2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: 30th September 2021

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Executive Summary: Air Quality in Our Area

Air Quality in Solihull Metropolitan 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].

Solihull MBC recognizes that a cleaner, healthier environment benefits people and the economy. Clean air is vital for people's health and the environment, essential for making sure Solihull is a welcoming place to live and work now and in the future to our prosperity.

On-going monitoring shows there is no requirement to declare an Air Quality Management Area (AQMA), however SMBC is committed to monitoring air quality, using a diffusion tube network and reviews of the network will continue after analysis of results and liaison with highways and others to understand potential new areas to monitor.

Our Clean Air Strategy (2019-24) demonstrates our clear commitment to improve air quality and outlines the measures that will be taken over the next 5 years and more importantly shows that there is a process in place to continually aim to improve air quality across the Borough. It is available on our website at

https://www.solihull.gov.uk/Environment-and-animals/Air-quality-monitoring-in-Solihull

[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

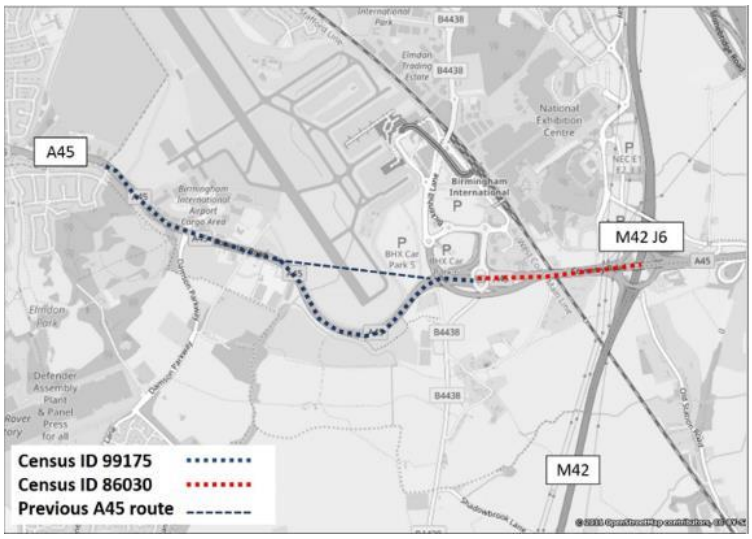
[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

The main area of concern in Solihull regarding air quality is a section of the A45 from Clock Island towards Birmingham on both sides of the carriageway following two Ministerial Directions.

In 2018 Solihull MBC received a Ministerial Direction in relation to air quality on two links within the borough which were forecast to have NO_2 exceedances, in the short term, according to results from the national Pollution Climate Mapping (PCM) model outputs. The two links in question are located on the A45 adjacent to Birmingham Airport on both sides of the carriageway and Solihull MBC was required to bring the two road links into compliance in the shortest time frame possible. As part of the direction Solihull MBC were required to implement a series of behavioural change measures to bring forward compliance on each link. An intensive behavioural change programme was undertaken with the major employers serving the affected area. Work fell behind schedule in 2020 due to the impacts of Covid-19 but collaboration with the major employers have recommenced.

In 2019 Solihull MBC received a second Ministerial Direction which is the subject of a Business Case and gave Solihull MBC a further requirement to achieve NO_2 compliance within the shortest possible time. Due to the fact that the road network in the vicinity of the airport had changed in the intervening period this second direction only applied to a single link on the A45 adjacent to Birmingham Airport (86030)

Location of Road Link Where Air Quality Exceeds Acceptable Limits



In order to comply with the requirements of the second Ministerial Direction a Strategic Outline Case (SOC) was submitted to the Joint Air Quality Unit (JAQU) in July 2019. The overall objective in the Outline Business Case is to identify a package of measures that will achieve compliance with the annual mean NO_2 EU Limit Value in the shortest possible

time whilst also supporting the wider vision of Solihull MBC. This was followed by the submission of an Initial Evidence Submission (IES). A Full Business Case (FBC) was submitted in August 2021 and is awaiting ministerial approval. We continue to report our monitoring for this stretch of road directly to JAQU and have regular meetings to discuss the on-going case. It should be noted that traffic flows in the vicinity of the exceedance link, which is adjacent to Birmingham Airport and the National Exhibition Centre (NEC), have reduced as a result of the impacts of the COVID-19 pandemic.

The Covid lockdowns during 2020 created restrictions on travelling which are reflected in the monitoring results throughout the borough as large portions of the workforce were initially working from home or furloughed and traffic was lighter than it was in pre-Covid time. The diffusion tube results were generally lower than the previous year and the current locations will continue into next year and beyond.

There are some major upcoming highway works that may have an impact on air quality in the borough: works around HS2 are ongoing and a Development Consent Order (DCO) for the delivery of the M42 Junction 6 Improvement Scheme is currently under construction from Highways England.

Development Consent Order-DCO

Highways England have received a Development Consent Order (DCO) for the delivery of the M42 Junction 6 Improvement Scheme which is currently under construction. As part of the delivery of the scheme a new slip road will be constructed from the A45 east bound to the M42 northbound.

A new 2.4km dual carriageway link road will be constructed along with a new junction on the M42 and a new bridge will be constructed above the A45 close to the Arden Hotel. When completed the capacity on the motorway will be increased so reducing congestion. Access will be improved to key locations such as Birmingham Airport and access will also be improved for cyclists and pedestrians.

The scheme is expected to continue until 2024. Full details can be found on the Highways England web site.

https://highwaysengland.co.uk/our-work/west-midlands/m42-junction-6/

HS2

HS2 is one of the largest infrastructure projects ever undertaken in this country, and will transform connectivity and economic performance at local, regional and national levels.

Solihull will be served by a new HS2 station, to act as a hub for the wider region; consequently, generating significant numbers of access and egress trips to destinations both in the immediate vicinity of the station, and also places further afield in the West Midlands and beyond. In order to make the most of the opportunity presented by HS2, SMBC has created UK Central which is an economic development programme that seeks to capitalise on the opportunities afforded to the Borough by HS2 and wider growth plans.

While these growth and development plans provide a rare opportunity for significant economic growth and benefits for Solihull, it is vital to ensure the extra trips generated by these developments do not have an adverse impact on the transport network and environment. It is therefore important that Solihull works closely with its neighbours

Enabling works for HS2 continued throughout 2020 and into 2021 and talks are underway with HS2 concerning haulage routes along with the ongoing works. An environmental minimum requirement (EMR) has been issued for haulage routes which has been approved by the Secretary of State. Full details of these can be found here

https://www.gov.uk/government/publications/environmental-minimum-requirements

Other works

There are works to be carried out on A45/Damson Parkway junction which is one of the busiest in Solihull serving not only Birmingham Airport but also a major car manufacturer in the area and one of the largest employers in the area. Once completed the junction will be able to cater for future traffic demands with shorter journeys through the junction and will also improve local air quality.

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

[5] Defra. Clean Air Strategy, 2019

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.

Solihull produced its first clean air policy in 2019 and a steering group has been formed within the Council which consists of officers from Public Health, Highways, Communications, Monitoring and Compliance, Planning, Procurement and Sustainability along with elected members. The group has set out its aims and purposes in their strategy documents and meets on a regular basis to discuss strategies and policies as well as monitoring results and potential hot spots. The aim is to proactively steer action regarding air quality issues.

Consultation with planning colleagues continues for any significant applications received which are assessed against the effect they may have on the air quality in Solihull.

Solihull is also in the process of updating its local plan. This sets out the vision for future development to enable the borough to grow and develop into the place we would like it to be. As part of the policy P9 to mitigate and adapt to climate change there is a new requirement in the local plan that all new residential dwellings shall have at least one EV charging point.

The draft local plan has been submitted to the secretary of state via the planning inspectorate to be independently examined.

The local plan review can be found on our website at https://www.solihull.gov.uk/Planning-and-building-control/Local-Plan-Review

Road transport represents a major source of air pollution in Solihull and is also the main source of carbon emissions, contributing to the Borough's carbon footprint. Eliminating these harmful impacts from transport is therefore core priority of the Council.

This will be achieved through a wider approach to sustainable travel that incorporates measures to reduce travel demand, increase levels of walking and cycling as well as developing new models of demand-responsive public transport.

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

Solihull Council has a new cycling and walking strategy for the borough following consultation with local residents and businesses. Alongside the comprehensive new strategy, a Local Cycling and Walking Infrastructure Plan (LCWIP) was also approved at Cabinet.

The Cycling and Walking strategy outlines the overall strategic approach to active travel in Solihull. The document supports the National Cycling and Walking Plan, adopted in July 2020 and sets a clear standard for cycling and walking infrastructure. It aims to embed cycling and walking initiatives into local policy and ensures major developments consider integrating active travel infrastructure from the start.

The need to develop a Cycling and Walking Strategy, and associated LCWIP, was initially established as part of the Council's transport strategy, Solihull Connected, and is further emphasized by the work that the Council has adopted, such as the Clean Air Strategy and Climate Change Prospectus. Encouraging residents to cycle and walk more often also closely aligns with the Council's emerging Net Zero Action Plan which outlines how the borough intends to achieve net zero carbon emissions by 2041.

