30	428714	271769	Roadside	100.0	100.0	16.2	15.3	18.4	14.8	12.3
W31	428816	271618	Kerbside	100.0	100.0	22.5	20.0	24.7	20.8	16.6
W32	428906	271497	Roadside	100.0	100.0	23.1	21.6	24.6	21.6	17.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
W33, W34, W35	428263	264877	Roadside	100.0	100.0	27.7	26.7	31.5	28.8	22.0
W36	428391	264966	Roadside	63.9	63.9	28.8	28.0	30.9	26.8	22.3
W37	428132	264799	Roadside	100.0	100.0	25.4	25.9	28.7	25.3	20.2
W38	427959	264624	Kerbside	100.0	100.0	25.4	20.1	26.1	22.4	18.8
W39	427910	264541	Roadside	100.0	100.0	19.4	19.7	21.5	18.4	15.3
W40	427992	264695	Kerbside	100.0	100.0	27.3	26.4	30.0	26.3	21.6
W41	427905	264682	Roadside	92.5	92.5	26.0	16.2	19.1	16.0	13.0
W42	427938	264947	Roadside	82.7	82.7	21.1	21.1	22.2	19.4	15.5
W43	428026	265158	Roadside	100.0	100.0	30.1	31.0	33.1	29.4	23.8
W44	427930	265200	Roadside	100.0	100.0	20.7	19.9	23.5	19.9	16.1
W45	427867	265275	Roadside	100.0	100.0	19.9	19.3	21.9	18.6	15.3
W46	428240	265088	Roadside	90.3	90.3	23.5	23.6	26.5	24.6	18.3
W48	428522	265039	Roadside	90.6	90.6	22.7	23.2	26.1	23.4	18.6
W50	428600	264983	Roadside	100.0	100.0	19.9	19.0	23.4	18.9	15.5
W51	428270	264982	Urban Background	90.3	90.3	11.7	11.4	13.4	11.3	9.3
W52	428710	265165	Kerbside	100.0	100.0	29.0	31.6	35.8	31.3	25.1
W53	428715	265202	Roadside	100.0	100.0	28.5	27.6	32.5	27.1	21.5
W54	428715	265285	Roadside	100.0	100.0	23.0	21.8	25.2	21.7	17.9
W55	428710	265341	Roadside	92.5	92.5	21.1	18.6	22.4	20.3	15.4
W56	428619	265113	Roadside	100.0	100.0	15.9	15.2	16.9	15.2	12.5
W57	428748	265166	Roadside	100.0	100.0	21.9	20.2	24.4	20.3	16.8
W59	429501	265494	Roadside	90.6	90.6	27.1	25.1	29.6	24.7	21.0
W60	430015	265718	Roadside	92.5	92.5	22.5	20.7	23.9	20.9	18.5
W62	428608	265042	Roadside	92.5	92.5	31.4	30.2	34.4	29.3	24.5
W67	428477	264939	Roadside	100.0	100.0	31.6	32.0	37.1	31.9	24.8

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
W69	428513	264921	Roadside	16.7	16.7	25.8	28.0	30.6	25.8	21.1
W70	428554	264870	Roadside	82.7	82.7	20.0	20.9	22.3	21.2	16.3
W71	428599	264857	Roadside	100.0	100.0	24.4	24.1	29.0	25.7	20.2
W72	431464	265903	Roadside	100.0	100.0	24.1	23.2	26.1	19.6	18.4
W74	431753	260091	Roadside	83.0	83.0				29.1	23.9
W75	431714	266269	Kerbside	49.1	49.1				21.2	18.4
W76	431720	266739	Kerbside	100.0	100.0				20.9	14.2
W77	432067	266283	Roadside	100.0	100.0				19.9	18.3
W78	432339	265865	Roadside	100.0	100.0				22.6	18.3
W79	432850	265340	Roadside	92.5	92.5				23.1	19.3
W80	431710	265223	Roadside	75.0	75.0				25.2	22.6
W81	431840	265090	Roadside	100.0	100.0				16.2	14.4
W82	428854	264601	Roadside	83.0	83.0				20.0	16.4

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

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

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

Notes:

The annual mean concentrations are presented as 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: Leamington Spa AQMA

