Rossendale
BOROUGH COUNCIL

2021 Air Quality Annual Status Report (ASR)

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

Date: September 2021

Information	Rossendale Borough Council
Local Authority Officer	Lorna Robinson
Department	Environmental Health
Address	Public Protection Unit Futures Park Newchurch Road Bacup OL13 0BB
Telephone	01706 252564
E-mail	lornarobinson@rossendalebc.gov.uk
Report Reference Number	ASR2021
Date	September 2021

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 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

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

The main air quality issue of concern in Rossendale continues to be Nitrogen Dioxide (NO_2) caused by road vehicle emissions.

2020 showed a clear reduction in NO_2 overall (see Table B.1) due to the Covid lockdowns and reduced traffic movements however two diffusion tubes locations still recorded NO_2 above the Governments annual limit of 40µg/m3. The tubes where tube 12 located at 250 Grane Road Haslingden which recorded 44.9 µg/m3 and Tube 19 located at 256-8 Grane Road Haslingden which recorded 41.6 µg/m3. This is the first year they've been in this location after relocation at the start of 2020 to assist with getting a pattern of pollution in the area around tube 20 which had exceeded for the previous 2 years but didn't exceed this year.

---

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

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

[3] Defra. Air quality appraisal: damage cost guidance, July 2020

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

Rossendale Borough Council will be declaring an AQMA in this area of about twenty properties on Grane Road Haslingden in the near future.

We managed to obtain a full year of data during the pandemic as normal.

From an air quality perspective the pandemic seems to have made people more aware of their environment which will hopefully lead to continued behaviour change and for people to reflect and think about their lifestyle and how their lifestyle can have a negative impact on our environment. We need a significant reduction in miles travelled by cars with a move to more sustainable modes of transport such as active travel and public transport.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy[5] sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero[6] sets 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.

Actions taken by Rossendale Borough Council during 2020 in relation to air quality

- The addition of traffic lights on Bacup Road Rawtenstall for the new bus station has lead to a noticeable reduction in traffic flow along Bacup Road at the start of the year as it slows the route down and makes Bocholt Way the faster more preferred option for through traffic
- Tube 12 in 2019 was relocated for 2020 from Rose Mount Grane Road Haslingden which had low readings to 250 Grane Road Haslingden closer to the exceeding tube 20
- Tube 19 in 2019 was relocated for 2020 from 323 Grane Road Haslingden which had low readings to 256-8 Grane Road Haslingden closer to the exceeding tube 20

---

[5] Defra. Clean Air Strategy, 2019

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

- Officer attendance at County Hall for a meeting with Lancashire County Council Public Health around air quality monitoring and schools discussion which lead to the production of the Clean Air Lancashire Schools Toolkit
- Link to a pinch point Lancashire County Council bid for improvements to the gyratory which is adjacent to AQMA 2 http://www.rossendalenews.org.uk/statement-on-funding-proposals-for-st-marys-gyratory/
- 28th Jan 2020 First meeting of the council climate change steering group
- A public group Rossendale Climate Action Group met on 27th January 2020 at St Marys Chambers
- Email from Highways England saying they no longer need to carry out further air quality work in Rossendale at the moment
- Attendance at Lancashire County Council County Hall Preston on 4/2/2020 for a demonstration on portable hand held videos linked to the work they're planning around schools, idling engines and number plate recognition etc
- NO_2 tubes Grane Road single traffic lights roadworks Jan –Feb 2020
- Rossendale Borough Councils Climate Change strategy went to cabinet in July 2020 with an action plan https://www.rossendale.gov.uk/meetings/meeting/1211/cabinet Air quality will continue to be dealt with separately
- New positions advertised at Rossendale Borough Council: Project Officer to tackle climate change and Environmental Education Officer to maximise the environmental, social and health benefits from waste minimisation, resource re-use and recycling.
- Internal climate change meeting held on 5/8/2020
- 31 July email from consultants that air quality monitoring will start for the Haweswater Viaduct
- Promotion of National Clean Air Day on 8th October 2020 on social media
- Rossendale Borough Council signed up to the DEFRA Air Quality Hub and promoted it on the website
- Rossendale Borough Council participated in a DEFRA consultation titled 'Local air quality management call for evidence designation of relevant public authorities'.
- Work on the East Lancashire cycleway continued
- https://www.construction.co.uk/construction-news/74575/climate-change-schemes-in-rossendale-get-green-light
- Tube 10 located in Edenfield which has consistently low levels of NO_2 will be relocated for 2020 to the pavement fronted property at 277 Grane Road Haslingden to assist with data collection in the area of concern
- The 2020-2030 Climate Change Strategy was published by Rossendale Borough Council and is available to view here https://www.rossendale.gov.uk/downloads/file/16648/rossendale_council_climate_change_strategy this is inextricably linked to air quality

Lancashire County Council's Public Health Summary for Air Quality Annual Status Reports, 2021

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 adult mortality attributable to particulate air pollution (PM$_{2.5}$)' each year. It shows that, while the overall mortality rate from particulate air pollution in Lancashire-12 (4.0%) is lower than the England average (5.1%), air pollution remains a significant public health issue for the county.

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 the five Lancashire Highway and Transport Masterplan areas. 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.

2. **Supporting the transition to low emission vehicles**

- The County Council is working with BP Chargemaster to deliver 150 electric vehicle charge points across the County. The charging network will be accessible to drivers from all over the country and will support local and national efforts to increase the number of drivers purchasing electric vehicles.

- The County Council is supporting six district councils with a low emission taxi infrastructure scheme. Funded by the Office for Low Emission Vehicles, the scheme will provide taxi drivers with access to 24 new rapid electric vehicle charge points across the six districts. This, alongside a series of promotional activities and suggested regulatory

changes, is designed to produce a transition towards more low emission taxi vehicles across Lancashire.

3. Creating cleaner, healthier road networks

- Work to develop the next Local Transport Plan (LTP4) for Lancashire, Blackpool and Blackburn with Darwen is now underway. The Public Health team has submitted an evidence base to 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. Air quality is one of the key themes of the evidence base and will be an identified priority in LTP4. 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.

- The Lancaster City Centre Movement Strategy is looking at how vehicular, public transport and pedestrian walking movements can be improved across the city. A key facet of the study is to examine what improvements can be implemented to prioritise public transport, reduce severance, improve air quality and effectively make the city centre a more welcoming environment for people. The intention is for a similar approach to be adopted as part of future Highways and Transport Masterplans.

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, Monitoring of Air Quality and Health Impacts and an Air Quality and Health Dashboard.

Conclusions and Priorities

A priority for the Council will be to declare an AQMA along a small residential section of Grane Road, Haslingden due to ongoing exceedances and this will lead to an updated Air Quality Action Plan. The challenge in this area will be around improvements as it's a main road B6232 into and out of Rossendale at the west of the district which is currently used as a short cut by drivers to the M65 rather than using the A56. We need to make Grane Road 30mph all along it so it then becomes quicker for drivers to use the A56. This suggestion will need involvement from Lancashire County Council Highways.

All monitoring results within existing AQMAs where below the air quality objective in 2020 but we don't as yet have three years consistent data of them all being 10% below the objective in AQMA so we'll continue to monitor it with the hope that revocation will be imminent.

