Rossendale BOROUGH COUNCIL

ITEM NO. C4

Subject:	Annual Air Quality Report 2019		**Status:**	For Publication	
Report to:	Cabinet		**Date:**	27th November 2019	
Report of:	Public Protection Manager		**Portfolio Holder:**	Communities and Customers	
Key Decision:	☐ Forward Plan ☒		General Exception ☐	Special Urgency ☐	
Equality Impact Assessment:	Required:		No	Attached:	No
Biodiversity Impact Assessment	Required:		No	Attached:	No
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1.	**RECOMMENDATION**
1.1	That the content of the report be noted in relation to the Annual Air Quality report.

2. PURPOSE OF REPORT

2.1 This report is to provide an update on air quality in the Rossendale Borough Council area for 2019 and actions being taken to improve the quality.

3. CORPORATE PRIORITIES

3.1 The matters discussed in this report impact directly on the following corporate priorities:

- **A clean and green Rossendale:** our priority is to keep Rossendale clean and green for all of Rossendale's residents and visitors, and to take available opportunities to recycle and use energy from renewable sources more efficiently.
- **A proud, healthy and vibrant Rossendale:** our priority is to ensure that we are creating and maintaining a healthy and vibrant place for people to live and visit.

4. RISK ASSESSMENT IMPLICATIONS

4.1 None

5. BACKGROUND AND OPTIONS

Annual Air Quality Report

5.1 As recently as the nineties it was felt that air pollution was no longer a major health issue in the United Kingdom. Priority had been given to tackling the biggest individual sources of air pollution and legislation had made the great smogs of the fifties a thing of the past. As these major sources of emissions decreased, the relative contribution of smaller and more dispersed sources of air pollution has increased, which requires new types of action.

5.2 In more recent years evidence has emerged that small particles emitted to the air from various sources, such as road transport, industry, agriculture and domestic fires, are still having a considerable effect on health. This type of air pollution is so small that it can't be seen by the naked eye, but can get into our respiratory system.

5.3 Public Health England (PHE) estimates that poor air quality contributes to around 4.4% of all deaths across Lancashire. However, air pollution is likely to contribute a small amount to the deaths of a larger number of exposed individuals rather than being solely responsible for the calculated figure of attributable deaths.[1]

5.4 A report by the Royal College of Physicians in February 2017 estimates that all forms of air pollution account for around 40,000 deaths annually with an associated annual social cost of

£22.6 billion.[1]

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion.[1]

5.5 Air pollution reduces life expectancy by increasing deaths from heart disease, lung disease and circulatory problems. The majority of health problems result from long-term exposure to air pollution. In addition, air pollution can reduce lung development in children, which may increase symptoms in those young people who develop conditions like asthma.

5.6 Local authorities have a central role in achieving improvements in air quality. District councils have responsibility for monitoring air quality. Where places are found that have pollution levels higher than the national air quality objectives the local authority must declare an Air Quality Management Area (AQMA) and then put together a plan to bring about improvements. In Rossendale Borough Council this work is carried out by Environmental Health staff in the Public Protection Unit. However, the work to improve air quality is the responsibility of a wide range of services, organisations and individuals.

5.7 Every year an Annual Status Report is submitted to the Department for Environment, Food and Rural Affairs (DEFRA) detailing the current position regarding air quality within the Borough.

A copy is attached as Appendix 1.

5.8 In summary, air quality is monitored in 20 locations within Rossendale. There are 2 areas where pollution from vehicles has been higher than the health based objective for nitrogen dioxide (NO_2). These are:

- Manchester Road, Haslingden
- Bacup Road, Rawtenstall

As a result AQMAs were declared in 2013 and action plans have been written to deal with the pollution.

5.9 Work completed or in progress to improve air quality includes:

- road signs have been changed in Rawtenstall to direct through-traffic away from the air quality management area on Bacup Road;
- development of the East Lancashire cycleway to provide alternative routes to travel and encourage people to cycle and walk rather than use the car;
- redevelopment of Spinning Point includes the demolition of the bus station which could remove the canyon effect and reduce the build-up of pollution;
- the potential for installation of electric vehicle charging points
- promotion of active travel including the Connect East Lancashire programme https://www.bwdconnect.org.uk/
- Work to develop the next Local Transport Plan (LTP4) for Lancashire, Blackpool and Blackburn with Darwen is underway and the Lancashire County Council Public Health team has submitted an evidence base to the process. Air quality is one of the key themes of the evidence base and will be an identified priority in LTP4.
- Sign-only 20mph areas have been introduced in residential areas to reduce accidents and encourage walking and cycling. These will have a small effect on reducing particulate emissions. The impact of sign-only 20s has been the subject of a national DfT sponsored review and the impact on air quality is one of the elements being considered. The findings of the study are yet to be shared.

COMMENTS FROM STATUTORY OFFICERS:

6. SECTION 151 OFFICER

6.1 Any future financial implications arising will have to be assessed separately as part of the Council's budget setting and resource allocations.

7. MONITORING OFFICER

7.1 All legal implications are covered in the body of the report.

8. POLICY IMPLICATIONS AND CONSULTATION CARRIED OUT

8.1 Consultation with statutory officers.

9. CONCLUSION

9.1 Work to identify air quality problems will continue to be a priority for the Council's Public Protection Unit. However success in improving the air that we breathe relies on action by a wide range of organisations and individuals

No background papers

Rossendale BOROUGH COUNCIL

Rossendale Borough Council

2019 Air Quality Annual Status Report (ASR)

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

August 2019

Local Authority Officer	Lorna Robinson Senior Environmental Health Officer
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Report Reference number	Air Quality Annual Status Report 2019
Date	August 2019

Executive Summary: Air Quality in Our Area

Air Quality in Rossendale

This report discusses the air quality in Rossendale in 2018.

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion [3]

The main issue of air pollution in Rossendale is with nitrogen dioxide which comes from road vehicle emissions. There are two air quality management areas in the valley which were declared in 2013.

The government's current limit for the annual mean is 40 µg/m^3. During 2018 the air quality objective was breached at four locations:

Two of those locations with exceedances were in the Rawtenstall air quality management area along Bacup Road, Rawtenstall. They are Tube 13 located at 30-32 Bacup Road Rawtenstall which was 40.9 µg/m^3, which is a decrease on the previous years, and Tube 17 located at 1-3 Bacup Road Rawtenstall which was 47.2µg/m^3. The tube 17 date has been annualised due to it only having 50% data capture and the figure seems high compared to the previous year's results see table A2. We're hoping that another year of more complete data capture will lead to a more accurate figure. As the council don't have an automatic monitor we have to get the annualistion comparison data from areas not within our jurisdiction.

There was one exceedance in the Haslingden air quality management area which was tube 7 located at 364-366 Manchester Road, Haslingden and the level, after

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010

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

[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

annualisation is 44.1µg/m^3. This is the first exceedance in this air quality area for a number of years which is a disappointment. Again as the council don't have an automatic monitor we have to get the annualistion comparison data from areas not within our jurisdiction

There was also an exceedance at a new location Tube 20 located at 264 Grane Road, Haslingden which was 47.9 µg/m^3. Because of this three tubes have been relocated to get more information on the air quality in the vicinity of tube 20 during 2019.

The Council has produced an Air Quality Action Plan to help tackle air quality which was approved by DEFRA in May 2017. Lancashire County Council who are the Highways Authority have the control of the Highways so they are the lead authority for highway issues and improvements.

Actions to Improve Air Quality

A variety of things have been happening in Rossendale in 2018 to improve air quality which are summarised here. See section 2.2 page 4 for more detailed information on these actions:

Signage: Rossendale Borough Council informed Lancashire County Council in 2018 that there was a mis-placed road sign on the bottom of Bank Street (see photo 1) and one of the priorities in the air quality action plan is the installation of amended signage deprioritising Bacup Road and reprioritisation of Bocholt Way.

The signs where replaced in early 2018 see (photos 2 and 3).
Thankfully the signage was amended early in 2018 (see photos 2 and 3) and may have been part of the reason for the reduction in the nitrogen dioxide during the year as drivers going to Bacup and Waterfoot are directed along Bocholt Way instead of Bacup Road.

In January 2018 Rosso the bus company owned by Rossendale Borough Council became part of Transdev a move which meant the immediate £3 million investment in a fleet of 20 new high spec vehicles for the east Lancashire company and a programme of vehicle upgrades with the latest customer friendly features (see photo 4)

In February 2018 a Lancashire and Cumbria Air Quality and Public health Summit was held at Lancaster University. This was the first summit organised by Public Health England, Lancashire County Council, Cumbria County Council, Blackpool Council and Blackburn With Darwen Metropolitan Council. The discussions where around reducing the air quality attributable deaths in Cumbria and Lancashire-Setting the agenda and building a social movement.

In March 2018 the council promoted funding available from the Workplace Charging Scheme which was giving vouchers to businesses to support upfront purchase and installation costs for electric vehicle charging points.

However in September 2018 there was a press release stating valley traffic is the worst in the country, excluding cities. The report was put together by the National Infrastructure Commission and a Highways Capacity Study, commissioned to advise on the Local Plan identified 15 Rossendale junctions with 'significant capacity issues' beyond 2024. These reports are adding to the growing support for a commuter rail link from Rawtenstall with the Greater Manchester area.

In November 2018 Rossendale Council pledged support, along with five other Lancashire authorties, for a cross borough bid to the Department for Transport for funding to support ultra-low emission taxis. The bid was successful and will be reported on in the 2020 air quality report.

Also in November 2018 Public Health England released its latest edition of Health Matters Air Pollution-sources, impacts and actions. It's showing the increased recognition and acknowledgment that air quality is important.

Spinning Point: The Spinning Point redevelopment of the town centre commenced in
2017. It's an area of regeneration located to one side of AQMA 2. The former Town Hall annex and police station have been demolished and the refurbishment of the remaining Town Hall was completed at the start of 2019 see photos 5 and 6

East Lancashire Cycleway

Work on the East Lancashire Cycleway continued with ongoing works along the two routes in Rossendale.

Conclusions and Priorities

An area we're going to have to focus on is the Grane Road area of Haslingden as tube 20 showed an annual level of 47.9 µg/m^3. Three more diffusion tubes have been deployed in the area for 2019 so we can get a better understanding of the air quality in area. The data will be reported on in the 2019 report.

Rossendale Borough Council's priorities for the coming year are regenerating Rossendale, providing responsive and value for money local services and a clean and green Rossendale.

Local Engagement and How to get Involved

Thinking about air pollution on a worldwide or even a 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 air quality by:

- Using public transport
- Reducing the use of cars
- Changing to an electric vehicle see https://www.gov.uk/plug-in-car-van-grants
- Cycling and walking where possible
- 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
- Car sharing see https://liftshare.com/uk/community/sharedwheels

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

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

Further information on air quality can be found on the DEFRA website UK air quality information resource following this link https://uk-air.defra.gov.uk

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1 Local Air Quality Management

This report provides an overview of air quality in Rossendale Borough Council during 2016. 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) provides an update for 2016 detailing the strategies employed by Rossendale Borough Council and partners to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives. The AQAP was approved by DEFRA in May 2017 and will be discussed further in this 2019 report.

