



South Staffordshire Council

2023 Air Quality Annual Status Report (ASR)

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

Date: June, 2023

Information	South Staffordshire Council
Local Authority Officer	Wendy Green
Department	Legal and Public Health Protection
Address	Council Offices, Wolverhampton Road, Codsall, South Staffordshire, WV8 1PX
Telephone	01902 696000
E-mail	wendy.green@sstaffs.gov.uk
Report Reference Number	ASR2023
Date	July 2023

Executive Summary: Air Quality in Our Area

Air Quality in South Staffordshire

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

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages³, with a total estimated healthcare cost to the NHS and social care of £157 m. Air Quality is an important consideration in the health of the population of our district. Within South Staffordshire previous reviews and assessments have proved sufficient evidence to be satisfied that the Council's area is only likely to see exceedances of the NO₂ annual mean objective. This was again confirmed as in April 2019 the council commissioned Air Quality Consultants Ltd to carry out a review of air quality across the district and to scrutinise a Development Consent Order application for a Strategic Rail Freight Interchange Hub known as the West Midlands Interchange.

We have one Air Quality Management Area within our district: AQMA No. 5, which is located in Hatherton at Oak Farm on the A5 which can be seen further on in this report and at:

https://uk-air.defra.gov.uk/aqma/details?aqma_ref=1495#809

This AQMA is going through the process of being revoked due to the long term data demonstrating levels of NO₂ comfortably below the objective level with no increasing trends observed. A tube will remain in place for the foreseeable future to ensure this situation remains the same.

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

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

³ Defra. Air quality appraisal: damage cost guidance, January 2023

There are no new major sources of emissions within the district and no new AQMA's to be designated. There are however a number of developments still taking place within the North East of the District and these developments will be considered collectively in relation to modelling of the potential cumulative effects of these developments to provide reassurance to Members and the public that air quality will remain within objective levels. These developments include:

- The extension of the i54 Business Park
- The Strategic Rail Freight Interchange at Four Ashes
- Industrial Development on the old Royal Ordnance Factory Site at Featherstone
- The new M54/M6 North link road

Levels of NO₂ over the district remain below objective level during 2022 demonstrating that the district has a good standard of air quality as it has done in previous years.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan⁴ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM_{2.5} targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce PM_{2.5} in their areas. The Road to Zero⁵ details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

⁴ Defra. Environmental Improvement Plan 2023, January 2023

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

We continue to work closely with our partnering local authorities within the South Staffordshire Air Quality Forum to ensure that our air quality remains at a good standard and any improvements are made that can be.

We have contributed to the improvements in our air quality with the launch of ECO stars on 24th February 2016. This helps improve the efficiency of the HGV's travelling throughout our district both now and in future years.

In 2022 we had 17 tubes out over the district. These are a combination of historical tubes placed in potential hotspots and reactive tubes placed out following concern from local residents and councillors and also recommendation from air quality consultants previously. All tubes demonstrate NO₂ levels to be well below objective both before and following bias adjustment.

Following advice from our air quality consultants and the need to begin looking at PM_{2.5}, we purchased a dust monitor. The monitor was been installed where our real time analyser was previously located in Penkridge close to the M6. The monitor has been located here for a number of reasons: there is a ready electricity supply and cabinet to house the monitor, it is easily accessible for officers to change filters and tackle any problems, it is also in the main wind direction from the incinerator in Cheslyn Hay which is of concern to local residents and parish councillors. Currently there is very limited data from the monitor (one month – December) due to issues with calibration and a fault with the pump which again became a problem approximately 6 months later. The small amount of data we have indicate particulate matter is low, however obviously conclusions cannot be drawn from such a limited dataset. As we came to take the equipment down for it's 12 month calibration there was again a fault with the pump. At this stage we have decided to abandon the use of this monitor which has never worked on a consistent basis and are currently researching an alternate dust monitor to purchase.

PM_{2.5} will be considered due to the health impacts noted by DEFRA with it's links to the Public Health Outcomes Framework and will be picked up with the new piece of equipment we are hoping to purchase shortly.

We hope to undertake further investigation by looking at the risk of two poultry farms in the district at Pilaton and Hatherton to determine the risk of PM₁₀ being exceeded in the area. We will look at the number of birds and distance between the nearest property and the shed using the equation provided in DEFRA Technical Guidance (DEFRA, 2016). This will

also be looked at in terms of the biomass installation at one of the farms. This is where we hope to locate the new dust monitor.

Quarries were also identified by the consultants as posing a potential risk in terms of PM₁₀. We will be looking into Calf Heath Quarry, Redhurst Quarry, Seisdon Quarry and 2 quarries in Cheslyn Hay. These again are areas that we will look to locate our new dust monitor.

Conclusions and Priorities

There are no new developments within the district that will cause Air Quality Objectives to be exceeded now or in the near future.

Work will begin on a new Air Quality Strategy for the district following the revocation of the last remaining AQMA of Oak Farm.

The main priorities for the local authority this year will be the implementation of particulate matter monitoring around the quarries and chicken farms in the district with the addition of our new dust monitoring equipment. We will also be employing consultants to undertake some more modelling of the district so that we have as much current information as possible.

There has been no breach of objective level for NO₂ over the district in 2022. It is felt that we can have confidence in these results as they support historical data and we are out of the pandemic into a 'new' normal.

Local Engagement and How to get Involved

You can obtain further information about air quality within the district at:

<https://www.sstaffs.gov.uk/environment/air-quality.cfm>

When members of the public voice concerns of air quality to either ourselves or local councillors we always try and respond and over the recent years have adjusting our tube monitoring to demonstrate that our air quality is of a good standard within the district.

Local Responsibilities and Commitment

This ASR was prepared by the Legal and Public Health Protection Department of South Staffordshire Council with the support and agreement of the following officers and departments:

Wendy Green – Legal and Public Health Protection.

This ASR has been approved by:

Dr. Richard Harling – Director of Health and Care, Staffordshire County Council.
(Appendix F)

If you have any comments on this ASR please send them to Wendy Green at:

South Staffordshire Council, Wolverhampton Road, Codsall, South Staffordshire, WV8 1PX.

01902 696000

wendy.green@sstaffs.gov.uk

Table of Contents

Executive Summary: Air Quality in Our Area	i
Air Quality in South Staffordshire	i
Actions to Improve Air Quality	ii
Conclusions and Priorities	iv
Local Engagement and How to get Involved	iv
Local Responsibilities and Commitment	v
1 Local Air Quality Management	1
2 Actions to Improve Air Quality	2
Air Quality Management Areas	2
Progress and Impact of Measures to address Air Quality in South Staffordshire Council	4
PM _{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations	7
2.3.1 Particulate Matter (PM_{2.5}) Levels in Staffordshire and Stoke-on-Trent	8
2.3.2 PM_{2.5} and Mortality in Staffordshire & Stoke-on-Trent	9
3 Figure 1 Estimated average number of deaths by local authority area attributable to PM_{2.5} within Staffordshire for adults over 30 2018 to 2021	9
4 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance	19
Summary of Monitoring Undertaken	19
4.1.1 Non-Automatic Monitoring Sites	19
Individual Pollutants	19
4.1.2 Nitrogen Dioxide (NO ₂)	20
Appendix A: Monitoring Results	21
Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC	28
New or Changed Sources Identified Within South Staffordshire Council During 2022	28
Additional Air Quality Works Undertaken by South Staffordshire Council During 2022	28
QA/QC of Diffusion Tube Monitoring	28
Diffusion Tube Annualisation	29
Diffusion Tube Bias Adjustment Factors	30
Appendix D: Map(s) of Monitoring Locations and AQMAs	31
Appendix E: Summary of Air Quality Objectives in England	43
Appendix F: ASR Endorsement	44
Glossary of Terms	46
References	47

Figures

Figure A.1 – Trends in Annual Mean NO ₂ Concentrations.....	24
--	----

Tables

Table 2.1 – Declared Air Quality Management Areas.....	3
Table 2.2 – Progress on Measures to Improve Air Quality.....	6

Table A.2 – Details of Non-Automatic Monitoring Sites.....	21
Table A.4 – Annual Mean NO ₂ Monitoring Results: Non-Automatic Monitoring (µg/m ³)	22
Table B.1 – NO ₂ 2022 Diffusion Tube Results (µg/m ³).....	26
Table C.1 – Annualisation Summary (concentrations presented in µg/m ³)	Error!