Local Engagement and How to get Involved

Thinking about air pollution on a worldwide or even country scale can be daunting because as individuals we can often feel insignificant. Yet if we all reduce the amount of fuel we use and the number of chemicals used at home, we will improve the quality of the air that we breathe and help the global and local problem. We can all contribute to improving the air quality by:

- Using public transport more

- Reducing car use and doing more car sharing
  https://liftshare.com/uk/community/sharedwheels

- Changing to an electric vehicle see https://www.gov.uk/plug-in-car-van-grants

- Cycling and walking where possible

- Using less chemicals in the home to reduce the toxic load on your internal air quality

- 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://smokecontrol.defra.gov.uk/index.php

- Working from home

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

Client Earth are activist lawyers committed to securing a healthy planet. Their website is https://www.clientearth.org/

Further information on air quality and air pollution forecasts can be found on the DEFRA website UK Air Quality Information Resource following this link https://uk-air.defra.gov.uk/

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 www.livingstreets.org.uk

Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Rossendale Borough Council 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 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

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.

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

- NO_2 annual mean

We propose to declare a new AQMA in Grane Road Haslingden area due to exceedances of the NO_2 annual mean air quality objective (see monitoring/additional information section).

Exceedances in AQMA 1 have been 10% below the limit for the past three years and we just need another year of data for AQMA 2 then we propose to revoke AQMAs 1 and 2 at the same time.

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	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 1 Hasligden	8th May 2013	NO2 Annual Mean 40 µg/m³	An area comprising a number of residential properties on Haslingden Road	No	43 µg/m³	26.3 µg/m³	Air quality action plan July 2016	https://www.rossendale.gov.uk/downloads/file/14091/air_quality_action_plan
AQMA 2 Rawtenstall	8th May 2013	NO2 Annual Mean 40 µg/m³	An area comprising residential property on Bacup Road	No	43 µg/m³	28.8 µg/m³	Air quality action plan July 2016	https://www.rossendale.gov.uk/downloads/file/14091/air_quality_action_plan

☒ **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.**

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

Defra's appraisal of last year's ASR concluded the report was well structured, detailed and provides the information specified in the guidance. It advised concentrations are presented to 1 decimal place to ensure consistency and this has been done.

It recommended that Rossendale Borough Council declare an AQMA in the area around DT20 which we are planning to do.

It advised we wait until we have three years of data showing concentrations below $36\mu g/m^3$

prior to applying for revocation of AQMAs and when we have that we will be in a position to apply for revocation of both AQMAs.

The AQAP will be renewed when the new AQMA is declared. No specific work on the action plans was taken in 2020.

Details of all measures completed are set out in Table 2.2.

More detail on these measures can be found in their respective Action Plans available on line here https://www.rossendale.gov.uk/downloads/file/14091/air_quality_action_plan

Key completed measures are the amended road signage which directs car drivers along Bocholt Way and not along Bacup Road.

Rossendale Borough Council's priorities for the coming year/s are declaration of an AQMA at Grane Road and revocation of the two existing AQMAs.

The principal challenges and barriers to implementation that Rossendale Borough Council anticipates facing are staffing capacity issues and reliance on Lancashire County Council Highways Authority to make changes to the road network.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Limit Council fleet use of Bacup Road for non-essential access	Traffic management	Other	January 2019	January 2019	Local Authority Fleet Management	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Rossendale Borough Council fleet do not use Bacup Road unless servicing the properties	N/A
2	No through access to HGVs or LDVs along Bacup Road unless deliveries	Traffic Management	Other	N/A	N/A	Lancashire County Council Highways	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not deemed enforceable so this option will not be pursued	Not deemed enforceable so this option will not be pursued
3	Road signage amended to reprioritise use of Bocholt Way and deprioritise Bocholt Way	Traffic Management	Other	2018	September 2018	Lancashire County Council Highways	N/A	N/A	N/A	Not known	Completed	Reduced vehicle emissions	N/A	Completed	Completed
4	School travel plans to encourage alternative modes	Promoting Travel Alternatives	School Travel Plans	N/A	N/A	Lancashire County Council Public Health	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not pursued as the air quality in this area is again below actionable levels for another year
5	No through signage at road entry points to Haslingden	Traffic Management	Other	N/A	N/A	Lancashire County Council Highways	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not pursued as the air quality in this area is again below actionable levels for another year
6	Apply Public Spaces Protection Orders to restrict idling on Manchester Road	Traffic Management	Anti-idling enforcement	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not pursued as the air quality in this area is again below actionable levels for another year

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

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM$_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM$_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Rossendale Borough Council doesn't currently measure for PM^{10} or 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 2020 to have a maximum background mean of 7.7µg/m^3

The maximum in Rosendale in 2020 was lower compared to the Northern region which had a maximum background mean of 13.6 µg/m^3 and also lower than neighbouring authorities which had maximum background means of Hyndburn Borough Council 8.85 µg/m$^{3.}$ Burnley Borough Council 8.84 µg/m^3, Blackburn with Darwen Borough Council 8.09 µg/m^3, Calderdale Borough Council 10.09 µg/m^3.

Rossendale Borough Council is taking the following measures to address PM$_{2.5}$:

- A no open burning condition on planning applications on demolition and construction sites
- Responding to complaints about domestic garden burning advising people that recycling garden waste is the most appropriate way and signposting them to the Council's garden waste collection service
- Investigation of smoky domestic chimney and dark smoke complaints under the Clean Air Act 1993.
- 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 2020 by Rossendale Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2016 and 2020 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Rossendale Borough Council undertook no automatic (continuous) monitoring during 2020.

3.1.2 Non-Automatic Monitoring Sites

Rossendale Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 20 sites during 2020. Table A. 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.

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.

3.1.3 Nitrogen Dioxide (NO_2)

Table A.2 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 2020 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

2020 showed a clear reduction in NO_2 overall compared to previous years (see Table B.1) due to the Covid lockdowns and reduced traffic movements however two diffusion tubes locations still recorded NO_2 above the Governments annual limit of 40μg/m3. The tubes where tube 12 located at 250 Grane Road Haslingden which recorded 44.9 μg/m3 and Tube 19 located at 256-8 Grane Road Haslingden which recorded 41.6 μg/m3. This is the first year they have been in this location after relocation at the start of 2020. The purpose of which was to assist with getting a pattern of pollution in the area around tube 20 which had exceeded for the previous 2 years but didn't exceed in 2020.

Rossendale Borough Council will be declaring an AQMA in this area of about 28 properties on Grane Road Haslingden in the near future.

The only proposed change to the monitoring network is for tube 10 located in Edenfield which has consistently been under the limit has been relocated to 277 Grane Road for 2021 onwards to assist with data collection in the area of concern.

3.1.4 Particulate Matter (PM$_{10}$)

Rossendale Borough Council undertook no particulate matter (PM$_{10}$) monitoring during 2020

3.1.5 Particulate Matter (PM$_{2.5}$)

Rossendale Borough Council undertook no particulate matter (PM2.5) monitoring during 2020.