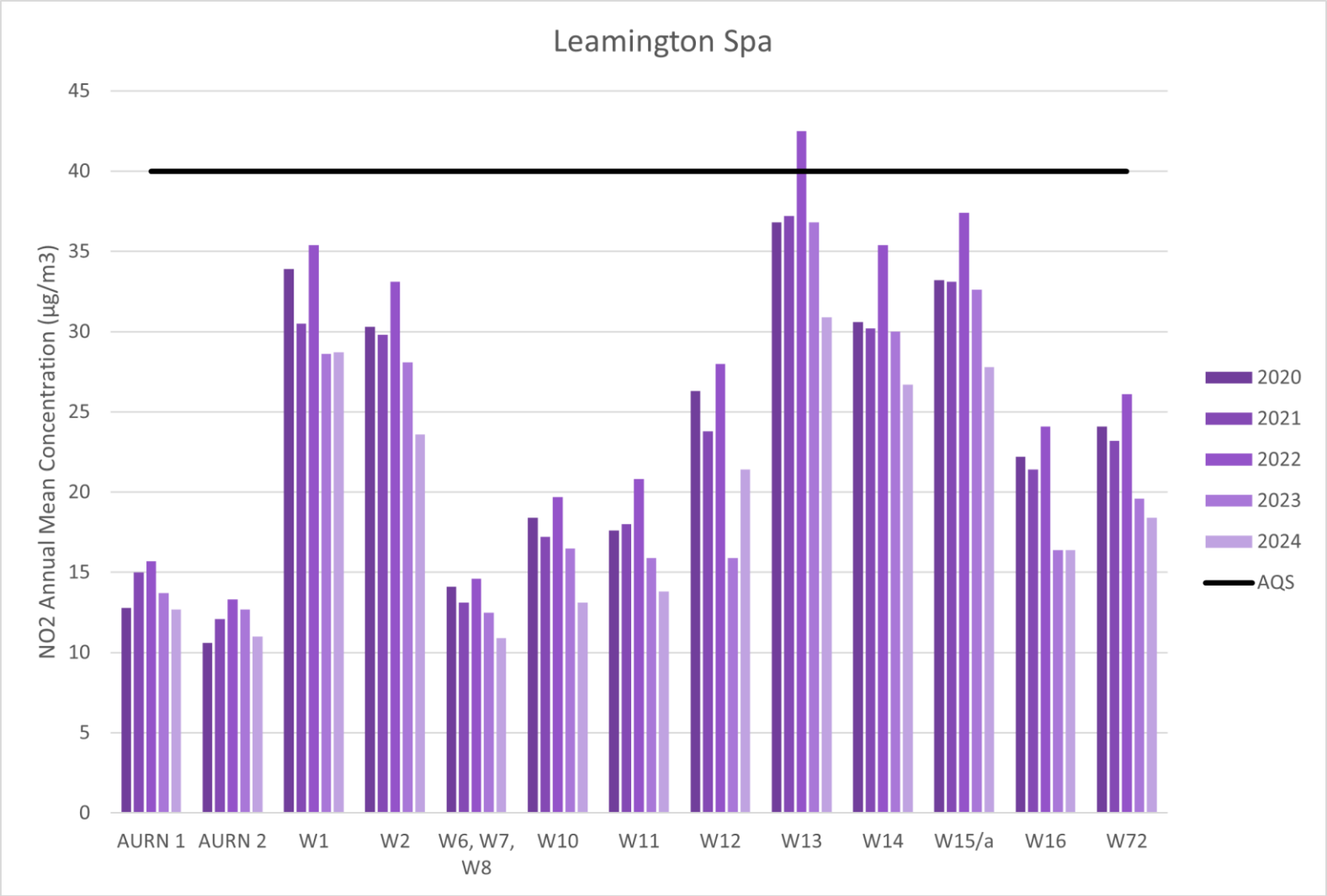


Figure A.2 – Trends in Annual Mean NO_2 Concentrations: Warwick AQMA

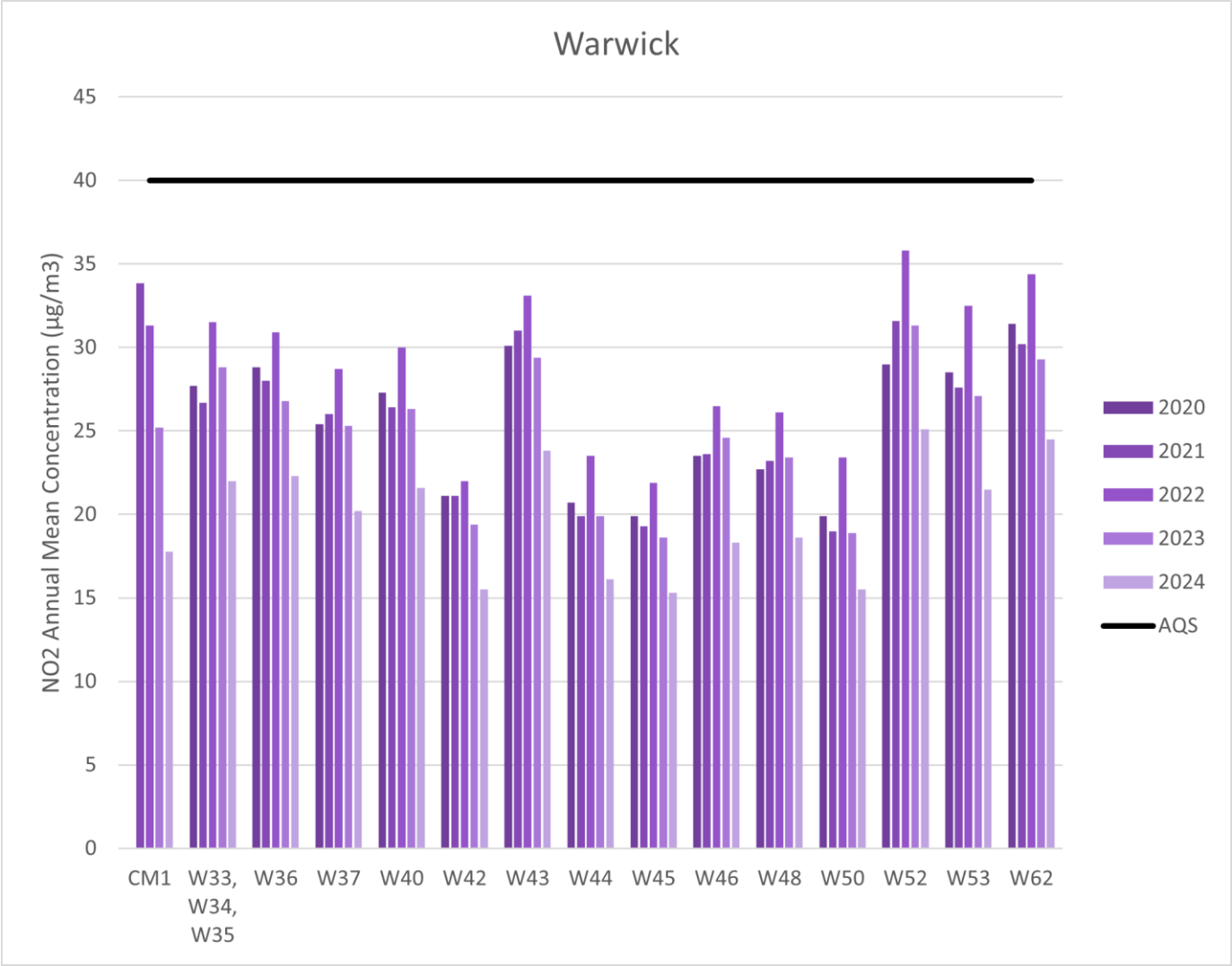


Figure A.3 – Trends in Annual Mean NO_2 Concentrations: Outside Warwick AQMAs

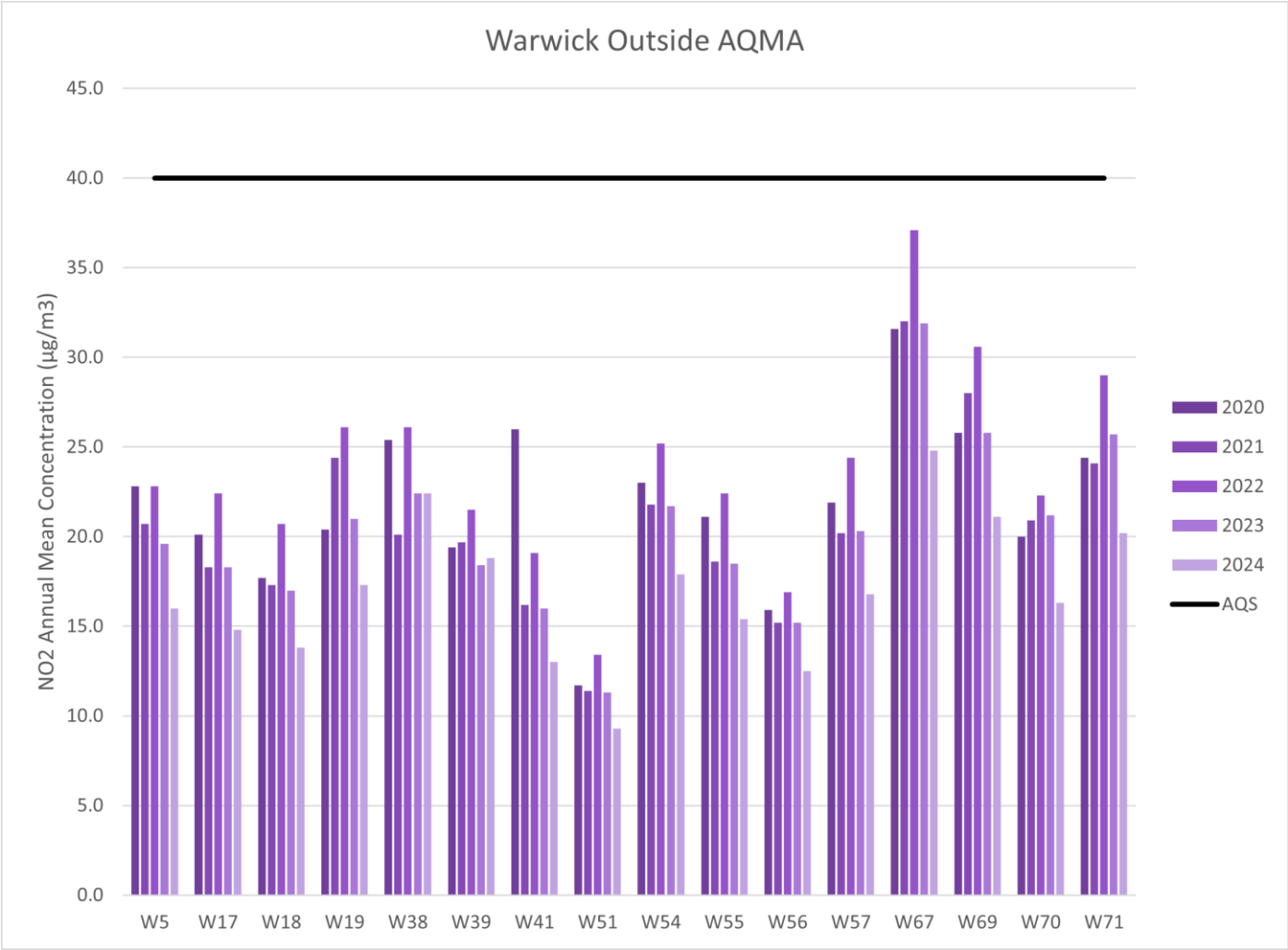


Figure A.4 – Trends in Annual Mean NO_2 Concentrations: Kenilworth and Stoneleigh

