Tamworth Borough Council

2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: November 2022

Endorsement from the Director of Health & Care Staffordshire County Council

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

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

Dr Richard Harling

Director of Health and Care
Staffordshire County Council
[1 June 2022]

Information	Tamworth Borough Council Details
Local Authority Officer	Susan Timmis
Department	Environmental Health
Address	Marmion House, Lichfield St, Tamworth, B79 7BZ
Telephone	01827 709445
E-mail	environmentalmanagement@tamworth.gov.uk
Report Reference Number	TBC/ASR/22
Date	November 2022

Executive Summary: Air Quality in Our Area
Air Quality in Tamworth Borough Council

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

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

In the Tamworth Borough Council area, the main pollutant of concern is nitrogen dioxide which is emitted as a product of combustion from heating sources and especially road vehicles. It follows that the areas of greatest interest in terms of air quality are dwellings close to busy roads or busy junctions, particularly where these are prone to congestion or where the streets are narrow and the houses are close to the carriageway and residential areas close to point sources of combustion such as chimneys serving large boiler plant.

Since 2006 monitoring undertaken by the Council had identified one particular busy junction (the Two Gates crossroads, Dosthill) was showing concentrations of nitrogen dioxide that were very close to the health based standard (called the Air Quality Objective) for nitrogen dioxide, the monitoring intensified and in 2011 it was concluded that certain properties located close to this crossroads were at risk of exceeding the annual mean air quality objective for nitrogen dioxide. In 2012 a specialist firm of air quality consultants, Ricardo-AEA undertook a detailed assessment that involved modelling the pollution concentrations. As a result the council declared an Air Quality Management Area (AQMA) at Two Gates in May 2014. An Air Quality Management Area gives the area special status where relevant professionals are required to consider a range of actions to improve air quality in the affected area (an Air Quality Action Plan).

To some extent air quality issues arising from vehicle exhausts has been reducing (and throughout the borough) due to improved engine efficiency and other technical advances such as the requirement for catalytic converters. In addition, the Staffordshire County Council Highways Department, which is responsible for traffic management at this junction, made alterations to the sequence of the traffic lights at the junction. As a result there was a reduction in the nitrogen dioxide concentration which led the Council to revoke the Air Quality Management Area in March 2018, after the Council had commissioned another detailed assessment that involved remodelling the pollution concentrations (Report ref ED62310- 26 May 2016). The modelling results indicated that there were no exceedances of the annual mean NO_2 objective occurring at any residential properties within the AQMA and recommended the revocation of the Two Gates AQMA which was completed on 23rdMarch 2018.

Although the busy A5 trunk road runs through the Borough and the M42 Motorway runs close to the Borough boundary, there are no sensitive receptors (dwellings) sufficiently close to these roads, so that air quality is not considered to be an issue.

Although there have been no specific problem areas identified locally, nationally there is currently great interest in the extent that very small particles called $PM_{2.5}$ impact on public

[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

health. In line with national guidance the Council is giving consideration to this pollutant and actions that can be taken to minimise its impact.
Tamworth Borough Council continues to work with other partners to tackle Air Quality such as other Borough & District Councils, Staffordshire County Council, the Highways Authority, Director of Public Health and Public Health England and where appropriate will participate in projects to improve Air Quality.
The Council is also responsible for the regulation of a number of Part A2 and Part B industrial installations that are of significance in terms of air quality. Each process / installation is regulated under the Environmental Permitting (England and Wales) Regulations 2016 and are regularly inspected by the Council`s Environmental Health Officers to ensure they are controlling their emissions to atmosphere in accordance with national guidance. A list of processes that currently hold an Environmental Permit issued by Tamworth Borough Council (as of November 2021) is shown at Appendix F

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.
As stated above, Tamworth Borough Council has been working with partner organisations to tackle air quality, particularly in and around the Air Quality Management Area. We revoked our Air Quality Management Area in 2018 as the concentrations of nitrogen dioxide had fallen below the Air Quality Objective.
We work with the Staffordshire local authorities via the Staffordshire Air Quality Forum to discuss and participate in county wide initiatives. However we have noted that since revoking our AQMA it is only the authorities that have retained an AQMA who primarily receive the benefits of schemes and grants awarded.
Not withstanding this, we intend access to the Active Travel project to engage with children and their parents in their schools on ways to reduce our individual contributions to air pollution.

Conclusions and Priorities

The trend for the levels of Nitrogen Dioxide over the last five years as can be seen in fig A1 have been decreasing, though some of this can be attributed to the post pandemic effect of more people working from home.
The key priorities for air quality in Tamworth include the continuation of the long-term air quality monitoring program which is kept under constant review to ensure that monitoring takes place in the most relevant locations and to tackle air quality issues at source wherever possible either through regulatory controls of emissions to air from certain potentially polluting industries.
Though, the Two Gates Crossroads AQMA has been revoked, officers of the Environmental Health team will continue to consider the impact of new development on existing dwellings and

[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

ensuring that no new dwellings or other sensitive developments are constructed in areas of unacceptable air quality through the Planning system.
We moved two diffusion tubes in 2020 which had had continually low readings to new locations that we identified, which could possibly benefit from monitoring due to an increase in traffic, the two new sites are 60 High St, Dosthill(Q4) and 114 Overwoods Rd(Q1).
The tubes that are no longer being monitored due to consistently low readings are 2 Wessenden and 12 Brookside Way. The results for the new tubes Q1 & Q4 were reported for the first time in the 2020 ASR this will be their second year of readings.

Local Engagement and How to get involved

During 2021 due to the effects of the Covid 19 pandemic engagement with other bodies and the public was not developed, however we intend to participate in a National Clean air day on the 16th of June 2022 via social media, ie our website, and other social media platforms.

However going forward Tamworth wants to work with more organisations than we already do such as the West Midlands Combined Authority.
We also seek to integrate some of the activities employed to tackle Climate Change with improving local air quality. To these ends Tamworth Borough Council is exploring a number of options

- Installing up to 4 electric vehicle charging points in public car parks.
- Installing electric vehicle charging hubs for our housing tenants
- Switching nearly 20% of our Street-scene vehicles to electric when the lease expires.

Air Quality is not “someone else’s problem”. All members of the community can play a part in improving air quality. Simple steps that we can all take include making short journeys on foot or by bicycle rather than by car or using public transport. As it is often traffic congestion that exacerbates poor air quality, avoiding using vehicles at busy times can be beneficial. Car sharing for journeys to work or for the school run can reduce the number of vehicles using busy roads and junctions.
Other simple measures that can be taken include:

• Purchasing low emission vehicles and or hybrid vehicles as individuals.

• Fleet vehicles and transport companies could play a major role in the use of low emission vehicles.

• Upgrading boilers to the newest and most efficient gas condensing boilers with the lowest nitrogen dioxide and carbon dioxide emissions

• Installing renewable options such as solar panels or wind turbines (in appropriate locations).