3.1.6 Sulphur Dioxide (SO$_2$)

Rossendale Borough Council undertook no sulphur dioxide monitoring in 2020

Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
1	93-95 Bacup Road Rawtenstall	Roadside	381394	422756	NO2	2	5.0	1.0	No	1.8
2	235 Newchurch Road Stacksteads	Roadside	385579	421855	NO2		0.0	2.0	No	1.8
3	349 Manchester Road Haslingden	Roadside	379153	422234	NO2	1	0.0	3.0	No	1.8
4	83 Bacup Road Rawtenstall	Roadside	381325	422740	NO2	1	20.0	3.5	No	1.8
5	377 Manchester Road Haslingden	Roadside	379209	422171	NO2	1	0.0	3.0	No	1.8
6	359 Manchester Road Haslingden	Roadside	379175	422213	NO2	1	0.0	4.0	No	1.8
7	366 Manchester Road Haslingden	Roadside	379193	422210	NO2	1	0.0	2.0	No	1.8
8	5-7 Rawtenstall Road Haslingden	Roadside	379197	422213	NO2	1	4.0	2.0	No	1.8
9	363 Manchester Road, Haslingden	Roadside	379183	422200	NO2	1	0.0	4.0	No	1.8
10	2 Market Place Edenfield	Roadside	379983	419219	NO2		0.0	3.5	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)
11	632 Bacup Road Waterfoot	Roadside	383506	421766	NO2		0.0	2.0	No	1.8
12	250 Grane Road, Haslingden	Roadside	377909	422488	NO2		0.0	2.0	No	1.8
13	30-32 Bacup Road Rawtenstall	Roadside	381377	422756	NO2	2	0.0	2.0	No	1.8
14	24-26 Bacup Road Rawtenstall	Roadside	381358	422754	NO2	2	0.0	2.0	No	1.8
15	22 Bacup Road Rawtenstall	Roadside	381350	422754	NO2	2	0.0	2.0	No	1.8
16	2A Bacup Road, Rawtenstall	Roadside	381161	422754	NO2	2	0.0	6.0	No	1.8
17	1 Bacup Road Rawtenstall	Roadside	381121	422725	NO2	2	8.0	2.0	No	1.8
18	222 Grane Road Haslingden	Roadside	378094	422560	NO2		0.0	3.0	No	1.8
19	256-258 Grane Road Haslingen	Roadside	377896	422488	NO2		0.0	2.0	No	1.8
20	264 Grane Road Haslingden	Roadside	377899	422488	NO2		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).

(2) N/A if not applicable.

Table A.2 – 5 year Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
1	381394	422756	Roadside	100	100.0	32.9	36.9	33.3	32.3	23.8
2	385579	421855	Roadside	90.1	90.1	31.4	28.7	30.2	29.4	24.8
3	379153	422234	Roadside	100	100.0	35.2	34.9	31.9	27.3	22.0
4	381325	422740	Roadside	100	100.0	29.9	35.4	27.8	27.6	20.4
5	379209	422171	Roadside	84.8	84.8	31.8	38.6	31.8	28.7	22.1
6	379175	422213	Roadside	100	100.0	33.5	39.2	31.2	31.1	24.2
7	379193	422210	Roadside	100	100.0	33.5	**NA**	33.5	32.3	26.3
8	379197	422213	Roadside	100	100.0	27.1	31.4	27.6	25.6	20.4
9	379183	422200	Roadside	100	100.0	30.2	38.7	33.6	31.6	25.3
10	379983	419219	Roadside	100	100.0	**NA**	**NA**	24.5	25.6	20.6
11	383506	421766	Roadside	92.6	92.6	**NA**	**NA**	31.4	34.9	26.5
12	377909	422488	Roadside	100	100.0	**NA**	**NA**	**NA**	**NA**	**44.9**
13	381377	422756	Roadside	92	92.0	**44.2**	**42.4**	**40.9**	32.2	28.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
14	381358	422754	Roadside	100	100.0	38.9	**41.5**	36.8	31.9	26.2
15	381350	422754	Roadside	92	92.0	**42.6**	**46.2**	39.7	32.2	28.8
16	381161	422754	Roadside	92	92.8	30.6	33.8	28.4	26.6	24.7
17	381121	422725	Roadside	82	82.6	30.6	<u>NA</u>	35.9	34.7	28.6
18	378094	422560	Roadside	100	100.0	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	20.4
19	377896	422488	Roadside	100	100.0	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	**41.6**
20	377899	422488	Roadside	100	100.0	<u>NA</u>	<u>NA</u>	**47.8**	**46.6**	34.8

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

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

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

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu g/m^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in <u>**bold and underlined**</u>.
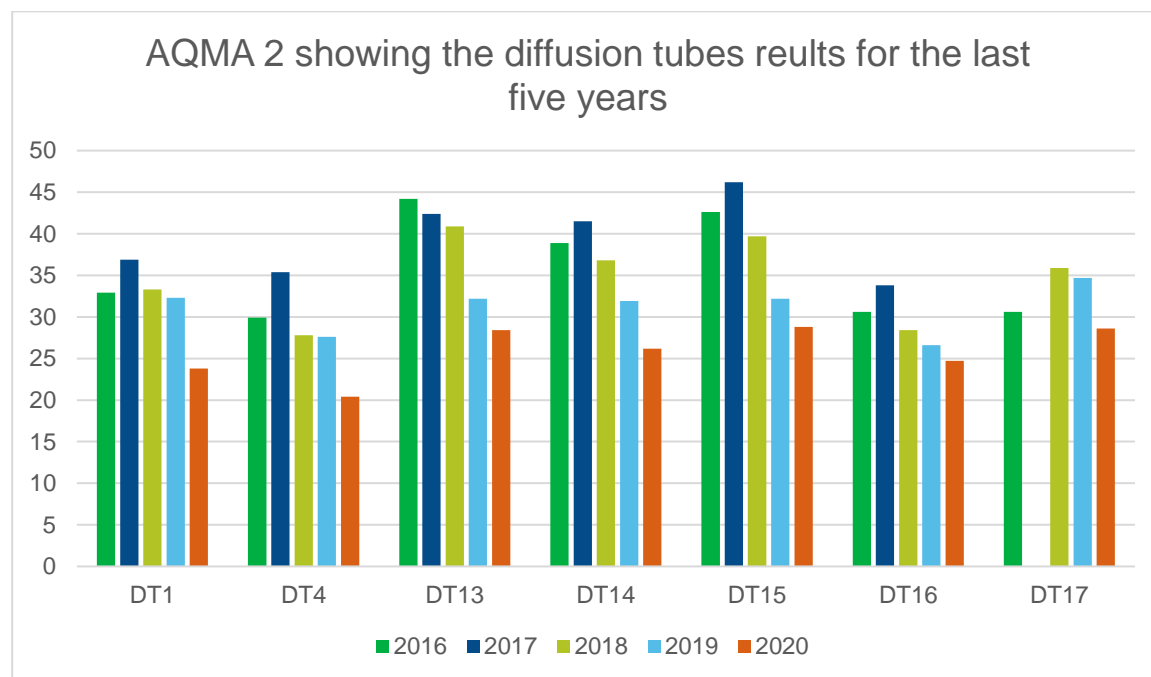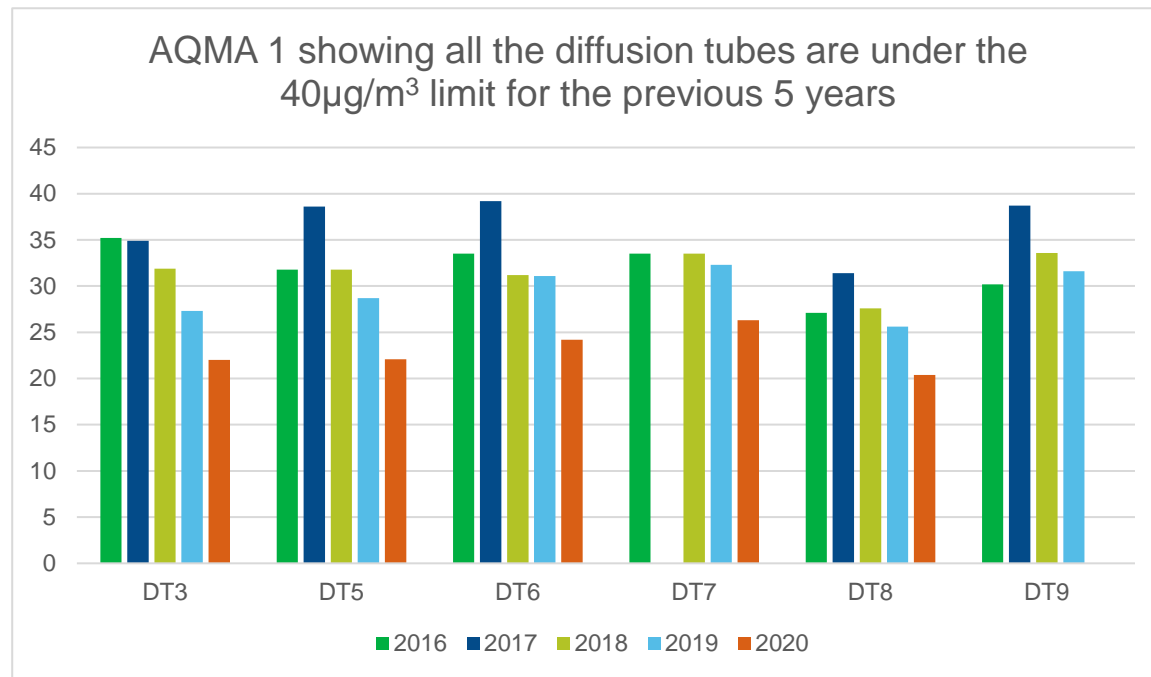
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

