South Staffordshire Council

2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: September 2021

South Staffordshire Council

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Report Reference Number	WG/ASR2021
Date	September 2021

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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 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

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 NO_2 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 now only 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

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

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

[3] Defra. Air quality appraisal: damage cost guidance, July 2020

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

It should be noted that this AQMA has levels of nitrogen dioxide within the objective levels where it has now remained for over 5 years.

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 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

- Housing allocation:
  - 160 East of Codsall with another 200 on safeguarded land.
  - 200 North of Penkridge (currently awaiting appeal decision outcome)
  - 80 East of Penkridge (subject to appeal)

Levels of NO_2 over the district remain below objective level.

The air quality within our district is of a good standard. However, we acknowledge that traffic does contribute to elevated levels of particulate matter and NO_2 within our AQMA, however it should be noted that levels are within objective.

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

We acknowledge that 2020 has seen an anomaly in terms of air quality with the COVID - 19 pandemic having an effect by reducing road traffic for a period during lockdowns. This of course had an impact on NO_2 levels. Also, there was a period whereby tube data was not collected as officers were not out and about during lockdown to collect the tubes and put them back out and therefore this year the data was incomplete and has had to be annualised which may not present an entirely accurate picture of the air quality during this time. Both raw data and annualised data again demonstrate levels below objective which is what would be expected.

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We have therefore decided to treat the results from 2020 with caution, and make specific conclusions from 2020 data.

Actions to Improve Air Quality

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

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

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.

The tubes over the district have been retained with some additional new tubes added following local concerns and advisement from air quality consultants that were brought in for the planning application of the interchange development. Due to concern by local residents and councillors a tube was left in place (SA2) in the old Wedges Mills AQMA to continue to monitor NO_2 at the location to ensure levels remain below objective.

All tubes demonstrate NO_2 levels to be below objective both before and following bias adjustment.

A tube within Featherstone FE3 and one in Cheslyn Hay (CH1) were taken down as the were missing on a frequent basis. The NO_2 levels within these areas is also well below objective.

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[5] Defra. Clean Air Strategy, 2019

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

Following advice from our air quality consultants and the need to begin looking at $PM_{2.5}$, we have purchased a dust monitor. Following training for the officers it will be located out on the district shortly. $PM_{2.5}$ with be considered due to the health impacts noted by DEFRA with it's links to the Public Health Outcomes Framework.

Further investigation will take place to look at the risk of two poultry farms in the district at Pilaton and Hatherton to determine the risk of PM_{10} 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 PM_{10}. 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.

Our AQMesh equipment that hasn't really worked for us has now been taken down. We are looking to get it repaired and put up again shortly. It has been decided that the equipment will be located for a time on the old real time analyser cabinet. This is for a number of reasons:

1. Officers can access the kit easily themselves if there are any problems.

2. It can be used in response to complaints regarding the incinerator in Cheslyn Hay as according to wind rose data it is in the path of the predominate wind direction from the incinerator.

Conclusions and Priorities

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

It is planned to renew and update the action plan due to the changes happening in the monitoring, the addition of new monitoring equipement and the recent revocation of AQMA's within the district. This has been hindered due to the limited resources within the team and the COVID-19 pandemic placing additional pressures on the team.

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 and the implementation of the AQMesh.

We will continue in signing up companies to our ECOStars scheme over this and neighbouring districts.

There has been no breach of objective level for NO_2 over the district in 2020, however as previously stated this years data will be treated with caution due to the extenuating circumstances surrounding COVID-19.

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. It was in response to concern from the parish council of Cheslyn Hay with the traffic and incinerator that we purchased the AQMesh and put in additional tubes around the area.

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1 Local Air Quality Management

This report provides an overview of air quality in South Staffordshire during 2020. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

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

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by South Staffordshire Council can be found in Table 2.1. The table presents a description of the AQMA that is currently designated within South Staffordshire Council. Appendix D: Map(s) of Monitoring Locations and AQMAs 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:

- NO_2 annual mean

Table 2.1 – Declared Air Quality Management Area

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	Name and Date of AQAP Publication	Web Link to AQAP
AQMA Oak Farm	Declared 2008	NO$_2$ Annual Mean	An area encompassing one residential property along the A5 opposite a truck stop.	YES	39.3µg/m^3	20.9µg/m^3	Air Quality Action Plan 2008.	

☒ **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.**

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

Defra's appraisal of last year's ASR demonstrated that the report was accepted and concluded that our revoked AQMA's needed full revocation orders to officially cease. Therefore, this coming year we will look to get the official revocation orders for these AQMA's officially signed off.

South Staffordshire 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. 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 2020 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: Use of the AQMesh equipment to identify any potential impact from the incinerator in Cheslyn Hay. Utilisation of the new dust monitor equipment in relation to the two chicken farms on district and the numerous quarries. It is hoped that the air quality action plan will also be updated. South Staffordshire Council's priorities for the coming year are to begin looking at Particulate Matter over the district with attention on PM_{10} and $PM_{2.5}$.

