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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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Annual Status Report (ASR) Air Quality - Endorsement from the Director of Health and Care, Staffordshire County Council

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

As well as the ongoing work programme to address air quality issues in Staffordshire and Stoke-on-Trent through the Defra Funded Air Quality Project.

Staffordshire County Council led the bid for the ADEPT Live Lab programme and were successful in receiving £1.97 million to deliver the SIMULATE programme with partners AMEY, Keele University, Catapult Connected Places and ADEPT Live Labs. The programme is based on challenges in two areas: urban air quality and mobility.

SIMULATE is a new kind of infrastructure partnership, designed to accelerate innovative solutions in Air Quality and Intelligent Mobility within local authorities. SIMULATE is funded by the DfT and is part of the ADEPT Smart Places Research Programme.

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

26 May 2020

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 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].

Lichfield District Council (LDC) 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. LDC 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.

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

[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

Sites A38-2A/B, which previously exceeded the annual mean NO_2 objective and which is located within AQMA No.2 dropped just below 40µg/m^3 for the first time during 2017 and has remained under the objective during 2018 and 2019.

Meanwhile, MUC-1A/B/C and MUC-1 located within AQMA No.1 continued to exceed the annual mean objective during 2019, with reported concentrations of 42.1µg/m^3 and 41.5µg/m^3 respectively. Monitoring sites A38-2A/B, MUC-1A/B/C and MUC-1 were all at locations representing relevant exposure and therefore distance correction was not required.

Annual mean NO_2 concentrations at exceeding sites, MUC-3, also located within AQMA No.1 and site A38-4A/B located outside of the AQMAs were both distance corrected to estimate the concentration at relevant exposure. Of the sites that were distance corrected; only MUC-3 within AQMA No.1 was still found to be exceeding the annual mean NO_2 objective at the receptor façade, with a reported concentration of 45.9µg/m^3.

While there were no new major air pollution sources identified during 2019 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. LDC'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 and associated Technical Guidance. The Environmental Protection team has been a key consultee on the Local Plan, which contains a spatial strategy that sets out the overall approach towards provision for new homes, jobs, and infrastructure and community facilities up to 2029. 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.

LDC 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, Highways England (HE) 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 new 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 LDCs AQMAs are under the jurisdiction of 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.
- Work on a joint Supplementary Planning Guidance for Planners and Consultants was planned at the end of 2019 and into early 2020, based on similar guidance produced collaboratively by a number of the East Midlands Authorities. Although implementation had been delayed due to staff turnover and resource constraints primarily from the Covid-19 pandemic, the SAQF is still committed to start delivery of this early in 2021. This measure is also included in LDC's Air Quality Action Plan (AQAP). More details are provided in Section 2.2.
- Finally, LDC 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. Civil works 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. 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 HS_2, their contractors and other affected authorities throughout the process. A summary of HS_2 to date is presented in Appendix C.

One other major development currently in the construction phase is the southern bypass from the A5206 London Road to the A5127 Birmingham Road which should reduce traffic coming into the city centre and therefore congestion.

Actions to Improve Air Quality

The key action taken by LDC since the last ASR in 2019 has been the consultation exercise on the second draft of the AQAP applicable to both AQMA No.1 at Muckley Corner and AQMA No.2 for the A38. LDC considered the comments from the first draft of the AQAP in 2017/18 and in particular the responses from HE and proposals from Midlands Connects (a collaboration of local authorities including Staffordshire County Council, Local Enterprise Partnerships and other key partners from across the Midlands) in the second draft of the AQAP. This second draft of the AQAP went out for full public consultation on the **24th June 2019** for a period of six weeks. The feedback received was positive and consultees welcomed the measures and approach LDC had

taken thus far and propose to take forward. The final Action Plan was published on **9th August 2019**.

As the roads within both AQMAs are strategic roads that are under the jurisdiction of HE, LDC has no direct control over any intervention measures and is therefore heavily reliant on HE 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 HE and Midlands Connect. Partnership working had commenced late in 2019 with HE with regards to measures targeted primarily at the A5 corridor that includes the Muckley Corner AQMA. At the time of writing a congestion study and feasibility studies for potential junction improvements at Muckley Corner as well as other key junctions along the A5 corridor are underway. The results of these are not yet available but will be reported in future ASRs.

Aside from the aforementioned measures, LDC reviewed its NO_2 diffusion tube monitoring network in October 2019 with an additional nine sites being added outside of the AQMAs as recommended by Defra in its feedback from the 2019 ASR. These are located at key positions along the main arterial routes through Lichfield as well as locations in Armitage in the west of the District and Fazeley in the east.

LDC has also made improvements to the information available to the public on its air quality web pages to make it more reader friendly whilst informative. 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

This ASR concludes that over the past two years, AQMA No.1 encompassing the A5 Muckley corner junction continues to experience exceedances of the annual mean NO_2 objective. Meanwhile AQMA No.2 for the A38 has recorded concentrations below the annual mean NO_2 objective for the past three years, however concentrations are still within 10% of the objective at some locations. There are no plans to revoke either AQMA. Overall NO_2 concentrations have declined across the District over the past five years and no new exceedances at relevant receptors have been identified outside of the AQMAs. The new monitoring locations within Lichfield, Armitage and Fazeley were

only added in October 2019 so any meaningful results or trends won't be available until the end of 2020. It is important to note that due to the Covid-19 pandemic, 2020 will not be an accurate representation of a typical year, as traffic levels and movement of people has been much reduced due to two lockdowns and various other restrictions. Early projections show that NO_2 concentrations across the whole District for 2020 are much reduced compared to 2019 and may even meet the annual mean NO_2 objective in the A5 Muckley Corner AQMA. It is still uncertain when traffic levels will return to normal, hence it may not be until the end of 2021 or even 2022 that LDC will get a true representation of air quality in the District. Furthermore the impact of the Covid-19 pandemic may well alter people's lifestyles and travelling behaviours even after the pandemic has subsided and perhaps to the benefit of air quality, but at this stage it is too early to predict. LDC therefore proposes to continue monitoring both inside and outside of the AQMAs throughout 2021 and review the situation at the end of 2021 before making a decision on whether to revoke the A38 AQMA.

The main priority for LDC into 2021 is to continue to engage with HE and Midlands Connect regarding transport intervention measures for the A5 Muckley Corner. It is hoped once HE's congestion and feasibility studies for the A5 corridor are complete, LDC will be in a better position to specify exact emission reduction targets and project dates for implementation, as well as methods for evaluating their effectiveness. As these roads are under the jurisdiction of HE, 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.

LDC along with its counterparts in other Staffordshire Authorities have committed to developing technical air quality guidance for developers and planners to ensure a commensurate approach to the assessment of air quality across the whole of Staffordshire. The guidance will set out criteria for minimising, offsetting and mitigating the impacts of developments on local air quality, both in terms of operational impacts and demolition/construction impacts. The aim is to start work on this guidance early in 2021 and then later incorporate this guidance formally into an air quality SPD that will coincide with the emerging Local Plan that is due in 2021.

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 if your journey allows – 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;
- Alternative fuel / more efficient vehicles – Choosing a vehicle that meets the specific needs of the owner, fully electric, hybrid fuel and more fuel efficient cars are available and all have different levels of benefits by reducing the amount of emissions being released.

LDC promotes 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

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.
- Within the Lichfield District, 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. Furthermore ready to use wood bought from a Woodsure Certified Supplier (www.woodsure.co.uk), 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 has a greater 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 current Covid-19 pandemic LDC 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.
- LDC'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

For enquires or suggestions on how to improve air quality please contact Environmental Protection on:

Tel: 01543 308213 or Email: pollution@lichfielddc.gov.uk

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1 Local Air Quality Management

This report provides an overview of air quality in Lichfield District Council (LDC) 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 meeting the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by LDC 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

AQMAs are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an 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 LDC can be found in Table 2.1. Further information related to the declared AQMAs, including maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=147. Alternatively, see **Error! eference source not found.**, which provides maps of air quality monitoring locations in relation to the 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
A5 Muckley Corner AQMA no.1	01/08/2008	NO_2 Annual Mean	Lichfield	An area encompassing the Muckley Corner Roundabout on the A5 along with fourteen surrounding buildings.	YES	51	$\mu g/m^3$	45.9	$\mu g/m^3$	Air Quality Action Plan - Lichfield District Council	09/08/2019 Final	https://www.lichfielddc.gov.uk/downloads/file/1469/air-quality-action-plan-august-2019
A38 AQMA no. 2	01/08/2016	NO_2 Annual Mean	Lichfield	A38 from the junction of A5127 Streethay north to Alrewas	YES	35.7	$\mu g/m^3$	35.8	$\mu g/m^3$	Air Quality Action Plan - Lichfield District Council	09/08/2019 Final	https://www.lichfielddc.gov.uk/downloads/file/1469/air-quality-action-plan-august-2019

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

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

2.2.1 Defra summary of last year's ASR

Defra's appraisal of last year's ASR concluded that the report was well structured, detailed, and provides the information specified in the Guidance. The main comments from Defra's appraisal of last year's ASR are listed below, together with an explanation or comment on how Lichfield District Council (LDC) has addressed these in the 2020 report.

1. **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.**

   LDC Comment: Comment Noted

2. **The diffusion tube mapping is comprehensive and clearly demonstrates the monitoring network. AQMA boundaries are also clearly shown on the map.**

   LDC Comment: Comment Noted

3. **Additional diffusion tube monitoring could be introduced to identify other hotspots within the district.**

   LDC Comment: The diffusion tube network was reviewed in October 2019 and an additional nine new sites were added to the network mainly within Lichfield itself. More detail is provided on these new sites in the monitoring data provided in Chapter 3 and in Appendix A and D.

4. **There were multiple exceedances of the NO_2 annual mean within the Muckley corner AQMA. There were no exceedances within the A38 AQMA but there has been in recent years. The 2 AQMA declarations continue to be necessary.**

   LDC Comment: Comment noted and monitoring within the AQMAs and wider area continues.

5. **Adoption of the revised AQAP is expected during the next reporting year. The second draft is currently out for consultation until early August 2019. There is detailed discussion of the challenges and barriers to implementation that the Council anticipates facing.**

   LDC Comment: LDC adopted the AQAP in August 2019 following positive comments and feedback from stakeholders. More detail is provided below.

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.**

   LDC Comment: Comment noted

7. **The additional appendices covering new developments and progress against the Integrated Transport Strategy are welcomed.**

   LDC Comment: An update on new developments and the Integrated Transport Strategy is again provided in Appendix C of this 2020 report.

8. **There was one monitoring site in 2017 that required annualisation. As no continuous monitoring is carried out within the District, then diffusion tube sites from background locations with 12 months' data may be used, as was done in this report. To further improve the accuracy of this, the more background sites that can be used the better and an average of these ratios can be taken. Alternatively, continuous monitoring data from any background site within a 50km radius is also acceptable.**

   LDC Comment: LDC has taken this on board for this 2020 report, see Appendix C.

9. **Detailed, practical advice is given for how local residents can get involved in tackling air quality.**

   LDC Comment: LDC provides further practical advice for local residents in this 2020 report as well as on its air quality web pages.

2.2.2 Key actions progressed in 2019-2020

Lichfield District Council has taken forward a number of direct measures during the current reporting year of 2020 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 LDC's 2019 AQAP. Key completed measures are:

The key action taken by LDC since the last ASR in 2019 has been the consultation exercise on the second draft of the AQAP, applicable to both AQMA No.1 at Muckley Corner and AQMA No.2 for the A38. LDC considered the comments from the first draft of the AQAP in 2017/18 and in particular the responses from Highways England (HE) and proposals from Midlands Connects (a collaboration of local authorities including

Staffordshire County Council, Local Enterprise Partnerships and other key partners from across the Midlands) in the second draft of the AQAP. This second draft of the AQAP went out for full public consultation on the **24th June 2019** for a period of six weeks. The feedback received was positive and consultees welcomed the measures and approach LDC had taken thus far and proposes to take forward. The final Action Plan was published and adopted on **9th August 2019**.

The focus of AQAP measures are divided into five targeted categories;

1) Transport measures;
2) Leading by example measures;
3) Education, community and partnership measures;
4) Statutory measures; and
5) Air quality monitoring

Partnership working commenced late in 2019 with HE with regards to transport intervention measures targeted primarily at the A5 corridor that includes the Muckley Corner AQMA. At the time of writing a congestion study and feasibility studies for potential junction improvements at Muckley Corner as well as other key junctions along the A5 corridor are underway by HE. The results of these are not yet available but will be reported in future ASRs.

LDC reviewed its NO_2 diffusion tube monitoring network in October 2019 with an additional nine sites being added outside of the AQMAs as recommended by Defra in its feedback from the 2019 ASR. These are located at key positions along the main arterial routes through Lichfield that is the A5127 Trent Valley Road, the A51 Upper St John Street and Beacon Street. Other new tube locations include the A513 Rugeley Road, Armitage in the west of the District and a location at Fazeley in the east. Locations of the new diffusion tube monitoring sites are shown in Appendix D.

Following adoption of the AQAP in August 2019, LDC has made improvements to the information available on its air quality web pages. This includes changes to text to make it easier to read and understand. Links to the AQMAs, the now adopted AQAP and recent ASRs have all now been made available to the public. Tips on how residents and businesses can contribute to improving air quality in the District have

also been added with useful links such as Staffordshire Air Aware. The new and updated air quality web pages can be viewed at https://www.lichfielddc.gov.uk/council-info/air-quality-management/6?documentId=640&categoryId=20042

2.2.3 Priorities for the next year

Lichfield District Council's priorities for the coming year are

- To continue partnership working with HE and Midlands Connects in pursuit of setting targeted transport improvement measures for the two AQMAs, particularly the A5 Muckley Corner and report on the findings of HE's congestion and feasibility studies for the A5 in the next ASR.
- Working with our counterparts across the other Staffordshire Authorities, technical planning guidance for planners and developers will be produced to supplement the National Planning Policy Framework (NPPF). The guidance will take a similar form to that already undertaken by the East Midlands Air Quality Partnership. The aim of this guidance is to provide clear information on what is required and how planning applications are evaluated in terms of air quality. The guidance will primarily be focussed on minimising or offsetting the impacts of emissions wherever practicable, by securing reasonable emission mitigation measures such as EV charging infrastructure to ensure sustainable development and improve air quality across Staffordshire. While road transport emissions will be the main focus of the guidance, other emission sources such as biomass plants, generators etc. will also be included, as will dust from construction and demolition sites. The aim then is to feed this in formally into the emerging LDC Local Plan due in 2021 as an SPD.
- While homeworking has been the norm for everyone during the ongoing Covid-19 pandemic, it is likely homeworking and virtual meetings will continue to be encouraged even after the pandemic has subsided. LDC has therefore taken this as an opportunity to review its homeworking policy, which will consider not only the longer term air quality and carbon emission benefits from reduced travel, but implications for staff and team development and ICT performance. LDC is at the early stages of reviewing this policy and in essence is likely to replace the Staff Travel Plan measure set out in the AQAP.
- To continue air quality monitoring within and outside of the two AQMAs and where possible extend the diffusion tube network further.