A summary of the two AQMAs declared by Rossendale Borough Council in 2013 can be found in Table 2.1. The maps are also available at http://ukair.defra.gov.uk/aqma

See appendix D which provides maps of air quality monitoring locations in relation to the AQMA(s).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)		Action Plan (inc. date of publication)
						At Declaration	Now	
AQMA 1 Haslingden	8/1/2013	NO^2 annual mean	Haslingden	An area encompassing a number of residential properties on Haslingden Road	No	43 µg/m^3	44.1 µg/m^3	Air quality action plan for Manchester Road Haslingden and Bacup Road Rawtenstall July 2016
AQMA 2 Rawtenstall	8/1/2013	NO^2 annual mean	Rawtenstall	An area encompassing a number of properties on Bacup Road	No	43 µg/m^3	47.2 µg/m^3	Air quality action plan for Manchester Road Haslingden and Bacup Road Rawtenstall July 2016

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

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

Defras appraisal of last year's Annual Status Report concluded the report was well structured, detailed and provided the information specified in the guidance however suggested comments for improvements which we have taken on board.

Annualisation needed to be carried out for tubes with data capture of less than 75% which for 2018 was tubes 7 and 17 and the results and calculations have been included in this report and the workings out are in Appendix C.

Tube 19 only had 67% data capture but the average level (before annualisation) was 24.6 µg/m^3 which is well under the annual limit of 40 µg/m^3 and the tube was relocated for 2019 so it was not deemed necessary to annualise this tube.

The Air Quality Action Plan was approved by DEFRA in 2017 and there is a summary in Table 2.2

Here are some of the positive air quality actions completed in 2018:

Signage

Photo 1 The incorrect road sign which directed drivers through the air quality management area

Photo 2 showing the corrected road sign deprioritising Bacup Road for through traffic

Photo 3 showing another amended sign deprioritising Bacup Road for through traffic

In January 2018 Rosso the bus company owned by Rossendale Borough Council became part of Transdev a move which meant the immediate £3 million investment in a fleet of 20 new high spec vehicles for the east Lancashire company and a programme of vehicle upgrades with the latest customer friendly features.

Here's a photograph of one of the new buses advertising 'Breathe easy-lower emission engines with cleaner air for all'

Photo 4 Showing the new lower emission buses in the town centre

The Spinning Point redevelopment of the town centre commenced in 2017. It's a area of regeneration located to one side of AQMA 2. The former Town Hall annex and police station have been demolished and the refurbishment of the remaining Town Hall was completed at the start of 2019.

An new bus station construction is underway to be hopefully completed by the end of 2019. This is planning application 2015/0476 which got approved in March 2017. The redevelopment of the site is for a bus station and retail/cafe units (Use Classes A1, A2, A3, A4, A5 or B1), including associated facilities, car parking and landscaping, demolition of former police station, town hall annex, public toilets and part demolition and works to the Old Town Hall, within Rawtenstall conservation

area.

An air quality assessment submitted with the application summised ‘air quality effects as a result of the proposed development are considered to be not significant’.

The planning application number is 2017/0617

‘Full planning application for the redevelopment of the former Valley Centre site for a mixed use development comprising leisure, hotel, housing and commercial uses (including Use Classes A1, A2, A3, A4, B1, C1, C3 and D2 of the Town and Country Planning (Use Classes) (Amendment) (England) Order 2015) including the creation of an area of public open space with associated landscape and highway works.

Location: Rawtenstall Town Square, Bank Street, Rawtenstall, Rossendale, Lancashire’

The application was submitted in December 2017 and will be reported on in the next (2020) air quality report. Further information on the Spinning Point development can be accessed here http://www.spinningpoint.com/

One of the main hopes with all this redevelopment is that with the demolition of the existing bus station the canyon effect of Bacup Road will be reduced and the nitrogen dioxide will have more space to spread out, hopefully to below government levels and this will be continued to be monitored.

Photo 5 taken September 2017 of Bacup Road Rawtenstall on the left hand side and the bus station on the right hand side.

Photo 6 the new Together Housing property and the soon to be redundant bus station on the right hand side

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In November 2018 Rossendale Council pledged support, along with five other Lancashire authorties, for a cross borough bid to the Department for Transport for funding to support ultra-low emission taxis. The bid was successful and will be reported on in the 2020 air quality report.

We have also updated the Council website page on air quality and it now includes a link to the public Health England document, Health Matters, Air Pollution:sources, impacts and actions.

Rossendale Borough Council's priorities for the coming year are again regenerating Rossendale, providing responsive and value for money local services and a clean and green Rossendale.

Rossendale Borough Council anticipates that the downward trend in NO^2 in AQMA 1 will continue and we will be a year closer to revoking it.

Whilst the measures stated above will help to contribute towards compliance, Rossendale Borough Council anticipates that further additional measures, as detailed in the AQAP, will be required in subsequent years to achieve compliance and enable the revocation of Rawtenstall AQMA 2.

Lancashire County Council website has a wealth of information on statistics on economic, social and environment factors affecting the heath of residents in Rossendale (http://www.lancashire.gov.uk/lancashire-insight/area-profiles/local-authority-profiles/rossendale-district.aspx) This information was sent to all Lancashire District and Borough Councils in June 2018 from Lancashire County Council.

Lancashire County Council Activity Update for Local Air Quality Management Annual Status Report 2019

Lancashire County Council 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 activity is underway or in development:

1. Encourage 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. Through 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.
- 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 access new funding schemes as they become available.
- Connecting East Lancashire is a 'smarter travel choices' campaign designed to encourage healthier and greener ways of travelling in East Lancashire. A dedicated team of Business Travel Planners work with individuals and organisations across east Lancashire to support a shift towards more sustainable and active forms of travel.
- The Safe and Healthy Travel 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. Support 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. Create 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. Stakeholder engagement and consultation will be carried out during 2019. Approaches to improving air quality could include:
    - Redesigning road networks to reduce congestion and separate vehicle emissions from places where people live, work and congregate;
    - Increasing access to cycling and walking infrastructure, and cleaner public transport;
    - Facilitating the move towards the use of low emission vehicles through upgrading public transport and public sector vehicle fleets and introducing new electric vehicle charge points;
    - Targeting areas with high levels of air pollution, including considering the introduction of Clean Air Zones.

  The Local Highways and Transport Masterplans will be refreshed to align with the priorities of LTP4, which 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 transport and highways masterplans.

- The County Council's vehicle fleet will be fitted with a driver behaviour tracking system to monitor and influence driver behaviour. The aim of the tracking system is to improve driver performance, reducing fuel costs, road accidents and vehicle emissions.

4. Embed 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. Providing support to districts to develop policies that seek to ensure that new development does 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 Council seeks measures that facilitate cycling and walking, increase the use of public transport and provide access to electric vehicle charge points. The 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.
- The County Council is working with Lancaster and Birmingham Universities to develop evidence based guidance for the use of green infrastructure as an approach to mitigating the health impacts of road transport emissions. The guidance will enable spatial planners, public services and the public to introduce the most effective infrastructure at the most appropriate sites. In time, there may be opportunities for further projects around this work.

5. Raise awareness and increase engagement

- The Lancashire Insight website provides information on the sources and health impacts of air pollution. Webpages include a Summary of Emissions Data, Monitoring of Air Quality and Health Impacts and an Air Quality and Health Dashboard.
- The County Council is the process of developing a clean air programme for schools. The scheme will include: guidance and support for schools on developing a clean air strategy; lesson plans, activities and resources for teachers; provision of LCC's cycling and walking programmes; and resources to deliver a clean air event, campaign and poster competition.
- The County Council's Lead Member for Health and Adult Services has established network for elected members from across Lancashire and Cumbria to

come together to gain an understanding of the issues and the key messages to champion and advocate in their communities.

East Lancashire Cycleway

Work on the East Lancashire Cycleway continued with ongoing works along the two routes in Rossendale.

The creation of an East Lancashire Strategic Cycleway Network was proposed in the Lancashire County Council East Lancashire Highways and Transport Masterplan, which was approved in February 2014. The masterplan sets out the transport priorities for East Lancashire including Blackburn with Darwen until 2021.

Priorities within the masterplan include:

- Improving access to areas of economic growth and regeneration.
- Providing better access to education and employment.
- Improving people's quality of life.

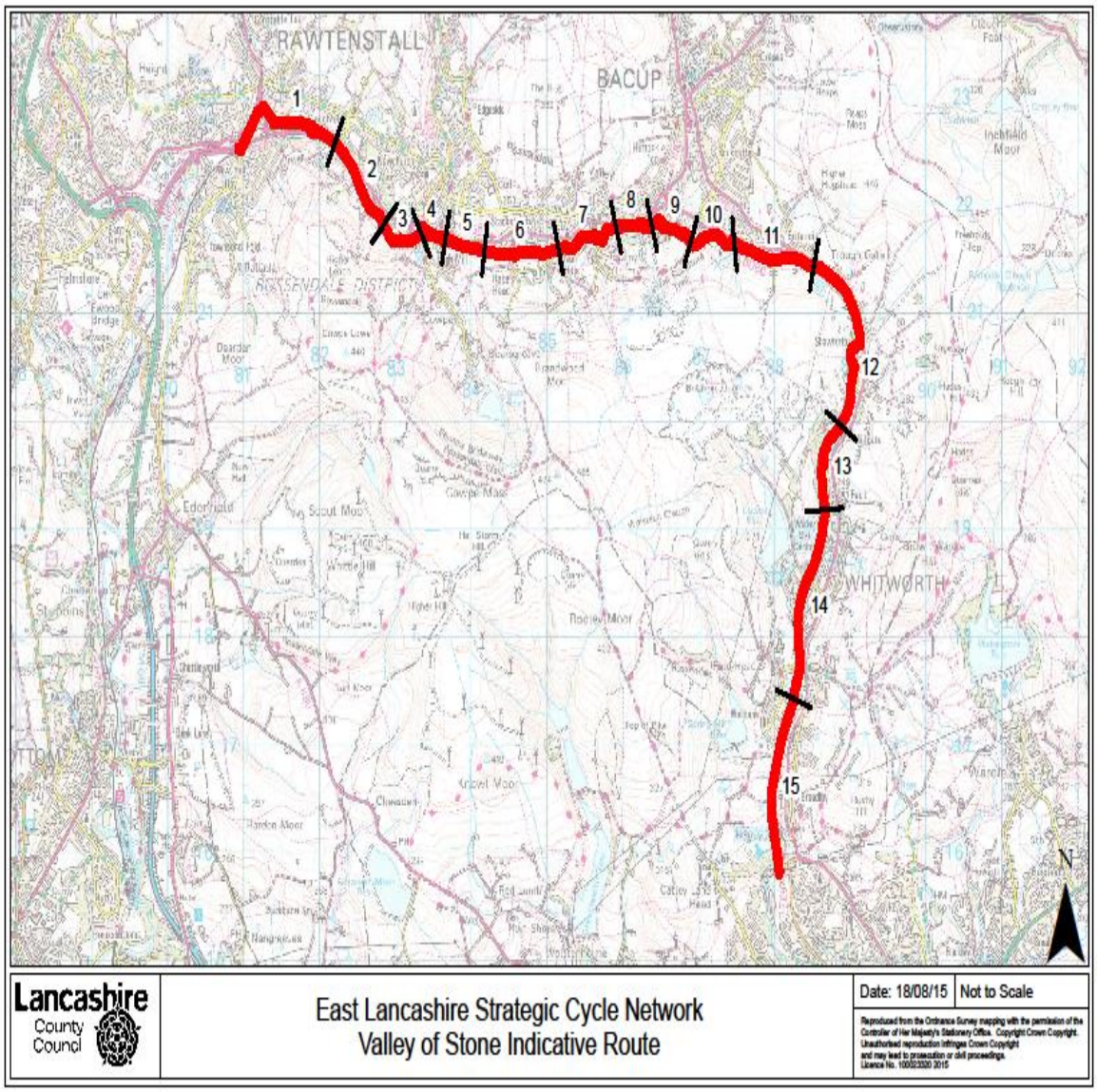
Building an effective cycle network linking towns, employment sites and communities is identified in the masterplan as a key project to be taken forward.

