Lichfield District Council
2022 Annual Status Report

Bureau Veritas

April 2023

Move Forward with Confidence

Document Control Sheet

Identification	
Client	Lichfield District Council
Document Title	2022 Annual Status Report
Bureau Veritas Ref No.	17016870/UK/v1.0

Contact Details		
Company Name	Bureau Veritas UK Limited	Lichfield District Council
Contact Name	Daniel Clampin	Jack Twomey
Position	Senior Consultant	Environmental Protection and Housing Manager
Address	Atlantic House, Atlas Business Park, Wythenshawe, Manchester, M22 5PR	District Council House, Frog Lane, Lichfield, Staffordshire, WS13 6ZE

Configuration				
Version	**Date**	**Author**	**Reason for Issue/Summary of Changes**	**Status**
v1.0	18/04/2023	J Mistry	Draft for comment	Draft

	Name	Job Title	Signature
Prepared By	Jai Mistry	Graduate Consultant	
Reviewed By	Daniel Clampin	Senior Consultant	

2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: August 2023

Information	Lichfield District Council Details
Local Authority Officer	Jack Twomey
Department	Environmental Protection & Housing Manager
Address	District Council House, Frog Lane, Lichfield, Staffordshire WS13 6ZE
Telephone	01543 308734
E-mail	jack.twomey@lichfielddc.gov.uk
Report Reference Number	2022 ASR
Date	August 2023

Endorsement from the Director of Health & Care, Staffordshire County Council.

Staffordshire County Council (SCC) is committed to working with partners to ensure that Staffordshire will be a place where improved health and wellbeing is experienced by all. Poor air quality has a negative impact on public health, with potentially serious consequences for individuals, families and communities. Identifying problem areas and ensuring that actions are taken to improve air quality forms an important element in protecting the health and wellbeing of Staffordshire residents. Improving air quality is often a complex issue, presenting a multi-agency challenge – so it is essential that all agencies work together effectively to deliver improvements where they are needed.

As Director of Health and Care across Staffordshire I endorse this Annual Status Report which sets out the position in all the Local Authorities across Staffordshire and Stoke-on-Trent focusing on human made pollution with particulate matter.

The Air Aware project “phase 2” continues through 2022 until March 2023. The project delivers behaviour change to increase active travel, decrease car use and raise awareness of air quality issues through five elements. These are business and school engagement, communications and campaigns, electric vehicles and air quality monitoring in three targeted locations, Burton, Leek and Cannock. Campaigns include Anti-Idling, walking and cycle activities and Clean Air Day. These have been countywide engaging a large number of businesses and schools. The programme will focus on reducing levels of NO and PM, which will be monitored at key locations.

In addition, Officers from Newcastle Borough Council, Stoke City Council and Staffordshire County Council are jointly working under Ministerial Direction to improve transport related air pollution in North Staffordshire.

Dr Richard Harling

Director of Health and Care
Staffordshire County Council
1 June 2022

Executive Summary: Air Quality in Our Area

Air Quality in Lichfield 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, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas[1,2].

The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

Lichfield District Council is situated in the north of the West Midlands, close to some highly industrialised parts of the UK. To the south west lies Walsall and Birmingham. The Lichfield District is only moderately industrialised, but there are a number of major roads in the region, including the M6 Toll, A38 and A5. Consequently, road traffic is the main source of air pollution in the area. Burntwood and Lichfield are the two largest urban areas in the District.

Lichfield District Council has two Air Quality Management Areas (AQMAs) that were declared due to exceedances of the annual mean nitrogen dioxide (NO_2) objective. Both are associated with emissions from road traffic. These can be seen at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=147. A map of both AQMAs has been included in Appendix D.

AQMA no.1 was declared in August 2008 and encompasses the traffic dense area of the A5 Muckley Corner Roundabout, together with fourteen sensitive receptors (mainly residential dwellings) around this junction.

During 2015, a Detailed Assessment was carried out on the A38. Modelling identified exceedances of the annual mean NO_2 objective at six isolated locations of relevant exposure

[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

[3] Defra. Air quality appraisal: damage cost guidance, July 2021

[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

covering a stretch of the A38 from the junction with the A5127 Burton Road to the northern boundary of the district. Lichfield District Council therefore declared AQMA No.2 which came into force in August 2016.

During 2021, 26 out of 29 passive monitoring locations recorded an increase in annual mean NO_2 concentrations from 2020. This is believed to be due to the impacts of the COVID-19 pandemic in 2020, whereby the UK Government enforced lockdowns and advised home working where possible. As such, traffic levels decreased, as did NO_2 concentrations. 2021 did not experience a near full year of government lockdown, therefore subject to increased levels of traffic volume from 2020. Despite this, there is still no reported exceedance of the annual mean NO_2 AQS (Air Quality Strategy) objective of 40µg/m^3 within Lichfield. One passive monitoring site reported a concentration within 10% of the NO_2 AQS, MUC – 3 (39.8 µg/m^3) is not at a location of relevant exposure, and once fall-off with distance calculations have been carried out to predict the concentration at the nearest relevant receptor, the estimated concentration reduces to 31.3 µg/m^3.

While there were no new major air pollution sources identified during 2021 within the Lichfield District, the Council continues to work closely with partners and key stakeholders.

The District continues to attract new commercial and residential developments that incrementally increases emissions from activities such as vehicle usage. Lichfield District Council's Environmental Protection Team therefore has a close working relationship with the Planning Department to ensure applications for new developments protect air quality and human health in accordance with the National Planning Policy Framework (NPPF) and associated Technical Guidance. The Environmental Protection team has been a consultee on the Local Plan review, which contains a spatial strategy that sets out the overall approach towards provision for new homes, jobs, and infrastructure and community facilities up to 2040. The spatial strategy seeks to concentrate major growth within urban areas alongside improvements to existing key services, facilities and infrastructure. This will contribute to reducing the need to travel, but also provide better opportunities for travel by public transport. Through the development of the employment locations, it seeks to provide more local jobs and a wider variety of better paid local jobs to reduce out commuting levels. Review of the Local Plan began in 2018 and included the following stages:

- Scope Issues and Options – this was the first stage of the process and set out the scope of the local plan review and presented its key issues along with a number of options;

- Preferred Options and Policy Directions – this document set out potential spatial options for the district and the broad preferred approach to the managing development;
- Preferred Options – this document set out the spatial strategy including proposed strategic sites and a number of policies for the management of development;
- Proposed publication plan – this document once adopted will represent the council's settled view of the contents of the Lichfield District Local Plan 2040. It went out for consultation in summer 2021 and once adopted will replace the current local plan strategy (which was adopted in 2015) and the local plan allocations document, which was adopted in July 2019.

Lichfield District Council is also a member of the Staffordshire Air Quality Forum ('SAQF'), which has encouraged partnership working on local air quality management, which is important given the cross boundary nature of air pollution. The SAQF comprises of local authority air quality officers, Staffordshire County Council Highways officers, National Highways staff, County Public Health and Public Health England staff as necessary. The SAQF group also feeds back to the Central England Environmental Health Chief Officers and engages with other groups such as the Midland Joint Advisory Council. The main joint projects currently within the SAQF are:

- The SAQF group continue to collaborate with local Public Health Departments to review and assess $PM_{2.5}$ (fine particulate matter) levels in their ASRs (see Section 2.3).
- Following on from the Government's Clean Air Strategy, Staffordshire County Council's Director of Public Health presented a report to the Staffordshire Health & Wellbeing Board (HAWB), highlighting the air quality situation across the whole of Staffordshire and activities identified as potentially making a positive contribution to air quality. From this a plan of action was produced for partnership working. The SAQF group subsequently worked with Staffordshire County Council and successfully secured a Defra funded bid to deliver for example business/ school travel plans across the Staffordshire authorities from July 2018 to July 2020. This project focussed primarily on AQMAs affected by roads under Staffordshire County Highways jurisdiction. While Lichfield District Council's AQMAs are under the jurisdiction of National Highways, formerly known as Highways England, this Authority continues to liaise with the County Council to identify other initiatives or

projects that could also benefit the two AQMAs in the Lichfield District and indeed the wider area too, wherever possible.

- Work on a joint Supplementary Planning Guidance for Planners and Consultants was planned in 2020, based on similar guidance produced collaboratively by a number of the East Midlands Authorities. Although implementation has been delayed due to staff turnover and resource constraints primarily from the ongoing Covid-19 pandemic, however, there remains a commitment to see this through, and a template document has been drafted. This measure is also included in Lichfield District Council's Air Quality Action Plan (AQAP). More details are provided in Section 2.2.

- Finally, Lichfield District Council like all other Staffordshire authorities benefits from having an Integrated Transport Strategy (ITS) specific to the District. The measures in the ITS are aimed at transport measures under the County Council's jurisdiction, which for the Lichfield District are outside of the two AQMAs and currently are not included in the Action Plan as they are unlikely to significantly benefit the two AQMAs. The ITS measures will nevertheless provide some benefit in easing congestion and improving public transport connectivity to the main settlements in the District and therefore will help maintain concentrations of air pollutants below the objectives outside of the AQMAs. A summary of ITS measures already completed and planned for the coming reporting year are outlined in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

The key major development within the Lichfield District is the ongoing High Speed Two project. Both Phase One and Phase 2a of HS_2 will pass through the Lichfield District. Civilworks for Phase One commenced in summer 2019, with the construction of a haul road for construction traffic off the A38 at Streethay completed early in 2020, as well as compounds at various other sections along the route during the course of 2021. At this stage it is considered unlikely that HS_2 will have any significant adverse air quality impacts, however LDC will continue to liaise with HS2, their contractors and other affectedauthorities throughout the process. A summary of HS_2 to date is presented in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

One other major development is the southern bypass from the A5206 London Road to the A5127 Birmingham Road which was officially opened in October 2021. This new road should reduce traffic coming into the city centre and therefore congestion.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy[5] sets out the case for action, with goals to reduce exposure to harmful pollutants. The Road to Zero[6] sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

As the roads within both AQMAs are strategic roads that are under the jurisdiction of National Highways, Lichfield District Council has no direct control over any intervention measures and is therefore heavily reliant on National Highways and other relevant bodies such as Midlands Connect to implement the proposed measures within the Action Plan.

Most of the measures within the final Action Plan are therefore targeted at improving traffic flows within the two AQMAs through partnership working with National Highways and Midlands Connect. Partnership working had commenced late in 2019 with both organisations regarding measures targeted primarily at the A5 corridor that includes the Muckley Corner AQMA. A study of a 53 mile long section of the A5 corridor between the M6 and M1 was conducted by Midlands Connect, to establish the strategic and economic rationale of transport improvements on the corridor. A number of options for junction improvements within the Muckley Corner AQMA as well as Wall Island were considered but unfortunately were not taken forward as the central section of the A5 corridor (Hinkleyto Tamworth), which lies outside of the jurisdiction of Lichfield District Council, was identified as the priority for investment. Although future interventions within the AQMA have not been ruled out.

Aside from the aforementioned measures, Lichfield District Council reviewed its NO_2 diffusion tube monitoring network in October 2021 with an additional site being

[5] Defra. Clean Air Strategy, 2019

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

commissioned, located outside of the AQMAs on Walsall Road. These are located at key positions along the main arterial routes through Lichfield aswell as locations in Armitage in the west of the District and Fazeley in the east and a full calendar year of data is presented in this ASR for these new sites.

Lichfield District Council also made improvements to the information available to the public on its air quality web pages early in 2020. Information on ways residents and businesses can make their own contribution to improving air quality in the district has also been added.

Conclusions and Priorities

In 2021, there were no reported exceedances of the relevant NO_2 AQS objectives at areas of relevant exposure. However 26 sites recorded an increase in concentrations from 2020. It is likely that the effect of reduced traffic volumes during the COVID-19 pandemic in 2020 has resulted in an average increase in concentrations by 15% amongst passive monitoring locations in 2021. Lichfield District Council will continue to use their passive monitoring network to determine whether AQMAs need amending or whether there are any new identifiable areas of concern.

