2023 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021

Date: September 2023

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Executive Summary: Air Quality in Our Area

Air Quality in Rossendale Borough Council

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

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

Approximately 80% of a persons health and wellbeing is determined by activities and circumstances in their home and community and not medical health interventions.

The main air quality concern in Rossendale continues to be Nitrogen Dioxide (NO_2) caused by road traffic vehicles. However there have been improvements and the two air quality management areas where revoked in 2022 as all of the diffusion tubes in those areas where more than 10% under the governments threshold of 40µg/m^3 for the past three years.

We have also declared a new air quality management area incorporating 13 residential properties between Gas Street and Holden Place numbered 240 to 268 Grane Road Haslingden BB4 4PB. This is an area of pavement fronted properties and only one side of the road is affected by the high levels of NO_2. The council will be working with partners to develop an air quality action plan in 2023-4. We will update on this in next years ASR

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[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

[2] Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

[3] Defra. Air quality appraisal: damage cost guidance, January 2023

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

Air quality and environmental improvements are a part of the Councils Climate Change Strategy 2020-2030 which is available to view by clicking on this link Climate Change | Rossendale Borough Council

The aim of this strategy is to make Rossendale Borough Council net-zero carbon by 2030 and to work in partnership to reduce carbon emissions for the whole of Rossendale. This incorporates less fossil fuel burning leading to less emissions of air pollution.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan[5] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term $PM_{2.5}$ targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce $PM_{2.5}$ in their areas. The Road to Zero[6] details 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.

Actions taken during 2022 in relation to air quality

- For 2022 tube 2 was relocated to 60 Hud Hey Road following a resident request
- Tube 11 was moved further along Bacup Road outside 450 Bacup Road which is a pavement fronted terrace on a main road
- Two electric charge points were installed in the council office car park
- Reduction in vehicle emissions due to office based council staff working from home up to 40% of the working week
- Participation in the DEFRA Air Quality and Industrial Emissions Team review of the national Air Quality Strategy consultation in relation to LA's meeting the national $PM_{2.5}$ targets
- Email sent to Lancashire County Council to remove a road sign outside 7-9 Grane Road directing drivers to use Grane Road to Blackburn and Darwen

[5] Defra. Environmental Improvement Plan 2023, January 2023

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

- Lancashire County Councils first round of community engagement on the Local Cycling and Walking Infrastructure Plans (LCWIP) https://www.lancashire.gov.uk/council/strategies-policies-plans/levelling-up-fund/?utm_source=Redirect&utm_medium=Shorturl&utm_campaign=Levellingup
- Resident questionnaire sent out about provision of electric charge points to support a On-street Residential Chargepoint Scheme funding bid for electric charge points on council owned car parks. Lancashire County Council can bid for on-street charge points and Lancashire County Council owned car parks On-Street Residential Chargepoint Scheme guidance for local authorities - GOV.UK (www.gov.uk)
- The Rossendale Climate Network was created which is a group of like-minded individuals, schools, groups, businesses and organisations who are interested practical action to tackle the climate emergency in Rossendale. Find them on the Facebook page. https://www.facebook.com/groups/rossendaleclimatenetwork. They would like to hear from anyone who is taking local action or has some information to share with others in the area.
- Planning Supplementary Planning Document on climate change produced
- Environment Act 2021 came into force in May 2022 giving officers fixed penalty powers for clean air compliant burning still causing smoke nuisance
- Lancashire County Council advertised a new Principal Transport Planner Air Quality post Principal Transport Planner - LCC Careers (lancashire.gov.uk)
- Lancashire County Council and Blackburn with Darwen MBC are currently in the process of writing a joint EV strategy with Atkins and Field Dynamics. The strategy covers the whole of Lancashire (excluding Blackpool) and is based on GIS zoning outputs.
  They envisage this strategy to be a collaborative tool going forwards, particularly the GIS outputs which can be updated and added to.

Lancashire County Council's Public Health Summary for Air Quality Annual Status Reports, 2023

In Lancashire the strongest evidence we have on the population health impacts of air pollution comes from Public Health England's Public Health Outcomes Framework. This Framework estimates the 'fraction of annual all cause adult mortality attributable to particulate air pollution (measured as fine particulate matter, PM2.5*)' each year. It shows that, while the overall mortality rate from particulate air pollution in Lancashire-12 (4.8%) is lower than the England average (5.5%), air pollution remains a significant public health issue for the county (2021).

Working with district councils, Lancashire County Council (LCC) has an important role to play in taking action to reduce the health impacts of air pollution. Responsible for transport planning, network management, highway maintenance, public health and procuring local vehicle fleets, there are a number of ways LCC can support local and county wide efforts to improve air quality. In summary, the following activities are underway or in development:

1. **Encouraging the use of sustainable forms of travel**

Lancashire's cycling and walking strategy, Actively Moving Forward, sets out an ambitious plan for increasing the number of people walking and cycling in the county by 2028. By improving and increasing access to cycling and walking infrastructure, alongside training and promotional activities, it aims to significantly increase the amount of cycling and walking people do across the county. Information on the County Council's ongoing activities in this area can be found on the Active Travel in Lancashire website.

As part of Lancashire's cycling and walking strategy, work has now commenced on developing Local Cycling and Walking Infrastructure Plans (LCWIPs) for Lancashire. LCWIP's have been defined for seven areas across Lancashire. These are:

- Lancaster
- Central Lancashire
- West Lancashire
- Fylde Coast
- Ribble Valley
- Burnley and Pendle
- Rossendale and Hyndburn

As part of the LCWIP process extensive public and stakeholder engagement is underway. Following on from this, it is planned for all LCWIP's to be completed by late 2023. The Plans will include a network plan for cycling and walking infrastructure and a prioritised list of schemes for delivery over short, medium and long term timeframes. These plans will be used to support future infrastructure decisions and to access new funding schemes as they become available.

The Road Safety Team work with schools, workplaces and the community to encourage safe and sustainable modes of travel. Initiatives for schools are promoted though the Safer Travel Moodle and include: a series of cycling and walking safety training programmes; guidance and resources for teachers to encourage safe and active travel; and support for creating travel plans.

Bus services across Lancashire operate in a deregulated market, meaning the County Council doesn't control the bus network, franchise routes or control fares. In the next three years, the county council will continue to work more closely with bus operators, alongside local communities, to create a network that people want and will use. The council has published a ten-year Enhanced Partnership Plan and Scheme alongside its Bus Service Improvement Plan which together will deliver measures to restore confidence and grow patronage numbers.

2. Supporting the transition to low emission vehicles

Lancashire County Council, working with BP Pulse, has installed 150 Electric Vehicle charge points either at the side of the adopted highway or in county council carparks. These chargepoints are ultra chargers which will allow most vehicles to take a full charge in less than an hour and Fast Chargers that will take around three hours to charge the vehicles. The mix of these units depends on location, power supply and demand.

Since the installation of these points the focus has been on supporting residents who do not have off-street parking charge at home, with the County Council trailing an innovative footway cable tray which will provide a low cost and practical solution to support residents without off street parking charge at home. The cable-tray enables residents to safely pass an electric cable across the footway from their property to the carriageway enabling charging their vehicle from their domestic supply. Two products (one designed in-house and one adapted product) have been trialled at several residential properties in the county. The county council is one of 16 councils in England to secure funding from the Local Electric Vehicle Infrastructure (LEVI) extended pilot scheme to expand this trial to more residents and to trial lamp post integrated chargepoints in residential areas, helping those that do not have access to off-street parking.

