

# 2020 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the  
Environment Act 1995  
Local Air Quality Management

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## Executive Summary: Air Quality in Our Area

### Air Quality in SMBC

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion<sup>3</sup>.

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.

There are currently no Air Quality Management Areas (AQMA) declared in Solihull but SMBC is committed to improving air quality and we will continue to monitor.

We have produced our first Clean Air Strategy to cover the period 2019-2024 and was approved at Council Cabinet meeting in February 2019. This is available on our website at <https://www.solihull.gov.uk/Environment-and-animals/Air-quality-monitoring-in-Solihull>

The strategy 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.

In February 2018 the High Court ruled that the Government's 2017 NO2 plan was insufficient to bring the UK into compliance with the EU air quality Directive and

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<sup>1</sup> Environmental equity, air quality, socioeconomic status and respiratory health, 2010

<sup>2</sup> Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>3</sup> Defra. Abatement cost guidance for valuing changes in air quality, May 2013

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ordered that ministers publish a supplementary plan mandating action by 33 additional Local Authorities (of which Solihull is one).

These 33 Authorities were required to scope out measures to improve air quality within the shortest possible timeframe. A grant was supplied by Defra for this.

In Solihull two sections of the A45 were identified by DEFRA as potentially exceeding the annual mean NO<sub>2</sub> limit value of 40µg/m<sup>3</sup> as set out in the national air quality objectives. These sections were the A45 from the M42 Island to where it meets the Birmingham boundary on both sides of the carriageway.

The two sections of road are close to the busy NEC/Airport section of the road and includes the Damson Parkway junction which is a major route used by a local car manufacturer along with nearby major business

An external consultant was appointed and a feasibility study completed to identify any mitigating measures in the specified locations, as required by the High Court. A programme of intensive workplace travel planning was proposed with the major employees in the area. This is a mixture of revenue and capital interventions which are expected to deliver high value for money.

The feasibility study was submitted to DEFRA and accepted as the best method of reducing the NO<sub>2</sub> in the shortest possible time.

SMBC is in regular discussion with officials of the DEFRA's Joint Air Quality Unit (JAQU) in respect to our monitoring data and to determine the extent of measures required to achieve compliance in the shortest time possible.

As a result of further modelling of the A45 carried out by Defra a second Ministerial Direction was issued to Solihull in March 2019 which indicated that NO<sub>2</sub> exceedances would continue until 2024 and not 2021 as previously modelled.

SMBC were tasked to identify measures that would bring compliance forward within the shortest possible time on a section of the road included in the first Direction which related to the A45 from the motorway island to Clock Island at the intersection of the B4438 in both directions. There are no nearby residential dwellings on this section of the road but there is a footpath on one side of the road which is open to the public

although it is not well used. Talks are on-going with Defra regarding the second ministerial direction. Monitoring along the section of road is also continuing with NO<sub>2</sub> diffusion tubes the results of which are reported to Defra direct.

### **Actions to Improve Air Quality**

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 a 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.

In addition the council is currently in the process of reviewing its Local Plan, part of this process will refocus planning policy to further address Air Quality issues. However any large scale developments coming forward for approval in 2019 have been scrutinised for air quality impacts.

Over the last 10 years a number of actions have reduced emissions, despite increases in pressures on the service. These include removing ageing vehicles from fleet, reducing number of household waste collections by providing larger bins and a fleet of Euro 6 refuse vehicles.

The street care fleet has also been recently upgraded to help address this emission reduction .

Solihull have also produced an electric vehicle strategy. This aims to facilitate and encourage increased uptake in electric vehicles across Solihull by addressing current barriers which have the potential to restrict EV use. Key areas have been identified and SMBC will focus on these to encourage the uptake of EV.

Solihull has the potential for high use of EV with many residents having above average salaries and many properties having off street parking suited to EV charging. At the end of the third quarter in 2019 there were 2296 ULEV's registered to Solihull residents with around 150,000 cars registered in the Borough overall.

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The mayors' car has been changed to a plug in Range Rover and in 2019 Highway Services procured 3 electric vehicles for staff use which were a replacement for 2 older electric vehicles in the Council fleet. The EV have proved to be very popular with 34,971 miles travelled so far. The council pool car fleet will continue to be reviewed as the fleet expands and we recognise that to increase the Council fleet of EV then additional charging infrastructure will be required and SMBC will look to develop a plan to do this.

There are currently 53 public charging points across the Borough with plans to expand the numbers in 2020.

SMBC is to apply for funding from central government under the On-street Residential Charging Scheme (ORCS) fund in 2020 to help finance charging points at 17 sites with 34 bays across Solihull.

The ORCS fund provides 75% of capital costs (£93k) and Solihull Council will provide the remaining £31k. The ORCS fund is designed specifically to help cater for residents that don't have access to a driveway for home-charging.

The proposal would see points installed in Bickenhill, Blythe, Dorridge and Hockley Heath, Knowle, Olton, Silhill, Shirley East and Shirley South.

The Council is also working with Virgin Media to trial charging points that use power from roadside cabinets in partnership with TfWM. This will commence in 2020.

Solihull Connected, the Council's transport strategy for Solihull, sets out the vision for how Solihull will deliver transport across the Borough. It identifies the clear need to reduce carbon emissions from transport through several measures including supporting the market for low-carbon vehicles to achieve significant take-up of ULEV <https://www.solihull.gov.uk/About-the-Council/Solihull-connected>

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.

### **Car Clubs**

An electric car sharing club in North Solihull commenced in 2018 but came to an end in 2019 after vehicles for the club were vandalised.

We are now exploring the possibility of establishing a new car club utilising the existing 9 charge points and talks are on-going with interested parties.

### **Car Share**

The car share scheme is provided by Liftshare, a social enterprise that has been operating for 20 years supporting businesses and members of the public to share their car journeys. More information is available at <https://business.liftshare.com> .

The “Birmingham Green Hub” comprising Birmingham Airport, Birmingham Business Park, NEC and Resorts World are members of Liftshare and pay an annual subscription for their staff to be able to access a dedicated area on the website. Staff can register their journey details and find other commuters making similar journeys to share with.

The Green Hub pays for basic membership and there has been almost no promotion of the facility which is reflected in the low take up and this is hoped to be addressed.

Interserve, another business engaged with the DEFRA project are also Liftshare members, but not as part of the Green Hub. They have decided not to join in with the scoping exercise but have been using in-house expertise to identify staff who could travel

### **E Bikes**

SMBC had a number of Electric bikes for staff to trial over 2 days in 2019. The bikes were electrically assisted pedal cycles that work like an electric bike but have the look of a moped and aimed largely at the E Cargo fast food delivery market.

A total of 14 employees tested the bikes. Although the bikes performed well and staff enjoyed the experience users felt that the appearance of the bike gave other road

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users the impression that it was a standard moped and not a cycle and thought this would create issues.

The Council will now look at more traditional styled electric bikes for staff use that could be maintained in house

For 2020 SMBC will be putting in a bid for electric trikes to enable the bikes used for bikeability to be transported in a sustainable way.

There are a number of ordinary cycles available for staff use and the marketing of this service will be revamped pending the outcome of the staff travel survey.

### **Air Quality at Schools**

The School Streets pilot scheme, trialled in 2017, has proved to be successful in excluding traffic around the 3 schools that participated and the scheme has now been made permanent for those schools. Traffic is excluded from certain roads around the 3 schools at key times during term time to make it safer for children in the area but also to encourage more walking and cycling. The scheme will be now rolled out to 3 other suitable schools in the Borough following consultation with local communities.

### **School air quality monitoring programme**

As part of our ongoing Borough wide air quality monitoring all primary and infant schools were asked if they wanted to take part in a new air quality monitoring project.