Lichfield District Council will continue to engage with National Highways and Midlands Connect regarding transport intervention measures for the A5 Muckley Corner. As these roads are under the jurisdiction of National Highways, transport intervention measures are largely out of this Council's direct control, hence it is vital to keep the pressure and momentum going to ensure cost effective solutions are sought. However, this is dependent on the outcome of any continued monitoring within the AQMAs and the impact of any rebound from the pandemic, which still remains uncertain.

Local Engagement and How to get Involved

Due to the main source of air pollution within Lichfield District Council being from transport sources, the easiest way for the public to get involved in aiding air quality improvements within the area would be to look at alternatives modes of travel. The following are suggested alternatives to private travel that would contribute to improving air quality within the District:

Think Before You Drive

- Avoid vehicle idling and/or use of air conditioning running continuously. By switching your engine off you can save fuel, money and improve local air quality

- Consider leaving the car at home one day a week.
- Walk or cycle – From choosing to walk or cycle for your journey the number of vehicles is reduced and also there is the added benefit of keeping fit and healthy. In addition, many of the cycle routes are off-road meaning you are not in close proximity to emissions from road traffic sources. Information on cycle routes within the Lichfield area is currently available on Staffordshire County Council's website at the following link, https://www.staffordshire.gov.uk/Transport/cycling/Documents/Cycling-in-Lichfield-including-Burntwood-Issue-5.pdf;

Lichfield District Council endorses the Staffordshire Air Aware website set up by Staffordshire County Council, which provides more detail on reducing reliance on personal vehicle use. This can be viewed at https://www.staffordshire.gov.uk/DoingOurBit/Get-Inspired/Clean-green-and-safe/Air-aware/Air-aware.aspx.

- Hold meetings by Conference Call by phone, Microsoft Teams or Skype rather than driving to meetings. This reduces fuel, vehicle maintenance and other travel costs, and increases productivity through reduction in hours lost through unnecessary travel.
- Facilitate Flexible Working Arrangements for staff to work remotely from home or hubs closer to home for one or more days a week thus removing or reducing commuter journeys. This reduces congestion which has beneficial impacts for delivery times, reduced business costs and thus economic benefits. Additionally, it provides social benefits through improved work-life balance for employees and helps to improve local air quality and reduced emergency vehicle response times.
- Switch Fleet to Low or Zero Emission Vehicles: Eligible businesses, charities, and public sector organisations with off street parking for staff or vehicles fleets can apply for vouchers to redeem costs of electric vehicle charge-points. There is an approved charge points list and a list of authorised installers.

https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles#workplace-charging-scheme

- If you must drive consider fuel efficient driving advice, known as 'Smarter Driving Tips', which ultimately will save you on fuel costs and reduce your emissions. Several websites promote such advice including:

https://energysavingtrust.org.uk/advice/ecodriving/

https://www.theaa.com/driving-advice/fuels-environment/drive-smart

https://www.vehicle-certification-agency.gov.uk/fcb/smarter-driving-tips.asp

Energy Efficiency

Improving the energy efficiency of your home / school / workplace will help reduce energy bills, as well as reducing emissions associated with power generation. The Energy Savings Trust (EST) which is a non-profit organisation, funded by the government and private sector can provide independent and impartial advice to help consumers in lowering emissions and cut their energy bills. For further information, visit the EST website at https://www.energysavingtrust.org.uk/

Around The Home

- Use water-based or low solvent paints, glues, varnishes and wood preservatives, look for brands with a low VOC content.
- Have your central heating system checked regularly to avoid risking exposure to toxic carbon monoxide.
- Smoke Control Areas have been declared covering the settlements of Lichfield, Burntwood, Armitage / Handsacre and Fazeley at the eastern district boundary with Tamworth Borough Council. In a Smoke Control Area you need to make sure that any appliance is exempt or is included in the list of authorised fuels. Defra keeps a list of approved appliances and authorised fuels that are permitted for use in smoke control areas at https://smokecontrol.defra.gov.uk/appliances.php?country=england. Ready to use wood bought from a Woodsure Certified Supplier will offer the following benefits:
    - Dry, ready to burn wood/logs & briquettes make any appliance more efficient.
    - Burning dry wood instead of wet wood is part of the solution to reducing the impact on our environment.
    - Burning wet wood increases emissions and the impact on air quality. Any appliance and chimney system will suffer from smoke produced from wet wood, which increases maintenance and repair requirements, making it harder for chimney sweeps to keep systems in safe, effective condition.
    - Burning waste and treated wood (e.g., old furniture) can emit harmful fumes.

Other Considerations

- When planning days out or journeys to work, check the air pollution forecast at https://uk-air.defra.gov.uk/forecasting/
- Be energy efficient - make sure your house is well insulated and use energy efficient appliances https://www.energysavingtrust.org.uk/home-energy-efficiency
- Refrain from having bonfires or barbecues when air pollution levels are high. Furthermore, due to the COVID-19 pandemic, Lichfield District Council would discourage bonfires as they could impact upon the ability of other residents in the local area who may be isolating at home to recover from COVID-19 or residents with existing cardiovascular/respiratory conditions who may be more susceptible to infection.
- Never burn household waste, especially plastics, rubber and treated timber.
- Lichfield District Council's annual air quality reports are accessible from https://www.lichfielddc.gov.uk/downloads/download/47/air-quality-monitoring-reports.

Global Action Plan, a charity that is working for a green and thriving planet have for the first time provided a hub called the Clean Air Hub, that brings together public accessible information on air pollution all in one place. Whether you want to learn more about what air pollution is, how it affects your health, what you can do to protect yourself from it and the action you can take to tackle it, then the collection of information, resources and expert advice on the Clean Air Hub will help and inspire you to get informed and involved. The Clean Air Hub can be accessed from the following web link; https://www.cleanairday.org.uk/pages/category/clean-air-hub.

Local Responsibilities and Commitment

This ASR was prepared by the Bureau Veritas on behalf of the Public Protection Service of Lichfield District Council with the support and agreement of the following officers and departments:

Jack Twomey, Environmental Protection and Housing Manager in Operations, Regulation and Enforcement.

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

If you have any comments on this ASR please send them to <report author> at:

Address Lichfield District Council, Frog Lane, Lichfield, WS13 6YY

Telephone 01543 308734

Email pollution@lichfielddc.gov.uk

Table of Contents

Executive Summary: Air Quality in Our Area 2

Air Quality in Lichfield District Council 3

Actions to Improve Air Quality ii

Conclusions and Priorities iii

Local Engagement and How to get Involved iii

Local Responsibilities and Commitment vii

1 Local Air Quality Management 1

2 Actions to Improve Air Quality 2

Air Quality Management Areas 2

Progress and Impact of Measures to address Air Quality in Lichfield District Council 4

$PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations 8

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance 9

Summary of Monitoring Undertaken 9

3.1.1 Automatic Monitoring Sites 9

3.1.2 Non-Automatic Monitoring Sites 9

Individual Pollutants 9

3.1.3 Nitrogen Dioxide (NO_2) 9

Appendix A: Monitoring Results 11

Appendix B: Full Monthly Diffusion Tube Results for 2021 20

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC 22

New or Changed Sources Identified Within Lichfield District Council During 2021 22

Additional Air Quality Works Undertaken by Lichfield District Council During 2021 25

QA/QC of Diffusion Tube Monitoring 26

Diffusion Tube Annualisation 26

Diffusion Tube Bias Adjustment Factors 27

NO_2 Fall-off with Distance from the Road 28

Appendix D: Map(s) of Monitoring Locations and AQMAs 32

Appendix E: Summary of Air Quality Objectives in England 39

Glossary of Terms 40

References 41

Figures

Figure A.1 – Trends in Annual Mean NO_2 Concentrations (AQMA No.1 – A5 Muckley Corner).....16
Figure A.2 – Trends in Annual Mean NO_2 Concentrations (AQMA No.2 – A38 Streethay to Alrewas).....17
Figure A.3 – Trends in Annual Mean NO_2 Concentrations (A38 and A5).....18
Figure A.4 – Trends in Annual Mean NO_2 Concentrations (Lichfield) 19
Figure C.1 – National diffusion tube bias adjustment factor spreadsheet version 09/22....27
Figure D.1 – Map of Non-Automatic Monitoring Sites (AQMA No.1: A5 Muckley Corner) .32
Figure D.2 – Map of Non-Automatic Monitoring Sites (AQMA No.2: A38 Streethay to Alrewas).....33
Figure D.3 – Map of Non-Automatic Monitoring Sites (A38 Canwell) 34
Figure D.4 – Map of Non-Automatic Monitoring Sites (Lichfield) 35
Figure D.5 – Map of Non-Automatic Monitoring Sites (Burntwood) 36
Figure D.6 – Map of Non-Automatic Monitoring Sites (Armitage) 37
Figure D.7 – Map of Non-Automatic Monitoring Sites (Fazeley).....38

Tables

Table 2.1 – Declared Air Quality Management Areas.....3
Table 2.2 – Progress on Measures to Improve Air Quality.....6
Table A.1 – Details of Non-Automatic Monitoring Sites 11
Table A.2 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring ($\mu g/m^3$) 14
Table B.1 – NO_2 2021 Diffusion Tube Results ($\mu g/m^3$) 20
Table C.1 – Bias Adjustment Factor 28
Table C.2 – Annualisation Summary (concentrations presented in $\mu g/m^3$).....29
Table C.3 – NO_2 Fall off With Distance Calculations (concentrations presented in $\mu g/m^3$) 31
Table E.1 – Air Quality Objectives in England 39

1 Local Air Quality Management

This report provides an overview of air quality in Lichfield District Council during 2021. 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 Lichfield District Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 12 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Lichfield District Council can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within Lichfield. Appendix provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO_2 annual mean

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by National Highways?	Level of Exceedance : Declaration	Level of Exceedance : Current Year	Name and Date of AQAP Publication	Web Link to AQAP
A5 Muckley Corner AQMA no.1	01/08/2008	NO_2 Annual Mean	An area encompassing the Muckley Corner Roundabout on the A5 along with fourteen surrounding buildings.	Yes	51 µg/m^3	39.8 µg/m^3	Air Quality Action Plan for AQMA 1 & AQMA 2 – Final (09/08/2019)	https://www.lichfielddc.gov.uk/downloads/file/1469/air-quality-action-plan-august-2019
AQMA no. 2	01/08/2016	NO_2 Annual Mean	A38 from the junction of A5127 Streethay north to Alrewas.	Yes	35.7 µg/m^3	28.8 µg/m^3	Air Quality Action Plan for AQMA 1 & AQMA 2 – Final (09/08/2019)	https://www.lichfielddc.gov.uk/downloads/file/1469/air-quality-action-plan-august-2019

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

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

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

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

1. *"QA/QC of monitoring data has been discussed; however, it is encouraged to provide the National Bias Adjustment Factor selected with a web page link or a screenshot.*
2. *The report provides a clear breakdown of historical data (and maps) of each monitoring site.*
3. *The Council should continue monitoring both inside and outside of the AQMAs throughout 2021 and 2022 before making a decision on whether to revoke the A38 AQMA.*
4. *Trends are clearly presented and discussed and a robust comparison with air quality objectives is provided. This was at district level, for each AQMA and also for each individual monitoring site.*
5. *The diffusion tube mapping is comprehensive and clearly demonstrates the monitoring network. AQMA boundaries are also clearly shown on the map.*
6. *The report links to Public Health Outcomes Frameworks and provides detailed information on how the district is working to improve $PM_{2.5}$ concentrations.*
7. *Generally, the report is very good, provides a great deal of information and acts as a good first point of reference for members of the Public. The Council should continue their hard work in developing partnerships and improving local air quality."*