Members of the public can play their part in improving air quality in the area by obtaining further information from Tamworth Borough Council website http://www.tamworth.gov.uk/air-quality.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Tamworth Borough Council with the support and agreement of the following officers and departments:

Richard Powell Planning Department
Paul Fletcher Regeneration Department
Mark Weston Assistant Director Assets

This ASR has been approved by:
Martin Summers Environment Portfolio holder
Tamworth Borough Council does not have a director of Public Health however Richard Harling Director of Health & Care, Staffordshire County Council has signed of section 2.3 ($PM_{2.5}$) of this ASR
Anna Millar Assistant Director for Growth & Regeneration

If you have any comments on this ASR please send them to Pollution Lead Officer at:

Environmental Protection
Environmental Health
Tamworth Borough Council
Marmion House
Tamworth
B79 7BZ

Tel: 01827 709 445

Table of Contents

Figures

Tables

1 Local Air Quality Management

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

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

Tamworth Borough Council declared an AQMA at Two Gates in May 2014, which was revoked on 23rd March 2018 after monitoring results for the area were consistently under the air quality objective standard.

Information on Tamworth`s former AQMA can be found at: https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=271.

Table 2.1 – Former Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan	
						At Declaration	Now 2021		Link
AQMA 1/2014	1st May 2014, **Revoked 23rd March 2018**	NO_2 annual mean	Tamworth	Two Gates, Dosthill, Tamworth.	YES	41.6 µg/m3	19.9 µg/m3	Two Gates Air Quality Action Plan 2015 http://www.tamworth.gov.uk/sites/default/files/environment_docs/Two%20Gates%20AQAP.pdf	

2.2 Progress and Impact of Measures to address Air Quality in Tamworth Borough Council

Defra's appraisal of last year's ASR concluded

1. Tamworth Borough Council have provided a detailed discussion relating to $PM_{2.5}$ emissions and concentrations within their jurisdiction and the wider Staffordshire County area. There is a specific reference to indicator D01 - Fraction of mortality attributable to particulate air pollution, which was compared across the County and since 2015. An extensive overview of measures designed to target $PM_{2.5}$ across Staffordshire is provided, highlighting the Boroughs contribution. This demonstrates the Councils commitment to improving air quality and public health.
2. Trends are presented in a clear graph, with a robust comparison to air quality objectives provided in the discussion.
3. The Council decommissioned two diffusion tube locations, due to consistently low concentrations, and reallocated the resources to two new monitoring locations at the start of 2020. This review and update of the Councils monitoring strategy allows for the identification of new hotspots; this is welcomed.
4. The tube at 10N was frequently missing/on the floor in 2020. If problems persist, Tamworth may want to consider more secure attachment of the tube, or even relocation. **No tubes were missing for 2021 however we will monitor the situation.**
5. Maps of monitoring locations have been included in the report, but these could be improved:
    a. Monitoring location Q10 is not featured in any maps. **This has been corrected**
    b. A large-scale map of monitoring locations within the former AQMA is provided; it would be beneficial to have additional maps showing other monitoring locations to a similar level of detail. **This is provided in fig D1**

Tamworth Borough Council has taken forward a number of direct measures during the current reporting year of 2021 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in **Error! Reference source not found.**.More detail on these measures can be found the Air Quality Strategy 2022 – 2027, and in the respective Action Plans of : TMBC Local Plan 2006 – 2031, Local Cycling & Walking Infrastructure Plan 2020 – 2030.

Key completed measures are:

Mill Lane The footway narrowed where parking places are provided, and traffic flow and speed could seem high on this route around the town centre, so extended pedestrian crossing time, dropped crossing and tactile paving has been provided.

Comberford Rd/Coton Lane – re- modelling work and design.

Corporation St The taxi rank and turning area created a significant diversion for pedestrians and crossing the road involved negotiating buses. A more direct route has been provided for pedestrians and improve crossing facilities.

The principal challenges and barriers to implementation that Tamworth Borough Council anticipates is facing it that without an AQMA there is less government funding available for air quality projects.

Tamworth Borough Council expects the following measures to be investigated/completed/progressed over the course of the next reporting year:

Completion of planning application for the proposed South Staffordshire College This will replace the college in Croft St. It will provide opportunities to promote sustainable transport as well as giving priority to pedestrian & cycle movement and facilitate and maximise the use of local transport.
It will also be designed to enable charging of plug in and other ultra low emission vehicles.

Investigation of Electric Vehicle EV charging points in 2 public car parks
Tamworth Borough Council is exploring the cost and potential of installing a number of EV chargers in two Tamworth Borough owned car parks.

Investigation into EV charging hubs for Tamworth Borough Housing tenants
Tamworth Borough Council is exploring the possibility of providing a limited number of charging points for Council tenants is being explored.

Research into the replacement of some Street-scene vehicles with electric vehicles.
The replacement of a number of vehicles at the end of their lease and their replacement with electric vehicles is being explored.

Exploration of Policy HG3 of the Local Plan Wilnecote Corridor has identified the need for a comprehensive approach to regenerating vacant or underused private property and improving the immediate environment to enhance this important transport corridor
Progress on the following measures has been slower than expected due to: the Covid 19 pandemic delaying works and as Tamworth Borough no longer has an AQMA it is not eligible for funding that is usually assigned to council`s with an AQMA.

Table 2.2a – Progress on measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated/ Actual Completion year	Organisation involved	Measure status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to implementation
1	Promotion of walking reduction in vehicle use in Tamworth	Alternatives to private vehicle use	Other	2019	Ongoing	Tamworth Borough Council & SCC	Planning	Reduced vehicle emissions	Length of new foot paths	Planning phase	LAs with AQMAs are prioritised for SCC funded projects that assist schools with alternative modes of travel. We have no AQMA
2	Promotion of car sharing reduction in vehicle use in Tamworth	Alternatives to private vehicle use	Other	2019	Ongoing	Tamworth Borough Council & SCC	Planning	Reduced vehicle emissions	Decrease in car journeys	Implementation ongoing	SCC, https://share-a-lift.co.uk/ Put on hold due to the Covid 19 Pandemic
3	Promotion of Cycling	Alternatives to private vehicle use	Other	2019	Ongoing	Tamworth Borough Council & SCC	Implementation	Reduced vehicle emissions	Length of new cycle paths	Implementation ongoing	www.staffordshire.gov.uk/Transport/cycling/cyclemaps.aspx No completion year given as ongoing initiative
4	Increase in Bus use	Alternatives to private vehicle use	Other	2019	Ongoing	Tamworth Borough Council & SCC	Planning	Reduced vehicle emissions	Number of Bus Routes	Planning phase	Put on hold due to the Covid 19 Pandemic
5	Domestic smoke control	Public Information	Via the internet	2019	Ongoing	Tamworth Borough Council	Planning	Reduced emissions	Reduction in breaches	Planning phase	No completion year given as ongoing initiative.
6	Continued Integration with planning system	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2019	Ongoing	Tamworth Borough Council	Implementation	Reduced emissions	Reduced emissions	Ongoing	No completion year given as ongoing initiative.
7	Regulation of industrial processes	Environmental Permits	Other measure through permit systems and economic instruments	2019	Ongoing	Tamworth Borough Council	Implementation	Reduced emissions	Reduced emissions	Ongoing	Tamworth only has 13 Permitted processes of which 7 are petrol stations. No completion year given as ongoing initiative.
8	EV charging points in public car parks	Promoting low emission transport	Procuring alternative refuelling infrastructure to promote EV recharging.	2021	Ongoing	Tamworth Borough Council	Planning	Reduced emissions	Reduced emissions	Planning phase	Electrical network capacity in the required areas.
9	EV charging hubs for Council tenants	Promoting low emission transport	Procuring alternative refuelling infrastructure to promote EV recharging.	2021	Ongoing	Tamworth Borough Council	Planning	Reduced emissions	Reduced emissions	Planning phase	Location viability.
10	20% electric street-scene vehicles	Promoting low emission transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2021	April 2023	Tamworth Borough Council	Planning	Reduced emissions	Reduced emissions	Planning phase	Supply chain issues due to the Covid Pandemic