- To continue partnership working within the SAQF and Public Health and where possible engage more with schools and businesses.
- To consider any air quality grant funding for initiatives, EV charging infrastructure or continuous air quality monitors as and when they become available. This may take the form of a collective bid with the other Staffordshire Authorities.
- To continue LDC's statutory duties with respect to the Environmental Permitting Regulations.
- To complete the 2021 ASR and submit to Defra

2.2.4 Challenges and barriers to implementation

The principal challenges and barriers to implementation that LDC anticipates facing are that the key measures to target air quality in the two AQMAs are out this Council's direct control. Most relate to interventions that would specifically target traffic flow on strategic roads (A5 and A38) for which HE or Midlands Connect would be the lead authorities. However LDC has started engaging with HE and Midlands Connect. It is hoped once HE's congestion and feasibility studies for the A5 corridor are complete, LDC will be in a better position to specify exact emission reduction targets and project dates for implementation, as well as methods for evaluating their effectiveness.

Another major challenge which LDC anticipates facing is the long term impacts of the Covid-19 pandemic. Already in 2020, Council resources have been diverted to deal with the direct and indirect impacts of the pandemic, which has led to delays in progressing AQAP measures such as the air quality technical guidance for planners and developers and indeed the completion of this 2020 ASR. It is anticipated resources will be further impacted into 2021. Social distancing measures will continue into 2021 which will also hamper any direct engagement with businesses, residents and schools. There is also the economic uncertainty associated with the pandemic which in turn will have a knock on effect on funding, hence the implementation of some measures could be delayed further or revised to compensate.

2.2.5 Final note

LDC anticipates that the measures stated above and in Table 2.2 will achieve compliance in both AQMA 1 and AQMA2.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, LDC anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of AQMA 1 and AQMA 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	Increase the volume of through traffic using M6 Toll	Traffic Management	UTC, Congestion management, traffic reduction	2019	Midlands Connect Partnership	TBC	Reduction in HGV % in AQMAs	tbc after quantitative appraisal	Work is ongoing with Midlands Connects	Ongoing	Subject to work undertaken by Midlands Connect Partnership
2	Upgrading Trunk A-Roads to Expressways	Traffic Management	UTC, Congestion management, traffic reduction	2019	Highways England	Highways England	Reduction in traffic congestion	tbc after quantitative appraisal	Regular discussions with Highways England since June 2019. The A5 corridor has been identified as priority for congestion control by HE, subject to further funding and scoping studies to identify suitable measures.	Unknown	Subject to commitment from Highways England deliver – this measure may never happen but it included as Lichfield DC is committed to maintain pressure for it to happen
3	Pollution abatement equipment for HGVs	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2019	Lichfield DC/OLEV	OLEV or other Defra Funds	vehicles retrofitted	Reducing emissions contribution from HGVs	Planning Phase	2022	Consider OLEV or AQ grant application funding
4	Replacing older vehicles	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2019	Lichfield DC/OLEV	OLEV or other Defra Funds	vehicles replaced (in addition to normal fleet turnover)	Reducing emissions from all council owned vehicles	Planning Phase	On-going	Consider OLEV or AQ grant application funding
5	Travel planning amongst LDC employees	Promoting Travel Alternatives	Workplace Travel Planning	2019	Lichfield DC	Internal Lichfield District Council Funds	Implementing travel plan now likely to be replaced by homeworking policy review	Reducing emissions from LDC employees	Planning Phase - Due to the Covid 19 pandemic LDC is reviewing its homeworking policy that will extend beyond the pandemic. The outcome of increased working from home and use of virtual meetings means employee travel will be reduced. It is therefore considered an effective homeworking policy will be more relevant going forward than a staff travel plan.	Now 2021	Requires employee education, engagement and implications to team performance and ICT
6	Education Initiatives inc. website information updates	Public Information	Other	2019	Lichfield DC	Internal Lichfield District Council Funds	Website completed December 2019	Through public awareness	LDC website updated which includes tips to reduce air quality and links to education material and initiatives where the public can get involved	2019	

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
7	Staffordshire Air Quality Forum	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2019	County-wide	Staffordshire Authorities	Full LA engagement across the group + Regular Meetings	N/a	On-going	On-going	Partnership to continue indefinitely
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	Lichfield DC / Staffordshire AQ Forum	Staffordshire Authorities	Supplementary Planning Guidance implemented	Reducing emissions contribution and restricting impact on AQMAs	On-going, discussions around partnership joint guidance to follow	Now delayed to 2021	Staffordshire-wide Planning Guidance was delayed due to resource constraints and the covid 19 pandemic. LDC is still committed to work with its counterparts in 2021 and then formalise this into an SPD that coincides with LDCs emerging Local Plan also due in 2021
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	Lichfield DC	Internal Lichfield District Council Funds	Installations adhering to permits and enforcement/penalties for breaches	By restricting emissions from industrial processes	On-going	Continual	This is standard LDC work in Environmental Protection
10	Air quality monitoring	Public Information	Other	2019	Lichfield DC/Defra	Lichfield District Council / Defra Grant Funding if available	monitoring locations and On-time submittal of ASRs	Through EHO/public awareness	New locations were added to the network in October 2019. Monitoring to continue both inside and outside of AQMAs	Annual	Possibly liaise with Defra regarding need for additional monitoring and/or AURN funding. Consider continuous monitoring and AQ grant application if available

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.

Particulate matter, or PM, is the term used to describe particles found in the air, including dust, dirt and liquid droplets. PM comes from both natural and man-made sources, including traffic emissions and Saharan-Sahel dust. These particles can be suspended in the air for long periods of time, and can travel across large distances. PM less than 10 micrometres in diameter (PM_{10}) pose a health concern because they can be inhaled into and accumulate in the respiratory system. PM less than 2.5 micrometres in diameter ($PM_{2.5}$) are referred to as "fine" particles and are believed to pose the greatest health risks, as they can lodge deeply into the lungs and also pass into the bloodstream.

$PM_{2.5}$ is the pollutant which has the biggest impact on public health and on which the Public Health Outcomes Framework (PHOF) indicator 3.01[5] is based. The Royal College of Physicians (RCP) undertook a review in February 2016 [6] where they found that long term exposure to air pollution impairs lung function growth in children, and that outdoor exposure is linked to lung cancer in adults. Within Staffordshire it is estimated that 4.8%of all deaths can be attributed to exposure to $PM_{2.5}$, compared to 5.1% across England (40,000 deaths annually)[4]. Overall, the estimated cost to individuals and society is more than £20 billion annually for the UK.

[4] Mortality attributable to particulate air pollution Public Health Outcomes Framework
[5] Public Health Outcomes Framework 2016 – 2019 indicator 3.01 Fraction of mortality attributable to particulate air pollution https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/3/gid/1000043/pat/6/par/E12000005/ati/102/are/E10000028/iid/30101/age/230/sex/4
[6] ['Every Breath we Take: The Lifelong Impact of Air Pollution; Report of a working Party, February 2016, ISBN 978-1-86016-567-2],

2.3.1 Particulate Matter ($PM_{2.5}$) Levels in Staffordshire and Stoke-on-Trent

A number of the Staffordshire Authorities currently monitor locally for PM_{10}. Defra's Automatic Urban and Rural Network (AURN) site, Stoke-on-Trent Centre has a dedicated $PM_{2.5}$ monitor. Table 2.3 presents data on the local level of $PM_{2.5}$ annual mean concentrations for the Staffordshire Authorities. Where the data is derived from PM_{10} monitoring this has been adjusted by applying a correction factor of 0.7 to derive the $PM_{2.5}$ component. The correction factor has been derived from the average of all ratios of $PM_{2.5}/PM_{10}$ for the years from 2010 to 2014 for forty sites within the Automatic Urban and Rural Network (AURN) where these substances are measured on an hourly basis and follows the guidance published in LAQM (TG16).

Table 2.3 - Annual Mean PM_{10} and $PM_{2.5}$ results of monitoring by Staffordshire Authorities 2015 to 2019

Annual Mean PM_{10} and $PM_{2.5}$ Results from monitoring Staffordshire Authorities 2015- 2019									
Authority	**Site Type**	**Monitor Location**	**OS Grid Ref**		**Year**				
					2015	**2016**	**2017**	**2018**	**2019**
Newcastle under Lyme	Roadside	Queen`s Gardens	E385057 N346137	PM_{10}	22.9	(5)	(5)	(5)	(5)
				$PM_{2.5}$	16(1)	(5)	(5)	(5)	(5)
Cannock Chase	Roadside	Cannock A5190	E401392 N309954	PM_{10}	-	-	14	18	16
				$PM_{2.5}$	-	-	9.8	12.6	11.2
Stoke on Trent	Roadside	Basford	E386288 N346802	PM_{10}	-	-	23	23	23
				$PM_{2.5}$	-	-	16(1)	16(1)	16(1)
	Roadside	A50 Roadside Meir	E392548 N342572	PM_{10}	20(2)	20(2)	18	19	20
				$PM_{2.5}$	14(2)	14(2)	13(1)	13(1)	14(1)
	Urban Background	Stoke on Trent Central	E388351 N347895	$PM_{2.5}$	12	12	9	9	9
	Roadside	Middleport	E385780 N349376	PM_{10}	22	(3)	(3)	(3)	(3)
				$PM_{2.5}$	15(1)	(3)	(3)	(3)	(3)
East Staffordshire	Roadside	Derby Tum	E424671 N324019	PM_{10}	23	(4)	(4)	(4)	(4)
				$PM_{2.5}$	16.1(1)	(4)	(4)	(4)	(4)

Notes: (1) $PM_{2.5}$ results are derived from PM_{10} monitored results corrected with a 0.7 correction factor in accordance with TG16 – Annex B: Derivation of $PM_{2.5}$ to PM_{10} Ratio. All other results are directly monitored.
(2) Valid data capture for 2015 was 59%. The site was commissioned on 22 May 2015.
(3) Middleport monitor was decommissioned at the end 2015
(4) East Staffordshire`s monitors were decommissioned 2016
(5) Newcastle under Lyme monitors were decommissioned 2016

As can be seen from the results, concentrations of $PM_{2.5}$ within the Staffordshire Authorities are below the 2020 EU limit value of 25µg/m^3.

2.3.2 $PM_{2.5}$ and Mortality in Staffordshire & Stoke-on-Trent

Although the levels of $PM_{2.5}$ within the County and City of Stoke on Trent are below the 2020 EU Limit value, the impact on adult mortality directly attributable to $PM_{2.5}$ is nonetheless still an important public health issue within Staffordshire and Stoke-on-Trent. This is revealed in data obtained from Public Health England used to inform Public Health Outcomes Framework indicator 3.01[7], as shown in Table 2.4.

The percentage estimated number of deaths attributable to $PM_{2.5}$ in adults over 30 has been translated into the estimated number of attributable deaths for each local authority area within Staffordshire, and are shown in Table 2.5. The data presented to 2018 is the latest data available at time of publication of this report. Approximately 4.4% of deaths within the County can be attributed to $PM_{2.5}$.

Table 2.4 - Estimated number of deaths by local authority area attributable to $PM_{2.5}$ within Staffordshire for adults over 30: 2014 to 2018

District/County	Percentage
Newcastle-under-Lyme	4.2%
Stafford	4.2%
East Staffordshire	4.6%
South Staffordshire	4.6%
Lichfield	4.6%
Staffordshire Moorlands	3.8%
Cannock Chase	4.6%
Tamworth	5.1%
Stoke on Trent	4.4%
Staffordshire County	4.4%
England	5.2%

7 Public Health Outcomes Framework 2016-2019 Indicator 3.01 Fraction of mortality attributable to particulate air pollution https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/520457/At_a_glance.pdf

Table 2.5 - Public Health Outcomes Framework Indicator 3.01- Fraction of annual all cause adult mortality attributable to anthropogenic (human made) particulate air pollution (measured as fine particulate matter, $PM_{2.5}$) for Staffordshire Authorities 2014 to 2018[8]

Estimated numbers of annual all-cause adult mortality attributable to anthropogenic (human-made) particulate air pollution (measured as fine particulate matter, $PM_{2.5}$*) for Staffordshire 2014 to 2018[8]
*** Fraction of annual all-cause adult mortality attributable to anthropogenic (human-made) particulate air pollution (measured as fine particulate matter, $PM_{2.5}$*)**

	2014			2015			2016			2017			2018		
District/County	Deaths - all causes persons 30+	%*	Estimated attributable deaths	Deaths - all causes persons 30+	%*	Estimated attributable deaths	Deaths - all causes persons 30+	%*	Estimated attributable deaths	Deaths - all causes persons 30+	%*	Estimated attributable deaths	Deaths - all causes persons 30+	%*	Estimated attributable deaths
Newcastle-under-Lyme	55	4.7	60	55	4.2	50	1,291	4.7	60	1,197	4.2	50	1,334	4.2	60
Stafford	65	4.8	60	60	4.7	60	1,254	4.8	60	1,267	4.3	50	1,336	4.2	60
East Staffordshire	55	5.1	50	55	4.8	50	1,065	5.6	60	1,098	5.0	50	1,093	4.6	50
South Staffordshire	55	5	50	55	4.7	60	1,128	5.1	60	1,239	4.5	60	1,211	4.6	60
Lichfield	50	5	50	50	4.6	50	1,044	5.5	60	1,070	4.9	50	1,087	4.6	50
Staffordshire Moorlands	45	4.5	50	45	4	40	1,110	4.6	50	1,127	3.9	40	1,108	3.8	40
Cannock Chase	45	5.1	40	45	4.6	40	879	5.4	50	940	4.7	40	976	4.6	50
Tamworth	35	5.4	30	30	4.9	30	615	6	40	634	5.3	30	653	5.1	30
Stoke on Trent	2,318	5.0	115	2,479	4.9	110	2,454	5.0	120	2,490	4.4	110	2,746	4.4	120
Staffordshire County	400	4.9	400	390	4.5	390	8,386	5.2	430	8,572	4.5	390	8,792	4.4	390

8 Source Public Health England https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/3/gid/1000043/pat/6/par/E12000005/ati/102/are/E10000028/iid/30101/age/230/sex/4

2.3.3 Actions being taken within Staffordshire to reduce $PM_{2.5}$

A number of the Staffordshire Authorities are currently involved in implementing measures to reduce levels of NO_2 within their areas, which are detailed elsewhere in this report. Whilst there is currently no statutory duty imposed on Local Authorities in England to reduce $PM_{2.5}$, a number of the measures are complementary. A mapping exercise completed by the Staffordshire Air Quality Forum members details the measures currently in place which are considered to have an impact in reducing $PM_{2.5}$ within the County. These are produced in Table 2.6 below;