Lichfield District Council has taken forward a number of direct measures during the current reporting year of 2021 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 12 measures are included within Table 2.2, with the type of measure and the progress Lichfield District Council have made during the reporting year of 2021 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in Lichfield District Council's 2019 Action Plan. Key measures going forward include:

- Transport Interventions – National Highways has commissioned AECOM to carry out a study of the A5 between Muckley Corner and Wall Island. The outputs from the study will inform what, if any, interventions will be required on the A5 at this location.
- Reinstated Travel planning amongst Council employees under the new Climate Change remit.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Increase the volume of through traffic using M6 Toll	Traffic Management	UTC, Congestion management, traffic reduction	2019	TBC	Lichfield District Council Environmental Health, National Highways, MidlandsConnect	Defra andLA	No	-	TBC	Planning	TBC after quantitative appraisal	Reduction in HGV % in AQMAs	Work is ongoing with Midlands Connects. There are no immediate plans for this, but the measure has not been ruled out	-
2	Upgrading Trunk A-Roads to Expressways	Traffic Management	UTC, Congestion management, traffic reduction	2019	TBC	Lichfield District Council Environmental Health, National Highways, MidlandsConnect	N/A	No	-	TBC	Amended	TBC after quantitative appraisal	Reduction in traffic congestion	Regular discussions with National Highways / Midlands Connects since June 2019. The A5corridor had previously been identified as priority for congestion control, but the central section which lies outside of the Lichfield District has been prioritised for transport intervention measures. Junction improvements at Muckley Corner had been considered but as yet are not being prioritised.	Subject to commitment from National Highways to deliver – this measure may never happen but it included as Lichfield DC is committed to maintain pressure for it to happen depending on the ongoing results of air quality monitoring
3	Pollution abatement equipment for HGVs	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2019	2025	Lichfield District Council Environmental Health, OLEV	OLEV or other Defra Funds	Yes (if available)	Partialor FullTBC	£100k - £500k	Planning	Reducing emissions contribution from HGVs TBC	Retrofit vehicles	Planning phase	Consider OLEV or AQ grant application funding
4	Replacing older vehicles	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake oflow emission vehicles	2019	Ongoing	Lichfield District Council Environmental Health & Licensing, OLEV	OLEV or other Defra Funds	Yes (if available)	Partialor FullTBC	£100k - £500k	Planning	Reducing emissions from all council owned vehicles TBC	Vehicles replaced (in addition to normal fleet turnover)	Planning phase	Consider OLEV or AQ grant application funding
5	Travel planning amongst Council employees	Promoting Travel Alternatives	Workplace Travel Planning	2019	2021	Lichfield District Council	Internal Lichfield District Council Funds	No	-	< £10k	Discontinued & replaced with Measure No. 11	-	Reducing emissions from Council employees	Coming back under the climate change remit via a separate team	-
6	Education Initiatives inc. website information updates	Public Information	Other	2019	2020	Lichfield District Council Environmental Health	Internal Lichfield District Council Funds	No	-	< £10k	Completed	Incremental through public awareness	Public Awareness	Completed early in 2020 although regular updates will be carried out moving forward	None to date
7	Staffordshire Air Quality Forum	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduceemissions and improve air quality	2019	Ongoing	County-wide	Staffordshire Authorities	No	-	< £10k	Planning	-	Full LA engagement across the group + Regular Meetings	Ongoing	Engagement reduced during the pandemic due to restrictions & resource constraints
8	Use the planning regime to minimise impact of new developments on AQMAs	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2019	Was 2021 now 2022	Lichfield District Council / Staffordshire AQForum	Staffordshire Authorities	No	-	< £10k	Planning	Reducing emissions contribution and restricting impact on AQMAs	Supplementary Planning Guidance implemented	Discussions have already taken place and a general template to the guidance is in draft stages	-
9	Inspect under the Environmental Permit regime and enforce legislation to reduce combustion processes	Environmental Permits	Introduction/ increase of environment charges through permit systems and economic instruments	2019	Ongoing	Lichfield District Council Environmental Health	Internal funds generated through permitting regime	No	-	< £10k	Implementation	Installations adhering to permits and enforcement/penalties for breaches	Installations adhering to permits and enforcement/penalties for breaches	Permits inspected	-

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
10	Air quality monitoring	Public Information	Other	2019	Ongoing	Lichfield District Council Environmental Health	-	No	-	< £10k	Implementation	Will enable any changes in pollution levels to be identified	Monitoring locations and On-time submittal of ASRs	Monitoring to continue both inside and outside of AQMAs	Possibly liaise with Defra regarding need for additional monitoring and/or AURN funding. Consider continuous monitoring and AQ grant application if available or needed.
11 (Replaces Measure 5)	Homeworking	Promoting Travel Alternatives	Encourage / Facilitate home-working	2021	2022	Lichfield District Council employees	Internal Funds	No	-	< £10k	Implementation	Minimal but shows the Council can lead by example	Reducing emissions from Council employees	Internal building works to reduce number of workstations hence number of staff already commenced late 2021	-
12	Increased provision of EV charging infrastructure	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2021	TBC	Lichfield District Council Planning Policy & Environmental Health	TBC Through scoping	Unknown at present	-	TBC through scoping	Early Planning	Incremental	Reduction in pollutant levels in vicinity of council car parks	Lichfield District Council has started to review its car park strategy for the District in pursuit of increasing the provision of EV charging infrastructure	Funding

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

As detailed in Policy Guidance LAQM.PG22 (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.

The current Defra 2021 background maps for Lichfield District Council (2018 based) show that all background concentrations of $PM_{2.5}$ are far below the recommended 2021 annual mean AQS objective for $PM_{2.5}$ of 20 µg/m³. The highest concentration is predicted to be 15.3 ug/m^3 within the 1km x 1km grid square with the centroid grid reference of 406500 306500. This is an area located on Watling Street (A5).

The Department of Health's Public Health Outcomes Framework[7] has a number of public health indicators that are used focus public health action, identify areas of health inequality and concern, and monitor the differences in health impacts across regions in the UK. This framework includes an indicator "D01- Fraction of Mortality Attributable to Particulate Air Pollution" which is calculated using background annual average $PM_{2.5}$ concentrations, modelled at a 1km^2 resolution based on measured concentrations from the AURN. Lichfield has a 5.1% fraction of mortality calculated for 2021, which is below both the average for England overall (5.5), and the East Midlands Region (5.6%). The 2021 data is available via the Fingertips Public Health Outcomes Framework website.

[7] Public Health Outcomes Framework: D01- Fraction of Mortality Attributable to Particulate Air Pollution

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

This section sets out the monitoring undertaken within 2021 by Lichfield District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2017 and 2021 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Lichfield District Council currently does not undertake automatic (continuous) monitoring within its area of jurisdiction.

3.1.2 Non-Automatic Monitoring Sites

Lichfield District Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 30 sites during 2021, this includes the addition of 1 extra site 'LT–9' deployed in 2021. Table A.1 in Appendix A presents the details of the non-automatic sites.

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

Individual Pollutants

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

3.1.3 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring

site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2021 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

All passive monitoring locations within Lichfield recorded annual mean NO_2 concentrations below the 40µg/m^3 NO_2 AQS objective in 2021. Following the bias adjustment and annualisation where required, the maximum reported concentration in 2021 was 39.8 µg/m^3 at diffusion tube monitoring location MUC - 3, located on Muckley Corner A461 Southbound, once distance corrected, reduces to 31.3µg/m^3. This monitoring station reports the maximum concentration consistently throughout the time period between 2017 – 2021, however is showing an overall decline from 2017 – 2020 in NO_2 concentrations, complying with NO_2 AQS objective from 2020 – 2021.

Figure A.1 – Figure A.4 present graphs showing the annual mean NO_2 concentrations from 2017 – 2021. There is a general trend of reduction in NO_2 concentrations over the 5-year period of monitoring results for all monitoring sites. There is a significant decrease in NO_2 concentrations during 2020 compared to previous years. This is largely influenced by the result of the COVID-19 pandemic, whereby the UK government advised and initiated strict lockdowns to restrict travel and encourage working from home. This resulted in significant NO_2 emission decreases. From 2020 – 2021, the figures show an overall increase in NO_2 concentrations at 26 sites, which is likely to be attributed to traffic volumes in 2021 being more representative of pre-pandemic levels, due to the full year of 2021 not experiencing government lockdown.

All monitoring results are well below the mean NO_2 AQS objective of 40µg/m^3. There are no passive monitoring sites where the NO_2 annual mean is greater than 60µg/m^3, therefore in accordance with Defra LAQM.TG(22) there are no sites likely to be at risk of exceeding the 1-hour mean AQS objective.

Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
L	Lichfield	Urban Background	410544	310760	NO_2	No	42.0	N/A	No	2.0
ARM1	A513 Rugeley Road, Armitage	Roadside	406343	316482	NO_2	No	29.0	1.4	No	2.0
A38 – 2	Fradley	Roadside	416295	313186	NO_2	Yes, AQMA No. 2	10.0	5.0	No	2.0
A38 – 2A	Fradley	Roadside	416290	313175	NO_2	Yes, AQMA No. 2	0.0	6.0	No	2.0
A38 – 1	Alrewas	Roadside	417101	314180	NO_2	Yes, AQMA No. 2	9.0	1.0	No	2.0
A38 – 4 (X)	Canwell	Roadside	413978	300834	NO_2	No	10.0	6.9	No	2.0
A38 – 4A	Canwell	Roadside	413989	300869	NO_2	No	0.0	15.0	No	2.0
A38 – 5A	Canwell	Roadside	413950	300574	NO_2	No	35.0	10.0	No	2.0
A38 – 6A	Canwell	Roadside	413961	300539	NO_2	No	10.0	25.0	No	2.0
FAZE	A40691 Coleshill Road (No. 38)	Roadside	420442	301806	NO_2	No	0.1	2.3	No	2.0
A5 – 2B	A5 Wall Lane	Roadside	408667	306500	NO_2	No	6.0	2.0	No	2.0
MUC –1A	Muckley Corner Hotel First Floor	Roadside	408164	306513	NO_2	Yes, AQMA No. 1	0.0	5.0	No	7.0
MUC –1B	Muckley Corner Hotel First Floor	Roadside	408164	306513	NO_2	Yes, AQMA No. 1	0.0	5.0	No	7.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
MUC – 1C	Muckley Corner Hotel First Floor	Roadside	408164	306513	NO_2	Yes, AQMA No. 1	0.0	5.0	No	7.0
MUC – 1	Muckley Corner Hotel Ground Floor	Roadside	408164	306513	NO_2	Yes, AQMA No. 1	0.0	5.0	No	2.0
MUC – 2	Muckley Corner A5 Westbound	Roadside	408165	306487	NO_2	Yes, AQMA No. 1	9.0	5.0	No	2.0
MUC – 3	Muckley Corner A461 Southbound	Roadside	408097	306468	NO_2	Yes, AQMA No. 1	10.0	5.0	No	2.0
MUC – 4	Muckley Corner A5 Westbound	Roadside	408029	306501	NO_2	Yes, AQMA No. 1	2.0	4.0	No	2.0
A5 – 1A	Muckley Corner Westbound	Roadside	407895	306516	NO_2	No	6.0	1.0	No	2.0
MUC – 5	Muckley Corner A5 Eastbound	Roadside	408030	306516	NO_2	Yes, AQMA No. 1	5.0	2.0	No	2.0
MUC – 6	Muckley Corner A461 Southbound	Roadside	408161	306556	NO_2	Yes, AQMA No. 1	5.0	2.0	No	2.0
A5 – 1	A5 West	Roadside	407208	306513	NO_2	No	<200	4.0	No	2.0
B	Burntwood	Urban Background	405086	309344	NO_2	No	127.0	N/A	No	2.0
LT – 1	Lichfield Town - St John St	Roadside	411792	309161	NO_2	No	N/A	N/A	No	2.0
LT – 2	Lichfield Town Trent Valley Road (2 Lime Grove)	Roadside	412782	309774	NO_2	No	1.3	0.9	No	2.0
LT – 3	Lichfield Town Trent Valley Road (No. 101)	Roadside	412991	309869	NO_2	No	6.2	2.9	No	2.0
LT – 4	Lichfield Town Trent Valley Road (No. 155)	Roadside	413183	309945	NO_2	No	9.0	2.5	No	2.0
LT – 5	Lichfield Town Beacon Street (No. 48)	Roadside	411273	309902	NO_2	No	2.3	1.1	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
LT – 6	Lichfield Town - Beacon Street (No. 14)	Roadside	411358	309785	NO_2	No	0.2	1.6	No	2.0
LT – 7	Lichfield Town - Upper St John Street (No. 96)	Roadside	411892	308937	NO_2	No	1.4	0.5	No	2.0
LT – 8	Lichfield Town - Upper St John Street (No. 127)	Roadside	411951	308839	NO_2	No	0.2	1.2	No	2.0
LT – 9	71 Walsall Road, Lichfield	Roadside	410898	309085	NO_2	No	5.3	1.5	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.2 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
L	410544	310760	Urban Background	55.0	55.0	16.1	15.5	16.3	11.5	11.9
ARM1	406343	316482	Roadside	55.0	55.0	-	-	18.7	21.8	26.0
A38 – 2	416295	313186	Roadside	55.0	55.0	30.9	30.8	28.6	21.2	24.8
A38 – 2A	416290	313175	Roadside	55.0	55.0	37.0	38.3	35.3	25.2	28.8
A38 – 1	417101	314180	Roadside	55.0	55.0	35.4	33.9	25.8	24.8	27.2
A38 - 4 (X)	413978	300834	Roadside	55.0	55.0	29.4	27.5	25.1	22.2	31.4
A38 – 4A	413989	300869	Roadside	39.6	39.6	39.8	**41.7**	39.8	21.7	34.2
A38 – 5A	413950	300574	Roadside	55.0	55.0	38.3	33.9	26.7	21.9	25.9
A38 – 6A	413961	300539	Roadside	55.0	55.0	28.2	26.2	27.2	17.8	20.4
FAZE	420442	301806	Roadside	55.0	55.0	-	-	39.6	26.3	32.0
A5 – 2B	408667	306500	Roadside	47.4	47.4	34.5	37.5	29.6	23.7	25.8
MUC – 1A,1B,1C	408164	306513	Roadside	55.0	55.0	**41.7**	**42.0**	**42.4**	30.5	33.1
MUC – 1	408164	306513	Roadside	55.0	55.0	39.9	**43.0**	**41.5**	26.3	33.2
MUC – 2	408165	306487	Roadside	55.0	55.0	36.3	37.0	34.6	23.7	27.9
MUC – 3	408097	306468	Roadside	55.0	55.0	**51.9**	**52.5**	**45.9**	33.5	39.8
MUC – 4	408029	306501	Roadside	55.0	55.0	38.5	39.9	33.5	25.8	34.9
A5 – 1A	407895	306516	Roadside	55.0	55.0	35.2	32.9	27.6	24.4	28.7
MUC – 5	408030	306516	Roadside	55.0	55.0	**46.2**	**41.8**	38.6	28.5	33.3
MUC – 6	408161	306556	Roadside	46.9	46.9	36.8	37.5	29.7	23.2	27.2
A5 – 1	407208	306513	Roadside	55.0	55.0	**40.0**	35.8	34.0	23.9	24.0
B	405086	309344	Urban Background	55.0	55.0	15.1	15.3	15.4	13.6	14.4
LT – 1	411792	309161	Roadside	39.8	39.8	30.3	34.6	36.3	25.6	26.5
LT – 2	412782	309774	Roadside	55.0	55.0	-	-	36.2	21.9	20.5
LT – 3	412991	309869	Roadside	55.0	55.0	-	-	29.3	23.0	26.9
LT – 4	413183	309945	Roadside	55.0	55.0	-	-	31.5	20.5	24.3
LT – 5	411273	309902	Roadside	47.7	47.7	-	-	29.5	18.0	19.8
LT – 6	411358	309785	Roadside	55.0	55.0	-	-	34.9	23.0	25.1
LT – 7	411892	308937	Kerbside	55.0	55.0	-	-	29.1	23.0	22.0
LT – 8	411951	308839	Roadside	55.0	55.0	-	-	**42.1**	28.9	24.1
LT – 9	410898	309085	Roadside	46.9	46.9	-	-	**-**	-	21.9

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

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

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

Notes:

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

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

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

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

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

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

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations (AQMA No.1 – A5 Muckley Corner)

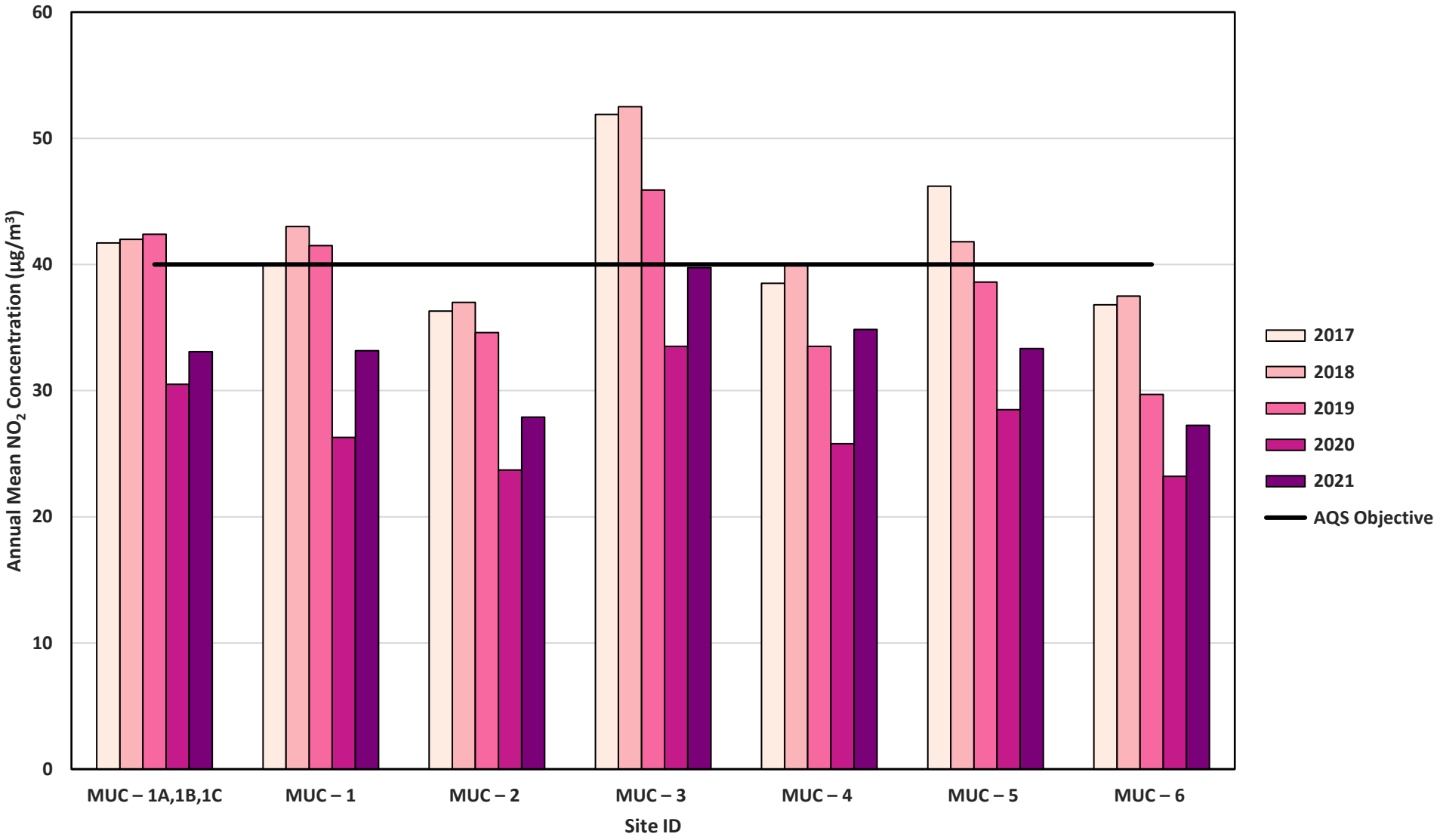


Figure A.2 – Trends in Annual Mean NO_2 Concentrations (AQMA No.2 – A38 Streethay to Alrewas)

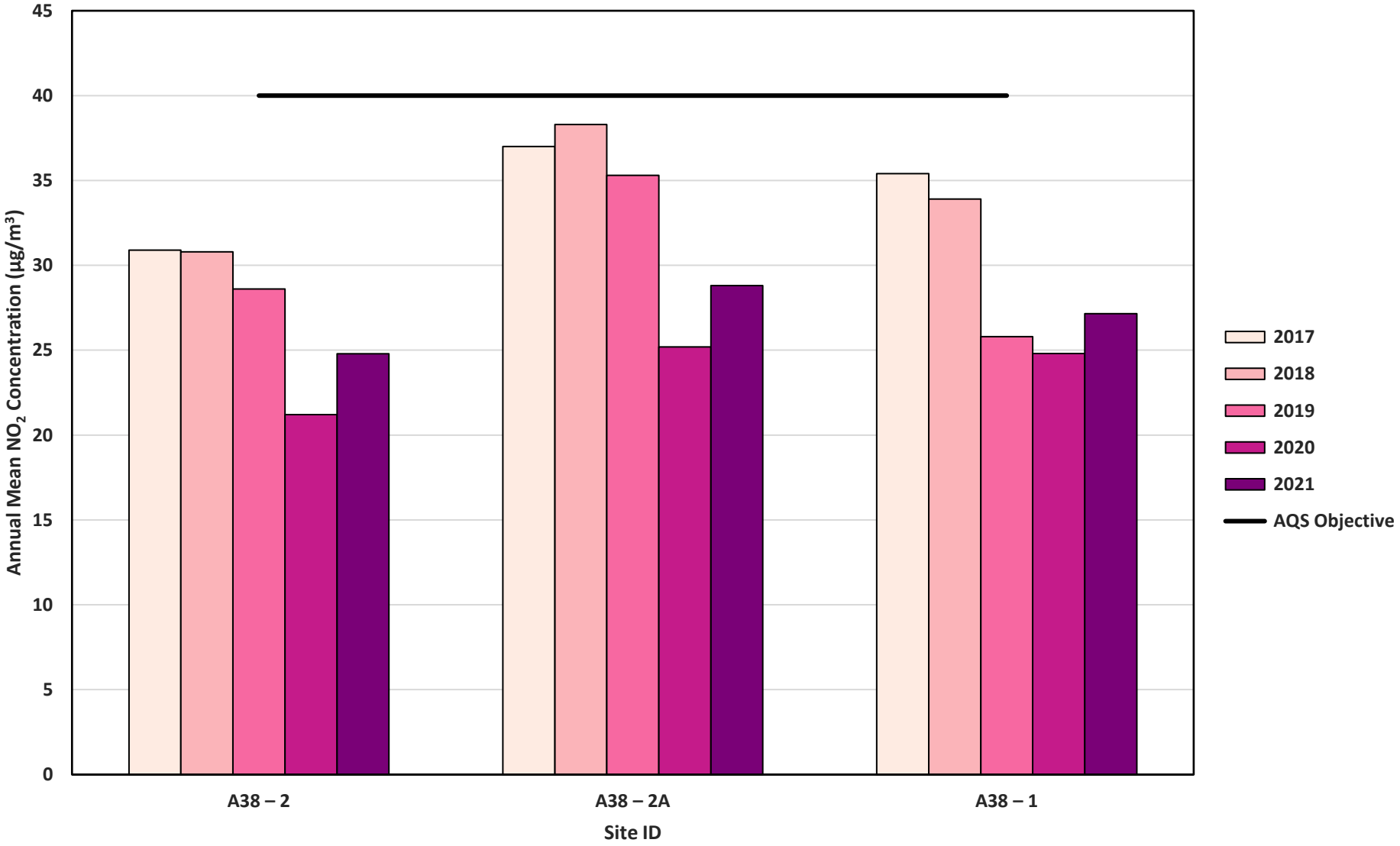


Figure A.3 – Trends in Annual Mean NO_2 Concentrations (A38 and A5)