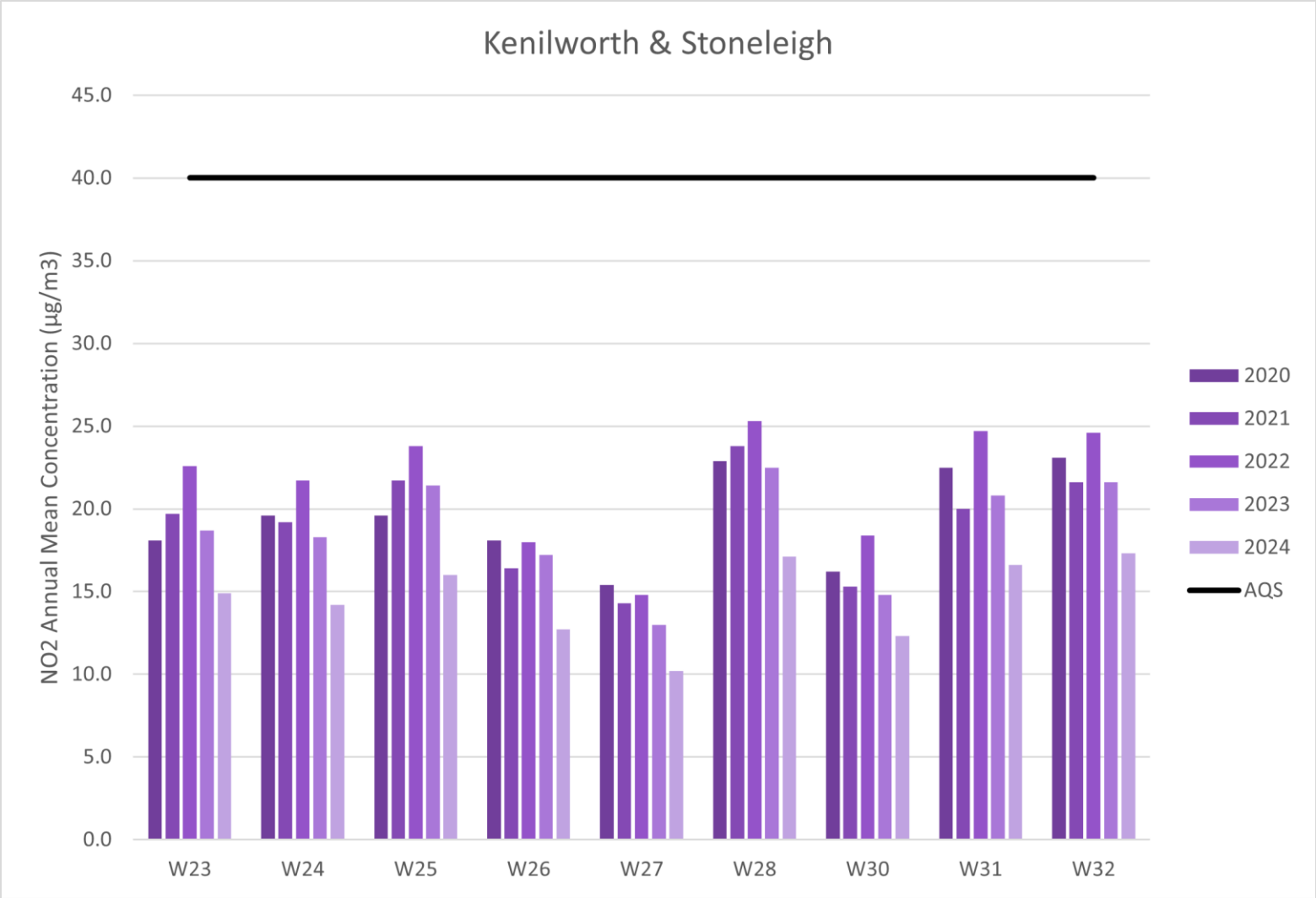


Figure A.5 – Trends in Annual Mean NO_2 Concentrations: Emscote

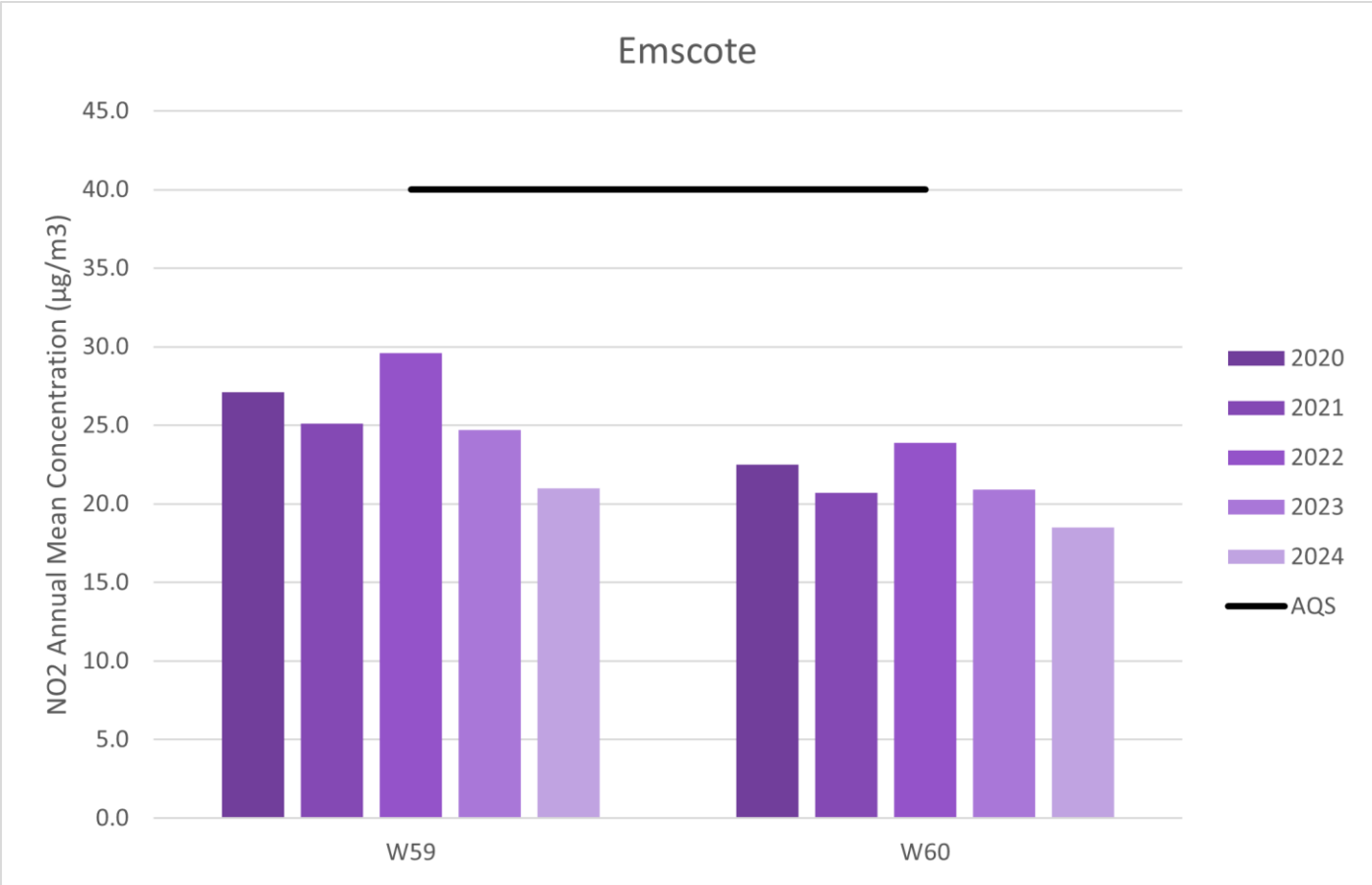


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
AURN1	431943	265730	Urban Background	99%	99%	0	0	0	13.69(0)	0
AURN2	431271	266404	Roadside	99%	99%	0	0	0	12.61(0)	0
CM1	428263	264877	Roadside	96%	96%	1	0	0	0	0

Notes:

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

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

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

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

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

Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
AURN1	431943	265730	Urban Background	99%	99%	11	11.2	12.8	10.9	10.6
AURN2	431271	266404	Roadside	99%	99%	11.5	10.3	11.3	10.3	10.1

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

Notes:

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

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

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

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

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

Figure A.6 – Trends in Annual Mean PM_{10} Concentrations

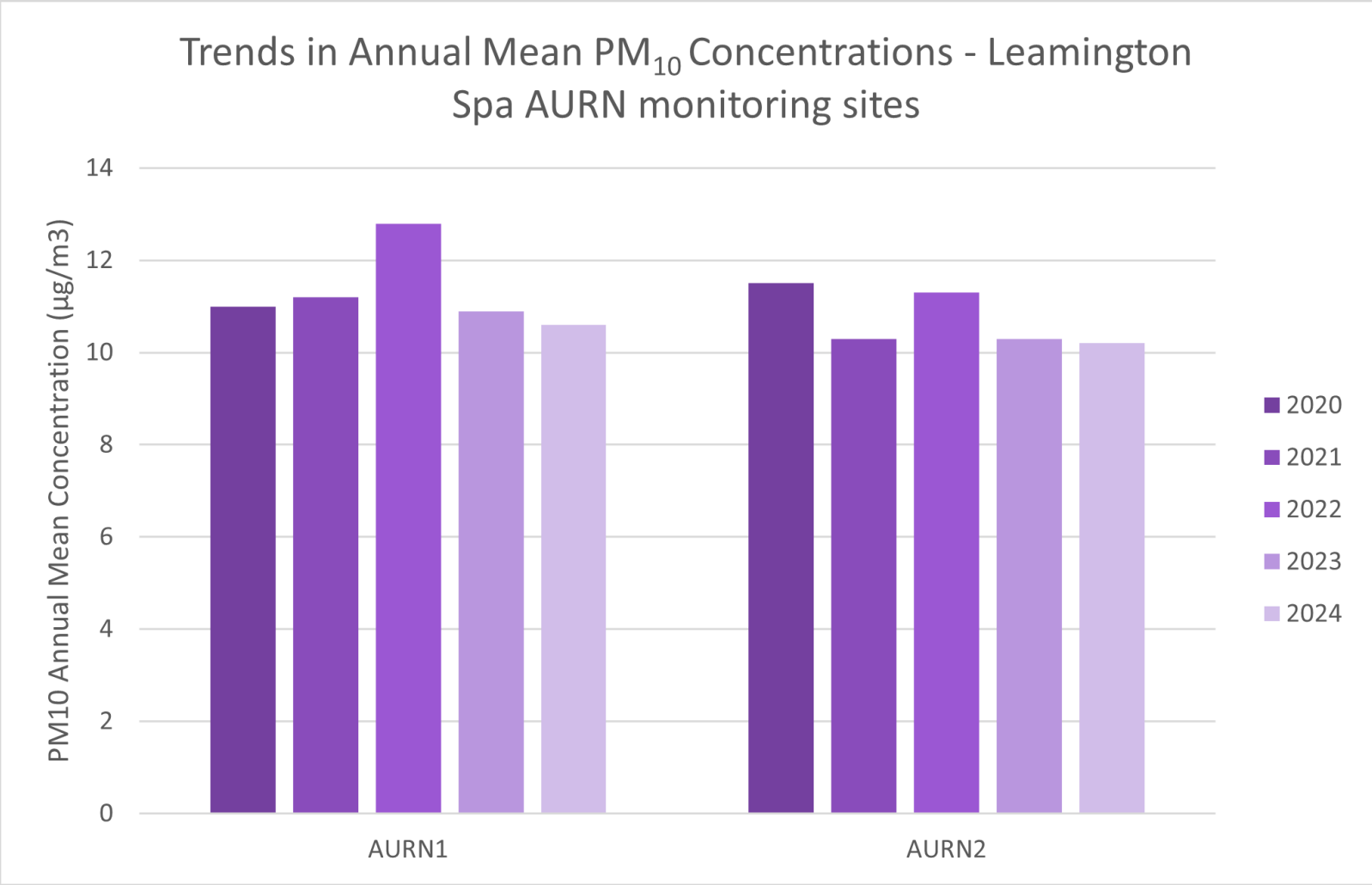


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
AURN1	431943	265730	Urban Background	99%	99%	0	0	0	0	1
AURN2	431271	266404	Roadside	99%	99%	0	0	0	0	1

Notes:

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

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

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

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

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

Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
AURN1	431943	265730	Urban Background	99%	99%	6.5	7.4	7.6	6.7	6.7
AURN2	431271	266404	Roadside	99%	99%	6.9	6.7	7.3	6.5	6.5

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

Notes:

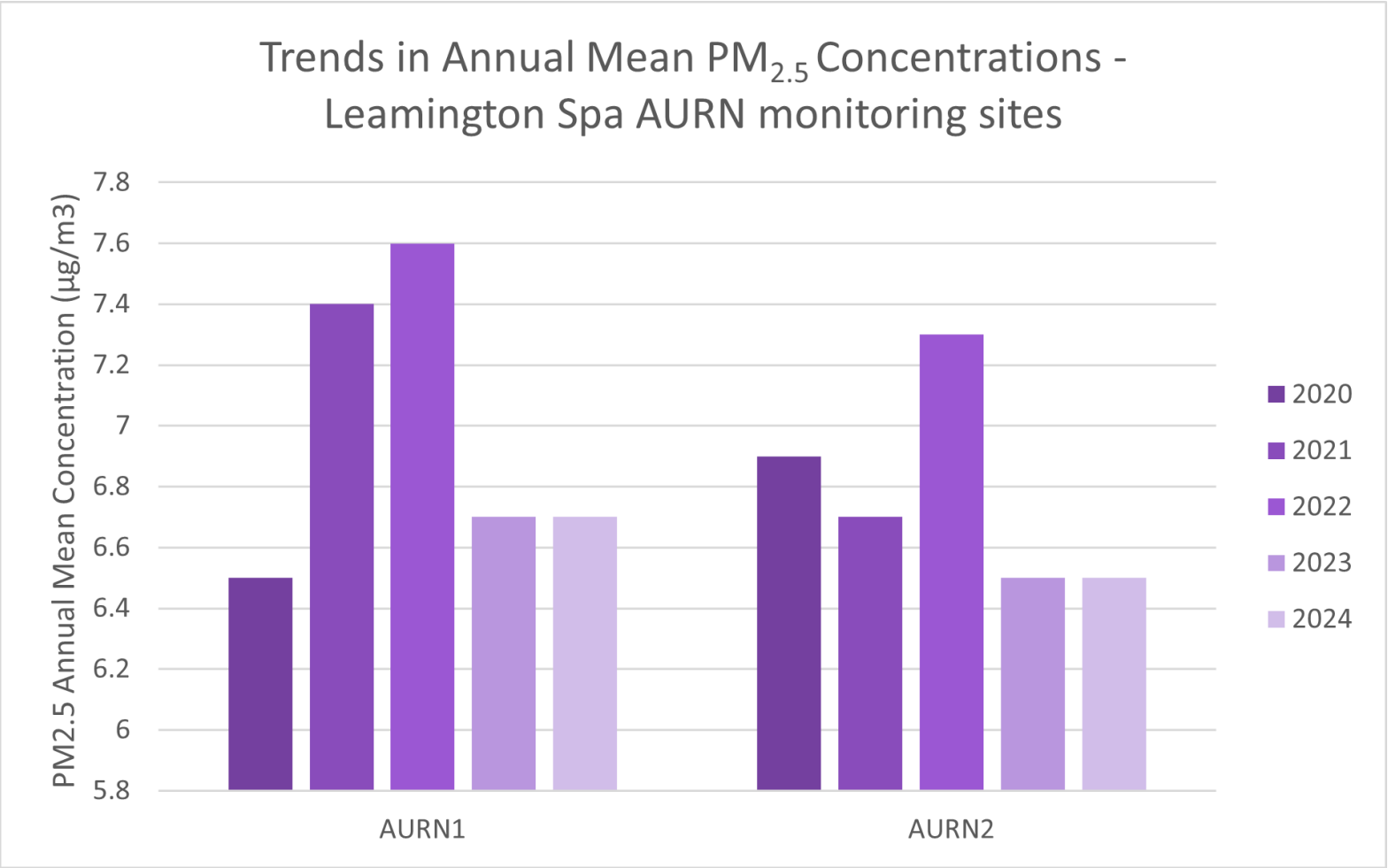
The annual mean concentrations are presented as µg/m^3.