Table 2.6 - Actions being taken within Staffordshire to reduce $PM_{2.5}$

Measures category	Measure Classification	Effect on reducing NOx and PM_{10} emissions(low, medium, high)	Reduces $PM_{2.5}$ emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
Traffic Management	**Urban Traffic Control systems, Congestion management, traffic reduction**	low	✓	UTC in Leek Town Centre	UTC in areas of Newcastle Town Centre AQMA and Kidsgrove AQMA	UTC in Stafford Town Centre	Town Centre Regeneration Programme now completed with the exception of Station Street regeneration which starts in March 2020. Many of these will then help improve traffic flow within the AQMA	LDC is liaising with Highways England regarding ongoing feasibility studies for junction alterations at Muckley Corner (A5) to ease congestion. Ongoing construction work of the Lichfield southern bypass through 2021 and improved signage to follow to reduce through traffic through the centre of Lichfield as part of the County Council ITS.		UTC in Tamworth Town Centre at Ventura Park
	Reduction of speed limits, 20mph zones	low	✓	20mph zones near some schools in residential areas		20mph zones near some schools in residential areas	20 mph zones near some schools in residential areas	New 20 mph zone adopted along John Street in Lichfield	20mph zones in Trysull, Bradley, Kinver and Bilbrook	
	Road User Charging (RUC)/ Congestion charging	low	✓			x		M6 Toll	M6 Toll	
	Anti-idling enforcement	low	✓			x		x		
	Other		✓			x		x		
Promoting Travel Alternatives	**Workplace Travel Planning**	low	✓	www.staffordshire.gov.uk/Transport/Air-quality/Businesses.aspx www.staffordshire.gov.uk/DoingOurBit/Get-Inspired/Clean-green-and-safe/Clean-green-and-safe.aspx						
	Encourage / Facilitate home-working	low	✓			x	x	Homeworking policy adopted	Agile working policy adopted	Homeworking policy adopted
	School Travel Plans	low	✓	https://www.staffordshire.gov.uk/Education/Schooltransport/Active-school-travel/Active-school-travel-team.aspx Funded STPs for school expansions: 14 Newcastle Borough, 8 Staffordshire Moorlands District, 16 Stafford Borough, 9 East Staffordshire Borough, 4 Cannock Chase District, 6 Lichfield District, 3 South Staffordshire District, 19 Tamworth Borough						
	Promotion of cycling	low	✓	The Local Cycling and Walking Infrastructure Plan is currently under development by SCC www.staffordshire.gov.uk/DoingOurBit/Get-Inspired/Clean-green-and-safe/Clean-green-and-safe.aspx					South Staffordshire Cycling Scheme	Same as other Staffs authorities
	Promotion of walking	low	✓	The Local Cycling and Walking Infrastructure Plan is currently under development by SCC www.staffordshire.gov.uk/DoingOurBit/Get-Inspired/Clean-green-and-safe/Clean-green-and-safe.aspx					Walking for health scheme	Same as other Staffs authorities
	Staffordshire Share a Lift Scheme		✓	The Staffordshire Left Scheme is available at: https://share-a-lift.co.uk/ A new provider is currently being sought						
	Promote use of rail and inland waterways	medium	✓	North Staffordshire Community Rail Partnership operating along the North Staffordshire Line includes Blythe Bridge Rail Station. The County Council Draft Rail Strategy is available from: http://moderngov.staffordshire.gov.uk/documents/s69891/Appendix%201%20for%20Rail%20Strategy.pdf	North Staffordshire Community Rail Partnership operating along the North Staffordshire Line includes Blythe Bridge Rail Station. The County Council Draft Rail Strategy is available from: http://moderngov.staffordshire.gov.uk/documents/s69891/Appendix%201%20for%20Rail%20Strategy.pdf	North Staffordshire Community Rail Partnership operating along the North Staffordshire Line includes Blythe Bridge Rail Station. The County Council Draft Rail Strategy is available from: http://moderngov.staffordshire.gov.uk/documents/s69891/Appendix%201%20for%20Rail%20Strategy.pdf	Improvements at Burton Rail Station nearing completion	Staffordshire County Council has produced a Draft Rail Strategy, April 2016 to improve the way local rail services are managed and operated https://www.staffordshire.gov.uk/transport/transportplanning/Rail-strategy/Rail-Strategy.aspx		

Measures category	Measure Classification	Effect on reducing NOx and PM_{10} emissions(low, medium, high)	Reduces $PM_{2.5}$ emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
Transport Planning & Infrastructure	**Local Transport Plans and District Strategies**	high	✓	www.staffordshire.gov.uk/Transport/transportplanning/District-integrated-transport-strategies/districtintegratedtransportstrategies.aspx						
	Public transport improvements-interchanges stations and services	low	✓	Proposed reinstatement of Leek rail connection	Kidsgrove Station interchange plans	Recent improvements completed at Stafford Rail Station	Improvements at Burton Rail Station nearing completion.	Improvements planned at Lichfield City Station as part of Friarsgate development scheme are ongoing. A study to roll out improvements to improve accessibility to all users at Lichfield Trent Valley Station was completed in 2019. Other works to follow		Planned improvements at Tamworth station
	Public cycle hire scheme	low	✓		In House cycle to work scheme			x		
	Cycle network	low	✓	www.staffordshire.gov.uk/Transport/cycling/cyclemaps.aspx SCC currently looking to implement improved mapping software for future developments						
	Bus route improvements	high	✓	Potential bus stop upgraded in Cheadle Town Centre	RTPI routes 3 & 4 Newcastle Town Centre. Improved future bus services to Chatterley Valley	Improved bus priority and interchange on A518, Stafford post-SWAR	Removal of obstructions on New Street.	Improved access at Lichfield central bus station.		Improved bus infrastructure route 2 Tamworth-Perrycrofts. RTPI Tamworth Town Centre and Ventura Park. Victoria Road, Tamworth upgraded interchange.
Alternatives to private vehicle use	**Bus based Park & Ride**	medium	✓			X		Works to improve the central bus station including park and ride facilities on the former Police station site were completed in summer 2020		
	Car Clubs	low	✓	✓		X		x		
Policy Guidance and Development Control	**Planning applications to require assessment of exposure / emissions for development requiring air quality impact assessment**	high	✓	✓		http://www.staffordbc..gov.uk/planning/planning-policy/local-plan-2012-2031	http://www.eaststaffsbc.gov.uk/planning/planning-policy/local-plan-2012-2031	https://www.lichfielddc.gov.uk/local-plan?categoryId=20057		Local & National Validation requirements 2017: http://www.tamworth.gov.uk/sites/default/files/planning_docs/National-and-Local-Validation-requirements-2017.pdf
	Air Quality Strategy			In development		2019-2021 Air Quality Strategy				

Measures category	Measure Classification	Effect on reducing NOx and PM_{10} emissions(low, medium, high)	Reduces $PM_{2.5}$ emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
	Planning Guidance for developers		✓	In development		http://www.stafforddc.gov.uk/planning/planning-policy/supplementary-planning-policy-documents	Informal guidance in place	Informal guidance in place at present, but LDC is liaising with other Staffordshire Authorities to develop county wide Air Quality Guidance for Planners and Developers	Sustainable Development	https://www.tamworth.gov.uk/sites/default/files/planning_docs/Tamworth_Design_SPD_July_2019_v1-0.pdf
	Developer Contributions based on damage cost calculation		✓			x	Damage cost assessment now required for applicable applications.	The proposed Air Quality Guidance for Planners and Developers mentioned above will include requirements for damage costs to be calculated for applicable applications where impacts cannot be mitigated		
	Planning Policies		✓	• Policy T1: Development and Sustainable Transport• Policy SD2: Renewable/Low-Carbon Energy		http://www.staffordbc.gov.uk/planning/planning-policy/local-plan-2012-2031	Supplementary planning document in development	https://www.lichfielddc.gov.uk/Council/Planning/The-local-plan-and-planning-policy/Planning-policy.aspx	Planning policies and guidance	https://www.tamworth.gov.uk/local-plan
	STOR Sites (Short Term Operating Reserve) Energy Generation. Regulation via planning / permitting regime	high	✓	✓						
	Low Emissions Strategy	high	✓	In development		x		x		

Measures category	Measure Classification	Effect on reducing NOx and PM_{10} emissions(low, medium, high)	Reduces $PM_{2.5}$ emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
Freight and Delivery Management	Freight Consolidation Centre	medium	✓			x				
	Route Management Plans/ Strategic routing strategy for HGV's	high	✓	https://www.staffordshire.gov.uk/transport/transportplanning/localtransportplan/home.aspx						
	Quiet & out of hours delivery	low	✓			✓				
	Delivery and Service plans	medium	✓			x				
	Freight Partnerships for city centre deliveries	high	✓			x				
Vehicle Fleet Efficiency	Driver training and ECO driving aids	medium	✓			✓				
	Promoting low emission public transport	high	✓			x				
	Vehicle retrofitting programmes	medium	✓		x	x		Retrofitting of old Council owned HGVs and Buses with pollution abatement equipment will be considered by the Council where technically and financially feasible		
	Fleet efficiency and recognition schemes	medium	✓	Staffordshire and Stoke-on-Trent Eco-Stars http://www.ecostars-uk.com/eco-stars-schemes/						

Measures category	Measure Classification	Effect on reducing NOx and PM_{10} emissions(low, medium, high)	Reduces $PM_{2.5}$ emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
Promoting low emission transport	Low emission zone (LEZ) Clean Air Zone (CAZ)	high	✓					x		
	Public Vehicle Procurement -Prioritising uptake of low emission vehicles	high	✓	In development		Waste fleet vehicles comply with Euro VI.				
	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	high	✓	In development						
	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	high	✓	In development		Procurement of EV on staff car parks				
	Priority parking for LEV's	high	✓			✓		Electric Vehicle charging spaces in council car parks		
	Taxi Licensing conditions	medium	✓			✓				
	Taxi emission incentives	medium	✓			✓				
Environmental permits	Introduction/increase of environment charges through permit systems and economic instruments (Permit fees set centrally)	medium	✓			✓		✓		
	Measures to reduce pollution through IPPC Permits going beyond BAT	medium	✓	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/211863/env-permitting-general-guidance-a.pdf (Chapter 15)						
	Large Combustion Plant Permits and National Plans going beyond BAT	high	✓							
	Other		✓							

Measures category	Measure Classification	Effect on reducing NOx and PM_{10} emissions (low, medium, high)	Reduces $PM_{2.5}$ emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
Other measures	**Smoky Diesel Hotline**		✓	https://www.gov.uk/report-smoky-vehicle						
	A5 and M6 Partnership		✓			x		Strategy for the A5 2011-2026	Strategy for the A5 2011-2026	
	Domestic Smoke Control advice and Enforcement		✓	✓	-	https://www.staffordbc.gov.uk/environment/smoke-control.cfm	Provided via ESBC Website & other literature	https://www.lichfielddc.gov.uk/home-garden/bonfires-barbecues-smoke/1	https://www.sstaffs.gov.uk/environment/smoke-control-areas.cfm	
	Garden Bonfires - Advice and nuisance enforcement		✓	✓	-	http://www.staffordbc.gov.uk/environmental-health/pollution/bonfires	Provided via ESBC Website & other literature	https://www.lichfielddc.gov.uk/home-garden/bonfires-barbecues-smoke/1	https://www.sstaffs.gov.uk/crime-nuisances/bonfires-and-smoke.cfm	http://www.tamworth.gov.uk/air-quality
	Commercial burning advice and enforcement		✓	✓	-	http://www.staffordbc.gov.uk/environmental-health/pollution/bonfires	Provided via ESBC Website & other literature	https://www.lichfielddc.gov.uk/home-garden/bonfires-barbecues-smoke/1		http://www.tamworth.gov.uk/air-quality
	Multi agency working with Fire Service and Environment Agency for trade burning		✓	✓	-	✓		Information shared as appropriate		Information shared as appropriate
	Multi agency working with Staffordshire Fire Service and Local Authority Building Control regarding chimney fires and complaints about DIY domestic heating systems		✓	✓	-	✓		Information shared as appropriate		
	Stoke-on-Trent Low Carbon District Heat Network		✓	-	-	-				

2.3.4 $PM_{2.5}$ in Staffordshire & Stoke-on-Trent - Next steps

As $PM_{2.5}$ is an issue requiring collaboration between the district, county and city authorities within Staffordshire, the following actions are proposed in addition to those outlined in the action plan. Progress on these and the action plan will be detailed in the 2020 ASR.

✓To agree a target for reducing Fraction of All-Cause Mortality from $PM_{2.5}$ in each district, city and county authority by 2020

✓To agree a target for reducing $PM_{2.5}$ exposure (calculated from PM_{10} exposure / background maps / local monitoring where available)

✓To maintain compliance with the 2020 EU limit value of 25µg/m^3

✓ To include Public Health Outcome Framework Indicator 3.01 in the Staffordshire and District Authority and City Council Joint Strategic Needs Assessment for 2019 / 2020 onwards and to report progress to the relevant Health and Wellbeing Boards.

✓ To continue to identify risks affecting $PM_{2.5}$ which need to be addressed at a national level e.g.

✓A number of authorities within Staffordshire are receiving applications for STOR (Short Term Operating Reserve) sites to supplement power to the National Electricity Grid at times of peak demand. These sites typically operate during the autumn / winter months and can be high emitters of PM.

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 objectives. LDC did not undertake any automatic (continuous) monitoring during 2019.

3.1.2 Non-Automatic Monitoring Sites

LDC continued to undertake non-automatic (passive) monitoring of NO_2 at 23 sites during 2019, with 9 additional sites being added to the network in October 2019 following Defra advice from the appraisal of last year's ASR. **Error! Reference source not found.**1 in ppendix A outlines the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D. The diffusion tubes were supplied and analysed by Staffordshire Highways Laboratory utilising the 20% triethanolamine (TEA) in water preparation method. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. "annualisation" and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, "annualisation" and corrected for distance. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A. 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 that the concentration data presented in Table A. 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).

