



# 2021 Air Quality Annual Status Report (ASR)

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

June 2021

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## Executive Summary: Air Quality in Our Area

### Air Quality in Amber Valley Borough

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<sup>1,2</sup>.

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

Amber Valley Borough is semi-rural with four small towns as the main urban areas; it has no significant road links, no significant congestion problems or large industry. Air quality is generally good and no Air Quality Management Areas (AQMAs) have been declared.

There are no new major sources of emissions since the last Air Quality Status Report.

It has not been possible to directly measure the impact of the COVID-19 pandemic on air quality in Amber Valley Borough as no air monitoring has been carried out in the borough during 2020. Traffic data provided by Derbyshire County Council reflects the national trend of a reduction in annual average daily traffic flow during 2020, so it is expected that traffic contributions to air pollution will have reduced.

Amber Valley Borough Council works alongside other organisations in the Derbyshire Air Quality Working Group (DAQWG).

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<sup>1</sup> Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

<sup>3</sup> Defra. Air quality appraisal: damage cost guidance, July 2020

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

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

As air quality in Amber Valley Borough does not exceed the Air Quality Objectives the Council has not developed a specific programme or any targets for air quality improvements but works with DAQWG to improve the air quality of Derby and Derbyshire.

The following also contribute to management of air quality in Amber Valley Borough:

- Regulation of industrial emissions- Local authorities regulate a range of industries that may cause local emissions to air and this work also forms part of our response to securing air quality in the district
- Planning and development- Officers of the Environment Unit at Amber Valley Borough Council are consulted on planning applications where the development is anticipated to give rise to concerns about air quality.
- Investigation of reports of dark smoke and smoke causing a statutory nuisance, including intervention where necessary
- Smoke control areas - Amber Valley Borough has 28 Smoke Control Areas (SCA)

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<sup>5</sup> Defra. Clean Air Strategy, 2019

<sup>6</sup> DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

## Conclusions and Priorities

Amber Valley Borough Council will continue to work with partners in the DAQWG. This working group, which comprises officers from a number of relevant disciplines at County Council, district and borough councils and the voluntary sector, has been established for agreeing strategic priorities and ensuring collaborative action around air quality in the region.

## Local Engagement and How to get Involved

Amber Valley Borough Council has used its website to promote actions which improve air quality ([www.ambervalley.gov.uk/environment/pollution/air-pollution/what-can-i-do-about-air-pollution/](http://www.ambervalley.gov.uk/environment/pollution/air-pollution/what-can-i-do-about-air-pollution/))

In addition, the Council engages with the public on matters relating to air quality through, for example, dialogue with local interest groups and interested individuals.

One of the key sources of localised air pollution is road traffic. Some of the things you can do to help reduce emissions from road traffic are:

- Use your car less and use public transport when you can
- Make short trips on foot or by bike
- Avoid driving during congested peak traffic periods
- Car share whenever possible
- Adapt your driving style to improve energy efficiency. More information is available at [www.energysavingtrust.org.uk/advice/ecodriving/](http://www.energysavingtrust.org.uk/advice/ecodriving/)
- Use a low emission vehicle such as an electric or hybrid car

Heating systems for homes and other buildings can also be a source of air pollution.

Combustion of fuels such as coal, oil, gas and wood all result in emissions to air. Some of the things you can do to reduce emissions to air from domestic heating are:

- Be as energy efficient as possible by insulating your home
- Upgrade boilers to more efficient boilers with lower NO<sub>x</sub> and carbon emissions
- Use electric heating powered by non-combustion forms of renewable energy

- More information and links to other resources are available at [www.uk-air.defra.gov.uk](http://www.uk-air.defra.gov.uk)

Domestic burning of solid fuel is the largest source of small particulate air pollution (PM<sub>2.5</sub>) in the UK. Smokeless fuel or dry wood have lower emissions than house coal or unseasoned wet wood, and there are now restrictions on the sale of coal, wet wood and manufactured solid fuels for burning in the home.

Amber Valley Borough has 28 Smoke Control Areas (SCA) where smoke emissions from chimneys are controlled by requiring the use of smokeless fuel or using 'exempt appliances', that can burn other fuels without causing significant smoke emissions. If you would like to check if you are in an SCA see the 'My Property' section of Amber Valley Borough Council's website ([www.ambervalley.gov.uk/my-property/](http://www.ambervalley.gov.uk/my-property/)).

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# 1 Local Air Quality Management

This report provides an overview of air quality in Amber Valley Borough 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 Amber Valley Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Appendix A.

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

### **2.1 Air Quality Management Areas**

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

Amber Valley Borough Council has not previously declared, nor does not currently have any AQMAs.

## 2.2 Progress and Impact of Measures to address Air Quality in Amber Valley Borough

Defra's appraisal of last year's ASR concluded

*"The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports.*

- 1. The Council's continuing evaluation of the necessity of monitoring is welcomed.*
- 2. The report makes reference to the Public Health Outcomes Framework and the local indicator for PM2.5 in the district, comparing it to the indicator for Derbyshire and the national indicator value.*
- 3. The inclusion of detailed modelling results is welcomed. Monitoring in a few locations should be considered as this would enable verification of the modelling, verification is recommended in Defra's LAQM TG16. The monitoring could be done in the locations the modelling survey has predicted the highest concentrations.*
- 4. Overall the report satisfies the criteria of relevant standards and is a good source for members of the Public to find out more on how they can reduce their emissions."*

Modelling has not been carried out this year. The Covid-19 pandemic has resulted in a reduction in traffic flow<sup>7</sup>, and using traffic flow data from 2020 would result in lower predictions of local NO<sub>2</sub> and PM<sub>10</sub>. Based on the modelling results reported in the 2020 ASR, it is unlikely that exceedances of air quality objectives are likely to occur. Amber Valley Borough Council will continue to evaluate the necessity to carry out monitoring based on these results.