In June 2015, £2.6m funding towards the creation of the cycleway was secured from the Lancashire Growth Deal through the Lancashire Enterprise Partnership. This is in addition to the local contributions of £3.0m from Lancashire County Council and £0.25m from Blackburn with Darwen Borough Council, with £5.85m approved in total towards the project.

There are two parts of the proposed cycleway which will go through Rossendale which are the Valley of Stone (Rossendale) cycleway and National Cycle Route 6 which are detailed below:

Valley of stone (Rossendale)

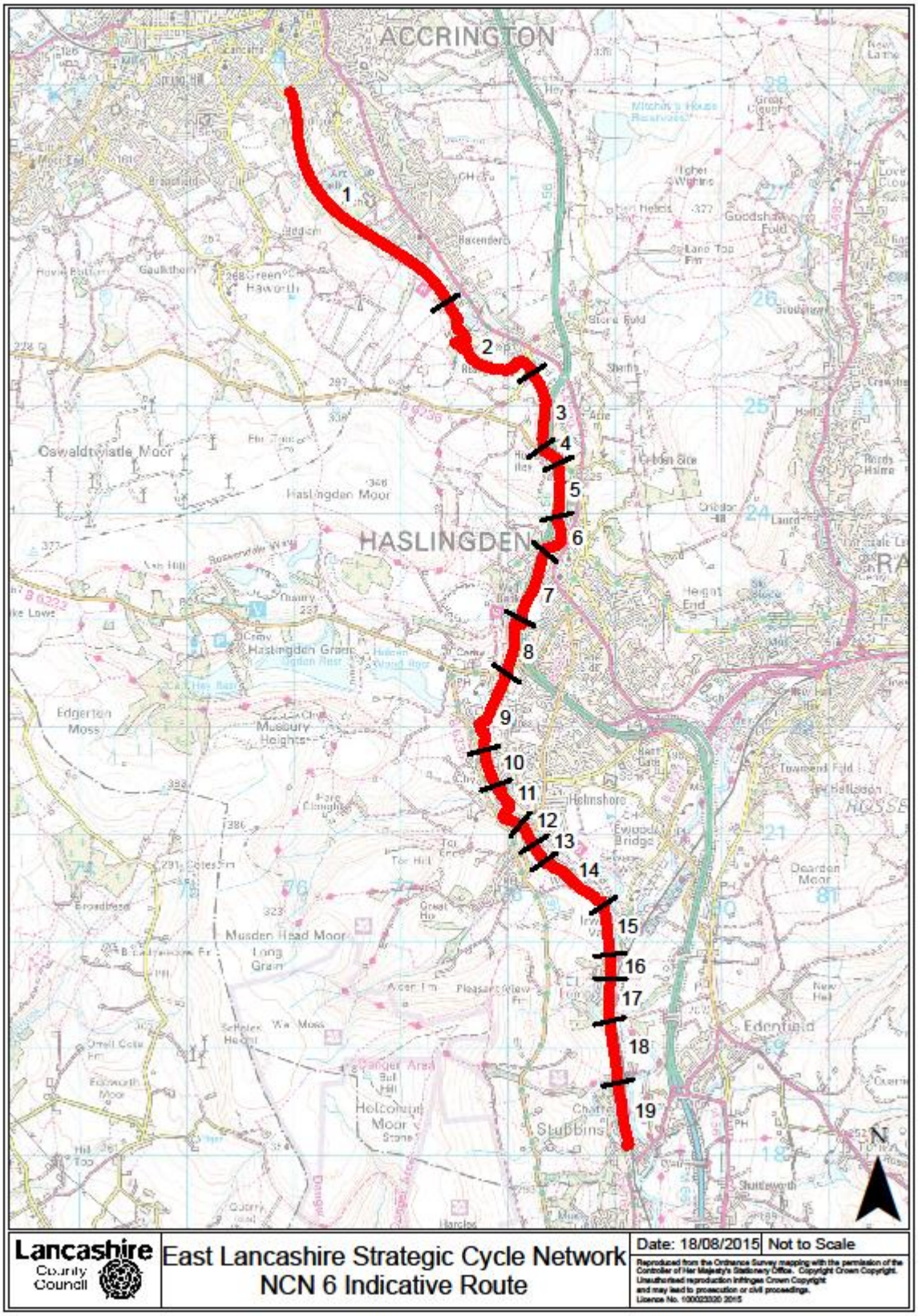
The Valley of Stone is 16.5km long and connects Rawtenstall in the west to Waterfoot, Bacup and Whitworth to the Lancashire border with Rochdale at Healey Dell, as well as providing access to many employment sites along the Rossendale Valley. It is a largely off road route following a former railway line and when completed will provide a real sustainable travel alternative to using the busy roads which run along the main valley floor. The idea for the Valley of Stone has been put forward by the local community and although some sections are already open, the full potential of the route will only be realised once it is fully completed.



National cycle route 6 (Hyndburn and Rossendale)

This route is mostly off road and runs in a roughly north-south direction from Accrington in the north to the Lancashire border at Stubbins near Ramsbottom in the south. It is 12km in length and follows the line of a former railway, although large sections of the railway no longer exist such as around Haslingden. It has great potential for commuter use, especially to the employment areas on the west side of Haslingden close to the A56 and it will contribute towards the tourist economy by linking to the East Lancashire Railway and Irwell Sculpture Trail to the south. The

route is part of the wider National Cycle Network Route 6 that connects Watford to Keswick via Manchester and Preston.



When the cycleway is completed its use will contribute to improvements in local air quality.

Latest news on the cycleways from Lancashire County Council

April 2019

During the past year we have made some great progress on the East Lancashire Strategic Cycleway below are a few of the highlights:

2018 saw us trialling a new type of surfacing called Nu-flex

This was in response to public consultation and in particular to address some of the issues raised by horse riders about tarmac. Nu-flex is a mixture of recycled tyres and aggregate held together with a binder. It is porous so water does not sit on it which is great in winter as sheet ice doesn't form on it easily. It has great levels of grip so no more horse's hooves slipping and it has a slight give to it so runners love it. It does provide a nice smooth surface similar to tarmac so it is also great to ride a bike on or push a wheel chair along. Our initial trial of the material and feedback from users has been excellent so we are using this type of surfacing where ever we can on the rest of the cycleway project.

One of the main sections of trail we used Nu-flex on last year was Britannia Greenway and during our opening event we made a short video which tells you a bit more about the surfacing and local users give some feedback on what they think of the surfacing

Work started on restoration of the old railway tunnels at Stacksteads

Work started early 2019 on the opening up and restoration of two disused railway tunnels known as Thrutch1 and Thrutch 2. Due to bats using the tunnels all of the works is being carried out under licence from Natural England and is being closely supervised by a bat ecologist. This is an exciting section of the overall route though and will provide a great off road alternative to the busy A681.

The tunnel thrutch No 1 has been bricked up for many years, this has been opened up and it has been found to be in very good condition. Repairs and waterproofing are currently underway in both tunnels watched closely by our bat ecologist. Once the fabric of the tunnels have been repaired lighting will be installed and a new surface

will be put down. At the same time work has started on the construction of a new cycleway bridge to take people over the river. The hope is to have all this work completed by August 2019 and we look forward to opening the tunnels up to the public at the end of the summer.

Massey Croft to the Rochdale border

In March 2019 we started work on resurfacing about 1km of trail between Masseycroft in Whitworth and the border with Rochdale. This path is popular with local users as a gateway to the Healey Dell Nature Reserve but for much of the year was quite muddy and difficult to use especially for people with mobility issues or with a push chair. The before and after photographs below show the improvements that have already been made. We hope to finish work on this section by the end of April 2019.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Limit Council fleet use of Bacup Road for non-essential access, eg refuse lorries, except when servicing properties on Bacup Road	Traffic Management	Other	Rossendale Borough Council and Lancashire County Council	Informed Head of Operations re the requirement	Head of Operations informed drivers	Random/visual checks	Not able to be measured	Borough Council fleet now do not use Bacup Road unless servicing the properties	Jan-19	NA
2	No through access to HGVs or LDVs unless deliveries	Traffic Management	Other	Lancashire County Council	NA	NA	NA	NA	NA	NA	Not deemed enforceable so this option will not be pursued
3	Road signage amended to reprioritise use of Bocholt way and deprioritise Bacup Road	Traffic Management	Other	Lancashire County Council	Discussions and photographs sent to LCC.		Installation of amended signage deprioritising Bacup Road and reprioritisation of Bocholt Way	NA	LCC are currently having new signs made stating local traffic along Bacup Road	September 2018	A new sign was installed
4	Encourage school travel plans to encourage	Promoting Travel Alternatives	School Travel Plans	Lancashire County Council	NA	NA	NA	NA	NA	NA	Not pursued as the air quality in this area is again below actionable levels for another year

	alternative modes										
5	No through road signage at road entry points to Haslingden	Traffic Management	Other	Lancashire County Council	NA	NA	NA	NA	NA	NA	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	Vehicle Fleet Efficiency	Other	Lancashire County Council	NA	NA	NA	NA	NA	NA	Not pursued as the air quality in this area is again below actionable levels for another year

2.3 $PM_{2.5}$ – 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 do not currently measure for $PM_{2.5}$ however all the actions listed in 2.2 will be reducing $PM_{2.5}$ as well as NO_2

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

3.1 Summary of Monitoring Undertaken

This section sets out what monitoring has taken place and how it compares with objectives.

3.1.1 Automatic Monitoring Sites

Rossendale Borough Council undertook no automatic (continuous) monitoring at Rossendale sites during 2018.

3.1.2 Non-Automatic Monitoring Sites

Rossendale Borough Council undertook non- automatic (passive) monitoring of NO_2 at 20 sites during 2018. Table A.1 in Appendix A shows the details of the sites. The tubes were exposed in accordance with the DEFRA calendar.

Maps showing the location of the monitoring sites are provided in Appendix D.

Tubes 3,5,6,7,8 and 9 are all located in AQMA 1. Tubes 1, 4,13,14,15,16 and 17 are all located in AQMA 2. Tubes 2, 10,11,12,18,19 and 20 are located in various sites across the borough. 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” and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the most recent full year of data of monthly mean values is provided in Appendix B.

In 2018 there were four exceedances of the NO_2.

Two of those locations with exceedances were in the Rawtenstall air quality management area along Bacup Road, Rawtenstall which are Tube 13 located at 30-32 Bacup Road Rawtenstall which was 40.9 µg/m^3, which is an improvement on the previous years, and Tube 17 located at 1-3 Bacup Road Rawtenstall which was 47.2µg/m^3. This figure has been annualised due to it only having 50% data capture.

There was one exceedance in the Haslingden air quality management area which was tube 7 located at 364-366 Manchester Road, Haslingden and the level, after annualisation is 44.1µg/m^3. This is the first exceedance in this air quality area for a number of years which is a disappointment.

A new exceedance was identified at Tube 20, which was relocated in January 2018, to 246 Grane Road Haslingden. The result was the highest we've had in the borough at 47.8 µg/$m^{3.}$

All of these locations are representative of public exposure as the tubes are located on the front elevation of residential property.

There are again no exceedances of NO_2 in AQMA 1 and no results within 10% of the limit which is good news. This is the fourth year in a row and if this downward trend continues through 2019 we will give consideration to revoking the AQMA but in the meantime air quality monitoring will continue.

