Warwick District Council

Annual Status Report 2020

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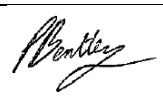
Approved By	P Bentley	Senior Consultant	

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2020 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

December 2020

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Date	December 2020

Executive Summary: Air Quality in Our Area

Air Quality in Warwick District Council

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

Warwick District is situated in the West Midlands, within the county of Warwickshire. To the south lies Stratford-on-Avon, to the east, Rugby, and to the north are Coventry and Solihull. The main towns in the district are Warwick, Leamington Spa and Kenilworth, and there are also a number of villages scattered throughout the rural parts of the district. The main air quality issues identified are for Nitrogen Dioxide (NO_2) emitted from road traffic, particularly at congested town centre locations within Warwick, Leamington Spa and Kenilworth.

There are currently five Air Quality Management Areas (AQMAs) declared in the district, located within Warwick, Leamington Spa and Kenilworth. A detailed breakdown of the AQMAs, along with maps of the areas, can be found here: https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=296. The current Air Quality Action Plan (AQAP), which encompasses all five AQMAs, was updated in 2015.

Monitored concentrations of NO_2 in 2019 show an improvement across the majority of monitoring locations compared to that of 2018. All sites, with the exception of W1, W13, and W43, continued to report concentrations below the Air Quality Strategy (AQS) objective of 40µg/m^3, and no new exceedances have been observed. W1 and W13, both located in the Leamington Spa AQMA, decreased in concentration from that reported in 2018 by a maximum of 1.8µg/m^3, to values of 40.5µg/m^3 and 45.8µg/m^3 respectively. W43, located in the Warwick AQMA, increased in concentration by 2.4µg/m^3 in 2019 to a value of 40.9µg/m^3 after decreasing to below 40µg/m^3 in 2018.

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

These three sites are all located at relevant exposure. 25 hourly NO_2 concentrations greater than 200µg/m^3 were reported at continuous monitoring location CM1 (Jury Street/Pageant House), located within the Warwick AQMA. This is an increase from 0 hourly concentrations in excess of 200µg/m^3 reported in 2018. Concentrations of PM_{10} remain well below the AQS objective.

Warwick District Council is actively working to improve air quality in the district, through the implementation of the action plan and the Air Quality Supplementary Planning Document[4] published in January 2019. Warwick District Council are also working in partnership with Planning and Public Health colleagues, in particular Warwickshire County Council's Transport Planning team in order to implement the Local Transport Plan. Additionally, a Climate Emergency has been declared by Warwick District Council in 2019. Although the focus is on reducing carbon emissions, many of the actions and measures to do this will also likely have a positive impact on air quality.

Actions to Improve Air Quality

Warwick District Council are in the process of implementing a number of key measures in order to address the air quality issues in the AQMAs and on a higher level across the council jurisdiction. One of these measures is the creation and improvement of key corridors that connect town centres within Warwick District. The development of the A452 'Europa Way', a sustainable 'spine' linking Leamington Spa and Warwick, commenced works in May 2018 and has continued throughout 2019 and will continue to be progressed in 2020/21[5]. 'Europa Way' has a number of features that will improve local air quality including; park and ride facilities, segregated bicycle lanes, new pedestrian routes as well as general traffic optimisation and junction improvement. Detail around these plans can be found on the Warwick District Council website.[6]

Other measures that have been implemented in 2019 include: a number of pedestrian and cycle improvements across the District including Northgate in Warwick and additional signage at Warwick and Warwick Parkway railway stations; acquisition and implementation of an additional electric vehicle into Warwick District Councils fleet; and

[4] https://www.warwickdc.gov.uk/downloads/file/5043/air_quality_spd
[5] https://www.warwickshire.gov.uk/major-transport-construction-projects/a452-europa-way-corridor/5?documentId=656&categoryId=20024
[6] WDC 2017 https://www.warwickdc.gov.uk/download/downloads/id/2234/in03_-_draft_infrastructure_delivery_plan_appendix_a_-_transport_corridor_strategies.pdf

the adoption of the Air Quality Supplementary Planning Document to supersede the Low Emission Strategy Guidance.

The measures being implemented through the planning regime have continued to move forward. Planning applications are routinely being reviewed and assessed by the Environmental Health team and air quality assessments requested where relevant. Mitigation, based on the Air quality and planning supplementary planning document is also routinely requested. In addition, an air quality assessment of the impacts of Local Plan development has been undertaken, which goes some way to assessing the potential cumulative impact of development outlined in the Local Plan.

Conclusions and Priorities

The majority of 2019 monitoring locations within Warwick District Council reported a lower level of pollutant concentrations than the previous year. There were three monitored exceedances of the NO_2 annual mean objective, a continued improvement on the 5 observed in 2018.

The monitoring locations that reported exceedences in 2019 are W1, W13 and W43, located within the Warwick AQMA and Leamington Spa AQMA. These sites are located at relevant exposure, therefore distance correction was not required.

There were no monitoring locations that exceeded the NO_2 annual mean objective outside any designated AQMA. In 2018, W67 located at Castle Hill, which is not within a declared AQMA, reported an exceedance, however this has decreased to a concentration of 39.4µg/m^3 in 2019, prior to distance correction. Additional tubes were located nearby at W69, W70 and W71 in 2018, and no exceedances are reported at these locations in 2019.

There were 25 1-hour concentrations that were greater than the hourly NO_2 limit of 200µg/m^3 at the Jury Street/Pageant House continuous monitoring location, CM1. This is located within the Warwick AQMA, declared for both annual and hourly exceedances of NO_2, and is a significant increase from 0 reported in 2018. If the 1-hour NO_2 objective is breached continuously in the coming years, further investigation may be required to determine whether additional measures are necessary.

Warwick District Council do not propose any changes to the existing AQMAs for this reporting year, nor is there currently any intention to incorporate the Castle Hill area into the AQMA. Monitoring shall remain here to determine future trends in order to

support extension of the AQMA if required. Similarly, the monitoring site located on Tachbrook Road, Leamington Spa will continue to be monitored for exceedances to ascertain if the Leamington Spa AQMA boundary will be adjusted. There is no intention currently to revoke either of the Kenilworth AQMAs.

Following a decrease in the trend of NO_2 concentrations in 2019, Warwick District Council will continue to implement measures outlined in the AQAP. Future ASRs will continue to review the effectiveness of these measures.

Local Engagement and How to get Involved

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 at https://carsharewarwickshire.liftshare.com/.

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

An air pollution page is available on the Council website, found here https://www.warwickdc.gov.uk/info/20505/air_pollution, all statutory reports and up to date information is uploaded to, and presented within this page.

Table of Contents

List of Tables

List of Figures

1 Local Air Quality Management

This report provides an overview of air quality in Warwick District Council during 2019. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 pursuit of the objectives. 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 can be found in Table E.1 in Appendix E.

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 must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Warwick District Council can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=296. Alternatively, see Appendix D: Maps of Monitoring Locations and AQMAs, which provides a map of air quality monitoring locations in relation to the AQMA(s).

There were three exceedances of the NO_2 annual mean objective reported in 2019, all located within an existing AQMA – W1 and W43 located within Warwick AQMA, and W13 located within the Leamington Spa AQMA. These sites are all located at an area of relevant exposure, therefore they have not been distance corrected. There were no exceedances of the annual mean NO_2 objective reported at any site outside the currently designated AQMAs.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan		
						At Declaration	Now	Name	Date of Publication	Link
Warwick Coventry Road	Mar-11	NO_2 Annual Mean	Warwick	The area covers the east side of Coventry Road from the junction with St. Johns / Coten End, incorporating 2-4 Coventry Road and Montgomery Court, properties fronting on to Coventry Road only.	NO	50.8	34.7	Air Quality Action Plan: Warwick District Council	June 1st 2015	http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan
Warwick Road (Kenilworth) AQMA	Nov-08	NO_2 Annual Mean	Kenilworth	An area encompassing all properties along Warwick Road, Kenilworth between the junctions with Station Road and Waverley Road.	NO	48.1	28.8	Air Quality Action Plan: Warwick District Council	June 1st 2015	http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan

New Street Kenilworth AQMA	Nov-08	NO_2 Annual Mean	Kenilworth	An area encompassing all properties fronting New Street, Kenilworth from the junction with Bridge Street/Fieldgate Lane up to and including No. 17 New Street.	NO	39.8	29.3	Air Quality Action Plan: Warwick District Council	June 1st 2015	http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan
Leamington Spa AQMA	Dec-04 Amended 2014	NO_2 Annual Mean	Leamington Spa	An area of South Town, Leamington Spa, centred on High Street, Clemens Street and Bath Street.	NO	52.9	45.8	Air Quality Action Plan: Warwick District Council	June 1st 2015	http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan
Warwick AQMA	Dec-04 Amended 2008	NO_2 Annual and 1-Hour Mean	Warwick	An area in the centre 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 nearby properties. This AQMA is now declared for both annual and hourly mean nitrogen dioxide objectives.	NO	58.3	40.9	Air Quality Action Plan: Warwick District Council	June 1st 2015	http://www.warwickdc.gov.uk/download/downloads/id/517/air_quality_action_plan

☒ **Warwick District Council confirm the information on UK-Air regarding their AQMAs is up to date**

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 is well structured, detailed, and provides most of the information specified in the Guidance". Additional comments provided are as follows:

1. *"The Council have extended their monitoring network for 2018 with the addition of 5 new passive monitoring sites.*
2. *A couple of inconsistencies were noted within the report, which should be rectified prior to final publication:*
    a. ***Table 2.1**: maximum concentration at relevant exposure in 2018 within the Warwick and Leamington Spa AQMAs is noted to be 50.2 µg/m^3 and 55.4 µg/m^3, respectively. This does not correspond with the maximum presented annual mean NO2 concentration across the District as a whole of 46.4 µg/m^3 at W13.*
    b. *In **section 3.2.1**, the Council state there to be 4 exceedances of the annual mean NO_2 objective in the Leamington Spa AQMA during 2018, and 1 exceedance within the Warwick AQMA. The former appears to be a typo given there to be a total of 5 exceedances, one of which is noted to be outside of an AQMA.*
3. *The Council note continuous monitoring of O_3, however do not present any results. Presentation of monitoring results and accompanying discussion is encouraged in all future reports."*

Additional care has been taken this year to ensure that there are no inconsistencies throughout the report.

Warwick District Council has taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

More detail on these measures can be found in their respective Action Plan. Key measures completed and progressed in 2019 are:

- Completion of Northgate pedestrian improvements, with cycle improvements following. Funding has been secured to complete pedestrian/cyclist route improvements in Warwick town centre;

- Introduction of 4 new electric vehicles into Warwickshire County Council's fleet, and one new electric vehicle has been adopted into Warwick District Council's fleet, raising their total to 6. An additional 2 vehicles are being considered;
- New signage at Warwick and Warwick Parkway railway stations showing walking routes/times;
- Warwickshire County Council has carried out initial works in regards to locating an additional park and ride site to the north of Warwick, alongside continuing to investigate additional sites;
- The Air Quality Supplementary Planning Document was adopted by Warwick District Council in January 2019, superseding the Low Emission Strategy Guidance. This was written jointly on behalf of WDC and neighbouring councils (Stratford District Council, Coventry City Council, Rugby Borough Council, and Nuneaton and Bedworth Borough Council); and
- Warwick District Council declared a Climate Emergency in 2019, including commitment to becoming a net-zero organisation by 2025. Measures and actions will likely impact positively on local air quality as well as reducing carbon emissions.

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

- Continuation of the Europa Way corridor improvements, due to be completed in 2020/21;
- Improvements to the X17 bus route to speed up buses in certain areas in co-operation with Stagecoach;
- Installation of 100 twin-headed charging points across Warwickshire; and
- Continuing to assess the monitoring network within Warwick District Council to deploy/relocate monitoring sites as required.

Warwick District Council's priorities for the coming year are continuing the on-going improvements of the Europa Way corridor which includes a high standard, dedicated cycle route on a section of the highway, and progression of installation of twin-headed charging points across Warwickshire.