In addition to the LEVI extended pilot the county council has been allocated indicative funding of £10.1m from the LEVI capital fund for the provision of local, low power, public on-street charging infrastructure. This is subject to the submission of a delivery plan in early 2024 that is accepted by the Department for Transport. This will help us scale up the deployment of local chargepoints and solutions for residents without access to off-street parking beyond the pilot projects and deliver the vision and aims of the Lancashire and Blackburn with Darwen EV Infrastructure Strategy.

The county council's parking services fleet is now fully electric, with charging infrastructure installed at the offices and depots where the vehicles are based, and regularly visit. Fleet services are continuing to deliver their programme to upgrade to ultra low emission vehicles.

3. Creating cleaner, healthier road networks

Work to develop the next Local Transport Plan (LTP4) for Lancashire, Blackpool and Blackburn with Darwen is underway. The Public Health team has submitted an evidence base to inform the process, highlighting transport related health challenges affecting the population of Lancashire and making recommendations about how local transport planning policy can make a contribution to addressing these. The local Highways and Transport Masterplans will be refreshed to align with the priorities of LTP4. This will provide an opportunity to identify longer-term network solutions that address issues in AQMAs and have a positive impact on air quality generally.

4. Embedding air quality into policy

The County Council works with district planners to ensure air quality is a key consideration of Local Plans, alongside wider public health issues. It supports district councils in developing policies that seek to ensure new developments do not contribute to increasing levels of air pollutants and that requirements for appropriate mitigation are in place.

The County Council, as part of its highways input into planning applications, actively encourages measures that aim to promote sustainable forms of travel. Working under the direction of the National Planning Policy Framework, the County Council seeks measures that facilitate cycling and walking, increase the use of public transport and provide access to electric vehicle charge points. The County Council also seeks funding from developers, through section 106 contributions, to support existing bus services or to provide new bus services suitable to serve development sites once their built.

5. Raising awareness and increasing engagement

The Lancashire Insight website provides information on the sources and health impacts of air pollution across the county. Webpages include a Summary of Emissions Data and Monitoring of Air Quality and Health Impacts.

Conclusions and Priorities

The two previous AQMAs where revoked due to a successful reduction in the NO_2 to below government levels for over 3 years and a new fast track AQMA was declared on 8th December 2022 and thankfully there is a general trend of reduction experienced across the sites.

A priority for the council will be to work with partners to produce an air quality action plan for the new AQMA but the challenge in this area will be around actions for the air quality action plan which will be very limited due to it being on a main road. Grane Road the B6232 into and out of the west of the borough is used by drivers as a short cut to and from the M65 rather than using the A56.

Local Engagement and How to get Involved

Due to Covid-19 and the lockdowns, when the air quality improved, the detrimental impact of poor air quality was highlighted which has, thankfully become much more in the public radar. Covid-19 prompted changes in people's behaviours and it demonstrated we can reduce our reliance on carbon-based travel and make a switch to cycling and walking more. We need a much broader social movement that allows everyone to play their part.

Thinking about air pollution and climate change on a worldwide, or even country scale can be daunting because as individuals we can often feel insignificant. Yet if we all work to reduce the amount of fuel we use and the number of chemicals we use at home, we will

improve the quality of the air that we breathe and help the local and global problem. Other ways we can all contribute to improving air quality are as follows:

- Using public transport more
- Reducing car use and doing more car sharing for things like the school runs sorted informally or see https://liftshare.com/uk
- Changing to an electric or hybrid vehicle see https://www.gov.uk/government/organisations/office-for-zero-emission-vehicles
- Cycling and walking where possible
- Using less chemicals and more natural products in the home to reduce the toxic load on your internal air quality see https://www.nice.org.uk/guidance/ng149
- Not having garden bonfires and only burning smokeless fuel on domestic stoves as the whole of Rossendale is a smoke control area (except for a few outlying rural properties see https://www.rossendale.gov.uk/info/210197/environmental_protection/10622/report_pollution/4
- Working from home, if you can, to save communting

There is no local air quality action groups to the knowledge of the writer however there is an active Clean Air Parents Network public facebook group.

The Rossendale Climate Network was created which is a group of like-minded individuals, schools, groups, businesses and organisations who are interested practical action to tackle the climate emergency in Rossendale. Find them on the Facebook page. https://www.facebook.com/groups/rossendaleclimatenetwork. They would like to hear from anyone who is taking local action or has some information to share with others in the area. Client Earth are activist lawyers committed to securing a healthier planet. Their website is

ClientEarth | ClientEarth

Further information on air quality and air pollution forecasts can be found on the DEFRA website UK Air quality Information Resource following this link Home - Defra, UK

The Choked up Campaign is teenagers in London raising awareness of air pollution issues Living Street UK is a charity who want a nation where walking is the natural choice for everyday local journeys see Living Streets | Home Page | Living Streets

Local Responsibilities and Commitment

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

Lorna Robinson Senior Environmental Health Officer

Phil Morton Public Protection Manager

This ASR has been approved by: Phil Morton

This ASR has not been signed off by a Director of Public Health.

If you have any comments on this ASR please send them to Lorna Robinson at:

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Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Rossendale Borough Council during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), 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 order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Rossendale Borough Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

A summary of the AQMA declared by Rossendale Borough Council can be found in Table 2.1. The table presents a description of the one AQMA that is currently designated within Rossendale Borough Council. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation are as follows:

- NO_2 annual mean

We have declared a new AQMA in an area of Grane Road, Haslingden area due to exceedances of the NO_2 annual mean air quality objective.

We have revoked AQMAs 1 and 2 due to over three years being under the annual objective with NO_2 levels continuing to fall.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 3	7th December 2022	NO_2	The designated area incorporates thirteen residential properties between Gas Street and Holden Place numbered 240 to 268 Grane Road Haslingden BB4 4PB	NO	50.4 µg/m^3	46.7 µg/m^3	0	Not published yet	Not published yet

☒ **Rossendale Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date**

☐ **Rossendale Borough Council confirm that all current AQAPs have been submitted to Defra**

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

Defra's appraisal of last year's ASR concluded that the report was well structured, detailed and provided the information specified in the guidance.

Rossendale Borough Council hasn't taken forward any direct measures during the current reporting year of 2022 in pursuit of improving local air quality. The two existing AQMAs have been revoked and a new AQMA was declared and an Air Quality Action Plan will be produced in the next 12-18 months.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation

The action plan will be reviewed and updated following the development of the Action Plan for the new AQMA on a small section of Grane Road Haslingden

2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Rossendale Borough Council currently doesn't measure for $PM_{2.5}$ as it's not currently a legal requirement. Using the DEFRA background mapping resource it shows $PM_{2.5}$ in Rossendale in 2022 to have a maximum background mean of 7.5 $\mu g/m^3$.

The maximum in Rossendale in 2022 was lower compared to the northern region which had a maximum background of 13.5 $\mu g/m^3$ and also lower than neighbouring authorities which had maximum background means of 8.7 $\mu g/m^3$ at Burnley Borough Councl and Hyndburn Borough Council and 7.9 $\mu g/m^3$ at Blackburn with Darwen Borough Council and Calderdale Borough Council.