For a period of 12 months participating schools would receive an NO<sub>2</sub> diffusion tube each month, twinned with an educational programme. delivered to the schools. Many of the schools already have Eco Groups made up of students who would be able to take an active part in the monitoring .. (Note the project was due to run until July 2020 but had to come to an end early due to Covid restrictions)

### **School travel plans**

We are using ModeShift STARS to encourage schools to create their school travel plans with assistance when needed from the Sustainable Travel Team.

Schools are currently not obliged to have a current Travel Plan but do require an up to date one for any kind of planning requirements and we have had a number of

schools develop one for this reason. The School Travel Plan sets targets and encourages schools to promote walking, cycling and public transport amongst the whole school community and, by using ModeShift STARS, there is the added incentive of gaining nationally recognised accreditation.

### **On the move**

A behaviour change programme, On the Move, already works with children transitioning to secondary schools to use greener forms of transport on their new school journeys and this will continue.

### **Walking bus**

Walking bus routes have been set up in Solihull to pick children up at set points on the way to school in the morning to help reduce car journeys and congestion outside schools.

### **Travel planning**

Following the initial Ministerial Direction a dedicated team has been created set up to implement the agreed package of measures including travel planning with the major businesses . (NEC /Resorts World, JLR, Airport, Birmingham Business Park)

The businesses are offered targeted business support by developing action plans based on data from travel to work surveys. The action plans contain tasks to promote all modes of sustainable travel including events, promotion of cycle training, promotion of public transport discounts and incentives and promotion of walking to work along with car share where possible.

The team also offer advice and support to promote Smarter Working and have developed a set of tools to provide them with information on how to set up agile working schemes. The plans also contain actions to encourage the business to take up the grants on offer within the project.

### **Anti-Idling enforcement**

The subject of Anti-idling enforcement is relatively new to this authority and we are currently reviewing best practice with a view to introducing a policy in the near future. As an interim arrangement, the authority has developed some materials to be used both in a classroom environment and outside schools to help raise awareness and

promote the need to switch off car engines when waiting to drop off or pick up children from school.

A campaign 'Switch off-Young Lungs at Work' has been created to help inform the Council's future policy on this subject. Its aim is to achieve an 80% reduction in the number of drivers who left their engine running. This was accomplished via an awareness campaign within schools and non-confrontational conversation by council officers to inform and reinforce the key messages. It is hoped that further educational awareness packages will be carried out.

### **Reduced parking fees for EV**

Solihull has an ambition to look at this topic and is due to be reviewed in 2020 (note: postponed due to Covid 19)

### **20 MPH Zones**

In recent years, the Council has introduced a variety of mandatory, advisory, full and part-time 20mph speed limits and zones e.g., mainly associated with nearby schools. All of these have been introduced with the key objective of reducing traffic speeds and the risk of further road traffic collisions, particularly those involving children, from occurring in the future.

Their evaluation has shown positive casualty reductions but only moderate reductions in actual vehicle speeds of between 2 and 3 miles per hour, unless there are physical traffic calming features introduced at the same time. These features come with a negative impact on vehicle emissions due to the driver's need to brake and accelerate when they reach the associated road hump, cushions or chicanes.

A review is planned to take place in late 2020/21, to consider a future deployment strategy for 20mph speed limit across the Borough. The outcome will help to shape the use of these both as a road safety tool and for a means of improving air quality and the associated health benefits.

### **Road User Charging (RUC)/ Congestion charging**

Solihull works closely on its Transport policy with the other highway authorities that make up the West Midlands Combined Authority. As such, the Council is aware of Birmingham City Council Clean Air Zone proposals and will monitoring the impact of the scheme closely to help inform its own policy.

### **Strategic highway improvements**

SMBC, through its UK Central development proposals, has identified key development zones in the Borough and as and when these come forward it is expected that it will be necessary to implement associated improvements to the road network. These will be considered through the Council's planning process and their ability to mitigate the impact of any additional traffic will be considered that time. (see major schemes).

There are other highway improvement schemes and local transport infrastructure projects (HS2 / DCO M42 Junction 6) that will increase capacity of the network, reduce overall delay and improve air quality around the UCK / HS2 Hub site in the future.

### **Congestion management/traffic reduction**

The Council's state of the art Urban Traffic Management and Control system utilises both SCOOT fixed time and MOVA traffic control techniques to help minimise congestion on the local road network.

### **Workplace Parking Levy/Parking Enforcement on highway**

SMBC successfully decriminalised parking enforcement in 2007 and moved to Civil Parking Enforcement shortly afterwards. The scheme has been very successful at removing unnecessary parking obstruction, improving the flow of traffic on the local classified road network in Solihull. With this comes the added benefits of reducing congestion and improving journey times particularly in our town centres.

The section 106 Planning Agreement between SMBC and Birmingham Airport contains a condition that a car park levy is introduced at Birmingham Airport. The levy is based on the number of vehicles using the car parks over a 12 month period.

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The Airport Company will pay an amount of money based on the number of cars using the car parks and also on staff car parking.

It was agreed that the funding from the Car Park Levy will be spent on all forms of sustainable transport as described by the National Policy Framework. This will encourage walking, cycling, car share and the use of electric vehicles along with public transport and will also be available for sustainable transport initiatives, infrastructure projects and other activities which contribute to the increase in the Public Transport Modal Share targets.

Details on the car park levy amounts and projects is reported to SMBC and Solihull seeks to influence resourcing of appropriate initiatives and projects

### **Other Highway**

In October 2018 SMBC introduced a Highway works permit scheme, which reduced over 250 days of disruption, congestion and occupation of the local road network. This year the service will be looking to grow and improve compliance with the scheme, through which it will reduce costs and bring forward associated environmental benefits.

### **Fleet composition**

The latest vehicle tender for the Council fleet will require proposals to include a green option likely to be either plug in hybrid or fully electric. SMBC however recognises that some vehicles in the fleet and those of our delivery partners, such as refuse trucks, are not well suited to battery power. SMBC will explore alternate forms of ULEV such as hydrogen power.

Our fleet has 22 Euro 5 vehicles, 32 Euro 6 and 6 Euro 4 or lower. Most of these vehicles are leased, spot hired but not owned. 23 vehicles are above 3.5 t and are either diesel fuelled minibuses or commercial vehicles

Some of the Euro 5 vehicles are 2013 diesel and these are going to be the first vehicles to be changed.

Currently SMBC has 4 fully electric vehicles and 1 self charge hybrid for staff use along with the Mayors car which is a plug in hybrid.

### Monitoring

Solihull MBC has purchased portable pods (AQ Mesh units) and has identified sites for monitoring in conjunction with Public Health, Highways and other Departments within the Council. These are portable, self-powered units that can be easily re-located. The units however are not Defra approved and the data is not ratified. After discussion with Defra we have taken the option of not including the data for this reason.

### Draft cycling and walking strategy

To support Solihull's Transport Strategy 'Solihull Connected' we are currently developing a Cycling and Walking Strategy for the borough. Cycling and walking are recognised as important components to reduce congestion, improve air quality and support better physical and mental health. Cycling and walking have the real potential to enhance the vibrancy and special character of our Borough.

The Cycling and Walking Strategy presents the Council's overall approach to active travel in the borough. The strategy will set out our vision for how we will deliver cycling and walking infrastructure, how we will improve the capability and confidence of our residents to cycle and walk more often and how we will ensure new developments cater for cycling and walking.

The Strategy is a key step in our approach to accommodate growth in travel demand on our network while maintaining Solihull's special character.