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

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

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

Figure A.7 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2024

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

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.77)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W1	431978	265280			35.0	31.7		33.2	35.5	33.5		36.6	44.5	31.9	35.2	28.7		
W2	432075	265234	32.9	32.1	27.5	25.9	29.8	29.9	27.7	27.6	33.2	32.5	38.2	28.8	30.5	23.6		
W5	427615	264563	25.1	23.0	18.8	15.6	17.6	18.3	17.9	16.5	24.8	21.2	27.6	21.5	20.7	16.0		
W6	431943	265730	21.1	16.4	13.4	9.5	9.0	9.4	9.4	11.0	14.3	15.7	22.4	15.1	13.9	10.7		Triplicate Site with W6, W7 and W8 - Annual data provided for W8 only
W7	431943	265730	17.7	16.2	13.4	9.8	10.2	9.2	9.9	10.2	16.5	15.6	22.4	15.4	13.9	10.7		Triplicate Site with W6, W7 and W8 - Annual data provided for W8 only
W8	431943	265730	17.8	20.7	13.6	9.5	10.1	10.2	10.8	10.4	14.7	15.9	23.2	16.2	14.4	10.9		Triplicate Site with W6, W7 and W8 - Annual data provided for W8 only
W10	432560	265254	21.7	19.6	18.2	12.7	15.1	11.6	13.5	13.8	16.6	20.2	23.4	16.6	14.4	13.1		
W11	432051	265060	22.4	18.6	18.3	14.5	15.5	13.0	13.2	12.9	22.3	20.7	26.6	16.1	17.8	13.8		
W12	431866	265371	30.8	29.9	29.9	21.2	23.5	22.2	25.2	23.9	28.1	30.2	28.6	28.7	27.7	21.4		
W13	431900	265189	43.3	43.8	45.7	38.1	39.8	35.7	39.7	36.8	36.4	36.6	46.8	37.8	40.0	30.9		
W14	431862	265169	38.4	33.3	30.5	29.2		34.5	24.0	33.4	38.0	34.6	42.0	31.8	34.5	26.7		
W15	431849	265193	38.5	40.5	34.3	29.2	35.5	34.6	33.0	35.4	37.0	39.5	38.2	36.2	36.0	27.8		
W16	431951	265397	23.5	25.2	19.0	15.0	21.5	21.2	20.2	20.9	24.6				21.2	16.4		
W17	428704	265236	25.5	18.9	18.8	14.5	17.2		13.5	14.9	21.2	22.6	28.4	16.0	19.2	14.8		
W18	428735	265362	21.4	17.2	17.9	13.1	16.5	13.8	16.1	13.3	20.4	21.4	25.0	17.9	17.8	13.8		
W19	427937	264586	27.2	23.9	21.6	17.1	19.8	20.5	20.7	18.5	24.5	23.0	30.9	21.5	22.4	17.3		
W23	429078	271207	23.1	22.2	21.6	14.7		15.4	15.6	15.3	17.9	21.5	26.6	18.5	19.3	14.9		
W24	428974	271402	23.2	19.5	17.8	12.2	16.9	14.1	14.9	15.0	20.6	20.6	27.3	18.0	18.3	14.2		
W25	428707	272556	29.8	25.7	23.6	15.8		15.2	17.0	14.9	21.4	20.2	25.5	18.3	20.7	16.0		
W26	428733	272578	20.9	19.1	17.1	12.5	13.2	12.8	13.6	13.4	14.5		24.4	18.7	16.4	12.7		
W27	428750	272612	18.1	14.2	13.4	9.8	10.4	9.7	10.0	9.9	12.5	14.0	21.7	15.0	13.2	10.2		
W28	428652	272524	26.7	24.8	24.1	15.2	22.9	16.7	17.9	18.4	23.4	24.6	30.3	21.5	22.2	17.1		
W30	428714	271769	21.2	18.8	16.6	12.0	13.5	12.3	12.2	13.2	15.2	19.3	22.7	14.6	16.0	12.3		
W31	428816	271618	29.2	20.9	22.7	13.6	19.9	18.2	19.4	18.3	24.0	25.0	25.9	20.1	21.4	16.6		
W32	428906	271497	28.1	24.9	22.8	17.2	23.8	18.5	18.3	16.4	27.4	25.1	28.7	18.3	22.5	17.3		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.77)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W33	428263	264877	30.2	34.7	34.3	20.1		22.7	26.1	22.9	25.8	34.2	34.6	27.8	28.5	22.0		Triplicate Site with W33, W34 and W35 - Annual data provided for W35 only
W34	428263	264877	33.6	34.8	33.3	20.8	28.1	20.7	27.3	24.9	27.6	31.9	37.3	29.0	29.1	22.4		Triplicate Site with W33, W34 and W35 - Annual data provided for W35 only
W35	428263	264877	30.9	34.0	31.9	25.1	27.1	20.0	26.6	24.2	25.4	30.5	35.1	26.1	28.1	22.0		Triplicate Site with W33, W34 and W35 - Annual data provided for W35 only
W36	428391	264966	32.2		27.5	22.1			22.5	25.8	28.7		38.8	33.2	28.9	22.3		
W37	428132	264799	32.1	28.5	23.4	21.6	25.6	22.0	22.9	21.5	30.7	26.4	33.0	25.8	26.1	20.2		
W38	427959	264624	28.7	23.5	21.7	19.5	23.9	23.2	23.5	20.5	29.6	23.9	30.5	23.7	24.4	18.8		
W39	427910	264541	24.5	20.3	19.5	16.1	18.1	17.8	18.2	14.9	21.6	19.3	27.7	20.4	19.9	15.3		
W40	427992	264695	29.7	31.5	30.6	24.0	24.8	24.9	26.5	24.8	27.2	29.4	34.4	27.5	27.9	21.6		
W41	427905	264682	22.3	18.9	16.0	10.8	14.4		11.7	12.1	17.6	20.0	24.3	16.6	16.8	13.0		
W42	427938	264947	23.9	21.4	20.1	15.3	18.3	14.6	18.1	14.7			33.8	20.0	20.0	15.5		
W43	428026	265158	36.1	27.6	27.2	27.0	29.4	28.0	30.0	26.8	36.7	38.2	37.8	25.4	30.9	23.8		
W44	427930	265200	26.8	22.5	20.9	16.8	18.7	14.6	19.9	17.7	20.6	24.3	28.1	19.3	20.9	16.1		
W45	427867	265275	25.9	20.1	21.5	15.0	17.8	14.5	16.1	15.3	20.2	23.9	28.3	18.7	19.8	15.3		
W46	428240	265088	23.3	27.0	24.2	17.5	20.9	18.5	20.4	17.7	29.9		40.0	21.1	23.7	18.3		
W48	428522	265039	31.2	31.9	26.4	16.3	19.5	16.2	21.5	20.2	17.8	28.4	36.2		24.1	18.6		
W50	428600	264983	24.2	20.8	21.3	14.5	17.3	13.9	16.8	16.0	21.1	23.4	28.4	22.4	20.0	15.5		
W51	428270	264982	16.5	14.4	13.1	8.7	10.3	7.4	9.5	7.9	12.8		19.2	12.5	12.0	9.3		
W52	428710	265165	35.2	32.5	29.9	26.6	35.4	27.3	30.7	28.7	34.9	34.7	41.6	33.5	32.6	25.1		
W53	428715	265202	29.9	28.2	38.6	22.8	30.5	21.9	24.7	23.4	29.5	33.0	37.1	24.6	27.9	21.5		
W54	428715	265285	27.2	25.3	23.3	16.9	20.9	16.8	18.6	17.5	26.1	25.6	34.3	25.0	23.1	17.9		
W55	428710	265341	23.2	22.5	17.5	14.4	19.3		15.4	15.0	23.0	22.8	27.6	18.3	19.9	15.4		
W56	428619	265113	18.8	17.5	16.0	11.4	14.0	10.3	13.0	11.3	18.1	18.0	27.1	18.9	16.2	12.5		
W57	428748	265166	20.3	22.9	21.6	16.8	23.5	17.3	19.1	18.6	22.3	25.0	30.6	23.3	21.8	16.8		
W59	429501	265494	33.4	28.0	26.4	21.0		19.8	24.9	23.3	28.0	30.2	36.7	27.2	27.2	21.0		
W60	430015	265718		40.8	21.2	18.0	22.6	17.0	18.9	17.4	31.8	24.2	30.6	20.9	23.9	18.5		
W62	428608	265042	<1.2	51.7	26.9	22.6	28.6	26.1	29.9	26.8	34.4	31.1	36.3	34.0	31.7	24.5		
W67	428477	264939	35.5	34.0	33.5	23.0	33.9	27.2	30.0	28.0	35.6	33.9	37.9	33.2	32.1	24.8		
W69	428513	264921											26.9	25.1	27.4	21.1		
W70	428554	264870	26.9	18.4	19.1	17.9	21.4	20.0	18.5	17.3			28.7	23.3	21.2	16.3		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.77)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W71	428599	264857	30.2	26.3	23.4	19.1	27.6	23.8	24.8	22.9	32.4	25.0	32.5	25.2	26.1	20.2		
W72	431464	265903	28.8	23.7	22.2	19.3	20.6	21.1	21.1	19.0	24.8	26.3	34.4	24.3	23.8	18.4		
W74	431753	266091			33.0	26.7	29.8	28.8	27.0	26.4	37.1	30.4	41.8	28.5	31.0	23.9		
W75	431714	266269						18.0	22.1	19.4	21.2	24.3	31.0		22.7	18.4		
W76	431720	266739	30.8	25.1	22.2	15.5	19.4	14.8	18.7	9.6	12.9	15.7	21.6	15.1	18.5	14.2		
W77	432067	266283	26.5	26.8	26.3	19.5	22.5	17.3	19.6	21.3	23.5	27.2	30.8	23.3	23.7	18.3		
W78	432339	265865	24.7	28.2	21.5	17.3	21.6	23.4	21.4	21.4	25.5	25.6	30.3	24.0	23.7	18.3		
W79	432850	265340	27.7	25.5		16.5	23.8	20.5	21.6	21.7	27.4	28.0	35.9	26.2	25.0	19.3		
W80	431710	265223			30.0	26.7	29.6	25.5	26.8	26.3	33.2		38.0	27.1	29.2	22.6		
W81	431840	265090	21.0	20.0	17.3	16.3	18.4	13.8	14.0	13.2	25.2	21.1	26.7	17.4	18.7	14.4		
W82	428854	264601			20.5	15.5	20.3	21.0	22.4	17.5	23.8	23.3	29.1	19.4	21.3	16.4		

☒ **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**

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

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Warwick District Council During 2024

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

Additional Air Quality Works Undertaken by Warwick District Council During 2024

- Warwick District Council is currently updating its Air Quality Action Plan to revise the previous version published in 2015. This will be published in 2025 following a public consultation period.
- Three new Airly air quality monitors have been installed in and near to the Leamington Spa AQMA. These provide real-time reporting on levels of $PM_{2.5}$, PM_{10}, and NO_2.
- An assessment of the AQMAs in Warwick District has been conducted incorporating the 2024 data. See Appendix G for further information.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes for the year 2024 were supplied and analysed by Staffordshire Scientific Services (SSS), the tubes were prepared using the 20% Triethanolamine (TEA) in water preparation method. All results have been bias adjusted and annualised where required before being presented in Table A.4.