During the development of the Cycling and Walking Strategy and associated LCWIP there have been two rounds of consultation, firstly in February 2020 and again in November-December 2020. Some of the key themes mentioned during consultation included support for segregated cycle lanes, improving cycle storage facilities and reducing barriers for pedestrians in local centers.

Based on the feedback received a number of changes were made to the strategy such as adding further rural links to the Cycling Network Plan, adding a specific policy on School Streets and including an overview of region-wide cycling and walking programmes taking place in the West Midlands.

Elements of the strategy are already being implemented with three free to use cycle repair stations being installed across the borough. The repair stations have been installed following a successful bid to the Emergency Active Travel Fund.

The stations are free to use and each includes a bike stand, pressure gauge pump and tools for simple repairs. They are located at the following places:

- Stratford Road, Shirley outside Shirley Park
- High Street, Solihull Town Centre
- Whitlocks End rail station car park

Image of a free to use cycle repair station

An EV charging trial using Virgin Media's infrastructure, the Virgin Media Park & Charge project, is underway in the West Midlands although not specifically Solihull at this point. The project, run by a consortium including Vattenfall, Connected Kerb, Cenex and Loughborough University, aims to deploy 1,200 charging sockets in towns and cities across the country by early 2022.

The West Midlands Combined Authority forms part of the consortium along with other local authorities. If the trial is successful the Virgin Media powered cabinets will see charging sockets deployed across the UK in the next 2 years.

Conclusions and Priorities

SMBC has not declared any Air Quality Management Areas. (AQMAs) and we endeavour to ensure that the air quality objectives are met in Solihull. No exceedances of the air quality objectives were recorded in 2020 but this year was far from ordinary with Covid lockdowns and travel restrictions in place which led to less traffic generally. We are however still continuing to monitor air quality throughout the borough via our diffusion tube network.

Results of the NO_2 diffusion tubes were down from the previous year at the same locations and a number of new locations were started just at the beginning of the Covid outbreak. The current monitoring locations will be continued for 2021.

SMBC will continue reporting directly to Defra (through JAQU) regarding monitoring results on the A45, which was subject to the Ministerial Direction

Local Engagement and how to get involved

People who live and work in Solihull can help to improve air quality by using sustainable transport options, such as walking cycling and using public transport or to share transport through car sharing at www.liftshare.com although at this current time lift share is limited due to Covid.

Residents were invited to respond to the cycling and walking infrastructure plan which saw consultation with residents and local businesses.

A public consultation has taken place for three new temporary cycle lanes in Solihull as part of the West Midlands active travel fund. The consultation ran until March 2021. For more information on this visit:

www.solihullactivetravel.commonplace.is

The routes proposed are Blossomfield Road, Knowle to Solihull Town Centre and Meriden to Millisons Wood.

The Energy Saving Trust provides advice on fuel saving, active travel and advice on electric vehicles as well as eco driving techniques. Information from the Energy Saving Trust can be found at:

https://energysavingtrust.org.uk/low-carbon-travel/

Residents can obtain more air quality information on the following websites

DEFRAs UK-AIR: Air information Resource https://uk-air.defra.gov.uk

Environmental Protection UK Air Pollution website https://www.environmental-protection.org.uk/policy-areas/air-quality/about-air-pollution/

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1 Local Air Quality Management

This report provides an overview of air quality in Solihull 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 SMBC to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

Air Quality Management Areas

Air Quality Management Areas (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.

Solihull currently does not have any declared AQMA's but will continue to monitor via our diffusion tube network throughout the borough. Our Clean Air Strategy (2019-24) sets out our aims for the next 5 years and this available on our website:

https://www.solihull.gov.uk/Environment-and-animals/Air-quality-monitoring-in-Solihull.

Our climate change prospectus details how SMBC is planning for a more sustainable future and can be found here:

https://www.solihull.gov.uk/Planning-and-building-control/Greener-Solihull

Progress and Impact of Measures to address Air Quality in SMBC

Defra's appraisal of last year's ASR concluded that future reports should show a borough map included, with the monitoring locations shown. This has now been included. There was also a recommendation that the report should include links to Public Health Outcomes Frameworks and this is also included.

A number of points from last year's ASR shown in table 2.2 have been progressed.

The electric vehicle strategy has been published, along with the walking and cycling strategy.

The vandalised EV charge points installed as an electric car sharing club have now been repaired as well as new EV charging points installed. These are identified later in this report.

The draft local plan has now been submitted to the inspectorate and air quality is now considered along with other policy areas which are looking to reduce vehicle use. The draft plan references all new residential dwellings having an EV charging point.

The ‘Switch off - young lungs at work’ campaign started in 2019 is aimed at reducing vehicles idling outside schools and continues to be promoted at schools via leaflets and education. Some schools have had volunteer patrols made up of Councillors, school staff and parents, giving out information to waiting vehicles.

The Be Active Campaign continues to be promoted via our website and social media pages and encourages very simple ways to help everyone make changes to become more active and less reliant on driving vehicles. Whether this is by walking, cycling, other sports or just becoming more active in normal life. More detail is available at the following website www.solihullactive.co.uk

SMBC has taken forward a number of direct measures during the current reporting year of 2020 in pursuit of improving local air quality.

A review of the NO_2 diffusion tube network was carried out and it was agreed that all monitoring points should remain as they were for at least the following year.

A scheme has been given approval to construct 3 new cycle lanes which will connect communities to the Town Centre and help to change travel behaviour.

An online consultation attracted over 900 contributions, with the majority of respondents expressing support for the scheme proposals.

The new dedicated cycle lanes, designed to enhance cycling opportunities in Solihull, form part of the Active Travel Fund (ATF), established by the Department for Transport (DfT). Following a successful funding submission, approximately £1m has been secured from DfT to finance the three cycle lanes, of which £200k is from SMBC funding along with a borough wide cycle parking scheme.

It is hoped that the scheme will be completed late 2021 or early 2022.

Solihull Council is working with Transport for West Midlands (TfWM) to investigate the opportunity to install a wide range of traffic and environmental sensors across the region. It is expected that the TfWM-led project will provide sensors on important traffic routes and specific areas to better understand traffic movements and weather conditions. The

sensors are expected to be installed in late 2021 and provide data to TfWM and the local authorities, including Solihull Council for a five year period.

Details of all measures completed, in progress or planned are set out in Table 2.2 with the type of measure and the progress SMBC 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.

More detail on these measures can be found in their respective Action Plans

https://www.solihull.gov.uk/Planning-and-building-control/Greener-Solihull

https://www.solihull.gov.uk/Environment-and-animals/Air-quality-monitoring-in-Solihull

https://www.solihull.gov.uk/About-the-Council/Cycling-walking-strategy

https://www.solihull.gov.uk/sites/default/files/Solihull%20Cycling%20and%20Walking%20Infrastructure%20Plan.pdf

https://www.solihull.gov.uk/About-the-Council/Solihull-connected

Following the adoption of Solihull's Electric Vehicle Strategy, a number of new electric vehicle (EV) charging points are being installed around the borough. Shirley, Knowle, Olton, Silhill, Blythe, Lyndon, Elmdon, Dorridge and Smiths Wood will all benefit from the new points.

Funding has been jointly provided by Central Government through the Office of Zero Emission Vehicles (75%) and the Council's own funds (25%) to improve charging infrastructure across the borough.

The locations of the EV charging points have been carefully considered based on whether there is a demand or expected future demand for electric vehicles in that area, or simply if residents don't have access to their own off-street parking. The Council will continue to engage with residents to understand where there is appetite to improve the local charging infrastructure as it plans its next round of installations.

As well as the new installations, nine charge points installed in the north of the Borough under a previous EV car club project which was shelved due to vandalism have now been bought into use, which gives residents new options if they are looking to go electric.

If residents are thinking about getting an electric vehicle in the future there is a short survey on our website where they are encouraged to look at some of the barriers they may

perceive. The feedback gathered through this will help to inform us of where we should target our efforts. The survey can be found at the following address:

https://www.solihull.gov.uk/About-the-Council/Electric-Vehicle-Strategy

Photo showing one of the new EV charging points

SMBC's priorities for the coming year are:

- To ensure that the air quality objectives are met in Solihull Metropolitan Borough Council.
- To continue reporting directly to JAQU concerning the A45 Ministerial Direction
- To collaborate with planning regarding air quality matters on significant planning applications received.
- To continue monitoring NO_2 through our diffusion tube network.

Solihull MBC expects the following measures to be undertaken over the course of the next reporting year:

- Ongoing consultation with planning colleagues in relation to all significant planning applications.
- Continued expansion of the EV charging infrastructure.

- Ongoing collaboration with HS2 on all air quality matters and haulage routes though these are covered by Environmental Minimum Requirements (EMR) which have been approved by the Secretary of State.

- Approval for the Solihull Draft Local Plan which incorporates air quality considerations.