The principal challenge facing Warwick District Council with the implementation of current and future measures is predominantly sourcing funding for some of the schemes and measures outlined in Table 2.2.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Area wide improvements to walking and cycling infrastructure	Promoting Travel Alternatives	Promotion of Cycling and Promotion of Walking	Ongoing	WCC	WCC, possible CIL contribution to some schemes	n/a	n/a	1. Europa Way Corridor Improvements commenced in May 2018 and are ongoing. 2. Shared use cycle path created on Priory Road, Warwick. 3. Traffic model developed for a two way cycle link between Leamington Spa and Warwick along Emscote Road with funding now secured for this scheme. 4. Works have been completed at Northgate, Warwick to improve pedestrian routes between Warwick railway station and the town centre. 5. Bicycle hire/share scheme is being explored that could serve Leamington Spa railway station, Warwick Technology Park, and Heathcote Industrial Estate.	Ongoing implementation of schemes	Europa Way corridor improvements are ongoing. Emscote Road cycleway development work will continue during 2020/21. Northgate, Warwick pedestrian improvement works are complete, cycle improvements in this area are to follow. WDC are taking forward proposals for a bike share scheme in Warwick District in conjunction with Stratford DC and WCC.
2	Smarter Choices and Travel Planning programme	Promoting Travel Alternatives	School Travel Plans and Workplace Travel Planning	Ongoing	WCC	WCC, Defra Air Quality Grant	n/a	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	Ongoing implementation of schemes	WCC's Road Safety Education Team are currently engaging with employers and schools to promote active travel in partnership with road safety initiatives. A campaign to support safe and active travel in primary schools in AQMAs and other urban areas has been proposed and a bid for Defra funding submitted.

									Coventry and Warwickshire LEP and have promoted the concept to other local companies. 2. Active travel website is operational and being maintained.		
3	Targeted bus stop infrastructure upgrades on key public transport corridors	Transport Planning and Infrastructure	Bus Route Improvements	Ongoing	WCC	WCC	n/a	n/a	Feasibility work undertaken on some corridors	Ongoing implementation of schemes	WCC are working with local bus operator, Stagecoach, to map the X17 bus route and look at what could be done to speed up the movement of buses in certain areas. Traffic signalling changes could improve traffic flows and reduce periods when buses are stationary. If successful other routes will also be examined.
4	Improving infrastructure to improve walking and cycling signage	Promoting Travel Alternatives	Promotion of Cycling and Promotion of Walking	Ongoing	WCC	WCC	n/a	n/a	1. New signage nodes installed in Leamington Spa town centre and railway station in May 2018 showing walking routes/times. Signages nodes at Warwick and Warwick Parkway railway stations also now in place. 2. Bike hire/share scheme being explored to serve Leamington Railway station and large employment sites such as Warwick Technology Park and Heathcote Industrial Estate.	Ongoing implementation of schemes	1. Signage nodes at Warwick and Warwick Parkway railway stations are now in place. 2. A bike share scheme is currently being explored by WDC in conjunction with Stratford DC and WCC.
5	Hearts and Minds campaign to encourage modal shift away from	Public Information	Other	Ongoing	WCC	WCC, grant funding where available	n/a	n/a	1. The 'Choose how you move' (CHYM) Active Travel campaign is continuing. The campaign has also been expanded in Leamington Spa	Ongoing campaigns	1. Following an initial trial in Leamington the Better Points scheme is to be rolled out more widely across the District. 2. The 50 personal

	private car use								where WDC, in partnership with WCC, have set up a rewards programme using the 'BetterPoints' app. The scheme encourages walking, cycling and use of public transport in Leamington by allowing users to log their green travel in return for BetterPoints that are then redeemable on the high street. Further details can be found at https://www.warwickdc.gov.uk/news/article/296/choose_how_you_move_in_leamington_spa 2. Warwickshire Public Health secured funding for 50 personal air quality monitors and an initial project was carried out looking at air quality awareness and impact on travel behaviours.		air monitors acquired by WCC Public Health are expected to be used for further projects across Warwickshire.
6	Further consideration of Park and Ride	Alternatives to private vehicle use	Bus based Park and Ride	Ongoing	WCC	WCC	n/a	n/a	1. Park and Ride facilities outlined in key transport corridor proposals. 2. 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. 3. A park and ride at Blackdown (North of Leamington Spa) is included in local plan and on Community Infrastructure Levy (CIL) list. 4. Warwickshire	Unknown at this time	WCC have completed an initial piece of work to look at locating a park and ride site to the north of Warwick, they are also continuing to investigate additional sites and are working with WDC to see how these may fit into the wider parking strategy for the District.

									County Council commissioning works to explore park and ride facilities to the North and South of Leamington Spa.		
8	Publicising CarShare Coventry and Warwickshire	Alternatives to private vehicle use	Car and lift sharing schemes	Ongoing	WCC	WCC	n/a	n/a	1. Active Travel website publicising car sharing opportunities. Following the success of the Wolseley car share scheme WCC have presented to the Cov and Warks LEP with a view to expanding the scheme to other local employers. 2. Signage in Leamington Spa and Warwick being explored to further promote scheme.	Ongoing	Limited scope for impact at the current time while the Covid-19 situation has led to increased home working and a reduction in the number of employees commuting to workplaces.
9	Supporting future opportunities for funding for Low Emission Vehicles, in particular for vehicle charging infrastructure	Promoting Low Emission Transport	n/a	Ongoing	WDC / WCC	WCC, OLEV grant	n/a	n/a	WCC currently developing an Electric Vehicle Charging Strategy.	Ongoing implementation	A bid for funding from OLEV has been successful and approximately 100 twin-headed charging points are due to be installed across Warwickshire. WCC have introduced electric vehicles for their pool fleet (four vehicles).
10	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	WDC	WDC	n/a	n/a	Implementation of Low Emission Strategy Guidance, and more recently WDC's Air Quality Supplementary Planning Document. EV infrastructure continues to be sought and implemented as part of the planning process.	Ongoing implementation	The Low Emission Strategy Guidance has been superseded by an Air Quality Supplementary Planning Document which was adopted by WDC in January 2019. The new SPD was written jointly on behalf of WDC and neighbouring councils at Stratford DC, Coventry City, Rugby BC and Nuneaton and Bedworth BC.

11	Moving the Warwick DC fleet to electric vehicles where practicable	Promoting Low Emission Transport	Public Vehicle procurement	Ongoing	WDC	WDC, grant funding	n/a	n/a	5 vehicles ordered as pool vehicles	Vehicles in place as of 2016. Ongoing commitment where feasible	A further electric vehicle has been added to the WDC fleet bringing the total number of vehicles to 6. Options for adding a further two vehicles are also being considered.
12	Strive to set up an Ecostars scheme in Warwick District Council whereby fleet operators can join for free and strive to reduce their environmental impacts.	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	TBC	WDC	Grant funding if available	n/a	n/a	Not taken forward yet – no grant funding available	Subject to grant funding	No Update
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	WCC	Grant funding if available	n/a	n/a	1. Meetings held with bus providers in the Warwick district. Obtained details on composition of vehicle fleet and have identified eight Euro 4 buses that are eligible for retrofitting. 2. Initial discussions with local bus providers and bus manufacturers on possibility of trialling an electric bus route through the Leamington Spa AQMA. Expression of interest has been submitted for funding. Full bid to be submitted in 2018.	Subject to grant funding	An initial electric bus funding bid was submitted in 2018 but was unsuccessful, other funding options are currently being explored. Coventry City Council have applied for funding under the 'all electric bus town' scheme and cross-boundary routes between Coventry and Warwickshire are being considered as part of the bid, a business case will be developed over the coming months. If the bid is successful there is potential for routes between Coventry and the towns within Warwick District to become electric. It would also provide opportunities for bus charging infrastructure to be installed within the District.

14	Ensuring that the electric taxi within Warwick District Council is utilised to promote Low Emission Vehicles to commercial operators and the public.	Promoting Low Emission Transport	Taxi emission incentive	Ongoing	WDC		n/a	n/a	Not feasible as taxi is privately owned	n/a	No update
15	Promotion of electric vehicles through the Warwickshire Drive Electric Website. http://www.warwickshire.gov.uk/driveelectric	Promoting Low Emission Transport	Other	Ongoing	WCC	WCC	n/a	n/a	Website is updated and maintained.	Ongoing implementation	Ongoing. WDC website includes links to maps showing the locations of EV charging points in the District https://www.warwickdc.gov.uk/info/20535/car_parks/320/electric_charging_points Owners of electric vehicles can currently apply for a permit which allows free parking in WDC car parks, permits will initially be valid until 31st July 2021.
16	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	WDC	WDC, grant funding	n/a	n/a	Preliminary review of WDC licensed taxi fleet completed in November 2017. Explored possibility of a county-wide taxi euro emission licensing policy through the Coventry and Warwickshire Air Quality Alliance, however, limited interest from neighbouring local authorities.	To be confirmed	An electric taxi project is currently underway with a view to introducing electric charging infrastructure for taxis and incentives to encourage taxi drivers to make the switch to electric vehicles.
17	Investigation with procurement colleagues to produce a sustainable procureme	Policy Guidance and Development Control	Sustainable Procurement Guidance	TBC	WDC (Procurement)	WDC	n/a	n/a	No progress made to date	2018	WDC declared a Climate Emergency in 2019 which includes a commitment to becoming a net-zero carbon organisation by 2025, including all contracted out

	nt guide to ensure transport emissions are as low as possible										services. It is expected that 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.
18	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	WDC E,S, H and CP and Planning	WDC	n/a	n/a	1. Good progress in implementing mitigation through development control. 2. WDC's Low Emission Strategy Guidance has been superseded by an Air Quality SPD which is now being implemented.	Ongoing	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.
19	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	WDC E,S, H and CP and Planning	WDC	n/a	n/a	Planning policy relevant to air quality included in new Local Plan	Ongoing	

20	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	WCC Public Health	WCC Public Health	n/a	n/a	5 minute walkable neighbourhoods have been investigated within work undertaken by WYG on how developments should look	Ongoing encouragement of active travel	Ongoing
21	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	WDC E,S, H and CP and Planning	WDC	n/a	n/a	NPPF followed for new development. Green infrastructure included where relevant	Ongoing	Ongoing
22	Ensuring that planning applications with potential air quality impacts are fully assessed for their impacts, at relevant locations using appropriate	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	WDC E,S, H and CP and Planning	WDC	n/a	n/a	Air quality assessments asked for on a regular basis and mitigation sought where necessary	Ongoing	

	methodologies										
23	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	WDC E,S, H and CP and Planning	WDC	n/a	n/a	Ongoing work required where large areas of development are allocated in Local Plan. Potential cummulative impacts raised at pre-application and outline planning application stages as necessary.	Ongoing	Ongoing
24	Ensuring that appropriate mitigation is implemented where any relevant impacts are identified	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	WDC E,S, H and CP and Planning	WDC	n/a	n/a	Mitigation asked for on a regular basis as part of the Low Emission Strategy (superseded in 2019 by WDC's Air Quality SPD).	Ongoing	
25	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	WCC (Transport)	WCC (Transport)	n/a	n/a	Good progress on planning and starting to implement corridor proposals	Ongoing for different corridors, Europa Way works commenced in 2018 and are continuing.	Work on the Europa Way corridor has begun and is ongoing. A scheme to address air quality issues in the Bath Street area is being developed. Options include priority measures for buses, traffic management proposals to reduce queuing traffic in and around the Bath Street area, and improved connectivity for pedestrians and cyclists.
26	An investigation of 20 mph zones	Traffic Management	Reduction of Speed Limits, 20 mph zones	Ongoing	WCC (Transport)	WCC (Transport)	n/a	n/a	Good progress	2022	No update

	as part of the wider transport strategy, where this will smooth traffic flow										
27	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	WCC (Transport)	WCC (Transport)	n/a	n/a	Good progress on planning and starting to implement corridor proposals	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 Northgate, Eastgate, Westgate, St. Johns, and Emscote Road	Work on the Europa Way corridor has begun and is ongoing. Northgate pedestrian improvement works were completed in 2019 and funding has been secured to complete the remainder of the planned Warwick town centre works which will act to make movement easier for pedestrians and cyclists. All of the remaining works planned for Warwick, including junction improvements at Eastgate and Westgate and the introduction of one-way routing in some areas, are expected to go ahead.
28	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	WCC (Transport)	WCC (Transport)	n/a	n/a	Will review at future Steering Group meetings	n/a	No update, ongoing
29	Re-investigate funding for a website to engage with the public on	Public Information	Via the internet	Ongoing	WCC Public Health	WCC Public Health	n/a	n/a	Air quality information incorporated into Active Travel website. Further information about air quality and local	Ongoing implementation	Ongoing

	air quality, the health impacts of poor air quality, sustainable transport and strategies to improve air quality								AQMAs to be included. https://www.warwickshire.gov.uk/active travel		
30	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	WCC Public Health	WCC Public Health	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.	Ongoing	Ongoing
31	Investigate implementing a campaign aimed at vulnerable members of the public (i.e. those with existing respiratory or cardio vascular conditions) in order that they could change behaviour to reduce exposure when pollution levels are high	Public Information	Via the internet	Ongoing	WCC Public Health	WCC Public Health	n/a	n/a	Instead will embed active travel in everything we do, aimed at whole population	Ongoing	Funding for personal air monitors was secured and an initial project completed.