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

Figure A.1 – Trends in Annual Mean NO$_2$ Concentrations

AQMA 1 showing all the diffusion tubes are under the 40µg/m³ limit for the previous 5 years

AQMA 2 showing the diffusion tubes reults for the last five years

NO2 trend chart for tubes outside of the AQMAs
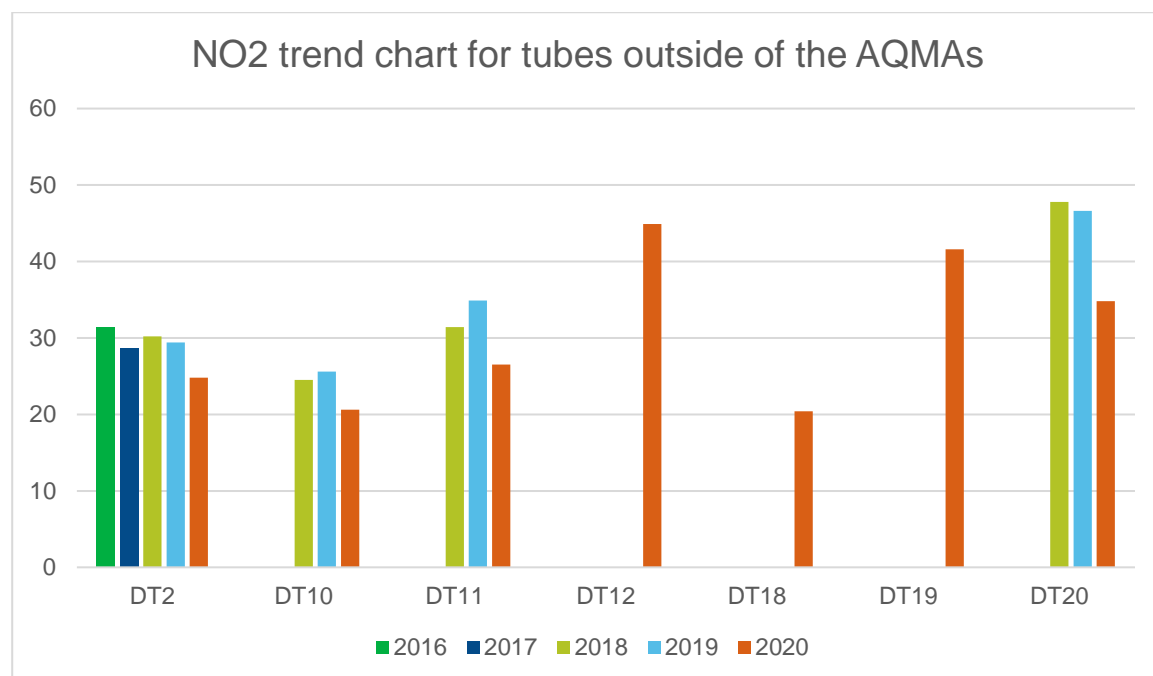
Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO₂ 2020 Diffusion Tube Results (μg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.77	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	381394	422756	47.1	37.4	27.8	18.6	20.8	24.9	22.2	27.3	29.4	33.0	41.9	40.9	30.9	23.8	-	
2	385579	421855	34.5	29.3	29.9	24.6	27.5	34.3	28.3		36.0	34.9	32.6	42.2	32.2	24.8	-	
3	379153	422234	45.0	25.2	26.2	17.4	19.8	22.7	22.0	23.3	30.0	29.7	41.2	40.8	28.6	22.0	-	
4	381325	422740	40.9	34.3	26.8	14.7	13.7	19.3	18.3	21.3	24.8	29.3	39.8	34.0	26.4	20.4	-	
5	379209	422171		38.7	30.7	16.9	20.9		24.8	23.9	32.1	28.2	35.9	34.9	28.7	22.1	-	
6	379175	422213	45.4	37.7	29.2	20.2	20.2	25.6	25.6	28.3	33.3	32.8	39.9	39.3	31.5	24.2	-	
7	379193	422210	47.3	38.4	28.4	23.5	24.2	30.6	20.4	31.1	34.7	37.6	46.0	47.5	34.1	26.3	-	
8	379197	422213	43.5	30.2	24.5	15.2	15.5	21.1	18.4	22.7	27.8	24.2	38.1	36.5	26.5	20.4	-	
9	379183	422200	50.0	37.2	30.0	18.8	22.3	27.2	26.8	28.2	32.9	34.9	42.2	44.1	32.9	25.3	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.77	Annual Mean: Distance Corrected to Nearest Exposure	Comment
10	379983	419219	42.2	29.6	25.0	15.1	21.6	17.1	22.2	27.6	21.9	38.3	34.0	25.8	26.7	20.6	-	
11	383506	421766	45.3	36.0	32.4	28.3	21.2		30.7	34.8	37.7	33.3	36.3	42.9	34.4	26.5	-	
12	377909	422488	78.9	52.4	57.8	35.2	44.6	55.6	53.4	57.4	62.9	59.4	62.4	80.5	58.4	**44.9**	-	
13	381377	422756	54.1		36.7	26.4	25.6	31.1	24.5	34.8	39.9	41.5	41.1	50.1	36.9	28.4	-	
14	381358	422754	47.6	38.5	31.1	23.9	18.6	26.9	25.6	30.6	39.1	34.7	42.5	49.1	34.0	26.2	-	
15	381350	422754	52.2		39.5	22.7	23.1	30.0	29.2	32.7	43.0	40.4	48.5	50.4	37.4	28.8	-	
16	381161	422754	55.2	43.6		16.7	18.8	20.8	25.5	24.4	33.0	30.2	42.1	43.1	32.1	24.7	-	
17	381121	422725	60.1	47.9	39.7	22.2	20.2	32.7	29.2	30.4	38.3			51.3	37.2	28.6	-	
18	378094	422560	33.7	29.9	26.3	19.1	20.2	24.9	17.2	26.0	27.6	19.7	33.4	40.4	26.5	20.4	-	
19	377896	422488	68.1	58.3	56.3	34.2	38.4	53.6	44.6	53.1	62.2	54.1	54.9	70.6	54.0	**41.6**	-	
20	377899	422488	63.6	45.1	44.0	28.4	29.1	38.0	38.2	39.2	46.2	46.9	62.5	60.6	45.2	34.8	-	