- Work commencing on the Town Centre Heat Network

- Expansion of school streets scheme to more schools

Consultation is taking place on a proposed scheme to improve the A45 Coventry Road / Damson Parkway / Terminal Road junction. Sitting along an important route, which serves both Birmingham Airport and the nearby Jaguar Land Rover plant, this key junction is one of the busiest in Solihull.

Solihull connected transport strategy was published in 2016 and recently updated. It sets out the future direction for investment in our transport system. It also looks into research regarding behavioural change and marketing techniques to encourage a greater shift to sustainable modes as we invest in new infrastructure. It supports and enables the integrated delivery of sustainable and efficient forms of transport like mass-transit, cycling and walking. Available here: https://www.solihull.gov.uk/About-the-Council/Solihull-connected

An application for a new energy facility in the town centre has been approved by Cabinet in May 2021 following a public consultation. The Energy Centre will generate and deliver affordable low carbon heat and power to Solihull town centre buildings, utilising a range of renewable and low carbon energy solutions, including Air Source Heat Pumps and Gas Combined Heat and Power. The Energy Centre will be able to provide heat and power to nearby public and private sector customers, including council owned buildings, education campuses and commercial offices.

This scheme forms part of a wider strategic approach Solihull Council is developing to decarbonise the borough over the next twenty years.

The planning application and associated documents can be found via the Council's planning portal using the following reference number: **PL/2021/00682/MINFOT**

The School Streets Programme, introduced to reduce traffic around schools at certain peak times has now been extended to other schools. St Andrews Primary School and Widney Junior School will be included in the scheme which is hoped to now take place in 2021. The project aims to address issues by limiting traffic in the streets surrounding schools at key times, creating a predominantly car free zone.

There has been no change to our EV fleet since last year but some of the fleet are due to be replaced in 2021 and it is hoped that this will increase our numbers.

Home working was already on-going at SMBC pre-Covid but when lockdown started in March 2020 the majority of the workforce switched over and this is currently continuing into late 2021. SMBC is preparing for staff to return to work and workspaces have been re arranged to minimise office attendance. Attendance of employees at council premises is currently being rationalised which will have a positive benefit in terms of air quality.

The principal challenges and barriers to implementation that SMBC anticipates facing are the on-going uncertainties regarding Covid, and associated knowledge of projected traffic flows,(e.g. commercial fleet), constraints regarding the rolling out of EV charging infrastructure and the further expansion of the school streets scheme will depend upon on-going local support.

SMBC will also be required to manage tensions between the air quality implications of new housing developments and meeting the boroughs increased housing needs.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Draft Local Plan	Policy Guidance and Development Control	Other policy	2019	2021	SMBC	In house	No	n/a	< £10k/£10k	planning	Increased Ev uptake	Plan approved by inspectorate	Submitted to inspectorate	Need approval by planning inspectorate
2	Town Centre Heat Network	Promoting low emission plant	Procurement of combustion sources	2018	2024	SMBC and Developers	Consortium of Developers	No	funded	No cost to SMBC	planning	Unable to determine	Approval granted and works commencing	Planning	Some years to completion
3	Electric vehicle strategy	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2020	2021	SMBC	In house	No	n/a	< £10k/£10k	completed	Reduced vehicle emissions	Proportion of alternatively fuelled vehicles in the fleet	Implementation on-going	Changing public opinions on EV
4	Installation of new EV charging points	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	2021	SMBC/Partners	Not yet funded	No	Not secured	Unknown at present	Partly implemented	Reduced vehicle emissions	Usage to be reviewed	Implementation on-going	More charging points should influence car purchasing
5	Pop up cycle lanes	Traffic management	Strategic highway improvements	2020	2021/22	Active travel fund/SMBC	Dft/SMBC	No	Fully funded	£1m/£1m	planning	Reduced vehicle emissions	Increased number of cyclists	Planning	Work is due to be completed Dec 21 to Jan 22
6	Cycling and walking strategy	Promoting travel alternatives	Promotion of cycling walking	2019	2021	SMBC	n/a	No	n/a	< £10k/£10k	completed	Reduced vehicle emissions	Increase in alternative travel	Completed	Uptake needed
7	Electric bike hire scheme	Promoting travel alternatives	Promoting of cycling	2020/21	2021	Transport for West Midlands	TfWM	No	Fully funded	< £10k/£10k	completed	Reduced vehicle emissions	Scheme review for uptake	Too early to determine use	Promoting service
8	Increase in EV fleet	Promoting low emission transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2021	2022	SMBC tender process	n/a	No	Tender process	< £10k/£10k	planning	Reduced vehicle emissions	Updated fleet	Some vehicles have been updated	New technology needed for larger fleet vehicles
9	Home working	Promoting travel alternatives	Facilitate home working	2019	On-going	SMBC	n/a	No	n/a	< £10k/£10k	completed	Reduced vehicle emissions	Home working is constantly reviewed by CEO and heads of service	High numbers of staff working from home	Corporate decisions to be made to determine forward planning
10	HS2 haulage routes approval	Freight and delivery management	Route Management Plans/ Strategic routing strategy for HGV's	2020	2024	HS2/SMBC	n/a	No	n/a	< £10k/£10k	planning	Reduce HGV through village	Reduce HGV through village	Planning stage	Approved with sec of state
11	School Streets (extension)	Traffic management	Reduction of speed limit, 20 mph zones	2017	2021/22	SMBC	n/a	No	n/a	< £10k/£10k	Partly implemented	Reduced vehicle emissions and improved safety around schools	Reduced vehicle emissions	Planning stage	Scheme extended to more schools
12	Online EV survey	Promoting low emission transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2020	2021	SMBC	n/a	No	n/a	< £10k/£10k	completed	Reduced vehicle emissions	Uptake of residents EV purchase/lease	Not quantified	Encouragement needed to complete so SMBC can determine perceived barriers
13	Engines Off: Young Lungs at Work	Traffic management	Anti-idling enforcement	2019	On-going	SMBC	n/a	No	n/a	< £10k/£10k	Partly implemented	Reduced vehicle emissions	Reduced vehicle emissions	Not quantified	Needs constant re enforcement

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
14	Lift share scheme	Alternatives to private vehicle use	Lift share scheme	2019	On-going	SMBC, NEC, Birmingham airport, B'ham Business Park, Resorts World	n/a	No	n/a	< £10k/£10k	completed	Reduced vehicle emissions	Reduced vehicle emissions	Low uptake	Scheme shelved temp. due to Covid
15	Cycle repair stations	Promoting travel alternatives	Promotion of cycling	2020	2020	SMBC	Emergency active travel fund	No	funded	< £10k/£10k	completed	Reduced vehicle emissions	Increased cycling	Stations in use	Stations in use

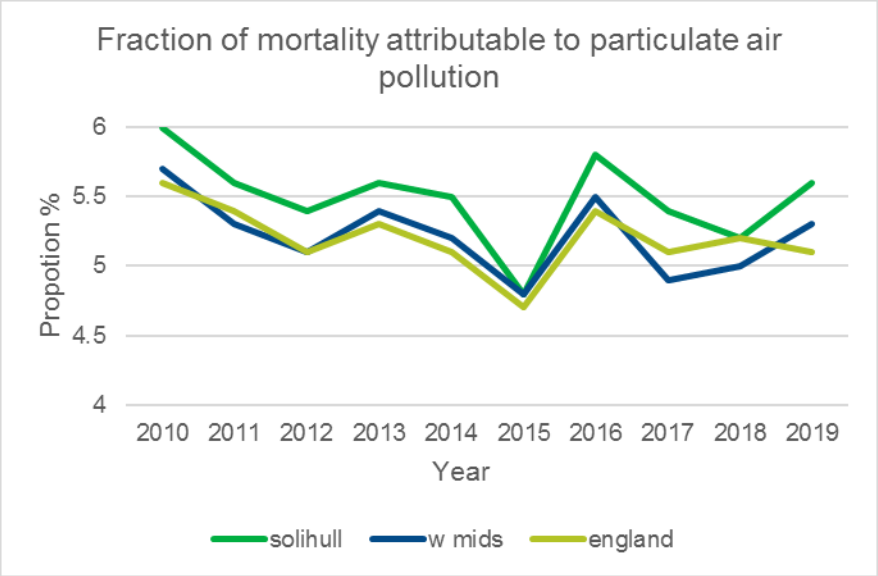
$PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

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.

Solihull have carried out monitoring for this pollutant. However the equipment was not Defra approved and it was agreed with Defra that it was not appropriate to submit this data as part of our annual status report. This is currently under review.

The Defra background maps for 2020 show very similar readings to that of 2019 with an average annual mean of under 9 $\mu g/m^3$. There is no recommended air quality objective for this pollutant but it is recommended that authorities work towards reducing emissions. No areas within Solihull are considered likely to exceed the EU Limit Value for $PM_{2.5}$ (an annual average concentration of 25 $\mu g/m^3$).