Bookmark not defined.

Table C.2 – Bias Adjustment Factor	30
Table C.3 – Local Bias Adjustment Calculation	Error! Bookmark not defined.
Table C.4 – NO ₂ Fall off With Distance Calculations (concentrations presented in µg/m ³)	Error! Bookmark not defined.
Table E.1 – Air Quality Objectives in England.....	43

1 Local Air Quality Management

This report provides an overview of air quality in South Staffordshire Council during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

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

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

2 Actions to Improve Air Quality

Air Quality Management Areas

Air Quality Management Areas (AQMA) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

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

- NO₂ annual mean

We propose to revoke AQMA No.5 – Oak Farm (see monitoring section) due to current and historical data demonstrating NO₂ levels below objective. We believe the work carried out at the truck stop opposite the monitoring location, which has created a separate entrance further down from the exit, the resurfacing of hardstanding over the site, and the continued work with schemes such as ECOSTars in cleaning up the HGV's in use has had a positive effect on air quality within the AQMA.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 5 – Oak Farm	01/03/2007	NO ₂ Annual Mean	An area encompassing one residential property along the A5 opposite a truck stop.	YES	39.3µg/m ³	25.6 µg/m ³	8 years	AQAP 2008	Not available. Being updated

- ☒ South Staffordshire Council confirm the information on UK-Air regarding their AQMA(s) is up to date
- ☒ South Staffordshire Council confirm that all current AQAPs have been submitted to Defra.

Progress and Impact of Measures to address Air Quality in South Staffordshire Council

Defra's appraisal of last year's ASR concluded that the report was accepted.

South Staffordshire Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Four measures are included within Table 2.2, with the type of measure and the progress South Staffordshire Council have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

South Staffordshire Council expects the following measures to be completed over the course of the next reporting year: Research and selection of a new dust monitor to be used in relation to the two chicken farms on district and the numerous quarries.

We will look to produce an Air Quality Strategy for the district due to the revocation of our final AMQA – 5 at Oak Farm.

South Staffordshire Council's priorities for the coming year are to begin looking at Particulate Matter over the district with attention on PM₁₀ and PM_{2.5}. We also hope to potentially purchase a new piece of real time analysing equipment and will therefore begin a scoping exercise to look at what may be available to us.

We are hoping to employ some more air quality consultants to model the district again so that we have as much current detail as possible for air quality over our district.

The principal challenges and barriers to implementation that South Staffordshire Council anticipates facing are continued resource restrictions due to additional pressures on the Council as a whole.

Progress on the following measures has been slower than expected due to a lack of resources. We are working towards now rectifying this issue and hope to be able to dedicate more time to this area over coming years.

South Staffordshire Council anticipates that the measures stated above and in Table 2.2 will achieve continued compliance in Oak Farm AQMA No. 5 which is why revocation is being processed.

South Staffordshire Council worked to implement these measures in partnership with the following stakeholders during 2022:

- Staffordshire Air Quality Forum
- The Highways Authority;

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	ECO Stars Scheme	Vehicle Fleet Efficiency	Drive training and ECO driving aids	2014	Ongoing	South Staffordshire Council, DEFRA, SAQF councils: Stafford, Cannock, Stoke, Lichfield, Newcastle, Tamworth, East Staffs.	DEFRA Grant	Yes	Finished		Ongoing	Ongoing. Levels of NO2 are below objective within AQMA 5 – Oak Farm	NO2 below objective	Ongoing. Companies continue to be signed up to the scheme	
2	Continued Integration with planning system	Policy Guidance and Development Control	Air Quality planning and policy guidance	Ongoing	Ongoing	South Staffordshire Council					Ongoing		NO2 below objective	Ongoing	
3	Continue close working with SAQF	Policy Guidance and Development Control	Air Quality planning and policy guidance	Ongoing	Ongoing	SAQF Councils: Stafford, Cannock, Stoke, Lichfield, Newcastle, Tamworth, East Staffs.					Ongoing		NO2 below objective	Ongoing	
4	Regulation of industrial processes under the Environmental Permitting Programme to control emissions to air	Environmental Permits	Other	Ongoing	Ongoing	South Staffordshire Council					Ongoing		NO2 below objective	Ongoing	

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Environment Act 2021 established a legally binding duty on Government to set an annual mean target on the level of fine particulate matter (PM_{2.5}), these have been set in The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. Also as detailed in Policy Guidance LAQM.PG22 (Chapter 8), 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 are now two targets to work towards:

The annual mean concentration target, which requires that by the end of 31st December 2040. The annual mean level of PM_{2.5} in ambient air must be equal to or less than 10 µg/m³ with an interim target of 12 µg/m³ to be achieved by the end of January 2028 as set out in the Environmental Improvement Plan 2022.

The other major target is, The population exposure reduction target, this requires that there is at least a 35% reduction in population exposure by the end of 31st December 2040 (“the target date”), as compared with the average population exposure in the three-year period from 1st January 2016 to 31st December 2018 (“the baseline period”), determined in accordance with regulation 8.

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 (PM₁₀) 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) D01 Fraction of mortality attributable to particulate air pollution (2020), Public Health Outcomes Framework indicator ⁷ is based. Air pollution affects us all. It is associated with impacts on lung development in children, heart disease, stroke, cancer, exacerbation of asthma and increased mortality, among other health effects.⁸

The mortality burden of air pollution in England is estimated to be between 26,000 and 38,000 a year.⁸

Within Staffordshire it is estimated that in 2021^(latest figures) (5.0% of all deaths can be attributed to exposure to PM_{2.5}, compared to 5.5% across England (29,850 deaths annually)⁷. Overall, the estimated cost to individuals and society is more than £20 billion annually for the UK.

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

Only Stoke on Trent monitor locally for PM₁₀. However a number of authorities have been approached by Defra to host an Automatic Urban and Rural Network (AURN), which if suitable sites can be found would mean that these councils will have PM data specific to their area rather than having to rely on the PM_{2.5} background maps provided by Defra.

South Staffordshire Council has also attempted and is attempting to monitor PM₁₀ and PM_{2.5} within the district. This has been carried out in Penkridge on Wolgarston Road where our real time air monitor was located. Currently there is only limited data and therefore we would not like to draw any conclusions at this time. However, the raw data shows levels within range quoted by the Environment Act 2021. We hope to build on this data in the coming years.

⁷ Public Health England. Public Health Outcomes Framework 5th May <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/cid/4/tbm/1/page-options/car-do-0 ine-yo-1:2019:-1:-1 ine-ct-2 ine-pt-0> © Crown copyright 2021

⁸ Chief Medical Officer's annual report 2022

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 UK Health Security Agency(UKHSa) used to inform Public Health Outcomes Framework indicator D01⁵, as shown in Figure 1

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 Figure 2. The data presented to 2021 is the latest data available at time of publication of this report. Approximately 5.8% of deaths between 2018 to 2021 within the County can be attributed to PM_{2.5}. (Note the method for calculating this figure changed in 2022 and we have only the data for 2018,2019,2020 & 2021 using this new method, As the 2020 data for this indicator includes the period from March 2020 onwards, the mortality data used in its calculation will reflect effects of the COVID-19 pandemic.).