Under the Environment Act 2021 Government has an annual mean concentration target for $PM_{2.5}$ of 10 $\mu g/m^3$. Rossendale Borough Council is below the annual mean concentration target but we are taking the following measures to address and reduce $PM_{2.5}$:

- A no open burning condition is attached to approved planning applications on demolition and construction sites
- Council Officers responding to requests for service in relation to domestic garden bonfires advising people that recycling garden waste is the most appropriate way of disposing of garden waste. We also signpost residents to apply for the Council's fortnightly garden waste collection service
- Prompt investigation of smoky domestic chimney and dark smoke complaints under the Clean Air Act 1993 and Environment Act 2021
- Partnership working with the Environment Agency and Environmental Enforcement colleagues in relation to complaints about trade and commercial waste burning/inappropriate disposal of trade waste

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

This section sets out the monitoring undertaken within 2022 by Rossendale Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a three or five year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Rossendale Borough Council undertook no automatic (continuous) monitoring in 2022.

3.1.2 Non-Automatic Monitoring Sites

Rossendale Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 20 sites during 2023. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.4 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the

monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2022 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

There are no annual means greater than 60µg/m^3 which indicates that an exceedance of the 1-hour mean objective is unlikely.

Tube 2 was re-located to 60 Hud Hey Road Haslingden following a resident request who lives on a main road and was concerned about an increase in traffic. The annual level came back at 25.7µg/m^3 under the 40 µg/m^3 air quality objective. Tube 11 was re-located to a pavement fronted terraced property position on Bacup Road Waterfoot and the annual level came back as 29.9µg/m^3 which again is under the 40 µg/m^3 air quality objective.

There were only two exceedances of the air quality objective and both of these tubes were located in the newly declared AQMA 3 on a small section of Grane Road, Haslingden which were tube 12 which had an average of 46.7 µg/m^3 and tube 19 which had an average of 42.2 µg/m^3 but good news is that although above the annual air quality objective of 40µg/m^3 both locations showed a reduction in NO_2 compared to the previous years.

AQMAs 1 and 2 have been revoked and the diffusion tubes currently in those areas will be distributed to other

3.2.2 Particulate Matter (PM_{10})

Rossendale Borough Council undertook no particulate PM_{10} monitoring during 2022

3.2.3 Particulate Matter ($PM_{2.5}$)

Annual Mean $PM_{2.5}$ monitoring is not undertaken in Rossendale Borough Council

3.2.4 Sulphur Dioxide (SO_2)

Sulphur dioxide monitoring is not undertaken in Rossendale Borough Council

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)

There are no automatic monitoring sites in Rossendale

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
1	Front of Casa Tapas Bacup Road Rawtenstall	Roadside	381394	422756	NO2	Revoked	5.0	2.0	No	1.8
2	60 Hud Hey Road Haslingden	Roadside	378495	424454	NO2	No	0.0	2.0	No	1.8
3	349 Manchester Road Haslingden	Roadside	379153	422234	NO2	Revoked	0.0	3.0	No	1.8
4	Jobcentre 83 Bacup Road Rawtenstall	Roadside	381325	422740	NO2	Revoked	20.0	3.0	No	1.8
5	377 Manchester Road Haslingden	Roadside	379209	422171	NO2	Revoked	0.0	3.0	No	1.8
6	359 Manchester Road Haslingden	Roadside	379175	422213	NO2	Revoked	0.0	4.0	No	1.8
7	366-368 Manchester Road Haslingden	Roadside	379193	422210	NO2	Revoked	0.0	2.0	No	1.8
8	5-7 Rawtenstall Road Haslingden	Roadside	379197	422213	NO2	Revoked	4.0	2.0	No	1.8
9	363 Manchester Road Haslingden	Roadside	379183	422200	NO2	Revoked	0.0	4.0	No	1.8
10	277 Grane Road Haslingden	Roadside	377879	422502	NO2	AQMA 3	0.0	5.0	No	1.8
11	450 Bacup Road Waterfoot	Roadside	382845	421978	NO2	No	0.0	0.0	No	1.8
12	250 Grane Road Haslingden	Roadside	377909	422488	NO2	AQMA 3	0.0	2.0	No	1.8

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
13	30-32 Bacup Road Rawtenstall	Roadside	381377	422756	NO2	Revoked	0.0	2.0	No	1.8
14	24-26 Bacup Road Rawtenstall	Roadside	381358	422754	NO2	Revoked	0.0	2.0	No	1.8
15	22 Bacup Road Rawtenstall	Roadside	381350	422754	NO2	Revoked	0.0	2.0	No	1.8
16	2A Bacup Road Rawtenstall	Roadside	381161	422725	NO2	Revoked	0.0	6.0	No	1.8
17	1 Bacup Road Rawtenstall	Roadside	381121	422725	NO2	Revoked	8.0	2.0	No	1.8
18	222 Grane Road Haslingden	Roadside	378094	422560	NO2	No	0.0	3.0	No	1.8
19	256-258 Grane Road Haslingden	Roadside	377896	422488	NO2	AQMA 3	0.0	2.0	No	1.8
20	264 Grane Road Haslingden	Roadside	377899	422488	NO2	AQMA 3	0.0	2.0	No	1.8

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

Table A.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

There is no annual mean NO_2 automatic monitoring undertaken in Rossendale Borough Council

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
1	381394	422756	Roadside	85.4	85.4	33.3	32.3	23.8	26.2	25.3
2	378495	424454	Roadside	100	100.0	N/A	N/A	N/A	N/A	25.7
3	379153	422234	Roadside	100	100.0	31.9	27.3	22.0	24.9	21.4
4	381325	422740	Roadside	82.6	82.6	31.9	27.3	22.0	20.9	21.9
5	379209	422171	Roadside	90.1	90.1	31.8	28.7	22.1	23.7	24.5
6	379175	422213	Roadside	100	100.0	31.2	31.1	24.2	27.8	26.7
7	379193	422210	Roadside	92.6	92.6	33.5	32.3	26.3	30.0	28.3
8	379197	422213	Roadside	100	100.0	27.6	25.6	20.4	20.2	19.9
9	379183	422200	Roadside	100	100.0	33.6	31.6	25.3	26.9	28.2
10	377879	422502	Roadside	100	100.0	N/A	N/A	N/A	18.4	16.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
11	382845	421978	Roadside	92.3	92.3	N/A	N/A	N/A	N/A	29.9
12	377909	422488	Roadside	100	100.0	N/A	N/A	**44.9**	**50.4**	**46.7**
13	381377	422756	Roadside	92.6	92.6	**40.9**	32.2	28.4	32.7	31.2
14	381358	422754	Roadside	100	100.0	36.8	31.9	26.2	29.3	30.9
15	381350	422754	Roadside	100	100.0	39.7	32.2	28.8	31.8	30.8
16	381161	422725	Roadside	100	100.0	28.4	26.6	24.7	24.1	24.8
17	381121	422725	Roadside	71.9	71.9	35.9	34.7	28.6	29.6	29.9
18	378094	422560	Roadside	100	100.0	N/A	N/A	20.4	23.2	21.3
19	377896	422488	Roadside	100	100.0	N/A	N/A	**41.6**	**46.9**	**42.2**
20	377899	422488	Roadside	92.8	92.8	**47.8**	**46.6**	34.8	36.1	36.2

☒ **Diffusion tube data has been bias adjusted**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction**

Notes:

The annual mean concentrations are presented as µg/m^3.