The principal challenges and barriers to implementation that South Staffordshire Council anticipates facing are again resource restricted coming out of the Covid-19 pandemic. A period of unprecedented change and additional pressures on the Council as a whole.

Progress on the following measures has been slower than expected due to a lack of resources. The Covid-19 pandemic brought untold pressure on the little resources that were already under pressure. 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.

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	ECO Stars Scheme	Vehicle Fleet Efficiency	Drive training and ECO driving aids	2014	South Staffordshire Council, DEFRA, SAQF councils: Stafford, Cannock, Stoke, Lichfield, Newcastle, Tamworth, East Staffs.	DEFRA grant.	AQMA levels below objective		Ongoing. Levels of NO2 are below objective in Oak Farm AQMA.	Ongoing	
2	Continued Integration with planning system	Policy Guidance and Development Control	Air Quality planning and policy guidance	Ongoing	South Staffordshire Council				Ongoing	Ongoing	
3	Continue close working with SAQF	Policy Guidance and Development Control	Air Quality planning and policy guidance	Ongoing	SAQF Councils: Stafford, Cannock, Stoke, Lichfield, Newcastle, Tamworth, East Staffs.				Ongoing	Ongoing	
4	Regulation of industrial processes under the Environmental Permitting Programme to control emissions to air	Environmental Permits	Other	Ongoing	South Staffordshire Council				Ongoing	Ongoing	

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) D01 Fraction of mortality attributable to particulate air pollution (2019), Public Health Outcomes Framework indicator [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 5.1%of all deaths can be attributed to exposure to PM$_{2.5}$, compared to 5.1% across England (25,120 deaths annually)[5]. 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

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).

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[5] Public Health England. Public Health Outcomes Framework 1th June 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
[6] ['Every Breath we Take: The Lifelong Impact of Air Pollution; Report of a working Party, February 2016, ISBN 978-1-86016-567-2],

Table 2.3 Annual Mean PM_{10} and $PM_{2.5}$ results of monitoring by Staffordshire Authorities 2016 to 2020

Annual Mean PM10 and PM2.5 Results from monitoring Staffordshire Authorities 2016- 2020					Year				
Authority	Site Type	Monitor Location	OS Grid Ref		2016	2017	2018	2019	2020
Newcastle under Lyme	Roadside	Queen`s Gardens	E385057	PM_{10}	(5)	(5)	(5)	(5)	(5)
			N346137	$PM_{2.5}$	(5)	(5)	(5)	(5)	(5)
Cannock Chase	Roadside	Cannock A5190	E401392 N309954	PM_{10}	-	14	18	16	(6)
				$PM_{2.5}$	-	9.8	12.6	11.2	(6)
Stoke on Trent	Roadside	Basford	E386288	PM_{10}	-	23	23	23	17
			N346802	$PM_{2.5}$	-	16[1]	16[1]	16[1]	12[1]
	Roadside	A50 Roadside Meir	E392548 N342572	PM_{10}	20[2]	18	19	20	(3)
				$PM_{2.5}$	14[2]	13[1]	13[1]	14[1]	(3)
	Urban Background	Stoke on Trent Central	E388351 N347895	$PM_{2.5}$	12	9	9	9	7
East Staffordshire	Roadside	Derby Tum	E424671 N324019	PM_{10}	(4)	(4)	(4)	(4)	(4)
				$PM_{2.5}$	(4)	(4)	(4)	(4)	(4)

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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/m3.

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 D01[5], 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 2019 is the latest data available at time of publication of this report. Approximately 5.1% of deaths within the County can be attributed to PM$_{2.5}$.

Figure 1 Estimated average number of deaths by local authority area attributable to PM2.5 within Staffordshire for adults over 30   2015 to 2019

District/County	Percentage
Newcastle-under-Lyme	4.4%
Stafford	4.6%
East Staffordshire	5.1%
South Staffordshire	4.8%
Lichfield	5.0%
Staffordshire Moorlands	4.2%
Cannock Chase	4.9%
Tamworth	5.3%
Stoke on Trent	4.7%
Staffordshire County	4.7%
England	5.1%

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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 2015 to 2019[5]