☒ **All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1**

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

☐ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

☐ **Where applicable, data has been distance corrected for relevant exposure in the final column**

☒ **Rossendale Borough Council confirm that all 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 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 2020

Rossendale Borough Council has not identified any new sources relating to air quality within the reporting year of 2020.

Additional Air Quality Works Undertaken by Rossendale Borough Council During 2020

Rossendale Borough Council has not completed any additional works within the reporting year of 2020.

QA/QC of Diffusion Tube Monitoring

The supplier used for diffusion tubes within 2020 is the same supplier as previos years 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°C, the reported values have been adjusted to 20°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.

The monitoring has been completed in adherence with the 2020 Diffusion Tube Monitoring Calendar.

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. In addition, any sites with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2020 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG16 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Rossendale Borough Council have applied a national bias adjustment factor of 0.77 to the 2020 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

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	National	03/21	0.77
2019	National	03/20	0.75
2018	National	06/19	0.75
2017	National	09/18	0.77

| **2016** | National | 06/17 | 0.78 |

NO₂ Fall-off with Distance from the Road

Wherever possible, local authorities should ensure that monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure should be estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO₂ monitoring locations within Rossendale Borough Council required distance correction during 2020.
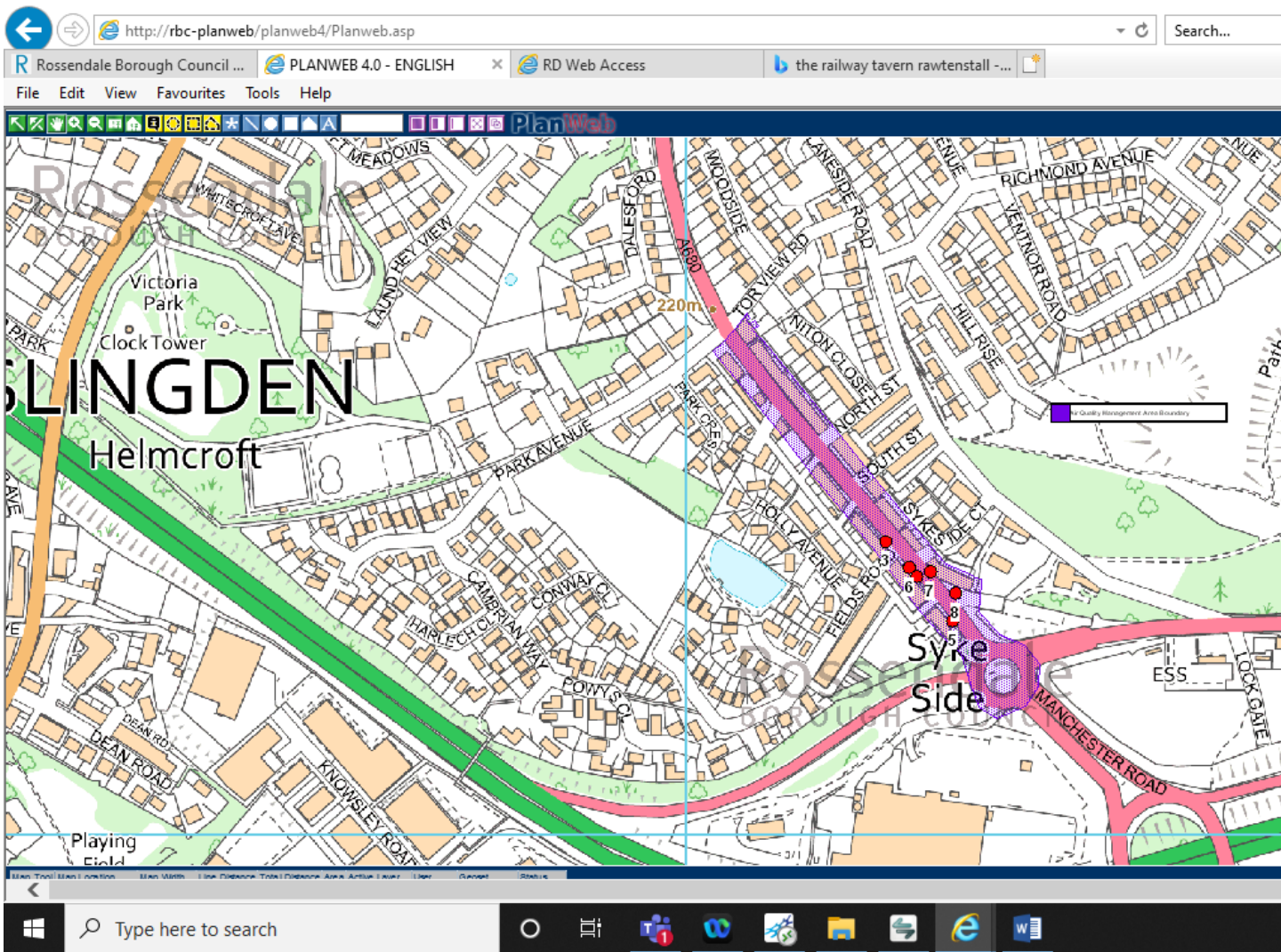
QA/QC of Automatic Monitoring