3 Figure 1 Estimated average number of deaths by local authority area attributable to PM_{2.5} within Staffordshire for adults over 30 2018 to 2021

District/County	Percentage
Newcastle-under-Lyme	5.5%
Stafford	5.5%
East Staffordshire	6.0%
South Staffordshire	5.8%
Lichfield	6.0%
Staffordshire Moorlands	5.3%
Cannock Chase	6.0%
Tamworth	6.4%
Stoke on Trent	5.9%
Staffordshire County	5.8%
England	6.3%

Figure 2 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 2018 to 2021⁷

District/County	2018			2019			2020			2021		
	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	1334	5.7	80	1282	6.8	90	1548	4.7	70	1409	5	70
Stafford	1336	5.8	80	1315	6.8	90	1565	4.5	70	1432	4.8	70
East Staffordshire	1093	6.3	70	1128	7.3	80	1355	5.1	70	1287	5.1	70
South Staffordshire	1211	6.3	80	1212	7.0	90	1418	4.9	70	1333	5.1	70
Lichfield	1087	6.4	70	1093	7.2	80	1272	5.2	70	1129	5.1	60
Staffordshire Moorlands	1108	5.2	60	1080	6.6	70	1276	4.5	60	1133	4.7	50
Cannock Chase	976	6.4	60	908	7.2	70	1046	5.1	50	1089	5.2	60
Tamworth	653	6.9	50	678	7.7	50	752	5.6	40	730	5.4	40
Stoke on Trent	2746	6.1	170	2490	7.2	180	3034	5.0	150	2790	5.2	150
Staffordshire	8798	6.1	530	8692	7.0	610	10227	4.9	500	9539	5	480

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 NO₂ within their areas, which are detailed elsewhere in their ASR. Since the update of the Environment Act 2021 there is now a statutory duty imposed on Local Authorities in England to reduce PM_{2.5}, a number of the measures are complementary with those being undertaken to reduce NO_x. 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 2.4 below;

South Staffordshire Council is taking the following measures as outlined in Table 2.4 and with our partners at the county council and other partners identified in the table to address PM_{2.5}

Smoke Control areas

South Staffordshire Council declared 4 areas in the district: Wombourne, Perton, Pendeford and Sedgley to be smoke control area in the late 1970s. Changes to the Environment act 2021 has enabled councils to now issue fines with respect to dark persistent smoke coming from household chimneys were as before this change this was difficult to address as household chimneys were exempt from being a statutory nuisance.

This change should enable South Staffordshire Council to address the incorrect use of log burners even if they are Defra exempt.

Table 2.4 – Actions being taken within Staffordshire to reduce PM2.5

Measures category	Measure Classification	Effect on reducing NOx and PM10 emissions (low, medium, high)	Reduces PM2.5 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. Live labs monitoring work linked to congestion in Newcastle.	UTC in Stafford Town Centre	Town Centre Regeneration Programme & a number of schemes are currently being progressed which will aid traffic management. Many of these will help improve traffic flow within the AQMA. Live labs monitoring work linked to congestion in Burton.	Still liaising with Midlands Connect to increase usage of M6 Toll to reduce congestion on A5 & lobbying for upgrade of A38 & A5. The A5 corridor identified as priority for congestion control, but the central section outside of the LDC has been prioritised for transport intervention measures. Junction improvements at Muckley Corner are being considered.		UTC in Tamworth Town Centre at Ventura Park
	Reduction of speed limits, 20mph zones	Low	✓	Advisory 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	.	20mph zones in Trysull, Bradley, Kinver and Bilbrook	
	Road User Charging (RUC)/ Congestion charging	Low	✓	No				M6 Toll	M6 Toll	Campaign only Air Aware project
	Anti-idling enforcement	Low	✓	Campaign only Air Aware project	Campaign only Air Aware project		Campaign only Air Aware project	Campaign only Air Aware project	Campaign only Air Aware project	
	Other		✓							
Promoting Travel Alternatives	Workplace Travel Planning	Low	✓	No workplace travel planning currently						
	Encourage / Facilitate home-working	Low	✓	Agile working policy adopted	Homeworking Policy adopted	Homeworking Policy adopted	Homeworking Policy adopted	Homeworking policy adopted	Agile working policy adopted	Homeworking policy adopted
	School Travel Plans	Low	✓	https://www.staffordshire.gov.uk/activeschooltravel/						
	Promotion of cycling	Low	✓	https://www.staffordshire.gov.uk/Transport/transportplanning/Walking-and-cycling.aspx Review of LCWIP will include additional areas such as Biddulph and Rugeley INTO Walking and Cycling Social Prescribing Specific to Newcastle-under-Lyme www.staffordshire.gov.uk/walkingandcycling					S Staffordshire Cycling Scheme	Same as other Staffs authorities
	Promotion of walking	Low	✓	https://www.staffordshire.gov.uk/Transport/transportplanning/Walking-and-cycling.aspx Review of LCWIP will include additional areas such as Biddulph and Rugeley INTO Walking and Cycling Social Prescribing Specific to Newcastle-under-Lyme www.staffordshire.gov.uk/walkingandcycling					Good Life Health & Wellbeing in the community	Same as other Staffs authorities
	Staffordshire Share a Lift Scheme		✓	No Car Share Scheme currently						

	Promote use of rail and inland waterways	Medium	✓	North Staffordshire Community Rail Partnership operating along the North Staffordshire Line includes Blythe Bridge station.	North Staffordshire Community Rail Partnership operating along the North Staffordshire Line includes Kidsgrove station. Kidsgrove station to be fully accessible and regenerated through Town Deal.	Redevelopment of Stafford Station into a gateway associated with HS2 works.	Burton Forecourt improvements completed	Lichfield Trent Valley access for all works recently completed including lifts.	Brinsford Park and Ride - Parkway Station business case ongoing	
--	--	--------	---	---	---	---	---	---	---	--

Measures category	Measure Classification	Effect on reducing NOx and PM10 emissions (low, medium, high)	Reduces PM2.5 emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under -Lyne BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
Transport Planning & Infrastructure	Local Transport Plans and District Strategies	high	✓	District integrated transport strategies - Staffordshire County Council						
	Public transport improvements - interchanges stations and services	low	✓	Proposed reinstatement of Leek rail connection. Planning application approved during 2022. Funding being sought from central government	Kids Grove Railway station will be multi-modal through Town Deal funding	New services with S106 funding provided in Stone to new estates in Walton and Yarnfield. Stafford Gateway will be multi-modal		Lichfield Bus Station resurfaced, repainted and new coach parking bays provided. Alternative location for bus station currently under consideration	Parkway station will be multi-modal	Planned improvements at Tamworth station
	Public cycle hire scheme	low	✓							
	Cycle network	low	✓	Local cycling and walking infrastructure plan 2021 - Staffordshire County Council Staffordshire cycle maps currently awaiting audit and review						
	Bus route improvements	high	✓	Review of Integrated Transport Strategy will include consideration of improvements for public transport	RTPI on key routes in Newcastle Town Centre. Improved future bus services to Chatterley Valley	Improved bus priority and interchange on key routes in Stafford - post SWAR	Improvements in Burton town centre	RTPI introduced at key stops in Lichfield City.	Consideration of future bus stop upgrades on key routes & improvements to rural services.	Corporation Street interchange improvements planned for future delivery discussions ongoing with TBC
	Active Travel Fund	low	✓		ATF 2 measures to encourage walking and cycling	ATF 2 measures to encourage walking and cycling	ATF 2 and 4 measures to encourage walking and cycling			ATF 3 and 4 measures to encourage walking and cycling