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 2015 to 2019[7] * Fraction of annual all-cause adult mortality attributable to anthropogenic (human-made) particulate air pollution (measured as fine particulate matter, PM$_{2.5}$*)															
	2015			**2016**			**2017**			**2018**			**2019**		
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	4.2	50	1291	4.7	60	1197	4.2	50	1334	4.2	60	1282	4.9	60
Stafford	60	4.7	60	1254	4.8	60	1267	4.3	50	1336	4.2	60	1315	4.9	60
East Staffordshire	55	4.8	50	1065	5.6	60	1098	5.0	50	1093	4.6	50	1128	5.3	60
South Staffordshire	55	4.7	60	1128	5.1	60	1239	4.5	60	1211	4.6	60	1212	5.1	60
Lichfield	50	4.6	50	1044	5.5	60	1070	4.9	50	1087	4.6	50	1093	5.2	60
Staffordshire Moorlands	45	4	40	1110	4.6	50	1127	3.9	40	1108	3.8	40	1080	4.8	50
Cannock Chase	45	4.6	40	879	5.4	50	940	4.7	40	976	4.6	50	908	5.2	50
Tamworth	30	4.9	30	615	6	40	634	5.3	30	653	5.1	30	678	5.6	40
Stoke on Trent	2479	4.9	110	2454	5.0	120	2490	4.4	110	2746	4.4	120	2490	5.2	130
Staffordshire County	390	4.5	390	8386	5.2	430	8572	4.5	390	8792	4.4	390	8692	5.1	440

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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 N0$_2$ 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 2.4 below;

< Local Authority Name> is taking the following measures as outlined in Table 2.4 and section 2.3.4 in conjunction with our partners at the county council and other partners identified in the table to address PM$_{2.5}$.

Table 2.4 Actions being taken within Staffordshire to reduce PM$_{2.5}$

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 linkded 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 within the AQMA. Live labs monitoring work linked to congestion in Burton.	LDC is liaising with Midlands Connect to increase volume of traffic using M6 Toll to reduce congestion on the A5 as well as lobbying Highways England to upgrade the A38 & A5 to expressways.		UTC in Tamworth Town Centre at Ventura Park
	Reduction of speed limits, 20mph zones	low	✓			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	✓					M6 Toll	M6 Toll	
	Anti-idling enforcement	low	✓	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	✓	https://www.staffordshire.gov.uk/Business/Workplace-health/Active-travel-and-air-quality-in-the-workplace.aspx						
	Encourage / Facilitate home-working	low	✓			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/Education/Schooltransport/Active-school-travel/Travel-to-School-Action-Plans-September-2020.aspx						
	Promotion of cycling	low	✓	https://www.staffordshire.gov.uk/Transport/transportplanning/Walking-and-cycling.aspx					South Staffordhire Cycling Scheme	Same as other Staffs authorities
	Promotion of walking	low	✓	https://www.staffordshire.gov.uk/Transport/transportplanning/Walking-and-cycling.aspx					Walking for health scheme	Same as other Staffs authorities
	Staffordshire Share a Lift Scheme		✓	Staffordshire share a lift scheme "on hold" during 2020/21 - under current procurement exercise, new contract to start Sept/Oct 2021.						

				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 recently completed.	Lichfield Trent Valley access for all works recently completed including lifts.	Brinsford Park and Ride - Parkway Station business case ongoing	
	Promote use of rail and inland waterways	medium	✓							

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
Transport Planning & Infrastructure	**Local Transport Plans and District Strategies**	high	✓	https://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 will be multi-modal	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	Parkway station will be multi- modal	Planned improvements at Tamworth station
	Public cycle hire scheme	low	✓		e-scooter trials	e-scooter trials				
	Cycle network	low	✓	https://www.staffordshire.gov.uk/Transport/cycling/cyclemaps.aspx						

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Measures category	Measure Classification	Effect on reducing NOx and PM10 emissions (low, medium, high)	Reduces PM2.5 emissions	Staffordshire Moorlands DC	Newcastle under -Lyme BC	Stafford BC	East Staffs BC	Lichfield DC	South Staffs DC	Tamworth BC
	Bus route improvements	high	✓	Potential bus stop upgraded in Cheadle Town Centre	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	Corporation Street interchange improvements planned for future delivery
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	✓	✓		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		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 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
IIII	Planning Guidance for developers		✓	In development		http://www.staffordbc.gov.uk/planning/planning-policy/supplementary-planning-policy-documents ✓	Informal guidance inplace		Sustainable Development	https://www.tamworth.gov.uk/sites/default/files/planning_docs/Tamworth_Design_SPD_July_2019_v1-0.pdf

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	Developer Contributions based on damage cost calculation		✓					Damage cost assessment now required for applicable applications.		
	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	[Supplimentary 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						

n	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
Freight and Delivery	**Freight Consolidation Centre**	medium	✓							

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Management	**Route Management Plans/ Strategic routing strategy for HGV's**	high	✓							
	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	✓		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/Transport/transportplanning/localtransportplan/home.aspx

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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
Promoting low emission transport	Low emission zone (LEZ) Clean Air Zone (CAZ)	high	✓							
	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				LDC looking to replacing old vehicles within the fleet with more modern cleaner vehicles, which comply with the prevailing EURO standard. This will be extended to all Council owned vehicles.		
	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	high	✓	In development		Procurement of EV on staff carparks				
	Priority parking for LEV's	high	✓			✓		Electric Vehicle charging spaces		
	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 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	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		✓	-	-	✓				