The tubes in the other new locations all showed well under the air quality objective of 40µg/m^3 so they will be relocated in 2019 around tube 20 along the Grane Road in Haslingden to assess the wider air quality in that area. The results will be reported on in the 2020 air quality report.

3.2.2 Particulate Matter (PM_{10})

Rossendale Borough Council do not currently measure for particulate matter PM_{10}

3.2.3 Particulate Matter ($PM_{2.5}$)

Rossendale Borough Council do not currently measure for PM $_{2.5}$

3.2.4 Sulphur Dioxide (SO_2)

Rossendale Borough Council do not measure for sulphur dioxide

Appendix A: Monitoring Results

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
DT1	93-95 Bacup Road Rawtenstall	Roadside	381394	422756	NO_2	Y	5	1	N	1.80
DT2	235 Newchurch Road Stacksteads	Roadside	385579	421855	NO_2	N	0	4	N	1.80
DT3	349 Manchester Road, Haslingden	Roadside	379153	422234	NO_2	Y	0	4	N	1.80
DT4	75 Bacup Road, Rawtenstall	Roadside	381325	422740	NO_2	Y	20	3.5	N	1.80
DT5	377 Manchester Road, Haslingden	Roadside	379209	422171	NO_2	Y	0	3	N	1.80
DT6	359 Manchester Road,	Roadside	379175	422213	NO_2	Y	0	4	N	

	Haslingden									1.80
DT7	364-366 Manchester Road, Haslingden	Roadside	379193	422216	NO_2	Y	0	2	N	1.80
DT8	Road sign near roundabout Manchester Road Haslingden	Roadside	379197	422213	NO_2	Y	4	2	N	1.80
DT9	363 Manchester Road, Haslingden	Roadside	379183	422200	NO_2	Y	0	4	N	1.80
DT10	11 Market Place Edenfield	Roadside	379986	419210	NO_2	N	0	3.5	N	1.80
DT11	23 Haslingden Old Road Rawtenstall	Roadside	381551	423124	NO_2	N	0	2	N	1.80
DT12	571 Burnley Road Crawshawbooth	Roadside	381109	425249	NO_2	N	0	3	N	1.80

DT13	30/32 Bacup Road Rawtenstall	Roadside	381377	422756	NO_2	Y	0	2	N	1.80
DT14	24 Bacup Road Rawtenstall	Roadside	381358	422754	NO_2	Y	0	2	N	1.80
DT15	22 Bacup Road Rawtenstall	Roadside	381350	422754	NO_2	Y	0	2	N	1.80
DT16	2A Bacup Road Rawtenstall	Roadside	381161	422747	NO_2	Y	0	6	N	1.80
DT17	1-3 Bacup Road Rawtenstall	Roadside	381121	422725	NO_2	Y	8	2	N	1.80
DT18	5 Buller Street Rawtenstall	Roadside	381370	422768	NO_2	Y	0	1	N	1.80
DT19	276 Market Street Whitworth	Roadside	388414	417739	NO_2	N	0	2	N	1.80

DT20	264 Grane Road Haslingden	Roadside	377899	422488	NO_2	N	0	2	N	1.80

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture 2017 (%) [2]	NO_2 Annual Mean Concentration (µg/m^3) [3]				
				2014	2015	2016	2017	2018
Tubes located Haslingden Road AQMA 1								
DT3	Roadside	Diffusion Tube	100%	26	23	35.2	34.9	31.9
DT5	Roadside	Diffusion Tube	100%	28	35	31.8	38.6	31.8
DT6	Roadside	Diffusion Tube	100%	34	36	33.5	39.2	31.2
DT7	Roadside	Diffusion Tube	58%	35	38	33.5	NA	**44.1**
DT8	Roadside	Diffusion Tube	92%	29	29	27.1	31.4	27.6
DT9	Roadside	Diffusion Tube	92%	34	36	30.2	38.7	33.7
Tubes located in Bacup Road AQMA 2								
DT1	Roadside	Diffusion Tube	92%	36	33	32.9	36.9	33.3
DT4	Roadside	Diffusion Tube	100%	31	NA	29.9	35.4	27.8
DT13	Roadside	Diffusion Tube	100%	25	24	44.2 new location	42.4	**40.9**
DT14	Roadside	Diffusion Tube	100%	38	36	38.9	41.5	36.8
DT15	Roadside	Diffusion Tube	100%	39	37	**42.6**	**46.2**	39.6
DT16	Roadside	Diffusion Tube	92%	30	22	30.6	33.8	28.4
DT17	Roadside	Diffusion Tube	50%	34	33	30.6	NA	**47.2**

Tubes located outside the AQMAs								
DT2	Roadside	Diffusion Tube	100%	34	28	31.4	28.7	30.2
DT10(new location)	Roadside	Diffusion Tube	100%	36	36	34.6	NA	24.5 new location
DT11(new location)	Roadside	Diffusion Tube	92%	33	32	31.6	NA	31.4 new location
DT12(new location)	Roadside	Diffusion Tube	92%	35	35	37.1	NA	23.9 new location
DT18 (new location)	Roadside	Diffusion Tube	92%	23	23	22.7	23.6	18.2 new location
DT19 (new location)	Roadside	Diffusion Tube	67%	31	27	30.1	30.4	24.6 new location
DT20 (new location)	Roadside	Diffusion tube	92%	24	22	20.4	22.7	**47.8 new location**

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

☒ **Annualisation has been conducted where data capture is <75%**

☒ **If applicable, all data has been distance corrected for relevant exposure**

Notes:

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

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

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO_2 Monthly Diffusion Tube Results - 2018

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.76) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
DT1	50.7	46.6	51.4	missing	36.2	35.9	41.3	37.8	37.8	46.9	41.6	55.3	43.8	33.3	33.3
DT2	40.3	45.5	47.2	45.3	42.9	40.6	37.5	30.9	30	40.5	34.2	41.4	39.7	30.2	30.2
DT3	44.7	48	45.7	39.6	30.3	28.7	35.1	28	37.9	47.7	40.3	78	42	31.9	31.9
DT4	44.4	45.4	44.3	36	25.2	28.8	33.6	31.9	35.9	40	35.6	38.5	36.6	27.8	27.8
DT5	48.4	45.7	39.7	53.3	29.6	33.1	40.4	38	40.6	42.8	42	48.8	41.9	31.8	31.8
DT6	46.8	43.8	43.8	36.5	34	30.4	39.7	38.2	39.2	44.9	46	49	41	31.2	31.2
DT7	missing	missing	45.3	missing	missing	missing	missing	missing	39.7	47.5	44.5	52.7	45.9	**44.1**	44.1
DT8	45.3	44.4	33.5	35.7	27.6	25.8	missing	25.8	29.5	38.9	45.1	47.7	36.3	27.6	27.6
DT9	50.8	46.3	42	42.5	missing	34.6	42.4	39.4	37.4	45.1	45.2	62	44.3	33.7	33.7
DT10	56.5	36.7	33.7	32.4	23.5	23.5	25.5	23.8	27.6	35.2	34.3	35	32.3	24.6	24.6
DT11	Missing	52.8	50.7	38.5	31	34.8	33.2	23.3	38.8	45.9	42	62.9	41.3	31.4	31.4

DT12	missing	37	28.7	33.2	28.9	27.3	24	44.3	23.4	30.6	37.5	31.3	31.5	23.9	23.9
DT13	55.6	63.2	59.9	48.8	52.4	48.2	57.3	39.2	48.3	57.9	48.9	66.2	53.8	**40.9**	**40.9**
DT14	57.5	57.6	51.3	50	46.5	39	48.7	40.3	43	52.6	39.6	54.3	48.4	36.8	36.8
DT15	56.9	57.6	60.1	51.3	53.9	52.7	48.7	40.3	45.6	52	44	61.9	52.1	39.6	39.6
DT16	46.4	38.2	40.9	Missing	24.7	25.8	34.1	33.1	40	41.4	39.4	46.7	37.3	28.4	28.4
DT17	60.4	Missing	53.6	Missing	Missing	Missing	39.9	Missing	42.3	47.5	Missing	60.5	50.7	**47.2**	**47.2**
DT18	Missing	32.6	31.1	23.3	13.5	15.8	18.4	19.3	22.6	26.7	25.4	35.2	23.9	18.2	18.2
DT19	Missing	38.1	41.8	Missing	25.5	24.3	30.4	26.4	30.5	36	Missing	Missing	31.6	24	24
DT20	Missing	67.2	73.2	62.1	57.6	58.8	65.7	45.5	62.5	66.8	68.8	64.4	62.9	**47.8**	**47.8**

☐ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

☒ **Annualisation has been conducted where data capture is <75%**

Notes:

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

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure. Please note where N/A this is because Paul Bentley from AQMA helpdesk advised distance correction is only needed for tubes above 36 µg/m^3

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

The diffusion tubes are supplied and analysed by Socotec Didcot. The preparation method used is 50% TEA in Acetone. ESG follows the procedures set out in the Harmonisation Practical Guidance and participates in both AEA solution and The Workplace Analysis Scheme for Proficiency (WASP) tube analysis trials. In the last round of WASP the laboratory was rated 'good'.

The bias adjustment factor being applied to the annual mean for the diffusion tubes is 0.76. This came from the Review and Assessment Helpdesk website V06/19 spreadsheet.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 06/19

Follow the steps below in the correct order to show the results of relevant co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of September 2019
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List
If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List
If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List
If a year is not shown, we have no data[2]