	Levelling Up Fund 2	medium	✓	<p>Schemes will improve a number of major roads around the county, reduce journey times, put greener, cleaner buses on main roads, improve walking and cycling routes and reduce the impact of housing and commercial developments. They will benefit East Staffordshire, Cannock Chase and Stafford Borough. Total package cost circa £20m.</p> <ul style="list-style-type: none"> ▪ Circa £6 million at the A38/A5121 Branston Interchange, near Burton, to complete the work at junction and open up for large scale housing and business development. Staffordshire County Council is adding additional money to walking and cycling schemes in the area for non-motorists to cross the A38 safely. ▪ More than £9 million for work at either end of the A34 between Cannock and Stafford. In Cannock there will be walking and cycling routes to complement the planned town centre regeneration and link to the train station. In Stafford there will be the creation and maintenance of walking and cycling routes along from Radford Bank to the town centre. ▪ Approximately £4.2 million to introduce either the latest generation Euro VI diesels, or electric-powered buses on certain busy routes, as well as improving bus stops and changing priority at junctions. <p>Bus routes benefiting from the new investment include the #8 and #9 services in Burton, run by Midland Classic; the #74 between Stafford and Cannock, run by Chaserider; and the #875 from Stafford to Cannock, via Penkridge, run by Select Buses.</p>
--	---------------------	--------	---	--

Measures category	Measure Classification	Effect on reducing NOx and PM10 emissions (low, medium, high)	Reduces PM2.5 emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under -Lyne BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
Alternatives to private vehicle use	Bus based Park & Ride	medium	✓					New bus central station as part of Friarsgate development scheme		
	Car Clubs	low	✓	✓						
Policy Guidance and Development Control	Planning applications to require assessment of exposure / emissions for development requiring air quality impact assessment	high	✓	https://www.staffs-moorlands.gov.uk/media/6155/Adopted-Local-Plan/pdf/Adopted_Local_Plan.pdf?m=1601645140880	Included as part of Local Validation List https://www.newcastle-staffs.gov.uk/planning-applications/information-requirements-validation-planning-applications	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/Council/Planning/The-local-plan-and-planning-policy/Planning-policy.aspx	South Staffordshire Local Plan South Staffordshire Council (staffs.gov.uk)	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				Revised Air Quality Action Plan due in 2024 will include requirements for PM2.5	2019-2023 Air Quality Strategy			In development	
	Planning Guidance for developers		✓	"Air Quality and Emissions Mitigation" Guidance for Developers available, & currently being updated with view to be adopted as a official SPD	To be developed alongside New Local Plan HERE	http://www.stafforddc.gov.uk/planning/planning-policy/supplementary-planning-policy-documents	Informal guidance in place		Planning Guidance and SPDs (staffs.gov.uk)	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		✓	Damage cost assessment has been used for applicable applications.	To be considered as above	Damage cost assessment now required for applicable applications.	Damage cost assessment now required for applicable applications.			
	Planning Policies		✓	https://www.staffs-moorlands.gov.uk/media/6155/Adopted-Local-Plan/pdf/Adopted_Local_Plan.pdf?m=1601645140880	Various policies support alternatives to use of car and increased use of public transport HERE	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 Guidance and SPDs (staffs.gov.uk)	https://www.tamworth.gov.uk/local-plan

	STOR Sites <small>(short Term Operating Reserve)</small> Energy Generation . Regulation via planning / permitting regime	high	✓	✓						
--	---	------	---	---	--	--	--	--	--	--

Measures category	Measure Classification	Effect on reducing NOx and PM10 emissions (low, medium, high)	Reduces PM2.5 emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under - Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
	Low Emissions Strategy	high	✓	Forms part of Climate change action plan & Climate change action plan part 2	In development	In development as part of Climate Change Policy				
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 This should be considered as part of planning applications where new proposals come forward.						
	Quiet & out of hours delivery	Low	✓			✓				
	Delivery and Service plans	Medium	✓			x				
	Freight Partnerships for city centre deliveries	high	✓			x				
	Driver training and ECO driving aids	medium	✓	✓		✓				
	Promoting low emission public transport	high	✓	X		x				

Vehicle Fleet Efficiency	Vehicle retrofitting programmes	medium	✓	On going / in development Energy Saving Trust (EST) have reviewed current fleet and issued recommendations including training	Bus retrofit for vehicles using A53 service 4	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	✓	https://www.staffordshire.gov.uk/environment/Documents/Climate-Change-Action-Plan.pdf - Where possible consider and implement a transition plan to full EV vehicles within the SCC fleet						

Measures category	Measure Classification	Effect on reducing NOx and PM10 emissions (low, medium, high)	Reduces PM2.5 emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under - Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
	Low emission zone (LEZ) Clean Air Zone (CAZ)	High	✓	X						
	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	High	✓	Procurement Strategy in development; Climate change action plan		Waste fleet vehicles comply with Euro VI.			Council new vehicles all comply with Euro 6	
	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	High	✓	Energy Saving Trust (EST) have reviewed current fleet and issued draft. The majority comply with are highest EURO emission standard with the rest completed between 2022/ 2023		Investigating replacing old vehicles within th fleet with more modern cleaner vehicles, which comply with the prevailing EURO standard. This will be extended to all Council owned Vehicles.		Vehicles replaced (in addition to normal fleet turnover)	Most council vehicles were replaced last year with new cleaner vehicles	
	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	High	✓	EV strategy on council car parks. hydrated vegetable oil are currently being used by waste fleet		Procurement of EV on staff carparks			EV Parking on staff car parks	
	Priority parking for LEV's	High	✓	✓		✓		Reviewing its car park strategy for the District in pursuit of increasing the provision of EV charging infrastructure		EV charging spaces being investigated
	Taxi Licensing conditions	Medium	✓	In development		✓				
	EV Strategy	High	✓	https://democracy.staffs-moorlands.gov.uk/documents/s32243/SM-Public-EV-Charging-Strategy-V1_Final_15.09.22.pdf	Staffordshire EV Charging Infrastructure Strategy https://www.staffordshire.gov.uk/Transport/Sustainable-travel/Electric-vehicles/02-SCC-Public-EV-Charging-Strategy-V3-3.pdf					
	Taxi emission incentives	Medium	✓			✓				
	Introduction/increase of environment charges through permit systems and economic	Medium	✓	✓		✓		On going Environmental Permits inspection of installation adhering to		

Environmental permits	instruments (Permit fees set centrally)							permits and enforcement/penalties for breaches		
	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)						

Measures category	Measure Classification	Effect on reducing NOx and PM10 emissions (low, medium, high)	Reduces PM2.5 emissions	Local Authority						
				Staffordshire Moorlands DC	Newcastle under-Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
Other measures	Large Combustion Plant Permits and National Plans going beyond BAT	high	✓			Nil				
	Other		✓			Nil				
	Smoky Diesel Hotline			https://www.gov.uk/report-smoky-vehicle						
	A5 & M6 Partnership					X		Strategy for the A5 2011-2026	Strategy for the A5 2011-2026	
	Domestic Smoke Control advice and Enforcement		✓	SMDC Smoke Control ✓	-	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	Smoke Control Areas South Staffordshire District Council (sstaffs.gov.uk)	
	Garden Bonfires - Advice and nuisance enforcement		✓	SMDC Smoke Nuisance and Bonfires & EPUK leaflet used	-	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	Smells, Dust and Fumes South Staffordshire District Council (sstaffs.gov.uk)	http://www.tamworth.gov.uk/air-quality
	Commercial burning advice and enforcement		✓	SMDC Commercial smoke & waste management "its a burning issue" EA leaflet	-	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	Smells, Dust and Fumes South Staffordshire District Council (sstaffs.gov.uk)	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	✓	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	Information shared as appropriate	✓	
	Stoke-on-Trent Low Carbon District Heat Network		✓	-	-	Nil				

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

This section sets out the monitoring undertaken within 2022 by South Staffordshire Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

4.1.1 Non-Automatic Monitoring Sites

South Staffordshire Council undertook non-automatic (i.e. passive) monitoring of NO₂ at 17 sites during 2022. Table A.1 in Appendix A presents the details of the non-automatic sites.