Purpose of the Cycling and Walking Strategy:

- set the overall vision for cycling and walking in Solihull
- set a clear standard for cycling and walking infrastructure
- ensure major developments consider active travel - more sustainable approach to transport
- embed cycling and walking initiatives into local policy

As part of the strategy, we will also be producing a Local Cycling and Walking Infrastructure Plan (LCWIP). LCWIPs are a new Government approach to identify cycling and walking improvements required at a local level.

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The Solihull LCWIP will enable a long-term approach to develop a local cycling and walking network within the borough. The overall aim of the Solihull LCWIP will be to improve cycling and walking infrastructure across the Borough over the next 10 years.

### **Be Active Campaign**

Solihull Active 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](http://www.solihullactive.co.uk)

### **Ministerial Directions on improving air quality on the A45**

In February 2018 the High Court ruled that the Government's 2017 NO<sub>2</sub> plan was insufficient to bring the UK into compliance with the EU air quality Directive and ordered that Ministers publish a supplementary plan mandating action by 33 additional local authorities (of which Solihull is one).

These 33 authorities were required to scope out measures to improve air quality within the shortest possible timeframe. A grant was supplied by Defra for this.

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objectives. These sections were the A45 from the M42 Island to where it meets the Birmingham boundary on both sides of the carriageway.

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A programme of intensive workplace travel planning was proposed with the major employees in the area. This is a mixture of revenue and capital interventions which are expected to deliver high value for money.

The feasibility study was submitted to DEFRA and accepted as the best method of reducing the NO<sub>2</sub> in the shortest possible time.

In March 2019 a second Ministerial Direction was issued to Solihull as a result of further modelling/updates carried out by Defra which indicated that NO<sub>2</sub> exceedances would continue until 2024 and not 2021 as previously modelled.

This 2<sup>nd</sup> Ministerial Direction instructed SMBC to identify measures that would bring compliance forward within the shortest possible time on a section of the road included in the first Direction which related to the A45 from the motorway island to Clock Island at the intersection of the B4438 in both directions. There are no nearby residential dwellings on this section of the road but there is a footpath on one side of the road which is open to the public although it is not well used. Talks are on-going with Defra regarding the second ministerial direction. Monitoring along the section of road is also continuing with NO<sub>2</sub> diffusion tubes the results of which are reported to Defra direct.

SMBC is in regular discussion with officials of the DEFRA's Joint Air Quality Unit (JAQU) in respect to our monitoring data and to determine the extent of measures required to achieve compliance in the shortest time possible.

## **Low Carbon**

- The Solihull Climate Change Prospectus, launched at the end of 2019, sets out our environmental ambitions and priorities. It aims to ensure that through managed growth Solihull is at the forefront of the UK transition to a low carbon economy.
- We have already produced a single use Plastics Strategy and an Electric vehicle Strategy and we are in the process of developing the Energy Framework for the Borough and to develop a business case for Solihull Town Centre Heat Network Plan
- In 2019 a low carbon energy framework was presented to committee members who approved the proposed aim and scope of the document
- Solihull MBC has an ongoing challenge to change all of the Borough street lights to LED which consume far less energy. A 60% overall reduction in carbon saving has been made since 2014
- The SMBC carbon report for 2019 is available on our website at the following address  
<https://www.solihull.gov.uk/About-Solihull/Carbon-emissions>

## **Solihull town centre heat network**

The Council is undertaking work to bring affordable heating to town centre buildings through a district energy network to key into Solihull Councils Low Carbon prospectus.

## **Conclusions and Priorities**

Our main priority is to continue to work closely with JAQU regarding the Ministerial Directions and the monitoring undertaken as part of this study. NO<sub>2</sub> tube results are reported directly to JAQU and through our Air Quality Steering Group.

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We are in on-going discussions with Defra regarding the sections of the A45 which come under the Ministerial Direction. SMBC continue to monitor NO<sub>2</sub> across the Borough.

SMBC has also pledged to become a net zero carbon council by 2030. A low carbon future plan has been produced which sets out our ambitions and priorities to deliver a low carbon future.

In 2020 there are going to be major construction works commencing in Solihull which have the potential to effect the air quality in the area in the short term. These works are associated with HS2, the realignment of junction 6 on the M42 and the new Sprint Rapid bus system which is due to be up and running in time for the Commonwealth games in 2022. Air quality issues will be at the forefront of discussions with stakeholders.

### Local Engagement and How to get Involved

A number of initiatives and strategies have been developed across the Council to encourage sustainable behaviour and travel. Many of these policies seek to secure reductions in the reliance and use of vehicles. Active travel schemes and schools projects aim to influence positive behavioural change in a sustainable way.

Planning policy and development control routinely involve engagement with developers to secure reductions in air quality impacts. These include requirements to control dust, smoke and other amenity issues associated with demolition and construction phases along with future operational activities.

In late 2019 Solihull Council held a conference where Parish Councillors across the Borough were invited to discuss and debate air quality and environmental issues. Break out workshops allowed more detailed discussions with groups around local air quality and transport matters. Findings were fed back to decision makers.

Solihull Council continue to be signatories of the regional West Midlands Low Emissions Towns and Cities Programme (LETCP) which is a partnership comprising the seven West Midlands local authorities, (Birmingham City Council, Coventry City

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Council, Dudley MBC, Sandwell MBC, Solihull MBC, Walsall Council and Wolverhampton City Council) working together to improve air quality and reduce emissions from road transport.

Since its launch the WM LETCP have developed Good Practice Guidance on Planning and Procurement( 2014) for the West Midlands along with regional technical feasibility studies on modelling and economic health effects related to air quality.

The Good Practice Planning guidance is due to be reviewed/revised in the near future. All related documents can be found here

<https://go.walsall.gov.uk/low-emissions-towns-and-cities-programme>

The West Midlands Combined Authority (WMCA) has a mission statement “to build a healthier, happier, better connected and more prosperous region”. Improving air quality is an important aspect of improving public health and reducing health inequalities in the West Midlands.

It will do this by maintaining strong local authority partnerships focused on strategic air quality improvements, this includes seeking close alignment with WM2041, the WMCA’s climate change plan.

WMCA supports the development of regional air quality review and action planning for its seven constituent authorities. Solihull seeks to embrace and promote shared WMCA initiatives and be at the forefront of progressing air quality improvement plans.

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## 1 Local Air Quality Management

This report provides an overview of air quality in SMBC during 2019. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit 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 can be found in Table E.1 in Appendix E.

## 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 must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

Solihull Metropolitan Borough Council currently does not have any AQMAs. However we are taking air quality seriously and continue to monitor NO<sub>2</sub> with diffusion tubes throughout the Borough.

In 2019 SMBC produced an air quality strategy to cover 2019-24. This is available on the Solihull website here

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

For reference, a map of SMBC monitoring locations for 2019 is available in Appendix D.

## 2.2 Progress and Impact of Measures to address Air Quality in SMBC

SMBC has taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2

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

Solihull Clean Air Strategy 2019-2024

Solihull walking and cycling strategy engagement report to take place in 2020 but this may be delayed due to Coronavirus pandemic.

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

Birmingham and Solihull Sustainability and Transformation Plan (STP)

<https://www.solihull.gov.uk/About-the-Council/Birmingham-and-Solihull-sustainability-and-transformation-plan>

Carbon Report 2019

<https://www.solihull.gov.uk/About-Solihull/Carbon-emissions>

Climate Change Prospectus

<https://www.solihull.gov.uk/Planning-and-building-control/Climate-change>

Borough energy framework

Electric Vehicle Strategy

Key completed measures are:

- Following the first Ministerial Direction we have submitted a feasibility study to identify any mitigating measures in the specified locations. A programme of intensive workplace travel planning was proposed with the major employees in the area and the study was accepted by DEFRA as the best method of reducing the NO<sub>2</sub> in the shortest possible time. A dedicated team has been created at SMBC to liaise with companies on workplace travel planning.
- Work is on-going regarding the second Ministerial Direction.