32	Continuation of monitoring within Warwick District Council, focussed on AQMAs, but also in other strategic locations	n/a	n/a	Ongoing	WDC E,S, H and CP.	WDC	n/a	n/a	Monitoring reported in this report	Ongoing	Three additional diffusion tubes have been installed in and around Castle Hill, Warwick to determine whether the current boundary of the Warwick AQMA should be adjusted. Two further tubes have also been added to the network for the purpose of investigating any temporary air quality concerns, these have been deployed in Dale Street, Leamington since July 2018 and are expected to be relocated during 2020.
33	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	WDC E,S, H and CP.	WDC	n/a	n/a	Undertaken in this report	Ongoing	
34	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	WDC E,S, H and CP	WDC	n/a	n/a	Undertaken in this report	Ongoing	

Notes:

Measures are presented in order of efficacy, with 1 being expected to have the largest improvement on air quality, and 34 expected to have the least.

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

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Whilst the current AQAP is focused on NO_2 reductions, the majority of the measures outlined in the AQAP will also lead to improvements in $PM_{2.5}$ emissions. A large portion of $PM_{2.5}$ arises from transport, notably brake and tyre wear and so any measures that decrease overall vehicle trips will lead to decreased annual mean concentrations of $PM_{2.5}$. The council continue to monitor and review combustion emissions from industrial processes, and domestic appliances, and enforce statutory controls through the use of permitting etc.

The Department of Health's Public Health Outcomes Framework[7] have a number of public health indicators that are used to 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 "3.01- Fraction of Mortality Attributable to Particulate Air Pollution" which is calculated using background annual average $PM_{2.5}$ concentrations, modelled at a $1km^2$ resolution based on measured concentrations from the AURN. Warwickshire had a 5.0% fraction of mortality calculated, equal to that of the West Midlands region and 0.2% lower than England as a whole.

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.

Monitoring of $PM_{2.5}$ is completed at two Automatic Urban and Rural Network (AURN) sites within the councils remit. AURN1 concentrations have mostly shown a steady decrease across a five year period, with a $0.6µg/m^3$ decrease in annual mean concentration in 2019 compared to 2018. The roadside AURN2 site has seen $PM_{2.5}$

[7] https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/3/gid/1000043/pat/6/par/E12000005/ati/101/are/E07000222/iid/30101/age/230/sex/4

concentrations showing a slight increase since 2016, however a decrease of 2.2µg/m^3 was reported from 2018 to 2019.

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.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with the national air quality objectives.

Warwick District Council undertook automatic (continuous) monitoring at one site during 2019. Additionally, there are two AURN automatic monitoring stations located within the district. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at https://uk-air.defra.gov.uk/networks/.

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 (passive) monitoring of NO_2 at 56 sites during 2019, inclusive of two triplicate co-location sites. Table A.2 in Appendix A shows the details of the sites. Monitoring was ceased at sites W65 and W68 in 2018.

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[8], “annualisation” (where the data capture falls below 75%), and distance correction[9]. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3. Note

[8] https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html
[9] Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

that the concentration data presented in Table A.3 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 2019 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.

In 2019, out of the total 56 non-automatic NO_2 monitoring sites, three sites reported an exceedance of the NO_2 annual mean AQS objective concentration, sites W1, W13, and W43, where W1 and W13 are located within the Leamington Spa AQMA, and W43 is located within the Warwick AQMA. Additionally there were five sites where concentrations were within 10% of 40µg/m^3, W14 and W15 located within the Leamington Spa AQMA, W36 and W62 located within the Warwick AQMA, and W67 located outside any AQMAs. Site W1 and W13 have shown a decrease in NO_2 concentrations since 2017, however by a lesser amount from 2018 to 2019, whereas W43 has shown an increase in 2019 to a concentration of 40.9µg/m^3, but an overall decrease since 2017. Additionally, most other sites throughout the district have shown a decrease in NO_2 concentrations since 2017.

Sites W13, W1, W15, W43 and W62 are all located at a location of relevant exposure, however W14, W36 and W67 are not. Following distance correction calculations, these sites report annual mean NO_2 concentration well below the AQS objective (29.3µg/m^3, 34.0µg/m^3, and 34.0µg/m^3 respectively). 2019 was the first year in which sites W1, W15, W36, and W67 reported concentrations below the AQS objective.

Although most sites throughout the district have shown a decrease in concentrations compared to previous years, the largest decrease being by 4.9µg/m^3 at site W52, some other sites have shown an increase. The largest of these is at site W25 in Kenilworth, which increased by 2.6µg/m^3 compared to 2018. Despite this however, none of the increases in annual average NO_2 concentrations have resulted in a new exceedance of the AQS objective.

In regards to the long-term concentrations observed at the continous monitoring locations, all sites reported a concentration well below the AQS annual mean objective of 40µg/m^3, with CM1, located within the Warwick AQMA, reporting the highest at 35.6µg/m^3, an increase of 3.2µg/m^3 from 2018.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year. For the first time at any of the sites in the past five years, CM1 has reported more than 18 hourly concentrations greater than 200µg/m^3. A total of 25 exceedances were reported in 2019, an increase from 0 reported in 2018. These were recorded between the periods of 04/02/2019 – 25/02/2019, and 10/12/2019 – 31/12/2019. It is suspected that this is likely a result of short term local activities, however this has not been verified. If this continues next year, further investigation and action will be required. The other continuous monitoring sites (AURN1 and AURN2) reported no hourly concentrations in excess of 200µg/m^3 during 2019.

3.2.2 Particulate Matter (PM_{10})

Table A.5 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

Table A.6 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past 5 years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

There have been no monitored exceedances of the long term objective at either of the AURN sites within Warwick District Councils' jurisdiction. AURN1, the urban background site, has shown a slight decrease in annual mean PM_{10} concentrations from 2018 (0.6µg/m^3), whilst AURN2, the roadside site, has shown a slight increase in annual mean PM_{10} concentrations (0.5µg/m^3). Despite this, both sites continue to report concentrations well below the AQS objective.

AURN1 reported 3 exceedances of the 50µg/m^3 limit in 2019, with AURN2 reporting 4. Both of these are well below the permitted 35 annual exceedances.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.7 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past 5 years.

$PM_{2.5}$ concentrations continue to fall at the urban background site (AURN1), dropping by 0.6µg/m^3 in 2019 to a concentration of 9.2µg/m^3. AURN2 has also shown a decrease in 2019 to 9.8µg/m^3 (a decrease of 2.2µg/m^3 from 2018), which had

previously shown a gradually increasing trend. Both sites report concentrations well below the recommended exceedance limit of 25µg/m^3.

3.2.4 Benzene (C_6H_6)

Whilst there is no obligation for Warwick to report on Benzene levels within the Council, in the interest of transparency, the monitored Benzene results from AURN1 have been presented in Table A.8.

In addition to being part of the AURN, the AURN1 monitoring site is part of the Non-Automatic Hydrocarbon Network that monitors ambient benzene concentrations across the UK.

Benzene concentrations for 2019 at AURN1 have marginally decreased from 2018 to a value of 0.47µg/m^3, remaining well below the annual average AQS objective of 5µg/m^3.

3.2.5 Ozone

Whilst there is no obligation for Warwick to report on Ozone levels within the Council, in the interest of transparency, the monitored Ozone results from AURN1 for the past 5 years have been presented in Table A.9.

The number of 8-hourly Ozone concentrations exceeding 100µg/m^3 observed in 2019 at AURN1 have decreased from 10 being reported in 2018 to 5 in 2019, remaining below the AQS objective of no more than 10 exceedances. The number of exceedances reported over the past 5 years have fluctuated from 1 to 10 8-hourly concentrations greater than 100µg/m^3.

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?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
AURN1	Hamilton Terrace, Leamington Spa	Urban Background	431943	265730	NO_2, O_3, C_6H_6, PM_{10}, $PM_{2.5}$	NO	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	Chemiluminescence, FDMS	23	8	3.5
CM1	Jury St/Pageant House, Warwick	Roadside	428263	264877	NO_2	YES	Chemiluminescence	13	2.8	2.4

Notes:
(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).
(2) N/A if not applicable

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

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
W1	Bath Street	Kerbside	431978	265280	NO_2	YES	Y	0.7	NO	2.7
W2	High Street	Roadside	432075	265234	NO_2	YES	Y	2.2	NO	2.7
W5	Hampton Street (3)	Roadside	427615	264563	NO_2	NO	Y	2	NO	1.5
W6/7/8	Hamilton Terrace	Urban Background	431943	285730	NO_2	NO	N	n/a	YES	3.1
W10	Farley Street	Roadside	432560	265254	NO_2	NO	N	0.1	NO	2.9
W11	Clemens Street	Roadside	432051	265060	NO_2	YES	N	3.2	NO	2.9
W12	Spencer Street	Roadside	431866	265371	NO_2	YES	N(0.2)	5	NO	2.8
W13	Wise Street	Roadside	431900	265189	NO_2	YES	Y	1	NO	2.7
W14	Tachbrook Road	Roadside	431862	265169	NO_2	NO	N(0.6)	5.22	NO	2.8
W15	Old Warwick Road	Roadside	431849	265193	NO_2	YES	Y	2	NO	2.6
W16	Parade	Roadside	431951	265397	NO_2	NO	N(6.3)	7.5	NO	2.8
W17	Coventry Road (Woodville Road)	Kerbside	428704	265236	NO_2	NO	N	1	NO	1.5
W18	Coventry Road (Coachouse Mews)	Roadside	428735	265362	NO_2	NO	N	1.5	NO	1.5
W19	West Street Torry's	Roadside	427937	264586	NO_2	NO	N	3.2	NO	1.5
W23	Moorlands Road Jcn	Roadside	429078	271207	NO_2	NO	N	4.2	NO	1.5
W24	Waverley Road	Roadside	428974	271402	NO_2	YES	N	2.8	NO	4.5
W25	New Street No 1	Roadside	428707	272556	NO_2	YES	Y	0.4	NO	1.5

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube collocated with a Continuous Analyser?	Height (m)
W26	New Street No 2	Roadside	428733	272578	NO_2	YES	Y	1.7	NO	1.5
W27	New Street No 3	Kerbside	428750	272612	NO_2	NO	N	1.1	NO	4.5
W28	Fieldgate Lane Jcn	Roadside	428652	272524	NO_2	YES	Y	0.7	NO	4.5
W30	The Square	Roadside	428714	271769	NO_2	NO	Y	3.4	NO	4.5
W31	Barrow Road	Kerbside	428816	271618	NO_2	YES	N(1.3)	1.4	NO	4.5
W32	Warwick Road	Roadside	428906	271497	NO_2	YES	Y	1.3	NO	1.5
W33/34/35	Pageant House	Roadside	428263	264877	NO_2	YES	Y	2.8	YES	1.5
W36	Jury Street	Roadside	428391	264966	NO_2	YES	N (1m)	2.1	NO	1.5
W37	High Street	Roadside	428132	264799	NO_2	YES	Y	2.9	NO	1.5
W38	West Street	Kerbside	427959	264624	NO_2	NO	N(3.6)	0.6	NO	1.5
W39	Crompton Street/ West Street	Roadside	427910	264541	NO_2	NO	Y	4.1	NO	1.5
W40	Bowling Green Street	Kerbside	427992	264695	NO_2	YES	Y	0.9	NO	1.5
W41	Friars Street	Roadside	427905	264682	NO_2	NO	N	1	NO	1.5
W42	Theatre Street	Roadside	427938	264947	NO_2	YES	Y	2.3	NO	4.5
W43	Saltisford/northgate	Roadside	428026	265158	NO_2	YES	Y	1.5	NO	2.5
W44	West Rock	Roadside	427930	265200	NO_2	YES	N	2.3	NO	2.6
W45	Albert Street/satilsford Junction	Roadside	427867	265275	NO_2	YES	Y	2.7	NO	2.5
W46	The Butts	Roadside	428240	265088	NO_2	YES	N(1.4)	1.6	NO	2.5