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

Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C. There was only one tube with data capture below 75%, this was HUN2 at 67%. The data from this tube has not been annualised. This is due to there being a nearby tube (HUN1) which can be used for the locality which was well below objective. Also, the data is similar to last year in that the highest reading was mid 20s with the remainder of months demonstrating levels low to mid teens and therefore it wasn't felt that annualization was needed in this case.

4.1.2 Nitrogen Dioxide (NO₂)

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

For diffusion tubes, the full 2022 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

There were no exceedances over the district in 2022 which is in line with previous years monitoring and supports the statement that the air quality within South Staffordshire is of a good standard.

Our remaining AQMA – No.5 Oak Farm is also below objective level where it has remained for the past 8 years. We are therefore in the process of revoking this AQMA. We will however leave a tube in place to ensure that this situation is maintained.

Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
HA2	HA2	Roadside	394776	309756	NO ₂	Yes – 5 Oak Farm	0	1	No	3
PE1	PE1	Roadside	392259	314020	NO ₂	No	0	1	No	3
PE2	PE2	Roadside	393177	313866	NO ₂	No	10	11	No	3
SA2	SA2	Roadside	396716	308742	NO ₂	No	0	2	No	3
FA1	FA1	Roadside	391191	307871	NO ₂	No	0	1	No	3
COD1	COD1	Roadside	387023	303197	NO ₂	No	0	3	No	3
SCH1	SCH1	Roadside	397232	307107	NO ₂	No	0	10	No	3
CH2	CH2	Roadside	397983	307148	NO ₂	No	0	1	No	3
CH3	CH3	Roadside	398108	307368	NO ₂	No	0	3	No	3
FE1	FE1	Roadside	394368	305411	NO ₂	No	0	2	No	3
FE2	FE2	Roadside	394451	305497	NO ₂	No	10	2	No	3
COV1	COV1	Roadside	391588	304602	NO ₂	No	0	1	No	3
HUN1	HUN1	Roadside	397256	313004	NO ₂	No	0	1	No	3
HUN2	HUN2	Roadside	397280	313058	NO ₂	No	0	1	No	3
ES1	ES1	Roadside	396312	303815	NO ₂	No	0	1	No	3
PEN1	PEN1	Roadside	389597	303857	NO ₂	No	0	1	No	3
WOM	WOM	Roadside	385931	292198	NO ₂	No	0	6	No	3

Notes:

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

(2) N/A if not applicable.

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
HA2	394776	309756	Roadside	100	100	33.2	34.2	20.9	25.0	25.6
PE1	392259	314020	Roadside	100	92	-	-	14.8	17.8	19.0
PE2	393177	313866	Roadside	100	100	28.7	30.0	17.6	20.7	21.2
SA2	396716	308742	Roadside	100	100	29.4	30.3	20.7	22.3	21.7
FA1	391191	307871	Roadside	100	100	-	25.3	16.6	18.9	18.5
COD1	387023	303197	Roadside	100	92	-	17.6	10.2	12.7	12.8
SCH1	397232	307107	Roadside	100	100	-	17.5	12.5	13.7	14.2
CH2	397983	307148	Roadside	100	100	-	21.8	13.6	15.9	15.6
CH3	398108	307368	Roadside	100	100	-	-	-	-	19.1
FE1	394368	305411	Roadside	100	100	-	27.1	18.3	21.2	19.7
FE2	394451	305497	Roadside	100	100	-	36.1	23.8	28.7	29.0
COV1	391588	304602	Roadside	100	92	-	-	22.8	24.1	26.0
HUN1	397256	313004	Roadside	100	100	-	-	12.5	14.4	15.3
HUN2	397280	313058	Roadside	100	67	-	-	12.8	16.0	14.7
ES1	396312	303815	Roadside	100	100	-	-	16.2	18.2	18.7
PEN1	389597	303857	Roadside	100	100	-	-	10.5	10.8	11.4
WOM	385931	292198	Roadside	100	83	-	-	-	-	14.9

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

☒ Diffusion tube data has been bias adjusted.

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

Notes:

The annual mean concentrations are presented as µg/m³.

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

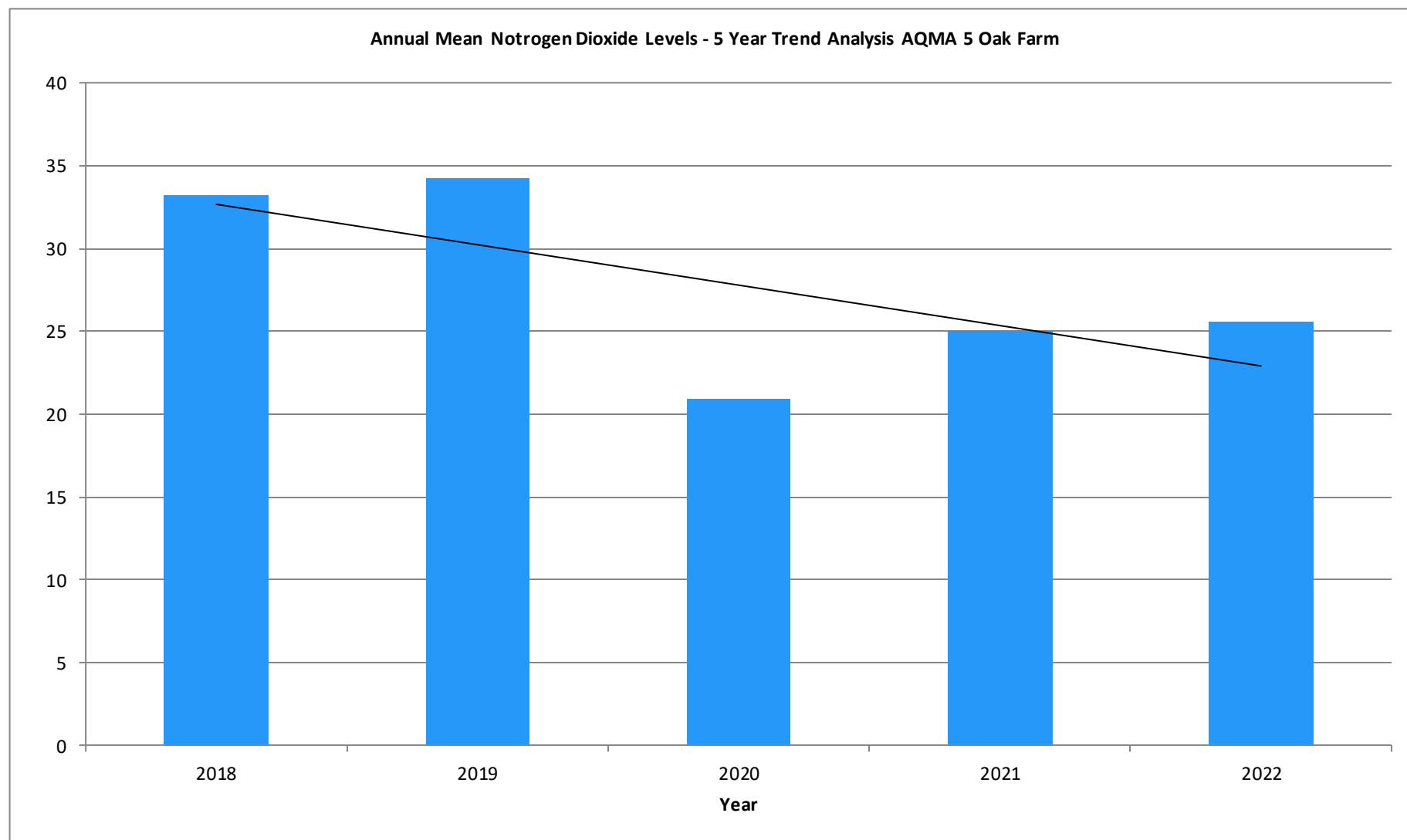
NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