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

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

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

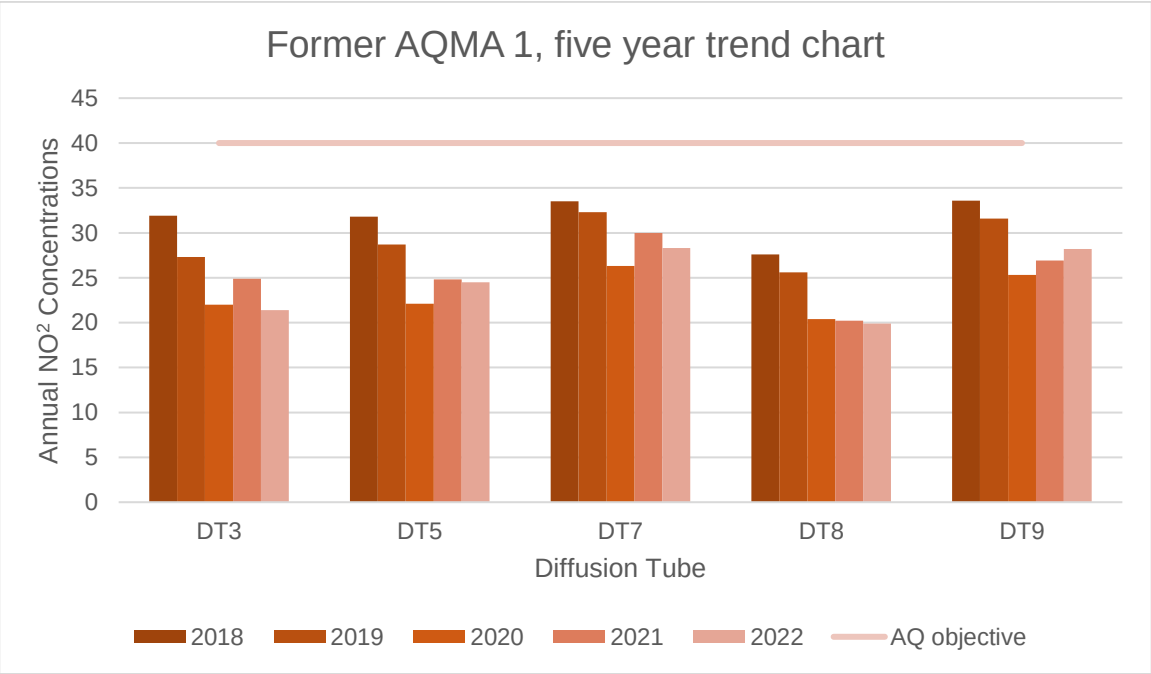
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

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

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

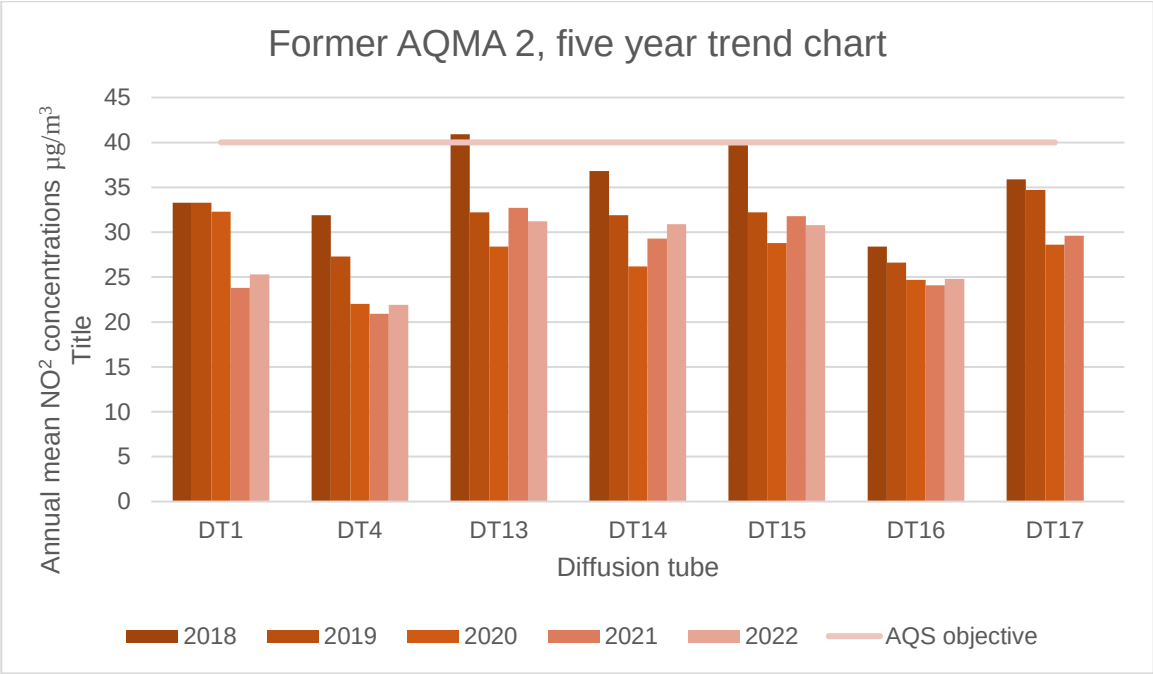
Figure A.1 – Trends in Annual Mean NO_2 Concentrations

Former AQMA 1 Haslingden



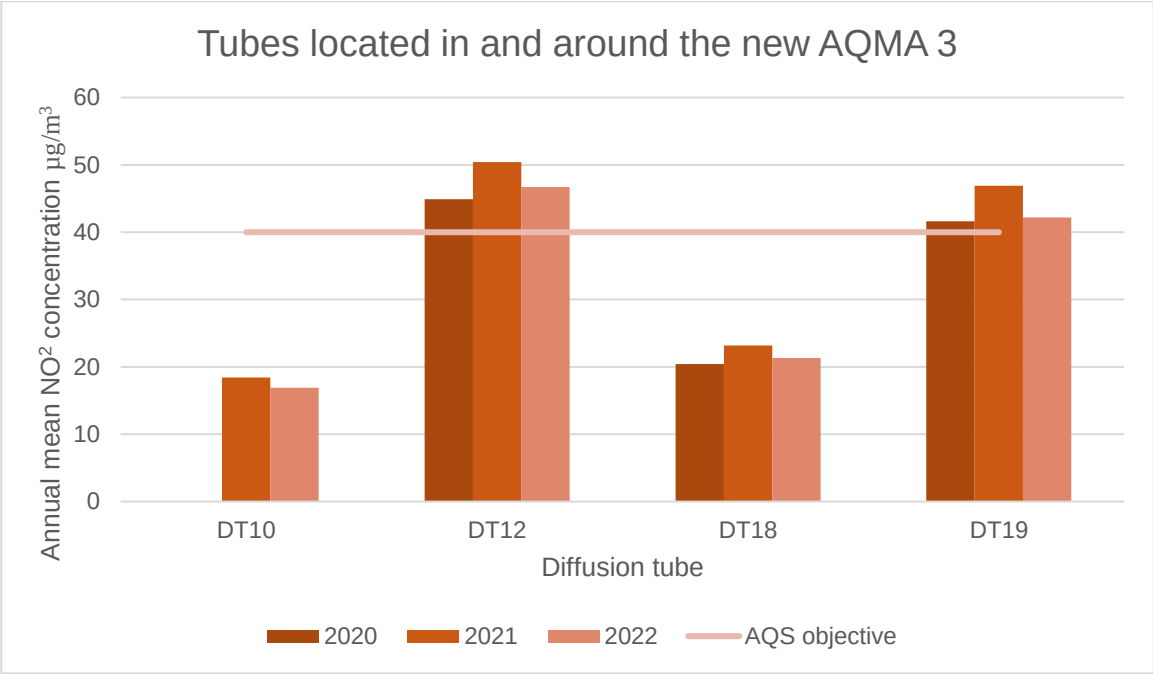
This presents NO_2 annual mean concentrations for sites in the former AQMA 1 between years 2018 to 2022. There are no exceedances of the annual mean objective in 2022 and there is a general trend of reduction experienced across the site. The AQMA has now been revoked.