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 [7] is based. The Royal College of Physicians (RCP) undertook a review in February 2016 [8] where they found that long term exposure to air pollution impairs lung function growth in children, and that outdoor exposure is linked to lung cancer in adults. Within Staffordshire it is estimated that 4.9%of all deaths can be attributed to exposure to $PM_{2.5}$, compared to 5.6% across England (31,750 deaths annually)[7]. Overall, the estimated cost to individuals and society is more than £20 billion annually for the UK.

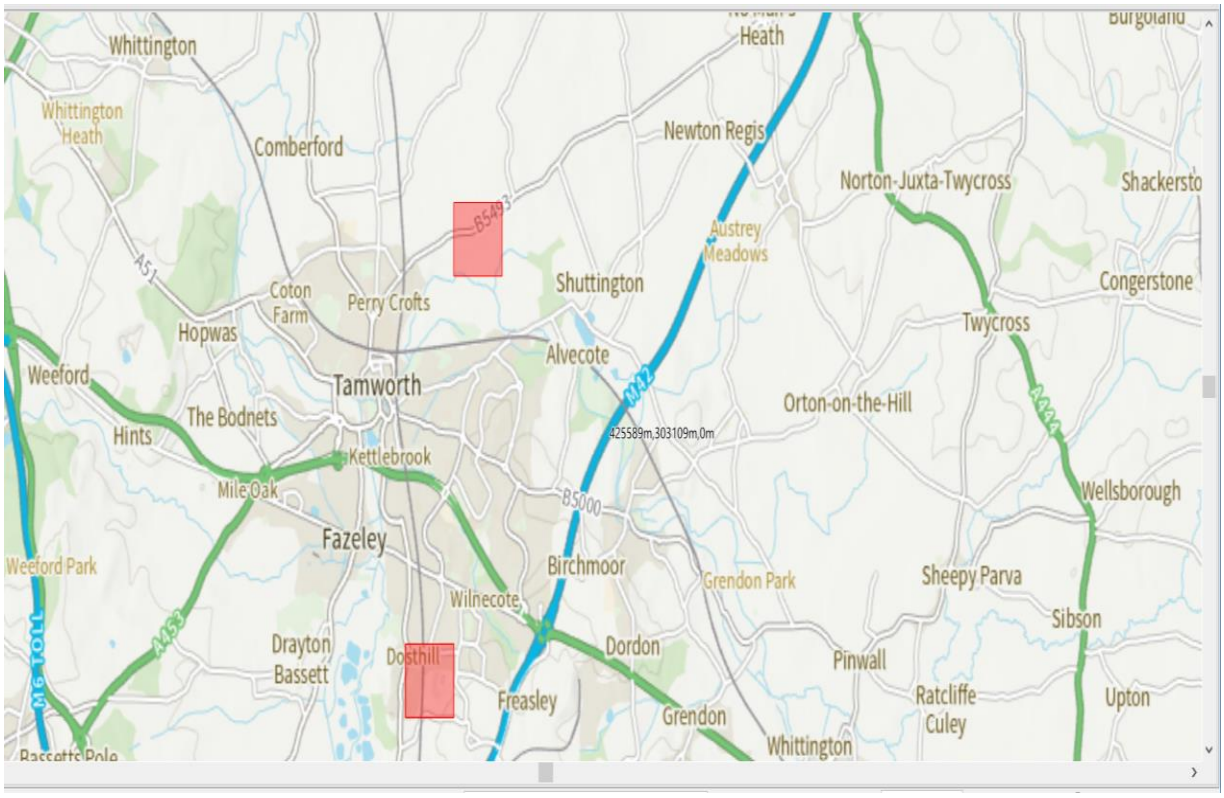
2.3.1 Particulate Matter ($PM_{2.5}$) Levels in Staffordshire and Stoke-on-Trent

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).

Tamworth Borough Council doesn`t monitor either $PM_{2.5}$ nor PM_{10} however below is a map indicating the estimated (according to Defra) maximum background annual mean $PM_{2.5}$ concentration and the minimum background annual mean $PM_{2.5}$.(source [Background Maps | LAQM (defra.gov.uk)])
The highest has a level of 10.94486 and is located in Peel Drive Wilnecote, the lowest has a level of 8.345278 and is located in Ashby Rd before Amington Old Hall.

There is currently no limit for PM2.5 in the UK.

Fig 3 Map of highest & lowest concentrations of $PM_{2.5}$ in Tamworth



[7] 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
[8] ['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 2017 to 2021

Annual Mean PM10 and PM2.5 Results from monitoring Staffordshire Authorities 2017- 2021									
Authority	**Site Type**	**Monitor Location**	**OS Grid Ref**	**(µg/m3)**	**Year**				
					2017	**2018**	**2019**	**2020**	**2021**
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)	(6)
				$PM_{2.5}$	9.8	12.6	11.2	(6)	(6)
Stoke on Trent	Roadside	Basford	E386288	PM 10	23	23	24	*	19
			N346802	$PM_{2.5}$	16(1)	16(1)	17	*	13
	Roadside	A50 Roadside Meir	E392548	PM 10	18	19	20	17	18
			N342572	$PM_{2.5}$	13(1)	13(1)	14(1)	12(1)	14(1)
	Urban Background	Stoke on Trent Central	E388351	PM 10			12	13	14
			N347895	PM 2.5	9	9	9	7	8
East Staffordshire	Roadside	Derby Tum	E424671 N324019	PM 10	(4)	(4)	(4)	(4)	(4)
				PM 2.5	(4)	(4)	(4)	(4)	(4)

Notes: (1)$PM_{2.5}$ results are derived from PM10 monitored results corrected with a 0.7 correction factor in accordance with TG16 – Annex B: Derivation of $PM_{2.5}$ to PM_{10} Ratio. All other results are directly monitored.
(4) East Staffordshire`s monitors were decommissioned 2016
(5) Newcastle under Lyme monitors were decommissioned 2016
(6) Cannock Chase no longer monitor PM10 nor PM2.5*
* No data available for 2020.

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 estimated percentage 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 2020 is the latest data available at time of publication of this report. Approximately on average 6.0% of deaths between 2018 to 2020 within the County can be attributed to $PM_{2.5}$. (Note the method for calculating this figure has changed we only have the data for 2018,2019 & 2020 using this new method).