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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. This has been delayed due to the Covid Pandemic

✓To agree a target for reducing Fraction of All Cause Mortality from PM$_{2.5}$ in each district, city and county authority by 2020 this was delayed due to disruption caused by the Covid Pandemic

✓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/m3

✓ To include Public Health Outcome Framework Indicator D01 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. this was delayed due to disruption caused by the Covid Pandemic

✓ 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

This section sets out the monitoring undertaken within 2020 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 2016 and 2020 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

South Staffordshire Council no longer undertakes automatic (continuous) monitoring.

3.1.2 Non-Automatic Monitoring Sites

South Staffordshire Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 17 sites during 2020, this was reduced to 15 by the end of the year. The 2 tubes taken down were FA1 and CH1. Both tubes were one of three in the area and were taken down simply due to the fact that they were missing more often than not every month when they were due to be replaced. As levels of NO_2 in the area were low it was felt that the tubes could be removed. This coming year we may look for alternate locations for these tubes. 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), are included in Appendix C.

There were no exceedances of the objective levels in 2020 across the district which is not unexpected due to the reduction in traffic over lockdowns along with less work traffic in general over the year with many working from home due to COVID-19.

3.2 Individual Pollutants

All of the air quality monitoring results presented in this section has been adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 33%), and distance correction (if appropriate). Further details on adjustments are provided in Appendix C.

3.2.1   Nitrogen Dioxide (NO$_2$)

Error! Reference source not found. and Table A.2 in Appendix A compare the ratified and adjusted monitored NO$_2$ annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2020 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 of the air quality objective level for the annual mean over the district during 2020. As previously stated, it is felt due to the Covid-19 pandemic creating unusual and one-off situation through out the UK that the 2020 results will be treated cautiously and as an anomaly. Therefore, no conclusions will be drawn from the limited 2020 monitoring data.

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	Adjacent	1	No	3
PE2	PE2	Roadside	393177	313866	NO$_2$	No	10	11	No	3
SA2	SA2	Roadside	396716	308742	NO$_2$	No	Adjacent	2	No	3
FA1	FA1	Roadside	391191	307871	NO$_2$	No	Adjacent	1	No	3
COD1	COD1	Roadside	387023	303197	NO$_2$	No	Adjacent	3	No	3
SCH1	SCH1	Roadside	397232	307107	NO$_2$	No	Adjacent	10	No	3
CH1	CH1	Roadside	397321	307061	NO$_2$	No	Adjacent	1	No	3
CH2	CH2	Roadside	397983	307148	NO$_2$	No	Adjacent	1	No	3
FE1	FE1	Roadside	394368	305411	NO$_2$	No	Adjacent	2	No	3
FE2	FE2	Roadside	394451	305497	NO$_2$	No	10	2	No	3
FE3	FE3	Roadside	394453	305439	NO$_2$	No	Adjacent	2	No	3
PE1	PE1	Roadside	392259	314020	NO$_2$	No	Adjacent	1	No	3
COV1	COV1	Roadside	391588	304602	NO$_2$	No	Adjacent	1	No	3
HUN1	HUN1	Roadside	397256	313004	NO$_2$	No	Adjacent	1	No	3
HUN2	HUN2	Roadside	397280	313058	NO$_2$	No	Adjacent	1	No	3
ES1	ES1	Roadside	396312	303815	NO$_2$	No	Adjacent	1	No	3
PEN1	PEN1	Roadside	389597	303857	NO$_2$	No	Adjacent	1	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 2020 (%) [2]	2016	2017	2018	2019	2020
HA2	393177	313866	Roadside	100	67	37.9	33.3	33.2	34.2	20.9
PE2	396716	308742	Roadside	100	67	31.1	25.4	28.7	30.0	17.6
SA2	391191	307871	Roadside	100	67	32.6	29.1	29.4	30.3	20.7
FA1	387023	303197	Roadside	100	67	-	-	-	25.3	16.6
COD1	397232	307107	Roadside	100	58	-	-	-	17.6	10.2
SCH1	397321	307061	Roadside	100	67	-	-	-	17.5	12.5
CH1	397983	307148	Roadside	100	33	-	-	-	26.8	23.4
CH2	394368	305411	Roadside	100	58	-	-	-	21.8	13.6
FE1	394451	305497	Roadside	100	67	-	-	-	27.1	18.3
FE2	394453	305439	Roadside	100	67	-	-	-	36.1	23.8
FE3	392259	314020	Roadside	100	33	-	-	-	28.8	16.1
PE1	391588	304602	Roadside	100	67	-	-	-	-	14.8
COV1	397256	313004	Roadside	100	67	-	-	-	-	22.8
HUN1	397280	313058	Roadside	100	67	-	-	-	-	12.5
HUN2	396312	303815	Roadside	100	67	-	-	-	-	12.8
ES1	389597	303857	Roadside	100	67	-	-	-	-	16.2
PEN1	393177	313866	Roadside	100	58	-	-	-	-	10.5