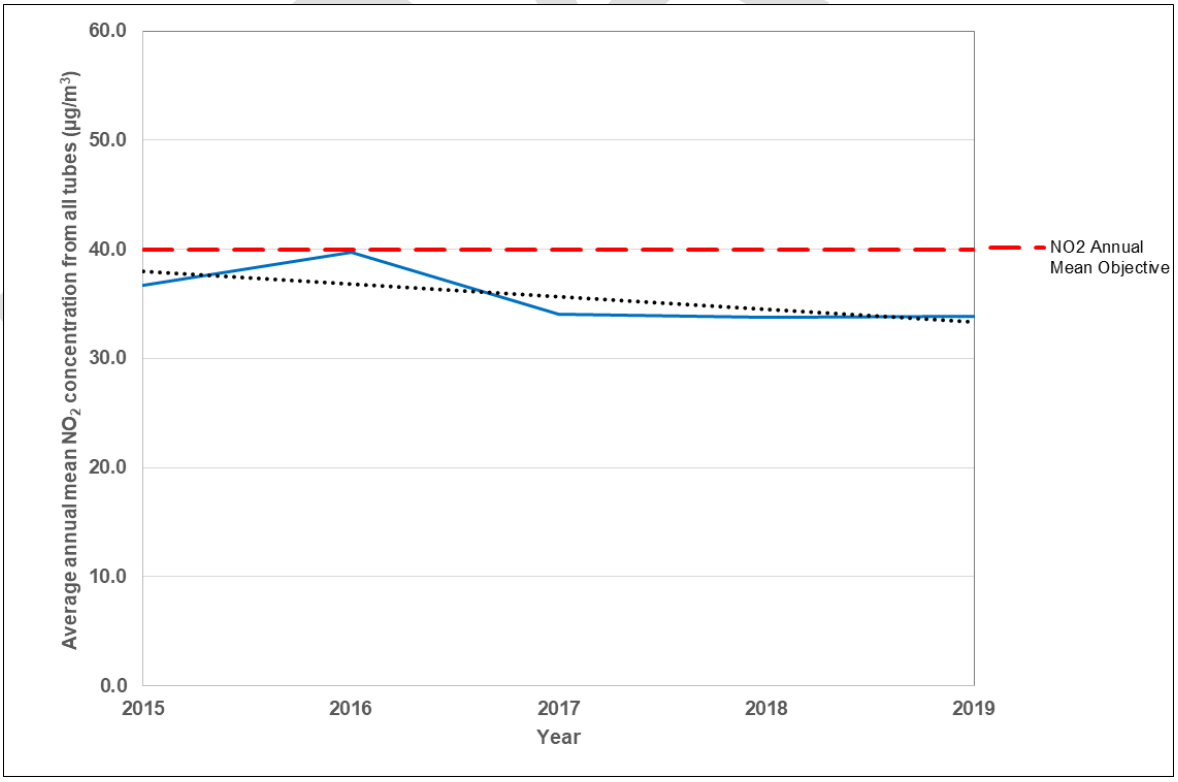
For diffusion tubes, the full 2019 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in **Error! Reference source not found.** ncludes distance corrected values, only where relevant.

Data capture for 2019 was overall good with the exception of three established sites that required short to long term adjustment (annualisation). For these sites data capture fell below the 75% data capture criteria. Annualisation was therefore applied. Full details of the annualisation procedure is provided in Appendix C.

Results for 2019 have been bias adjusted using a national bias adjustment factor of 0.93. Full details of the bias adjustment and QA/QC procedures are provided in Appendix C.

Figure 3.1 below shows that the average annual mean NO_2 concentration calculated from all established 23 diffusion tube sites is below the 40µg/m^3 objective, with a general downward trend in NO_2 concentrations across the whole Lichfield District over the past five years that has now levelled off. Note Figure 3.1 does not include results from the additional 9 tubes added to the network in October 2019.

Figure 3.1 – Trends in calculated average annual mean NO_2 concentrations from all diffusion tube sites across the District.



Meanwhile trends in NO_2 concentrations for individual sites within the two AQMAs and outside of the AQMAs are shown graphically in Figures 3.2 to 3.4 and discussed below.

A5 Muckley Corner AQMA No. 1

NO_2 concentrations for the seven individual diffusion tube sites within A5 Muckley Corner AQMA are shown in Figure 3.2.

Figure 3.2 – Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites within the A5 Muckley Corner AQMA.

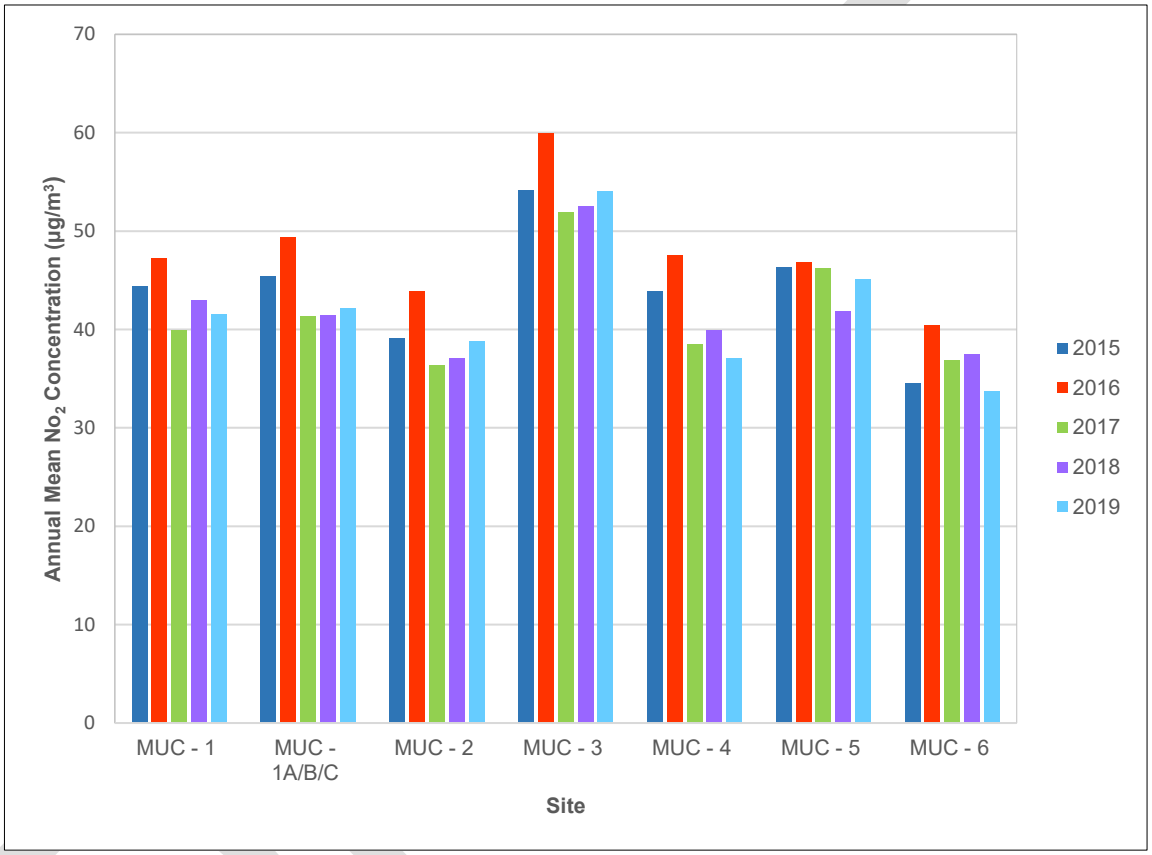


Figure 3.2 shows that within the A5 Muckley Corner AQMA, four of the diffusion tube sites recorded an exceedance of the annual mean NO_2 objective during 2019:

- MUC-1: Muckley Corner Hotel Ground Floor (41.5µg/m^3);
- MUC-1A/B/C: Muckley Corner Hotel First Floor (42.1µg/m^3);
- MUC-3: Muckley Corner A461 Southbound (54.0µg/m^3); and
- MUC-5: Muckley Corner A5 Eastbound (45.1µg/m^3);

Sites MUC-1 and MUC-1A/B/C are located at facades of receptors and therefore represent relevant exposure.

The remaining three diffusion tube sites recorded NO_2 concentrations that remained below 40µg/m^3 for a second consecutive year during 2019, two of which (MUC-2 and MUC-4) were still within 10% of the annual mean NO_2 objective. Meanwhile MUC-6 is now comfortably below the 40µg/m^3:

- MUC-2: Muckley Corner A5 Westbound (38.8µg/m^3);
- MUC-4: Muckley Corner A5 Westbound (37.1µg/m^3);
- MUC-6: Muckley Corner A461 Southbound (33.7µg/m^3).

Of the A5 Muckley Corner AQMA sites highlighted; MUC-2, MUC-3, MUC-4, MUC-5 and MUC-6 were distance corrected to estimate the concentration at relevant exposures (see Figure C.2). Site MUC-3 still exceeded the objective at the receptor façade with a reported concentration of 45.9µg/m^3 (see Table B.1). Sites MUC-2, MUC-4, MUC-5 and MUC-6 met the objective at the receptor façade, however site MUC-5 remained within 10% of the NO_2 annual mean objective (See Table B.1).

Despite a small peak during 2016, NO_2 concentrations within the A5 Muckley Corner AQMA have overall declined over the past five years. However this overall decline levelled off during 2019. As all sites have shown exceedances in previous years and three are still exceeding; the AQMA shall remain in force.

With respect to the hourly NO_2 objective, there could be a potential risk of exceedance where the annual mean concentration is greater than 60µg/m^3. Results for the past five years show there are no sites in the A5 Muckley Corner AQMA where the annual mean has been greater than 60µg/m^3; therefore it is unlikely that the hourly mean objective will be exceeded at any of these monitoring sites.

A38 AQMA No. 2

NO_2 concentrations for the individual diffusion tube sites within A38 AQMA are shown in Figure 3.3.

Figure 3.3 – Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites within the A38 AQMA.

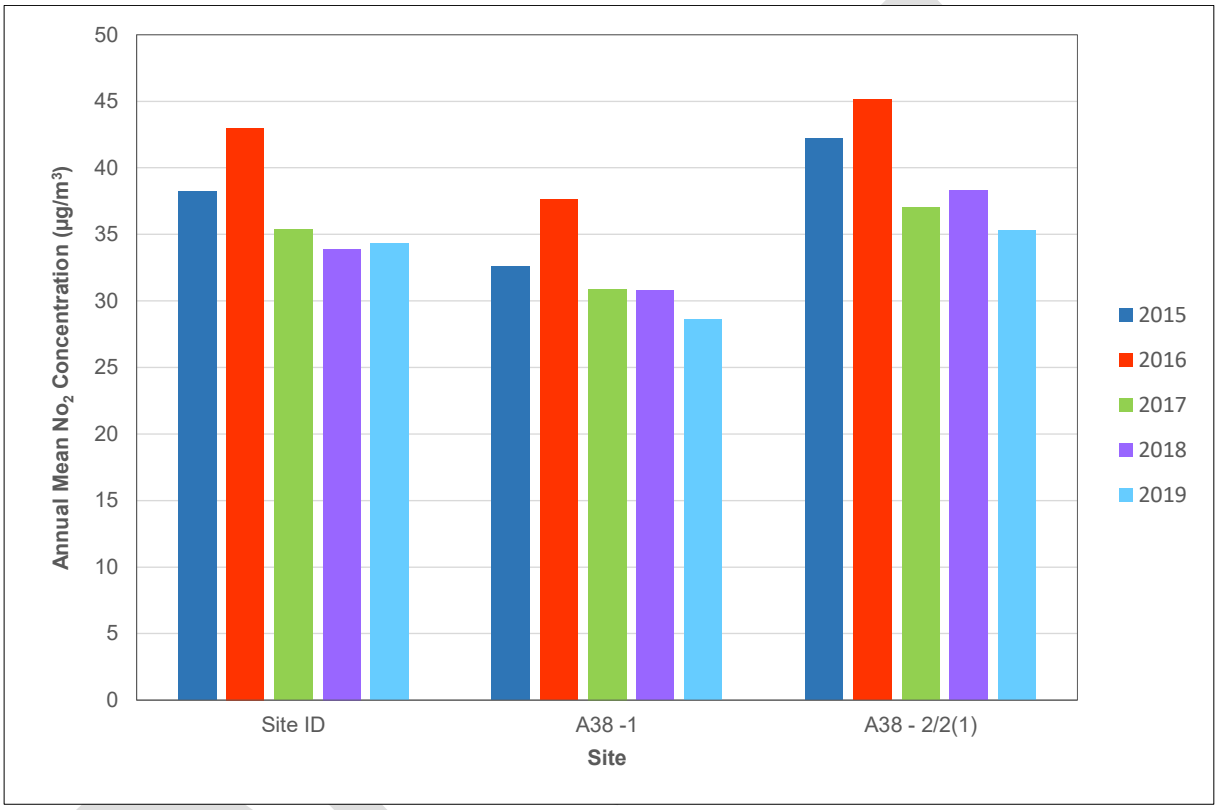


Figure 3.3 shows that all three diffusion tube sites within the A38 AQMA dropped below the annual mean NO_2 objective during 2017 for the first time and has remained below the objective during 2018 and 2019:

- A38-1: Alrewas (34.3µg/m^3 during 2019);
- A38/2/2(1): Fradley (28.6µg/m^3 during 2019);
- A38-2A/B: Fradley (35.3µg/m^3 during 2019);

Site A38-1 was distance corrected to estimate the concentration at relevant exposure (see Figure C.2) and the reported concentration at the receptor façade was 25.8µg/m^3 during 2019 (see Table B.1). Despite a small peak in NO_2 concentrations during 2016, Figure 3.3 shows an overall downward trend throughout the A38 AQMA. Although NO_2 concentrations are now meeting the objective it is too early to revoke the A38 AQMA due to exceedances of the NO_2 objective prior to 2017 and site A38-2A/B is still just within 10% of the objective.

With respect to the hourly NO_2 objective, results for the past five years show there are no sites within the A38 AQMA where the annual mean has been greater than 60µg/m^3; therefore it is unlikely that the hourly mean objective will be exceeded at any of these monitoring sites.

Diffusion tube sites outside of the AQMAs

NO_2 concentrations for diffusion tube sites that are located outside of the AQMAs are shown in Figure 3.4.

Figure 3.4 – Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites outside of the AQMAs.

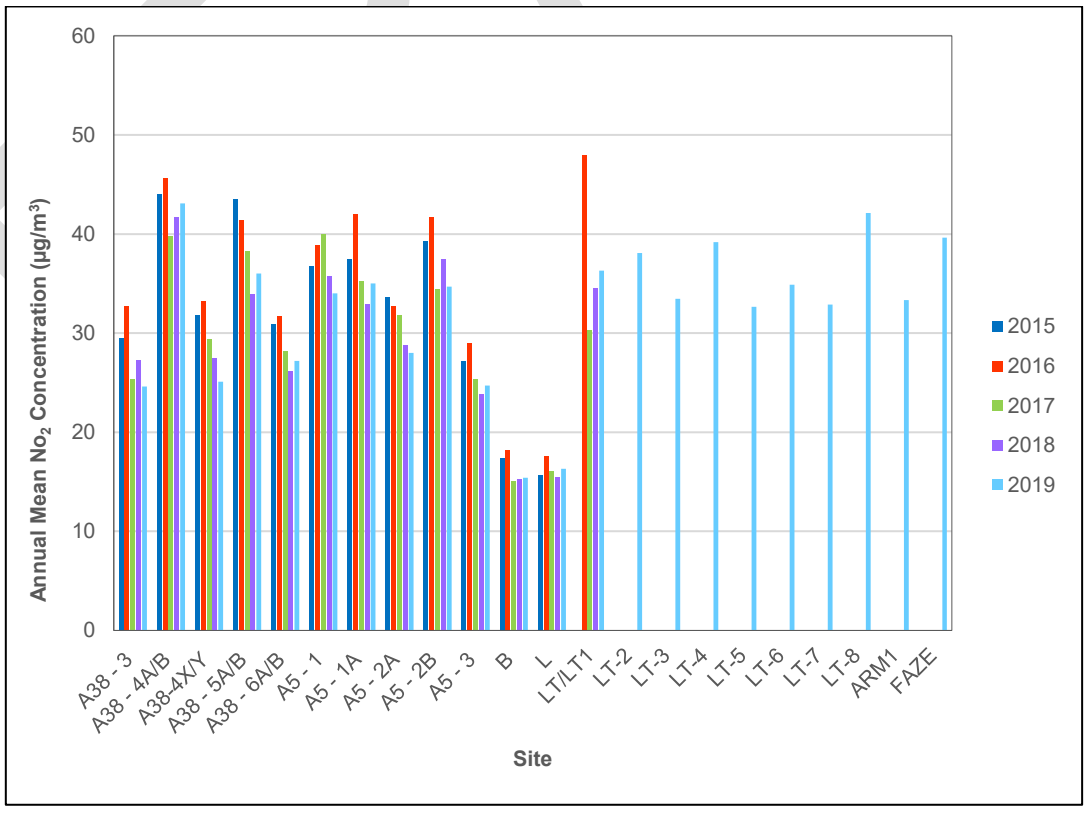


Figure 3.4 shows the trend across the diffusion tube monitoring locations outside the AQMAs within the Lichfield District from 2015 to 2019. The annual mean objective for NO_2 has been met at the majority of locations over the past five years. Meanwhile for the past two years all diffusion tube sites outside of the current AQMAs have met the objective with the exception of site A38-4A/B at Canwell, which recorded a concentration of 43.1µg/m^3.