Figure 1 Estimated average number of deaths by local authority area attributable to PM2.5 within Staffordshire for adults over 30 2018 to 2020

District/County	Percentage
Newcastle-under-Lyme	5.7%
Stafford	5.7%
East Staffordshire	6.2%
South Staffordshire	6.1%
Lichfield	6.3%
Staffordshire Moorlands	5.4%
Cannock Chase	6.2%
Tamworth	6.7%
Stoke on Trent	6.1%
Staffordshire County	6.0%
England	6.6%

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 2020[5]

	2018			2019			2020		
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
Newcastle-under-Lyme	1334	5.7	80	1282	6.8	90	1548	4.7	70
Stafford	1336	5.8	80	1315	6.8	90	1565	4.5	70
East Staffordshire	1093	6.3	70	1128	7.3	80	1355	5.1	70
South Staffordshire	1211	6.3	80	1212	7.0	90	1418	4.9	70
Lichfield	1087	6.4	70	1093	7.2	80	1272	5.2	70
Staffordshire Moorlands	1108	5.2	60	1080	6.6	70	1276	4.5	60
Cannock Chase	976	6.4	60	908	7.2	70	1046	5.1	50
Tamworth	653	6.9	50	678	7.7	50	752	5.6	40
Stoke on Trent	2746	6.1	170	2490	7.2	180	3034	5.0	150
Staffordshire	8798	6.1	530	8692	7.0	610	10227	4.9	500

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;

Tamworth Borough Council 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 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.	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	✓	Advisory 20mph zones near some schools in residential aeas		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	
	Anti-idling enforcement	low	✓	Campaign only Air Aware project	Campaign only Air Aware project	No	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	✓	Agile working policy applied		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 Staffordshire 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.						
	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 recently 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 -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. Planning application approved during 2021.	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 & 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	✓		e-scooter trials	e-scooter trials NOW ENDED AWAITING CONCLUSIONS				
	Cycle network	low	✓	https://www.staffordshire.gov.uk/Transport/cycling/cyclemaps.aspx Newcastle town deal includes a town centre permeability theme which includes new walk & cycle infrastructure going on from Active Travel fund 2 scheme, Business case to be complete soon.						
	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 discussion ongoing with SCC
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	South Staffordshire Local Plan South Staffordshire Council (sstaffs.gov.uk)	Local & National Validation requirements : 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
	Planning Guidance for developers		✓	In development		http://www.staffordbc.gov.uk/planning/planning-policy/supplementary-planning-policy-documents	Informal guidance in place		Sustainable Development	https://www.tamworth.gov.uk/sites/default/files/planning_docs/Tamworth_Design_SPD_July_2019_v1-0.pdf
	Developer Contributions based on damage cost calculation		✓	Damage cost assessment has been used for applicable applications.		Damage cost assessment has been used for applicable applications.	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	Supplementary planning document in development	https://www.lichfielddc.gov.uk/Council/Planning/The-local-plan-and-planning-policy/Planning-policy.aspx	Planning policies and guidance	https://www.tamworth.gov.uk/local-plan
	STOR Sites (Short Term Operating Reserve) Energy Generation . Regulation via planning / permitting regime	high	✓	✓						
	Low Emissions Strategy	high	✓	In development		In development as part of Climate change Policy				

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
Freight and Delivery Management	**Freight Consolidation Centre**	medium	✓							
	Route Management Plans/ Strategic routing strategy for HGV's	high	✓	https://www.staffordshire.gov.uk/Transport/transportplanning/localtransportplan/home.aspx						
	Quiet & out of hours delivery	low	✓			✓				
	Delivery and Service plans	medium	✓			x				
	Freight Partnerships for city centre deliveries	high	✓			x				
Vehicle Fleet Efficiency	**Driver training and ECO driving aids**	medium	✓			✓				
	Promoting low emission public transport	high	✓			x				
	Vehicle retrofitting programmes	medium	✓		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	✓							

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	✓	Procurement Strategy in development; phase 1 "spend analysis completed"		Waste fleet vehicles comply with Euro VI.				
	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 tween with the rest completed between 2022/ 2023		In progress as part of Climate Change Action Plan		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	✓	EV strategy on council car parks included in new car parking strategy. Trial alternative fuels; Electric and hydrated vegetable oil are currently being tested by waste fleet	Newcastle towns deal includes EV charging infrastructure.	Procurement of EV on staff carparks				
	Priority parking for LEV's	high	✓	✓		✓		Electric Vehicle charging spaces		EV charing spaces being investigated.
	Taxi Licensing conditions	medium	✓	In development		✓				
	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	✓			Nil				
	Other		✓			Nil				

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	Bonfires and Smoke South Staffordshire Council (sstaffs.gov.uk)	
	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	Smokey Bonfire Leaflet (sstaffs.gov.uk)	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	Bonfires and Smoke South Staffordshire 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	Information shared as appropriate
	Multi agency working with Staffordshire Fire Service and Local Authority Building Controlregarding chimney fires and complaints about DIY domestic heating systems		✓	✓ -	-	✓	Information shared as appropriate	Information shared as appropriate	Information shared as appropriate	Information shared as appropriate
	Stoke-on-Trent Low Carbon District Heat Network		✓	-	-	✓	Information shared as appropriate			

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 the 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) This was delayed due to disruption caused by the Covid Pandemic.

✓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 2021 by Tamworth Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2017 and 2021 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Tamworth Borough Council does not operate any automatic (continuous) monitors.

3.1.2 Non-Automatic Monitoring Sites

Tamworth Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 14 sites during 2021. Table A.2 in Appendix A presents the details of the non-automatic sites. Maps showing the location of the monitoring sites are provided in figure D.1 in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.4 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

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

There are no exceedances of the annual mean Air Quality Objective for nitrogen dioxide for 2021. There is no need, therefore, to consider declaring an AQMA in the Tamworth Borough Council area. The level of nitrogen dioxide in the borough appears to be decreasing as indicated in Fig A1

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites
Tamworth does not have any Automatic monitoring sites.