The Public Health Outcomes Framework (PHOF) (https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/) is a Department of Health tool which sets out key indicators on the state of public health and includes an indicator relating to air pollution from fine particulate matter,(PM 2.5) – indicator ‘D01 Fraction of mortality attributable to particulate air pollution’ reports the estimated fraction of all cause adult mortality attributable to anthropogenic particulate air pollution.



In 2010 there was a morbidity burden of 6.0% associated with long-term exposure to particulate air pollution for Solihull residents. In 2019, this had improved to an estimated 5.6%. When Solihull is compared with the West Midlands (as a whole) and England fractions, there are similar reductions between 2010 and 2019. While Solihull figures are slightly higher than both as can be seen from the graph, trend lines are similar. 2020 data is not yet available.

Details of the site can be found here

https://fingertips.phe.org.uk/search/air%20pollution#page/4/gid/1/pat/6/par/E12000005/ati/102/are/E08000029/iid/30101/age/230/sex/4/cid/4/tbm/1/page-options/ovw-do-0

We recognise that pollution from fine particulate matter is important. To further review the findings we have approached a local academic organisation to better understand the geographical distribution of the PM 2.5 across the borough and are in the process of having data modelled. It is hoped findings can be included in the next ASR.

SMBC is hoping to raise awareness of the air quality implications of using wood burners in domestic properties through its website.

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

This section sets out the monitoring undertaken within 2020 by SMBC and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a longer period where monitoring was available to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

SMBC does not currently have any Defra approved automatic monitoring sites.

3.1.2 Non-Automatic Monitoring Sites

SMBC undertook non- automatic (i.e. passive) monitoring of NO_2 at 31 sites during 2020. Table A.1 in Appendix A presents the details of the non-automatic sites. There were a total of 49 monthly tubes with nine of these sites accommodating triplicate tubes (along the A45 following a ministerial direction).

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

Individual Pollutants

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

3.1.3 Nitrogen Dioxide (NO_2)

Table A.4 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the preceding years (where such data exists) 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.

During 2020 there were no exceedances of the air quality objectives for the annual mean. NO_2. As 2020 results may have been affected by Covid lockdowns and reduced traffic the existing diffusion tube sites will remain in place for 2021 and beyond.

Table A.4 shows historical data is limited to 3 years for trend analysis (and for many sites only 1 or 2 years are available for comparison). Other sites have been utilised across the borough, since 2017/2018 however, sites were removed from the monitoring network when found to be highly compliant with objective levels. Going forwards SMBC will keep the current sites for longer periods to allow for longer term trend data to be produced.

A review of our diffusion tube network will continue after analysis of results and liaison with highways to understand any potential new areas to monitor. Where new locations were added in 2020 these will continue to be monitored throughout 2021.

3.1.4 Particulate Matter (PM_{10})

Solihull have carried out monitoring for this pollutant. However the equipment was not Defra approved. It was agreed with Defra that it was not appropriate to submit this data as part of our (ASR). Such monitoring is currently under review.

3.1.5 Particulate Matter ($PM_{2.5}$)

Solihull have carried out monitoring for this pollutant. However the equipment was not Defra approved. It was agreed with Defra that it was not appropriate to submit this data as part of our (ASR). Such monitoring is currently under review.

3.2.4 Sulphur Dioxide (SO_2)

SMBC does not currently monitor SO_2

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)
AB1	Kingsleigh Drive	Roadside	414297	289963	NO_2	No	0.0	11.4	No	1.9
AB4	Olton Library	Roadside	413337	282206	NO_2	No	0.0	5.6	No	1.9
AB5	Elm Farm Avenue	Roadside	417108	285417	NO_2	No	0.0	15.0	No	2.1
AB6	Streetsbrook Road	Roadside	414698	279709	NO_2	No	0.0	11.4	No	1.9
AB8	Warwick Road Nursery	Roadside	415229	279699	NO_2	No	0.0	4.8	No	2
AB9	Stratford Road/ Haslucks Green	Roadside	411740	279645	NO_2	No	0.0	3.2	No	2
AB16	Bishopton Close	Roadside	412229	278254	NO_2	No	0.0	5.2	No	2.2
AB17	New Road	Roadside	414622	279481	NO_2	No	0.0	2.8	No	1.9
AB19	Lode Lane opp Hermitage	Roadside	415267	280427	NO_2	No	0.0	16.7	No	1.9
AB21	Kenilworth Road by Kelsey Lane	Roadside	424203	276372	NO_2	No	0.0	20.1	No	2
AB23	Clock Lane Road	Roadside	418494	282878	NO_2	No	0.0	4.5	No	1.8
AB24	Stratford Road/Costa	Roadside	413003	277139	NO_2	No	0.0	10.6	No	1.9
AB25	A45/Damson Parkway A	Triplicate set 1	416803	283259	NO_2	No	0.0	14.7	No	1.8
AB26	A45/Damson Parkway B	Triplicate set 1	416803	283259	NO_2	No	0.0	14.7	No	1.8
AB27	A45/Damson Parkway C	Triplicate set 1	416803	283259	NO_2	No	0.0	14.7	No	1.8
AB28	A45/Clock Lane A	Triplicate set 2	418505	282921	NO_2	No	40.0	3.3	No	2.3
AB29	A45/Clock Lane B	Triplicate set 2	418505	282921	NO_2	No	40.0	3.3	No	2.3
AB30	A45/Clock Lane	Triplicate set 2	418505	282921	NO_2	No	40.0	3.3	No	2.3
AB31	A45 Nr Tristar A	Triplicate set 3	417400	283121	NO_2	No	24.0	4.0	No	2.4
AB32	A45 Nr Tristar B	Triplicate set 3	417400	283121	NO_2	No	24.0	4.0	No	2.4
AB33	A45 Nr Tristar C	Triplicate set 3	417400	283121	NO_2	No	24.0	4.0	No	2.4
AB34	A45 Nr Arden A	Triplicate set 4	419213	283020	NO_2	No	72.0	4.3	No	2.12
AB35	A45 Nr Arden B	Triplicate set 4	419213	283020	NO_2	No	72.0	4.3	No	2.12
AB36	A45 Nr Arden C	Triplicate set 4	419213	283020	NO_2	No	72.0	4.3	No	2.12
AB37	A45/Old Damson Lane A	Triplicate set 5	417223	283137	NO_2	No	0.0	6.9	No	1.6
AB38	A45/Old Damson Lane B	Triplicate set 5	417223	283137	NO_2	No	0.0	6.9	No	1.6
AB39	A45/Old Damson Lane C	Triplicate set 5	417223	283137	NO_2	No	0.0	6.9	No	1.6
AB40	Church Lane A	Triplicate set 6	419242	282980	NO_2	No	125.0	3.1	No	2.2

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)
AB41	Church Lane B	Triplicate set 6	419242	282980	NO_2	No	125.0	3,1	No	2.2
AB42	Church Lane C	Triplicate set 6	419242	282980	NO_2	No	125.0	3.1	No	2.2
AB43	Church Lane 2 A	Triplicate set 7	419500	283004	NO_2	No	220.0	3.1	No	2.4
AB44	Church Lane 2 B	Triplicate set 7	419500	283004	NO_2	No	220.0	3.1	No	2.4
AB45	Church Lane 2 C	Triplicate set 7	419500	283004	NO_2	No	220.0	3.1	No	2.4
AB46	Longacre A	Triplicate set 8	419285	283022	NO_2	No	35.0	1.0	No	2.4
AB47	Longacre B	Triplicate set 8	419285	283022	NO_2	No	35.0	1.0	No	2.4
AB48	Longacre C	Triplicate set 8	419285	283022	NO_2	No	35.0	1.0	No	2.4
AB49	A45/Goodway A	Triplicate set 9	416277	283691	NO_2	No	0.0	7.0	No	2
AB50	A45/Goodway B	Triplicate set 9	416277	283691	NO_2	No	0.0	7.0	No	2
AB51	A45/Goodway C	Triplicate set 9	416277	283691	NO_2	No	0.0	7.0	No	2
AC1	Orkney Close	Roadside	417716	289086	NO_2	No	0.0	2.6	No	2.2
AC2	Kenilworth Road/Centre	Roadside	423881	277290	NO_2	No	0.0	9.0	No	1.8
AC3	Kelsey Lane	Roadside	424383	276289	NO_2	No	0.0	17.3	No	1.7
AC4	Bosworth Drive	Roadside	417180	286880	NO_2	No	0.0	8.2	No	2
AC5	Longmore Road	Roadside	412965	278406	NO_2	No	0.0	5.9	No	2
AC6	Lode Lane by JLR	Roadside	415001	281564	NO_2	No	0.0	10.3	No	1.6
AC7	Old Lode Lane	Roadside	414902	282623	NO_2	No	0.0	12.3	No	1.7
AC8	Rye Close Croft	Roadside	418682	287390	NO_2	No	0.0	7.8	No	2
AC9	Whitefields Road	Roadside	414088	278186	NO_2	No	0.0	17.5	No	2
AC10	Darlaston Row	Roadside	423969	282261	NO_2	No	0.0	4.8	No	2