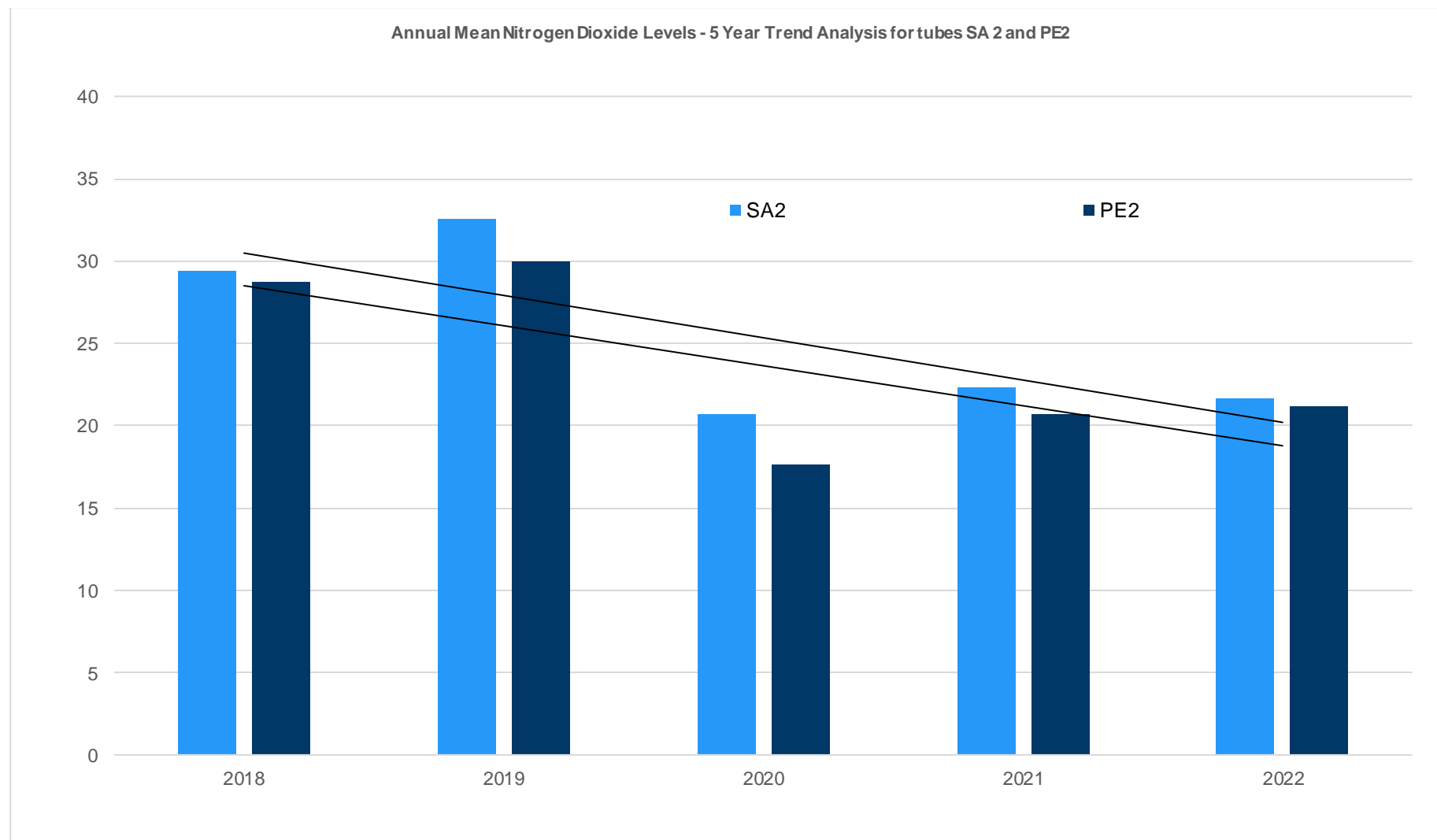
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Figure A.1 – Trends in Annual Mean NO₂ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO₂ 2022 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.87)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
HA2	394776	309756	38.9	28.1	31.6	26.9	25.7	25.5	29.2	29.7	33.3	28.1	29.6	27.1	29.5	25.6		
PE1	392259	314020	30.8		19.8	18.7	17.2	14.4	16.2	19.1	20.8	28.0	26.2	28.7	21.8	19.0		
PE2	393177	313866	26.3	17.5	29.6	23.5	21.4	17.8	23.5	26.9	30.2	22.2	32.8	20.4	24.3	21.2		
SA2	396716	308742	35.3	22.9	26.0	18.7	19.0	19.4	20.3	22.0	24.0	29.2	34.3	28.2	24.9	21.7		
FA1	391191	307871	27.5	18.6	21.9	17.0	19.0	17.5	19.4	20.0	22.4	21.8	25.6	24.3	21.3	18.5		
COD1	387023	303197	22.2	9.9	21.3	14.1	11.5	9.7	13.4	14.4	15.2	14.1	16.1		14.7	12.8		
SCH1	397232	307107	25.5	15.1	21.5	13.7	11.5	9.9	12.9	13.7	16.2	14.9	19.6	21.7	16.4	14.2		
CH2	397983	307148	23.5	13.6	21.0	17.2	13.6	12.9	15.8	17.8	18.4	16.9	19.6	24.3	17.9	15.6		
CH3	398108	307368	33.6	19.2	25.5	22.0	18.4	18.2	20.8	21.6	23.3	16.4	19.6	25.2	22.0	19.1		
FE1	394368	305411	29.2	19.5	30.9	25.0	18.9	16.7	20.8	24.7	25.4	23.4	26.4	10.3	22.6	19.7		
FE2	394451	305497	40.1	29.6	33.8	33.8	31.2	30.7	32.6	33.0	32.7	31.6	35.8	35.5	33.4	29.0		
COV1	391588	304602	39.4	31.4	32.1	22.7	25.3	22.7		22.9	29.0	32.7	39.2	30.8	29.8	26.0		
HUN1	397256	313004	24.2	14.2	22.1	14.9	11.4	10.3	13.8	17.0	18.3	16.0	25.3	23.1	17.6	15.3		
HUN2	397280	313058	25.5	13.7			11.8		13.3	15.8	18.4		23.0	14.0	16.9	14.7		
ES1	396312	303815	28.8	19.8	25.1	20.8	19.3	16.3	18.4	18.9	21.7	19.8	25.6	23.0	21.5	18.7		
PEN1	389597	303857	18.3	9.2	17.0	11.5	8.4	6.9	10.1	12.7	13.7	12.8	16.3	20.4	13.1	11.4		
WOM	385931	292198	23.1	17.5	20.1	14.3	13.8	14.1	15.1	15.7	16.4	20.7			17.1	14.9		

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

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

☐ Local bias adjustment factor used.

☒ National bias adjustment factor used.

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

☒ South Staffordshire Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.
See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within South Staffordshire Council During 2022

South Staffordshire Council has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by South Staffordshire Council During 2022

South Staffordshire Council has not completed any additional works within the reporting year of 2022.

QA/QC of Diffusion Tube Monitoring

As for previous years Staffordshire Scientific Services have prepared and analysed our tubes during 2022 and the method of preparation is 20% TEA in water.