Former AQMA 2 Rawtenstall



This presents NO_2 annual mean concentrations for sites in the former AQMA 2 between years 2018 to 2022. There are no exceedances of the annual mean objective in 2022 and there is a general trend of reduction experienced across the site. This AQMA has now been revoked

New AQMA 3



This presents NO_2 annual mean concentrations for sites in (Tubes 12,18 and 19) and across the road (Tube 10) from the newly declared AQMA 3 between years 2020 to 2022. These are the exceedances of the annual mean objective in tubes 12 and 19 in 2022 however there is a general trend of reduction experienced across the site.

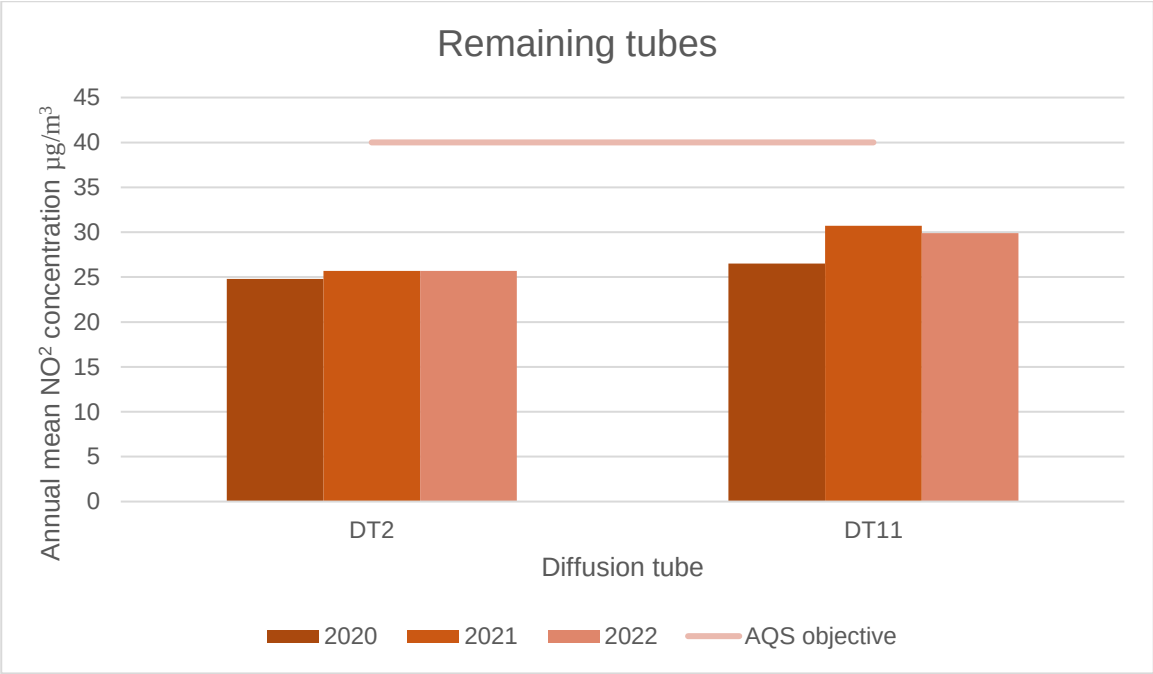

Remaining tubes
Annual mean NO2 concentration µg/m3
45
40
35
30
25
20
15
10
5
0
DT2
DT11
Diffusion tube
2020
2021
2022
AQS objective

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

No 1 hour mean NO_2 is undertaken in Rossendale Borough Council

Figure A.2 – Trends in Number of NO_2 1-Hour Means > 200µg/m^3

NO_2 1-hour mean monitoring is not undertaken in Rossendale Borough Council

Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

No annual mean PM_{10} Monitoring is undertaken in Rossendale Borough Council

Figure A.3 – Trends in Annual Mean PM_{10} Concentrations

No annual PM_{10} monitoring is undertaken in Rossendale Borough Council

Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

No 24-Hour Mean PM_{10} Monitoring is undertaken in Rossendale Borough Council

Figure A.4 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m^3

PM_{10} monitoring is not undertaken in Rossendale Borough Council

Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Annual Mean $PM_{2.5}$ monitoring is not undertaken in Rossendale Borough Council

Figure A.5 – Trends in Annual Mean $PM_{2.5}$ Concentrations

Annual Mean $PM_{2.5}$ is not undertaken in Rossendale Borough Council

Table A.9 – SO_2 2022 Monitoring Results, Number of Relevant Instances

Annual Mean SO_2 monitoring is not undertaken in Rossendale Borough Council

Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO_2 2022 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	381394	422756	missing	38.9	Missing	30.3	31.1	29.5	31.6	32.1	31.4	30.6	37.3	39.7	33.3	25.3		
2	378495	424454	44.7	33.3	40.0	27.0	30.6	29.5	32.1	35.7	28.9	34.7	32.6	36.1	33.8	25.7		
3	379153	422234	14.4	31.4	28.6	24.9	28.0	27.1	27.6	27.5	25.8	33.2	30.7	38.6	28.2	21.4		
4	381325	422740	39.5	29.3	36.7	25.7	erroneous	erroneous	21.2	24.7	24.8	29.1	26.2	30.9	28.8	21.9		
5	379209	422171	37.1	34.0	35.7	Missing	29.5	29.7	29.7	31.8	29.4	33.2	30.7	33.1	32.2	24.5		
6	379175	422213	46.0	32.4	42.8	29.7	29.5	30.5	30.4	31.5	31.1	38.9	44.6	34.1	35.1	26.7		
7	379193	422210	47.5	Missing	47.7	33.0	28.6	27.0	29.5	34.3	35.6	31.9	44.7	50.2	37.3	28.3		
8	379197	422213	28.8	25.7	37.0	21.6	21.5	20.9	21.0	21.9	25.4	28.8	30.0	32.1	26.2	19.9		
9	379183	422200	43.2	34.0	43.9	30.2	31.9	32.1	34.7	33.8	31.1	39.3	47.0	44.2	37.1	28.2		
10	377879	422502	33.0	19.6	29.5	21.5	18.2	14.9	17.1	18.9	21.9	19.9	25.4	26.3	22.2	16.9		
11	382845	421978	52.6	34.3	44.3	36.4	31.2	erroneous	31.6	34.8	39.2	28.7	45.1	53.9	39.3	29.9		
12	377909	422488	76.8	57.5	74.1	61.7	60.6	48.8	60.3	65.0	54.9	62.0	47.4	67.9	61.4	**46.7**		
13	381377	422756	56.7	38.0	47.2	42.0	35.6	34.6	35.7	missing	32.2	36.7	41.9	51.7	41.1	31.2		
14	381358	422754	49.3	32.6	45.1	41.7	37.0	33.0	36.0	43.8	38.8	37.3	39.0	54.2	40.7	30.9		
15	381350	422754	56.2	37.1	46.9	40.2	35.1	31.3	34.7	42.2	37.2	37.8	37.2	50.5	40.5	30.8		
16	381161	422725	45.3	35.4	39.5	25.1	26.9	26.7	28.9	25.9	26.3	35.4	35.9	40.0	32.6	24.8		
17	381121	422725	55.4	42.7	48.0	missing	34.5	30.6	Missing	35.0	31.1	43.8	33.4	missing	39.4	29.9		
18	378094	422560	27.3	22.7	40.3	30.6	24.2	19.7	23.9	28.9	24.2	28.5	31.1	34.2	28.0	21.3		
19	377896	422488	76.4	50.7	60.7	58.4	52.1	49.9	52.7	64.0	30.2	58.0	58.7	54.2	55.5	**42.2**		
20	377899	422488	missing	43.2	61.8	48.6	45.8	42.8	44.8	50.9	46.1	44.6	42.1	53.2	47.6	36.2		