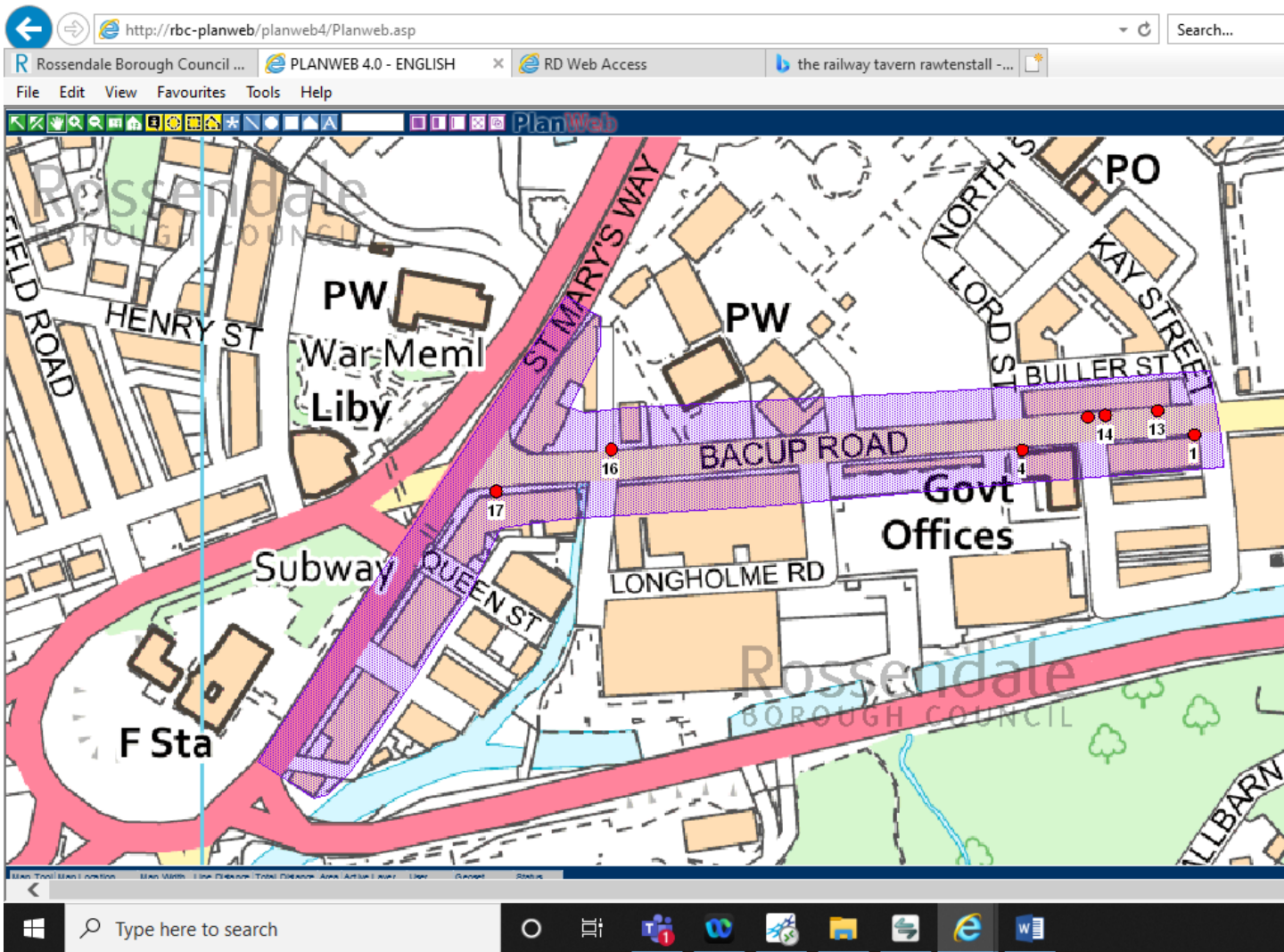Rossendale Borough Council do not carry out any automatic monitoring

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

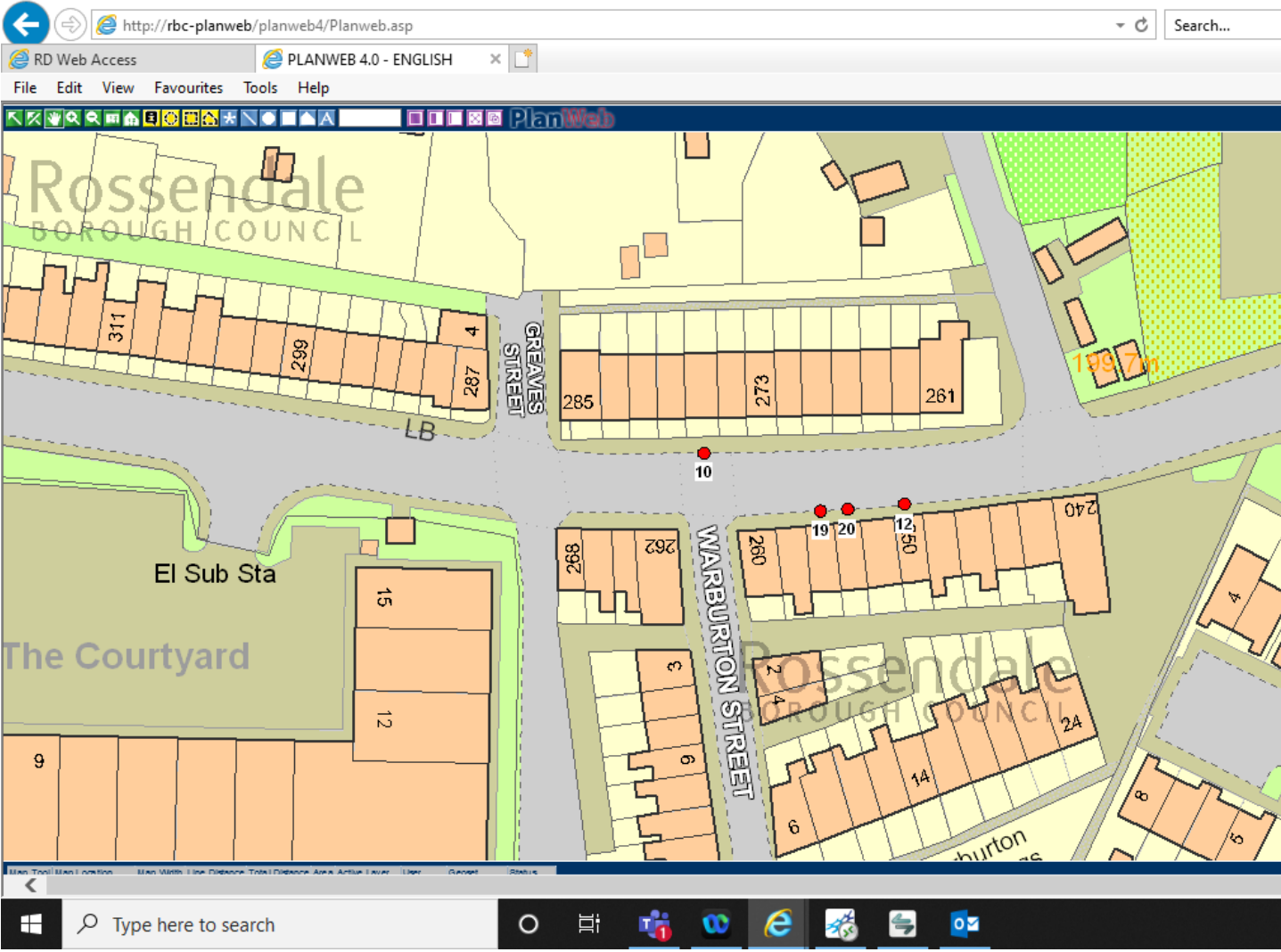### Figure D.1 – Maps of Non-Automatic Monitoring Sites
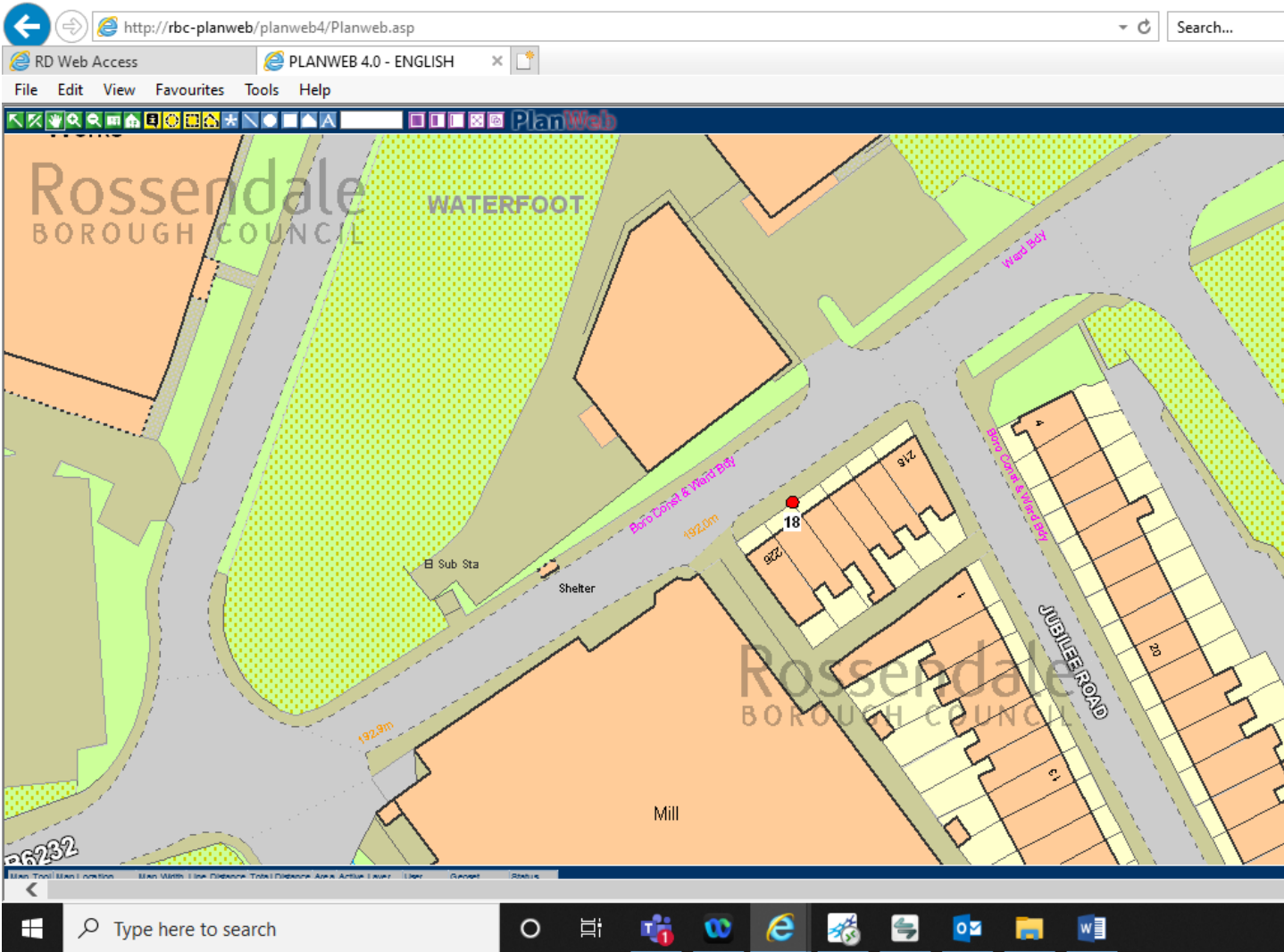
AQMA 1 Haslingden tubes 3, 5,6,7,8 and 9