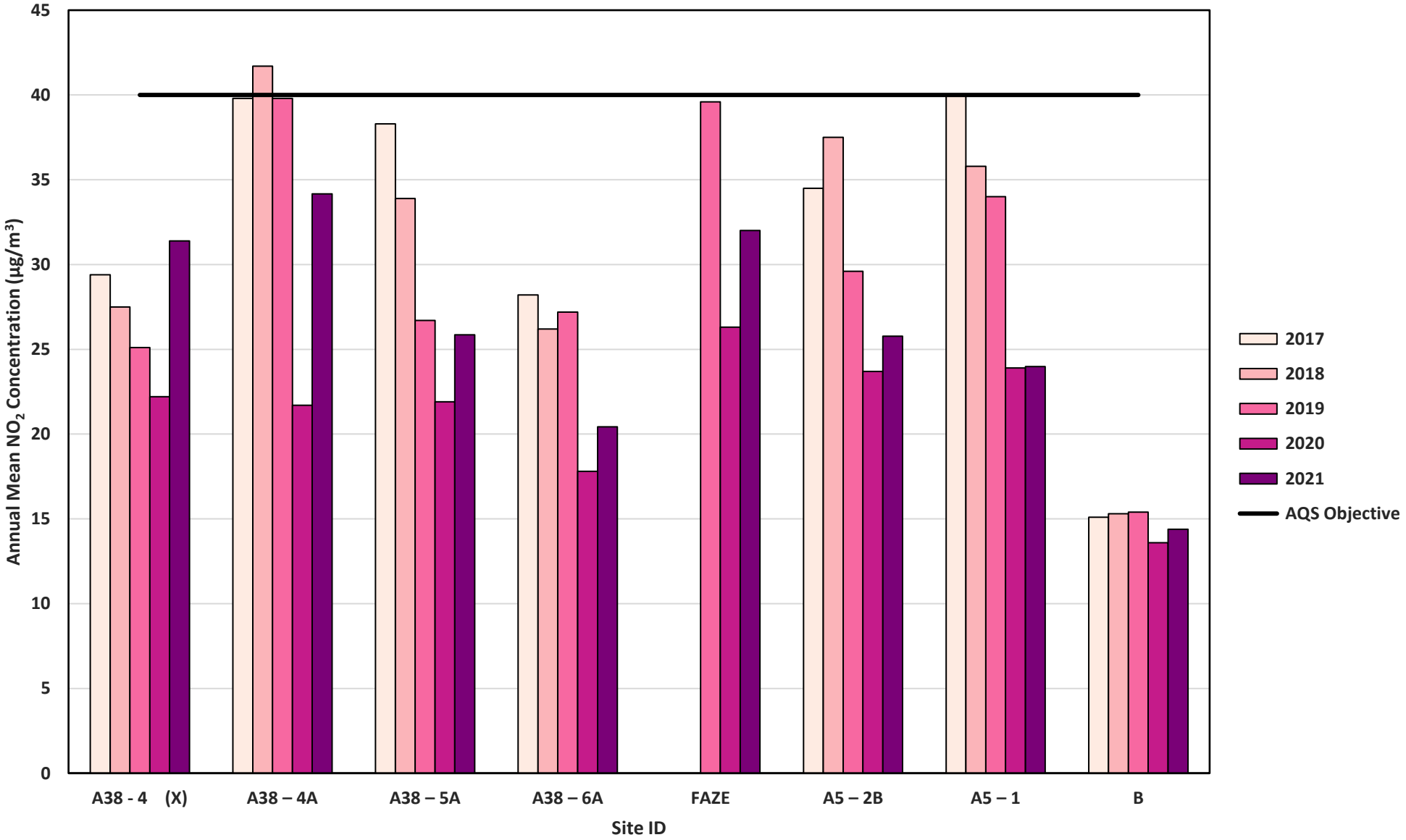
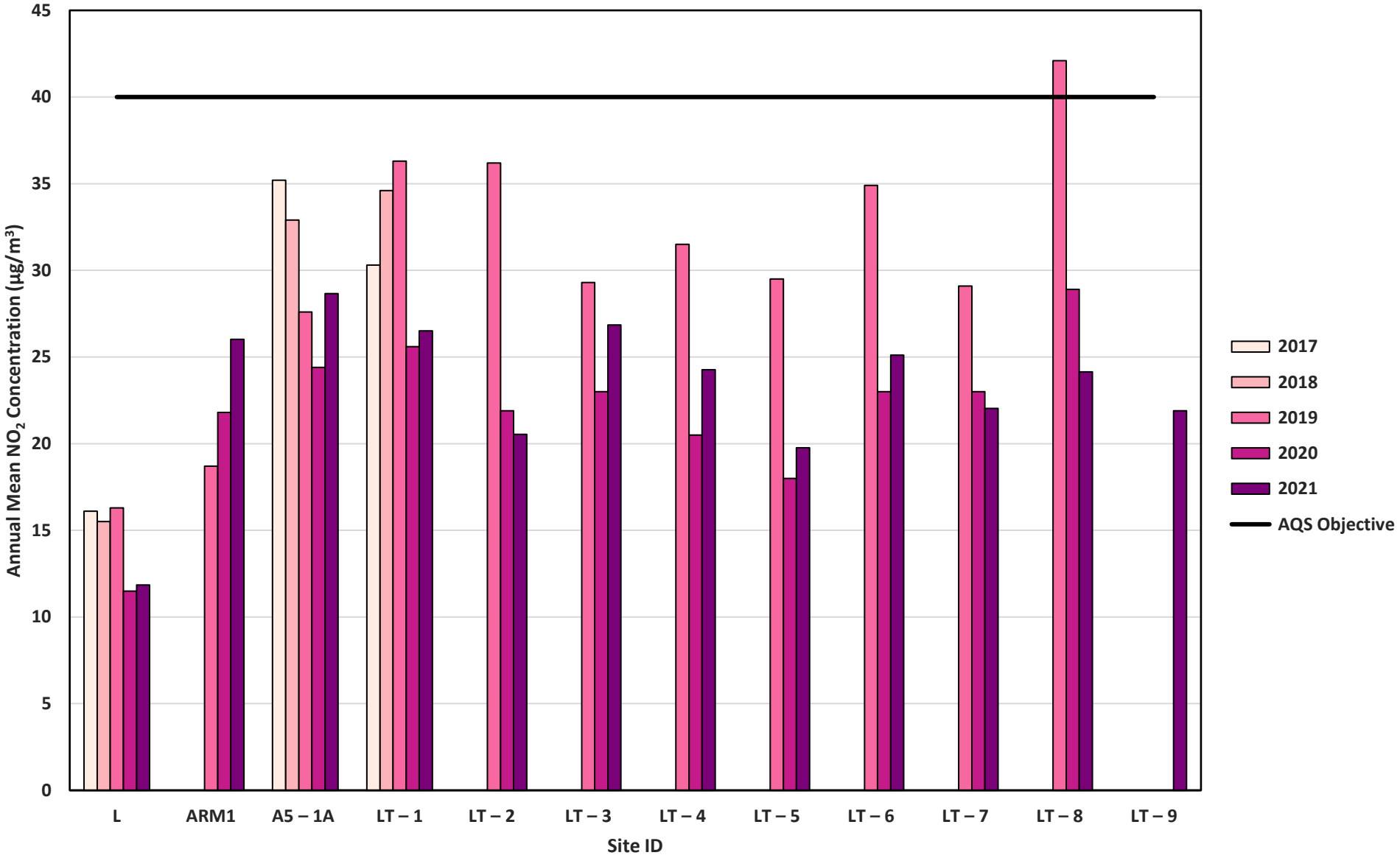


Figure A.4 – Trends in Annual Mean NO_2 Concentrations (Lichfield)



Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.87	Annual Mean: Distance Corrected to Nearest Exposure	Comment
L	410544	310760	-	15.5	-	-	7.5	13.3	-	9.8	-	19.3	14.8	13.1	13.4	11.9	-	
ARM1	406343	316482	-	23.3	-	-	19.7	31.4	-	27.8	-	46.6	25.4	28.6	29.4	26.0	-	
A38 - 2	416295	313186	-	33.6	-	-	18.6	30.6	-	34.2	-	27.0	20.7	31.3	28.0	24.8	-	
A38-2A	416290	313175	-	35.5	-	-	24.0	36.4	-	39.7	-	31.9	26.5	33.6	32.5	28.8	-	
A38 - 1	417101	314180	-	29.2	-	-	20.6	35.1	-	35.9	-	30.8	32.7	30.5	30.7	27.2	-	
A38 - 4 (X)	413978	300834	-	36.7	-	-	34.7	42.5	-	27.8	-	33.5	36.4	37.6	35.5	31.4	-	
A38 - 4A	413989	300869	-	34.9	-	-	36.4	41.7	-		-	36.2	-	32.7	36.4	34.2	-	
A38 - 5A	413950	300574	-	22.9	-	-	26.2	34.0	-	23.1	-	34.4	30.8	32.4	29.2	25.9	-	
A38 - 6A	413961	300539	-	18.3	-	-	19.8	25.9	-	17.0	-	30.7	28.2	20.9	23.1	20.4	-	
FAZE	420442	301806	-	31.6	-	-	33.3	36.5	-	39.5	-	37.9	35.3	38.3	36.2	32.0	-	
A5 - 2B	408667	306500	-	24.2	-	-	32.7		-	31.9	-	34.6	31.0	28.4	30.6	25.8	-	
MUC - 1A	408164	306513	-	37.4	-	-	34.8	42.4	-	45.0	-	30.7	39.3	35.2	-	-	-	Triplicate Site with MUC - 1A, MUC - 1B and MUC - 1C - Annual data provided for MUC - 1C only
MUC - 1B	408164	306513	-	39.3	-	-	34.6	44.8	-	45.8	-	29.7	-	38.2	-	-	-	Triplicate Site with MUC - 1A, MUC - 1B and MUC - 1C - Annual data provided for MUC - 1C only
MUC - 1C	408164	306513	-	34.6	-	-	38.4	39.7	-	46.0	-	29.1	33.2	33.0	37.4	33.1	-	Triplicate Site with MUC - 1A, MUC - 1B and MUC - 1C - Annual data provided for MUC - 1C only
MUC - 1	408164	306513	-	35.1	-	-	38.3	41.5	-	44.0	-	31.3	35.7	36.9	37.5	33.2	-	
MUC - 2	408165	306487	-	33.0	-	-	29.9	40.2	-	45.1	-	24.2	31.9	17.4	31.5	27.9	-	
MUC - 3	408097	306468	-	40.3	-	-	45.0	53.2	-	59.1	-	42.6	43.4	30.5	44.9	39.8	31.3	
MUC - 4	408029	306501	-	40.1	-	-	39.4	45.0	-	52.3	-	33.1	27.6	38.0	39.4	34.9	-	
A5 - 1A	407895	306516	-	28.5	-	-	30.0	35.2	-	33.2	-	35.6	29.5	33.8	32.4	28.7	-	
MUC - 5	408030	306516	-	35.0	-	-	41.5	38.0	-	37.9	-	37.7	34.6	38.6	37.7	33.3	-	
MUC - 6	408161	306556	-	29.3	-	-	29.7	32.5	-	-	-	29.5	34.0	33.0	31.3	27.2	-	
A5 - 1	407208	306513	-	29.0	-	-	18.4	27.2	-	27.8	-	29.8	24.1	32.9	27.1	24.0	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.87	Annual Mean: Distance Corrected to Nearest Exposure	Comment
B	405086	309344	-	17.4	-	-	7.7	12.9	-	12.8	-	22.1	17.8	22.5	16.3	14.4	-	
LT - 1	411792	309161	-		-	-	22.2	38.0	-	29.6	-	32.5	27.7		30.0	26.5	-	
LT - 2	412782	309774	-	27.6	-	-	13.3	26.0	-	19.8	-	24.5	25.1	26.6	23.2	20.5	-	
LT - 3	412991	309869	-	33.2	-	-	20.3	39.9	-	26.9	-	33.9	26.7	31.4	30.3	26.9	-	
LT - 4	413183	309945	-	31.9	-	-	17.1	29.2	-	23.0	-	30.4	28.7	31.8	27.4	24.3	-	
LT - 5	411273	309902	-		-	-	14.3	27.9	-	20.9	-	24.6	20.0	24.6	22.1	19.8	-	
LT - 6	411358	309785	-	31.2	-	-	19.1	34.0	-	24.2	-	31.2	27.5	31.5	28.4	25.1	-	
LT - 7	411892	308937	-	29.3	-	-	14.8	26.7	-	19.0	-	29.1	25.5	29.9	24.9	22.0	-	
LT - 8	411951	308839	-	27.5	-	-	17.1	35.1	-	23.2	-	30.4	29.4	28.4	27.3	24.1	-	
LT - 9	410898	309085	-	30.6	-	-	11.3	26.6	-	-	-	28.7	24.8	28.8	25.1	21.9	-	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**