NO₂ diffusion tube analysis QC results – April 2023 Summary

AIR PT Scheme (LGC)

Results for each round are classified on z-scores for each tube as SATISFACTORY (≤ 2), QUESTIONABLE (between 2 and <3) and UNSATISFACTORY (>3).

PT Rounds during 2022

- Round 49 – Feb 2022. 100% satisfactory results.
- Round 50 – July 2022. 100% satisfactory results.
- Round 52 – Sept 2022. 0% satisfactory, 100% unsatisfactory results. Investigation into the results for this round showed issues with the full extraction of the analyte from the tube and issues with training of new member of staff. This did not affect results for other samples. Additional samples of the following round were ordered, and analysis completed with 100% satisfactory results.
- Round 53 – Nov 2022. 100% satisfactory results.

[A summary of our z-score results for 2022 can be found in the table below.](#)

PT Round	z-scores	Performance
49 – Feb 2022	-0.11, -0.03, -0.22, 0.00	100% SATISFACTORY
50 – July 2022	-1.00, -0.78, -1.20, -1.48	100% SATISFACTORY
52 – Sept 2022	-4.75, -4.26, -4.04, -4.09	0% SATISFACTORY, 100% UNSATISFACTORY
53 – Nov 2022	-0.16, -1.79, -1.33, -0.61	100% SATISFACTORY

For the more information on the AIR PT Scheme and older results see the Defra website:
<https://laqm.defra.gov.uk/air-quality/air-quality-assessment/qa-qc-framework/>

Field Intercomparison (NPL)

Our performance for all results of 2022 was classified as 'GOOD' (CoV <20). The chart below shows our results (blue squares), compared to the reference value (orange dots) for each month.

All monitoring was completed in adherence with the 2022 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

As previously discussed, the HUN2 tube had a lower data capture than the 75% required at 67. However, annualisation was not carried out. This was due to the fact that the tube is not located in an AQMA but was installed at the suggestion of our air quality consultants to analyse the NO₂ levels at the location. It is also in close proximity to HUN1 which could be used to demonstrate levels within that locality. The previous years at HUN2 show levels well below objective at 12.8µg/m³ and 16.0µg/m³ and the data from the periods the tube was in place in 2022 were again well below objective level in the low twenties and teens and so was felt that the annualisation was not necessary as there are no problems at this location.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

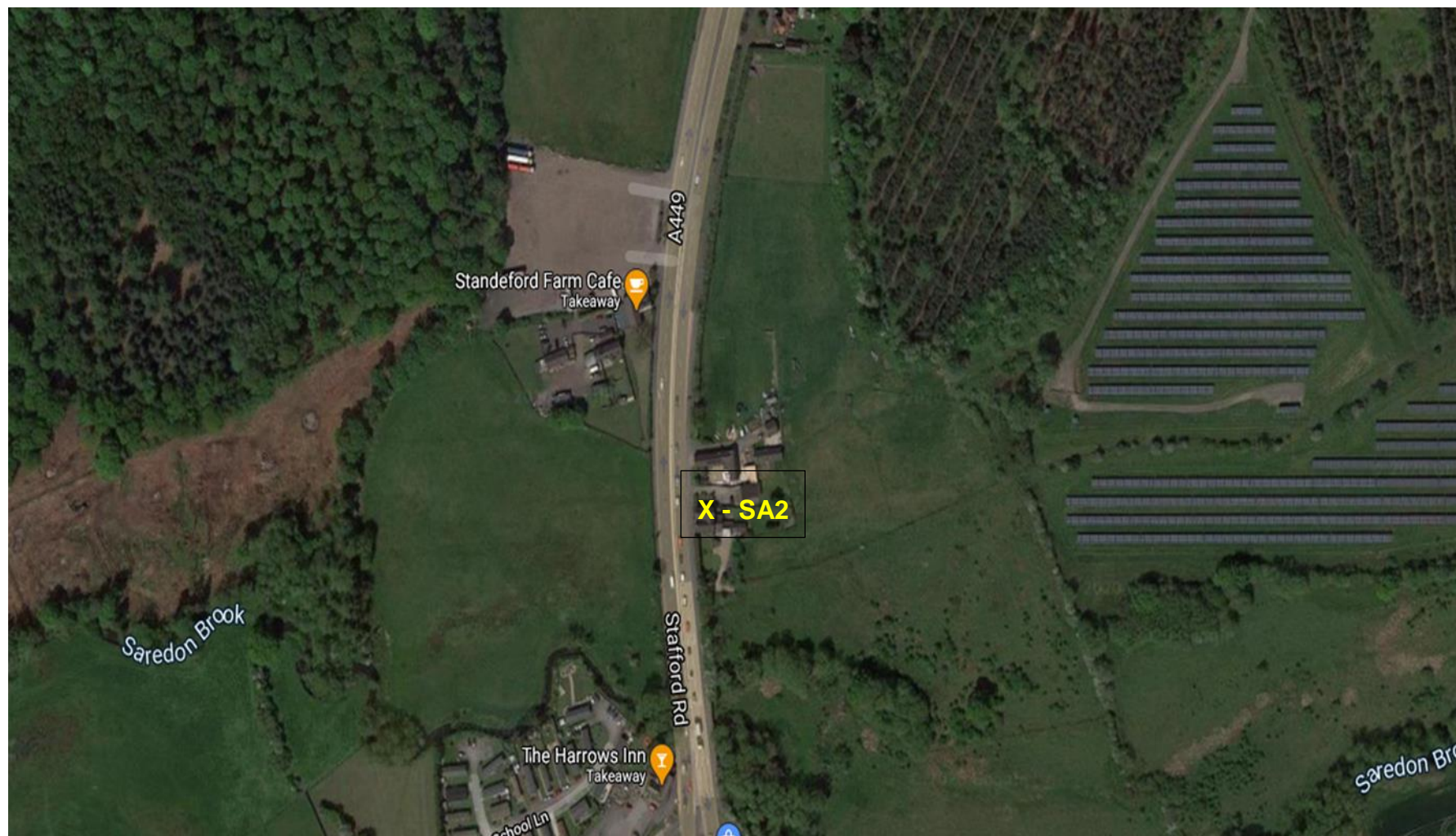
South Staffordshire Council have applied a national bias adjustment factor of 0.87 to the 2022 monitoring data. A summary of bias adjustment factors used by South Staffordshire Council over the past five years is presented in Table C.1. Whilst producing the report the new spreadsheet of adjustment factors was released at the end of June: 06/23. This changes the adjustment factor to 0.86, a difference of 0.01. This has made negligible difference to the data within this report.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.87
2021	National	06/22	0.85
2020	National	06/21	0.85
2019	National		0.93
2018	National		0.87