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- Solihull has now published its Clean Air Strategy.

SMBC expects the following measures to be completed over the course of the next reporting year:

- We continue to work closely with JAQU regarding the 2<sup>nd</sup> Ministerial Direction and the monitoring undertaken as part of this study.
- SMBC will continue to monitor NO<sub>2</sub> across the Borough.

The principal challenges and barriers to implementation that SMBC anticipates facing are the major construction works due to be commence in 2020. These relate to HS2, the improvements to junction 6 of the M42 at Solihull and the works to get the Sprint Rapid Bus System in place before the Commonwealth games in 2022.

Construction work for HS2 could possibly result in increased emissions from non road technology. Haulage routes are to be designed to keep transport away from residents wherever possible and NO<sub>2</sub> tubes have been placed accordingly.

Details regarding the M42 Junction 6 improvement can be found here <https://highwaysengland.co.uk/projects/m42-junction-6-improvement/>

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Draft electric vehicle strategy	Promoting Low Emission Transport	Promoting low emission transport	2019	SMBC	In house	Strategy published	Reduced vehicle emissions	completed	For approval	Changing opinions on electric vehicles
2	Lift share Scheme	Alternatives to private vehicle use	Car & lift sharing schemes	2019	SMBC, Bham Airport, Bham Business Park, NEC and Resorts World Liftshare	Lift share/ SMBC	Increase in demand	Reduced vehicle emissions	completed	On-going indefinitely	Promotion of scheme
3	Electric vehicles for staff use	Alternative to private vehicle use	Car and lift share schemes	2018	SMBC		Currently 14,000 miles a	Reduction of emissions	completed	completed	Changing opinions on electric vehicles
4	Mode Shift Stars	Promoting Travel Alternatives	School travel plans	2018	SMBC,	In house		Reduced vehicle emissions	completed	On-going indefinitely	n/a
5	Workplace Travel Plans	Promoting Travel Alternatives	Workplace Travel Planning	2017	Ad-hoc, in response to planning applications	In -house	Mode share of single occupancy vehicle	Reduced and avoided vehicle emissions,	Completed to date	N/A	n/a
6	Be Active	Public Information	Via internet	n/a	SMBC	In-house		Reducing emissions and improving well being	Completed to date	no end date	n/a
7	Energy efficiency information	Public Information	Via leaflets	2018	SMBC	SMBC	individual uptake	N/A	Providing information when requested	no end date	n/a
8	Bike Walk Scoot	Promoting travel alternatives	School Travel Plans	On going	SMBC	SMBC	Individual up take	reduced emissions	Completed to date	no end date	

9	School streets	Traffic Management	Reduction of speed limits, 20mph zones	2017	SMBC	SMBC		Reduced emissions around schools, increased safety	Completed to date		
10	School air monitoring programme	other	Other	2018	SMBC	SMBC		Reduced vehicle emissions,	Completed	2020	Encouraging school uptake
11	Home working	Promoting Travel Alternatives	Encourage/facilitate home working	2018	SMBC	SMBC		Reduced emissions	completed	no end date	
12	cycling and walking strategy	Promoting Travel Alternatives	Promotion of cycling	2019				Reduced vehicle emissions	Document out for public consultation end 2020	2021	Improvements to cycle routes,
13	School travel plans	Promoting Travel Alternatives	School Travel Plans	2017	SMBC			Reduced vehicle emissions	completed	no end date	n/a
14	Business travel plans	Promoting Travel Alternatives	Other policy	2018	Smbc and local businesses	Defra		Reduced vehicle emissions	On going	no end date	
15	Travel action plans	Promoting Travel Alternatives	Intensive active travel campaign and infrastructure	2018	Smbc and local large employees			Reduced vehicle emissions		no end date	
16	HS2 route management	Freight and Delivery Management	Route management plans/strategic routing strategy for HGV's	2019	SMBC, HS2 and other stakeholders	minimal		Reduced vehicle emissions	On going	When HS2 complete	
17	electric vehicle strategy, low carbon strategy,	Policy Guidance and Development Control	Low emissions strategy	2018	SMBC				completed	Review and implementation on going	
18	Single use plastic strategy	Policy guidance and development control	Low emissions strategy	2019	SMBC			Reduction of greenhouses gases	completed	completed	
19	Adoption of Solihull low emission strategy	Policy Guidance and Development Control	Low emissions strategy	2018	SMBC			Reduction of emissions	On going	no end date	n/a
20	Public information awareness and review	Public information	Via the internet		SMBC			Raising awareness	Ongoing	no end date	n/a
21	procurement of greener fleet	Vehicle fleet emission efficiency	Fleet efficiency and recognition schemes	2018	SMBC tender process		Greener fleet	Reduced emissions	Completed to date	On-going when tenders expire	reduced vehicle emissions
22	Improvements to cycling network	Promoting low emissions	Promotion of cycling	2017	SMBC			Reduced emissions	On going	no end date	

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23	Town centre heat network	other	other	2018	Government's Heat Network Investment Project (HNIP)	Promotion of combustion services		Reduced emissions	On going	potentially 2021	Dependant on funding and initial investigations
24	Planning policies and Local Transport Plans.	Policy Guidance and Development Control	Other policy		SMBC		Number of planning applications where air quality has been /assessed		completed	Policy already in place	
25	Traffic congestion	Parking enforcement/traffic management	Workplace Parking Levy, Parking Enforcement on highway	2017	SMBC				completed	completed	n/a
26	Speed Restrictions	Traffic Management	Reduction of speed limits, 20mph zones	2009	SMBC	Complete		Reduced emissions	Completed to date	Completed	encouraging motorists to reduce their speed
27	Air Quality Steering Group	Public Information	Via internet	2017	SMBC	ongoing	Setting up Air Quality Steering Group		completed	Ongoing indefinitely	
28	bikeability	Promoting Travel Alternatives	Promotion of cycling	2016	SMBC	on-going	Increase in demand		Completed to date	Ongoing indefinitely	Change perception of cycling
29	Energy efficiency information for residents	Public Information	other	2018	SMBC		Increased up take	increased uptake	Reducing emissions	no end date	awareness raising
30	SMBC Clean Air Strategy	Policy Guidance	Air Quality Planning and Policy Guidance	2019	SMBC	In house	Published		completed	Strategy now in place	Public information
31	Solihull Car Club	Alternatives to private vehicle use	Car Club	2018	Smbc and partners	partners	Uptake of shared/electric vehicle use	Reduced emissions	Ended due to vandalism	completed	Intense vandalism at the start of the project meant that the project did not go ahead.
32	On street residential charging scheme	Promoting Low Emission transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging,	2020	SMBC and ORCS	On street residential charging scheme (ORCS)	Successful inclusion into scheme	Reduced emissions	Only started 2020	2021	Cannot go ahead if bid not successful
33	E Bike trial for staff	Promoting Travel Alternatives	Promotion of cycling	2019	SMBC	In house	Trial completed	Reduced emissions	completed	completed	Trial was good but type of bikes trialled not thought suitable

## 2.3 PM<sub>2.5</sub> – 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<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

SMBC is taking the following measures to address PM<sub>2.5</sub>:

A large proportion of the Borough is covered by smoke control areas and we work closely with colleagues in planning regarding this. Residents are now able to check via a map on our website to determine if they live in a smoke control area or not.

SMBC is looking at running an information campaign regarding wood burners in the near future.

SMBC have AQ mesh pods which are moved about on an 'as and where' basis. However they are not Defra approved and the data from them is not ratified and we are not including the results in this report after a discussion with Defra.