Table A.2 – 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)
10N		47 Upper Gungate	Roadside	420040	305690	NO2	No	5.0	2.2	No	3.0
3N		34 Claremont Rd	Urban Background	420760	304560	NO2	No	6.0	2.1	No	3.0
Q1		114 Overwoods	Roadside	423105	300367	NO2	No	4.0	2.1	No	3.0
Q2		50 Lakeland Drive	Roadside	423430	301280	NO2	No	39.0	1.7	No	3.0
Q3		14 High Broom Court	Roadside	420350	303480	NO2	No	6.0	1.8	No	3.0
Q4		60 High St Dosthill	Roadside	421452	300082	NO2	No	2.5	2.1	No	3.0
Q6S		Dosthill Rd Two Gates	Roadside	421588	301526	NO2	No	12.0	1.8	No	3.0
Q6W		Watling St Two Gates Club	Roadside	421555	301065	NO2	No	17.0	2.8	No	3.0
Q6N		Tamworth Rd Two Gates	Roadside	421580	301630	NO2	No	15	2.6	No	3.0
Q6EX		118 Highcliffe Rd	Roadside	421600	301600	NO2	No	6	15	No	3.0
Q7		253 Glascote Rd	Roadside	422110	303420	NO2	No	3	2	No	3.0
Q8		1 Arkall Close	Roadside	421380	305450	NO2	No	9	2.1	No	3.0
Q9N		Opp 101 Gungate Comberford Rd	Kerbside	420823	304899	NO2	No	26	1	No	3.0
Q10		251 Tamworth Rd Ammington	Kerbside	420823	304899	NO2	No	7	1.1	No	3.0

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.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
10N	420040	305690	Roadside	100	100	30.7	30.3	32.2	20.4	25.4
3N	420760	304560	Urban Background	100	100	18.8	17.1	19.4	14.3	13.8
Q1	423105	300367	Roadside	100	100				19.8	20.3
Q2	423430	301280	Roadside	100	100	24.2	23.8	22.7	17.3	18.5
Q3	420350	303480	Roadside	100	100	26.5	25.0	24.8	18.1	18.7
Q4	421452	300082	Roadside	100	100				20.7	21.3
Q6S	421588	301526	Roadside	100	100	37.3	35.5	36.9	23.3	28.6
Q6W	421555	301065	Roadside	90.4	90.4	34.7	32.6	32.0	22.2	26.1
Q6N	421580	301630	Roadside	100	100	34.5	34.1	33.9	26.1	26.7
Q6EX	421600	301600	Roadside	100	100	38.5	25.6	25.9	20.6	19.9
Q7	422110	303420	Roadside	100	100	32.5	31.0	29.6	23.7	24.0
Q8	421380	305450	Roadside	100	100	20.7	21.0	21.2	17.5	16.6
Q9N	420823	304899	Kerbside	100	100	29.8	27.0	29.7	22.1	21.9
Q10	420823	304899	Kerbside	100	100	25.2	22.3	23.5	17.8	18.9

☒ **Annualisation has been conducted where data capture is <75% and >25% 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/m^3.

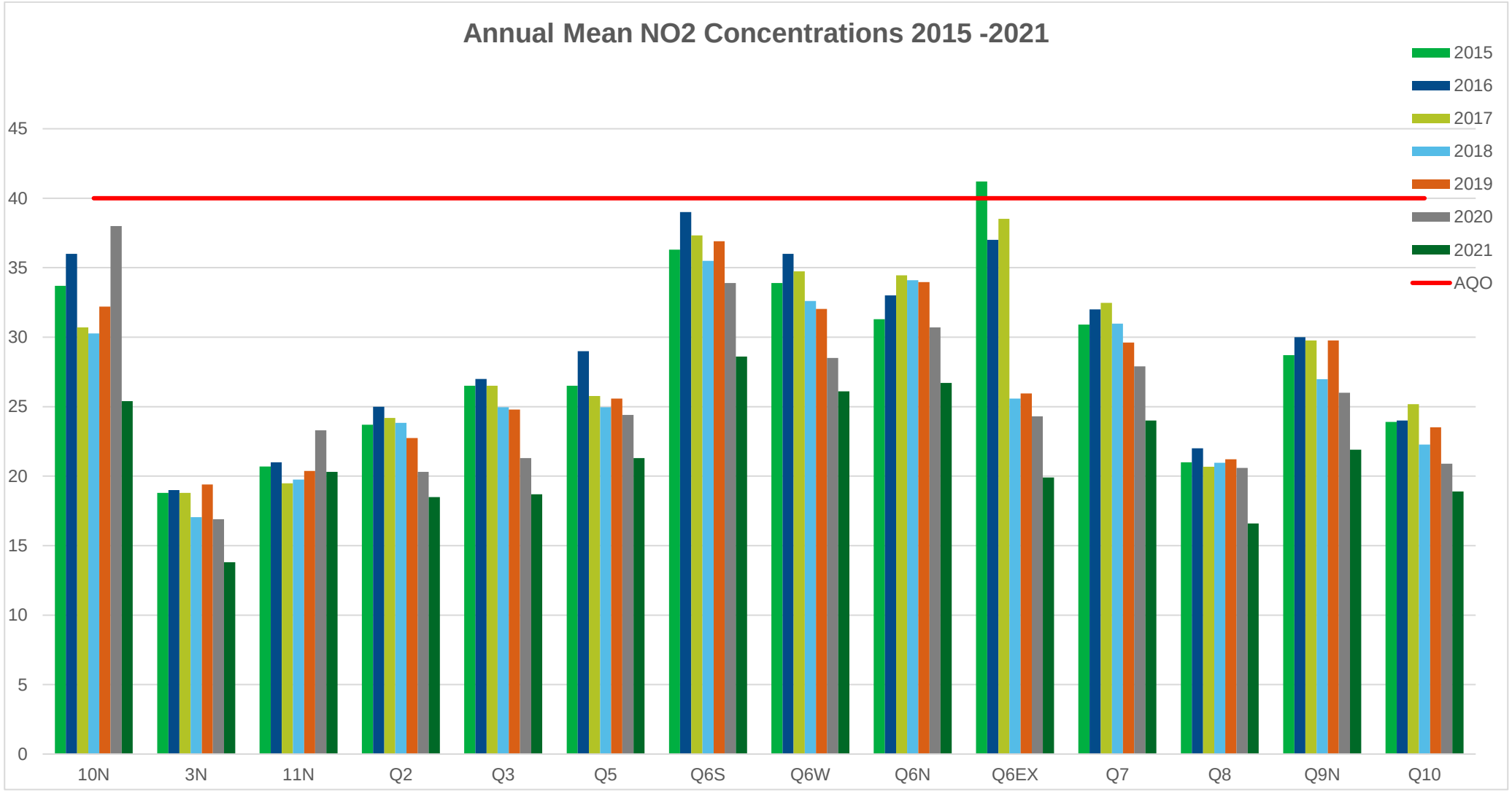
Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