However, ten of the sites outside of the AQMAs, including site A38-4A/B are not located at relevant exposure, therefore distance correction was applied (see Figure C.2). The calculated concentration at a location of relevant exposure (façade of a residential property), fell just below the objective at site A38-4A/B with a reported concentration of 39.8µg/m^3 during 2019. Sites A38-5A/B, A5 – 1A and A5 – 2B dropped even further below the objective when distance correction was applied, with reported concentrations of 26.7µg/m^3, 27.6µg/m^3 and 29.6µg/m^3 respectively during 2019 (see Table B.1). Meanwhile new sites LT-2 to LT-7 in Lichfield, site ARM1 in Armitage and FAZE on the A4097 Coleshill Road in Fazeley recorded NO_2 concentrations that were below the NO_2 annual mean objective in 2019, both with and without distance corrections applied. However, these new sites are only based on two to three months of data, so it is too early to make a clear assessment.

Figure 3.4 indicates that there was an exceedance of the annual mean NO_2 objective at site LT/LT1 during 2016. However, the results were based on just three months as this particular location was added to the network in October 2016. However NO_2 concentrations for the past three years have consistently met the annual mean NO_2 objective.

Furthermore, site LT-8 also indicates an exceedance of the NO_2 objective at 42.1µg/m^3. This new site located at the façade of a relevant receptor on Upper St John Street in Lichfield was only added to the network in October 2019, therefore it is too early to draw any accurate conclusions on long term NO_2 concentrations. The Defra Technical Guidance states that at least six months of data is required to make any accurate conclusions.

With respect to the hourly NO_2 objective, results for the past five years show there are no sites outside of the current AQMAs where the annual mean has been greater than 60µg/m^3; therefore it is unlikely that the hourly mean objective will be exceeded at any of these monitoring sites.

3.2.2 Particulate Matter (PM_{10})

LDC does not monitor for PM_{10}.

3.2.3. Particulate Matter ($PM_{2.5}$)

LDC does not monitor for $PM_{2.5}$.

3.2.4 Sulphur Dioxide (SO_2)

LDC does not monitor for SO_2.

Appendix A: Monitoring Results

Table A.1 – 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?
A38 -1	Alrewas	Roadside	417101	314180	NO_2	YES	9	1	NO
A38 - 2/2(1)	Fradley	Roadside	416295	313186	NO_2	YES	10	5	NO
A38 - 2A/B	Fradley	Roadside	416290	313175	NO_2	YES	0	6	NO
A38 - 3	Lichfield	Roadside	412891	306817	NO_2	NO	6	2	NO
A38 - 4A/B	Canwell	Roadside	413978	300834	NO_2	NO	10	6.85	NO
A38-4X/Y	Canwell	Roadside	413989	300869	NO_2	NO	0	15	NO
A38 - 5A/B	Canwell	Roadside	413950	300574	NO_2	NO	35	10	NO
A38 - 6A/B	Canwell	Roadside	413961	300539	NO_2	NO	10	25	NO
A5 - 1	Muckley Corner	Roadside	407208	306513	NO_2	NO	>200	4	NO
A5 - 1A	Muckley Corner	Roadside	407895	306516	NO_2	NO	6	1	NO
A5 - 2A	Muckley Corner	Roadside	408893	306549	NO_2	NO	12	5	NO
A5 - 2B	Muckley Corner	Roadside	408667	306500	NO_2	NO	6	2	NO
A5 - 3	Lichfield	Roadside	412063	305379	NO_2	NO	13	10	NO
B	Burntwood	Urban Background	405086	309344	NO_2	NO	127	N/A	NO
L	Lichfield	Urban Background	410544	310760	NO_2	NO	42	N/A	NO

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?
MUC - 1	Muckley Corner Hotel Ground Floor	Roadside	408164	306513	NO_2	YES	N/A	5	NO
MUC - 1A/B/C	Muckley Corner Hotel First Floor	Roadside	408164	306513	NO_2	YES	0	5	NO
MUC - 2	Muckley Corner A5 Westbound	Roadside	408165	306487	NO_2	YES	9	5	NO
MUC - 3	Muckley Corner A461 Southbound	Roadside	408097	306468	NO_2	YES	10	5	NO
MUC - 4	Muckley Corner A5 Westbound	Roadside	408029	306501	NO_2	YES	2	4	NO
MUC - 5	Muckley Corner A5 Eastbound	Roadside	408030	306516	NO_2	YES	5	2	NO
MUC - 6	Muckley Corner A461 Southbound	Roadside	408161	306556	NO_2	YES	5	2	NO
LT/LT1	Lichfield Town	Roadside	411792	309161	NO_2	NO	N/A	N/A	NO
LT-2	Lichfield Town - Trent Valley Road (2 Lime Grove)	Roadside	412782	309774	NO2	NO	1.3	0.9	NO
LT-3	Lichfield Town - Trent Valley Road (No. 101)	Roadside	412991	309869	NO2	NO	6.2	2.9	NO
LT-4	Lichfield Town - Trent Valley Road (No. 155)	Roadside	413183	309945	NO2	NO	9	2.5	NO
LT-5	Lichfield Town - Beacon Street (No. 48)	Roadside	411273	309902	NO2	NO	2.3	1.1	NO
LT-6	Lichfield Town - Beacon Street (No. 14)	Roadside	411358	309785	NO2	NO	0.2	1.6	NO

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?
LT-7	Lichfield Town - Upper St John Street (No. 96)	Kerbside	411892	308937	NO2	NO	1.4	0.5	NO
LT-8	Lichfield Town - Upper St John Street (No. 127)	Roadside	411951	308839	NO2	NO	0.2	1.2	NO
ARM	A513 Rugeley Road, Armitage	Roadside	406343	316482	NO2	NO	29	1.4	NO
FAZE	A40691 Coleshill Road (No. 38)	Roadside	420442	301806	NO2	NO	0.1	2.3	NO

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

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
A38 -1	417101	314180	Roadside	Diffusion Tube	100	100	**38.2**	**43.0**	35.4	33.9	25.8
A38 - 2/2(1)	416295	313186	Roadside	Diffusion Tube	100	100	32.6	37.6	30.9	30.8	28.6
A38 - 2A/B	416290	313175	Roadside	Diffusion Tube	75	75	**42.2**	**45.1**	37	38.3	35.3
A38 - 3	412891	306817	Roadside	Diffusion Tube	100	75	29.5	32.7	25.4	27.3	24.6
A38 - 4A/B	413978	300834	Roadside	Diffusion Tube	75	75	**44**	**45.6**	39.8	**41.7**	39.8
A38-4X/Y	413989	300869	Roadside	Diffusion Tube	100	100	31.8	33.2	29.4	27.5	25.1
A38 - 5A/B	413950	300574	Roadside	Diffusion Tube	92	92	**43.5**	**41.4**	38.3	33.9	26.7
A38 - 6A/B	413961	300539	Roadside	Diffusion Tube	67	67	30.9	31.7	28.2	26.2	27.2
A5 - 1	407208	306513	Roadside	Diffusion Tube	100	100	36.8	38.9	**40**	35.8	34.0
A5 - 1A	407895	306516	Roadside	Diffusion Tube	92	92	37.5	**42.0**	35.2	32.9	27.6
A5 - 2A	408893	306549	Roadside	Diffusion Tube	100	75	33.7	32.7	31.8	28.8	28.0
A5 - 2B	408667	306500	Roadside	Diffusion Tube	100	100	39.3	**41.7**	34.5	37.5	29.6
A5 - 3	412063	305379	Roadside	Diffusion Tube	100	92	27.2	29.0	25.4	23.9	24.7
B	405086	309344	Urban Background	Diffusion Tube	100	100	17.4	18.2	15.1	15.3	15.4
L	410544	310760	Urban Background	Diffusion Tube	100	100	15.7	17.6	16.1	15.5	16.3
MUC - 1	408164	306513	Roadside	Diffusion Tube	100	100	**44.4**	**47.2**	39.9	**43**	**41.5**
MUC - 1A/B/C	408164	306513	Roadside	Diffusion Tube	100	100	**45.4**	**49.4**	**41.3**	**41.4**	**42.1**
MUC - 2	408165	306487	Roadside	Diffusion Tube	92	92	39.1	**43.9**	36.3	37	34.6
MUC - 3	408097	306468	Roadside	Diffusion Tube	100	100	**54.1**	**59.9**	**51.9**	**52.5**	**45.9**
MUC - 4	408029	306501	Roadside	Diffusion Tube	100	100	**43.9**	**47.5**	38.5	39.9	33.5

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
MUC - 5	408030	306516	Roadside	Diffusion Tube	92	92	**46.3**	**46.8**	**46.2**	**41.8**	38.6
MUC - 6	408161	306556	Roadside	Diffusion Tube	100	100	34.5	**40.4**	36.8	37.5	29.7
LT/LT1	411792	309161	Roadside	Diffusion Tube	92	92	-	**48.0**	30.3	34.6	36.3
LT-2	412782	309774	Roadside	Diffusion Tube	100	25	-	-	-	-	36.2
LT-3	412991	309869	Roadside	Diffusion Tube	100	25	-	-	-	-	29.3
LT-4	413183	309945	Roadside	Diffusion Tube	100	25	-	-	-	-	31.5
LT-5	411273	309902	Roadside	Diffusion Tube	100	25	-	-	-	-	29.5
LT-6	411358	309785	Roadside	Diffusion Tube	100	25	-	-	-	-	34.9
LT-7	411892	308937	Kerbside	Diffusion Tube	100	25	-	-	-	-	29.1
LT-8	411951	308839	Roadside	Diffusion Tube	66.7	17	-	-	-	-	**42.1**
ARM	406343	316482	Roadside	Diffusion Tube	66.7	17	-	-	-	-	18.7
FAZE	420442	301806	Roadside	Diffusion Tube	100	25	-	-	-	-	39.6

☒ **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.

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)
LT/LT-1	332200	433540	45.3	40.5	35.6	42.5	34.1	39.6	37.5	30.5	38.6	33.1	52.0	I/S	39.0	36.3	
L	410544	310760	23.8	24.1	15.8	15.7	12.8	13	11.3	12	15.3	19.8	25	21.1	17.5	16.3	
A38 - 2	416295	313186	35.2	40	20.2	36.7	26.9	30.6	26.6	21	29.6	34.9	45.6	33.2	31.7	29.5	
A38-2(1)	416295	313186	45.5	38.2	26.2	35.1	26.3	29.8	17.7	20.9	29.6	Removed			29.9	27.8	
A38-2A	416290	313175	43	46.5	34.6	38.7	37.8	37	34.5	33.1	39.8	37.2	45	35	38.5	35.8	
A38-2B	416290	313175	43.2	46	34.2	39.2	34	33.9	36.9	30.8	38.8	Removed			37.4	34.8	
A38 - 1	417101	314180	50.6	42.8	34.5	27	32.3	33.2	32.7	32.6	41.4	30.9	49.7	34.4	36.8	34.3	25.8
A38 - 4 (X)	413989	300869	38.8	34.9	24.5	16.9	23.5	24.7	26.3	25.3	28.8	30.2	30.2	25.8	27.5	25.6	
A38 - 4 (Y)	413989	300869	36.3	38	23.9	18.9	21.4	24.3	20.7	25.6	28.5	Removed			26.4	24.6	
A38 - 4A	413978	300834	36.6	-	34	38.7	44.1	43.5	44.9	37.5	44.8	-	51.5	-	41.7	38.8	
A38 - 4B	413978	300834	-	-	35.1	-	42.9	42.9	40.5	37.9	34.7	Removed			39.0	47.4	39.8
A38 - 5A	413950	300574	51.1	48.1	35.9	21.7	-	63.5	30.8	38.1	40.6	36.4	37.2	34.8	39.8	37.0	
A38 - 5B	413950	300574	55.4	47.7	38.5	21.9	31.1	31.7	33.4	38.6	39.6	Removed			37.5	34.9	26.7
A38 - 6A	413961	300539	36.8	33.6	26.1	18.2	21	21.7	25.8	28.1	30.2	28.2	37.5	31.1	28.2	26.2	
A38 - 6B	413961	300539	40.4	38.2	27.5	14.9	20.7	-	24.1	27.3	34.4	Removed			28.4	28.3	
A38 - 3	412891	306817	33	28.3	22	36.3	26.1	28.2	21.9	15.9	27.1	Removed			26.5	24.6	