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 2020 (%) (2)	2016	2017	2018	2019	2020
AB1	414297	289963	Roadside		75	No data	No data	No data	21.2	16.7
AB4	413337	282206	Roadside		75	No data	No data	29.3	27.0	22.0
AB5	417108	285417	Roadside		75	No data	No data	20.2	18.8	15.3
AB6	414698	279709	Roadside		59.6	No data	No data	No data	21.9	17.0
AB8	415229	279699	Roadside		57.7	No data	No data	No data	24.8	20.5
AB9	411740	279645	Roadside		75	No data	No data	33.8	31.2	25.1
AB16	412229	278254	Roadside		75	No data	No data	No data	24.1	20.9
AB17	414622	279481	Roadside		65.4	No data	No data	No data	26.1	17.2
AB19	415267	280427	Roadside		75	No data	No data	No data	19.4	14.4
AB21	424203	276372	Roadside		75	No data	No data	No data	17.8	10.3
AB23	418494	282878	Roadside		75	No data	No data	No data	19.5	13.2
AB24	413003	277139	Roadside		75	No data	No data	No data	21.3	15.2
AB25 AB26 AB27	416803	283259	Roadside		75	No data	No data	No data	21.4	15.1
AB28 AB29 AB30	418505	282921	Roadside		75	No data	No data	No data	31.5	20.8
AB31 AB32 AB33	417400	283121	Roadside		75	No data	No data	No data	36.7	26.6
AB34 AB35 AB36	419213	283020	Roadside		75	No data	No data	No data	**49.9**	32.8
AB37 AB38 AB39	417223	283137	Roadside		75	No data	No data	No data	29.4	21.3
AB40 AB41 AB42	419242	282980	Roadside		65.4	No data	No data	No data	39.2	23.8
AB43 AB44 AB45	419500	283004	Roadside		75	No data	No data	No data	**43.8**	27.2
AB46 AB47 AB48	419285	283022	Roadside		75	No data	No data	No data	**55.3**	36.3
AB49 AB50 AB51	416277	283691	Roadside		75	No data	No data	No data	22.2	17.7
AC1	417716	289086	Roadside		59.6	No data	No data	No data	No data	18.0
AC2	423881	277290	Roadside		75	No data	No data	No data	No data	12.1
AC3	424383	276289	Roadside		75	No data	No data	No data	No data	10.1
AC4	417180	286880	Roadside		59.6	No data	No data	No data	No data	16.8
AC5	412965	278406	Roadside		59.6	No data	No data	No data	No data	15.9
AC6	415001	281564	Roadside		59.6	No data	No data	No data	No data	15.7
AC7	414902	282623	Roadside		59.6	No data	No data	No data	No data	19.2
AC8	418682	287390	Roadside		59.6	No data	No data	No data	No data	16.7
AC9	414088	278186	Roadside		59.6	No data	No data	No data	No data	10.8
AC10	423969	282261	Roadside		59.6	No data	No data	No data	No data	18.2

☒ **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**

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**.

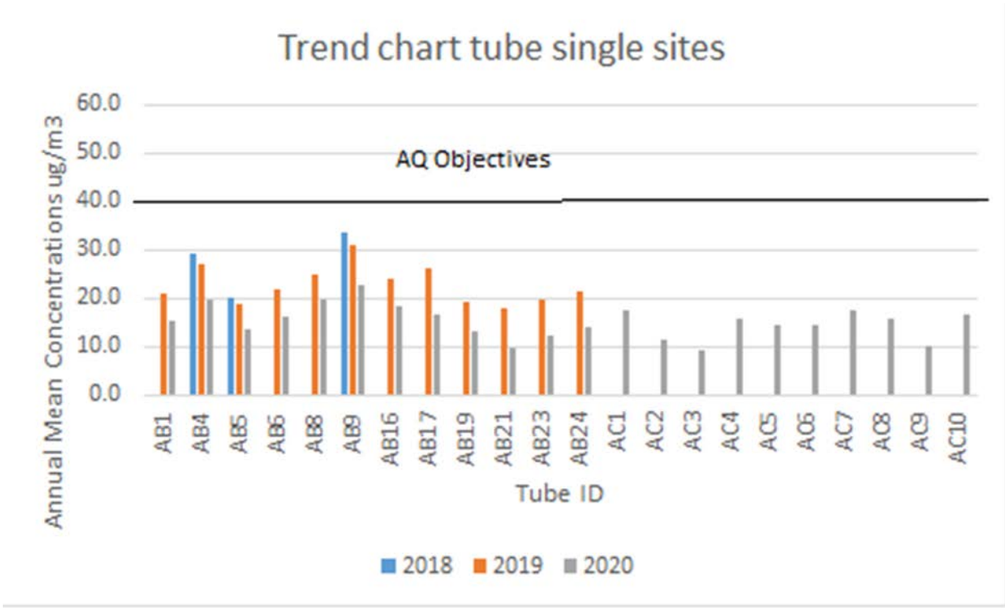
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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.

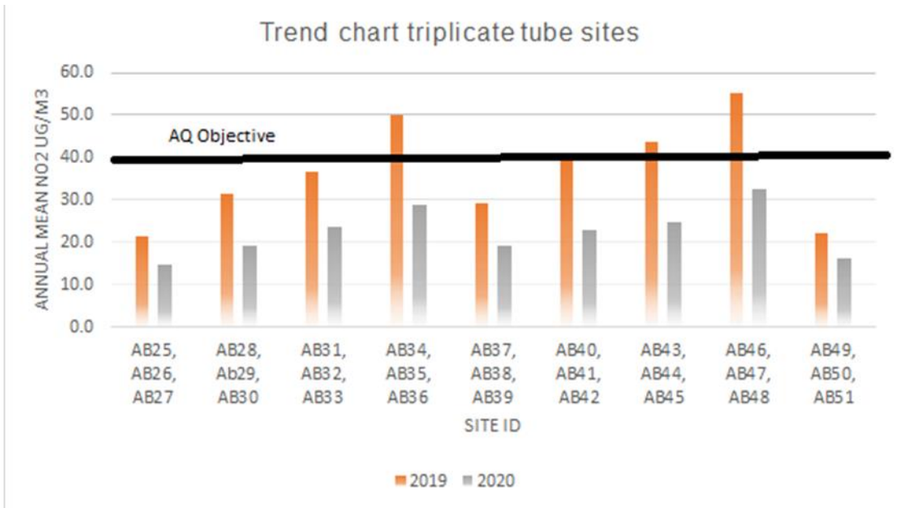
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations (Single Tube Sites)



The above chart presents NO_2 annual mean concentrations for single tube sites between years 2018 to 2020 (where full data exists) . There are no exceedances of the annual mean objective in 2020 and there is a general trend of reduction experienced across the sites.

Figure A.2 – Trends in Annual Mean NO_2 Concentrations (Triplicate Tube Sites)



The above chart presents NO_2 annual mean concentrations for triplicate sites AB25 to AB51 between years 2019 to 2020 (there is no data for these sites in 2018). There are no exceedances of the annual mean objective in 2020 and there is a general trend of reduction experienced across the sites.

Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO_2 2020 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.83)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
AB1	414297	289963	24.9	19.1			13.9	14.7	15.1	17.5	22.4	19.6	25.4	22.5	20.1	16.7		
AB4	413337	282206	31.1	27.7			16.8	19.6	20.7	22.3	29.0	26.7	30.7	31.1	26.5	22.0		
AB5	417108	285417	24.2	19.2			10.7	12.4	11.6	14.7	18.5	18.4	23.4	23.2	18.4	15.3		
AB6	414698	279709	30.0	21.6			15.8	15.8		18.7		22.4	26.6	24.3	22.7	17.0		
AB8	415229	279699	32.5	23.6			19.1	19.1	17.6		27.3	26.4		30.0	25.4	20.5		
AB9	411740	279645	42.6	34.0			19.6	20.9	24.6	27.9	28.4	27.2	33.9	33.5	30.3	25.1		
AB16	412229	278254	34.7	32.6			13.9	16.1	18.0	20.5	22.9	23.1	32.1	27.7	25.2	20.9		
AB17	414622	279481	35.0	24.4			15.0	13.7	12.7		21.4	20.0	24.8	26.7	22.4	17.2		
AB19	415267	280427	22.5	17.1			13.3	14.5	9.5	16.0	18.3	18.7	22.0	17.5	17.3	14.4		
AB21	424203	276372	17.7	16.2			9.8	7.9	6.7	8.7	11.1	9.5	17.2	16.9	12.4	10.3		
AB23	418494	282878	22.3	15.9			12.2	11.8	11.4	13.2	15.6	14.9	18.2	20.0	15.9	13.2		
AB24	413003	277139	20.1	16.3			12.4	13.2	12.4	18.1	18.3	18.4	23.8	23.7	18.4	15.2		
AB25	416803	283259	20.2	14.5			16.6	17.3		17.6	20.4	19.0	17.7	17.2				Triplicate Site with AB25, AB26 and AB27 - Annual data provided for AB27 only
AB26	416803	283259	22.5	15.9			18.1	17.3	11.1	18.2	20.6	18.7	23.8	24.9				
AB27	416803	283259	21.4	15.2			16.7	17.1	10.3	18.2	21.6	17.8	20.6		18.2	15.1		
AB28	418505	282921	30.2	26.3			18.3	18.9	18.6	22.3	25.1	27.0	25.4	23.5		-		Triplicate Site with AB28, AB29 and AB30 - Annual data provided for AB30 only
AB29	418505	282921	36.4	22.5			18.8	21.0	15.3	23.9	28.7	26.9	31.3	28.8	-	-		
AB30	418505	282921	32.2	23.7			17.8	17.2	15.9	22.9	29.9	25.1	27.3	30.7	25.1	20.8		
AB31	417400	283121	44.9	29.1			17.9	21.0	20.1	24.9	31.3	30.5	40.9	34.8	-	-		Triplicate Site with AB31, AB32 and AB33 - Annual data provided for AB33 only
AB32	417400	283121	46.8	34.9			17.8	25.8	23.0	38.4	33.5	31.2	36.4	36.3	-	-		
AB33	417400	283121	42.8	36.4			19.3	20.5	23.6	19.8	32.6	31.6	42.3	34.0	32.0	26.6		
AB34	419213	283020	60.3	49.9			21.3	21.3	26.1	33.5	40.0	37.9	44.0	44.3	-	-		Triplicate Site with AB34, AB35 and AB36 - Annual data provided for AB36 only
AB35	419213	283020	54.3	55.8			20.6	27.1	24.5	27.5	39.4	35.4	47.3	37.0	-	-		
AB36	419213	283020	62.3	46.9			23.5	25.6	28.2	35.6	43.1	37.9	45.0	42.9	39.5	32.8		
AB37	417223	283137	35.3	26.1			17.7	19.9	19.9	20.5	29.2	27.8	35.9	26.9	-	-		Triplicate Site with AB37, AB38 and AB39 - Annual data provided for AB39 only
AB38	417223	283137	32.7	22.4			17.1	18.6	19.0	19.6	28.6	24.1	29.3	25.3	-	-		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.83)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
AB39	417223	283137	33.8	24.9			16.4	18.2	17.8	22.2	28.5	27.7	28.6	31.4	25.7	21.3		
AB40	419242	282980	36.9	30.1			22.3	22.3	24.7	28.5	35.6		30.5	35.5	-	-		Triplicate Site with AB40, AB41 and AB42 - Annual data provided for AB42 only
AB41	419242	282980	37.3	27.3			21.6	23.9	24.1	28.3	34.0		32.3	30.4	-	-		
AB42	419242	282980	38.5	25.3			21.2	24.5	24.0	27.5	32.9		36.8	31.3	30.1	23.8		
AB43	419500	283004	39.6	26.4			22.7	24.1	28.6	34.3	39.8	34.3	36.8	34.6	-	-		Triplicate Site with AB43, AB44 and AB45 - Annual data provided for AB45 only
AB44	419500	283004	33.5	26.9			22.7	24.9	28.0	34.4	37.9	32.2	31.9	38.2	-	-		
AB45	419500	283004	40.5	30.4			22.8	25.8	27.0	33.9	37.6		34.7	32.1	32.8	27.2		
AB46	419285	283022	71.5	61.6				31.0	31.1	36.6	48.1	41.9	34.8	40.2	-	-		Triplicate Site with AB46, AB47 and AB48 - Annual data provided for AB48 only
AB47	419285	283022	62.4	56.8			29.8		36.9	42.6	49.8	45.5	48.5	39.4	-	-		
AB48	419285	283022	61.0	51.9			25.3	31.1	32.7	20.5	49.4	42.8	42.5	49.4	43.8	36.3	23.5	
AB49	416277	283691	30.6	25.3			14.0	13.6	11.8	15.0	19.4	20.0	28.0	29.4	-	-		Triplicate Site with AB49, AB50 and AB51 - Annual data provided for AB51 only
AB50	416277	283691	32.5	24.8			15.9	12.8	11.5	14.4	18.3	20.7	27.7	29.0	-	-		
AB51	416277	283691	32.2	23.3			16.7	13.1	11.7	14.3	18.6	21.8	29.4	27.2	21.4	17.7		
AC1	417716	289086	28.5	21.8			18.0	missing	12.0	20.0	22.1	21.9		29.8	22.5	18.0		
AC2	423881	277290	16.9	14.6			11.2	10.6	9.2	11.6	14.9	13.7	21.6	18.6	14.6	12.1		
AC3	424383	276289	16.2	11.3			9.0	8.2	7.8	9.3	12.4	12.1	17.9	14.6	12.2	10.1		
AC4	417180	286880					13.5	15.2	12.3	16.7	19.6	21.2	28.9	26.6	20.2	16.8		
AC5	412965	278406					12.2	11.8	12.2	16.6	18.8	20.0	25.4	27.6	19.1	15.9		
AC6	415001	281564					12.7	12.6	17.5	16.0	18.5	18.5	25.0	23.5	18.8	15.7		
AC7	414902	282623					14.3	16.5	11.9	21.2	25.4	23.1	32.1	30.1	23.1	19.2		
AC8	418682	287390					15.6	17.3	13.0	17.9	22.3	19.7	22.9	26.0	20.0	16.7		
AC9	414088	278186					8.7	8.6	7.9	10.1	17.7	12.2	16.1	17.7	13.0	10.8		
AC10	423969	282261					14.0	16.5	17.9	19.6	22.8	21.6	30.7	24.2	21.9	18.2		

☒ **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 >33% 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**

☒ **SMBC confirms that all 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within SMBC During 2020

There are some sources in Solihull that have been identified with a potential to impact air quality. These may include sources that are already operational, have planning permission granted or have been identified at an earlier stage of the planning process. Sources may include additional road traffic, static or standby plant, biomass or industrial processes, etc.

The M42 Junction 6 Development Consent Order (DCO) 2020

The scheme has been in development since March 2016 with a DCO application being made at the end of 2018, with a hearing held between May and November 2019. The Examining Authority's (ExA) recommendations on the scheme were submitted to the Secretary of State (SoS) for Transport in February 2020 and the SoS's decision (one of granted consent) was published on the 21st May 2020.

Birmingham Clean Air Zone (CAZ)

Birmingham City Council (BCC) have now introduced a charging CAZ covering all roads within the Middleway Ring Round surrounding the city centre as from 1st June 2021.

The A45 Coventry Road forms one of the main arterial corridors into Birmingham and the Birmingham CAZ will inevitably have an impact upon the composition of traffic on the A45 corridor and the exceedance link in Solihull.

The Birmingham CAZ Traffic Model Forecasting Report indicates that in 2020 the proportion of non-compliant vehicles crossing the CAZ boundary during the AM peak is forecast to reduce from 28% of the total flow to 9% of the flow which equates to a reduction of 40,000 non-compliant vehicles crossing the boundary. The report can be found here.

https://www.birmingham.gov.uk/downloads/file/11358/appendix_e_part_1_-_transport_modelling_forecasting_report_2020_obc_with_additional_measures

In addition, the introduction of the various measures, including the CAZ, are forecast to result in an overall reduction of 22,000 vehicles crossing the CAZ boundary. The scheme

therefore results in two changes – a reduction in the overall number of non-compliant vehicles, and a reduction in overall traffic demand. Given that the A45 is one of the main corridors into Birmingham it is therefore logical to conclude that there would also be a reduction in the number of non-compliant vehicles on the A45 and a corresponding reduction in flow.

The Forecasting report indicates that by 2022 the proportion of non-compliant vehicles crossing the Birmingham CAZ boundary is forecast to reduce from 20% to 3% which is a reduction of approximately 35,000 vehicles (AM Peak). Additionally, the total flows crossing the boundary are forecast to reduce by approximately 16,000 vehicles. In comparison, the forecast flows on the A45 Coventry Road are forecast to reduce by 2% (-900 vehicles AADT).

The introduction of the Birmingham CAZ and associated measures will result in a reduction in the proportion of non-compliant vehicles travelling on the A45 Coventry Road, including the exceedance location in Solihull, and will also result in a slight reduction in the overall traffic flows. The proposed Birmingham scheme will therefore have a slight beneficial impact upon the exceedance location in Solihull in the absence of any other measures to improve the local air quality.

HS2

HS2 is one of the largest infrastructure projects ever undertaken in this country, and will transform connectivity and economic performance at local, regional and national levels. Solihull will be served by a new HS2 station, which will act as a hub for the wider region; consequently, generating significant numbers of access and egress trips to destinations both in the immediate vicinity of the station, and also places further afield in the West Midlands and beyond. In order to make the most of the opportunity presented by HS2, SMBC has created UK Central which is an economic development programme that seeks to capitalise on the opportunities afforded to the Borough by HS2 and wider growth plans.