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

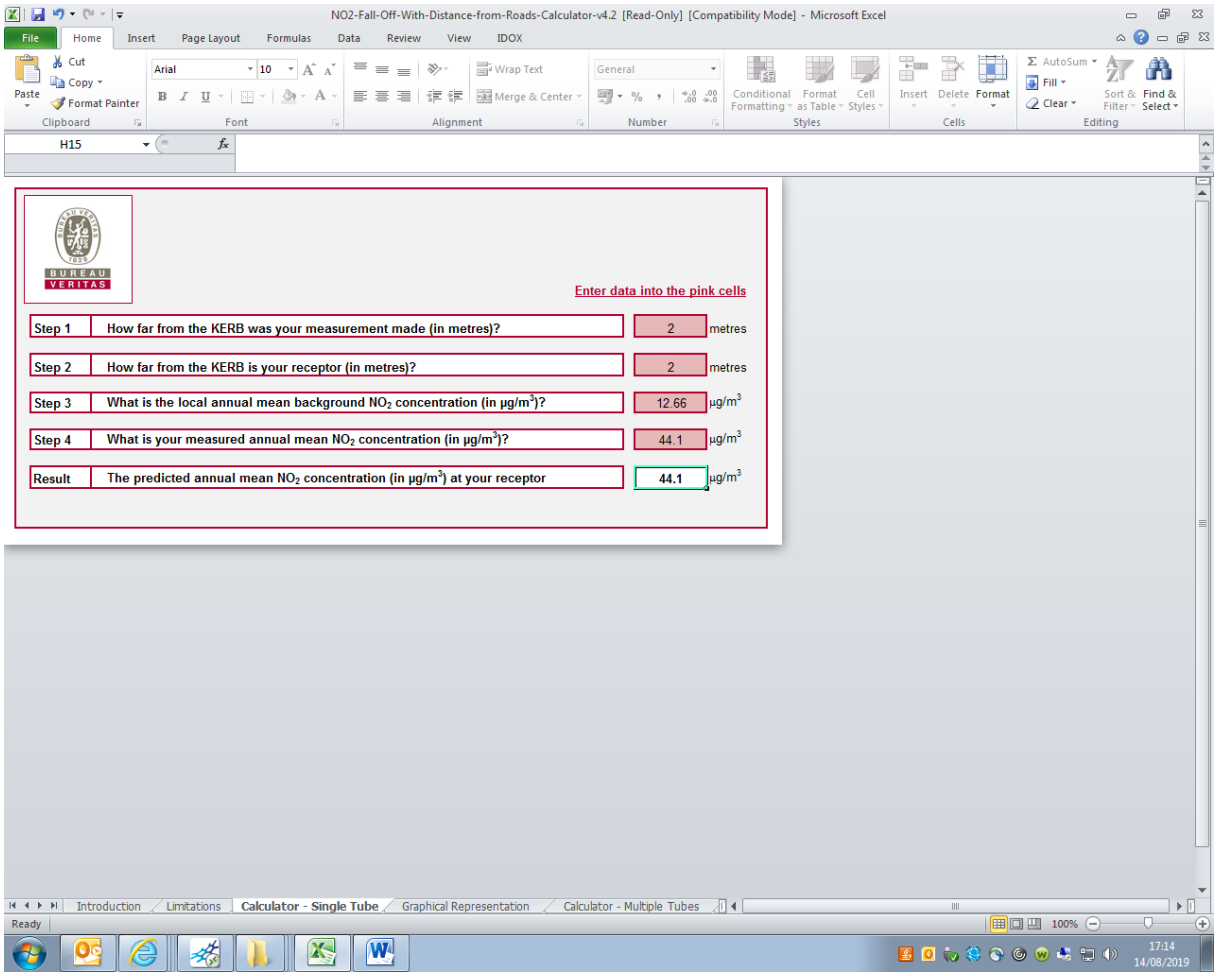
	Analysed By[1]	Method (To select your selection, choose (All) from the pop-up list)	Year[2] (To select your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
2438	Socotec Didcot	50% TEA in acetone	2018	R	Knowsley MBC	12	47	38	26.5%	G	**0.79**
2443	Socotec Didcot	50% TEA in acetone	2018	R	Suffolk Coastal DC	11	44	33	32.4%	G	**0.76**
2479	Socotec Didcot	50% TEA in acetone	2018	R	Thanet District Council	10	26	21	25.4%	G	**0.80**
2489	Socotec Didcot	50% TEA in acetone	2018	R	Horsham District Council	11	33	23	42.2%	G	**0.70**
2490	Socotec Didcot	50% TEA in acetone	2018	R	Horsham District Council	12	33	29	17.2%	G	**0.85**
2491	Socotec Didcot	50% TEA in acetone	2018	R	Horsham District Council	12	30	26	16.1%	G	**0.86**
2501	Socotec Didcot	50% TEA in acetone	2018	UB	Slough Borough Council	10	38	31	25.6%	G	**0.80**
2502	Socotec Didcot	50% TEA in acetone	2018	SU	Slough Borough Council	11	32	22	46.7%	G	**0.68**
2503	Socotec Didcot	50% TEA in acetone	2018	R	Slough Borough Council	11	39	32	22.5%	G	**0.82**
2506	Socotec Didcot	50% TEA in acetone	2018	R	Vale of Glamorgan	12	39	25	57.8%	G	**0.63**
2508	Socotec Didcot	20% TEA in water	2018	KS	Marylebone Road Intercomparison	12	96	85	13.0%	G	**0.89**
2511	Socotec Didcot	50% TEA in acetone	2018	KS	Marylebone Road Intercomparison	12	95	85	11.3%	G	**0.90**
2519	Socotec Didcot	50% TEA in acetone	2018	B	Gravesham Borough Council	12	37	30	22.1%	G	**0.82**
2520	Socotec Didcot	50% TEA in acetone	2018	B	Gravesham Borough Council	12	28	24	16.8%	G	**0.84**
2527	Socotec Didcot	50% TEA in acetone	2018	UI	North Lincolnshire Council	12	24	16	53.5%	G	**0.65**
2534	Socotec Didcot	50% TEA in acetone	2018	R	Swansea Council	12	33	24	38.0%	G	**0.72**
2535	Socotec Didcot	50% TEA in acetone	2018	UB	Swansea Council	10	19	16	23.4%	G	**0.81**
2537	Socotec Didcot	20% TEA in water	2018	R	Rhondda Cynon Taf CBC	12	30	25	17.8%	G	**0.85**
2541	Socotec Didcot	50% TEA in acetone	2018	R	Sevenoaks District Council	12	34	25	34.8%	G	**0.74**
2542	Socotec Didcot	50% TEA in Acetone	2018	R	Wrexham County Borough Council	11	21	18	16.1%	G	**0.86**
2847	SOCOTEC Didcot	20% TEA in water	2018		**Overall Factor[3] (3 studies)**				**Use**		**0.77**
2848	SOCOTEC Didcot	50% TEA in acetone	2018		**Overall Factor[3] (28 studies)**				**Use**		**0.76**

For Casella Stanger/Bureau Veritas (NOT Bureau Veritas Labs) use Gradko 50% TEA in Acetone.
For Casella Seal/GMSS/Casella CRE/Bureau Veritas Labs/Eurofins/ use Environmental Scientific Groups.
From 2011 for Environmental Scientific Groups use ESG Glasgow.
From 2011 for Harwell Scientific Services use ESG Didcot.
For 2017 for SOCOTEC use ESG Didcot, as name changed mid year.