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)
A5 - 3	412063	305379	-	30.6	22.6	22.9	21.4	22.6	19.4	16.6	26.1	Removed			22.8	24.7	
A5 - 2B	408667	306500	49.5	36.1	39.1	46.9	33.8	36.7	34.2	29.1	40.4	36.2	37.8	27.6	37.3	34.7	29.6
MUC - 6	408161	306556	51.6	48.1	35.2	24.8	30	26.4	29.7	29.9	36.6	36.2	48.5	37.6	36.2	33.7	29.7
MUC - 1A	408164	306513	52.8	42.2	40.1	52.5	44.4	44.9	42.9	33.4	48.9	37.7	46.8	41.2	44.0	40.9	
MUC - 1B	408164	306513	62.2	45.2	42	55.9	44.9	49.4	39.7	37	49.7	45.7	51	-	47.5	44.2	
MUC - 1C	408164	306513	54.4	43.6	39.5	57.1	42.1	46.9	43.4	35.8	48.1	39.5	53.4	39.1	45.2	42.1	
MUC - 1	408164	306513	54	44.1	37.8	51.5	43.7	48.6	34	35.9	50.1	42	53.1	40.2	44.6	41.5	
MUC - 2	408165	306487	52.3	39.9	37.5	38.7	31.5	40.9	40.1	-	58.9	40.7	44.6	33.4	41.7	38.8	34.6
MUC - 3	408097	306468	68.3	59.4	49.4	53	55.6	60.7	60.4	53.7	69.9	60.6	55.6	50.5	58.1	54.0	45.9
MUC - 4	408029	306501	47.8	44.1	35.7	50.2	39.3	38.1	38.4	26.5	44.5	45.8	35.3	32.7	39.9	37.1	33.5
A5 - 1A	407895	306516	45.3	47.5	30.4	31.7	31.5	32.2	30.5	36.6	42.2	37.5	46.4	40.2	37.7	35.0	27.6
MUC - 5	408030	306516	67.9	51.7	40.4	42.4	45.2	47.6	47.3	-	54.2	43.5	46.3	47.3	48.5	45.1	38.6
A5 - 2A	408893	306549	42.1	37.9	29.8	24.6	25.3	21.4	25.9	29.5	34	Removed			30.1	28.0	
A5 - 1	407208	306513	49.7	45.2	28.4	33	32.1	27.1	35.1	35.5	42	34.9	37.9	38.4	36.6	34.0	
B	405086	309344	27.7	21.8	12.7	12.4	9.9	11.2	10.2	10.5	16.6	18.8	23.4	24	16.6	15.4	
ARM1	406343	316482	New Tube									33.1	38.6	I/S	35.9	33.3	18.7
FAZE	420442	301806	New Tube									40.6	51	36.2	42.6	39.6	
LT - 2	412782	309774	New Tube									37.5	47.2	38.1	40.9	38.1	36.2
LT - 3	412991	309869	New Tube									33.3	41	33.6	36.0	33.4	29.3
LT - 4	413183	309945	New Tube									40.9	52.3	33.2	42.1	39.2	31.5

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)
LT - 5	411273	309902	New Tube									33	45.9	26.4	35.1	32.6	29.5
LT - 6	411358	309785	New Tube									38.2	36.1	38.2	37.5	34.9	
LT - 7	411892	308937	New Tube									39.6	36.2	30.3	35.4	32.9	29.1
LT - 8	411951	308839	New Tube									37.1	53.5	I/S	45.3	42.1	

☐ **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

Diffusion Tube Bias Adjustment Factors

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.

As there are no automatic monitoring stations within the Lichfield District, a local bias adjustment factor has not been calculated. A bias adjustment of 0.93 for the year 2019 based on 17 studies were obtained from the national bias adjustment calculator. National bias adjustment factors were also used in the previous year's reporting.

For previous years 2015 to 2018, the bias adjustment factors were taken from the Council's previous LAQM annual reports. The factors used were 0.85 (2015), 0.91 (2016), 0.88 (2017) and 0.87 (2018).

Short to Long Term Adjustment

During 2019, there were three diffusion tubes (A38-4B, A38-6B and the A5-3) which fell below 75% data capture threshold considered appropriate for a valid result. This is primarily due to a review of the diffusion tube network in October 2019 where these specific tubes were removed from their respective duplicate tube sites. Note the new diffusion tube sites were not adjusted as they were only added to the network in October 2019. Annualisation of the 2019 results for sites A38-4B, A38-6B and the A5-3 were undertaken using the method set out in Box 7.10 of LAQM.TG (16). Box 7.10 states that a nearby continuous background site (B1) should be used to annualise DT data when data capture is <75%. However LDC does not have any continuous background sites. Box 7.10 states that diffusion tube sites with 12 months data may be used instead. LDC has two background DT sites (sites L and B). Both sites had 100% data capture during 2019, but background DT site L was used to correct for short term data, as this produced higher NO_2 results than DT site B and therefore is considered a more conservative approach. The data used to annualise sites A38-4B, A38-6B and the A5-3 are outlined in Table C.1 to C.3 below

Table C.1 – Annualisation for Site DT A38-4B

Start Date	End Date	B1	D1	B1 when D1 is available
09.01.2019	06.02.2019	23.8		
06.02.2019	06.03.2019	24.1		
06.03.2019	03.04.2019	15.8	35.1	15.8
03.04.2019	01.05.2019	15.7		
01.05.2019	05.06.2019	12.8	42.9	12.8
05.06.2019	03.07.2019	13	42.9	13
03.07.2019	07.08.2019	11.3	40.5	11.3
07.08.2019	04.09.2019	12	37.9	12
04.09.2019	02.10.2019	15.3	34.7	15.3
02.10.2019	06.11.2019	19.8		
06.11.2019	04.12.2019	25		
04.12.2019	08.01.2020	21.1		
Average		17.475	39.00	13.36666667
Ratio (Am/Pm)		1.31		
Measured period mean x Ratio		39.0 x 1.31		
Annualised Value for Site DT A38(4B)		**50.99**		
Bias Adjusted		**47.42**		

Table C.2 – Annualisation for Site DT A38-6B

Start Date	End Date	B1	D1	B1 when D1 is available
09.01.2019	06.02.2019	23.8	40.4	23.8
06.02.2019	06.03.2019	24.1	38.2	24.1
06.03.2019	03.04.2019	15.8	27.5	15.8
03.04.2019	01.05.2019	15.7	14.9	15.7
01.05.2019	05.06.2019	12.8	20.7	12.8
05.06.2019	03.07.2019	13		
03.07.2019	07.08.2019	11.3	24.1	11.3
07.08.2019	04.09.2019	12	27.3	12
04.09.2019	02.10.2019	15.3	34.4	15.3
02.10.2019	06.11.2019	19.8		
06.11.2019	04.12.2019	25		
04.12.2019	08.01.2020	21.1		
Average		17.475	28.44	16.35
Ratio (Am/Pm)		1.07		
Measured period mean x Ratio		28.44 x 1.07		
Annualised Value for Site DT A38(6B)		**30.39**		
Bias Adjusted		**28.27**		

Table C.3 – Annualisation for Site DT A5-3

Start Date	End Date	B1	D1	B1 when D1 is available
09.01.2019	06.02.2019	23.8		
06.02.2019	06.03.2019	24.1	30.6	24.1
06.03.2019	03.04.2019	15.8	22.6	15.8
03.04.2019	01.05.2019	15.7	22.9	15.7
01.05.2019	05.06.2019	12.8	21.4	12.8
05.06.2019	03.07.2019	13	22.6	13
03.07.2019	07.08.2019	11.3	19.4	11.3
07.08.2019	04.09.2019	12	16.6	12
04.09.2019	02.10.2019	15.3	26.1	15.3
02.10.2019	06.11.2019	19.8		
06.11.2019	04.12.2019	25		
04.12.2019	08.01.2020	21.1		
Average		17.475	22.78	15
Ratio (Am/Pm)		1.17		
Measured period mean x Ratio		22.78 x 1.17		
Annualised Value for Site DT A5-3		**26.53**		
Bias Adjusted		**24.68**		

QA/QC of Diffusion Tube Monitoring

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. 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. In 2019, the laboratory scored 100% in AIR-PT round AR030 (January 2019) and 75% for rounds AR031, AR033, AR034 and AR36 (from May 2019 to February 2020). The percentage score reflects the results deemed to be satisfactory based upon the z- score of < ± 2. The laboratory also takes part in the field inter-comparison scheme. Based on 17 diffusion tube studies, all local authority co-location studies in 2019 were rated as 'Good' (tubes are considered to have "satisfactory" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%).

The overall bias factor for Staffordshire Highways Laboratory for 2019 (including the

Field Inter-comparison result and all the co-location results from participating local authorities, total of 17 studies) was 0.93. This factor compares well with other participating laboratories using the same method (20% TEA in water). The 2019 bias factor of 0.93 is roughly comparable to the mean bias factor for Staffordshire for the previous 5 years. It also shows the spread of the bias factor which for Staffordshire (min 0.83 and max 0.93) demonstrates good consistency of the laboratory bias.

Distance Correction

Where diffusion tubes were not sited at locations representative of receptor locations (i.e. Residential properties in the case of the annual mean NO_2 objective) then the distance correction tool at https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html was used. The calculations are shown in Table C.4 for 2019.

Table C.4 – NO_2 Fall-off with distance calculator – 2019

Enter data into the pink cells

Site Name/ID	Distance (m)		NO_2 Annual Mean Concentration ($\mu g/m^3$)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor	
A38-1	1.0	9.0	15.2	34.3	25.8	
A38 4A/B	6.9	10.0	16.3	43.1	*39.8*	Predicted concentration at Receptor within 10% the AQS objective.
A38-5A/B	10.0	35.0	16.3	36.0	26.7	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.
A5 2B	2.0	6.0	14.8	34.7	29.6	
MUC-6	2.0	5.0	14.8	33.7	29.7	
MUC-2	5.0	9.0	14.8	38.8	34.6	
MUC-3	5.0	10.0	14.8	54.0	**45.9**	Predicted concentration at Receptor above AQS objective.
MUC-4	2.0	4.0	14.8	37.1	33.5	
MUC-5	2.0	5.0	14.8	45.1	*38.6*	Predicted concentration at Receptor within 10% the AQS objective.
A5 1A	1.0	6.0	14.5	35.0	27.6	
LT2	0.9	1.3	12.6	38.1	*36.2*	Predicted concentration at Receptor within 10% the AQS objective.
LT3	2.9	6.2	12.6	33.4	29.3	
LT4	2.5	9.0	14.8	39.2	31.5	
LT5	1.1	2.3	12.4	32.6	29.5	
LT7	0.5	1.4	12.3	32.9	29.1	
ARM	1.4	29.0	11.0	33.3	18.7	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.

New Developments

HS_2 update

High Speed Two (HS_2) is a planned high-speed railway in the United Kingdom linking London, Birmingham, the East Midlands, Leeds, Sheffield and Manchester. It would be the second high-speed rail line in Britain, after High Speed 1 (HS_1) which connects London to the Channel Tunnel.

Phase One is a north westerly route that will link London Euston to the West Midlands with a connection onto the West Coast Mainland at Handsacre in the Lichfield District, thereby taking services to the North West of England and Scotland. Phase One of HS_2 will pass through the parishes of Hints, Weeford, Swinfen and Packington, Whittington, Fradley and Streethay, and Kings Bromley within the Lichfield District.

The first part of the construction for Phase One, the enabling works (i.e. archaeology, utilities diversions, early planting etc.) has already commenced. Civil engineering works along the Phase One route commenced during summer 2019[7]. The main developments of note to the Lichfield District over the past 12 months has been the construction of a haul road to allow construction traffic access to HS2 work sites off the A38 at Streethay. Various other works have and continue to include relocation of utility works to allow for construction activity, ground and archaeological investigations. These have and continue to lead to temporary road closures, temporary traffic signals and diversions including recent overnight closures of the A38 slip road on the A38 at Streethay, road closures and diversions around Cappers Lane and Darnford Lane in Lichfield and work commenced in October 2020 on a temporary compound and haul road off the A51 near Whittington that will continue to run into 2021. LDC continues to monitor air quality along the A38 and also now on the main arterial routes through Lichfield which should identify the impact of any traffic diversions and disruptions to the local highway network.

[7] High Speed Two Local Area Engagement Plan: Staffordshire, Phase One, High Speed Two (HS_2) Limited, 2019

An Air Quality Strategy for Phase One[8] has been produced setting out how HS_2 Ltd, its nominated undertakers and contractors will meet Environmental Requirements set out in the Code of Construction Practice (CoCP)[9] to protect the environment and minimise the impact on air quality. At a local level, site specific control measures have been included within Local Environmental Management Plans (LEMPs). The LEMP for the Lichfield District[10] was published in December 2017, taking into account the findings of the main Environmental Statement (ES), supplementary statements and builds on the general environmental requirements set out in the CoCP.

Contracts for both the enabling works and main civil engineering works have now been awarded. The awarded contractors will be required under the LEMP to manage dust, air pollution, odour and exhaust emissions during the construction works in accordance with Best Practicable Means (BPM) taking into account current guidance on 'best practice[11,12]. Specific locations with relevant receptors that should be considered in the contractor's working methods and locations considered in relation to construction traffic exhaust emissions have been identified and our outlined in the LEMP. The locations to be explicitly considered in the Contractor's working methods were assessed to have a low to high risk of dust impacts without mitigation measures. However HS_2 have made a commitment within the Lichfield LEMP to employ all relevant dust mitigation measures outlined in the CoCP and any site specific measures as deemed necessary. Measures include; planning the site layout, provision of dust suppression, measures to keep roads, accesses and vehicles clean, shielding or provision of filters on plant likely to generate excessive dust beyond site boundaries. Locations identified where construction traffic exhaust emission impacts are likely were reported by HS_2 in the Lichfield LEMP to have negligible impact, but they will remain under review throughout the construction process.

[8] High Speed Two Air Quality Strategy, High Speed Two (HS_2) Limited, July 2017

[9]High Speed Rail (London-West Midlands) Environmental Minimum Requirements Annex 1: Code of Construction Practice, High Speed Two (HS_2) Limited, February 2017

[10] High Speed Rail (London-West Midlands) Local Environmental Management Plan Lichfield District Council, High Speed Two (HS_2) Limited, December 2017

[11] Guidance on the assessment of dust from construction and demolition: Institute of Air Quality Management, February 2014

[12] Air Quality Monitoring in the Vicinity of Demolition and Construction Sites: Institute of Air Quality Management, October 2018

HS_2 has also set emission requirements and targets for the engines of contractor cars, vans and HGVs for the whole route and have been categorised as London Low Emission Zone, Clean Air Zone and Rest of Route. Lichfield is within the Rest of Route category and therefore the requirements applicable to Lichfield are for HGVs to be powered by Euro VI (or higher) engines from the onset of works commencing and for cars and vans to be Euro 6 diesel and Euro 4 petrol from 2020. There are also targets for the use of Ultra Low Emission Vehicles. For Non-Road Mobile Machinery (NRMM) there is a requirement for Euro Stage IIIB from 2017 and for Euro Stage IV from 2020. Further details on the emission standards are set out in HS_2 information Paper E_{31}: Air Quality[13].

An inspection and monitoring programme to assess the effectiveness of mitigation measures set out in the CoCP and LEMP will be implemented by the contractors. Specific locations for dust monitoring are yet to be decided by HS_2, but once agreed monthly monitoring reports will be made publically available.

[13] High Speed Two: Phase One Information Paper, E_{31}: Air Quality, February 2017

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.

A revival motion for the Bill was then passed in the House of Commons on 2nd March 2020, with a similar motion having been passed in the House of Lords the previous week. The Bill was then due to continue its passage through Parliament with the petition hearings by the House of Lords Select Committee in the spring of 2020. However, due to the Covid-19 pandemic the Committee took the decision to suspend proceedings until further notice.

