2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: June, 2022

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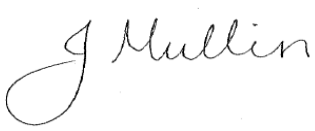
Signature	
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Executive Summary: Air Quality in Our Area

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 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 exceedances are considered likely, the local authority must then 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.

The authority has seen a continuation in both elected member and public concern over the last year in relation to air quality and climate issues, while at the same time substantive action has been undertaken to try and improve air quality and reduce carbon emissions across the Council operations and wider borough through the completion of the borough wide Air Quality Action Plan (AQAP) and Climate Emergency Action Plan.

Air Quality in South Ribble 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].

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

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

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].

For the borough of South Ribble, the current mortality attributed to anthropogenic (made man) particulate air pollution is 4.1%[5].

The principal pollutants of concern within South Ribble are still those associated mainly with traffic, these being Nitrogen Dioxide, and Particulate Matter. The Council only monitors Nitrogen Dioxide emissions via a network of diffusion tubes and currently has five declared Air Quality Management Areas within the borough. In January 2022 three new continuous analysers were purchased and data from these is now being gathered across two of the AQMAs, Leyland (AQMA5), and Lostock Hall (AQMA 3).

Trend data over the last five years indicates that levels have generally reduced, the results from 2021 show no areas of exceedance or near exceedance of the national objectives within the borough.

No exceedances of the annual mean objective value have been identified over 2021. Although due to the Covid 19 Pandemic the year was not representative of the normal flow of traffic throughout the borough and as a result of the continued restrictions it is not unsurprising that the annual mean levels have reduced significantly.

Air Quality is no longer specifically identified within the Council's revised Corporate Plan. However, the 'Green Agenda' and the adopted Climate Emergency Strategy and Action Plan encompasses work being undertaken on the Air Quality workstreams.

There have been no new major industrial sources of emissions within the borough, however a substantial number of dwellings are being built and planning permissions

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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

5 Public Health England, Public Health Profiles, Air Pollution: fine particulate matter 2019 *https://fingertips.phe.org.uk/search/air%20pollution#page/0/gid/1/pat/102/par/E10000017/ati/101/iid/30101/age/230/sex/4/cid/4/tbm/1/page-options/car-do-0_ovw-do-0*

granted over the last year as part of the City Deal project, with a further two large applications (one being appealed) each for over 1350 houses being considered.

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*6* sets out the case for action, with goals to reduce exposure to harmful pollutants. The Road to Zero*7* 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.

The last year has seen limited progress on the completion of the actions within the Action Plan partly due to the continual Covid 19 Pandemic at the start of the year and substantial resource issues throughout the year. A climate Emergency Engagement Officer has now been recruited to the team, their role will cover both Air Quality and Climate Emergency Engagement and work has commenced with activities to disseminate information across the borough and move both agendas forward.

The Council declared a Climate Emergency in 2019 and progressed a strategy and action plan over 2020, many of the actions compliment those within the Air Quality Action Plan.

Key actions the Council will be looking at over the next year included:

- Continuing with the diffusion tube monitoring programme
- Continue to consider air quality for all relevant planning applications

6 Defra. Clean Air Strategy, 2019

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

- Continue to use the South Ribble Borough Council Planning Advisory Note to require a graduated approach to air quality assessment requests through the planning process, including an emissions assessment.
- To work with the Central Lancs planning team to embed the guidance within the emerging Central Lancashire Local Plan.
- Undertake a range of engagement actions with schools, businesses and community groups to raise aware of air quality and to encourage greater use of public transport and alternative forms of travel,
- Provide additional electric vehicle recharging points through the planning system*
- We will continue to carry out the inspections and enforcement of permitted premises within the borough under the Environmental Permitting Regulations
- Continue to work with partners in Public Health Lancashire, and across the Lancashire District authorities in the development and publication of the Lancashire Air Quality Planning Guidance Document

Conclusions and Priorities

Monitoring results from the 2021 monitoring programme have shown a continual reduction in Nitrogen Dioxide levels across the borough although higher than 2019 during the peak of the Covid restrictions and national and local lockdowns.

The borough wide Action Plan and the general national increase in awareness over the harmful effects of air quality, has seen a greater level of engagement over the last year from both elected members and the public. The cross over work with the Climate Emergency Action Plan has also helped to prompt and issues of air quality and allowed additional staffing resources to be acquired for the forthcoming year.