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

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **Lichfield District Council confirm that all 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Lichfield District Council During 2021

Lichfield District Council have identified the following planning applications as having the potential to impact air quality:

17/01191/OUFMEI – Tue 19 Jan 2021

Development:

Hybrid Planning Application comprising Full Planning Application for the construction of a sustainable mixed use urban extension comprising of 475 dwellings, new vehicular access points onto Claypit Lane and Birmingham Road, the remodelling and formation of a roundabout at the junction of Fosseway Lane and Claypit Lane, comprehensive green infrastructure including up to 16.55 ha of country park, footpaths, cycleways, multifunctional open space including children's play areas, community orchard, open space for informal sport and sustainable urban drainage systems, foul and surface water drainage infrastructure including balancing ponds, and other ancillary infrastructure and ground remodelling. With Outline Applications for the serviced provision of 1.09 ha of land for a primary school and 1.9 ha for strategic sports provision with all matters reserved except access. (Removal of vehicular access from Claypit Lane and amendment to internal site layout and house types)

Location:

Deanslade Park Project Land South Of Falkland Road, Lichfield, Staffordshire WS14 0AG

Status: Approved

21/01956/OUTFLM – Fri 03 Dec 2021

Development:

Full application for the construction of 500 dwellings, access via Lichfield Southern Bypass, footpaths, cycleways, public open space, play areas, sports pitches, landscaping, district

park including biodiversity enhancement area, drainage and development infrastructure (part retrospective); and OUTLINE application (all matters reserved) for a primary school (F1a), a mixed use community hub to include commercial development (Ea, Eb, Ec, Sui Generis hot food takeaways and drinking establishments with expanded food provision) and a community building (F2b). (Amended description to reflect reduced number of residential properties proposed and incorporating the 169 dwellings (phase 2A) approved and built under 19/00478/REMM).

Location:

Land South Of Shortbutts Lane, Lichfield, Staffordshire

Status: Pending Consideration

12/00182/OUTMEI – Thu 21 Jan 2021

Development:

Construction of a sustainable mixed use urban extension, comprising of up to 450 dwellings; a primary school, mixed use community hub to include retail development (A1/A2/A3/A4/A5) and community buildings (D1); comprehensive green infrastructure including footpaths, cycleways, multi functional openspace including childrens play areas, open space for sport and sustainable urban drainage systems; foul and surface water drainage infrastructure including balancing ponds; safeguarded route of Lichfield Canal; link road to form part of Lichfield Southern Bypass; site vehicular access point opposite Shell Garage, London Road; demolition of no 22 London Road to allow provision of second vehicular access from London Road and other associated ancillary infrastructure and ground remodelling. | Land South Of Shortbutts Lane Lichfield Staffordshire.

Location:

Land South Of Shortbutts Lane, Lichfield, Staffordshire

Status: Withdrawn

HS2 Development

The only key major development within the Lichfield District during 2021 was the ongoing High Speed Two project.

On the 30th November 2015, the chancellor confirmed the route from the West Midlands to Crewe referred to as Phase 2a. It is anticipated that Phase 2a will open in 2027, six years

ahead of the remainder of Phase 2. Phase 2a is subject to its own Hybrid Bill, which was deposited in Parliament on 17 July 2017. This Bill seeks powers to build the route from the West Midlands through Staffordshire to Crewe. As part of this a full Environmental Statement (ES) was produced. A ten week consultation period followed from this and closed on 30th September 2017. LDC submitted a joint response with the County Council, Stafford Borough Council and Newcastle-under-Lyme Borough Council. The Bill received its second reading in the House of Commons on 30th January 2018, which triggered a petitioning period that ran until 26th February 2018. LDC along with the County Council petitioned on a range of matters, namely concerns regarding the impact of construction traffic using the existing network in the District, particularly as there will be an overlap in civil engineering works for both Phase One and Phase 2a. Since then the Department for Transport (DfT) have deposited two additional provisions (AP1) and (AP2) to the Bill. LDC together with its partners have made further representations which are currently ongoing. Between March 2018 and May 2019, a cross-party group of MPs, called a Select Committee, considered objections about Phase 2a. On 15th July 2019 the Bill received its Third Reading in the House of Commons, with 263 votes for and 17 votes against. The Bill received its First Reading in the House of Lords on 16th July 2019, and Second Reading on 9th September 2019. The House of Lords petitioning period ended on 16th August 2019. The petition hearings by the Select Committee were due to be held in autumn 2019 but were paused as a result of the general election in December 2019.

However due to delays stemming from the Covid-19 pandemic, it was not until 19th October 2020 that the Bill went to a Select Committee who considered the petitions deposited against it. The Select Committee subsequently published a report setting out their recommendations. Then on 23rd November 2020, the government published its response to the Select Committee's report. This was followed by a Command Paper published on 24th November 2020, setting out the government overview of the case for HS2 Phase 2a and its environmental impacts, in advance of the Bill receiving its Third Reading in the House of Lords. On 14th December 2020 the Bill received its Third Reading in the House of Lords. On 11th February 2021 the Bill secured Royal Ascent and is now the High Speed Rail (West Midlands – Crewe) Act 2021.

Further details relating to the bill and Select Committee can be found on the UK Parliament website.

The Act grants powers to:

- build and maintain HS2 and its associated works

- compulsorily acquire interests in the land required
- affect or change rights of way, including the stopping-up or diversion of highways and waterways (permanently or temporarily)
- modify infrastructure belonging to statutory undertakers (e.g. utility companies)
- carry out work on listed buildings and demolish buildings in conservation areas
- carry out protective works to buildings and third-party infrastructure
- make necessary changes to existing legislation to facilitate construction and operation of HS2

Additional Air Quality Works Undertaken by Lichfield District Council During 2021

Lichfield District Council has not completed any additional works within the reporting year of 2021.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes have historically been supplied and analysed by Staffordshire Scientific Services utilising the 20% triethanolamine (TEA) in water preparation method. However, the analysis service moved over to Staffordshire Highways Laboratory early in 2018.

Staffordshire Scientific Services/ Staffordshire Highways Laboratory is a UKAS accredited laboratory and participates in the new AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. Their lab code is 1017. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The laboratory follows the procedures set out in the Harmonisation Practical Guidance.

Throughout 2021, five monitoring months were subject to under and overexposure in relation to the DEFRA UUNN calendar dates, which resulted in unreliable datasets for the following months: January (15 days), March (51 days), April (19 days), July (40 days) and September (21 days). Data from these months have been removed due to unreliability.

Diffusion Tube Annualisation

The LAQM.TG(22) states that annualisation is required for any site which has a data capture of less than 75%, but greater than 25%. All diffusion tube monitoring sites recorded below the acceptable data capture in 2021 for NO_2 due to the removal of five months as a result of irregular monitoring periods, therefore requiring annualisation. Four continuous background monitoring locations were used, the four locations within a 50 mile radius were selected to annualise the data:

- Walsall Woodlands;
- West Bromwich Kendrick Park;
- Birmingham Ladywood; and
- Coventry Allesley

These continuous background monitoring sites were applicable to use as they all had >85% data capture and therefore could be used for annualisation. Table C.2 presents the annualisation summary, taken from the ‘Diffusion Tube Data Processing Tool’.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG(22) 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..

As Lichfield District Council do not undertake automatic monitoring to support co-location studies, a national bias adjustment factor of 0.87 (based on 12 studies, version 03/23 of the National Bias Adjustment Spreadsheet (Figure C.1)) has been applied to the 2021 monitoring data. A summary of bias adjustment factors used by Lichfield District Council over the past five years is presented in Table C.1.

Figure C.1 – National diffusion tube bias adjustment factor spreadsheet version 09/22

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/23

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

This spreadsheet will be updated at the end of June 2023

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[2]

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/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[5]	Bias Adjustment Factor (A) (Cm/Dm)
Staffordshire Scientific Services	20% TEA in water	2022	KS	Manchester City Council	12	49	43	13.8%	G	**0.88**
Staffordshire Scientific Services	20% TEA in water	2022	UC	Manchester City Council	12	29	29	0.4%	G	**1.00**
Staffordshire Scientific Services	20% TEA in water	2022	SI	Manchester City Council	12	17	16	12.1%	G	**0.89**
Staffordshire Scientific Services	20% TEA in water	2022	KS	Marylebone Road Intercomparison	12	51	42	20.5%	G	**0.83**
Staffordshire Scientific Services	20% TEA in water	2022	UB	Salford City Council	12	23	22	6.9%	G	**0.94**
Staffordshire Scientific Services	20% TEA in water	2022	B	Salford City Council	10	13	11	16.3%	G	**0.86**
Staffordshire Scientific Services	20% TEA in water	2022	R	Salford City Council	12	40	34	17.6%	G	**0.85**
Staffordshire Scientific Services	20% TEA in water	2022	R	Bury Council	11	24	21	16.0%	G	**0.86**
Staffordshire Scientific Services	20% TEA in water	2022	R	East Staffordshire Borough Council	10	39	31	23.9%	G	**0.81**
Staffordshire Scientific Services	20% TEA in water	2022	UB	Stoke-On-Trent City Council	11	23	20	17.1%	G	**0.85**
Staffordshire Scientific Services	20% TEA in water	2022	UB	Wigan Council	12	21	17	21.6%	G	**0.82**
Staffordshire Scientific Services	20% TEA in water	2022	R	Wigan Council	12	27	22	22.6%	G	**0.82**
Staffordshire Scientific Services	20% TEA in water	2022		**Overall Factor[3] (12 studies)**				**Use**		**0.87**

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	03/23	0.87 (12 studies)
2020	National	09/21	0.85 (15 studies)
2019	National	03/20	0.93 (17 studies)
2018	National	03/19	0.87 (13 studies)
2017	National	03/19	0.88 (19 studies)