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
W48	Smith Street	Roadside	428522	265039	NO_2	YES	Y	2	NO	3
W49	Gerrard Street	Roadside	428501	264967	NO_2	NO	Y	1.8	NO	2.6
W50	St Nicholas' Church St 1.	Roadside	428600	264983	NO_2	YES	Y	1.7	NO	2.6
W51	St Mary's Churchyard	Urban Background	428270	264982	NO_2	NO	N	n/a	NO	2.7
W52	Coventry Road/crown Hotel	Kerbside	428710	265165	NO_2	YES	N (2m)	1	NO	2.5
W53	Coventry Road No 1 (Mongomery Court)	Roadside	428715	265202	NO_2	YES	Y	1.8	NO	2.4
W54	Coventry Road No 2 (28 Coventry Road)	Roadside	428715	265285	NO_2	NO	Y	1.9	NO	2.4
W55	Coventry Road No 3 (Great Western Arms)	Roadside	428710	265341	NO_2	NO	N	1.2	NO	2.5
W56	St Johns	Roadside	428619	265113	NO_2	NO	N	1.1	NO	2.5
W57	Coten End	Roadside	428748	265166	NO_2	NO	Y	3	NO	2.5
W58	Emscote Road	Roadside	429514	265469	NO_2	NO	N	3.8	NO	2.5
W59	Charles Street	Roadside	429501	265494	NO_2	NO	N(1.5)	2	NO	2.6
W60	Bridge Street	Roadside	430015	265718	NO_2	NO	N	2.4	NO	2.6
W61	Greville Road	Roadside	429974	265733	NO_2	NO	N	5.4	NO	2.5
W62	St Nicholas' Church St. 2	Roadside	428608	265042	NO_2	YES	Y	2.1	NO	3

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
W67	Castle Hill	Roadside	428477	264939	NO_2	NO	N (1.2m)	3.2	NO	2.5
W69	Castle Hill (2)	Roadside	428513	264921	NO_2	NO	N (1.5)	2.1	NO	2.5
W70	Mill Street	Roadside	428554	264870	NO_2	NO	N	3.1	NO	2.4
W71	Banbury Road	Roadside	428599	264857	NO_2	NO	N	2.1	NO	2.5
W72	Dale Street East	Roadside	431464	265903	NO_2	NO	N (2.9)	3.1	NO	2.5
W73	Dale Street West	Roadside	431480	265878	NO_2	NO	N (2.6)	0.3	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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration (µg/m^3) (3) (4)				
							2015	2016	2017	2018	2019
AURN1	431943	265730	Urban Background	Automatic	96.4	96.4	19.3	21.4	23.5	17.5	17.8
AURN2	431271	266404	Roadside	Automatic	96.8	96.8	20.2	20.4	17.3	17.0	16.3
CM1	428263	264877	Kerbside	Automatic	100.0	100.0	37.2	31.7	35.9	32.4	35.6
W1	431978	265280	Kerbside	Diffusion Tube	100.0	100.0	**43.4**	**47.3**	**61.2**	**42.3**	**40.5**
W2	432075	265234	Roadside	Diffusion Tube	100.0	100.0	38.2	**40.4**	**48.8**	36.0	35.9
W5	427615	264563	Roadside	Diffusion Tube	100.0	100.0	34.5	**40.4**	35.3	27.7	26.5
W6/7/8	431943	285730	Urban Background	Diffusion Tube	100.0	100.0	19.7	21.8	22.9	17.6	17.0
W10	432560	265254	Roadside	Diffusion Tube	100.0	100.0	24.3	26.5	28.9	22.8	22.0
W11	432051	265060	Roadside	Diffusion Tube	91.7	91.7	23.2	25.6	23.8	21.9	21.7
W12	431866	265371	Roadside	Diffusion Tube	58.3	58.3	33.3	36.6	**41.3**	31.4	30.0
W13	431900	265189	Roadside	Diffusion Tube	100.0	100.0	**48.6**	**50.4**	**55.4**	**46.4**	**45.8**
W14	431862	265169	Roadside	Diffusion Tube	91.7	91.7	38.1	39.6	**45.4**	36.6	37.9
W15	431849	265193	Roadside	Diffusion Tube	75.0	75.0	**43.9**	**45.0**	**52.0**	**40.9**	38.2
W16	431951	265397	Roadside	Diffusion Tube	100.0	100.0	30.7	32.6	37.6	27.8	26.3
W17	428704	265236	Kerbside	Diffusion Tube	100.0	100.0	27.7	29.4	31.2	26.1	25.3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
W18	428735	265362	Roadside	Diffusion Tube	100.0	100.0	24.7	27.2	28.5	23.9	22.8
W19	427937	264586	Roadside	Diffusion Tube	83.3	83.3	28.4	33.3	35.0	27.3	27.3
W23	429078	271207	Roadside	Diffusion Tube	100.0	100.0	30.6	33.6	35.8	27.2	25.6
W24	428974	271402	Roadside	Diffusion Tube	100.0	100.0	28.2	30.4	30.7	25.3	22.8
W25	428707	272556	Roadside	Diffusion Tube	100.0	100.0	31.3	34.6	30.7	22.8	25.4
W26	428733	272578	Roadside	Diffusion Tube	100.0	100.0	24.4	29.0	30.3	23.6	21.4
W27	428750	272612	Kerbside	Diffusion Tube	91.7	91.7	21.6	26.1	26.5	21.0	18.1
W28	428652	272524	Roadside	Diffusion Tube	91.7	91.7	33.2	**40.0**	**44.0**	31.8	29.3
W30	428714	271769	Roadside	Diffusion Tube	100.0	100.0	24.0	27.3	29.0	22.6	20.9
W31	428816	271618	Kerbside	Diffusion Tube	91.7	91.7	35.2	37.1	**41.4**	32.0	28.4
W32	428906	271497	Roadside	Diffusion Tube	100.0	100.0	34.0	37.5	37.2	32.4	28.8
W33/34/35	428263	264877	Roadside	Diffusion Tube	100.0	100.0	**41.2**	**44.2**	**52.5**	37.4	34.5
W36	428391	264966	Roadside	Diffusion Tube	100.0	100.0	**42.2**	**46.3**	**49.5**	**40.3**	37.7
W37	428132	264799	Roadside	Diffusion Tube	100.0	100.0	37.5	**41.0**	**42.7**	33.6	31.3
W38	427959	264624	Kerbside	Diffusion Tube	100.0	100.0	34.0	37.4	39.6	31.8	30.7

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
W39	427910	264541	Roadside	Diffusion Tube	91.7	91.7	27.6	30.7	31.5	24.6	23.2
W40	427992	264695	Kerbside	Diffusion Tube	100.0	100.0	**40.7**	**42.9**	**47.6**	36.9	35.7
W41	427905	264682	Roadside	Diffusion Tube	91.7	91.7	22.6	26.7	27.6	23.2	21.3
W42	427938	264947	Roadside	Diffusion Tube	91.7	91.7	26.4	33.4	32.1	28.3	28.3
W43	428026	265158	Roadside	Diffusion Tube	91.7	91.7	**43.4**	**46.6**	**50.2**	38.5	**40.9**
W44	427930	265200	Roadside	Diffusion Tube	83.3	83.3	28.6	32.5	34.8	28.0	25.3
W45	427867	265275	Roadside	Diffusion Tube	100.0	100.0	27.2	29.6	31.2	25.9	25.2
W46	428240	265088	Roadside	Diffusion Tube	75.0	75.0	34.2	39.2	**40.0**	30.6	27.9
W48	428522	265039	Roadside	Diffusion Tube	91.7	91.7	32.7	36.0	39.7	32.9	30.5
W49	428501	264967	Roadside	Diffusion Tube	100.0	100.0	22.1	25.3	26.1	21.3	20.1
W50	428600	264983	Roadside	Diffusion Tube	100.0	100.0	27.9	30.5	32.5	25.4	24.5
W51	428270	264982	Urban Background	Diffusion Tube	100.0	100.0	17.4	20.2	21.4	16.2	15.6
W52	428710	265165	Kerbside	Diffusion Tube	100.0	100.0	38.1	**41.4**	44.3	37.4	32.5
W53	428715	265202	Roadside	Diffusion Tube	91.7	91.7	38.5	**44.0**	**46.4**	37.4	34.7
W54	428715	265285	Roadside	Diffusion Tube	100.0	100.0	31.0	34.8	37.3	29.4	28.9

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
W55	428710	265341	Roadside	Diffusion Tube	100.0	100.0	27.3	31.0	32.4	27.5	24.9
W56	428619	265113	Roadside	Diffusion Tube	91.7	91.7	21.3	23.7	26.3	19.1	20.3
W57	428748	265166	Roadside	Diffusion Tube	100.0	100.0	30.0	31.8	33.5	28.5	26.0
W58	429514	265469	Roadside	Diffusion Tube	100.0	100.0	29.9	31.0	34.4	26.9	26.6
W59	429501	265494	Roadside	Diffusion Tube	91.7	91.7	34.0	38.1	**41.6**	32.0	30.6
W60	430015	265718	Roadside	Diffusion Tube	91.7	91.7	27.8	31.6	32.3	26.5	25.4
W61	429974	265733	Roadside	Diffusion Tube	91.7	91.7	26.2	29.5	31.2	24.8	25.1
W62	428608	265042	Roadside	Diffusion Tube	91.7	91.7	**42.5**	**41.5**	**47.9**	39.3	37.9
W67	428477	264939	Roadside	Diffusion Tube	91.7	91.7	**41.8**	**48.0**	**50.0**	**42.2**	39.4
W69	428513	264921	Roadside	Diffusion Tube	100.0	100.0	-	-	-	39.9	35.7
W70	428554	264870	Roadside	Diffusion Tube	100.0	100.0	-	-	-	29.4	25.6
W71	428599	264857	Roadside	Diffusion Tube	91.7	91.7	-	-	-	33.4	32.4
W72	431464	265903	Roadside	Diffusion Tube	100.0	100.0	-	-	-	31.2	29.1
W73	431480	265878	Roadside	Diffusion Tube	100.0	100.0	-	-	-	27.5	27.4

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

☒ **Annualisation has been conducted where data capture is <75%**

☒ **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 adjustment**

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.**

(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%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations: Leamington Spa