The Amber Valley Borough Council website provides information for residents on air quality and the actions they can take to reduce their emissions ([www.ambervalley.gov.uk/environment/pollution/air-pollution/what-can-i-do-about-air-pollution/](http://www.ambervalley.gov.uk/environment/pollution/air-pollution/what-can-i-do-about-air-pollution/)). Further public awareness work has been carried out by Public Health at Derbyshire County Council, one of the members of the Derbyshire Air Quality Working Group (DAQWG), and they have prepared an Air Quality Awareness Video for members of the group ([www.derbyshire.gov.uk/social-health/health-and-wellbeing/health-protection/air-](http://www.derbyshire.gov.uk/social-health/health-and-wellbeing/health-protection/air-)

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<sup>7</sup> • Department for Transport Statistical Release Road Traffic Estimates Great Britain 2020, 28 April 2021

[quality/air-quality.aspx](#) ). It is anticipated that the outcome of making residents more aware of their own role in improving air quality will be behaviour change that will contribute to a reduction in air pollution.

The Council continues to take broad action through:

- Local Authority Pollution Prevention and Control (Environmental Permitting) - Local Authorities regulate Part A2 and B activities, which involve emissions to air.
- Planning and development - Officers of the Environment Unit at Amber Valley Borough Council are consulted on planning applications where development may significantly affect traffic, introduce new point sources of pollution, expose people to existing sources of air pollutants or produce dust during construction.
- Investigation of reports of dark smoke and smoke causing a statutory nuisance, including intervention where necessary.
- Smoke control areas - Amber Valley Borough has 28 Smoke Control Areas (SCA).
- Addressing residents' concerns about air quality and advising local groups who have an interest in air quality.
- Amber Valley Borough Council plans to become carbon neutral by 2030 and as part of this has approved plans to undertake 16 hectares of new tree planting on existing open spaces and other land owned by the council.
- Eight dual electric vehicle charge points will shortly be installed in council-owned car parks in the borough: four will be installed in Ripley and the other four in Belper. Further installations are planned subject to surveys and funding.

## 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. The fraction of mortality attributable to particulate air pollution in Amber Valley is 5.2%, compared to the national indicator value of 5.1%<sup>8</sup>.

Amber Valley Borough Council is not currently taking specific measures to address PM<sub>2.5</sub>, but the measures described in Section 2.2 will contribute towards reducing PM<sub>2.5</sub>.

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<sup>8</sup> Public Health Outcomes Framework indicator D01- fraction of mortality attributable to particulate air pollution

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

### **3.1 Summary of Monitoring Undertaken**

The results of air quality modelling for previous Amber Valley Borough Council Air Quality Annual Status Reports found it unlikely that National Air Quality Objectives would be breached in the borough. Based on these predications it was concluded that the cost of a monitoring programme could not be justified and therefore there is no new monitoring data.

The 2020 Amber Valley Borough Council Air Quality Annual Status Report contains the results of modelling using traffic flow and background air quality data for 2019. This modelling predicted NO<sub>2</sub> and PM<sub>10</sub> concentrations at 45 receptor locations near to road links likely to have the highest pollutant levels, and the results that there were no areas that were likely to exceed the air quality objectives.

Modelling has not been carried out using 2020 data as road traffic trends during 2020 have been affected by the COVID-19 pandemic in the UK and it was considered that the results of modelling would not be representative of conditions looking ahead.

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

Table A.1 – Air Quality Objectives in England<sup>9</sup>

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

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<sup>9</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## Appendix B: 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<sub>2</sub>) 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<sup>10</sup> 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<sub>x</sub>), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)<sup>11</sup> has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO<sub>2</sub> annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

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<sup>10</sup> Prime Minister's Office, COVID-19 briefing on the 31<sup>st</sup> of May 2020

<sup>11</sup> Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

represents an absolute reduction of between 10 to 20µg/m<sup>3</sup> if expressed relative to annual mean averages. During this period, changes in PM<sub>2.5</sub> concentrations were less marked than those of NO<sub>2</sub>. PM<sub>2.5</sub> 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<sub>2.5</sub> concentrations during the initial lockdown period are of the order 2 to 5µg/m<sup>3</sup> 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 Amber Valley Borough**

As there is no monitoring carried out in Amber Valley Borough, it has not been possible to directly measure the impact of COVID-19 on air quality in the area. Traffic data provided by Derbyshire County Council reflects the national trend of an over 20% reduction in annual average daily traffic flow, so it is expected that traffic contributions to air pollution will have reduced.

Social Distancing measures were put in place in Ripley, Heanor, Belper and Alfreton. This resulted in pavement widening and closing of bus lay-bys, which had an impact on the flow of traffic through the towns, but the consequent impact on nearby air quality has not been measured.

## **Opportunities Presented by COVID-19 upon LAQM within Amber Valley Borough**

No LAQM related opportunities have arisen as a consequence of COVID-19 within Amber Valley Borough.

## **Challenges and Constraints Imposed by COVID-19 upon LAQM within Amber Valley Borough**

No specific challenges or constraints relating to LAQM have arisen during 2020 as a consequence of COVID-19 within Amber Valley Borough.

## 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
AVBC	Amber Valley Borough Council
DAQWG	Derbyshire Air Quality Working Group
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 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
SCA	Smoke control areas
SO <sub>2</sub>	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.