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

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.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 NO_2 Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
10N	420040	305690	37.7	33.7	31.6	23.6	27.2	22.8	26.5	22.3	33.8	31.3	33.5	35.2	29.9	25.4		
3N	420760	304560	25.8	18.6	17.1	9.5	12.6	12.3	10.9	11.8	18.2	19.4	17.3	20.8	16.2	13.8		
Q1	423105	300367	32.8	23.7	23.8	19.2	21.2	20.4	20.4	20.1	24.9	24.4	31.6	24.3	23.9	20.3		
Q2	423430	301280	26.1	22.9	22.9	19.7	24.3	15.9	17.7	17.0	23.2	20.7	28.2	22.8	21.8	18.5		
Q3	420350	303480	23.0	23.4	22.3	14.0	27.0	16.6	16.6	17.2	25.1	25.8	26.8	26.8	22.1	18.7		
Q4	421452	300082	31.8	26.6	24.9	18.9	21.0	21.4	22.8	21.3	29.4	26.2	31.0	25.3	25.1	21.3		
Q6S	421588	301526	38.7	28.3	34.0	26.4	32.3	31.8	32.3	32.6	39.8	32.3	**41.7**	33.1	33.6	28.6		
Q6W	421555	301065	18.5	34.5	30.1	26.9	32.8	28.1	30.4	28.5	38.4	missing	35.7	33.5	30.7	26.1		
Q6N	421580	301630	39.4	30.8	30.7	18.5	29.3	26.9	28.0	25.4	38.1	33.0	**42.6**	34.3	31.4	26.7		
Q6EX	421600	301600	30.8	25.0	26.7	15.6	22.0	18.6	18.4	19.2	26.6	22.5	28.9	26.8	23.4	19.9		
Q7	422110	303420	34.6	27.2	27.3	22.8	26.8	23.5	24.5	22.7	34.0	28.4	35.5	32.1	28.3	24.0		
Q8	421380	305450	22.6	21.6	19.3	13.1	17.1	17.1	17.3	17.1	21.4	21.8	25.2	21.1	19.6	16.6		
Q9N	420823	304899	31.8	22.0	28.9	17.3	22.0	22.1	22.6	21.5	28.4	missing	37.2	30.0	25.8	21.9		
Q10	420823	304899	28.0	21.7	20.7	14.1	16.9	missing	18.8	18.7	24.1	25.3	29.9	26.8	22.3	18.9		

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**
☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**
☐ **Local bias adjustment factor used .**
☒ **National bias adjustment factor used .**
☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**
☒ **Tamworth Borough Council confirm that all 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:
Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.
NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.
See Appendix C for details on bias adjustment and annualisation.

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

Diffusion tubes are used to provide a relatively simple and cost-effective method of monitoring for nitrogen dioxide at several locations where nitrogen dioxide levels are likely to be high as identified in previous reviews and assessments, due to the proximity of significant sources (normally traffic).

The tube is a small plastic device, approximately 6 centimetres long, open at one end, with a disc at the other end that reacts to nitrogen dioxide. They are located at sites, typically on lamp posts or other street furniture or on the facades of properties and exposed for a 4–5 week period, in line with the UK national survey.
The tubes contain a mesh which is doped with 20% v/v Triethanolamine (TEA) in Water and are fitted with a cap before and after exposure which is undertaken according to the nationally published monthly schedule.

New or Changed Sources Identified Within Tamworth Borough During 2021

Tamworth Borough Council has not identified any new sources relating to air quality within the reporting year of 2021.

Additional Air Quality Works Undertaken by Tamworth Borough Council During 2021

Tamworth Borough Council has not completed any additional works within the reporting year of 2021, other than those reported in Table 2.1a.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are supplied and analysed by **Staffordshire County Council Scientific Services**, which participates in the *AIR NO_2 Proficiency Testing Scheme* for the analysis the diffusion tubes.

Air PT Scheme

The AIR NO_2 Proficiency Testing Scheme is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). The AIR PT scheme, started in April 2014, and combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme.

Staffordshire County Council Scientific Services scored 100% for the period covered by this report. The Air PT Scores for the relevant period is shown in Table C.1 with the Staffordshire Scientific Services results highlighted in yellow for the period covered by this report.

The LAQM notified Staffordshire County Council Scientific Services that 100% is satisfactory if the 4 rounds from last year where used this is supported by the explanation given by Staffordshire County Council Scientific Services below.

Over a rolling five round AIR PT window, one would expect that 95 % of laboratory results should be ≤ ± 2. If this percentage is substantially lower than 95 % for a particular laboratory,

within this five round window, it may be concluded that the laboratory in question may have significant systematic sources of bias in their assay.
However the following explanation has been provided by Staffordshire Scientific Services as well as the assurance by the LAQM.

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).

Rounds during 2021

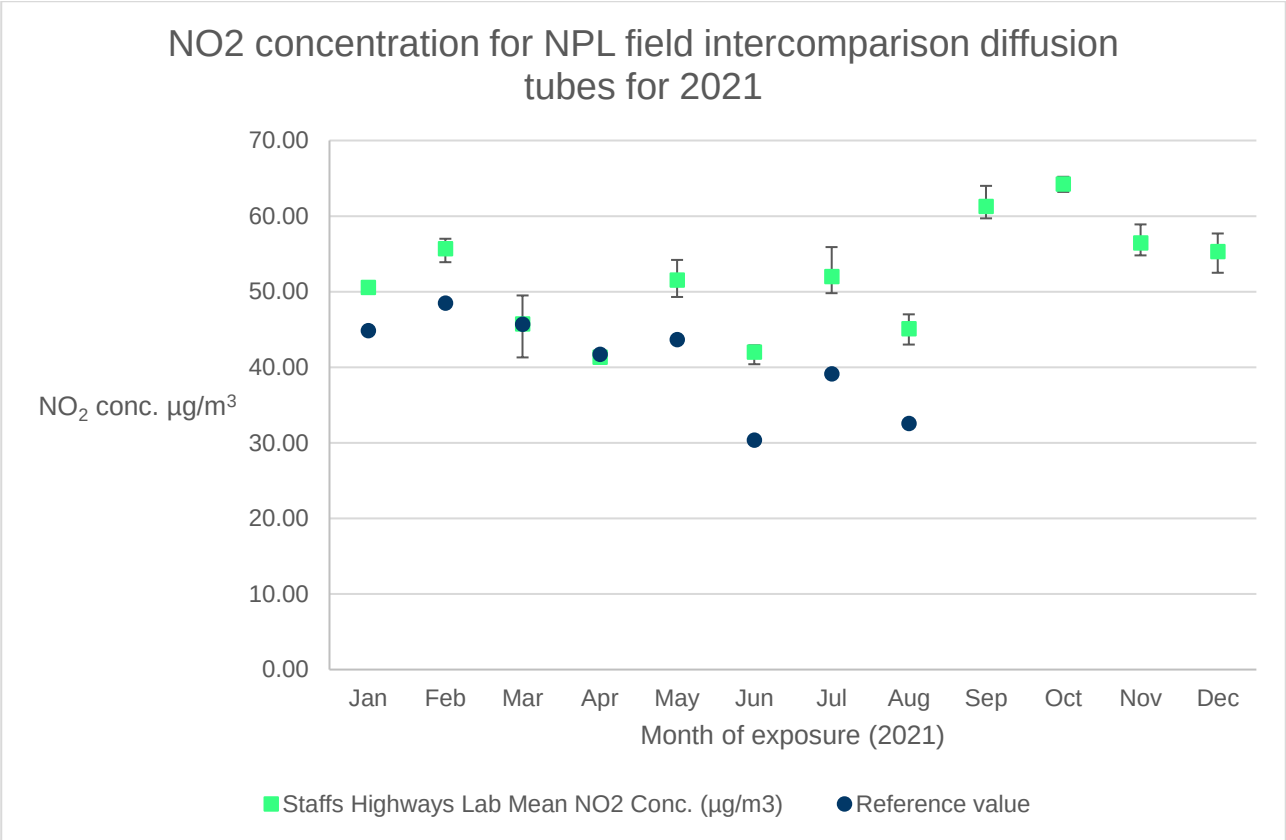
- Round 42 – Feb 2021. 100% satisfactory results.
- Round 43 – June 2021. 100% satisfactory results.
- Round 45 – Aug 2021. 100% satisfactory results.
- Round 46 – Oct 2021. 100% satisfactory results.