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**

☒ **National bias adjustment factor used**

☒ **Rossendale Borough Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Rossendale Borough Council During 2022

Rossendale Borough Council has not identified any new sources relating to air quality within the reporting year of 2022

Additional Air Quality Works Undertaken by Rossendale Borough Council During 2022

Rossendale Borough Council has not completed any additional works within the reporting year of 2022

QA/QC of Diffusion Tube Monitoring

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Rossendale Borough Council recorded data capture of 75% therefore it was not required to annualise any monitoring data.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method. The monitoring has been completed in adherence with the 2022 Diffusion Tube Monitoring Calendar.

Rossendale Borough Council have applied a national bias adjustment factor of 0.76 (03/23) to the 2022 monitoring data. A summary of bias adjustment factors used by Rossendale Borough Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.76
2021	National	03/22	0.78
2020	National	03/21	0.77
2019	National	03/20	0.75
2018	National	06/19	0.75

Table C.2 – Local Bias Adjustment Calculation

A local bias adjustment factor has not been calculated.

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO_2 monitoring locations within Rossendale Borough Council required distance correction during 2022.

Table C.3 – NO_2 Fall off With Distance Calculations (concentrations presented in $\mu g/m^3$)

No fall-off with distance calculations where needed in 2022

QA/QC of Automatic Monitoring

The monitoring has been completed in adherence with the 2022 Diffusion Tube Monitoring Calendar.

The supplier used for the provision and analysis of the diffusion tubes continued to be SOCOTEC, Didcot,

The samples have been analysed in accordance with SOCOTEC's standard operating procedure ANU/SOP/1015. This method meets the guidelines set out in DEFRA's 'Diffusion Tubes For Ambient NO2 Monitoring: Practical Guidance.'

The tubes were prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes were desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet detection. All samples were received in good condition, unless otherwise stated in the comments field of results table. Please note:

i) As set out in the practical guidance, the results were initially calculated assuming an ambient temperature of 11^{o}C, the reported values **have** been adjusted to 20^{o}C to allow for direct comparison with EU limits.

(ii) The reported results have not been bias adjusted.

This analysis of diffusion tube samples to determine the amount of nitrogen dioxide present on the tube is within the scope of our UKAS schedule. Any further calculations and assessments requiring exposure details and conditions fall outside the scope of our accreditation. In the AIR PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a **Satisfactory** laboratory.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

No PM_{10}/$PM_{2.5}$ monitoring is completed within Rossendale Borough Council.

Automatic Monitoring Annualisation

No automatic monitoring is completed within Rossendale Borough Council.

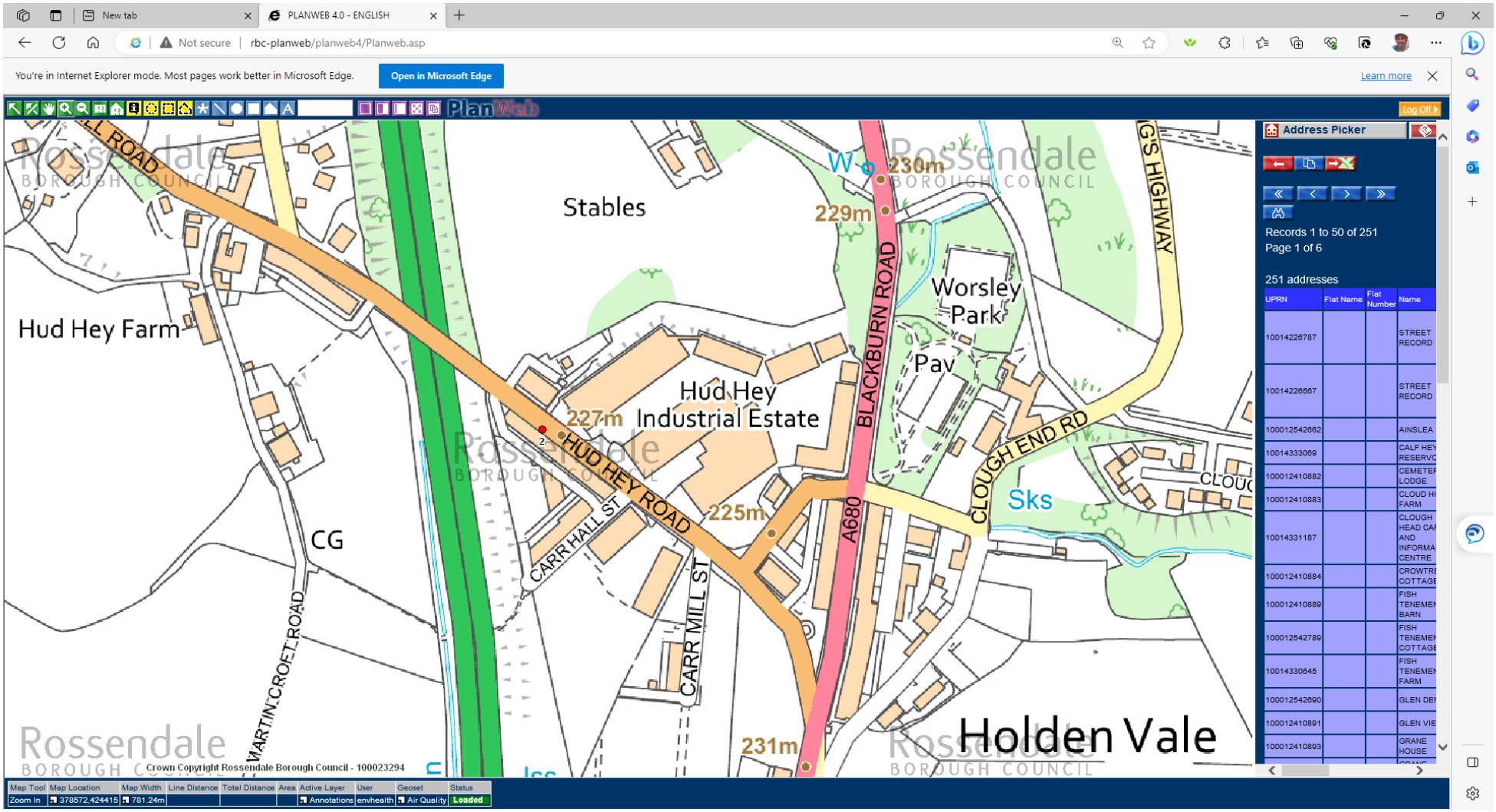
NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure and no fall-off calculations where necessary.