☒ **Annualisation has been conducted where data capture is <75% and >33% in line with LAQM.TG16**

☒ **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.TG16 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

Annual Mean Notrogen Dioxide Levels - 5 Year Trend Analysis AQMA 5 Oak Farm

Annual Mean Nitrogen Dioxide Levels - 5 Year Trend Analysis for tubes SA 2 and PE2
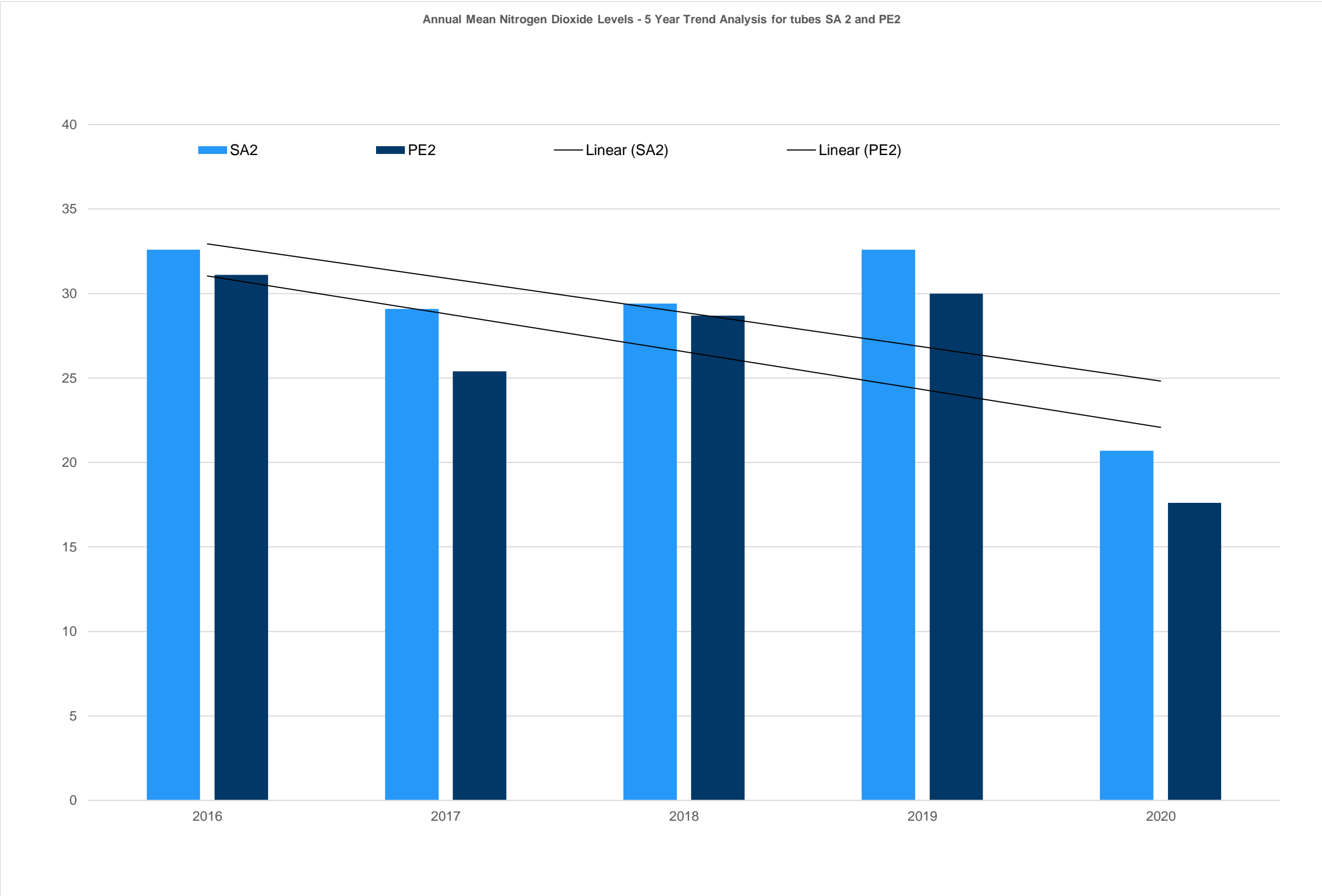
Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO₂ 2020 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.85)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
HA2	393177	313866	38.2	28.0	-	-	-	-	22.3	28.5	29.9	27.3	32.9	22.8	28.7	24.4		
PE2	396716	308742	26.5	19.3	-	-	-	-	14.1	25.7	25.9	24.1	29.0	29.4	24.3	17.6		
SA2	391191	307871	36.8	30.6	-	-	-	-	17.8	24.8	26.8	26.1	32.2	32.6	28.5	24.2		
FA1	387023	303197	27.3	22.3	-	-	-	-	15.4	19.5	23.2	22.5	26.1	27.0	22.9	19.5		
COD1	397232	307107	16.6	13.2	-	-	-	-		11.5	13.8	12.5	19.7	17.1	14.9	12.7		
SCH1	397321	307061	22.9	17.4	-	-	-	-	9.5	12.4	16.0	17.6	22.1	20.2	17.3	14.7		
CH1	397983	307148			-	-	-	-	16.8	30.2	27.9	22.3			24.3	20.7		
CH2	394368	305411	21.3		-	-	-	-	9.3	17.1	17.7	17.5	23.9	23.3	18.6	15.8		
FE1	394451	305497	28.9	32.1	-	-	-	-	11.8	25.8	24.7	23.0	25.5	29.8	25.2	21.4		
FE2	394453	305439	37.0	35.5	-	-	-	-	25.4	31.3	35.5	31.5	35.9	32.2	33.0	28.1		
FE3	392259	314020	25.3		-	-	-	-	15.0		21.9	18.4			20.2	17.1		
PE1	391588	304602	23.8	23.2	-	-	-	-	14.6	20.4	14.3	14.1	27.1	25.3	20.4	17.3		
COV1	397256	313004	44.6	33.4	-	-	-	-	20.2	27.5	29.3	30.2	36.7	29.6	31.4	26.7		
HUN1	397280	313058	21.0	16.1	-	-	-	-	9.0	15.8	15.9	15.8	23.3	21.2	17.3	14.7		
HUN2	396312	303815	20.3	16.5	-	-	-	-	10.1	17.7	16.2	17.4	23.0	19.6	17.6	15.0		
ES1	389597	303857	23.4	23.4	-	-	-	-	13.4	19.6	22.7	23.2	25.6	26.9	22.3	18.9		
PEN1	393177	313866	14.7	107	-	-	-	-	6.4	13.8		20.5	19.2	18.4	14.8	12.6		