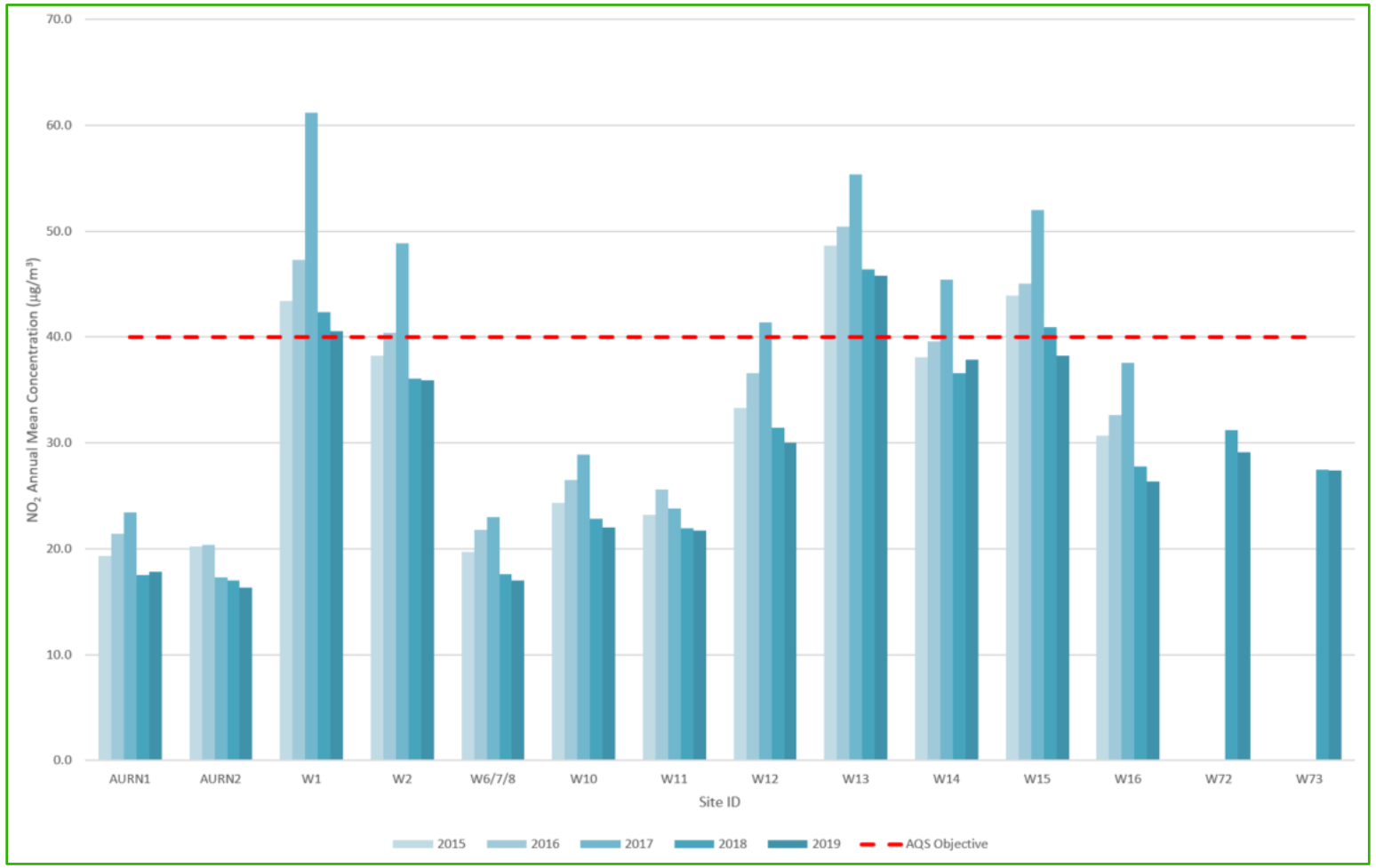


Figure A.2 – Trends in Annual Mean NO_2 Concentrations: Warwick AQMAs

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: Warwick, Emscote

Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
							2015	2016	2017	2018	2019
AURN1	431943	265730	Urban Background	Automatic	96.4	96.4	0	0	0	0	0
AURN2	431271	266404	Roadside	Automatic	96.8	96.8	0	0	0	0	0
CM1	428263	264877	Roadside	Automatic	100.0	100.0	0	0	0	0	**25**

Notes:

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.**

(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%).

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

Table A.5 – Annual Mean PM_{10} Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3)				
						2015	2016	2017	2018	2019
AURN1	431943	265730	Urban Background	94.2	94.2	15.3	15.4	13.9	14	13.4
AURN2	431271	266404	Roadside	97.0	97.0	15.3	15.7	17.3	13.9	14.4

☐ **Annualisation has been conducted where data capture is <75%**

Notes:

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

(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%).

(3) All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

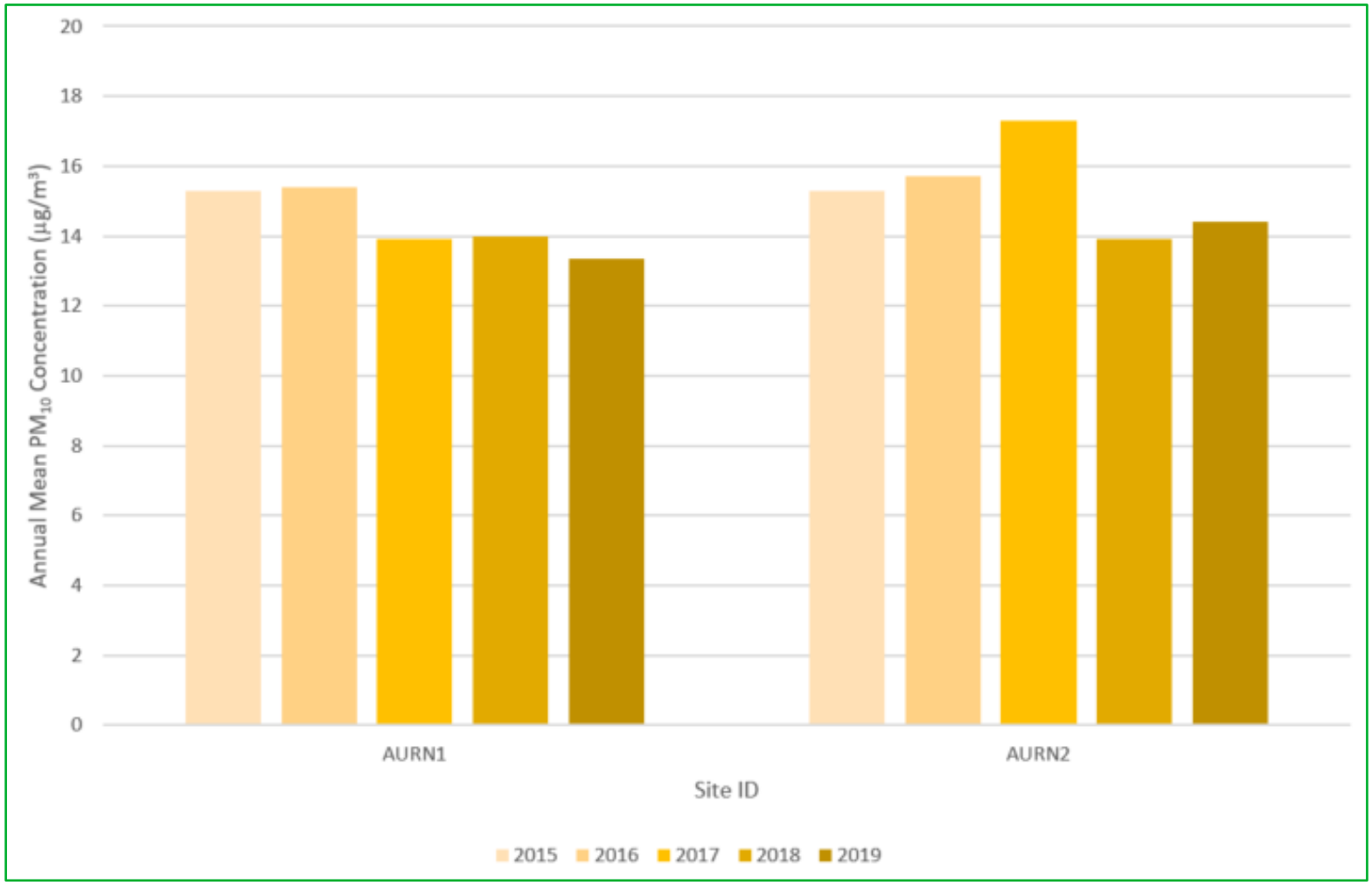


Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} 24-Hour Means > 50µg/m^3 (3)				
						2015	2016	2017	2018	2019
AURN1	431943	265730	Urban Background	94.2	94.2	4	4	2	1	3
AURN2	431271	266404	Roadside	97.0	97.0	2	2	4	**1 (23.6)**	4

Notes:

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.**

(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%).

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

Figure A.7 – Trends in Number of 24-Hour Mean PM_{10} Results >50µg/m³

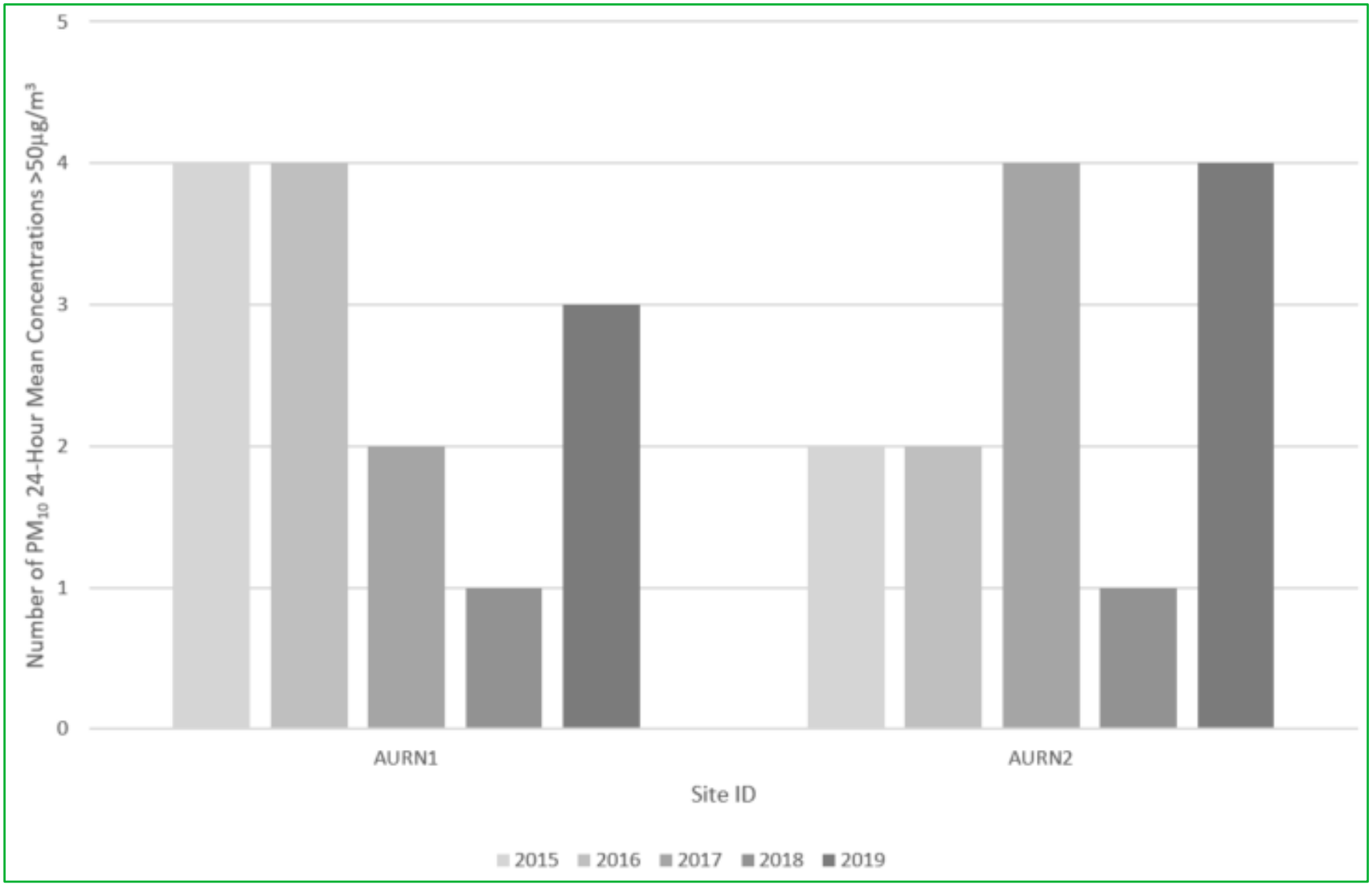


Table A.7 – $PM_{2.5}$ Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	$PM_{2.5}$ Annual Mean Concentration ($\mu g/m^3$) (3)				
						2015	2016	2017	2018	2019
AURN1	431943	265730	Urban Background	92.2	92.2	12.3	10.5	10.7	9.8	9.2
AURN2	431271	266404	Roadside	97.1	97.1	12.9	9.7	11	12	9.8

☐ **Annualisation has been conducted where data capture is <75%**

Notes:

(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%).