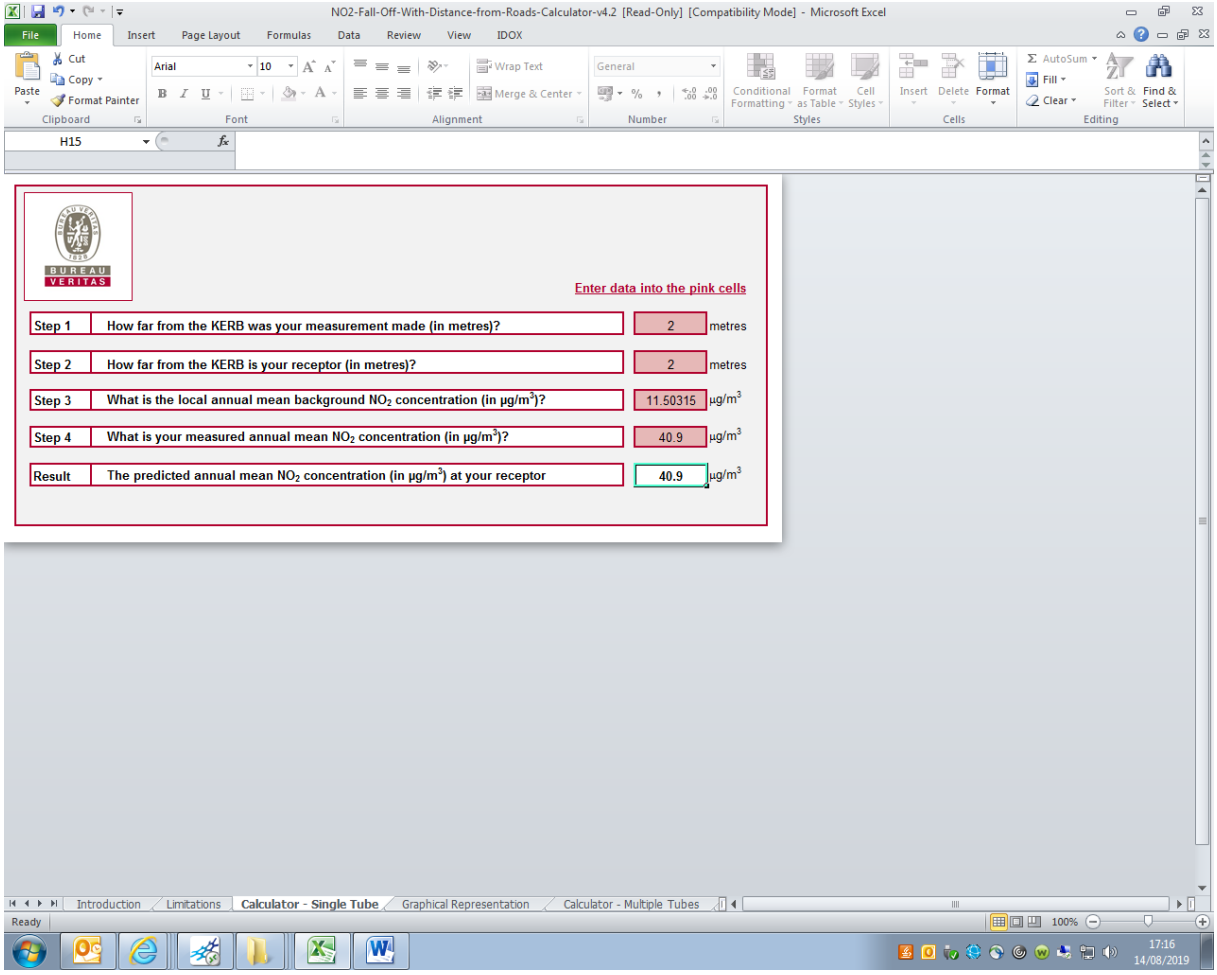
Collocation Data | Revisions

Distance calculations

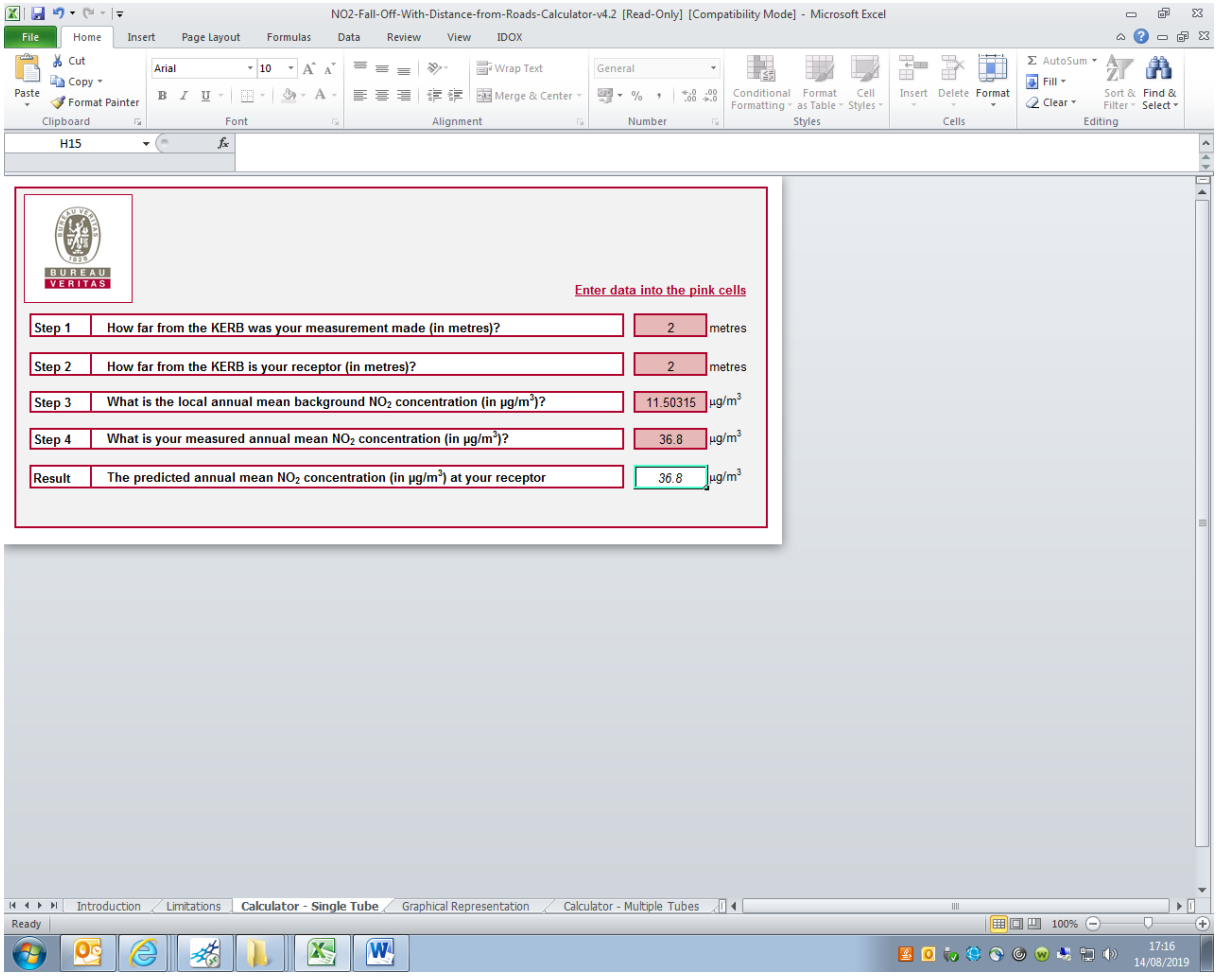
Diffusion Tube 7



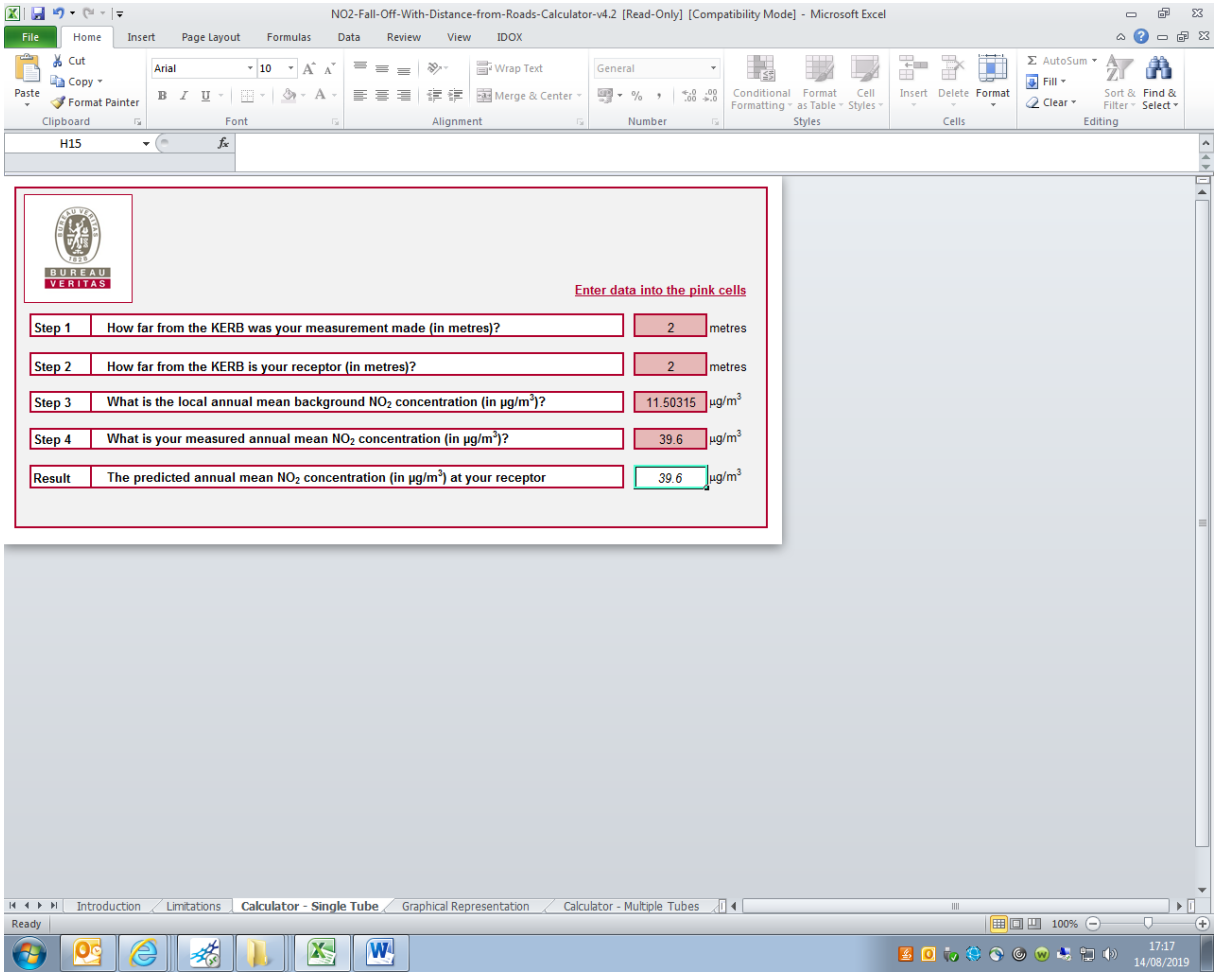
Diffusion tube 13



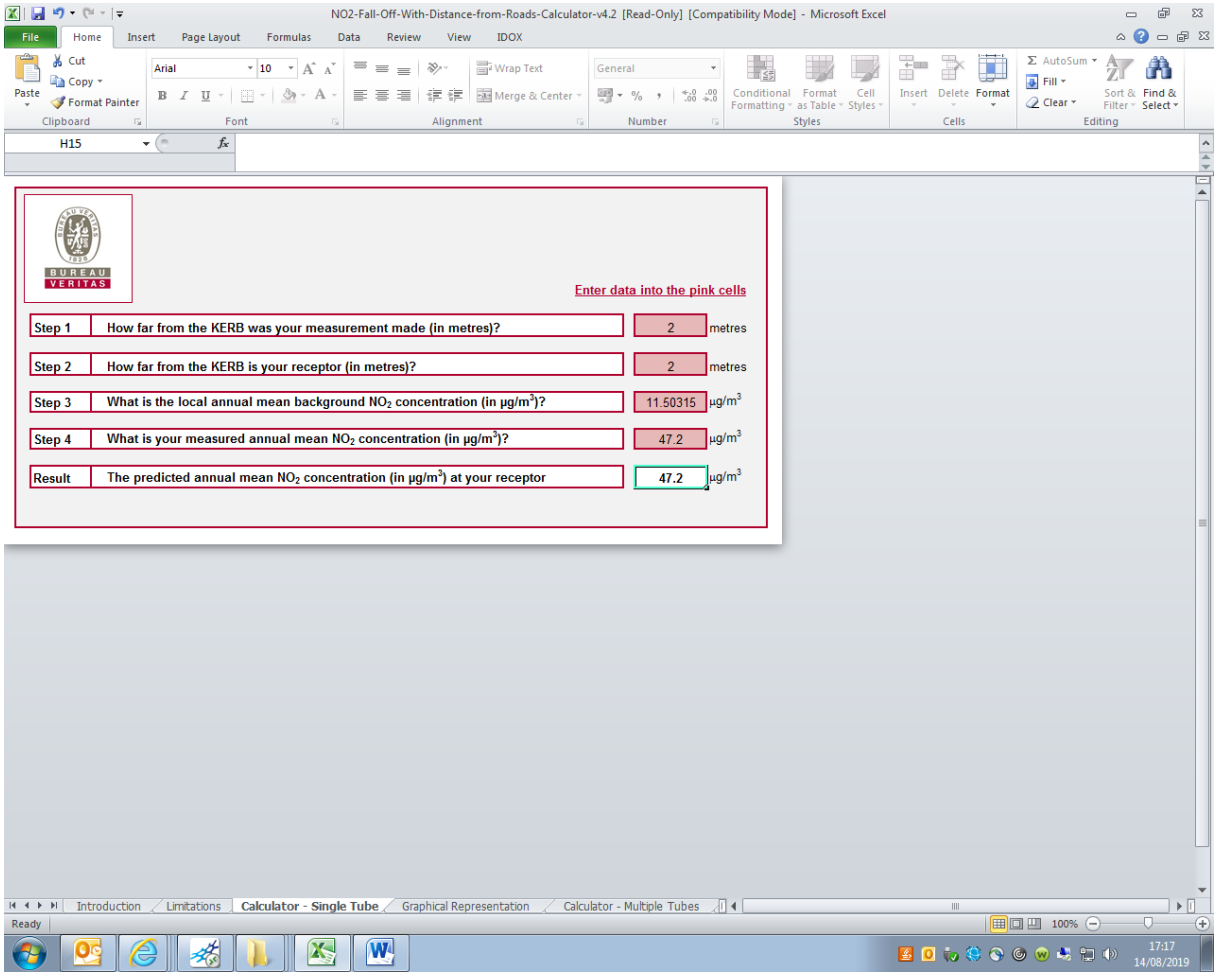
Diffusion tube 14



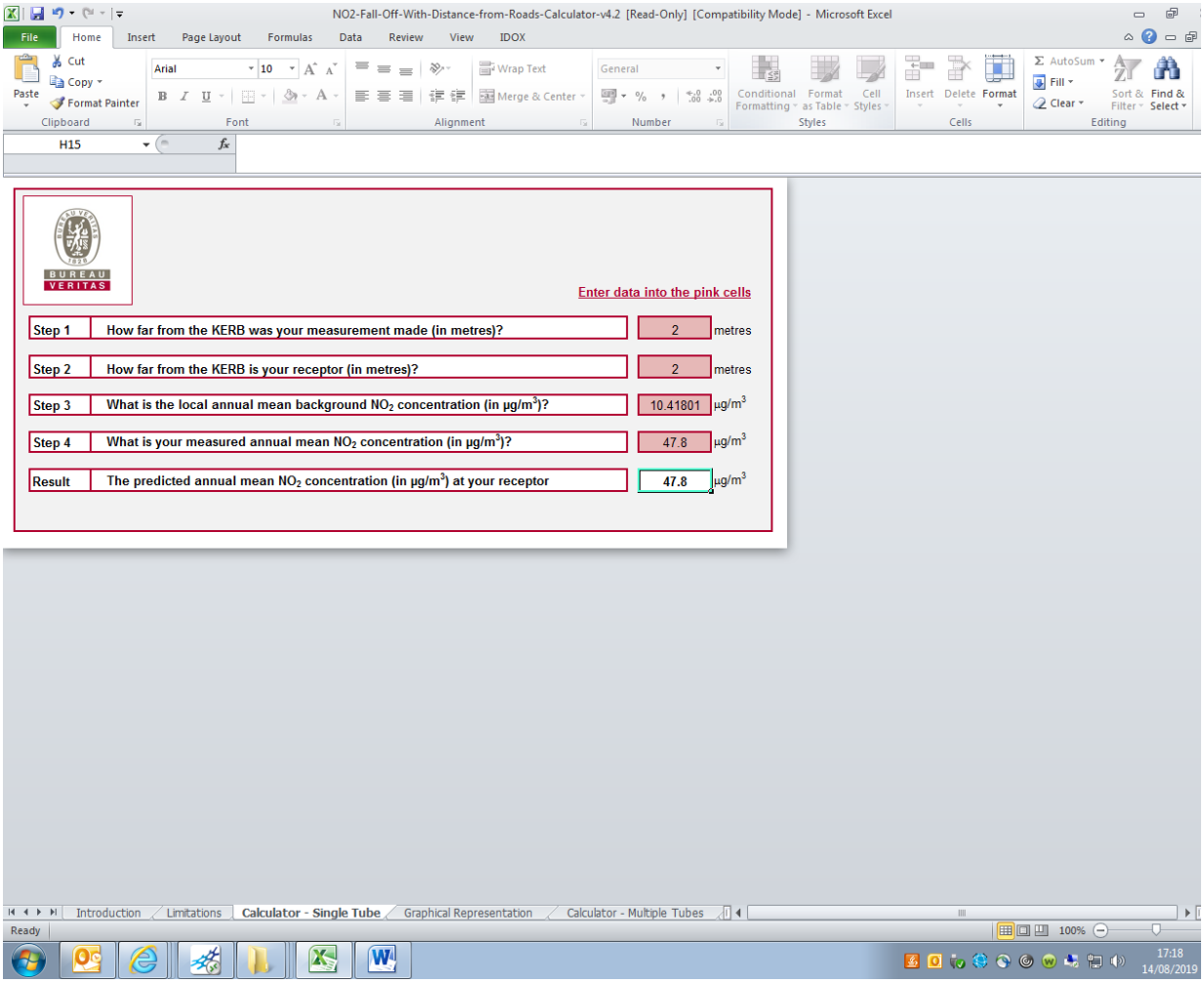
Diffusion tube 15



Diffusion tube 17



Diffusion tube 20



Annualisation

Figures checked by Paul Bently DEFRA Hepdesk 14/8/19

Diffusion tube 7

Start date	End date	B1 Wigan	Diffusion tube 7	B1 when D1 is available
4/1/2018	1/2/2018	23.6		
1/2/2018	2/3/2018	24.3		
2/3/2018	28/3/2018	21.7	45.3	21.7
28/3/2018	3/5/2018	15.5		
3/5/2018	6/6/2018	12.5		
6/6/2018	4/7/2018	9.9		
4/7/2018	1/8/2018	11.1		
1/8/2018	4/9/2018	11.0		
4/9/2018	3/10/2018	12.6	39.7	12.6
3/10/2018	31/10/2018	12.3	47.5	12.3
31/10/2018	4/12/2018	12.3	44.5	12.3
4/12/2018	10/1/2019	12.3	52.7	12.3
Average		14.9Am	45.9	14.2 Pm

14.9/14.2 =1.05

Start date	End date	B1 Preston	Diffusion tube 7	B1 when D1 is available
4/1/2018	1/2/2018	25.9		
1/2/2018	2/3/2018	27.7		
2/3/2018	28/3/2018	26.7	45.3	26.7
28/3/2018	3/5/2018	19.5		
3/5/2018	6/6/2018	16.7		
6/6/2018	4/7/2018	13.8		
4/7/2018	1/8/2018	14.9		
1/8/2018	4/9/2018	15.5		
4/9/2018	3/10/2018	18.9	39.7	18.9
3/10/2018	31/10/2018	23.6	47.5	23.6
31/10/2018	4/12/2018	24.4	44.5	24.4
4/12/2018	10/1/2019	33.0	52.7	33.0
Average		21.7Am	45.9	25.3 Pm