☒ **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 >33% in line with LAQM.TG16**

☒ **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 2020 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**.
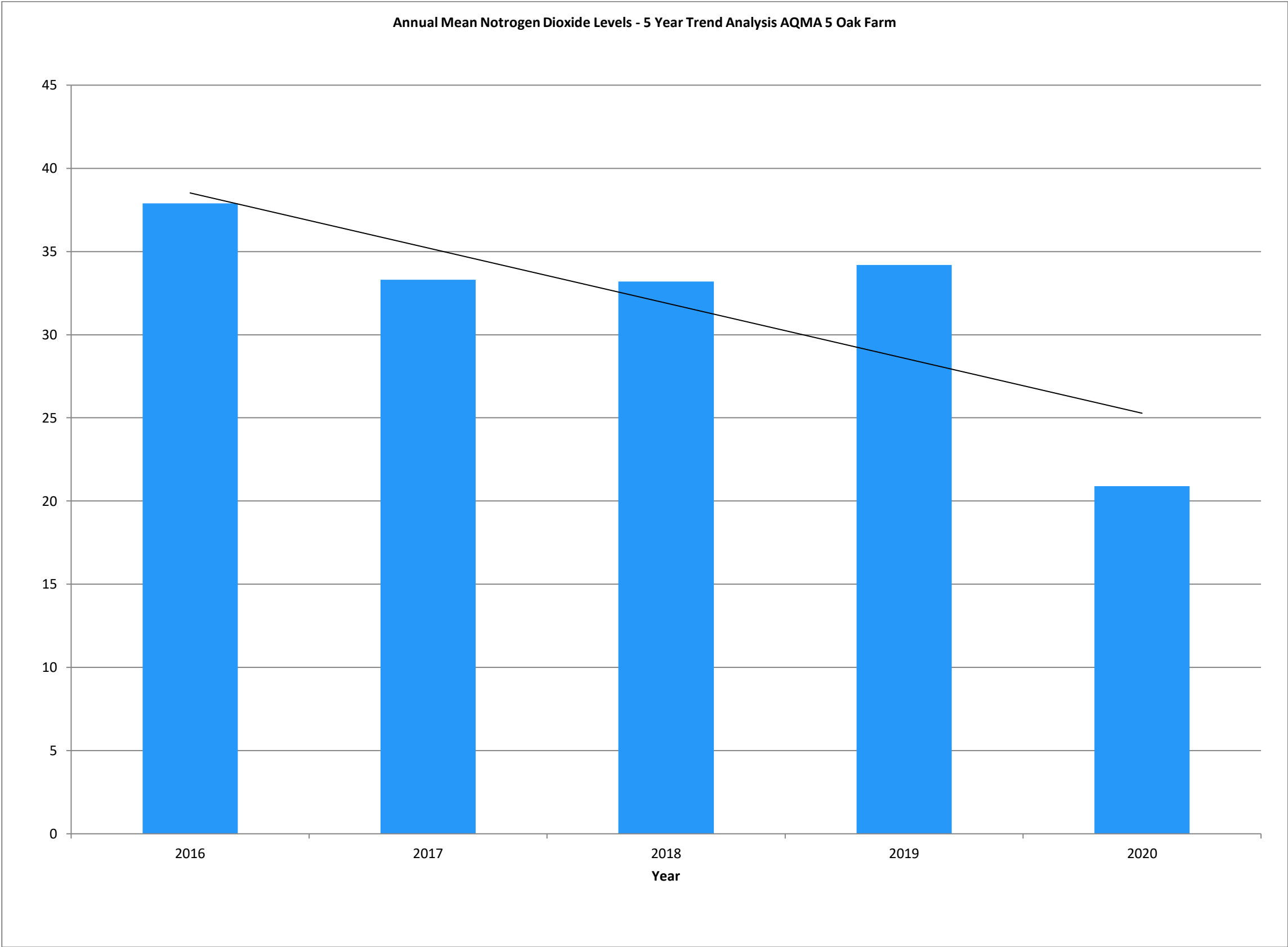
See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within South Staffordshire Council During 2020

