



# 2020 Air Quality Annual Status Report (ASR)

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

June 2020

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**Derbyshire County Council; Endorsement from the Director of Public Health**

Air pollution has a significant effect on public health, and poor air quality is the largest environmental risk to public health in the UK.

The annual status report is fundamental to ensuring the monitoring of trends and identification of areas of local air pollution exposure. The cumulative effect of a range of interventions has the greatest potential to reduce local air pollution and improve population health, as such the annual status report and associated action plans provide an opportunity to engage a range of partners. Since the publication of the last Annual Status Report both the County Health and Wellbeing Board and Joined up Care Derbyshire Board have approved the adoption of a County wide Air Quality Strategy, bringing together a breadth of public sector organisations, with the collective ambition to reduce the health impact of poor air quality for the people of Derbyshire County.

These are challenging times for the population of Derbyshire, however the recent restrictions on the way we live and travel, brought about in response to the recent pandemic, have demonstrated that large scale behaviour change can be achieved, and can have a positive effect on local air quality as well as our physical and mental health. It is crucial that we learn lessons from this experience and ensure that we create opportunities for positive change.

A handwritten signature in black ink, appearing to read 'Dean Wallace', written in a cursive style.

Dean Wallace, Director of Public Health, Derbyshire County Council

## 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 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>.

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.

### Actions to Improve Air Quality

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.

The following 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.

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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

- 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)

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

## **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/travel/driving-advice](http://www.energysavingtrust.org.uk/travel/driving-advice)
- Use a low emission vehicle such as an electric or hybrid car

## Amber Valley Borough Council

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 on this 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.

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 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 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 can be found in Table A.1 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 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.

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

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 as this would enable verification of the modelling. The conclusion of this ASR that monitoring is not necessary at this time is supported. Any updates should be reported on in the 2020 ASR.*
- 2. It would be useful if Section 2.3 could make reference to the Public Health Outcomes Framework, and the local indicator for PM<sub>2.5</sub> in the district. The Council may wish to consider comparing the 'D01 - Fraction of mortality attributable to particulate air pollution indicator' value for Amber Valley to nearby LAs and National indicator values. This can be found in the link below. <https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data>*
- 3. The inclusion of detailed modelling results is welcomed. It would be particularly useful if a labelled map showing the locations of the modelled sites could be included, to enable them to be located spatially by the reader.*
- 4. Overall the report satisfies the criteria of relevant standards and is a good source for members of the Public to find out about air quality in their area. The Council should continue their good work and submit an Annual Status Report in 2020."*

Once again modelling has been carried out to determine whether exceedances of air quality objectives are likely to occur. The results and a map of the locations modelled are shown in section 3 of this report. 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 are currently preparing an Air Quality Awareness Video for members of the group. 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.

Amber Valley Borough Council will continue work with partners in the DAQWG, benefiting from the strategic overview and collaborative working. The group has been continuing its work on a Joint Derbyshire County and Derby City Air Quality Strategy and guidance for local planners to secure local air quality where development is proposed.

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.

In addition, it is hoped that electric vehicle charging points will be installed in council-owned pay and display car parks across the Borough in the next financial year. Progress on this will be reported in the next annual status report.

## 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 and Derbyshire is 4.3%, compared to the national indicator value of 5.2%<sup>4</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>4</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.

Traffic flow and background air quality data for 2019 were used to predict 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 (Figure 1). The results of this modelling showed that there were no areas that were likely to exceed the air quality objectives (see Table 1).