Staffordshire Scientific Services participates in the AIR-PT scheme which is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL).

Defra and the Devolved Administrations advise that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the AIR-PT scheme. Laboratory performance in AIR-PT is also assessed by the National Physical Laboratory (NPL), alongside laboratory data from the monthly NPL Field Intercomparison Exercise carried out at Marylebone Road, central London. A laboratory is assessed and given a 'z' score. A score of 2 or less indicates satisfactory laboratory performance.

In 2024 AIR-PT results, AIR-PT AR046 (February-December 2024), SSS scored 100% satisfactory. The percentage score reflects the results deemed to be satisfactory based upon the z-score of < ±2.

Additionally, the precision of the NO_2 diffusion tubes supplied by SSS has been classified as 'good' for all observations during 2023. This precision reflects the laboratory's performance and consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Precision summary results are available from the LAQM website.

Monitoring has been completed in adherence with the 2024 Diffusion Tube Monitoring Calendar. All changes occurred on the suggested dates with the exception of November 2024 which was carried out a day later than the intended date (tubes changed on 07/11/2024 rather than 06/11/2024). This was due to staff availability.

Diffusion Tube Annualisation

Annualisation was required for three tubes because data capture was less than 75% but greater than 25%.

Table C.1 shows the annualisation factors used for the 3 diffusion tubes with data capture of less than 75%.

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

Site ID	Annualisation Factor Hamilton Terrace AURN	Annualisation Factor Rugby Road AURN	Annualisation Factor Jury Street	Annualisation Factor Coventry Allesley	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
W1	1.0608	1.0732	1.0332	1.0590	1.0566	35.2	37.2
W36	0.9819	1.0045	-	1.0104	0.9989	28.9	28.8
W75	1.0690	1.0538	-	1.0348	1.0525	22.7	23.9

Diffusion Tube Bias Adjustment Factors

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

Warwick District Council have applied a local bias adjustment factor of 0.77 to the 2024 monitoring data. A summary of bias adjustment factors used by Warwick District 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
2024	Local	<->	0.77
2023	Local	-	0.88
2022	Local	-	0.98
2021	National	03/22	0.86
2020	Local	-	0.97

Table C.3 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	12	10			
Bias Factor A	0.92 (0.85 - 1)	0.67 (0.48 - 1.08)			
Bias Factor B	9% (0% - 18%)	50% (-7% - 107%)			
Diffusion Tube Mean (µg/m^3)	14.1	28.9			
Mean CV (Precision)	5.4%	5.1%			
Automatic Mean (µg/m^3)	13.0	19.3			
Data Capture	100%	100%			
Adjusted Tube Mean (µg/m^3)	13 (12 - 14)	19 (14 - 31)			

Notes:

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

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO_2 monitoring locations within Warwick District Council required distance correction during 2024.

QA/QC of Automatic Monitoring

All automatic monitoring sites in Warwick, other than AURN2 Rugby Road, are calibrated by the Council's Local Site Operator (LSO) – AURN1 Hamilton Terrace and CM1 Jury Street/Pageant House. The QA/QC of the two Leamington Spa sites (AURN1 and AURN2) is undertaken through its status as part of the AURN and therefore conforms to AURN standards (undertaken by Ricardo-Energy and Environment), whereas WeCare4Air is responsible for data management of the non-AURN site, CM1. WeCare4Air is also responsible for the servicing and call out contract for AURN1 and CM1. The service contract for AURN2 is arranged by Bureau Veritas and Defra and is provided by Enviro Technology Services

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

The type of PM_{10} and $PM_{2.5}$ monitor(s) utilised within Warwick District Council do not require the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within Warwick District recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

NO_2 Fall-off with Distance from the Road

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

No automatic NO_2 monitoring locations within Warwick District Council required distance correction during 2024.

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

Figure D.1 – Map of Non-Automatic Monitoring Sites in and around the Warwick AQMA

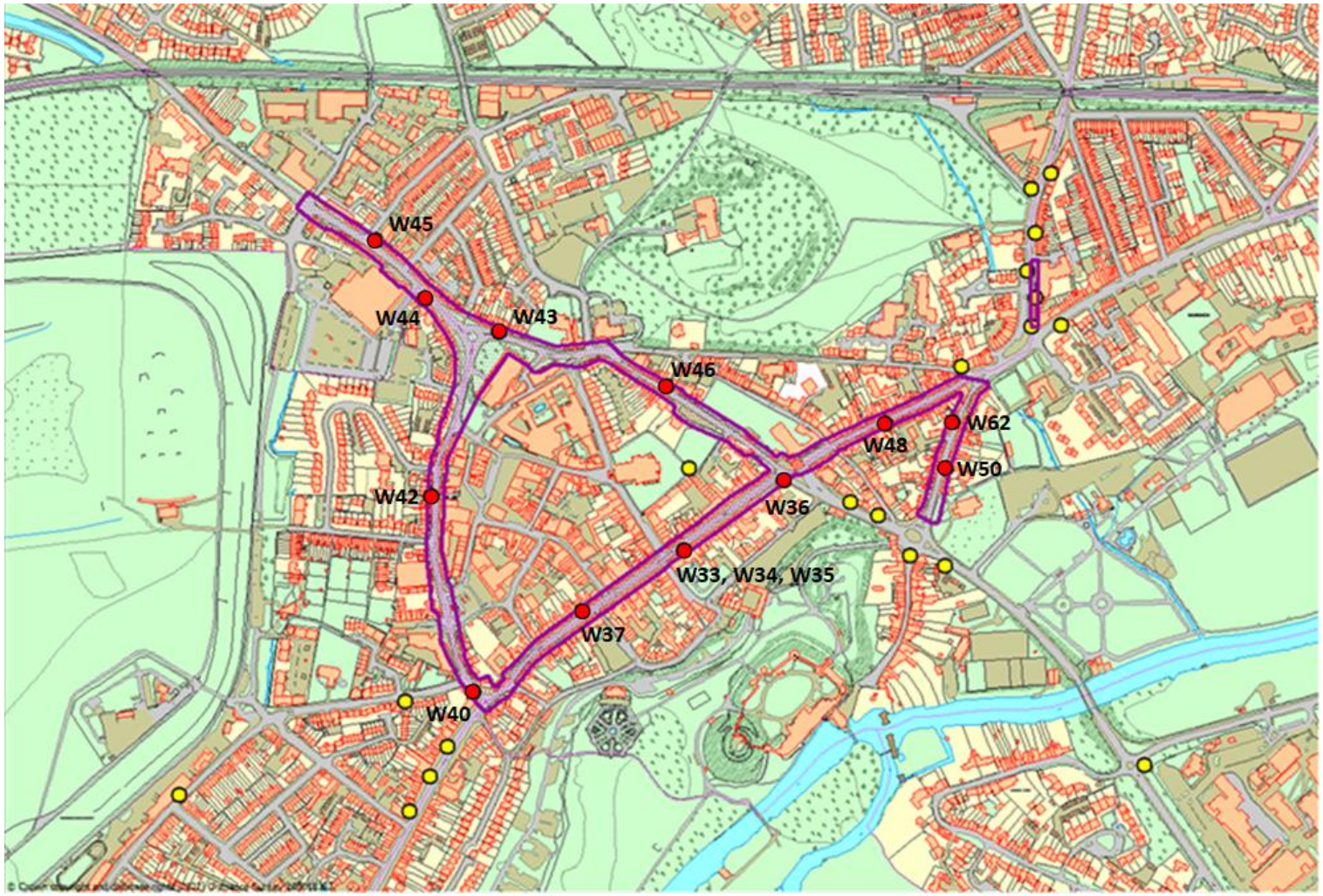
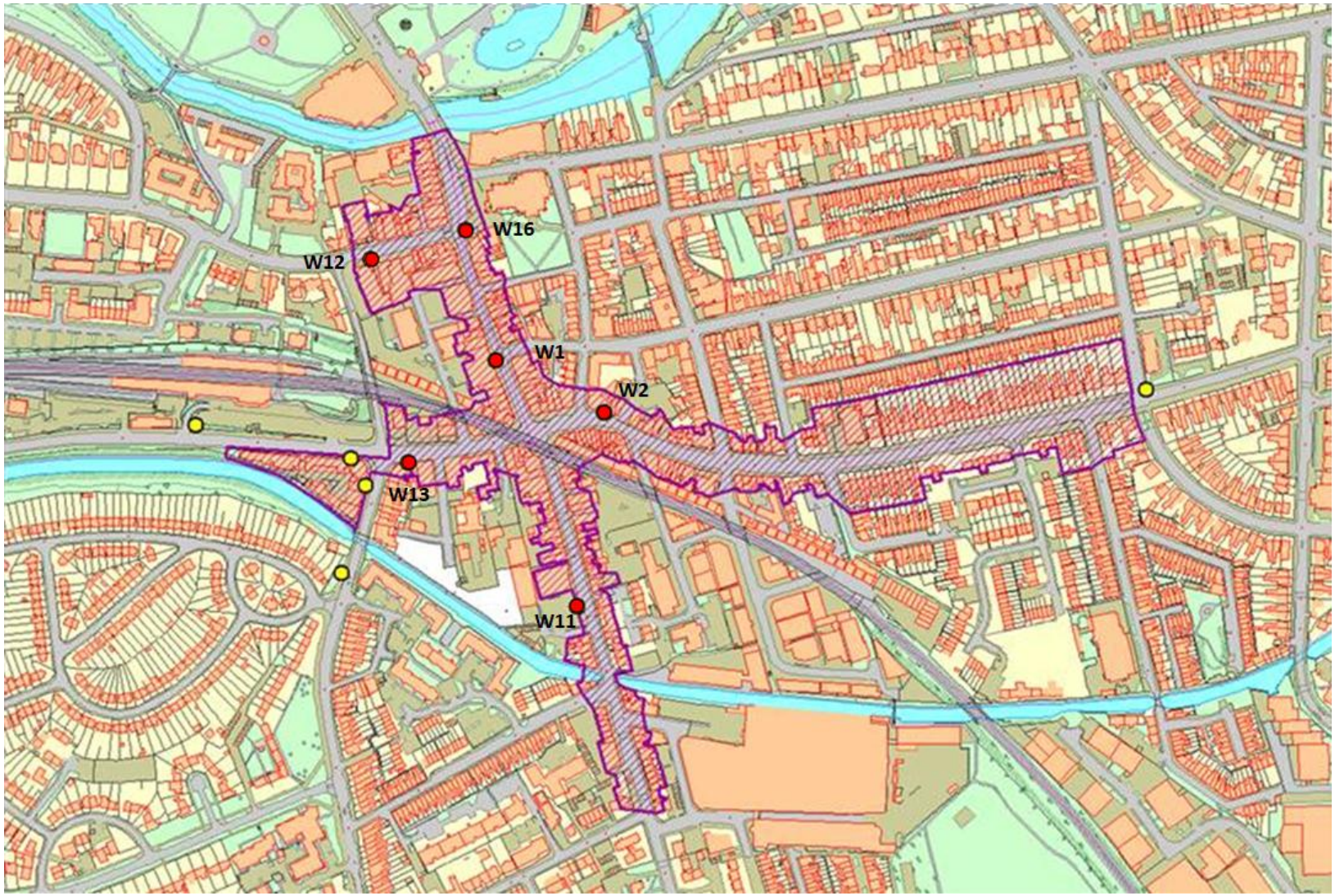