21.7/25.3=0.86

Ra=(1.05 + 0.86)/2
Ra= 0.96

Annualised average of D1=45.9x0.96 = **44.07**µg/m^{-3}

Diffusion Tube 17

Start date	End date	B1 Preston	Diffusion tube 17	B1 when D1 is available
4/1/2018	1/2/2018	25.9	60.4	25.9
1/2/2018	2/3/2018	27.7		
2/3/2018	28/3/2018	26.7	53.6	26.7
28/3/2018	3/5/2018	19.5		
3/5/2018	6/6/2018	16.7		
6/6/2018	4/7/2018	13.8		
4/7/2018	1/8/2018	14.9	39.9	14.9
1/8/2018	4/9/2018	15.5		
4/9/2018	3/10/2018	18.9	42.3	18.9
3/10/2018	31/10/2018	23.6	47.5	23.6
31/10/2018	4/12/2018	24.4		
4/12/2018	10/1/2019	33.0	60.5	33.0
Average		21.7 Am	50.7	23.8 Pm

21.7/23.8=0.92

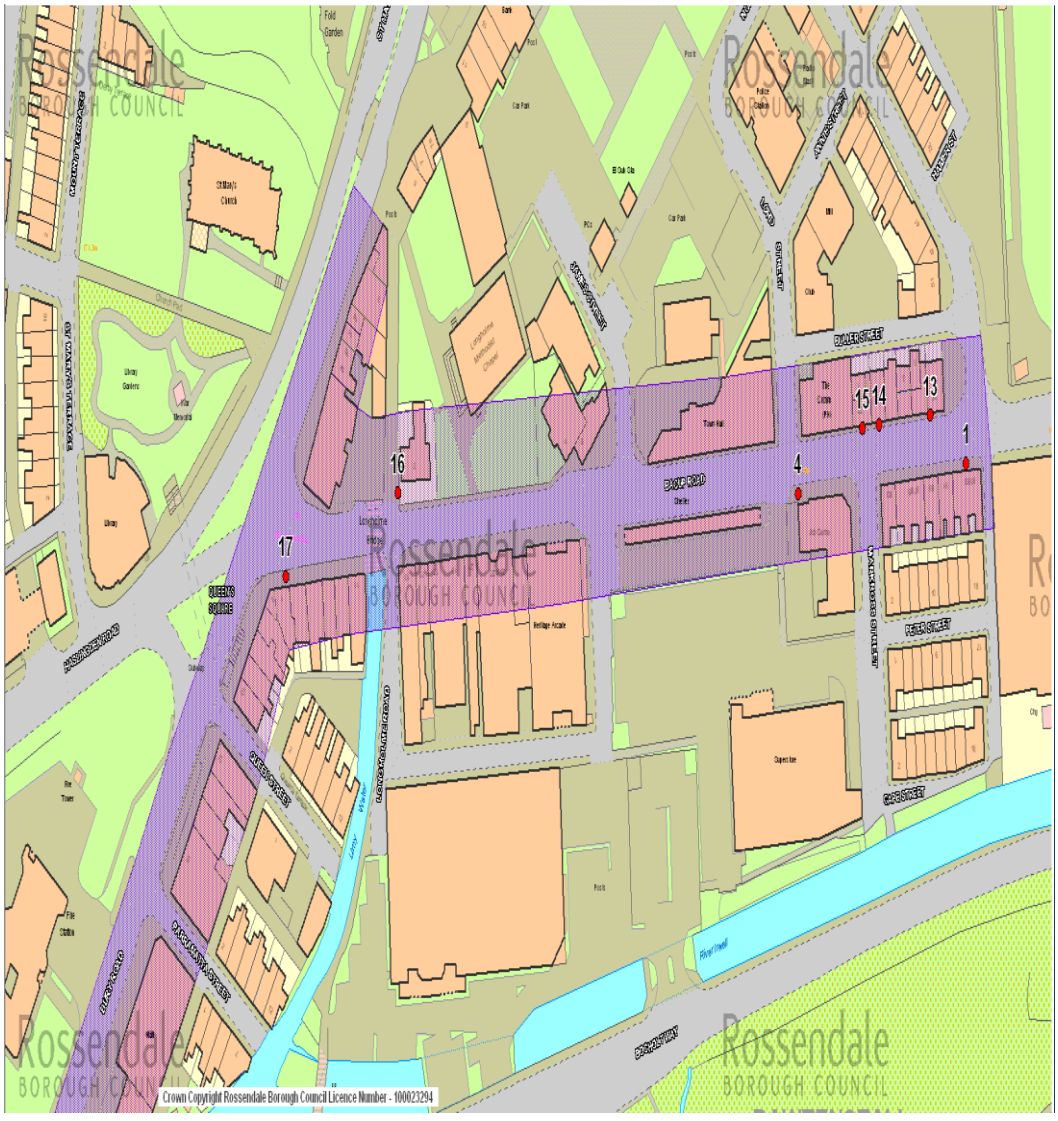
Start date	End date	B1 Wigan	D17	B1 when D1 is available
4/1/2018	1/2/2018	23.6	60.4	23.6
1/2/2018	2/3/2018	24.3		
2/3/2018	28/3/2018	21.7	53.6	21.7
28/3/2018	3/5/2018	15.5		
3/5/2018	6/6/2018	12.5		
6/6/2018	4/7/2018	9.9		

4/7/2018	1/8/2018	11.1	39.9	11.1
1/8/2018	4/9/2018	11.0		
4/9/2018	3/10/2018	12.6	42.3	12.6
3/10/2018	31/10/2018	12.3	47.5	12.3
31/10/2018	4/12/2018	12.3		
4/12/2018	5/1/2019	12.3	60.5	12.3
Average		14.9Am	50.7	15.6Pm

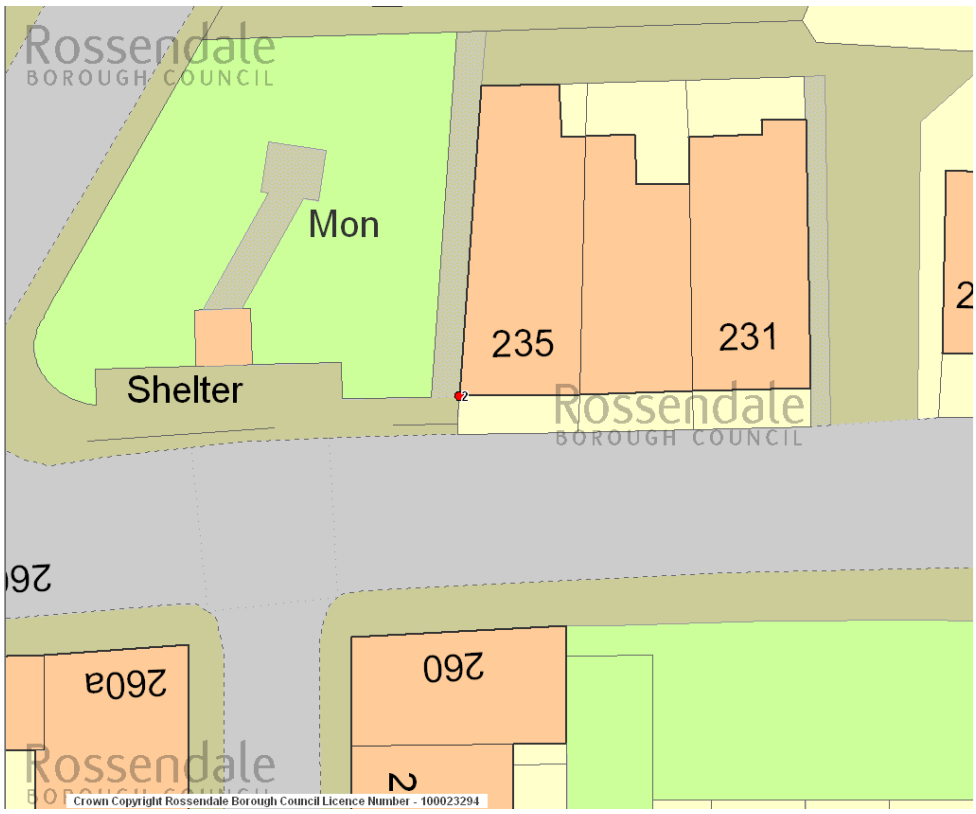
14.9/15.6= 0.96
Ra = (0.92+0.96)/2
Ra = 0.93
Annualised average of D1 = 50.7 x 0.93 **=47.16**µg/m^{-3}

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

Tubes No: 1, 4, 5, 13, 14, 15, 16 and 17
Location: **Bacup Road AQMA**
Grid Ref Central: X: 381629 Y: 422740