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

### 3.1 Summary of Monitoring Undertaken

#### 3.1.1 Automatic Monitoring Sites

SMBC does not currently have any automatic monitoring sites.

#### 3.1.2 Non-Automatic Monitoring Sites

SMBC undertook non- automatic (passive) monitoring of NO<sub>2</sub> at 24 locations during 2019 with another 9 sites having triplicate tubes as part of the A45 study in conjunction with Defra and the Ministerial Direction.

**Error! Reference source not found.** Appendix A shows the details of the sites.

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

### 3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias<sup>4</sup>, “annualisation” (where the data capture falls below 75%), and distance correction<sup>5</sup>. Further details on adjustments are provided in Appendix C.

#### 3.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

**Error! Reference source not found.** compares the ratified and adjusted monitored NO<sub>2</sub> annual mean concentrations for the past 5 years with the air quality objective of 40µg/m<sup>3</sup>. SMBC did not submit an ASR for the calendar year of 2018 but we did undertake NO<sub>2</sub> monitoring with diffusion tubes . Many of these locations have since changed as we now prefer to monitor on house facades wherever possible and therefore there is little like for like data we could use from 2018. However SMBC we do have 2018 data for 6 sites which were carried over to 2019 and these are shown in table A.3 for comparison. This data has been sent through to Defra for their verification of the results which they have given. None of the 6 sites from 2018

<sup>4</sup> <https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html>

<sup>5</sup> Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

required distance correction or annualisation. We did not undertake any monitoring for 2015-2017 although we do now intend to retain sites for longer periods regardless of results to show trend data. Note that the concentration data presented in **Error! Reference source not found.** 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).

In 2019 there were 2 sites of triplicate tubes that showed exceedances above 40 ug/m<sup>3</sup>. Both of these sites were part of the Defra study along the A45. There are no residential properties within 35 metres but there is a footpath which has occasional use. SMBC is currently in discussion with Defra regarding the results. These do not lie within an AQMA

For diffusion tubes, the full 2019 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 present.

### 3.2.2 Particulate Matter (PM<sub>10</sub>)

SMBC does not routinely monitor this pollutant. SMBC has AQ mesh pods which are placed out for short periods as and when required. However they are not Defra approved and the data from them is not ratified. After a discussion with Defra it has been decided not to include the results.

### 3.2.3 Particulate Matter (PM<sub>2.5</sub>)

SMBC does not routinely monitor this pollutant. SMBC has AQ mesh pods which are placed out for short periods as and when required. However they are not Defra approved and the data from them is not ratified. After a discussion with Defra it has been decided not to include the results.



Appendix A: Monitoring Results

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube collocated with a Continuous Analyser?	Height (m)
AB1	Kingsleigh Rd	Roadside	414297	289963	NO2	No	0	11.4	NO	1.9
AB2	Bluebell Dr	Roadside	419077	286749	NO2	No	0	9.8	NO	2
AB3	Greenfinch Rd	Roadside	417575	289470	no2	No	0	2	NO	2.1
AB4	Library	Roadside	413337	282206	NO2	No	0	5.6	NO	1.9
AB5	Elm Farm Ave	Roadside	417108	285417	NO2	No	0	15	NO	2.1
AB6	Streetsbrook Rd	Roadside	414698	279709	NO2	No	0	11.4	NO	1.8
AB7	Yew Tree Ln	Roadside	416292	280109	NO2	No	0	10.6	NO	1.9
AB8	Nursery	Roadside	415229	279699	NO2	No	0	4.8	NO	2
AB9	Stratford Rd by Haslucks Gr Rd	Roadside	411740	279645	NO2	No	0	3.15	NO	2
AB10	Stratford Rd opp KFC	Roadside	412178	278354	NO2	No	0	16.4	NO	1.9
AB11	High St	Roadside	409717	278629	NO2	No	0	42	NO	2.1
AB12	Fillongley Rd	Roadside	424241	282467	NO2	No	0	26.8	NO	1.9

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AB13	Greswolde Rd	Roadside	413572	280817	NO2	No	0	78	NO	2.1
AB14	Stoneford Cl	Roadside	411375	279476	NO2	No	0	46	NO	2.1
AB15	Stratford Rd by DVLA	Roadside	412169	278570	NO2	No	0	2.16	NO	1.9
AB16	Bishopton Cl	Roadside	412229	278254	NO2	No	0	5.2	NO	2.2
AB17	New Rd	Roadside	415622	279481	NO2	No	0	2.8	NO	1.9
AB18	Hampton Rd	Roadside	416093	279936	NO2	No	0	21.1	NO	1.9
AB19	Lode Ln	Roadside	415267	280427	NO2	No	0	16.7	NO	1.9
AB20	Lode Ln 2	Roadside	415298	280257	NO2	No	0	12.4	NO	1.9
AB21	Kenilworth Rd	Roadside	424203	276372	NO2	No	0	20.1	NO	2
AB22	Blackford Rd	Roadside	412341	277648	NO2	No	0	14.4	NO	1.9
AB23	Clock Ln	Roadside	418494	282878	NO2	No	0	4.5	NO	1.8
AB24	Stratford Rd	Roadside	413003	277139	NO2	No	0	10.6	NO	1.9
AB25	A45/Damson Parkway	Roadside	416803	283259	NO2	No	0	14.7	NO	1.8
AB26	A45/Damson Parkway	Roadside	416803	283259	NO2	No	0	14.7	NO	1.8
AB27	A45/Damson Parkway	Roadside	416803	283259	NO2	No	0	14.7	NO	1.8
AB28	A45/Clock Ln	Roadside	418505	282921	NO2	No	40	3.3	NO	2.3
AB29	A45/Clock Ln	Roadside	418505	282921	NO2	No	40	3.3	NO	2.3
AB30	A45/Clock Ln	Roadside	418505	282921	NO2	No	40	3.3	NO	2.3
AB31	A45/nr Tristar hotel	Roadside	417400	283121	NO2	No	24	4	NO	2.4
AB32	A45/nr Tristar hotel	Roadside	417400	283121	NO2	No	24	4	NO	2.4

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AB33	A45/nr Tristar hotel	Roadside	417400	283121	NO2	No	24	4	NO	2.4
AB34	A45/nr Arden hotel	Roadside	419213	283020	NO2	No	72	4.3	NO	2.12
AB35	A45 nr /Arden hotel	Roadside	419213	283020	NO2	No	72	4.3	NO	2.12
AB36	A45/nr Arden hotel	Roadside	419213	283020	NO2	No	72	4.3	NO	2.12
AB37	A45/Old Damson Ln	Roadside	417223	283137	NO2	No	0	6.9	NO	1.6
AB38	A45/Old Damson Ln	Roadside	417223	283137	NO2	No	0	6.9	NO	1.6
AB39	A45/Old Damson Ln	Roadside	417223	283137	NO2	No	0	6.9	NO	1.6
AB40	A45/Church Ln	Roadside	419242	282980	NO2	No	125	3.1	NO	2.2
AB41	A45/Church Ln	Roadside	419242	282980	NO2	No	125	3.1	NO	2.2
AB42	A45/Church Ln	Roadside	419242	282980	NO2	No	125	3.1	NO	2.2
AB43	A45/Church Ln 2	Roadside	419500	283004	NO2	No	220	3.1	NO	2.4
AB44	A45/Church Ln 2	Roadside	419500	283004	NO2	No	220	3.1	NO	2.4
AB45	A45/Church Ln 2	Roadside	419500	283004	NO2	No	220	3.1	NO	2.4
AB46	A45/opp Church Ln	Roadside	419285	283022	NO2	No	39	1	NO	2.4
AB47	A45/opp Church Ln	Roadside	419285	283022	NO2	No	39	1	NO	2.4
AB48	A45/opp Church Ln	Roadside	419285	283022	NO2	No	39	1	NO	2.4
AB49	A45/Goodway Rd	Roadside	416277	283691	NO2	No	30	0	NO	2
AB50	A45/Goodway Rd	Roadside	416277	283691	NO2	No	30	0	NO	2

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AB51	A45/Goodway Rd	Roadside	416277	283691	NO2	No	30	0	NO	2
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**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.