Figure D.2 - Map of Non-Automatic Monitoring Sites in and around the Leamington AQMA



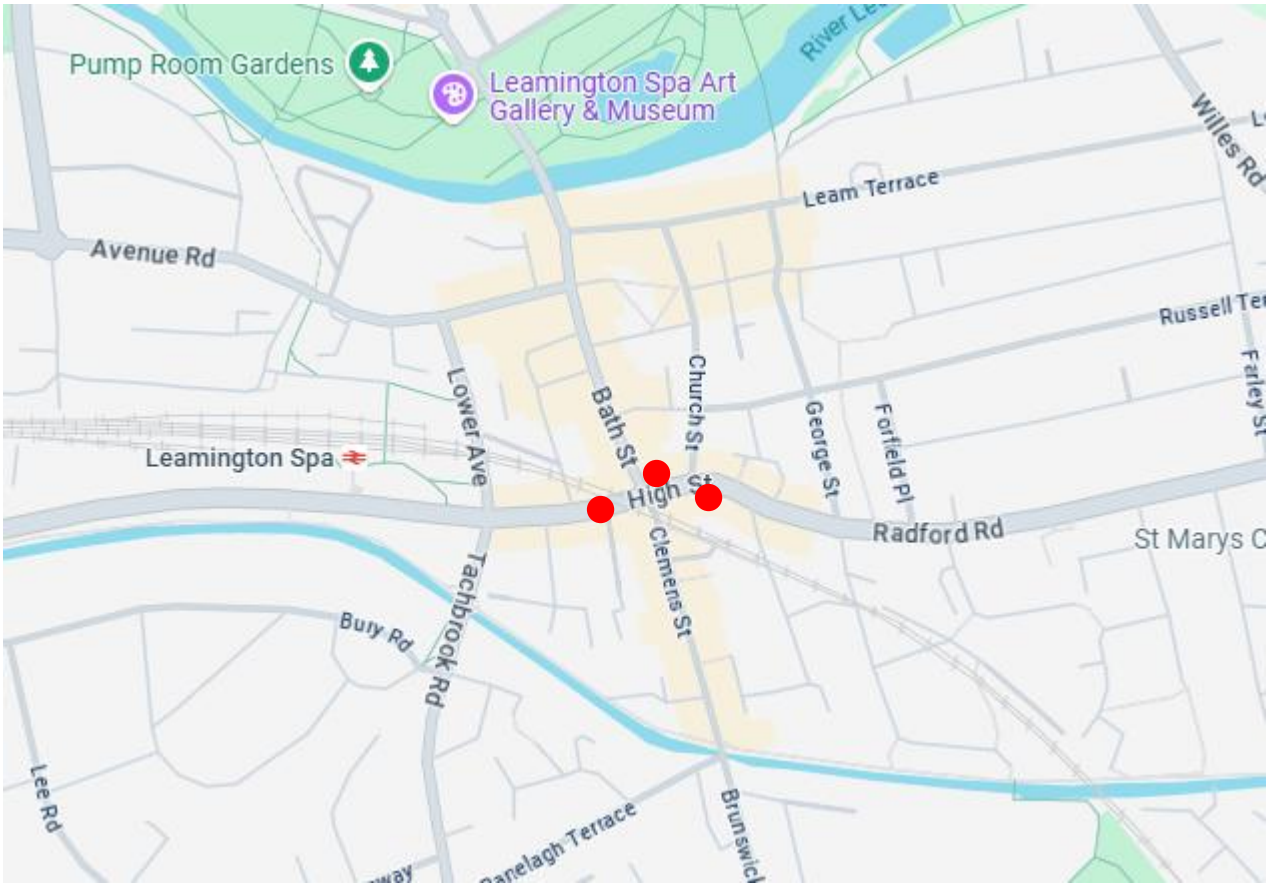
Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[5]

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

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

Appendix F: Location of the real-time Airly air quality sensors in Leamington Spa



Appendix G: Detailed assessment of the Air Quality Management Areas (AQMAs) declared by Warwick District Council

Revocation of an AQMA

The revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as evidenced through monitoring. The Air Quality Standards Regulations (2010) require that the annual mean concentration of NO_2 must not exceed 40 µg/m^3. Where NO_2 monitoring is completed using diffusion tubes, to account for the inherent uncertainty associated with the monitoring method, it is recommended that revocation of an AQMA should be considered following three consecutive years of annual mean NO_2 concentrations being lower than 36µg/m^3 (i.e. within 10% of the annual mean NO_2 objective). There should not be any declared AQMAs for which compliance with the relevant objective has been achieved for a consecutive five-year period.

National trends

The NO_2 index shows the annual mean, averaged over all included sites that had annual data capture greater than or equal to 75% (the shaded areas represent the 95% confidence interval for the annual mean concentration).

Generally, the annual mean concentration of NO_2 at roadside sites, urban background sites, and rural background sites has decreased since the 1990s, with some fluctuations in the mid-2000s which may be attributed to the increased use of coal in power stations, and the increasing popularity of new diesel cars. When excluding the years of the covid-19 pandemic – there was a sharp fall in annual mean from 2019 to 2020 attributed to the decrease in traffic as a result of the pandemic followed by a rise in 2021 due to increased traffic – concentrations have fallen each year to reach a low point in 2023 for roadside, urban background, and rural background monitoring sites.