South Staffordshire Council has not identified any new sources relating to air quality within the reporting year of 2020.

Additional Air Quality Works Undertaken by South Staffordshire Council During 2020

South Staffordshire Council has not completed any additional works within the reporting year of 2020.

QA/QC of Diffusion Tube Monitoring

As for previous years Staffordshire Scientific Services have prepared and analysed our tubes within 2020 and the method of preparation is 20% TEA in water.

During 2020 monitoring was suspended from March to June due to CODIV-19 and therefore annualization has had to be calculated on the data for 2020. The diffusion tubes calendar was adhered to.

Quality Assurance and Control is undertaken within the AIR NO_2 Proficiency Testing Scheme. This was started in April 2014 and combines the LGC Standards STACKS and the HSL WASP schemes.

Staffordshire County Council Scientific Service has demonstrated results which were considered to be GOOD for precision. Between 75-100% SATISFACTORY for data provided.

The national bias adjustment factor was used on the tubes data as we no longer have triplicate tubes to use and contribute to the local adjustment. Those authorities using the same laboratory and technique to analyse the tubes we feel that this is the most appropriate choice. In bias adjustment factor was 0.85 was used from sheet 06/21.

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Diffusion Tube Annualisation

Due to CODIV-19 restrictions and lockdown the tubes were not collected from March to June 2020 and therefore annualization was performed on all data with the annualization tube tool provided by DEFRA.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2020 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.TG16 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

South Staffordshire Council have applied a national bias adjustment factor of 0.85 to the 2020 monitoring data. A summary of bias adjustment factors used by South Staffordshire Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	National	06/21	0.85
2019	National		0.93
2018	National		0.87
2017	National		0.88
2016	National		0.88

NO_2 Fall-off with Distance from the Road

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

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No diffusion tube NO_2 monitoring locations within South Staffordshire Council required distance correction during 2020.

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Table C.2 – Annualisation Summary (concentrations presented in µg/m³)

Diffusion Tube ID	Annualisation Factor Walsall Woodlands	Annualisation Factor Stoke on Trent Centre	Annualisation Factor Site 3 Name	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m3)	Annualised Data Simple Annual Mean (µg/m3)	Comments
HA2	0.8863	0.8213			0.8538	28.7	24.5	
PE2	0.8863	0.8213			0.8538	24.3	17.6	
SA2	0.8863	0.8213			0.8538	28.5	24.3	
FA1	0.8863	0.8213			0.8538	22.9	19.6	
COD1	0.8305	0.7805			0.8055	14.9	12.0	
SCH1	0.8863	0.8213			0.8538	17.3	14.7	
CH1	1.2210	1.0491			1.1351	24.3	27.6	
CH2	0.8956	0.8253			0.8604	18.6	16.0	
FE1	0.8863	0.8213			0.8538	25.2	21.5	
FE2	0.8863	0.8213			0.8538	32.8	28.0	
FE3	1.0419	0.8434			0.9426	20.2	19.0	
PE1	0.8863	0.8213			0.8538	20.4	17.4	
COV1	0.8863	0.8213			0.8538	31.4	26.8	
HUN1	0.8863	0.8213			0.8538	17.3	14.7	
HUN2	0.8863	0.8213			0.8538	17.6	15.0	

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ES1	0.8863	0.8213			0.8538	22.3	19.0	
PEN1	0.8685	0.8064			0.8375	14.8	12.4	