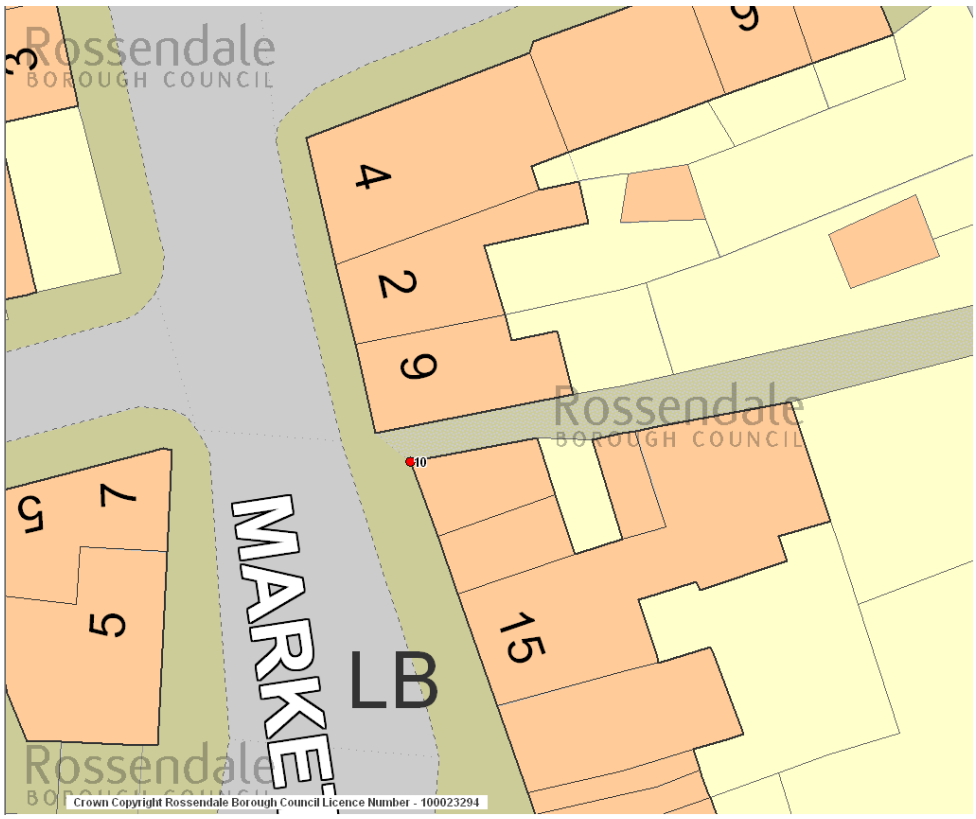
Tube No: 2
Location: Side of 235 Newchurch Road, Stacksteads
Grid Ref: X: 385579 Y: 421855



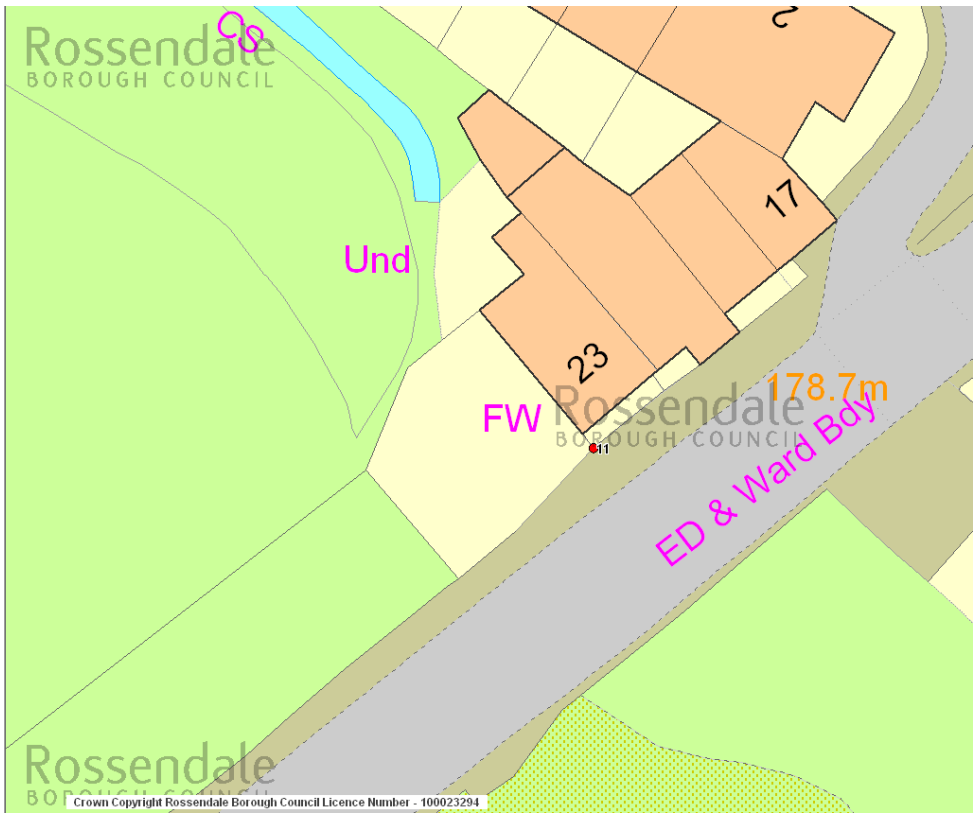
Tubes No: Tube No: 3,6,7,8 and 9

Location: AQMA 1 359, 366 Manchester Road, 5-7 Rawtenstall Road, 363 Manchester Road, 358-360 Manchester Road,359,364-366, Tesco Sign and 381 Manchester Road, Haslingden.
Grid reference: is around X:379213 Y:422191

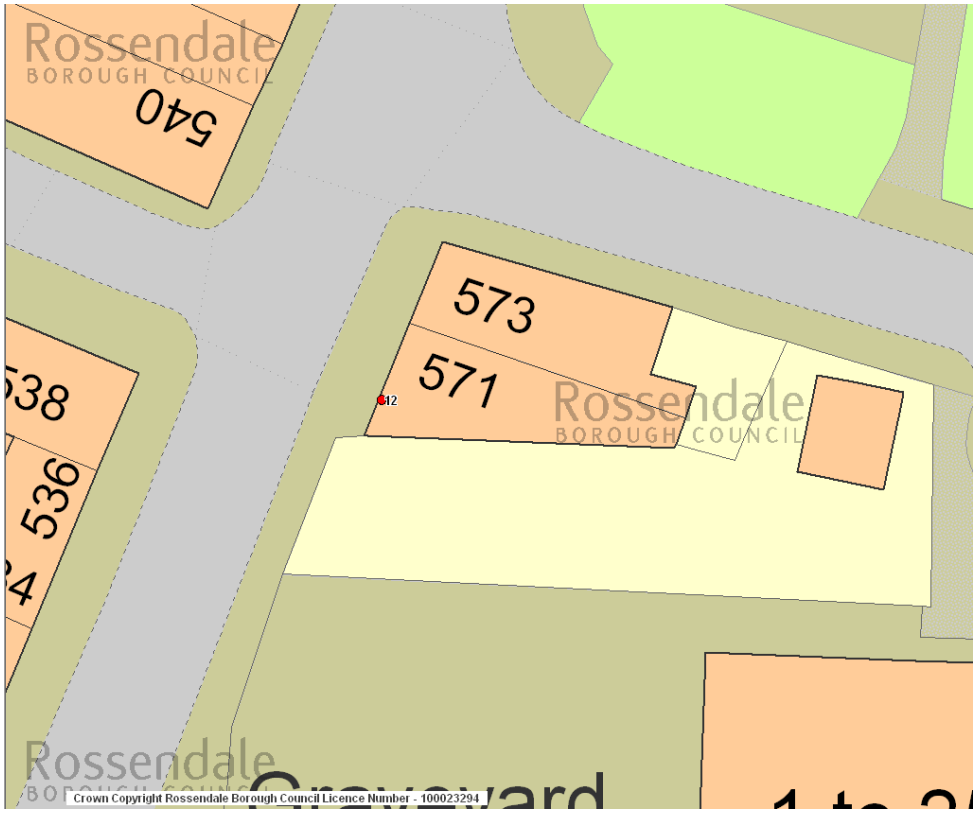
Tube No: 10
Location: 11 Market Place Edenfield
Grid Ref: X:379986 Y: 419210



Tube No: 11
Location: 23 Haslingden Old Road Rawtenstall
Grid Ref: X:381151 Y: 423124

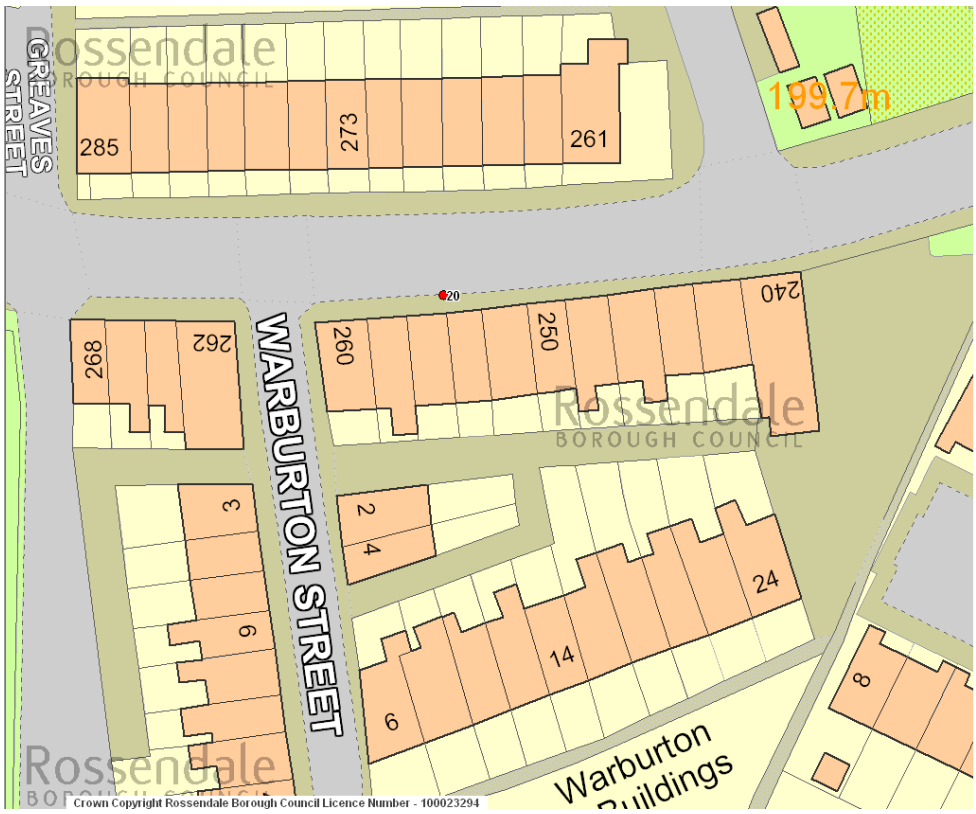


Tube No: 12
Location: 571 Burnley Road Crawshawbooth
Grid Ref: X:381109 Y: 425249



Tube No: 19
Location: 276 Market Street Whitworth
Grid Ref: X: 388414 Y: 417739

Tube No: 20
Location: 264 Haslingden Road, Haslingden
Grid Ref: X:377899 Y:422488


GREAVES STREET
285
273
261
199.7m
WARBURTON STREET
268
262
260
250
240
3
6
2
4
24
14
6
8
Warburton Buildings
Rossendale BOROUGH COUNCIL
Crown Copyright Rossendale Borough Council Licence Number - 100023294

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

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

[1] 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	Air Quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) 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