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Table A.3 – Annual Mean NO<sub>2</sub> Monitoring Results –(bias corrected) note SMBC only has data a few sites for 2 years with no data for the previous years. (see 3.2.1)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3) (4)</sup>				
							2015	2016	2017	2018	2019
AB1	414297	289963	Roadside	Diffusion		91.6					21.17
AB2	419077	286749	Roadside	Diffusion		83.3					19.65
AB3	417575	289470	Roadside	Diffusion		91.6					28.32
AB4	413337	282206	Roadside	Diffusion		91.6				29.26	26.97
AB5	417108	285417	Roadside	Diffusion		91.6				20.17	18.81
AB6	414698	279709	Roadside	Diffusion		91.6					21.93
AB7	416292	280109	Roadside	Diffusion		83.3					17.91
AB8	415229	279699	Roadside	Diffusion		83.3					24.76
AB9	411740	279645	Roadside	Diffusion		91.6				33.77	31.18
AB10	412178	278354	Roadside	Diffusion		100					21.20
AB11	409717	278629	Roadside	Diffusion		75					15.94
AB12	424241	282467	Roadside	Diffusion		91.6				17.57	13.86

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Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3) (4)</sup>				
							2015	2016	2017	2018	2019
AB13	413572	280817	Roadside	Diffusion		83.3				18.74	15.87
AB14	411375	279476	Roadside	Diffusion		91.6				17.11	13.71
AB15	412169	278570	Roadside	Diffusion		83.3					27.14
AB16	412229	278254	Roadside	Diffusion		91.6					24.11
AB17	415622	279481	Roadside	Diffusion		91.6					26.14
AB18	416093	279936	Roadside	Diffusion		91.6					18.09
AB19	415267	280427	Roadside	Diffusion		91.6					19.35
AB20	415298	280257	Roadside	Diffusion		91.6					19.60
AB21	424203	276372	Roadside	Diffusion		91.66					13.19
AB22	412341	277648	Roadside	Diffusion		91.66					17.84
AB23	418494	282878	Roadside	Diffusion		100					19.53
AB24	413003	277139	Roadside	Diffusion		91.66					21.26
AB25	416803	283259	Roadside	Diffusion		100					21.09
AB26	416803	283259	Roadside	Diffusion		100					21.83

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Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3) (4)</sup>				
							2015	2016	2017	2018	2019
AB27	416803	283259	Roadside	Diffusion		100					21.45
AB28*	418505	282921	Roadside	Diffusion		100					30.99
AB29*	418505	282921	Roadside	Diffusion		100					31.70
AB30*	418505	282921	Roadside	Diffusion		100					31.78
AB31*	417400	283121	Roadside	Diffusion		100					34.58
AB32*	417400	283121	Roadside	Diffusion		100					38.26
AB33*	417400	283121	Roadside	Diffusion		100					37.18
AB34*	419213	283020	Roadside	Diffusion		100					<b>49.22</b>
AB35*	419213	283020	Roadside	Diffusion		100					<b>48.96</b>
AB36*	419213	283020	Roadside	Diffusion		100					<b>51.40</b>
AB37	417223	283137	Roadside	Diffusion		100					29.41
AB38	417223	283137	Roadside	Diffusion		100					29.49
AB39	417223	283137	Roadside	Diffusion		100					29.26
AB40*	419242	282980	Roadside	Diffusion		100					39.31
AB41*	419242	282980	Roadside	Diffusion		100					37.89
AB42*	419242	282980	Roadside	Diffusion		100					<b>40.25</b>

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Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2019 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup> <sub>(4)</sub>	2016	2017	2018	2019
AB43*	419500	283004	Roadside	Diffusion		58.33					<b>44.20</b>
AB44*	419500	283004	Roadside	Diffusion		58.33					<b>42.11</b>
AB45*	419500	283004	Roadside	Diffusion		58.33					<b>45.17</b>
AB46*	419285	283022	Roadside	Diffusion		58.33					<b>56.18</b>
AB47*	419285	283022	Roadside	Diffusion		58.33					<b>52.00</b>
AB48*	419285	283022	Roadside	Diffusion		58.33					<b>57.66</b>
AB49	416277	283691	Roadside	Diffusion		100					21.89
AB50	416277	283691	Roadside	Diffusion		100					22.89
AB51	416277	283691	Roadside	Diffusion		100					21.83

Diffusion tube data has been bias corrected

Annualisation has been conducted where data capture is <75% (tubes AB43-48)

Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance adjustment. **NOTE: \* these have not been distance corrected. They do not have any relevant receptors and are sited as part of the Ministerial direction from Defra**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

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

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

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

## Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 NO<sub>2</sub> Monthly Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO <sub>2</sub> Mean Concentrations (µg/m <sup>3</sup> )														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.89) and Annualised <sup>(1)</sup>	Distance Corrected to Nearest Exposure <sup>(2)</sup>
AB1	414297	289963		30.30	21.77	23.18	20.94	19.09	18.84	20.08	23.64	24.15	36.35	23.28	23.78	21.17	No
AB2	419077	286749		30.37	19.05	25.00	16.61	19.67	18.72	15.19	21.11	24.80	30.30		22.08	19.65	No
AB3	417575	289470		45.36	28.09	32.57	29.19	24.54	24.69	21.81	29.50	34.21	48.29	31.79	31.82	28.32	No
AB4	413337	282206		36.41	31.33	29.70	31.17	29.07	25.55	24.77	27.23	32.58	34.20	31.30	30.30	26.97	No
AB5	417108	285417		26.79	19.85	19.64	16.64	17.59	17.90	17.18	18.75	23.65	32.44	22.07	21.14	18.81	No
AB6	414698	279709		32.29	25.41	30.84	22.03	16.73	22.74	15.14	24.03	28.38	29.34	24.11	24.64	21.93	No
AB7	416292	280109		33.27	19.50	16.20	14.55	16.61	15.11	15.29		22.55	24.19	23.95	20.12	17.91	No
AB8	415229	279699			24.94	32.30	24.83	27.20	24.04	19.56	26.64	34.00	37.63	27.04	27.82	24.76	No
AB9	411740	279645	51.1	40.06	41.42	30.06	34.28	16.89	33.38	31.90	32.58	38.02		35.71	35.04	31.18	No
AB10	412178	278354	29.8	28.25	18.19	26.21	20.61	20.30	18.80	15.26	22.75	25.11	37.17	23.43	23.82	21.20	No
AB11	409717	278629		18.93	15.31	17.74		12.12		21.10	14.73	15.65	29.65	15.98	17.91	15.94	No
AB12	424241	282467		23.05	12.52	12.29	13.33	12.13	12.38	10.89	16.00	17.07	23.80	17.90	15.58	13.86	No