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

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

Tube 2


PLANWEB 4.0 - ENGLISH
rbc-planweb/planweb4/Planweb.asp
You're in Internet Explorer mode. Most pages work better in Microsoft Edge.
Open in Microsoft Edge
Learn more
PlanWeb
Log Off
Address Picker
Records 1 to 50 of 251
Page 1 of 6
251 addresses
UPRN
Flat Name
Flat Number
Name
Stables
Hud Hey Farm
Hud Hey Industrial Estate
Worsley Park
Pav
Sks
CG
HUD HEY ROAD
CARR HALL ST
CARR MILL ST
MARTIN CROFT ROAD
BLACKBURN ROAD
A680
CLOUGH END RD
G'S HIGHWAY
230m
229m
227m
225m
231m
Holden Vale
Rossendale BOROUGH COUNCIL
Crown Copyright Rossendale Borough Council - 100023294
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Map Location
Map Width
Line Distance
Total Distance
Area
Active Layer
User
Geoset
Status
Zoom In
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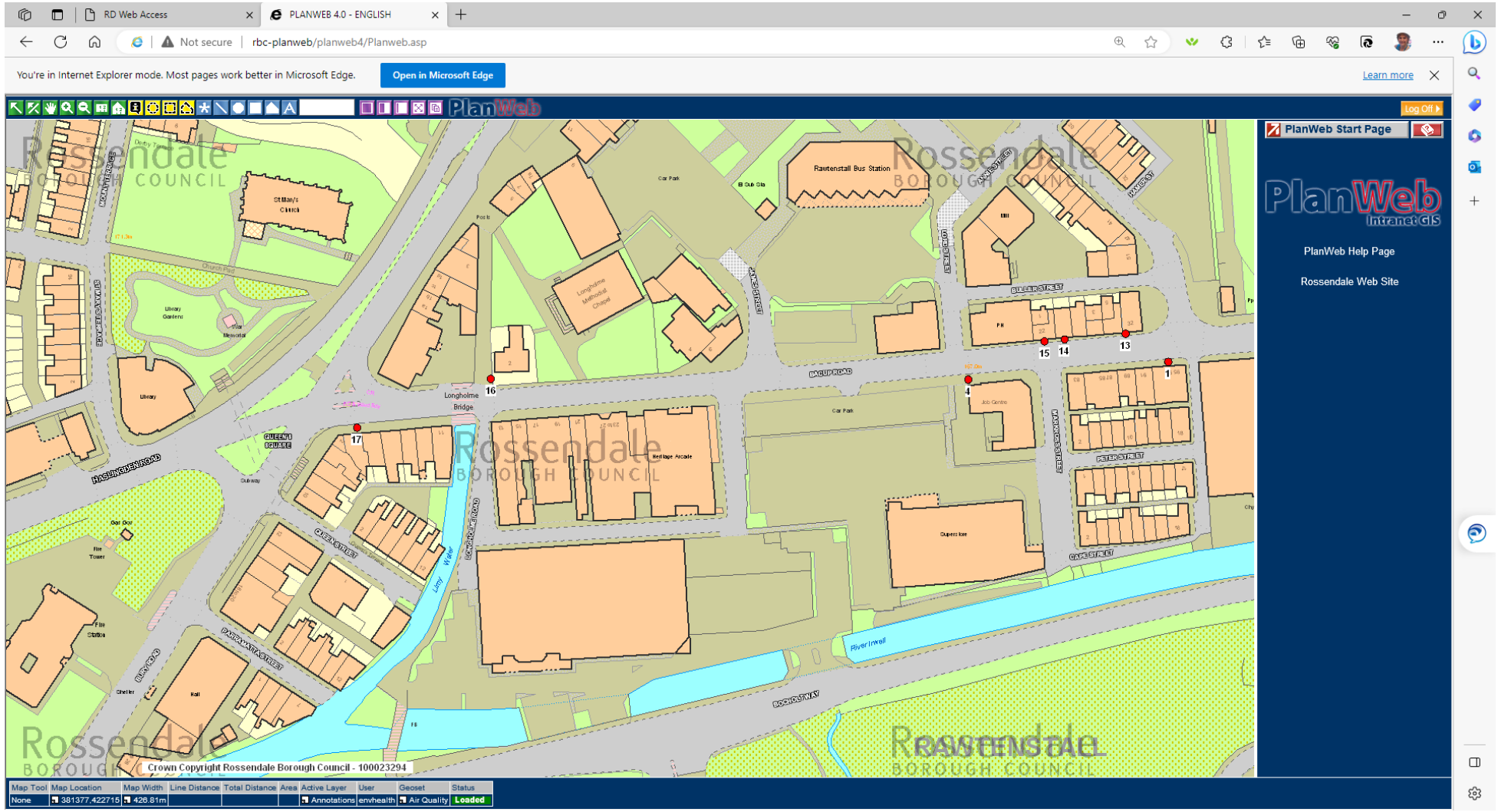
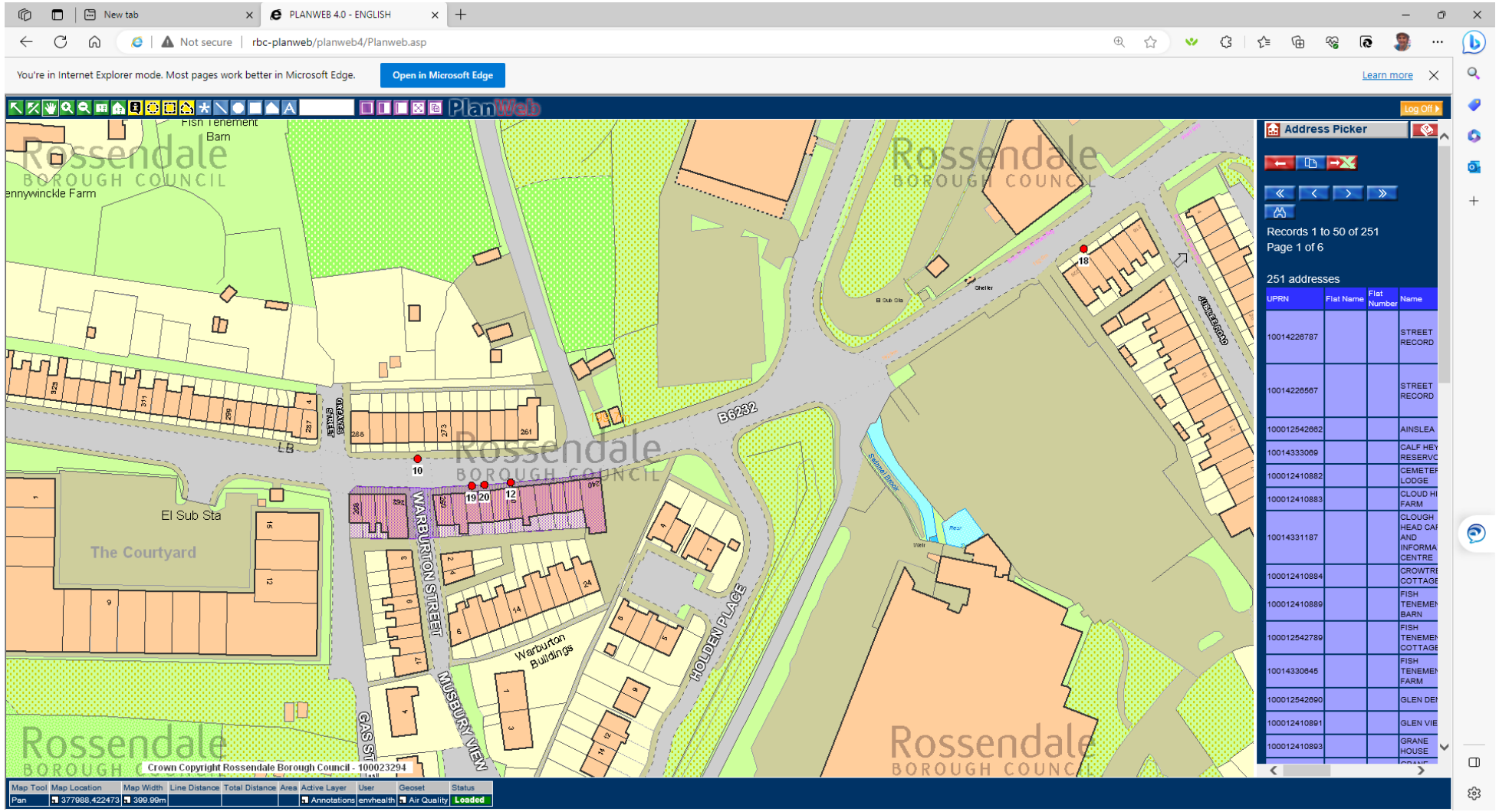
781.24m
Annotations
envhealth
Air Quality
Loaded