(3) All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A 8 – Trends in Annual Mean $PM_{2.5}$ Concentrations

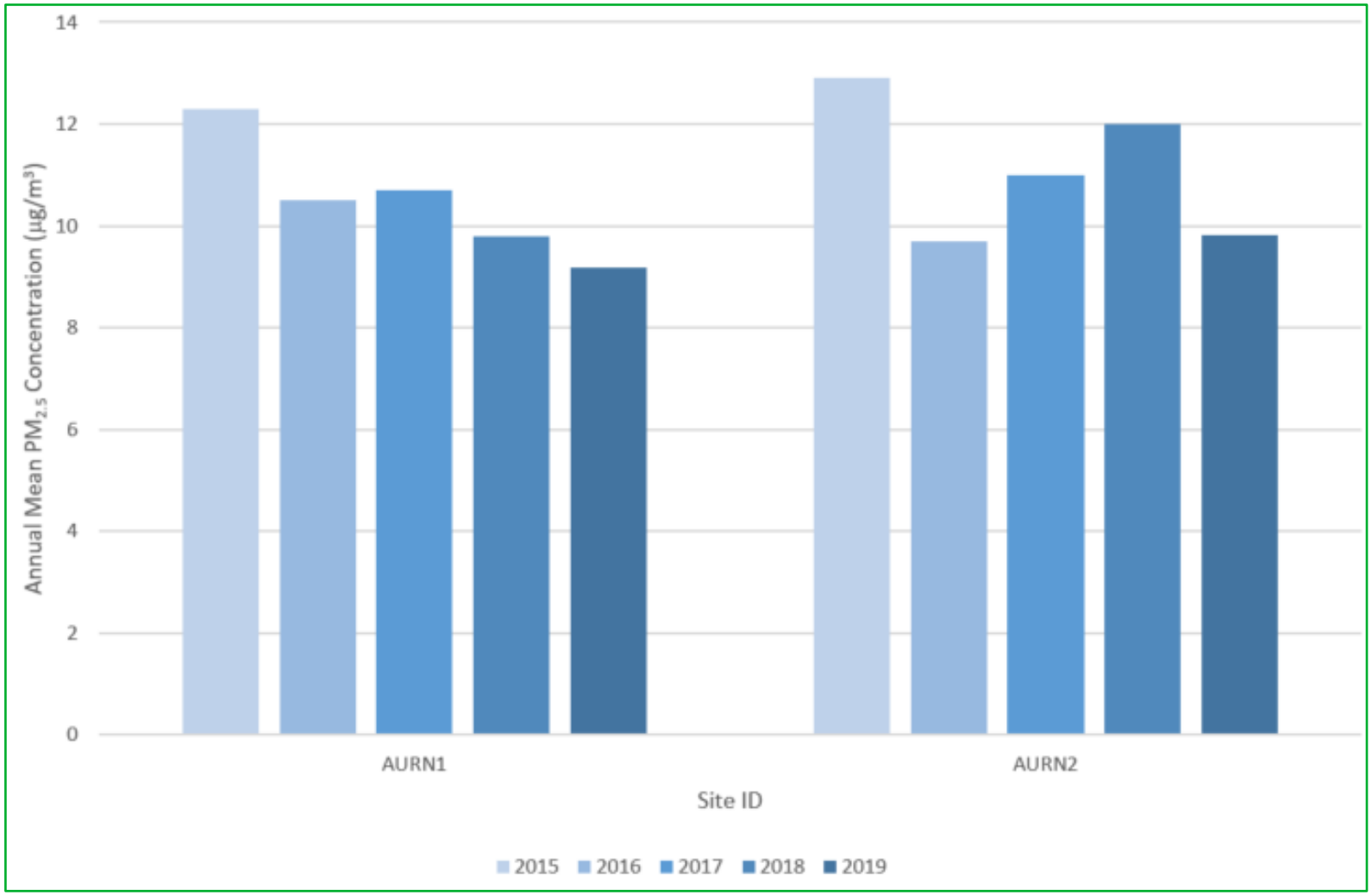


Table A.8 – Benzene Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture 2019 (%)	Benzene Annual Mean Concentration (µg/m^3)				
				2015	2016	2017	2018	2019
AURN1	Urban Background	Non-automatic diffusion tube	100%	0.60	0.53	0.52	0.51	0.47

Table A.9 – Ozone Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture 2019 (%)	Number of 8-Hourly Average Ozone Concentrations >100µg/m^3				
				2015	2016	2017	2018	2019
AURN1	Urban Background	Automatic	86.9%	6	8	1	10	5

Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
W1	431978	265280	54.4	57.2	34.9	28.0	41.4	45.6	37.9	44.6	41.5	46.3	54.9	38.5	43.8	**40.5**	
W2	432075	265234	51.1	48.6	37.5	33.0	37.7	36.5	34.2	34.0	35.7	35.1	47.6	34.9	38.8	35.9	
W5	427615	264563	40.4	34.5	25.4	22.7	25.4	24.5	20.7	24.2	29.1	28.0	39.4	29.5	28.7	26.5	
W6 (1)	431943	285730	29.7	26.1	15.1	12.4	12.3	13.7	11.9	12.8	16.6	21.9	26.6	22.4	18.5	17.1	
W7 (2)	431943	285730	28.8	26.2	17.0	12.7	12.3	12.7	13.2	12.5	16.6	20.7	26.8	20.5	18.3	17.0	
W8 (3)	431943	285730	29.9	23.4	15.5	13.8	12.6	14.1	12.7	12.9	16.4	20.0	29.5	18.0	18.2	16.9	
W6/7/8	431943	285730	29.5	25.2	15.9	13.0	12.4	13.5	12.6	12.7	16.5	20.9	27.6	20.3	18.3	17.0	
W10	432560	265254	34.6	30.4	19.6	20.4	17.5	19.6	16.2	16.8	21.2	27.9	35.1	25.6	23.7	22.0	
W11	432051	265060	35.6	25.0	16.7	22.2	-	20.0	17.5	13.7	22.1	25.4	37.5	22.2	23.4	21.7	
W12	431866	265371	45.5	-	-	-	-	13.7	29.3	29.9	31.2	37.3	-	34.6	31.6	30.0	
W13	431900	265189	62.2	62.7	43.4	42.9	41.4	49.2	44.3	46.6	45.0	54.5	57.0	43.8	49.4	**45.8**	
W14	431862	265169	48.7	44.2	39.0	33.3	40.6	-	38.4	38.5	39.8	42.3	48.9	36.0	40.9	37.9	29.3
W15	431849	265193	52.5	55.3	-	-	-	18.2	37.9	43.3	39.2	46.0	42.5	36.6	41.3	38.2	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
W16	431951	265397	36.6	37.7	28.6	22.4	25.3	25.2	23.4	25.7	26.6	31.4	26.4	32.1	28.5	26.3	
W17	428704	265236	40.0	32.5	20.7	26.0	23.2	24.6	21.8	18.6	25.9	30.3	37.6	27.1	27.4	25.3	
W18	428735	265362	32.8	25.8	15.5	27.0	21.7	22.1	19.5	17.3	25.5	28.5	35.4	24.9	24.7	22.8	
W19	427937	264586	39.4	33.9	26.0	22.8	26.3	26.8	-	-	26.7	29.2	37.8	26.4	29.5	27.3	
W23	429078	271207	38.8	36.7	22.6	23.4	21.5	23.2	22.0	21.8	24.0	31.6	38.5	28.3	27.7	25.6	
W24	428974	271402	36.0	31.6	17.6	24.5	22.4	22.8	20.0	16.5	23.3	27.8	26.0	27.1	24.6	22.8	
W25	428707	272556	36.5	37.2	29.2	34.6	29.0	26.5	21.2	20.1	22.2	23.2	28.7	21.2	27.5	25.4	
W26	428733	272578	35.4	29.2	21.3	17.8	17.5	20.2	19.3	17.1	20.1	25.7	32.3	21.3	23.1	21.4	
W27	428750	272612	-	23.7	18.5	18.2	17.1	18.4	16.2	13.5	17.8	22.0	29.5	19.9	19.5	18.1	
W28	428652	272524	36.1	39.8	24.4	-	29.7	32.5	26.1	24.1	25.8	34.1	41.4	34.3	31.7	29.3	
W30	428714	271769	31.0	30.5	18.5	17.4	19.0	20.1	17.3	18.2	20.5	23.7	30.8	24.5	22.6	20.9	
W31	428816	271618	33.3	36.9	27.1	24.8	27.3	29.1	-	26.7	28.0	27.4	42.8	33.8	30.7	28.4	
W32	428906	271497	38.2	31.5	22.5	35.1	32.8	31.7	27.3	19.6	28.9	30.0	47.3	28.3	31.1	28.8	
W33 (1)	428263	264877	41.0	50.6	30.8	35.7	29.3	37.0	35.2	26.6	30.5	40.0	50.5	-	37.0	34.3	
W34 (2)	428263	264877	49.0	52.3	29.6	33.0	31.9	37.9	43.6	27.5	31.8	35.6	47.7	-	38.2	35.3	
W35 (3)	428263	264877	44.2	52.8	33.4	36.2	32.0	40.2	37.9	27.4	22.9	31.0	46.7	37.1	36.8	34.1	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
W33/34/35	428263	264877	44.7	51.9	31.3	35.0	31.1	38.4	38.9	27.2	28.4	35.5	48.3	37.1	37.3	34.5	
W36	428391	264966	53.7	53.0	38.7	38.4	33.4	37.5	33.6	25.7	33.5	42.6	54.9	44.0	40.8	37.7	34.0
W37	428132	264799	45.9	40.3	33.3	32.9	33.6	34.9	29.4	20.5	24.4	34.0	44.6	32.1	33.8	31.3	
W38	427959	264624	42.9	37.6	34.4	26.5	31.1	31.7	28.3	28.1	24.5	39.0	42.8	31.3	33.2	30.7	
W39	427910	264541	-	29.9	23.3	19.7	21.4	22.6	23.5	19.1	24.1	28.5	36.1	27.3	25.0	23.2	
W40	427992	264695	45.1	47.1	37.8	28.4	29.8	37.0	36.7	41.0	35.1	39.1	47.4	38.8	38.6	35.7	
W41	427905	264682	34.2	28.8	19.4	21.8	15.5	18.8	16.9	15.5	20.8	-	36.4	24.4	23.0	21.3	
W42	427938	264947	34.8	36.1	24.3	-	27.2	27.9	25.8	27.4	29.4	31.6	41.7	29.5	30.5	28.3	
W43	428026	265158	56.5	48.7	30.6	40.7	44.6	45.1	40.1	43.0	-	45.9	52.2	38.1	44.1	**40.9**	
W44	427930	265200	TUBE -	37.5	24.2	24.1	25.3	24.4	25.0	26.2	29.1	-	31.2	26.4	27.3	25.3	
W45	427867	265275	37.0	35.8	21.7	27.5	22.6	24.5	15.1	23.4	26.3	28.5	36.1	28.1	27.2	25.2	
W46	428240	265088	48.1	36.7	26.0	30.9	33.3	25.9	17.6	21.6	30.7	-	-	-	30.1	27.9	
W48	428522	265039	45.2	44.0	29.6	25.8	25.6	30.3	26.2	26.4	29.5	33.5	45.9	-	32.9	30.5	
W49	428501	264967	32.3	30.2	19.4	19.2	17.3	17.3	14.9	17.1	17.1	19.9	32.9	23.5	21.8	20.1	
W50	428600	264983	33.5	33.0	22.9	30.5	23.9	24.0	20.0	18.7	23.1	23.5	35.6	28.8	26.5	24.5	
W51	428270	264982	27.6	21.7	14.4	14.0	11.6	12.5	10.1	10.8	15.3	18.9	27.3	18.1	16.9	15.6	
W52	428710	265165	42.7	41.6	1.7	40.3	34.8	39.1	32.2	31.2	36.8	40.2	47.3	33.7	35.1	32.5	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
W53	428715	265202	38.4	42.3	30.5	43.3	32.8	38.6	32.6	-	33.5	36.3	47.7	36.1	37.5	34.7	
W54	428715	265285	42.3	35.7	23.9	30.6	28.3	29.6	24.0	24.1	29.4	34.4	38.5	33.1	31.2	28.9	
W55	428710	265341	33.9	30.5	19.5	25.6	24.7	25.4	22.9	21.0	24.1	29.3	37.4	28.2	26.9	24.9	
W56	428619	265113	29.1	25.1	18.1	21.0	17.5	17.8	-	15.3	19.9	22.3	30.6	24.8	22.0	20.3	
W57	428748	265166	38.3	34.2	20.6	29.2	27.2	24.3	23.3	23.5	26.3	26.5	35.3	28.3	28.1	26.0	
W58	429514	265469	35.9	34.5	22.9	27.8	22.9	27.0	23.3	22.9	28.7	30.2	40.0	28.6	28.7	26.6	
W59	429501	265494	-	43.8	33.3	27.7	29.1	32.2	29.4	17.1	34.7	37.1	42.5	36.9	33.1	30.6	
W60	430015	265718	37.9	-	22.4	29.7	28.3	26.7	23.7	17.7	26.0	30.0	37.7	21.8	27.4	25.4	
W61	429974	265733	37.5	30.7	21.6	26.0	24.1	24.4	23.8	21.5	23.5	-	35.4	29.1	27.1	25.1	
W62	428608	265042	49.8	44.8	36.8	42.4	39.2	39.1	34.9	34.6	35.7	-	53.2	40.0	41.0	37.9	
W67	428477	264939	50.3	51.9	33.9	47.4	-	44.8	36.4	33.4	38.5	42.5	51.0	38.4	42.6	39.4	34.0
W69	428513	264921	51.1	46.0	37.1	35.1	35.4	33.6	31.3	30.5	35.4	41.1	49.7	36.6	38.6	35.7	
W70	428554	264870	32.5	24.2	23.6	31.8	29.5	31.0	24.0	17.8	24.7	29.3	39.6	24.2	27.7	25.6	
W71	428599	264857	44.5	31.0	24.6	38.3	32.8	35.0	-	25.2	34.3	32.9	51.0	34.9	35.0	32.4	
W72	431464	265903	43.9	35.3	27.0	20.6	28.4	24.4	27.7	25.4	29.6	35.9	46.8	32.5	31.5	29.1	
W73	431480	265878	35.5	34.8	19.9	26.1	26.1	28.3	24.3	21.3	30.2	33.9	46.0	28.9	29.6	27.4	

☒ Local bias adjustment factor used
☐ National bias adjustment factor used
☒ Annualisation has been conducted where data capture is <75%

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

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.**

(1) See Appendix C for details on bias adjustment and annualisation.
(2) Distance corrected to nearest relevant public exposure.