## Solihull Metropolitan Borough Council

Site ID	X Grid Ref (Easting)	Y Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual mean		
															Raw data	Bias Adjusted (0.89) and Annualised <sup>(1)</sup>	Distance Corrected to Nearest Exposure <sup>(2)</sup>
AB13	413572	280817		19.85	14.03	16.95	12.98	12.26		22.58	15.27	18.38	27.39	18.64	17.83	15.87	No
AB14	411375	279476		20.84	12.82	19.38	12.67	12.51	11.16	8.21	11.84	19.74	22.68	17.64	15.41	13.71	No
AB15	412169	278570	39.9	36.08	25.78			28.05	22.89	20.30	28.81		40.47	32.11	30.49	27.14	No
AB16	412229	278254	17.9	38.81	29.78	19.37	22.55	24.71	27.58	27.02	25.99	32.24	32.07		27.09	24.11	No
AB17	415622	279481		36.64	30.14	29.23	26.78	26.65	24.57	19.94	26.76	32.22	41.20	28.89	29.37	26.14	No
AB18	416093	279936		25.29	22.58	18.90	16.42	22.75	14.43	13.23	19.17	24.02	22.98	23.77	20.32	18.09	No
AB19	415267	280427		27.46	16.74	24.69	18.07	20.77	15.46	14.58	21.36	24.90	32.13	23.01	21.74	19.35	No
AB20	415298	280257		25.63	19.74	22.63	18.08	20.88	18.76	14.14	22.36	24.94	32.27	22.83	22.02	19.60	No
AB21	424203	276372		21.44	15.45	16.07	12.48	10.20	10.07	6.32	12.77	17.58	24.72	15.91	14.82	13.19	No
AB22	412341	277648		24.97	16.47	23.29	16.69	32.77	14.40	11.42	17.44	18.23	24.27	20.55	20.05	17.84	No
AB23	418494	282878	32.6	20.56	19.80	22.90	22.45	19.05	19.84	14.22	21.03	21.08	31.11	18.75	21.95	19.53	No
AB24	413003	277139		38.81	20.62	24.56	20.61	20.73	20.23	18.06	22.13	22.76	31.47	22.81	23.89	21.26	No
AB25	416803	283259	33.1	20.18	19.85	38.10	26.88	21.67	18.17	10.24	19.18	23.47	36.41	17.12	23.70	21.09	No
AB26	416803	283259	30.2	20.66	22.48	41.17	25.50	22.90	18.76	11.38	17.03	26.03	38.07	20.21	24.53	21.83	No
AB27	416803	283259	33.0	23.46	19.85	41.35	24.55	23.74	18.76	10.42	19.08	missi ng	33.66	17.27	24.10	21.45	No
AB28*	418505	282921	43.1	31.46	33.80	37.91	37.84	32.92	32.14	28.30	33.23	32.07	48.36	26.83	34.83	30.99	No
AB29*	418505	282921	48.9	29.98	32.49	40.58	36.57	35.26	32.05	30.19	37.64	21.64	54.12	28.01	35.62	31.70	No

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Site ID	X Grid Ref (Easting)	Y Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual mean			
															Raw data	Bias Adjusted (0.89) and Annualised <sup>(1)</sup>	Distance Corrected to Nearest Exposure <sup>(2)</sup>	
AB30*	418505	282921	46.2	29.69	32.09	37.81	36.85	34.03	31.34	31.51	37.62	32.73	53.97	24.61	35.71	31.78	No	
AB31*	417400	283121	48.3	39.86	38.80	36.56	35.74	31.31	37.46	30.52	40.39	40.24	48.65	38.52	38.86	34.58	No	
AB32*	417400	283121	49.5	47.25	40.56	44.89	39.22	34.68	36.39	35.80	45.19	43.81	58.93	39.63	42.99	38.26	No	
AB33*	417400	283121	56.8	49.22	36.69	38.72	40.17	35.76	39.12	34.54	36.25	45.47	49.36	39.25	41.78	37.18	No	
AB34*	419213	283020	54.2	62.42	53.24	53.59	48.76	53.83	51.77	56.37	60.39	60.44	56.39	52.25	55.30	<b>49.22</b>	No	
AB35*	419213	283020	63.0	74.37	45.50	54.07	51.40	50.84	46.33	49.60	51.99	56.24	56.39	60.42	55.01	<b>48.96</b>	No	
AB36*	419213	283020	56.4	82.79	50.15	53.83	53.17	53.00	53.47	57.86	58.08	61.80	53.77	58.72	57.75	<b>51.40</b>	No	
AB37	417223	283137	46.5	32.37	28.17	32.79	33.96	32.30	28.89	23.48	33.23	34.99	42.06	27.86	33.05	29.41	No	
AB38	417223	283137	46.8	36.28	30.90	38.62	34.45	27.19	28.25	20.23	34.48	33.48	37.82	29.11	33.14	29.49	No	
AB39	417223	283137	46.4	37.97	32.00	32.20	35.25	29.36	26.78	21.63	31.97	31.76	42.72	26.53	32.88	29.26	No	
AB40*	419242	282980	56.5	35.31	44.38	59.61	49.45	45.24	39.71	28.30	46.12	38.64	58.89	27.96	44.17	39.31	No	
AB41*	419242	282980	51.9	35.58	33.22	55.61	52.36	43.56	39.30	30.19	38.94	42.23	59.06	28.94	42.57	37.89	No	
AB42*	419242	282980	61.4	33.86	38.41	63.06	48.91	45.06	39.90	31.51	45.73	43.12	61.23	30.51	45.23	40.25	No	
AB43*	419500	283004							56.57	47.27	26.11	48.42	44.43	60.49	32.74	49.66***	44.20	No
AB44*	419500	283004							63.36	43.33	25.78	49.52	40.8	47.01	31.29	47.31***	42.11	No

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Site ID	X Grid Ref (Easting)	Y Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual mean		
																Bias Adjusted (0.89) and Annualised <sup>(1)</sup>	Distance Corrected to Nearest Exposure <sup>(2)</sup>
AB45*	419500	283004						61.98	47.77	30.94	44.81	41.64	63.97	31.84	50.75***	<b>45.17</b>	No
AB46*	419285	283022						50.18	61.08	55.46	64.61	45.42	68.1	56.85	63.12***	<b>56.18</b>	No
AB47*	419285	283022						44.05	50.99	47.81	59.69	58.97	56.08	54.26	58.43***	<b>52.00</b>	No
AB48*	419285	283022						49.99	58.53	47.81	62.69	65.76	64.03	63.49	64.79**	<b>57.66</b>	No
AB49	416277	283691	36.5	30.78	23.15	26.21	20.75	19.60	17.86	12.56	22.42	25.44	31.22	28.71	24.60	21.89	No
AB50	416277	283691	40.6	31.71	27.15	26.90	20.06	19.87	16.71	13.45	22.45	25.79	33.72	30.22	25.72	22.89	No
AB51	416277	283691	37.1	31.44	23.93	27.07	20.18	20.67	17.81	13.15	22.81	25.35	26.45	28.30	24.53	21.83	No

- Local bias adjustment factor used (confirm by selecting in box)
- National bias adjustment factor used (confirm by selecting in box) 0.89
- Annualisation has been conducted where data capture is <75% (confirm by selecting in box)
- Where applicable, data has been distance corrected for relevant exposure in the final column (confirm by selecting in box)

Notes: \*\* These tubes have not been distance corrected , There are no nearby receptors and these sites form part of the monitoring undertaken as part of the ministerial direction issued to SMBC to monitor along a stretch of the A45.

**Note \*\*\*** Tubes AB43-AB48 were annualised by a factor of 1.1. Details are shown in appendix C

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

(1) See Appendix C for details on bias adjustment and Annualisation. (2) Distance corrected to nearest relevant public exposure.

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

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 2019 the figure used was 0.89 using the overall factor shown on the National Diffusion Tube bias adjustment factor spreadsheet as shown below.

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

Tube results have been distance corrected where needed with the exception of the sets of triplicate tubes along the A45 in place for the study with Defra. The majority of these sites have receptors further away than 20 metres and therefore unable to correctly distance correct.