NO_2 Fall-off with Distance from the Road

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

Fall-off with distance calculation were required at one passive monitoring location, where annual mean concentrations were greater than 36µg/m^3. Distance correction was applied to passive monitoring site MUC – 3. Distance correction calculations were completed using the Diffusion Tube Data Processing Tool version 2.0, in line with the methodology outlined in LAQM.TG(22). Details of this calculation and results are presented in Table C.3.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Walsall Woodlands	Annualisation Factor West Bromwich Kenrick Park	Annualisation Factor Birmingham Ladywood	Annualisation Factor Coventry Allesley	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
L	1.0179	0.9944	1.0402	1.0167	1.0173	13.4	13.6	
ARM1	1.0179	0.9944	1.0402	1.0167	1.0173	29.4	29.9	
A38 - 2	1.0179	0.9944	1.0402	1.0167	1.0173	28.0	28.5	
A38-2A	1.0179	0.9944	1.0402	1.0167	1.0173	32.5	33.1	
A38 - 1	1.0179	0.9944	1.0402	1.0167	1.0173	30.7	31.2	
A38 - 4 (X)	1.0179	0.9944	1.0402	1.0167	1.0173	35.5	36.1	
A38 - 4A	1.0970	1.0472	1.0861	1.0907	1.0803	36.4	39.3	
A38 - 5A	1.0179	0.9944	1.0402	1.0167	1.0173	29.2	29.7	
A38 - 6A	1.0179	0.9944	1.0402	1.0167	1.0173	23.1	23.5	
FAZE	1.0179	0.9944	1.0402	1.0167	1.0173	36.2	36.8	
A5 - 2B	0.9667	0.9463	0.9949	0.9611	0.9672	30.6	29.6	
MUC - 1A	1.0179	0.9944	1.0402	1.0167	1.0173	-	-	*Triplicate Site with MUC - 1A, MUC - 1B and MUC - 1C - Annual data provided for MUC - 1C only*
MUC - 1B	1.0179	0.9944	1.0402	1.0167	1.0173	-	-	*Triplicate Site with MUC - 1A, MUC - 1B and MUC - 1C - Annual data provided for MUC - 1C only*
MUC - 1C	1.0179	0.9944	1.0402	1.0167	1.0173	37.4	38.0	*Triplicate Site with MUC - 1A, MUC - 1B and MUC - 1C - Annual data provided for MUC - 1C only*

Site ID	Annualisation Factor Walsall Woodlands	Annualisation Factor West Bromwich Kenrick Park	Annualisation Factor Birmingham Ladywood	Annualisation Factor Coventry Allesley	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
MUC - 1	1.0179	0.9944	1.0402	1.0167	1.0173	37.5	38.1	
MUC - 2	1.0179	0.9944	1.0402	1.0167	1.0173	31.5	32.1	
MUC - 3	1.0179	0.9944	1.0402	1.0167	1.0173	44.9	45.7	
MUC - 4	1.0179	0.9944	1.0402	1.0167	1.0173	39.4	40.1	
A5 - 1A	1.0179	0.9944	1.0402	1.0167	1.0173	32.4	32.9	
MUC - 5	1.0179	0.9944	1.0402	1.0167	1.0173	37.7	38.3	
MUC - 6	0.9979	0.9857	1.0134	1.0073	1.0011	31.3	31.3	
A5 - 1	1.0179	0.9944	1.0402	1.0167	1.0173	27.1	27.6	
B	1.0179	0.9944	1.0402	1.0167	1.0173	16.3	16.5	
LT - 1	1.0050	0.9870	1.0540	1.0113	1.0143	30.0	30.5	
LT - 2	1.0179	0.9944	1.0402	1.0167	1.0173	23.2	23.6	
LT - 3	1.0179	0.9944	1.0402	1.0167	1.0173	30.3	30.9	
LT - 4	1.0179	0.9944	1.0402	1.0167	1.0173	27.4	27.9	
LT - 5	1.0226	1.0026	1.0674	1.0217	1.0286	22.1	22.7	
LT - 6	1.0179	0.9944	1.0402	1.0167	1.0173	28.4	28.9	
LT - 7	1.0179	0.9944	1.0402	1.0167	1.0173	24.9	25.3	
LT - 8	1.0179	0.9944	1.0402	1.0167	1.0173	27.3	27.8	
LT - 9	0.9979	0.9857	1.0134	1.0073	1.0011	25.1	25.2	

Table C.3 – NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
MUC - 3	5.0	15.0	39.8	13.9	31.3	

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

Figure D.1 – Map of Non-Automatic Monitoring Sites (AQMA No.1: A5 Muckley Corner)

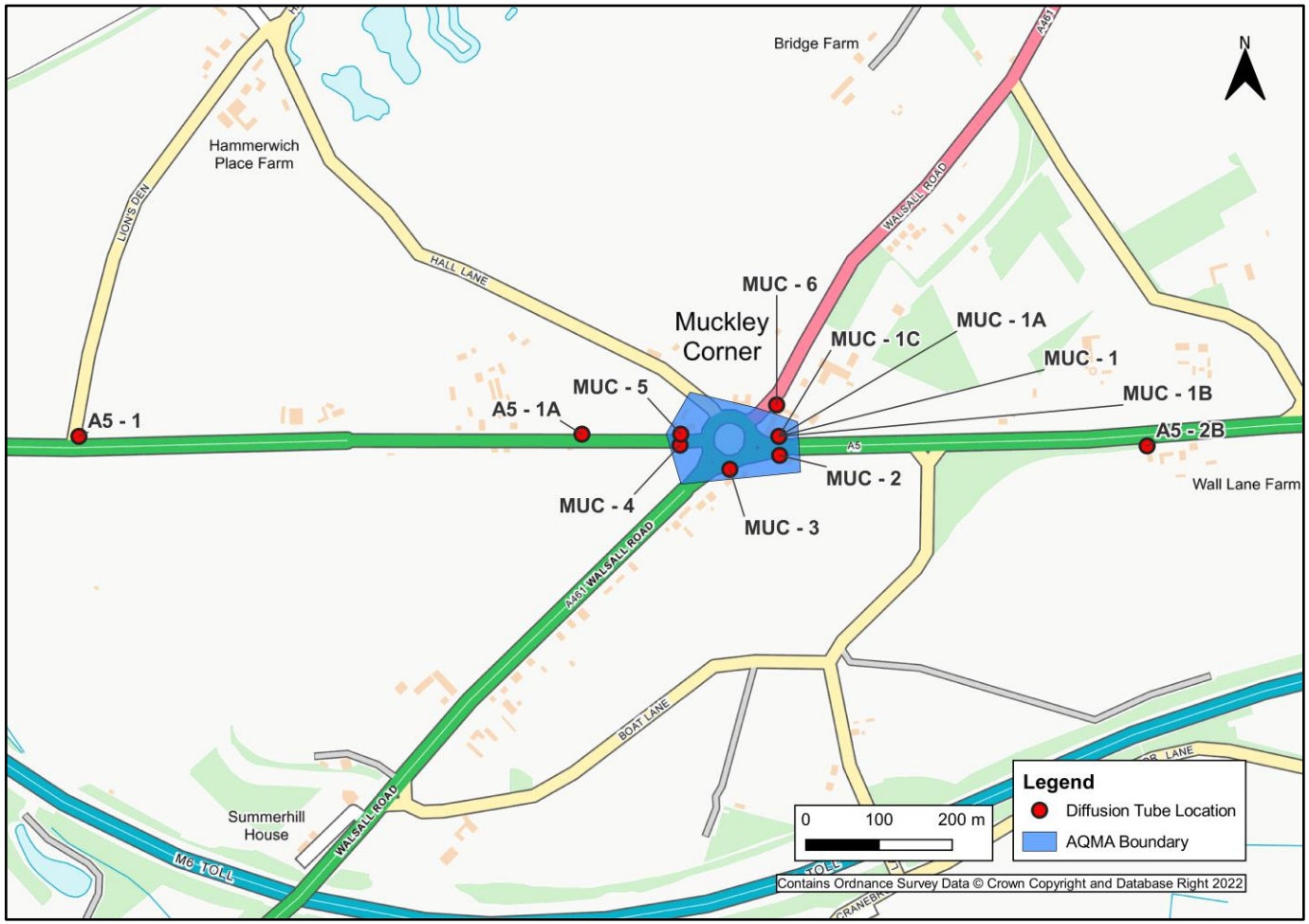


Figure D.2 – Map of Non-Automatic Monitoring Sites (AQMA No.2: A38 Streethay to Alrewas)

Figure D.3 – Map of Non-Automatic Monitoring Sites (A38 Canwell)

Figure D.4 – Map of Non-Automatic Monitoring Sites (Lichfield)

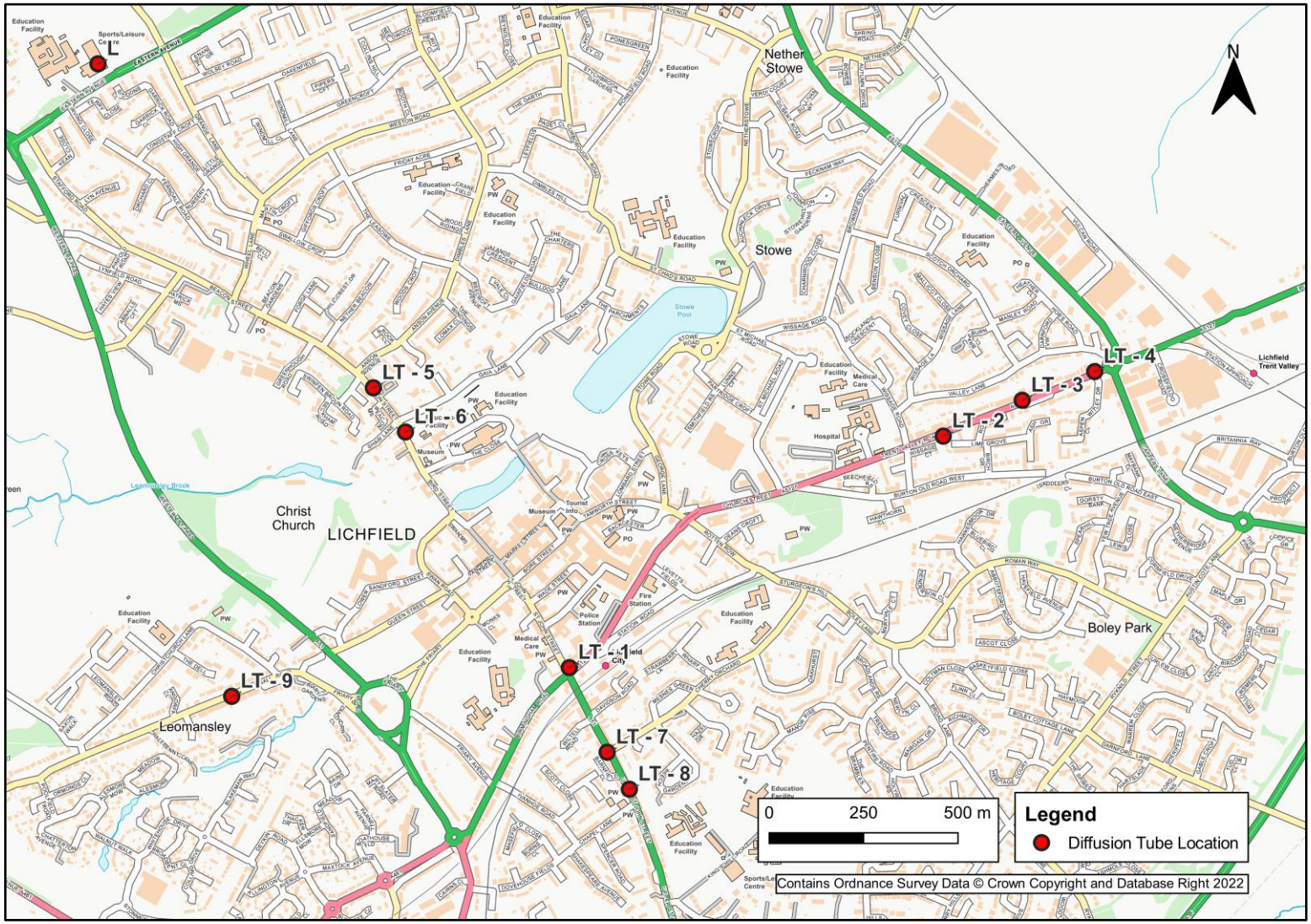


Figure D.5 – Map of Non-Automatic Monitoring Sites (Burntwood)