Integrated Transport Strategy (ITS) – Summary of Progress

2019/20 schemes

B5014 Uttoxeter Rd, Hill Ridware – speed limit gateways – reduce vehicle speeds and improve pedestrian environment, discouraging through traffic

Lichfield Trent Valley Station – study of potential improvements commenced in partnership with rail industry

A5127, Lichfield – junction modifications to provide additional vehicle capacity and improve pedestrians/cycle facilities – reduced congestion and improved sustainable travel infrastructure – works complete

Burntwood Town Centre public realm – improved environment for walking and cycling in town centre – study ongoing

Cappers Lane/Trent Valley Rd/Eastern Avenue junction Lichfield – junction improvement scheme for improved vehicle capacity and new pedestrian facilities. Design work ongoing

HS2 phase 1 cycling and safety schemes – A51 Borough Ln, Longdon – safety improvement. Other schemes to be developed.

Alrewas to NMA cycle route – encouraging cycling access to NMA and the Trent Valley area – design complete, delivery 2021/22 financial year

Dark Lane, Longdon – closure accept for pedestrians/cycle/horse riders – formalisation of Order

2020/21

Chorley village 30mph limit – safety for pedestrians walking in carriageway

Lichfield directional signage – encourage use of bypass once complete – remove traffic from City Centre and encourage sustainable travel – design work ongoing