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

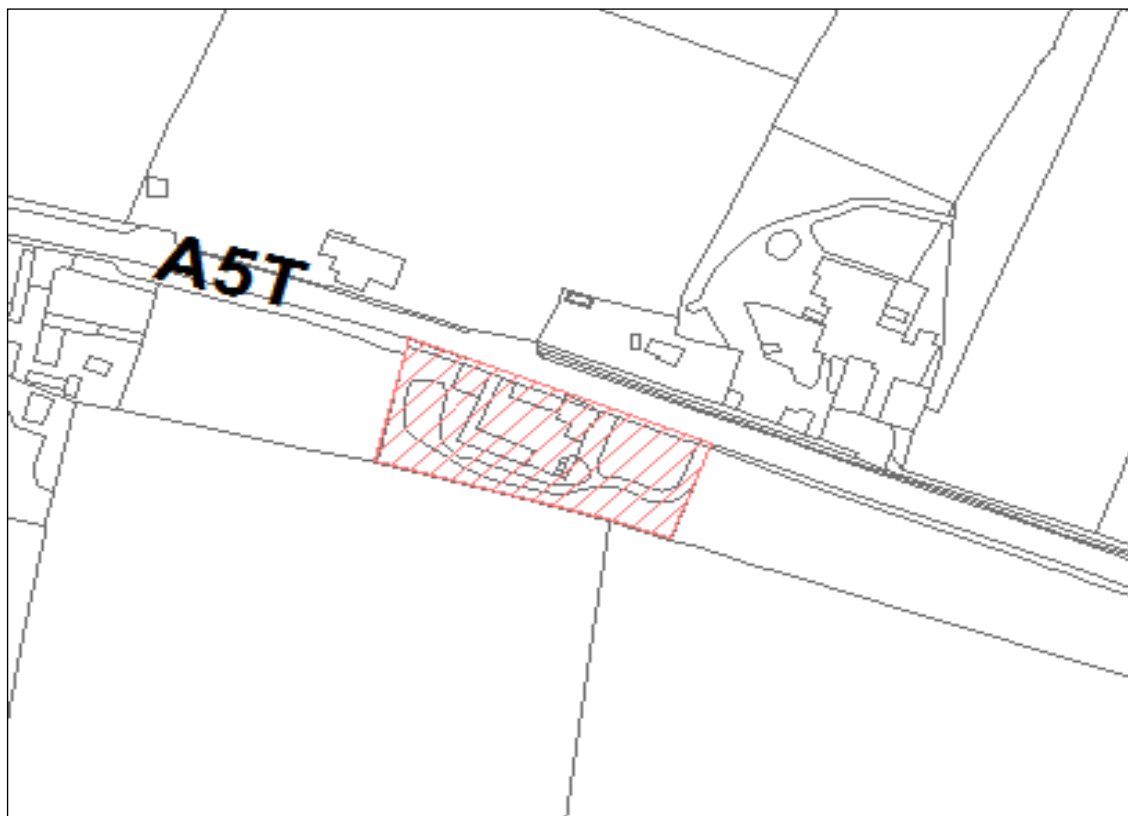**Figure D.1 – Map of Non-Automatic Monitoring Site**

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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 England[7]

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

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

Appendix F: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year. Recognising this, Defra provided various advice updates throughout 2020 to English authorities, particularly concerning the potential disruption to air quality monitoring programmes, implementation of Air Quality Action Plans (AQAPs) and LAQM statutory reporting requirements. Defra has also issued supplementary guidance for LAQM reporting in 2021 to assist local authorities in preparing their 2021 ASR. Where applicable, this advice has been followed.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[8] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)[9] has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

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[8] Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

[9] Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

represents an absolute reduction of between 10 to 20µg/m^3 if expressed relative to annual mean averages. During this period, changes in PM$_{2.5}$ concentrations were less marked than those of NO$_2$. PM$_{2.5}$ concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that PM$_{2.5}$ concentrations during the initial lockdown period are of the order 2 to 5µg/m^3 lower relative to those that would be expected under business-as-usual conditions.

As restrictions are gradually lifted, the challenge is to understand how these air quality improvements can benefit the long-term health of the population.

Impacts of COVID-19 on Air Quality within South Staffordshire Council

There were no identifiable impacts as a consequence of COVID-19 upon air quality within 2020 due to CODVID-19. This is due to the fact the we have very little data from the tubes as they were no collected and put out from March to June and therefore were annualised. With this in mind we have not drawn any conclusions from 2020 data and are treating it with caution.

Opportunities Presented by COVID-19 upon LAQM within South Staffordshire

No LAQM related opportunities have arisen as a consequence of COVID-19 within South Staffordshire.

Table F 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: High
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

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 Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10μm 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.TG16. April 2021. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.