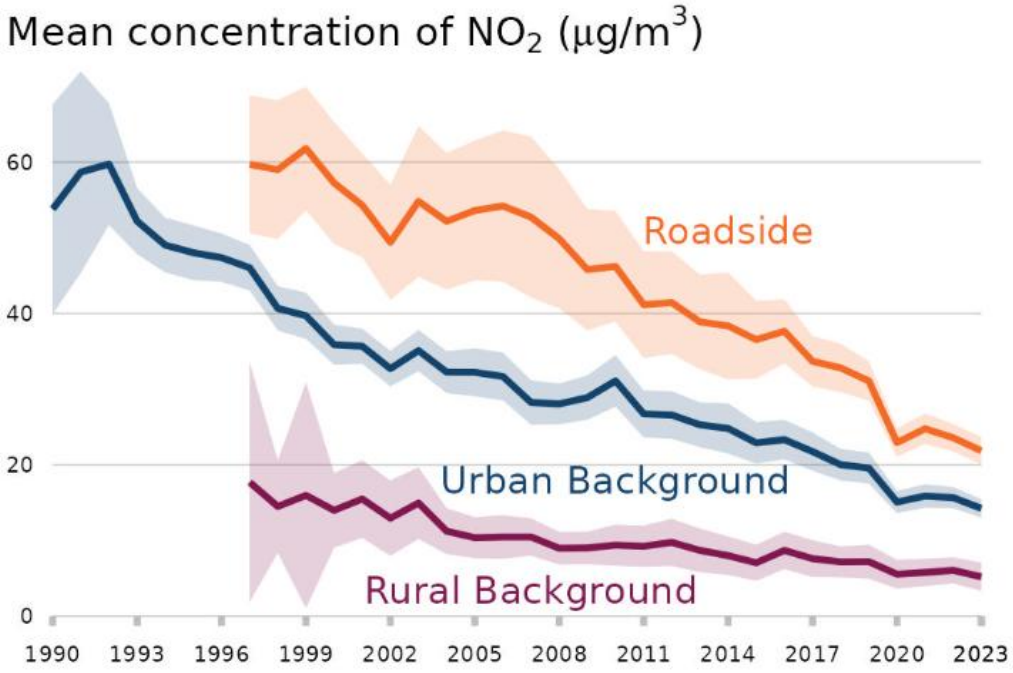


Figure 1 – Annual mean concentrations of NO_2 averaged from sites with an annual data capture of ≥75%.
Source: Nitrogen dioxide (NO2) - GOV.UK

Warwick AQMA

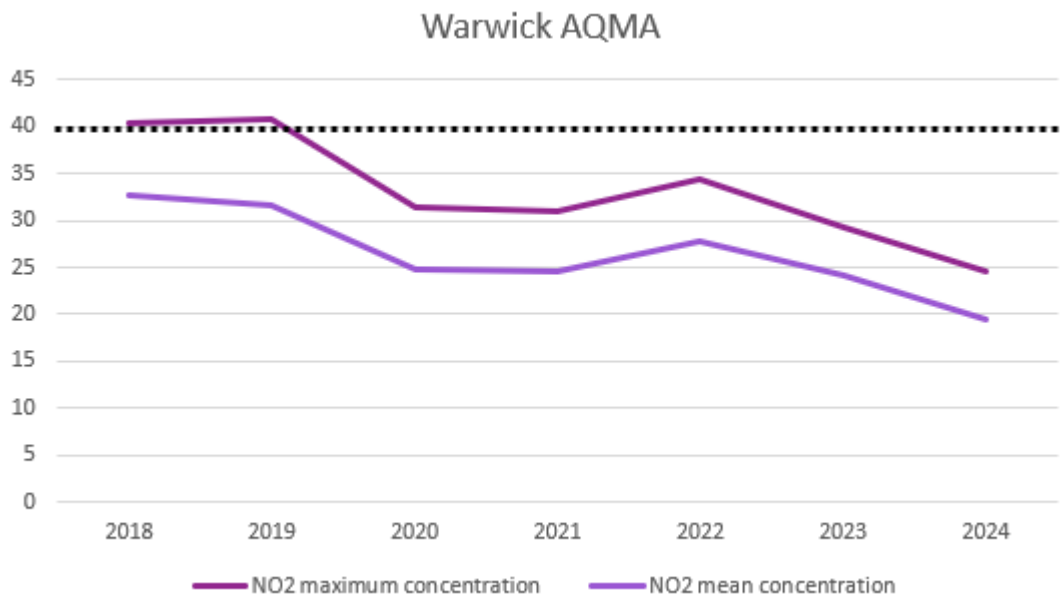
The Warwick AQMA was initially designated based on the NO_2 annual mean objective and has received additional designation based on the NO_2 1-hour mean.

Table 3 – Bias-adjusted and annualised maximum and mean NO_2 concentrations (µg/m^3) measured by diffusion tubes in the Warwick Air Quality Management Area (AQMA)

Warwick AQMA	Year						
	2018[1]	2019[1]	2020	2021	2022	2023	2024
Maximum concentration	40.3	40.9	31.4	31	34.4	29.3	24.5
Mean annual concentration	32.6	31.6	24.9	24.5	27.7	24.2	19.5

1 – data from 2018 and 2019 has been included for analysis due to anomalous data exhibited in 2020 and 2021 attributed to the covid-19 pandemic

This AQMA has maintained compliance with air quality objectives for a consecutive period of 5 years inclusive of 2024. There has been a persistent decline in the maximum concentration and mean annual concentration measured in this AQMA even when considering the anomalous data exhibited in 2020 and 2021. Considering the positive trend exhibited, it is advisable to revoke this AQMA to focus efforts on the other remaining AQMA.



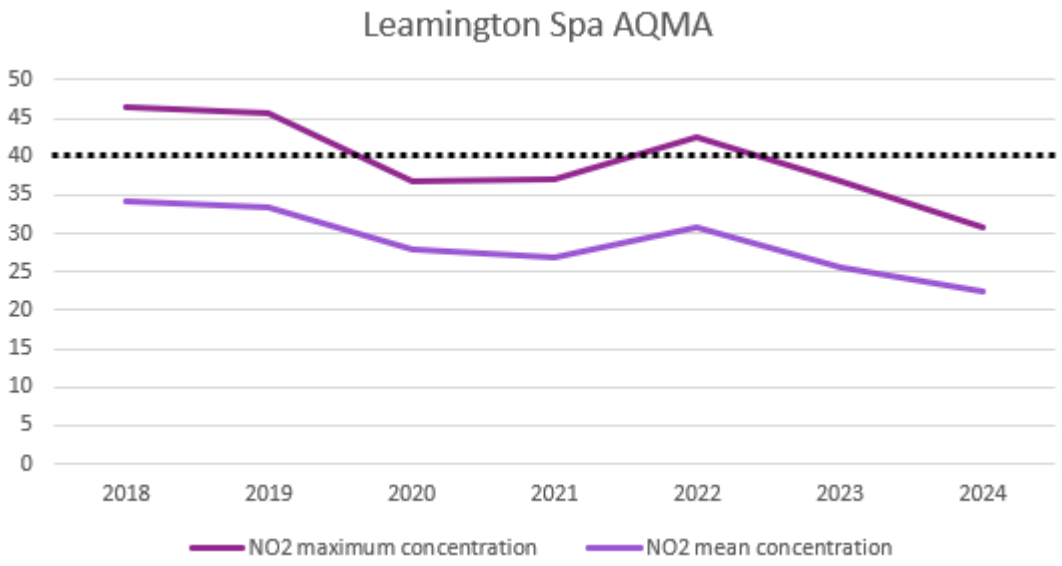
Leamington Spa AQMA

The Leamington Spa AQMA has traditionally not been compliant with air quality standards, with a number of exceedances since the AQMA has been declared. However, the AQMA has maintained compliance below the annual target of 40µg/m^3 for a second consecutive year in 2024. It is not expected that revocation of this AQMA is considered at this time due to recent non-compliances in 2022, and only one year of compliance below the 10% margin of 36µg/m^3. Vigilance and remedial actions should continue until compliance is consistently maintained.

Table 2 – Bias-adjusted and annualised maximum and mean NO_2 concentrations ($\mu g/m^3$) measured by diffusion tubes in the Leamington Spa Air Quality Management Area (AQMA)

Leamington AQMA	Year						
	2018[1]	2019[1]	2020	2021	2022	2023	2024
Maximum concentration	46.4	45.8	36.8	37.2	42.5	36.8	30.9
Mean annual concentration	34.3	33.4	27.9	26.8	30.7	25.7	22.5

1 – data from 2018 and 2019 has been included for analysis due to anomalous data exhibited in 2020 and 2021 attributed to the covid-19 pandemic



Conclusion

Revocation of the Warwick AQMA should be undertaken due to the consistent meeting of air quality standards over the previous 5 years. At this time, work should be focused on the Leamington Spa AQMA to achieve consistent compliance as recent years indicate a trend of general decline.

Another assessment is recommended for the following year.

Glossary of Terms

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

References

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