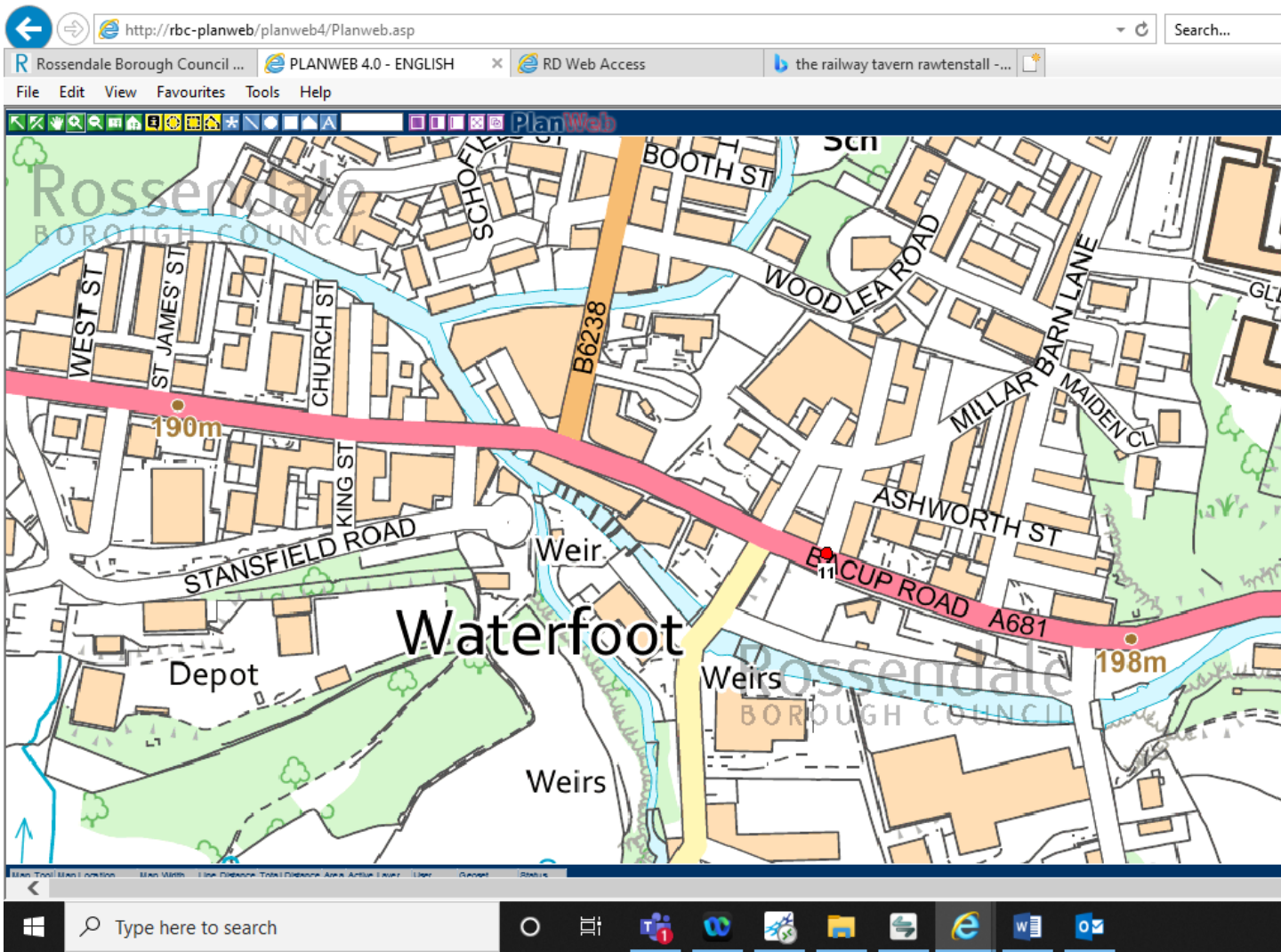AQMA 2 Rawtenstall tubes 1,4,13,14,15 and 16