Tubes DT3,DT5,DT6,DT7,DT8 and DT9 located in the former AQMA 1

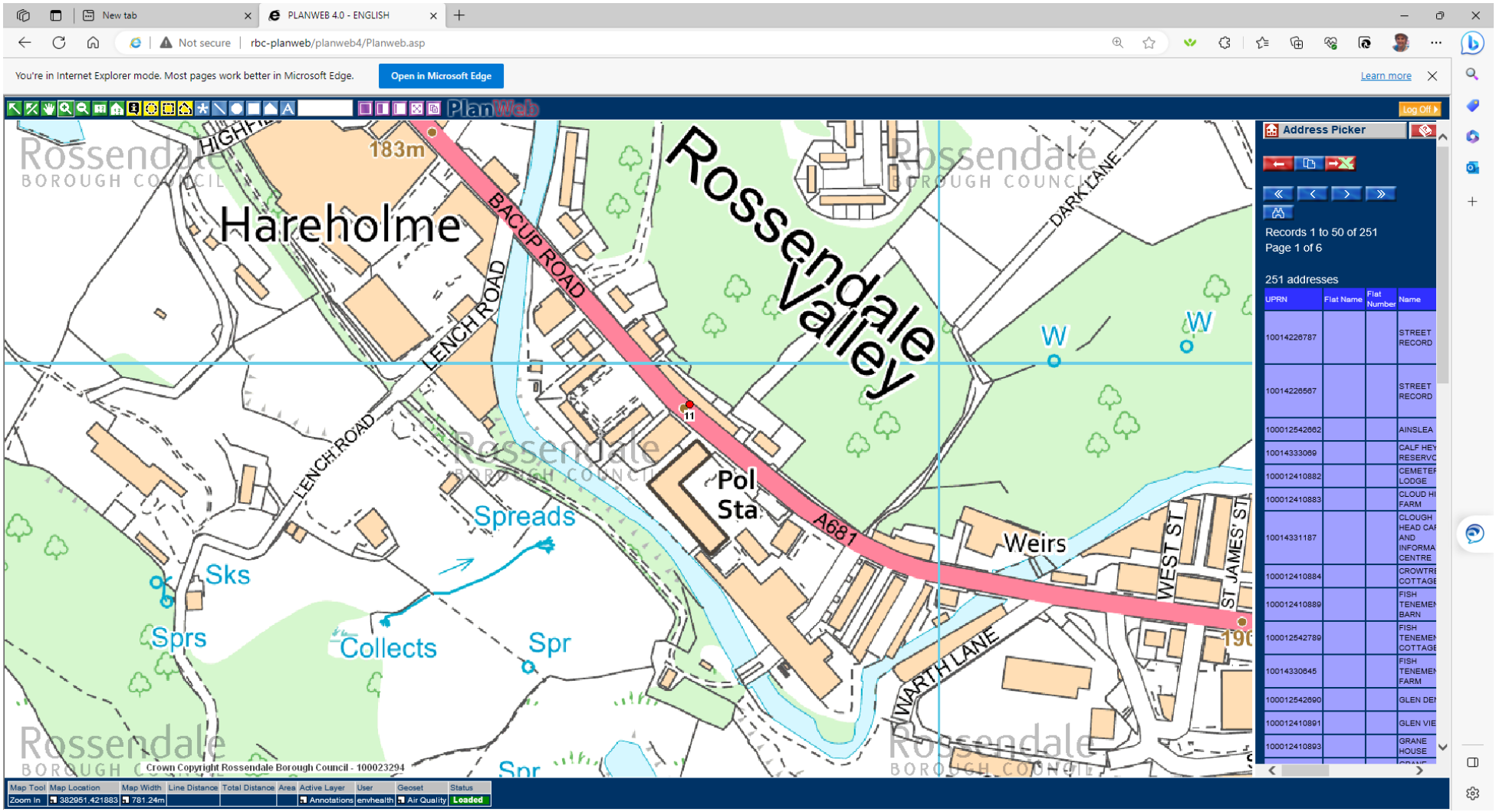
Diffusion Tubes DT1,DT4,DT13,DT14,DT15,DT16 and DT17 Bacup Road Rawtenstall located in former AQMA 2



Diffusion Tubes DT10, DT12, DT18, DT19 (AQMA 3) and DT20 Grane Road Haslingden



Tube 11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Not secure
rbc-planweb/planweb4/Planweb.asp
You're in Internet Explorer mode. Most pages work better in Microsoft Edge.
Open in Microsoft Edge
Learn more
PlanWeb
Log Off
Hareholme
183m
BACUP ROAD
Rossendale Valley
LENCH ROAD
DARK LANE
Pol Sta
A681
Weirs
WEST ST
ST JAMES' ST
Spreads
Sks
Sprs
Collects
Spr
Address Picker
Records 1 to 50 of 251
Page 1 of 6
251 addresses
UPRN
Flat Name
Flat Number
Name
Crown Copyright Rossendale Borough Council - 100023294
Map Tool
Map Location
Map Width
Line Distance
Total Distance
Area
Active Layer
User
Geoset
Status
Zoom In
382951,421883
781.24m
Annotations
envhealth
Air Quality
Loaded

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. 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.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.