For the most up to date published results in the AIR PT Scheme see the Defra website: https://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html

PT Round	z-scores	Performance
42- Feb 2021	-0.32, -1.08, -1.52, -0.42	100% SATISFACTORY
43 – June 2021	0.35, -0.15, 0.00, 0.32	100% SATISFACTORY
45 – Aug 2021	-0.34, 0.17, -0.03, 0.00	100% SATISFACTORY
46 – Oct 2021	-0.66,-1.24,-1.14,-0.06	100% SATISFACTORY

Field Intercomparison (NPL)

We currently only have the reference results for January to August 2021 but our performance for all months was classified as ‘GOOD’ (CoV <20). The chart below shows our results (blue squares), compared to the reference value (orange dots) for each month.



Bias factor

The bias adjustment factor spreadsheet on the Defra website was updated in April 2022. The overall bias factor for Staffordshire Highways Laboratory for 2021 (including the Field Intercomparison result and all the co-location results from participating local authorities, total of 16 studies) was 0.85.

For the most up to date information on bias factors see the Defra website: https://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html

Table C Laboratory summary performance for AIR NO_2 PT rounds AR0037, 39, 40, 41,42,43,45,46,49,50

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent AIR NO_2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be **satisfactory** based upon a z-score of □ ± 2 as defined above

AIR PT Round	AIR PT AR037	AIR PT AR039	AIR PT AR040	AIR PT AR042	AIR PT AR043	AIR PT AR045	AIR PT AR046	AIR PT AR049	AIR PT AR050
Round conducted in the period	May – June 2020	July – August 2020	September – October 2020	January – March 2021	May – June 2021	July – August 2021	September – October 2021	January – February 2022	May – June 2022
Aberdeen Scientific Services	NR [4]	NR [4]	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Cardiff Scientific Services	NR [4]	NR [4]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Edinburgh Scientific Services	NR [4]	NR [4]	100 %	25%	100 %	100 %	75 %	NR [2]	50 %
SOCOTEC	NR [4]	NR [4]	100 % [1]	100 % [1]	100 % [1]	87.5 % [1]	100 % [1]	100 % [1]	100 % [1]
Exova (formerly Clyde Analytical)	NR [4]	NR [4]	NR [3		NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Glasgow Scientific Services	NR [4]	NR [4]	100 %	50%	100 %	100 %	NR [2]	100 %	100 %
Gradko International [1]	NR [4]	NR [4]	75 %	25%	100 %	100 %	100 %	100 %	100 % [1]
Kent Scientific Services	NR [4]	NR [4]	NR [3]		NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Kirklees MBC	NR [4]	NR [4]	NR [3]		NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Lambeth Scientific Services	NR [4]	NR [4]	100 %	100 %	100 %	75 %	75 %	50 %	75 %
Milton Keynes Council	NR [4]	NR [4]	25 %	0%	50 %	100 %	100 %	75 %	100 %
Northampton Borough Council	NR [4]	NR [4]	NR [3]		NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Somerset Scientific Services	NR [4]	NR [4]	100 %	100%	100 %	100 %	100 %	75 %	100 %
South Yorkshire Air Quality Samplers	NR [4]	NR [4]	100 %	100%	75 %	100 %	100 %	NR [2]	NR [2]
Staffordshire County Council	NR [4]	NR [4]	50 %	100%	100 %	100 %	100 %	100 %	100 %
Tayside Scientific Services (formerly Dundee CC)	NR [4]	NR [4]	100 %	NR [2]	100 %	NR [2]	100 %	NR [2]	NR [2]
West Yorkshire Analytical Services	NR [4]	NR [4]	NR [2]	NR [2]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Tamworth Borough Council recorded data capture of 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

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.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. Tamworth Borough Council have applied a national bias adjustment factor of 0.85 to the 2021 monitoring data. A summary of bias adjustment factors used by Tamworth Borough Council over the past five years is presented in Table C.1.
We use a national bias adjustment factor chosen as opposed to a local factor because we do not use continuous analysers.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	09/22	0.85 (16 studies)
2020	National	09/21	0.85 (15 studies)
2019	National	09/20	0.93 (17 studies)
2018	National	06/19	0.89 (14 studies)
2017	National	09/18	0.88 (11studies)
2016	National	06/17	0.83 (15 studies)

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure 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.

No diffusion tube NO_2 monitoring locations within Tamworth Borough Council required distance correction during 2021.

QA/QC of Automatic Monitoring

No automatic NO_2 monitoring locations within Tamworth Borough Council required distance correction during 2021.

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

Site ID	Annualisation Factor	Annualisation Factor	Annualisation Factor	Annualisation Factor	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments

No diffusion tubes required annualisation.

Bias Adjustment Factor

It is known that there are systematic differences in the performance of different laboratories and preparation methods of diffusion tubes. Table C.3 shows the studies that have been used to compare results from diffusion tubes (analysed by Staffordshire County Council Scientific Services) to results of co-located automatic chemiluminesence monitors, where data has been collected for 9 months or more.

From these studies it can be seen that the bias adjustment factor (A) of 0.85 has therefore to be applied (multiplied) to the diffusion tube results for the 2021 data as shown in Table C.3.

Table C.3

Bias Adjustment Factors for Staffordshire Scientific Services 2021

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 09/22

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

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

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

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

This spreadsheet will be updated at the end of March 2023

LAQM Helpdesk Website

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

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

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[2]