### Annualisation

This has been carried out for tubes AB43 to AB48. It was carried out using the examples and guidance in TG16 and using data from the Acocks Green Birmingham site. The R figure was derived using Acocks Green continuous background monitoring site data. The

## Solihull Metropolitan Borough Council

R was calculated as 1.12. R figure then checked against three local tubes AB40\*, AB41\* and AB42\* (which were located close to tube AB43\*- AB48\*). Resultant R figures all between 1.06 and 1.09, meaning all calculated R figures were 1.1 (clearly Ra is 1.1 also). As such the calculated R value is considered highly reliable for use with AB43 - AB48\* data. Please note all missing months were the same for AB43\* - AB48\* so the R figure applies to all the tube average for these sites.

### Annualisation for tubes AB43-AB48

#### Tube AB43

Month	B1 Acocks Green Site	D1 ( tube data for AB 43)	B1 when D1 is available
January19	28.58		
February 19	26.33		
March 19	14		
April 19	20.57		
May 19	14.7		
June 19	11.52	56.57	11.52
July 19	11.04	47.27	11.04
August 19	12.46	26.11	12.46
September 19	13.78	48.42	13.78
October 2019	19.93	44.43	19.93
November 2019	25.62	60.49	25.62
December 20	19.43	32.74	19.43
<b>average</b>	<b>18.2</b>	<b>45.1</b>	<b>16.3</b>
		<b>R</b>	<b>1.117</b>
<b>Annualised average</b>	<b>D1 x 1.1</b>	<b>49.61</b>	

## Tube AB44

Month	B1 Acocks Green Site	D1 ( tube data for AB 44)	B1 when D1 is available
January19	28.58		
February 19	26.33		
March 19	14		
April 19	20.57		
May 19	14.7		
June 19	11.52	63.36	11.52
July 19	11.04	43.33	11.04
August 19	12.46	25.78	12.46
September 19	13.78	49.52	13.78
October 2019	19.93	40.8	19.93
November 2019	25.62	47.01	25.62
December 20	19.43	31.29	19.43
<b>average</b>	<b>18.2</b>	<b>43.01</b>	<b>16.3</b>
		R	<b>1.117</b>
<b>Annualised avearage</b>	<b>D1 x 1.1</b>	<b>47.31</b>	

**AB45**

<b>Month</b>	<b>B1 Acocks Green Site</b>	<b>D1 ( tube data for AB 45)</b>	<b>B1 when D1 is available</b>
January19	28.58		
February 19	26.33		
March 19	14		
April 19	20.57		
May 19	14.7		
June 19	11.52	61.98	11.52
July 19	11.04	47.77	11.04
August 19	12.46	30.94	12.46
September 19	13.78	44.81	13.78
October 2019	19.93	41.64	19.93
November 2019	25.62	63.97	25.62
December 20	19.43	31.84	19.43
<b>average</b>	<b>18.2</b>	<b>46.14</b>	<b>16.3</b>
		<b>R</b>	<b>1.117</b>
<b>Annualised average</b>		<b>50.75</b>	

**AB46**

<b>Month</b>	<b>B1 Acocks Green Site</b>	<b>D1 ( tube data for AB 46)</b>	<b>B1 when D1 is available</b>
January19	28.58		
February 19	26.33		
March 19	14		
April 19	20.57		
May 19	14.7		
June 19	11.52	50.18	11.52
July 19	11.04	61.08	11.04
August 19	12.46	55.46	12.46
September 19	13.78	64.61	13.78
October 2019	19.93	45.42	19.93
November 2019	25.62	68.1	25.62
December 20	19.43	56.85	19.43
<b>average</b>	<b>18.2</b>	<b>57.39</b>	<b>16.3</b>
		<b>R</b>	<b>1.117</b>
<b>Annualised average</b>	<b>D1 x 1.1</b>	<b>63.12</b>	

**AB47**

<b>Month</b>	<b>B1 Acocks Green Site</b>	<b>D1 ( tube data for AB 47</b>	<b>B1 when D1 is available</b>
January19	28.58		
February 19	26.33		
March 19	14		
April 19	20.57		
May 19	14.7		
June 19	11.52	44.05	11.52
July 19	11.04	50.99	11.04
August 19	12.46	47.81	12.46
September 19	13.78	59.69	13.78
October 2019	19.93	58.97	19.93
November 2019	25.62	56.08	25.62
December 20	19.43	54.26	19.43
<b>average</b>	<b>18.2</b>	<b>53.12</b>	<b>16.3</b>
		<b>R</b>	<b>1.117</b>
<b>Annualised average</b>	<b>D1 x 1.1</b>	<b>58.43</b>	

## AB48

Month	B1 Acocks Green Site	D1 ( tube data for AB 48)	B1 when D1 is available
January19	28.58		
February 19	26.33		
March 19	14		
April 19	20.57		
May 19	14.7		
June 19	11.52	49.99	11.52
July 19	11.04	58.53	11.04
August 19	12.46	47.81	12.46
September 19	13.78	62.69	13.78
October 2019	19.93	65.76	19.93
November 2019	25.62	64.03	25.62
December 20	19.43	63.49	19.43
<b>average</b>	<b>18.2</b>	<b>58.9</b>	<b>16.3</b>
		R	<b>1.117</b>
<b>Annualised average</b>	<b>D1 x 1.1</b>	<b>64.79</b>	

Bias adjustment factor for 2019 -0.89

National Diffusion Tube Bias Adjustment Factor Spreadsheet							Spreadsheet Version Number: 09/20			
<p>Follow the steps below <b>in the correct order</b> to show the results of <b>relevant</b> co-location studies</p> <p>Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods</p> <p>Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet</p> <p>This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.</p>								<p>This spreadsheet will be updated at the end of March 2021</p> <p><a href="#">LAQM Helpdesk Website</a></p>		
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:	Step 2:	Step 3:	Step 4:							
Select the <u>Laboratory that Analyses Your Tubes</u> from the Drop-Down List	Select a Preparation <u>Method</u> from the Drop-Down List	Select a Year from the Drop-Down List	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 <sup>3</sup> shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data <sup>2</sup>	If you have your own co-location study then see footnote <sup>4</sup> . If uncertain what to do then contact the Local Air Quality Management Helpdesk at <a href="mailto:LAQMHelpdesk@bureauveritas.com">LAQMHelpdesk@bureauveritas.com</a> or 0800 0327953							
Analysed By <sup>1</sup>	Method	Year <sup>5</sup>	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m <sup>3</sup> )	Automatic Monitor Mean Conc. (Cm) (µg/m <sup>3</sup> )	Bias (B)	Tube Precision <sup>6</sup>	Bias Adjustment Factor (A) (Cm/Dm)
	To undo your selection, choose (All) from the pop-up list	To undo your selection, choose (All)								
Gradko	50% TEA in acetone	2019	UB	Sandwell MBC	11	17	15	10.5%	S	0.91
Gradko	50% TEA in acetone	2019	UB	Sandwell MBC	12	25	22	18.2%	G	0.85
Gradko	50% TEA in acetone	2019	R	Sandwell MBC	12	30	30	0.5%	S	1.00
Gradko	50% TEA in acetone	2019		Overall Factor <sup>3</sup> (29 studies)					Use	0.89

## Appendix D: Map of Monitoring Locations in Solihull



## Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective <sup>6</sup>	
	Concentration	Measured as
Nitrogen Dioxide (NO <sub>2</sub> )	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Particulate Matter (PM <sub>10</sub> )	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m <sup>3</sup>	Annual mean
Sulphur Dioxide (SO <sub>2</sub> )	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean

<sup>6</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
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 <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO <sub>2</sub>	Sulphur Dioxide
...	...