While these growth and development plans provide a rare opportunity for significant economic growth and benefits for Solihull, it is vital to ensure the extra trips generated by these developments do not have an adverse impact on the transport network and environment. It is therefore important that Solihull works closely with its neighbours

Other

Applications have been given approval for a number of large developments in the borough, these can be found by following the link below and typing in the application number PL/…../… at:

https://publicaccess.solihull.gov.uk/online-applications/

PL/2019/02917/MAJFOT A planning application for a 7 storey office complex was approved in March 2021. The application has an emphasis on public transport access as it sits within Solihull Town Centre in a very sustainable location and will include 6 new EV charging points. (Decision 13.03.2020)

PL/2020/00197/PPFL | Planning consent for C2 and C3 development comprising the provision of 80 No. care home units, 12 assisted living units and 47 No. residential units, internal alterations and extension to Tudor Grange House and associated works. | Tudor Grange House Blossomfield Road Solihull (Decision 22.01.2021)

PL/2020/00726/MAJFOT | Hotel and multi-storey car park with associated infrastructure and landscaping, including reconfiguration of existing car park. | Hilton Birmingham Metropole Pendigo Way National Exhibition Centre Solihull B40 1PP (Decision 13.07.21)

PL/2020/00275/MAROT | Reserved Matters application for details of access, appearance, landscaping and layout for the provision of car parking (excluding short stay, taxi and drop off parking) in connection with High Speed Rail Interchange Station pursuant to Section 23 of the High Speed Rail (London West Midlands) Act which confirms that the car parking at Interchange is to be treated as an outline planning permission under the Development Management Procedure Order. | Land And Buildings At The Interchange Triangle Bounded By The M42 Motorway The A452 Chester Road And The A45 Coventry Road Bickenhill, Solihull (Decision 27.04.2021)

PL/2019/02766/PPFL | Erection of 48 No. one bedroomed apartments in two storey extension above existing retail parade and maisonettes, alterations to ground floor unit to create new residential entrance to development, cycle store and associated works. | Development Site 20 To 66 Station Road Solihull (Decision 02.03.2021)

PL/2020/00955/HS2DIS | Development authorised by the High Speed Rail (London-West Midlands) Act 2017 relating to Schedule 17 (6) for approvals of Lorry Routes (LR): Inbound: Access from A45 (T) Coventry Road, enter along A452 Kenilworth Road

southbound and then access the site compound from A452 onto Park Lane. Outbound: Exit site compound at Park Lane onto A452 Kenilworth Road southbound and then via roundabout junction of Hall Meadow Road, head northbound on A452 Kenilworth Road through to A45 (T) Coventry Road. LGVs will use the offline roundabout at Park Lane/A452 Kenilworth Road once completed | Park Lane Compound Berkswell Solihull (Decision 27.07.2020)

PL/2020/01235/MAOOT | Outline planning application with all matters reserved except access for demolition of existing local centre and development of a new mixed use local centre including up to 86 residential dwellings (Use Class C3), up to 1,200 sq m of retail uses (Use Class A1-A5), up to 1,700 sq m of healthcare and community uses (Use Class D2) with open space, landscaping, parking and associated infrastructure. | Kingshurst Village Centre & Former Mountford Public House Marston Drive, Overgreen Drive, Gilson Way & Church Close Kingshurst Solihull (Decisoin 22.9.20)

PL/2019/02546/PPOL | Outline application for residential development of up to 109 units with associated access and public open space (landscaping, appearance, layout and scale reserved for future determination). | Land Rear Of 86 Meriden Road Hampton In Arden Solihull

PL/2021/00682/MINFOT | Full planning application for the development of Solihull Town Centre Energy Centre for low carbon energy network, associated landscaping and infrastructure. | Land Adjacent Tudor Grange Leisure Centre Blossomfield Road Solihull (Decision 20.5.21)

PL/2021/00473/HS2DIS | Development authorised by the High Speed Rail (London-West Midlands) Act 2017 relating to submissions under Schedule 17 (6) for approvals of Lorry Routes (LR): Carol Green Rail Underbridge South Satellite Compound/Waste Lane Overbridge Satellite Compound/Waste Lane East and West Road Head/Cromwell Lane Satellite Compound/Beechwood Farm Accommodation Underpass Inbound Route Construction traffic will use the A45 Coventry Rd SRN from the west before taking the A452 southbound at the Stonebridge roundabout. LGVs will continue on the A452 for approximately 3.71 miles before taking the first exit at the A452/Hallmeadow Road roundabout onto Hallmeadow Rd. LGVs will continue on Hallmeadow Rd taking the second exit at the next roundabout to remain on Hallmeadow Rd. At the Hallmeadow Rd / Station Rd roundabout LGVs will take the second exit into a purpose-built site access. Once LGVs have entered the site access they will use an internal haul route to access the listed sites. This internal route does not form a part of this application. Outbound Route

LGVs will leave the purpose-built site access onto the Hallmeadow Rd/Station Rd roundabout taking the second exit onto Hallmeadow Rd. Continue on Hallmeadow Rd until the Hallmeadow Rd/A452 roundabout, taking the second exit onto the A452 Northbound. LGVs will continue on the A452 until reaching the A45 Coventry Rd. | Hallmeadow Road Balsall Common Solihull (Decision 30.7.21)

PL/2021/01062/PPRM | Erection of three warehouse buildings 117,000 sq. ft. (equivalent to 10,870 sq. m), with ancillary office development (Use Class B1(a-c), B2, B8) with associated parking, cycle storage, servicing yards, circulation, lighting, landscaping, access road, access points off the access road and all other details required by Condition 3 relating to the reserved matters of layout, scale, appearance and landscaping pursuant to planning permission reference PL/2016/00863/MAOOT. | Blythe Valley Park Blythe Gate Shirley Solihull (Decision 29.07.21)

Additional Air Quality Works Undertaken by SMBC During 2020

A feasibility study carried out as part of the first Ministerial Direction determined that a behavioural change programme of intensive workplace travel planning carried out with the major employees in the area of the A45 would be the best method of reducing the NO_2 in the shortest possible time. A dedicated officer is continuing this work throughout 2021.

In support of works required by a second Ministerial Direction, to address air quality exceedances on a section of footpath running along the A45 As presented in the a Full Business Case (FBC), has now been submitted to Defra / JAQU detailing the planned closure of the related footway (works to be undertaken by Highways England (HE) in 2022 as part of the M42 Junction 6 improvement scheme). The closure was necessary to accommodate the new HE M42 DCO scheme but will also remove receptors (and associated exposures) as a consequence. SMBC await ministerial approval of the FBC and confirmation that time frames achieve the ‘shortest possible time’ criteria.

At the same time, and in support of the objectives of the FBC, the Local Plan and the Clean Air Strategy, SMBC is proposing additional complementary measures to make a positive impact on air quality in the area. These measures are in part a continuation of the behavioural change programme that was identified as part of the first Ministerial Direction, and unable to be implemented in full, due to the impacts of Covid-19. An expanded series

of complementary workplace travel planning measures has been identified – both to achieve the original intent of the first series and to similarly support the second additional Ministerial Direction

QA/QC of Diffusion Tube Monitoring

The diffusion tubes deployed by Solihull Metropolitan Borough Council are supplied and analysed by the UKAS accredited laboratory Gradko International Ltd who fully ratify the data. They participate in the Workplace Analysis Scheme for Proficiency (WASP) operated by the Health and Safety Executive.

The tubes used are 50% TEA/Acetone. As tubes are not the reference method it is necessary to bias correct the results based on national colocation studies. This factor varies each year and for 2020 the figure used was 0.83 using the overall factor shown on the National Diffusion Tube bias adjustment factor spreadsheet as shown below using spreadsheet version 6/21.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 06/21

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 spreadsheet 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 Sept 2021
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 make your selection, choose [All] from the pop-up list)	Year[5] (To make your selection, choose [All])	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m^3)	Automatic Monitor Mean Conc. (Cm) (µg/m^3)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in acetone	2020	UB	Sandwell Metropolitan Borough Council	11	21	19	9.4%	G	**0.91**
Gradko	50% TEA in acetone	2020	KS	Marylebone Road Intercomparison	12	57	43	33.0%	G	**0.75**
Gradko	50% TEA in acetone	2020	R	London Borough of Richmond upon Thames	12	22	20	9.4%	G	**0.91**
Gradko	50% TEA in acetone	2020	B	London Borough of Richmond upon Thames	9	19	16	20.3%	G	**0.83**
Gradko	50% TEA in acetone	2020	UB	Reading Borough Council	12	14	15	-7.7%	G	**1.08**
Gradko	50% TEA in acetone	2020	R	Reading Borough Council	12	30	25	20.2%	G	**0.83**
Gradko	50% TEA in acetone	2020	UB	Norwich City Council	10	12	10	14.4%	G	**0.87**
Gradko	50% TEA in acetone	2020	SU	Reigate and Banstead BC (RG1)	10	19	14	33.3%	G	**0.75**
Gradko	50% Tea in Acetone	2020	KS	Slough Borough Council	12	34	27	23.5%	G	**0.81**
Gradko	50% TEA in Acetone	2020	SU	Slough Borough Council	11	21	17	29.2%	G	**0.77**
Gradko	50% TEA in Acetone	2020	KS	Slough Borough Council	12	29	25	17.9%	G	**0.85**
Gradko	50% TEA in acetone	2020		**Overall Factor[3] (21 studies)**				**Use**		**0.83**

Sites are classified as defined in the Department of Food and Rural Affairs technical guidance LAQM TG16 as follows:

Kerbside 0-1 m of a busy road

Roadside 1-15m of a busy road

Urban Background distanced from the source

Suburban residential area on outskirts of a city

Monitoring was completed in adherence with the 2020 Tube Monitoring Calendar with one exception.