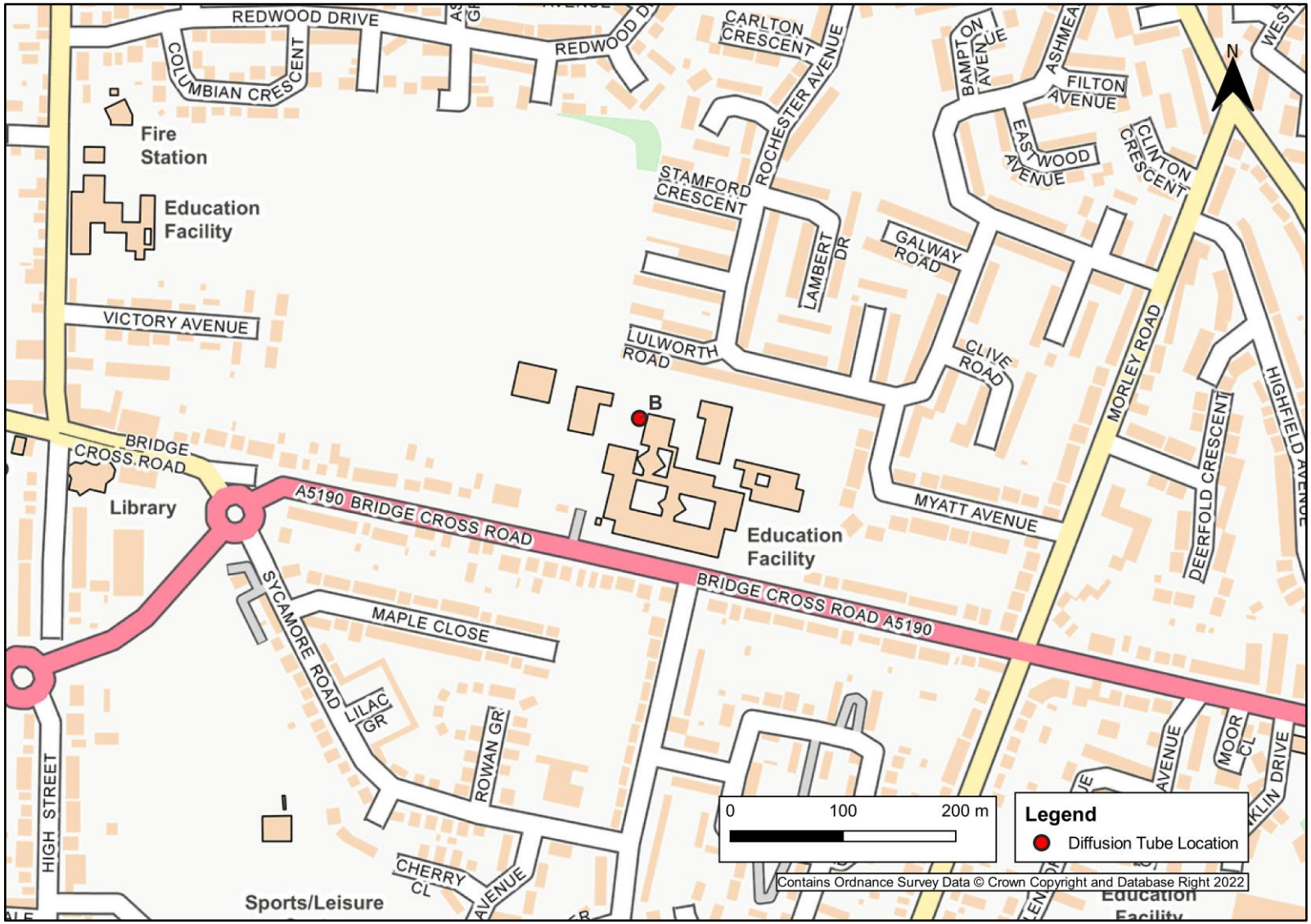


Figure D.6 – Map of Non-Automatic Monitoring Sites (Armitage)

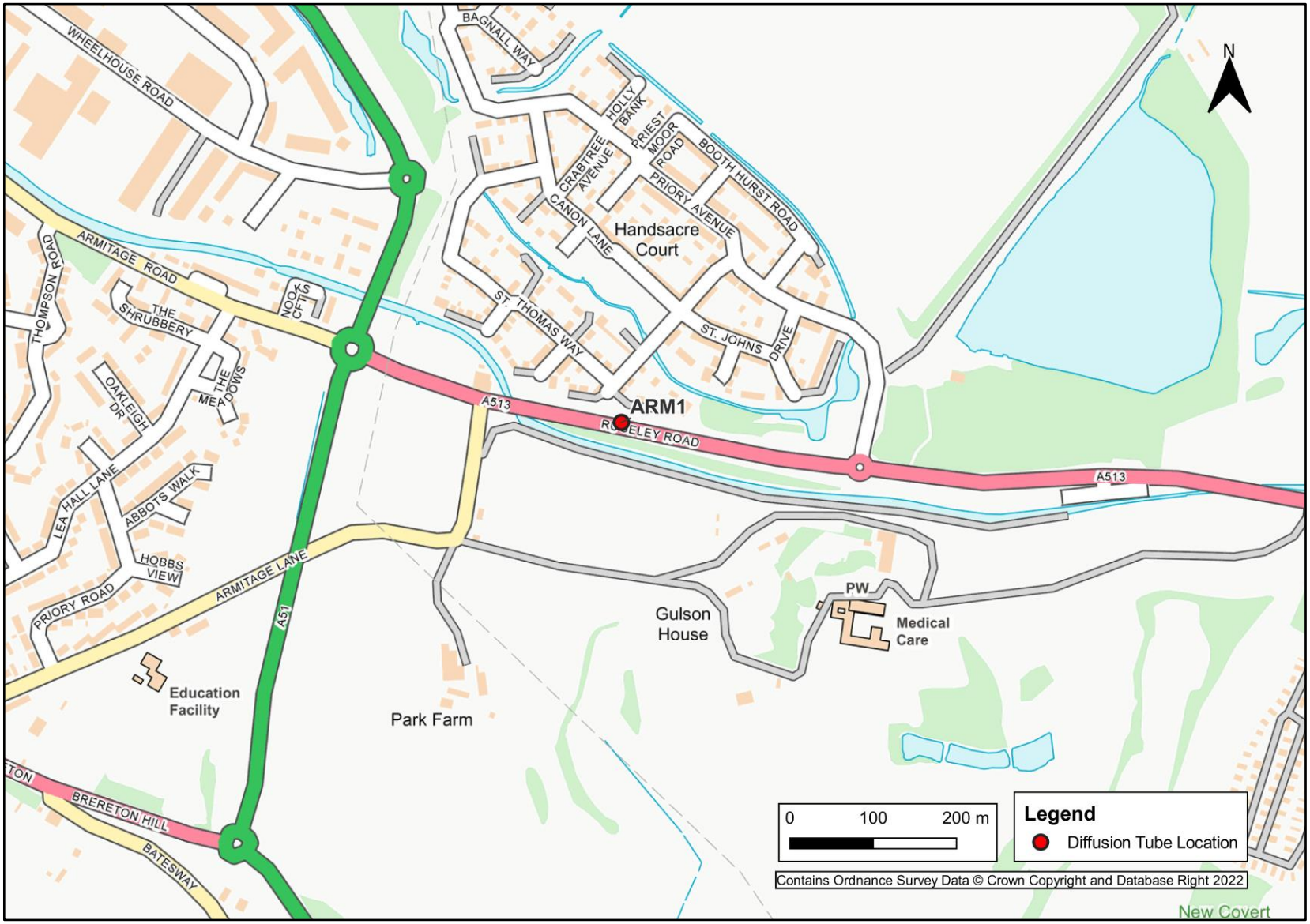
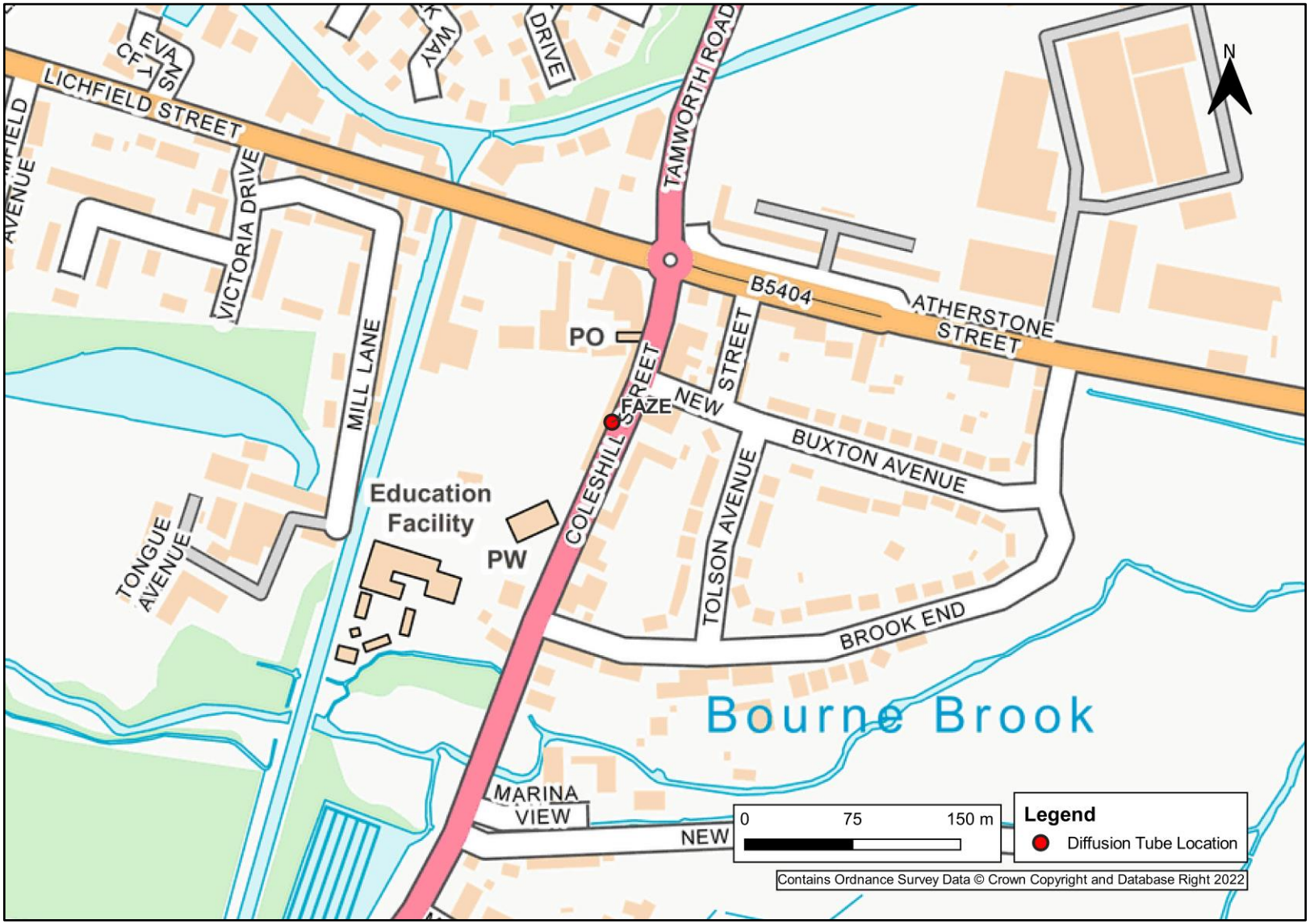


Figure D.7 – Map of Non-Automatic Monitoring Sites (Fazeley)



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

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

Glossary of Terms

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

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.