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

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.

All monitoring locations recorded data capture of 75% or more, therefore it was not required to annualise any monitoring data.

QA/QC of diffusion tube monitoring

The diffusion tubes for the year 2019 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.3.

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). AIR-PT started in April 2014 and combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme.

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 the 2019 AIR-PT results, AIR-PT AR030 (January to February 2019), AIR-PT AR031 (April to May 2019), AR033 (July to August 2019) and AR034 (September to November 2019), SSS scored 75% for all periods except AR030 where it scored 100%. 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 2019. 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, at: https://laqm.defra.gov.uk/diffusion-tubes/precision.html.

Diffusion Tube Bias Adjustment Factor

The diffusion tube data has been corrected using a bias adjustment factor, which is an estimate of the difference between diffusion tube concentration and continuous monitoring, the latter assumed to be a more accurate method of monitoring. Defra LAQM.TG(16) 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.

With regard to the application of a bias adjustment factor for diffusion tubes, Defra LAQM.TG(16) and the LAQM Helpdesk recommend the use of a local bias adjustment factor where available and relevant to diffusion tube sites.

The national bias adjustment factor for SSS in 2019, obtained from the national bias adjustment spreadsheet (v06/20) is 0.93 (based on 17 studies), as presented in Figure C.1.

Figure C.1 – SSS 20% TEA in Water 2019 National Bias Adjustment Factor

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 06/20

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods

Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet

This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be update at the end of September 2020

LAQM Helpdesk Website

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

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

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m^3)	Automatic Monitor Mean Conc. (Cm) (µg/m^3)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
Staffordshire Scientific Services	20% TEA in water	2019	UB	Trafford	10	22	19	18.1%	G	0.85
Staffordshire Scientific Services	20% TEA in water	2019	UB	Wigan Council	11	24	18	34.1%	G	0.75
Staffordshire Scientific Services	20% TEA in water	2019	R	East Staffordshire Borough Council	11	41	36	14.1%	G	0.88
Staffordshire Scientific Services	20% TEA in water	2019		Overall Factor[3] (17 studies)				Use		0.93

Bias adjustment factors are also available for two co-location studies completed at the automatic monitoring sites Hamilton Terrace in Leamington Spa and Jury Street/Pageant House in Warwick. The calculation of the local bias adjustment factors are presented in Figure C.2 and Figure C.3.

Figure C.2 – Leamington Spa Hamilton Terrace Local Bias Adjustment

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	09.01.19	06.02.19	29.7	28.8	29.9	29	0.6	2	1.5
2	06.02.19	06.03.19	26.1	26.2	23.4	25	1.6	6	3.9
3	06.03.19	03.04.19	15.1	17.0	15.5	16	1.0	6	2.5
4	03.04.19	01.05.19	12.4	12.7	13.8	13	0.7	6	1.8
5	01.05.19	05.06.19	12.3	12.3	12.6	12	0.2	1	0.4
6	05.06.19	02.07.19	13.7	12.7	14.1	14	0.7	5	1.8
7	02.07.19	07.08.19	11.9	13.2	12.7	13	0.7	5	1.6
8	07.08.19	04.09.19	12.8	12.5	12.9	13	0.2	2	0.5
9	04.09.19	02.10.19	16.6	16.6	16.4	17	0.1	1	0.3
10	02.10.19	06.11.19	21.9	20.7	20.0	21	1.0	5	2.4
11	06.11.19	04.12.19	26.6	26.8	29.5	28	1.6	6	4.0
12	04.12.19	08.01.20	22.4	20.5	18.0	20	2.2	11	5.5
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
29.1	99.6	Good	Good
25.7	98.8	Good	Good
17.3	99.3	Good	Good
15.0	95.7	Good	Good
12.5	95.5	Good	Good
10.5	96.0	Good	Good
10.0	88.0	Good	Good
11.0	99.3	Good	Good
14.9	96.6	Good	Good
19.1	91.8	Good	Good
29.5	99.9	Good	Good
17.8	99.4	Good	Good
Overall survey -->		Good precision	Good Overall DC

(Check average CV & DC from Accuracy calculations)

Site Name/ ID:

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%

Bias calculated using 12 periods of data

Bias factor A: 0.96 (0.89 - 1.05)

Bias B: 4% (-5% - 12%)

Diffusion Tubes Mean: 18 µgm^{-3}

Mean CV (Precision): 5

Automatic Mean: 18 µgm^{-3}

Data Capture for periods used: 97%

Adjusted Tubes Mean: 18 (16 - 19) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA

Bias calculated using 12 periods of data

Bias factor A: 0.96 (0.89 - 1.05)

Bias B: 4% (-5% - 12%)

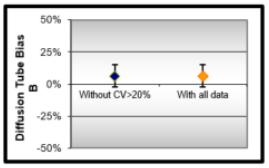
Diffusion Tubes Mean: 18 µgm^{-3}

Mean CV (Precision): 5

Automatic Mean: 18 µgm^{-3}

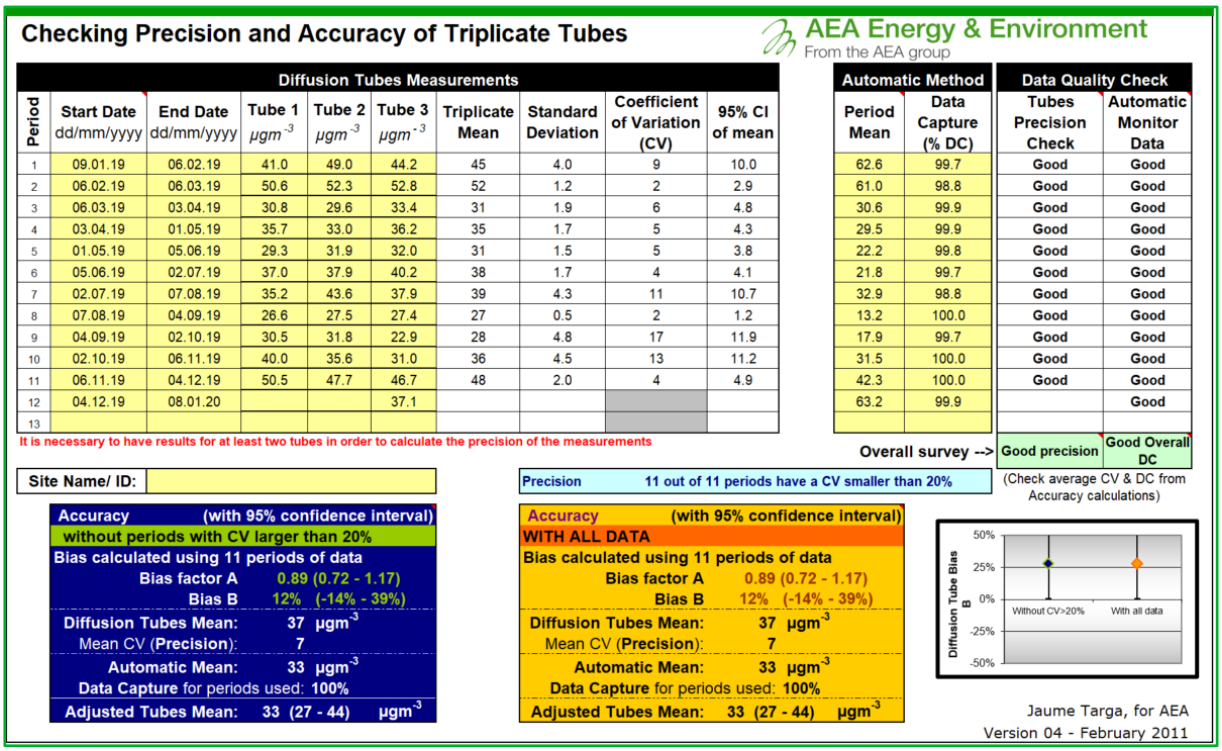
Data Capture for periods used: 97%

Adjusted Tubes Mean: 18 (16 - 19) µgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

Figure C.3 – Jury St/Pageant House Warwick Local Bias Adjustment



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	09.01.19	06.02.19	41.0	49.0	44.2	45	4.0	9	10.0
2	06.02.19	06.03.19	50.6	52.3	52.8	52	1.2	2	2.9
3	06.03.19	03.04.19	30.8	29.6	33.4	31	1.9	6	4.8
4	03.04.19	01.05.19	35.7	33.0	36.2	35	1.7	5	4.3
5	01.05.19	05.06.19	29.3	31.9	32.0	31	1.5	5	3.8
6	05.06.19	02.07.19	37.0	37.9	40.2	38	1.7	4	4.1
7	02.07.19	07.08.19	35.2	43.6	37.9	39	4.3	11	10.7
8	07.08.19	04.09.19	26.6	27.5	27.4	27	0.5	2	1.2
9	04.09.19	02.10.19	30.5	31.8	22.9	28	4.8	17	11.9
10	02.10.19	06.11.19	40.0	35.6	31.0	36	4.5	13	11.2
11	06.11.19	04.12.19	50.5	47.7	46.7	48	2.0	4	4.9
12	04.12.19	08.01.20			37.1				
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
62.6	99.7	Good	Good
61.0	98.8	Good	Good
30.6	99.9	Good	Good
29.5	99.9	Good	Good
22.2	99.8	Good	Good
21.8	99.7	Good	Good
32.9	98.8	Good	Good
13.2	100.0	Good	Good
17.9	99.7	Good	Good
31.5	100.0	Good	Good
42.3	100.0	Good	Good
63.2	99.9		Good
Overall survey -->		Good precision	Good Overall DC

(Check average CV & DC from Accuracy calculations)

Site Name/ ID:

Precision: 11 out of 11 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%
Bias calculated using 11 periods of data
Bias factor A: 0.89 (0.72 - 1.17)
Bias B: 12% (-14% - 39%)
Diffusion Tubes Mean: 37 µgm^{-3}
Mean CV (Precision): 7
Automatic Mean: 33 µgm^{-3}
Data Capture for periods used: 100%
Adjusted Tubes Mean: 33 (27 - 44) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A: 0.89 (0.72 - 1.17)
Bias B: 12% (-14% - 39%)
Diffusion Tubes Mean: 37 µgm^{-3}
Mean CV (Precision): 7
Automatic Mean: 33 µgm^{-3}
Data Capture for periods used: 100%
Adjusted Tubes Mean: 33 (27 - 44) µgm^{-3}

Jaume Targa, for AEA
Version 04 - February 2011

Both Jury Street/Pageant and Hamilton Terrace sites report good data quality, therefore these have both been used in combination to calculate a local bias adjustment factor. This calculation is shown in the equations below. This is in line with the methodology outlined in LAQM.TG(16) for areas where there are more than one local collocation study. The final local bias factor derived is 0.93.

$$\frac{(0.04 + 0.12)}{2} + 1 = 1.08$$

$$\frac{1}{1.08} = 0.93$$

Choice of Bias Adjustment Factor

It is recommended by Defra LAQM.TG(16) and the LAQM Helpdesk that the local bias adjustment factor should be used where available and relevant. Both the national and local adjustment factor are the same value. Both sites are located in similar settings to the tubes deployed across the district (Urban Background and Roadside), and the co-location studies have been carried out for a number of years. The local factor has been used since 2016, and remains largely consistent with that used in previous years, as

shown in Table C.1. Therefore, the local factor has been carried forwards and used to adjust all NO_2 monitoring measurements in 2019.