Tubes were placed out as normal in March but due to travel restrictions and lockdown all of the tubes stayed exposed until lockdown eased and the tubes were exchanged on 3rd June. Due to the length of time the tubes were exposed it was decided not to include these readings as results may have been compromised.

Diffusion Tube Annualisation

Annualisation was required for a total of 10 tubes as data capture was less than 75%.

The Diffusion Tube Data Processing Tool was used for the calculations and continuous background monitoring data from Birmingham Ladywood, Birmingham Oldbury and Coventry Allesley was used to populate the annualisation as the nearest sites.

A summary is shown in table C.2

Diffusion Tube Bias Adjustment Factors

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

SMBC have applied a national bias adjustment factor of 0.83 to the 2020 monitoring data using Defra spreadsheet version 6/21. A summary of bias adjustment factors used by SMBC over the past two years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	National	6/21	0.83
2019	National	09/20	0.89

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.

No diffusion tube NO_2 monitoring locations within SMBC required distance correction during 2020.

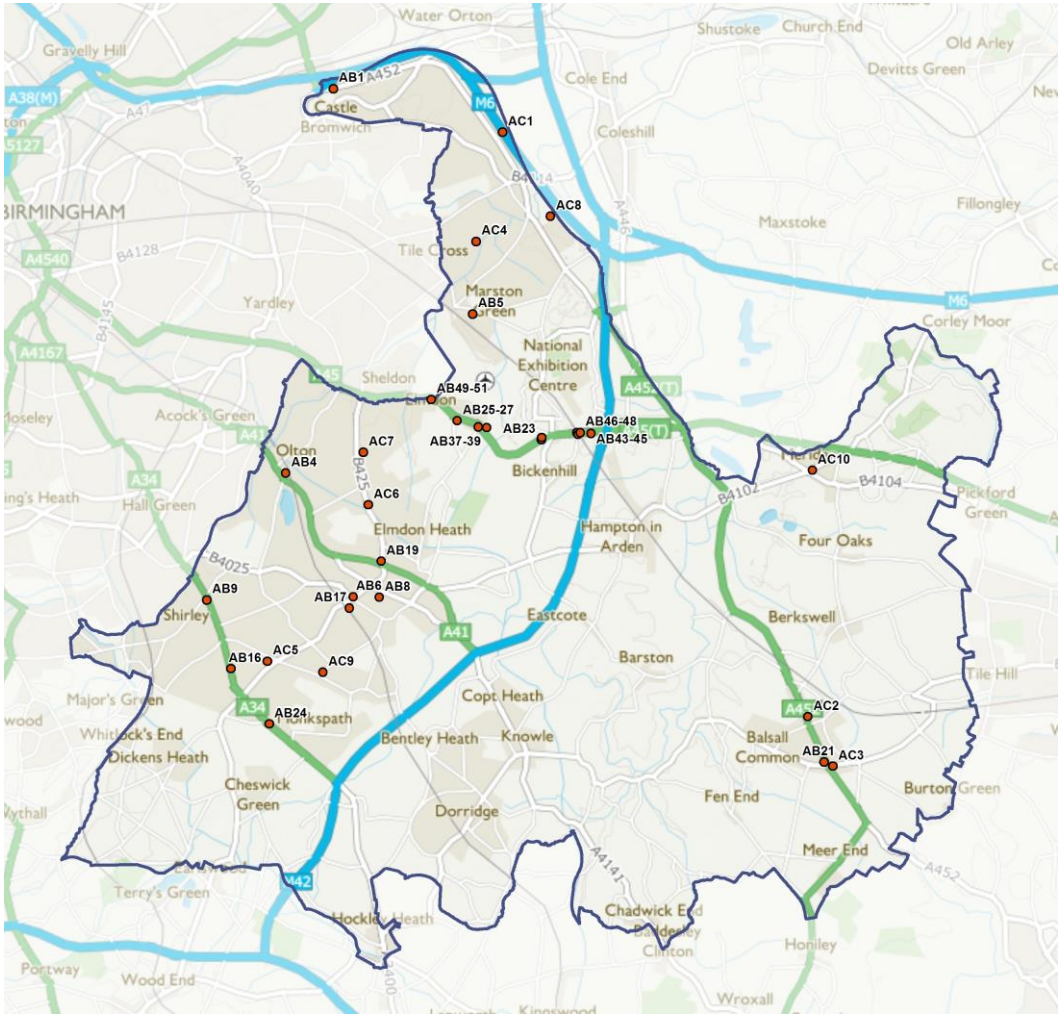
The triplicate sets of diffusion tubes are in place to review and monitor air quality associated with the stretch of the A45 referenced earlier. The majority of sites have receptors further away than 20 metres and therefore should not be distance correct. However, it is worth noting that none of these tubes showed concentrations greater than 40µg/m^3.

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

Site ID	Annualisation Factor B'ham Ladywood	Annualisation Factor B'ham Oldbury	Annualisation Factor Coventry Allesley	Annualisation Factor 4	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
AB6	0.9001	0.9370	0.8752	-	0.9041	22.7	20.5	
AB8	0.9827	0.9821	0.9455	-	0.9701	25.4	24.6	
AB17	0.9185	0.9540	0.8993		0.9239	22.4	20.7	
AB42	0.9556	0.9801	0.9273		0.9544	30.1	28.7	
AC1	0.9827	0.9801	0.9410		0.9679	22.5	21.7	
AC4	0.9726	1.0262	1.0102	-	1.0030	20.2	20.3	
AC5	0.9726	1.0262	1.0102	-	1.0030	19.1	19.2	
AC6	0.9726	1.0262	1.0102	-	1.0030	18.8	18.9	
AC7	0.9726	1.0262	1.0102	-	1.0030	23.1	23.1	
AC8	0.9726	1.0262	1.0102	-	1.0030	20.0	20.1	
AC9	0.9726	1.0262	1.0102	-	1.0030	13.0	13.0	
AC10	0.9726	1.0262	1.0102	-	1.0030	21.9	22.0	

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

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



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: 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

[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

concentrations were between 20 and 30% relative to pre-pandemic levels, which 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 SMBC

During 2020, the aviation sector was significantly disrupted, with a 70% reduction in aircraft movements observed at many UK Airports relative to 2019 levels. Passenger numbers were also reduced by approximately 77%.

A number of major employers in Solihull operated on a reduced workforce during the various lockdowns which included Solihull MBC where many employees worked from home for a long period of time which created a reduction in road traffic which contributed to annual mean NO_2 concentrations at all of our monitoring locations.

Opportunities Presented by COVID-19 upon LAQM within SMBC

SMBC created temporary emergency travel restrictions implemented as part of Covid 19 recovery plans. This entailed closing off certain roads near to main shopping areas, in place to make it safer and easier for residents to cycle and walk while maintaining social distancing. These measures have now been removed, however following a survey of residents and feedback 3 new pop up cycle lanes are to be introduced in 2021.

Solihull council is also going to improve nine routes in the borough to strengthen links between open spaces, encourage wildlife and to encourage people to walk and cycle.

The chosen routes will be widened and converted to shared use for walkers and cyclists and form part of the £16.8m Wildlife Ways project part-funded by the European Regional Development Fund.

The new shared routes will not be segregated but have been designed to safely accommodate walkers and cyclists. Signage will be installed at regular intervals in 2021 to clearly indicate shared use status and ensure walkers and cyclists use them safely with consideration for and awareness of each other.

It is hoped the shared routes will help to get more people walking and cycling in the borough and will improve health and wellbeing.

All the plans can be viewed at https://wildlifeways.co.uk/resources/shareduse

Challenges and Constraints Imposed by COVID-19 upon LAQM within SMBC

During 2020, access to a number of diffusion tube monitoring sites was not possible during part of the year due to national lockdown and closure of our nominated laboratory. Tubes placed out in March were in place until 2nd June and calculated with the hours exposed. This has affected data capture within 2020, resulting in some monitoring sites having to be annualised. This equates to a **Medium Impact**

As with previous years, a national bias adjustment factor has been utilised to adjust the diffusion tube results for 2020. Within 2019 there were 29 co-location studies that were utilised to calculate the bias factor for the laboratory and preparation method used. For 2020, this number has reduced to 21 which is 27% reduction which relates to a **Medium Impact.**

Table F 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: High
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

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.