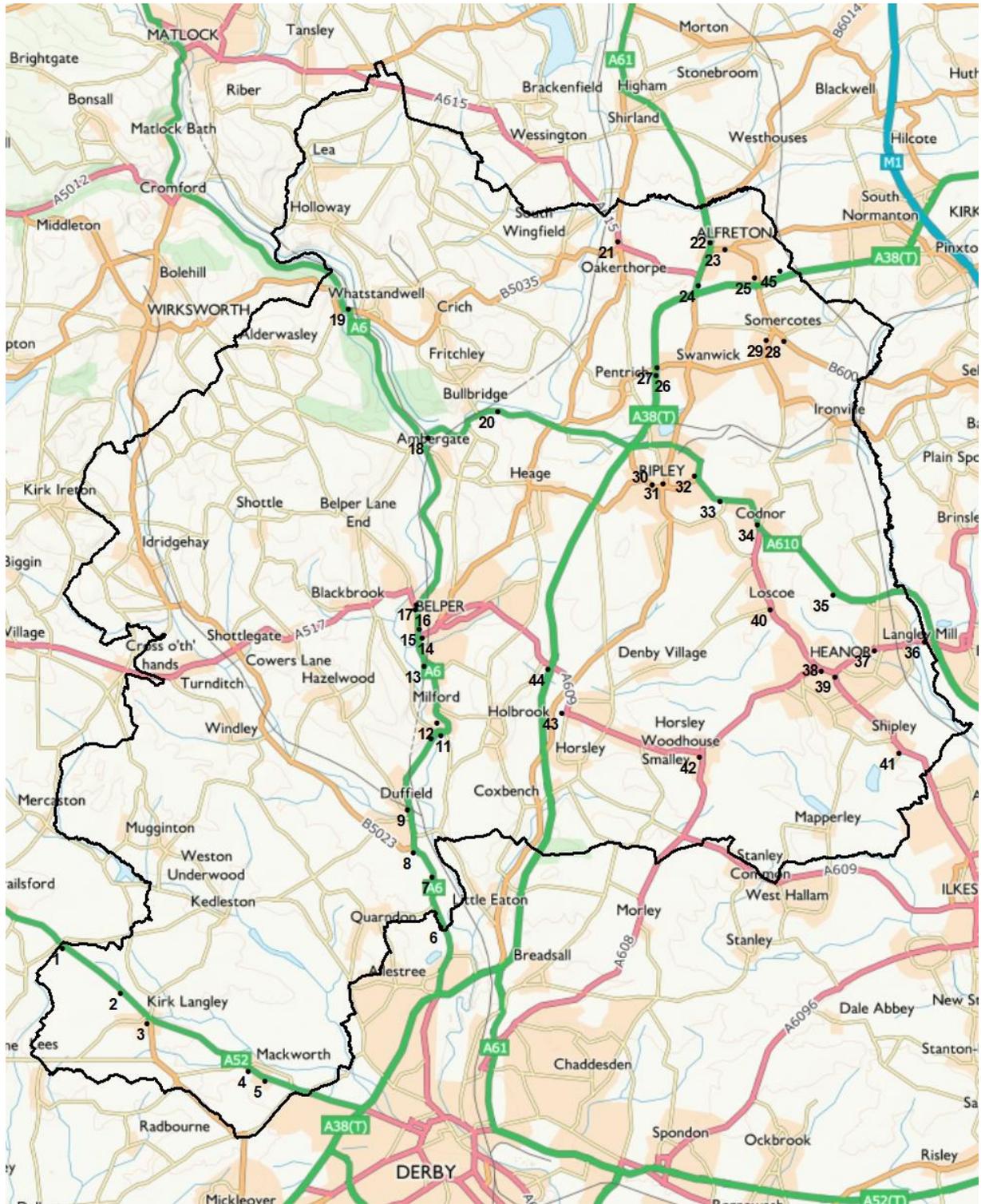
**Table 1 -Predictions of NO<sub>2</sub> and PM<sub>10</sub> modelled using DRMB and the NO<sub>x</sub> to NO<sub>2</sub> calculator**

Site ID	NO <sub>2</sub>	PM <sub>10</sub>	
	annual mean (µg/m <sup>3</sup> )	annual mean (µg/m <sup>3</sup> )	days >50µg/m <sup>3</sup>
1	15.32	15.30	0.16
2	15.96	14.01	0.00
3	13.76	13.20	0.00
4	14.79	16.06	0.33
5	15.99	14.80	0.00
6	14.31	14.65	0.00
7	16.46	14.76	0.00
8	20.13	16.27	0.41
9	17.84	14.90	0.00
10	20.15	14.73	0.00
11	16.67	15.43	0.18
12	21.18	15.88	0.28
13	21.42	15.49	0.19
14	19.35	15.17	0.14
15	25.03	14.84	0.00
16	25.03	14.84	0.00
17	20.56	15.36	0.17
18	21.79	14.84	0.00
19	25.52	15.03	0.13

Table 1 -Predictions of NO<sub>2</sub> and PM<sub>10</sub> modelled using DRMB and the NO<sub>x</sub> to NO<sub>2</sub> calculator

Site ID	NO <sub>2</sub>	PM <sub>10</sub>	
	annual mean (µg/m <sup>3</sup> )	annual mean (µg/m <sup>3</sup> )	days >50µg/m <sup>3</sup>
20	28.60	16.14	0.36
21	16.84	13.71	0.00
22	34.17	19.12	2.41
23	16.72	14.06	0.00
24	18.52	15.19	0.14
25	31.64	17.68	1.17
26	20.73	16.03	0.32
27	18.19	15.43	0.18
28	15.45	13.88	0.00
29	15.72	13.80	0.00
30	15.60	13.56	0.00
31	20.89	14.06	0.00
32	22.68	16.09	0.34
33	19.71	15.43	0.18
34	22.53	15.92	0.29
35	16.91	14.57	0.00
36	22.62	16.74	0.61
37	24.09	16.65	0.56
38	23.72	14.71	0.00
39	32.13	18.83	2.12
40	27.91	17.74	1.21
41	15.54	14.51	0.00
42	17.50	15.42	0.18
43	14.71	13.76	0.00
44	25.65	16.41	0.46
45	25.30	15.84	0.27

Figure 1. Locations where predictions of NO<sub>2</sub> and PM<sub>10</sub> have been modelled



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

Table A.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective <sup>5</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>5</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
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
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
SCA	Smoke control areas
SO <sub>2</sub>	Sulphur Dioxide