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

Figure D.1 – AQMA No.1 A5 Muckley Corner & Monitoring Locations

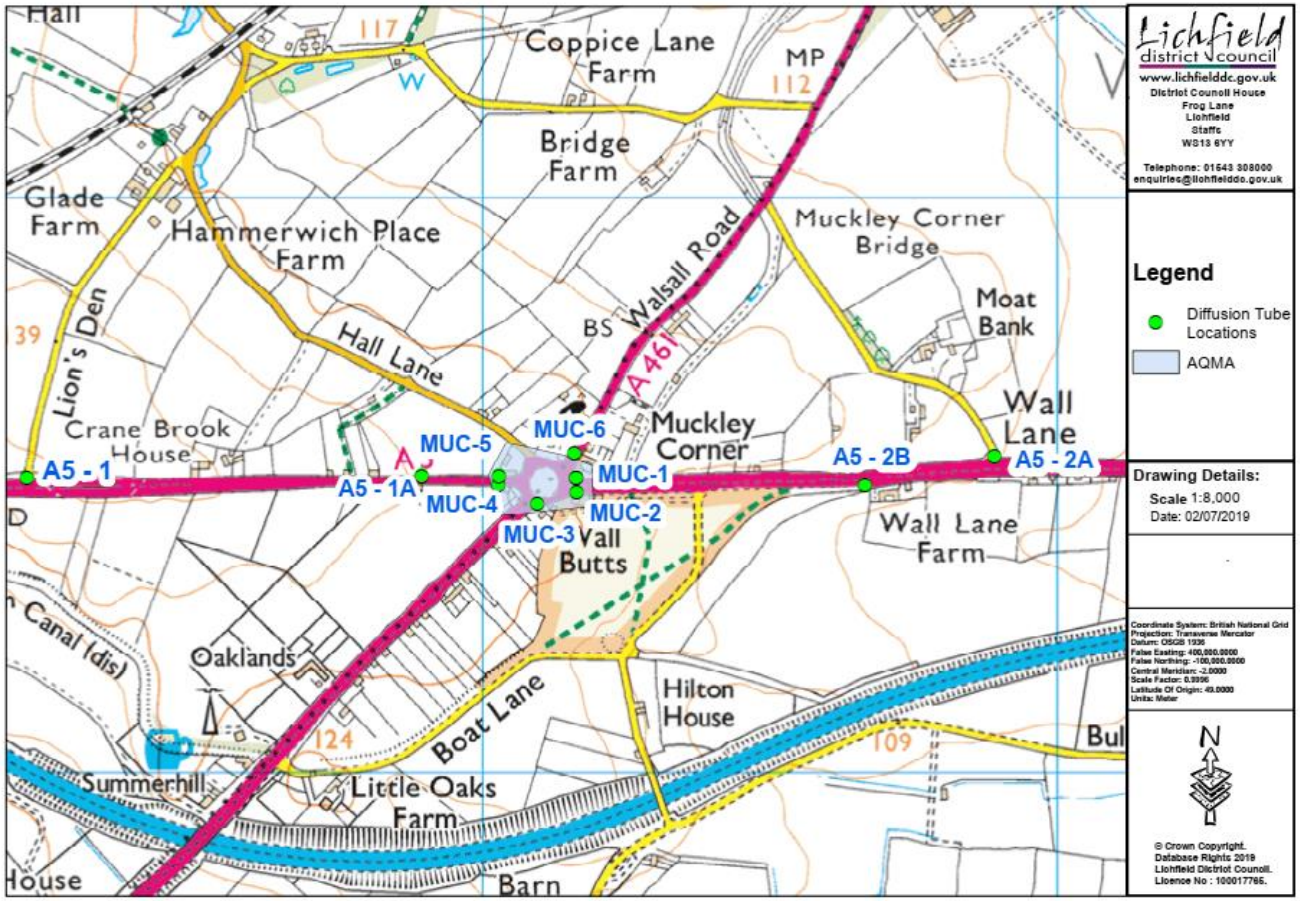


Figure D.2 – AQMA No.2 A38 Streethay to Alrewas & Monitoring Locations

Figure D.3 – Monitoring Locations Outside of AQMAs - Swinfen

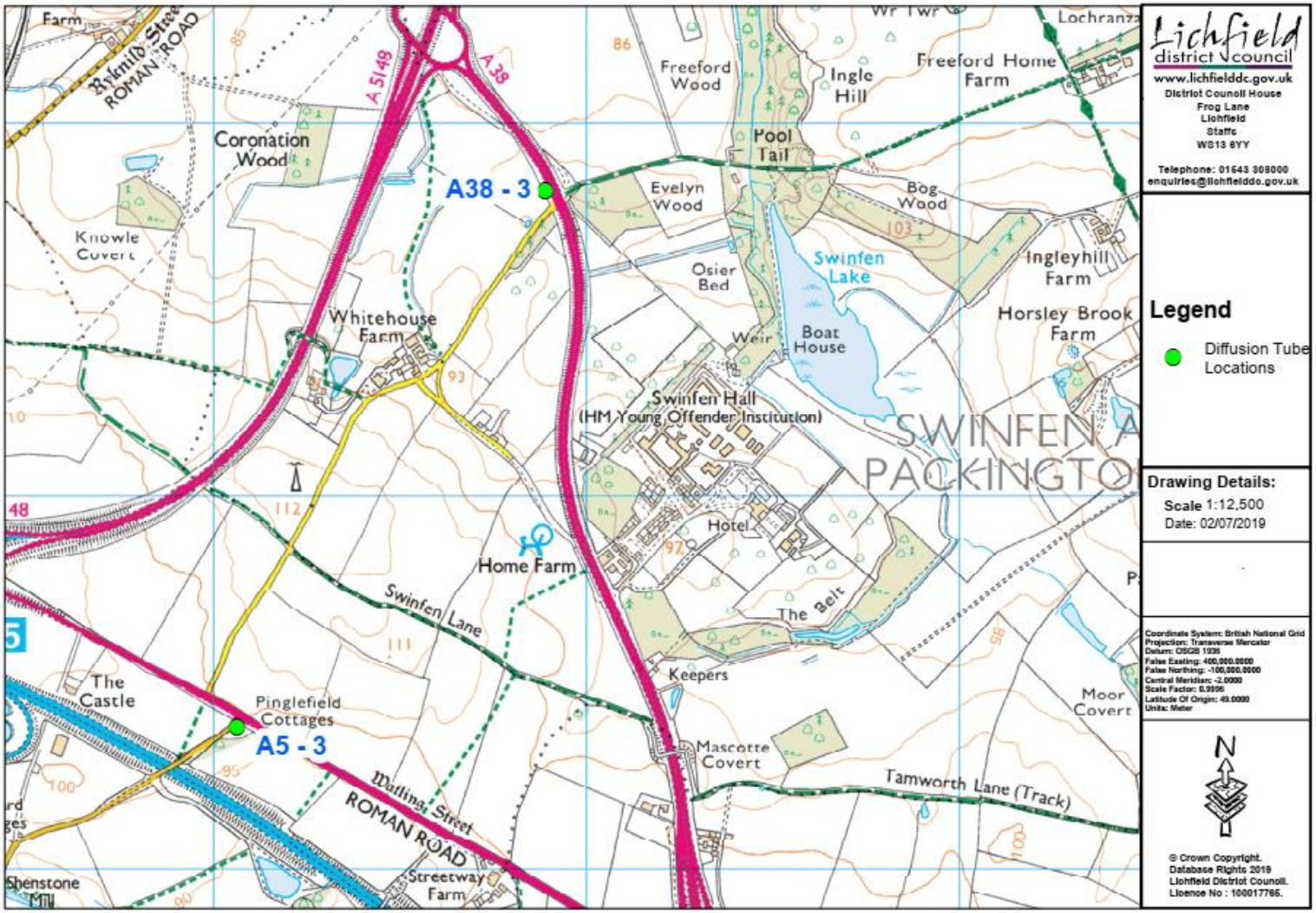


Figure D.4 – Monitoring Locations Outside of AQMAs – A38 Canwell

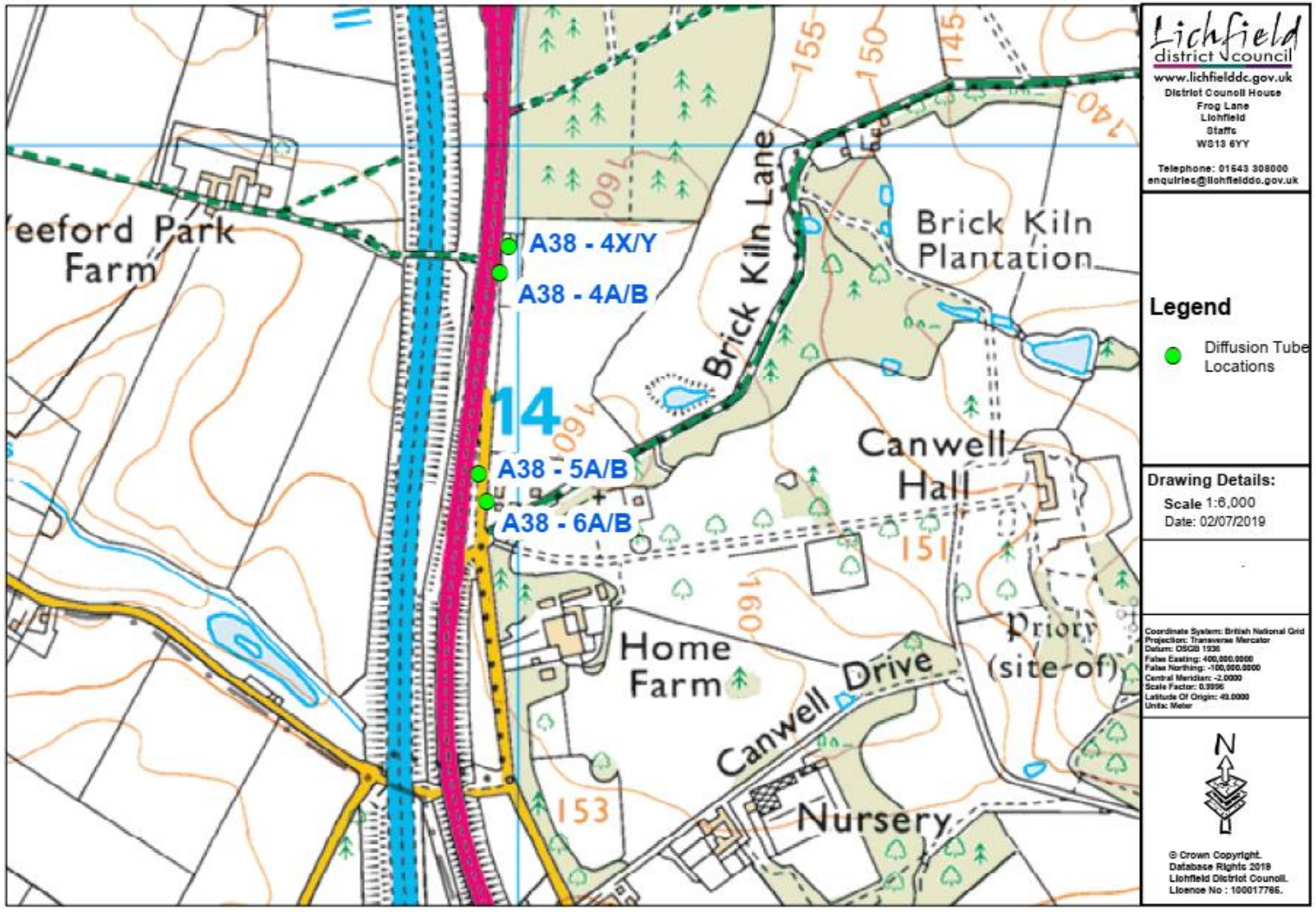


Figure D.5 – Monitoring Locations Outside of AQMAs – Lichfield

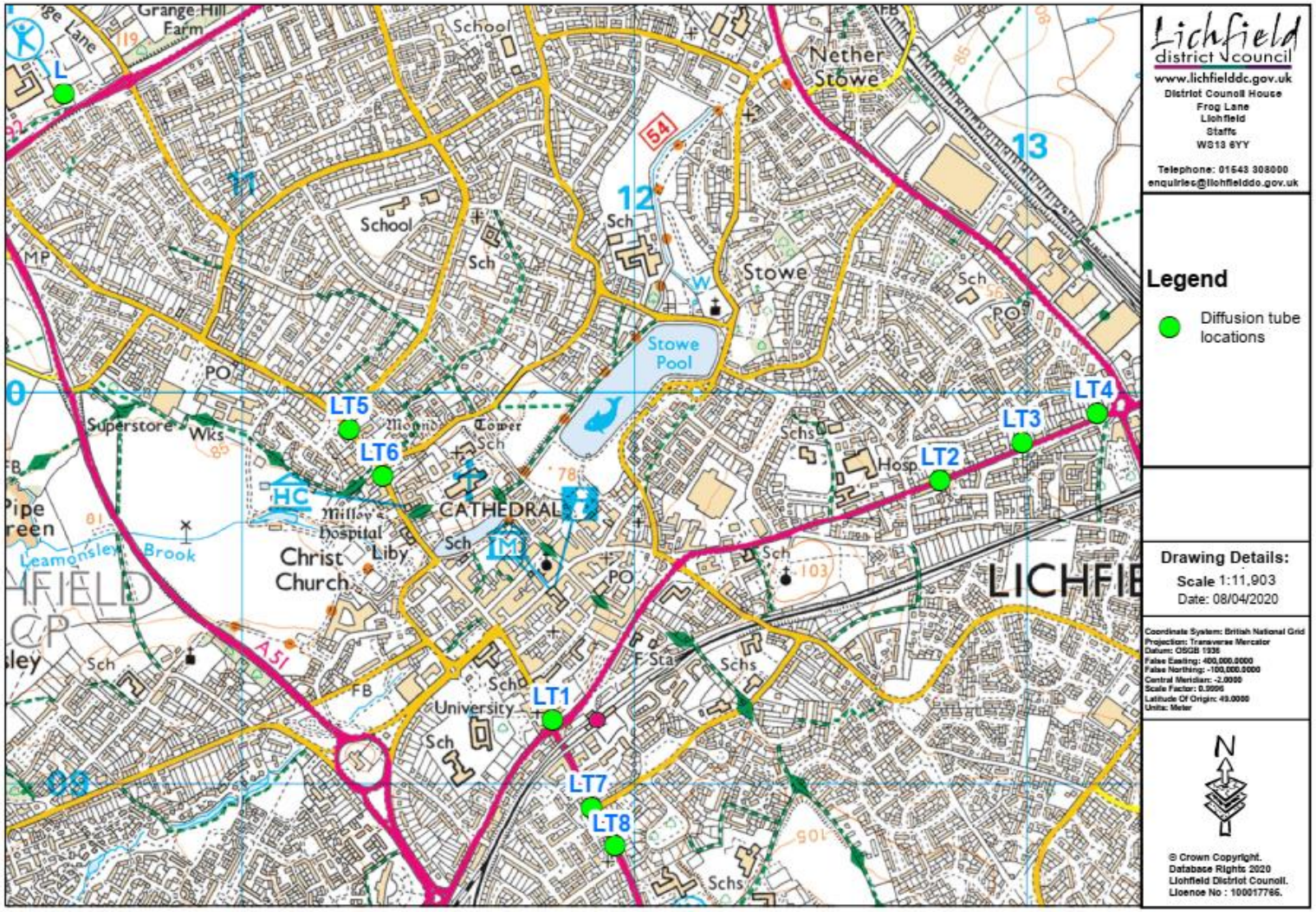


Figure D.6 – Monitoring Locations Outside of AQMAs – Burntwood

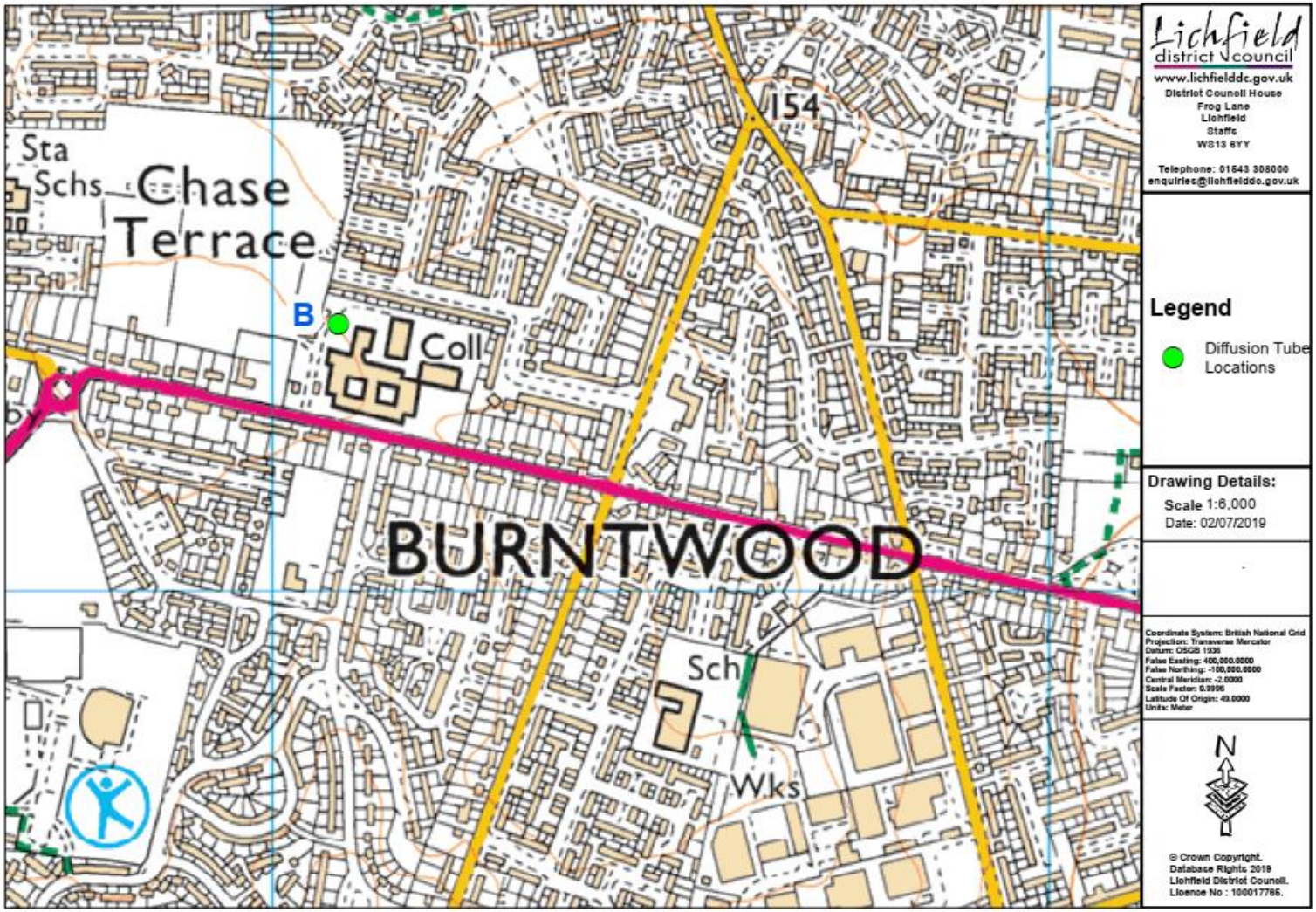


Figure D.7 – Monitoring Locations Outside of AQMAs - Armitage

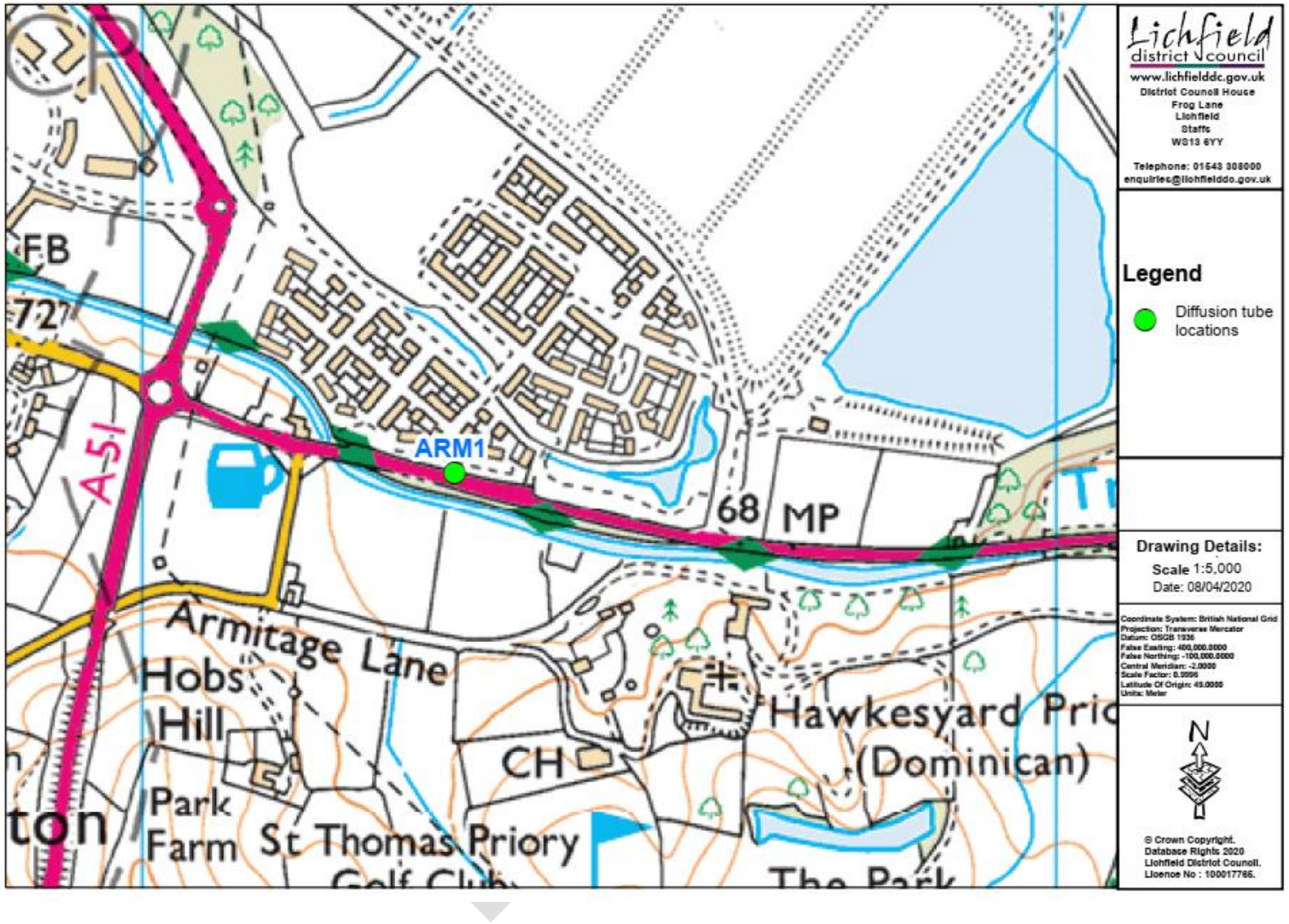
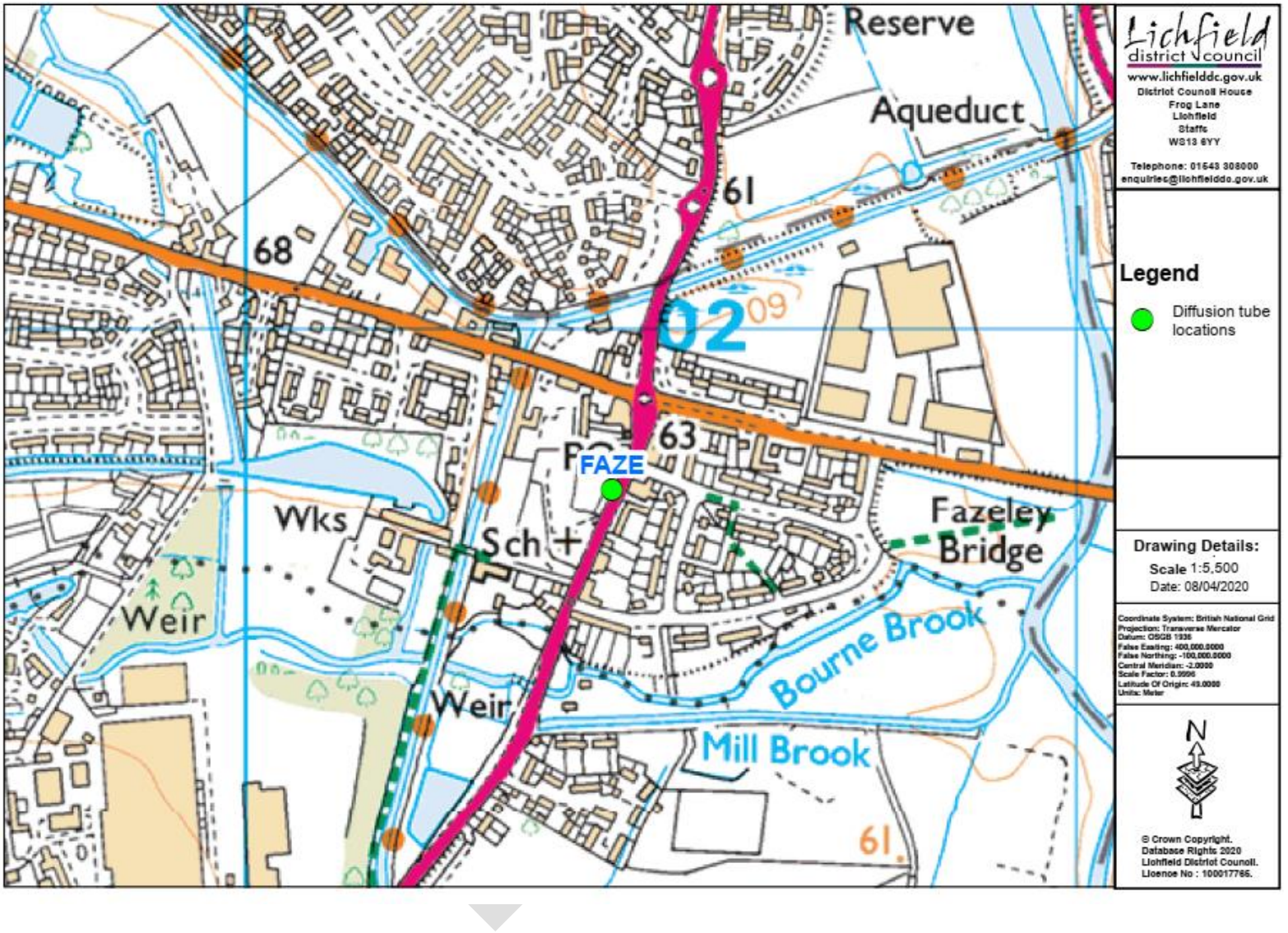


Figure D.8 – Monitoring Locations Outside of AQMAs - Fazeley



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[4]	
	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

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
AURN	Automatic, Urban and Rural Network
BPM	Best Practicable Means
CoCP	Code of Construction Practice
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
ES	Environmental Statement
EST	Energy Savings Trust
EU	European Union
EV	Electric Vehicle
HE	Highways England
HGV	Heavy Goods Vehicle
HS_2	High Speed Two – A proposed high speed railway line that will connect London to the Midlands and further north to Scotland
ITS	Integrated Transport Strategy
LA	Local Authority
LAQM	Local Air Quality Management
LDC	Lichfield District Council
LEMP	Local Environmental Management Plan

LEV	Low Emission Vehicle
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NRMM	Non-Road Mobile Machinery
OLEV	Office for Low Emission Vehicles
PHOF	Public Health Outcomes Framework
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
RCP	Royal College of Physicians
SAQF	Staffordshire Air Quality Forum
SO_2	Sulphur Dioxide
SPD	Supplementary Planning Document
STOR	Short Term Operating Reserve – Short Term Electricity Generators to act as back up supplies to the National Grid at times of peak demand
DFT	Department for Transport
UKAS	UK Accreditation Service
ULEV	Ultra-Low Emission Vehicles
UTMC	Urban Traffic Management and Control
VOC	Volatile Organic Compounds
WASP	Workplace Analysis Scheme for Proficiency – a QA/QC protocol for diffusion tubes