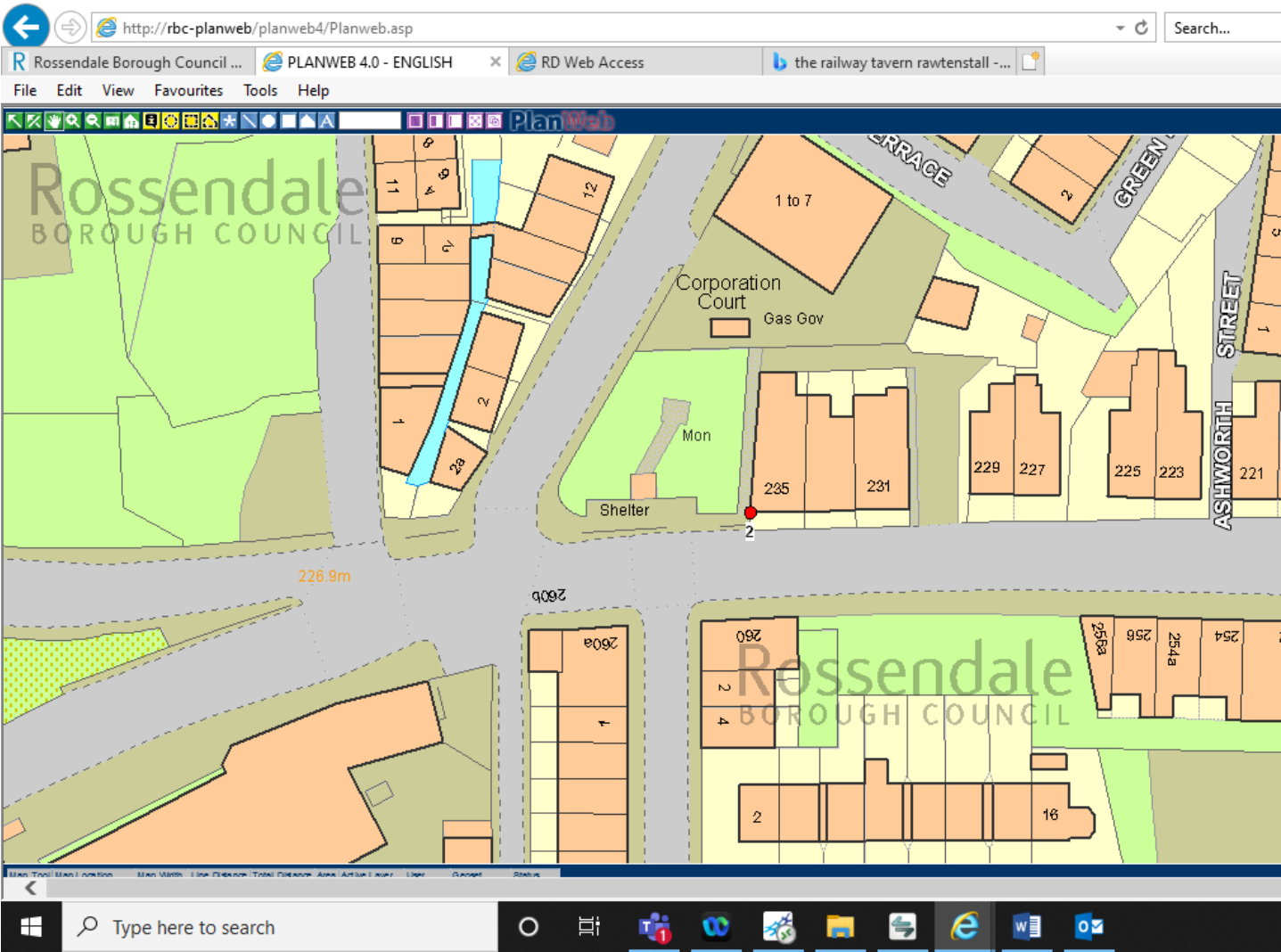Tubes located in the new area of concern AQMAs10,12, 19 and 20

Tube 18

Tube 11

Tube 2

Appendix E: Summary of Air Quality Objectives in England

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

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO$_2$)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO$_2$)	40µg/m^3	Annual mean
Particulate Matter (PM$_{10}$)	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM$_{10}$)	40µg/m^3	Annual mean
Sulphur Dioxide (SO$_2$)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO$_2$)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO$_2$)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

Appendix F: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year. Recognising this, Defra provided various advice updates throughout 2020 to English authorities, particularly concerning the potential disruption to air quality monitoring programmes, implementation of Air Quality Action Plans (AQAPs) and LAQM statutory reporting requirements. Defra has also issued supplementary guidance for LAQM reporting in 2021 to assist local authorities in preparing their 2021 ASR. Where applicable, this advice has been followed.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[8] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)[9] has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

---

[8] Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

[9] Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

represents an absolute reduction of between 10 to 20µg/m^3 if expressed relative to annual mean averages. During this period, changes in PM$_{2.5}$ concentrations were less marked than those of NO$_2$. PM$_{2.5}$ concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that PM$_{2.5}$ concentrations during the initial lockdown period are of the order 2 to 5µg/m^3 lower relative to those that would be expected under business-as-usual conditions.

As restrictions are gradually lifted, the challenge is to understand how these air quality improvements can benefit the long-term health of the population.

Impacts of COVID-19 on Air Quality within Rossendale Borough Council

Reductions of NO$_2$ concentrations were experienced at all roadside diffusion tube monitoring sites between April and June 2020. The reduction in NO$_2$ experienced within 2020 has allowed the Council to provide an evidence base in relation to the annual mean objective being achievable at the tubes with exceedances with reduced vehicle use and cleaner vehicles.

Opportunities Presented by COVID-19 upon LAQM within Rossendale Borough Council

- Rossendale Borough Council widely promoted the economic offer available in Rossendale and promoted a 'Stay Safe: Shop Local' campaign to encourage residents to shop locally and reduce car journeys and minimise driving to other areas
- Agile/flexible working away from the office has proved to be a success for many staff from Rossendale Borough Council and something which will carry on into the future reducing the amount of car journeys and reducing air pollution.
- Rossendale in partnership with the Lancashire Resilience Forum promoted that open burning during a respiratory pandemic was not advisable and we asked residents to cease open burning.

- As Environmental Health Officers are classed as a key worker within the Government's definition of critical sector provision of Key Public Services and Local Government we continued to collect and swap the monthly diffusion tubes so there is a full year of data and no need to annualise any tubes.

Challenges and Constraints Imposed by COVID-19 upon LAQM within Rossendale Borough Council

As with previous years, a national bias adjustment factor has been utilised to adjust the diffusion tube results for 2020. Within 2019 there were 25 co-location studies that were utilised to calculate the bias factor for the laboratory and preparation method used. For 2020, this number has reduced to only three studies. There is therefore the potential for there to be a greater degree of uncertainty associated with the resultant annual mean NO_2 concentrations in 2020 than in previous years. **Medium Impact**

The impact presented above is aligned with the criteria as defined in Table F 1, with professional judgement considered as part of their application.

Table F 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: Large
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

Glossary of Terms

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

References

- Local Air Quality Management Technical Guidance LAQM.TG16. April 2021. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.