Table C.1 – Previously Used Bias Adjustment Factors

Year	Factor Used	National or Local
2014	0.83	National
2015	0.84	National
2016	0.91	National and Local*
2017	1.04	Local
2018	0.88	Local

Notes:
** - Both the National and Local factors in 2016 gave a value of 0.91*

Short to Long term data adjustment; Annualisation

In regards to the 2019 NO_2 diffusion tube data set, annualisation was required at one diffusion tube location. Annualisation was completed using version 1 of the Annualisation Tool[10], developed by Bureau Veritas on behalf of Defra. The annualisation summary is present in Figure C.4.

Figure C.4 – 2019 Annualisation Tool Summary

Diffusion Tube ID	Annualisation Factor Leamington Spa	Annualisation Factor Coventry Allesley	Annualisation Factor Birmingham Acocks Green	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m3)	Annualised Data Simple Annual Mean (µg/m3)
W12	1.0926	1.0688	1.0785		1.0800	31.6	34.2

NO_2 Fall-off with distance from the road

In line with LAQM.TG(16) distance correction has been applied to NO_2 monitoring sites that have recorded an annual mean concentration above the annual mean objective, or within 10% of the annual mean objective. Three sites that met this criteria in 2019 were not located at relevant exposure.

In accordance with LAQM.TG(16) guidance the NO_2 Fall-Off with Distance Calculator (v4.2) has been used to derive the NO_2 concentration at a location of relevant exposure; the results of the calculations are presented in Figure C.5. The background concentrations used within the calculations have been taken from Defra 2019 (2017 base year) background maps that are available on the LAQM website.

[10] https://laqm.defra.gov.uk/tools-monitoring-data/annualisation.html

Figure C.5 – NO_2 Fall-Off With Distance Summary

Site Name/ID	Distance (m)		NO_2 Annual Mean Concentration ($\mu g/m^3$)		
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor
W14	0.6	5.2	16.2	37.9	29.3
W36	1.0	2.1	13.0	37.7	34.0
W67	1.2	3.2	13.0	39.4	34.0

Planning Applications and Permits in 2019/20

Table C.2 provides details on planning applications granted within 2019/20 in relation to Air Quality within the District Council. Additionally, a Permit has been granted in July 2020 to operate an installation for the coating of metal surfaces at UK Battery Industrialisation Centre, Rowley Road, Coventry, CV8 3AL. The permit requires the operator to employ best available techniques to:

- Eliminate the use of harmful solvents or where that is not possible to substitute them with less harmful solvents;
- Minimise emissions of VOCs to atmosphere and control them within limits set in the permit; and
- Carry out periodic emissions monitoring to demonstrate compliance with VOC emission limits.

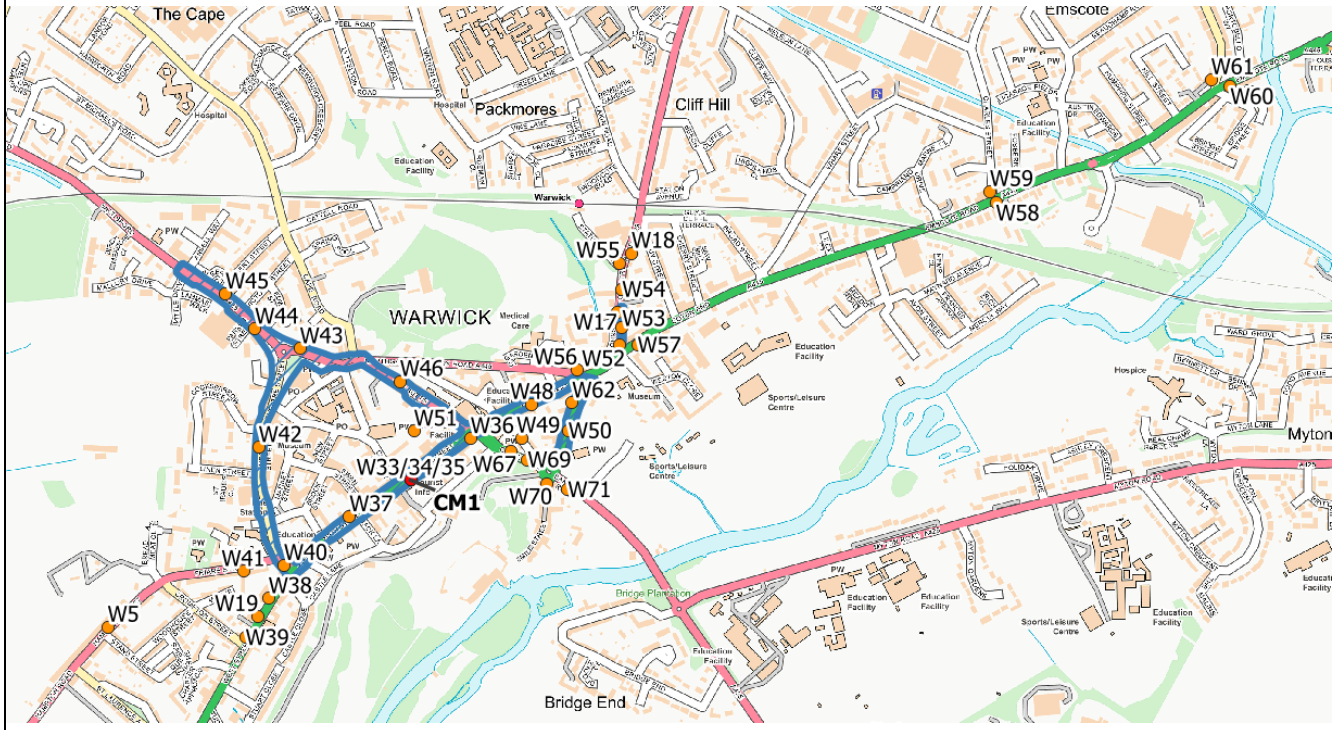
Table C.2 – Planning Applications Granted in 2019/20

Date	Planning Reference	Proposed Development	Address	Status
16/08/19	W/19/0936	Demolition of existing building (except the electricity sub-station) and construction of new building, external training areas and associated works to serve as the Severn Trent Academy (D1 use)	Avon House, Sewage Works, St Martins Road, Stoneleigh, Coventry CV3 6PR	Full planning application - Granted
13/11/19	W/19/0961	Residential development of 130 units including associated access, landscaping, open space and drainage infrastructure (resubmission of W/18/1331)	Land off Arras Boulevard, Hampton Magna, Budbrooke	Full planning application – Granted Condition 18 requires that the development meets requirements of WDC's AQ SPD. Air Quality Mitigation Statement supplied as part of application.
19/12/19	W/19/0655	Erection of a two to three storey secondary school and sixth form building and a single story facilities management building with associated access and egress from Glasshouse Lane	Southcrest Farm (including Knoll House), Glasshouse Lane, Warwickshire CV8 2QT	Granted Condition 16 required EV charging points to be installed. Application includes Air Quality Assessment
19/02/20	W/19/0933	150 dwellings, new vehicular access from Birmingham Road, new temporary vehicular access for sales and construction from Birmingham Road and associated works	Land on the north side of Birmingham Road, Hatton	Full planning application – Granted. Condition 20 requires a scheme which satisfies WDC's AQ SPD. Application includes Air Quality Assessment
01/06/20	W/19/1030	Outline planning application for Primary School and Secondary School, Country Park & 150 dwellings	Oakley Grove Phase 3, Land off Harbury Lane & Oakley Wood Road, Leamington Spa	Granted Condition 17 required that the development meets requirements of WDC's AQ SPD. Application includes Air Quality Assessment
03/07/20	W/19/1666	Development of motor dealership with MOT and servicing facilities and associated office space, staff facilities, car	Opus, Land north of Gallows Hill, Warwick	Granted

Date	Planning Reference	Proposed Development	Address	Status
		display and storage areas, access, parking and landscaping (sui generis) and a 100 bed hotel		Condition 19 required EV charging points to be installed

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Air Quality Monitoring Locations: Warwick



Legend

- Automatic Sites
- Diffusion Tubes
- Air Quality Management Areas

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Air Quality
Bureau Veritas
5th Floor
66 Prescot Street
London, E1 8HG

Location **Warwick**	
Title **Air Quality Monitoring Locations: Warwick**	
By AS	**Approved** HS
Scale NTS	**Job Ref** 9530788
Date September 2020	**Figure No.** D.1

Figure D.2 – Air Quality Monitoring Locations: Leamington Spa Central

Legend

- Automatic Sites
- Diffusion Tubes
- Air Quality Management Areas

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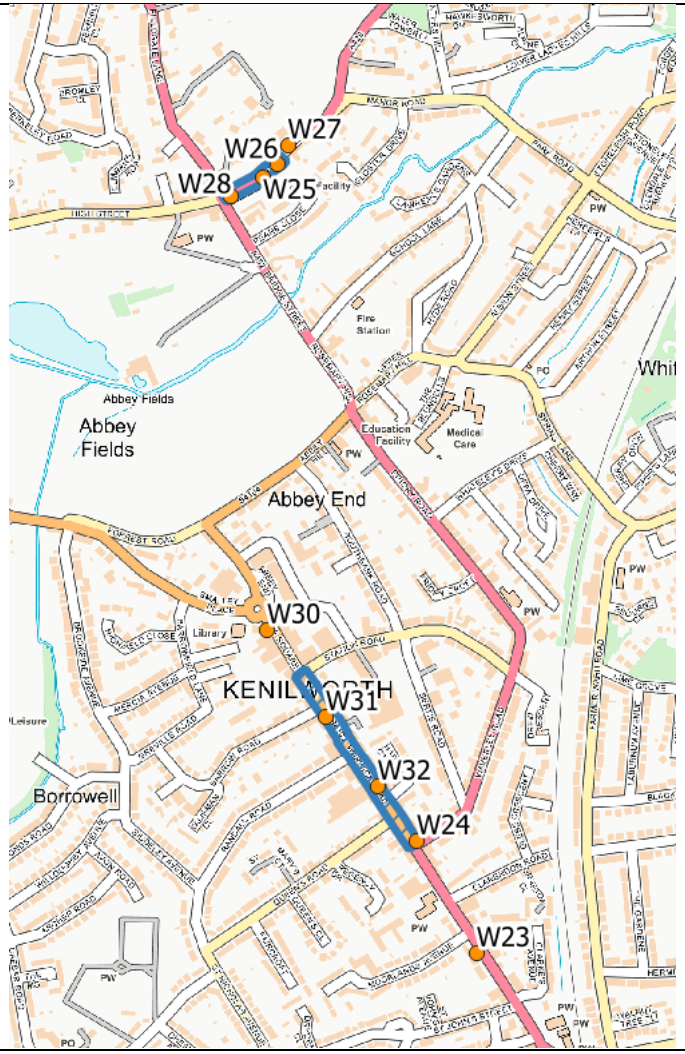
Air Quality
Bureau Veritas
5th Floor
66 Prescot Street
London, E1 8HG

Location **Leamington Spa**	
Title **Air Quality Monitoring Locations: Leamington Spa Centre**	
By AS	**Approved** HS
Scale NTS	**Job Ref** 9530788
Date September 2020	**Figure No.** D.2

Figure D.3 – Air Quality Monitoring Locations: Kenilworth



Legend

- Automatic Sites
- Diffusion Tubes
- Air Quality Management Areas

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Location	
Kenilworth	
Title	
Air Quality Monitoring Locations : Kenilworth	
By	**Approved**
AS	HS
Scale	**Job Ref**
NTS	9530788
Date	**Figure No.**
September 2020	D.3

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[11]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) 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
UVF	Ultra-Violet Fluorescence
WDC	Warwick District Council
SSS	Staffordshire Scientific Services

References

- Local Air Quality Management Technical Guidance LAQM.TG(16). February 2018. 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.PG(16). May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Warwick District Council Air Quality Action Plan, June 2015.
- Warwick District Council 2017 Annual Status Report.
- Warwick District Council 2018 Annual Status Report.
- Warwick District Council 2019 Annual Status Report.
- Warwick District Council 2019 Appraisal Report.
- National Diffusion Tube Bias Adjustment Factor Spreadsheet, version 06/20 published in June 2020.
- Defra Nitrogen Dioxide fall off with distance calculator, https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html
- Defra Annualistion Tool, https://laqm.defra.gov.uk/tools-monitoring-data/annualisation.html
- Defra Background Maps (2017 based), https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html
- Public Health England, Public Health Profiles, Fraction of mortality attributable to particulate air pollution (2018), https://fingertips.phe.org.uk/
- Non-Automatic Hydrocarbon Network, https://uk-air.defra.gov.uk/networks/network-info?view=nahc
- Warwick District Council Air Quality & Planning Supplementary Planning Document, January 2019.