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

Figure D.1 – Maps of Non-Automatic Monitoring Sites







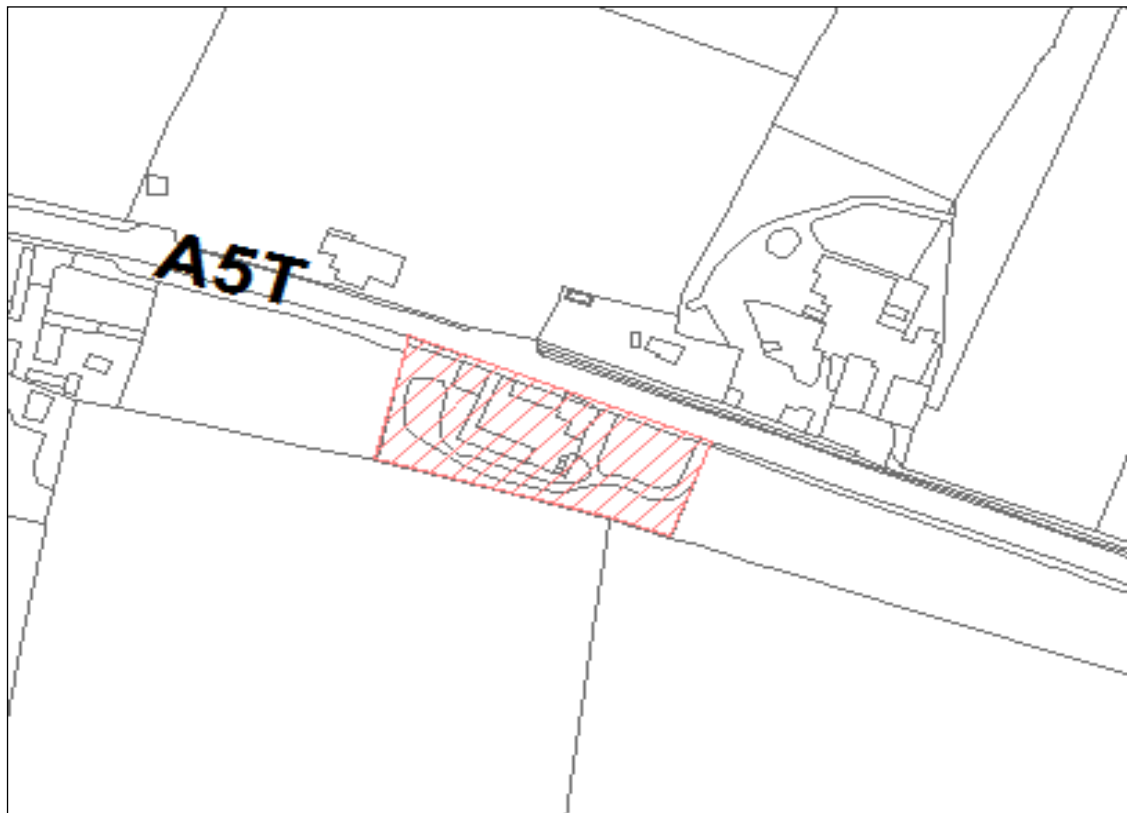






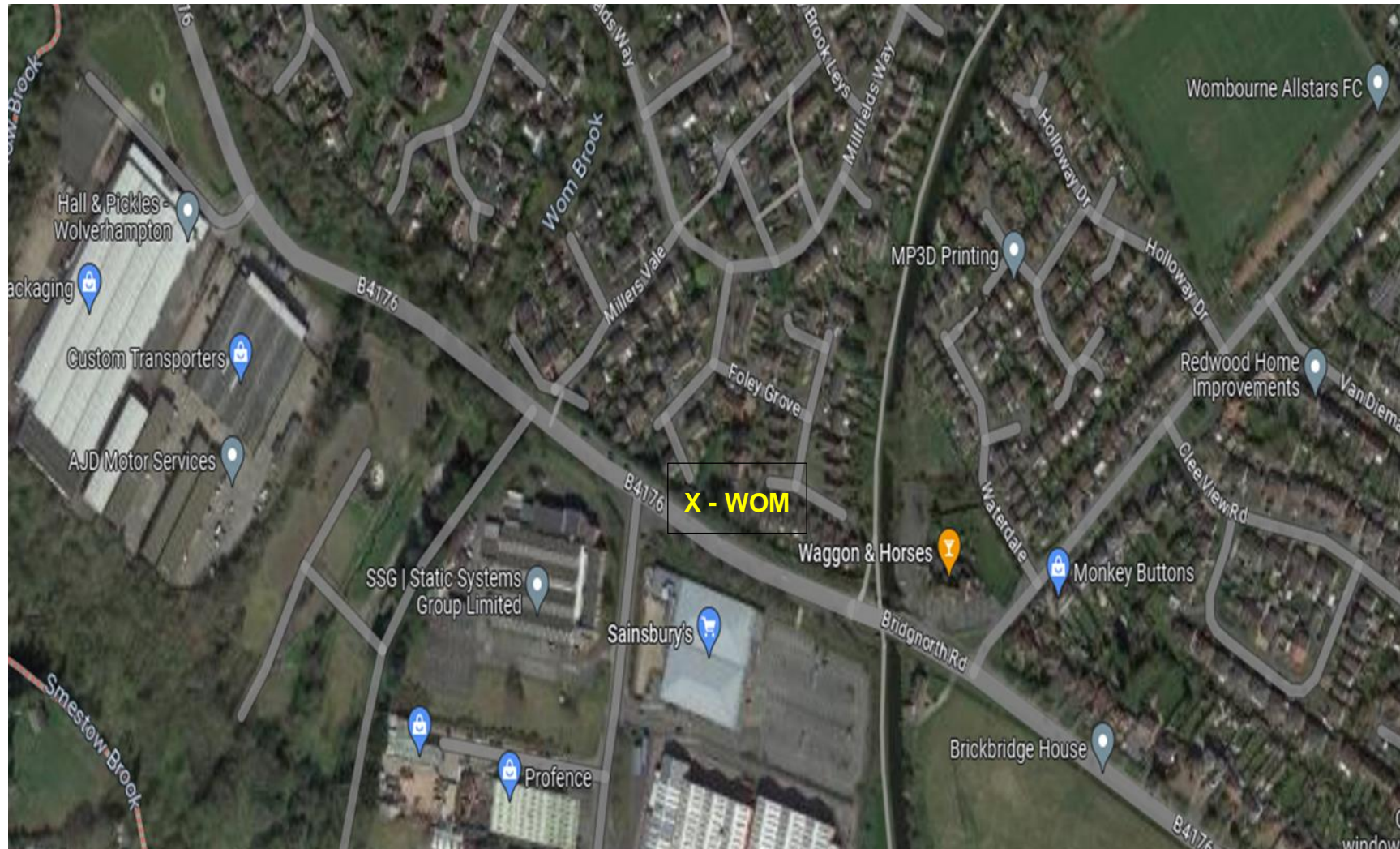






AQMA No.5 – Oak Farm, Hatherton

This area is located along the A5 between junction 12 of the M6 and Cannock.







Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁶

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO ₂)	200µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO ₂)	40µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM ₁₀)	40µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO ₂)	125µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO ₂)	266µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

⁶ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Appendix F: ASR Endorsement

Annual Status Report (ASR) 2023 - Air Quality

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

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

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

The Air Aware project “phase 2” ran until March 2023 with Defra Funding. The Air Aware project continues with joint funding from Staffordshire Public Health and Connectivity Teams to March 2025. The project delivers behaviour change to increase active travel, decrease car use, and raise awareness of air quality issues through five elements. These are business and school engagement, communications and campaigns, electric vehicles, and air quality monitoring in three targeted locations, Burton, Leek, and Cannock. Campaigns include Anti-Idling, walking and cycle activities and Clean Air Day. These have been countywide engaging a large number of businesses and schools. The programme focuses on reducing levels of NO and PM, which are monitored at key locations.

A number of the Staffordshire Authorities are currently involved in implementing measures to reduce levels of NO₂ within their areas, which are detailed elsewhere in their ASR. Since the update of the Environment Act 2021 there is now a statutory duty imposed on Local Authorities in England

to reduce PM2.5, a number of the measures are complementary with those being undertaken to reduce NOx. 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 PM2.5 within the County. These can be viewed in Table 2.4

In addition, Levelling up Fund 2 Schemes will improve a number of major roads around the county, reduce journey times, put greener, cleaner buses on main roads, improve walking and cycling routes and reduce the impact of housing and commercial developments. They will benefit East Staffordshire, Cannock Chase, and Stafford Borough. Total package cost circa £20m.

Finally, 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

[6th June 2023]

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022.
Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022.
Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.