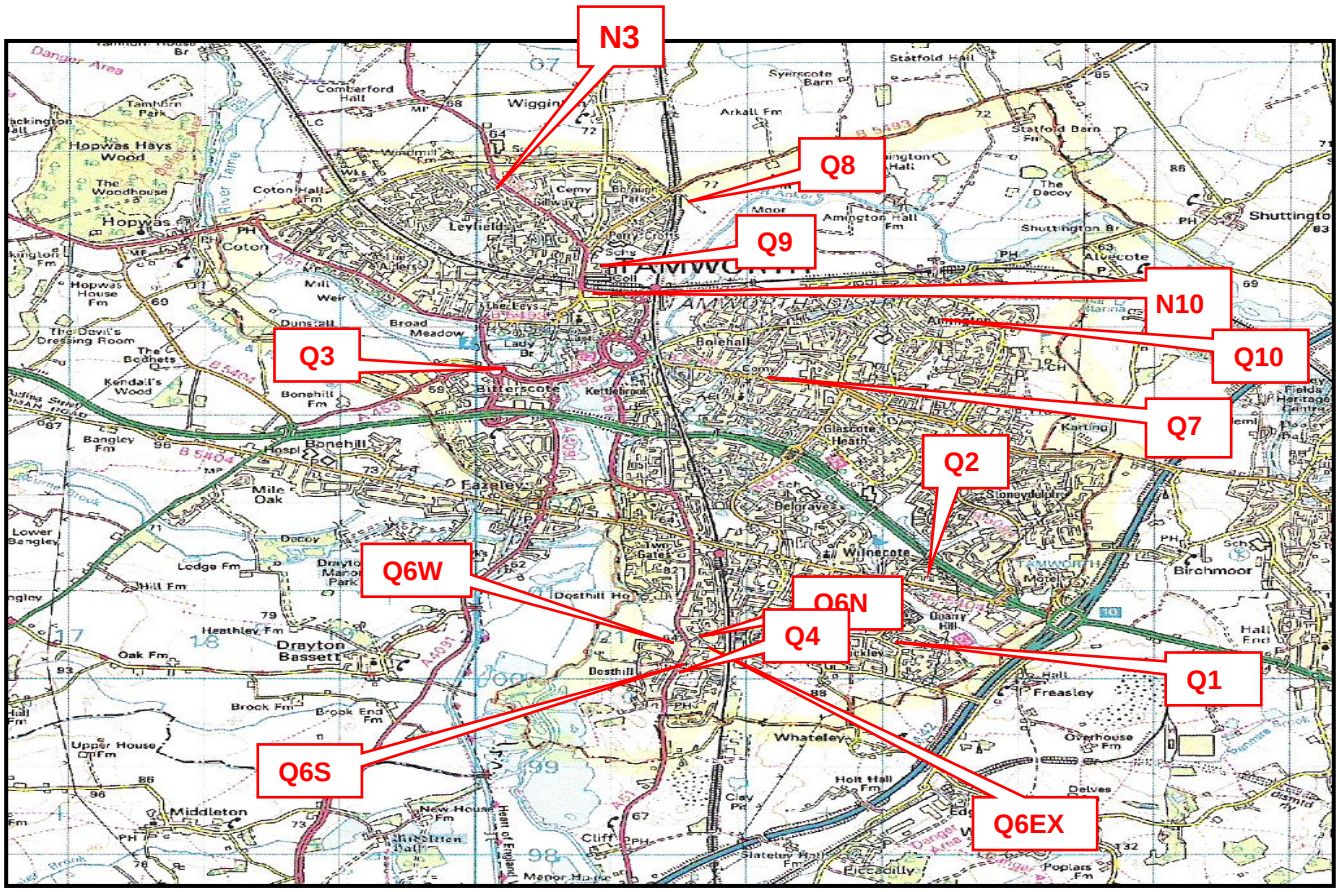
Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

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

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Staffordshire Scientific Services	20% TEA in water	2021	R	Newcastle under Lyme Borough Council	9	28	19	48.9%	G	0.67
Staffordshire Scientific Services	20% TEA in water	2021	UB	Salford City Council	12	24	23	5.4%	G	0.95
Staffordshire Scientific Services	20% TEA in water	2021	B	Salford City Council	12	13	12	15.1%	G	0.87
Staffordshire Scientific Services	20% TEA in water	2021	R	Salford City Council	12	38	35	11.0%	G	0.90
Staffordshire Scientific Services	20% TEA in water	2021	R	Stoke-on-Trent City Council	12	49	49	1.1%	G	0.99
Staffordshire Scientific Services	20% TEA in water	2021	UB	Stoke-on-Trent City Council	12	23	19	24.2%	G	0.81
Staffordshire Scientific Services	20% TEA in water	2021	R	Oldham Borough Council	10	34	24	40.5%	P	0.71
Staffordshire Scientific Services	20% TEA in water	2021	R	Trafford Council	9	28	24	17.0%	G	0.85
Staffordshire Scientific Services	20% TEA in water	2021	KS	Manchester City Council	12	47	43	9.8%	G	0.91
Staffordshire Scientific Services	20% TEA in water	2021	UC	Manchester City Council	12	29	29	-2.6%	G	1.03
Staffordshire Scientific Services	20% TEA in water	2021	SI	Manchester City Council	12	16	15	6.4%	G	0.94
Staffordshire Scientific Services	20% TEA in water	2021	KS	Marylebone Road Intercomparison	11	51	42	20.9%	G	0.83
Staffordshire Scientific Services	20% TEA in water	2021	UB	Wigan Council	12	21	17	24.7%	G	0.80
Staffordshire Scientific Services	20% TEA in water	2021	R	Wigan Council	12	28	25	11.5%	G	0.90
Staffordshire Scientific Services	20% TEA in water	2021	R	East Staffordshire Borough Council	12	39	25	54.6%	G	0.65
Staffordshire Scientific Services	20% TEA in water	2021	R	Bury Council	12	22	20	9.0%	G	0.92
Staffordshire Scientific Services	20% TEA in water	2021		Overall Factor[3] (16 studies)				Use		0.85

Appendix D: Map(s) of Monitoring Locations

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



NB The TAM Q6E site has been moved to 118 Highcliffe Rd and is now called TAM.6QEX

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

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

Appendix F: Processes Regulated for Emissions to Air by Tamworth Borough Council under the Environmental Permitting (England & Wales) Regulations 2016 as at August 2022

Ref No	Operator Name	Process Address	Post Code	Process Description
Part A2				
P01	Forterra Building Products Ltd	Wilnecote Brick, Hedging Lane, Wilnecote	B77 5EU	Manufacture of heavy clay goods. (Brickworks)
Part B				
P03	Envirostrip (GB) Ltd	Unit 11, 12 and 12a Hedging Lane Industrial Estate	B77 5HH	Ferrous Metal
P06	Envirostrip (GB) Ltd	Warwick House, Watling Street, Wilnecote	B77 5BH	Metal decontamination by the application of heat
P02	Breedon Southern Ltd	Mica Close, Tamworth,	B77 4DS	Concrete batching plant
P09	Apollo Chemicals Limited	Sandy Way, Amington Industrial Estate	B77 4DS	Manufacture of solvent borne adhesives and solvents
P11	Sainsbury's Supermarkets Ltd	Sainsbury's Supermarkets Ltd, Bitterscote	B78 3HD	Unloading of petrol into stationary storage tanks
P12	William Morrisons Supermarkets Ltd	William Morrison Supermarket Plc, Hilmore Way	B77 2NY	Unloading of petrol into stationary storage tanks
P13	Tamworth Service Station	Tamworth Service Station, Upper Gungate	B79 7NU	Unloading of petrol into stationary storage tanks
P14	Tesco Stores Ltd	Dosthill Service Station, High Street, Dosthill	B77 1LE	Unloading of petrol into stationary storage tanks
P15	Fuel Centre Ltd	Wilnecote Service Station, Watling Street, Wilnecote	B77 5AB	Unloading of petrol into stationary storage tanks
P22/10	Roadside Welcome	78 Glascote Rd, Tamworth, B77 2AF	B77 2AF	Unloading of petrol into stationary storage tanks
P20	Asda Stores Ltd	Ventura Road	B78 3HD	Unloading of petrol into stationary storage tanks
P21	Stormking Plastics Ltd	Amington Point, Sandy Way, Amington	B77 4ED	Processes for the manufacturer of fibre reinforced plastics

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.