The priority for the coming year is to continue the monitoring programme, reviewing this in light of any new information and developments, progress the actions identified in the plan, which includes consideration of the significant on-going construction work across the borough, education and facilitating a modal shift away from the domestic car. To progress the to work with partner organisations in particular the County Public Health team and Highways Department and other Lancashire District Authorities.

We also wish to seek funding to enable a review of traffic flows across the borough and identify gaps and issues with active travel options.

Local Engagement and How to get Involved

If you would like to get involved in the work being undertaken to tackle air pollution within South Ribble; or you would like more information on how you can help reduce your personal emissions, then please contact the Environmental Health Department at South Ribble Borough Council on 01772 421491 or via e-mail at envhealth@southribble.gov.uk. Further information will be made available on the Council's website.

We are particularly interested to here from schools, businesses and community groups with a view of encouraging greater partnership working to raise awareness of air quality.

Lancashire has a large number of established and well-maintained cycle routes that can be used for commuting as well as leisure purposes. More information can be found on: *http://www.visitlancashire.com/cycling-lancashire*

There is also a wealth of information on public transport:
http://www.lancashire.gov.uk/roads-parking-and-travel/public-transport.aspx

And alternative ways to travel:

http://www.lancashire.gov.uk/roads-parking-and-travel/alternative-ways-to-travel.aspx

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of South Ribble Borough Council with the support and agreement of the following officers

Jennifer Mullin, Director of Communities, South Ribble Borough Council

Cllr Keith Martin (chair) and members of the Climate Emergency Task Group

Cllr Michael Titherington Deputy leader and Portfolio Holder for Health and Well-being

This ASR has been approved by:

Gary Hall, Chief Executive, South Ribble Borough Council

Dr Sakthi Karunanithi, Director of Public Health and Wellbeing, Lancashire County Council

This ASR has been signed off by a Director of Public Health.

If you have any comments on this ASR please send them to Neil Martin at:

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1 Local Air Quality Management

This report provides an overview of air quality in South Ribble Borough Council during 2021. 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 South Ribble 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 South Ribble Borough Council can be found in Table 2.1. The table presents a description of the five AQMA(s) that are currently designated within South Ribble Borough Council. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMA(s) and the air quality monitoring locations in relation to the AQMA(s). The air quality objectives pertinent to the current AQMA designation(s) are as follows:

- NO_2 annual mean;

We propose to revoke AQMA1 – Penwortham in 2023 following the complete 2022 monitoring year (unaffected by Covid restrictions). Prior to the covid restrictions this area has seen a change in the traffic layout, a new superstore and a by-pass road around the town.

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 National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
AQMA1	Declared August 2005	NO2 Annual Mean	An area encompassing a number of residential properties at the junction of Cop Lane, Liverpool Road and Priory Lane	NO	44.7		South Ribble Borough Council, Air Quality Action Plan, 2018	https://www.southribble.gov.uk/content/air-quality-action-plan
AQMA2	Declared August 2005	NO2 Annual Mean	An area encompassing a number of residential properties along Victoria Road.	NO	52		South Ribble Borough Council, Air Quality Action Plan, 2018	https://www.southribble.gov.uk/content/air-quality-action-plan
AQMA3	Declared August 2005	NO2 Annual Mean	An area encompassing residential properties at the Tardy Gate Junction.	NO	48		South Ribble Borough Council, Air Quality Action Plan, 2018	https://www.southribble.gov.uk/content/air-quality-action-plan
AQMA4	Declared August 2005	NO2 Annual Mean	An area encompassing a number of residential properties along Station Road.	NO	44.9		South Ribble Borough Council, Air Quality Action Plan, 2018	https://www.southribble.gov.uk/content/air-quality-action-plan

AQMA5	Declared December 2017	NO2 Annual Mean	An area encompassing a number of residential properties along Turpin Green Lane, through Churchill Way to Golden Hill Lane. Also encompassing properties along Chapel Brow.	NO	41		South Ribble Borough Council, Air Quality Action Plan, 2018	https://www.southribble.gov.uk/content/air-quality-action-plan

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

☒ **South Ribble Borough Council confirm that all current AQAPs have been submitted to Defra.**

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

Defra's appraisal of last year's ASR concluded that the report was acceptable, with the following comments made:

1. QA/QC procedures have been applied appropriately. Calculations for bias adjustment, annualisation and distance correction have been included in the Appendix. This is encouraged.
2. Some formatting errors such as a broken link to the table being discussed in section 3.1.3. The diffusion tube IDs in Table B.1 are not consist with other tables in the report.
3. Council have provided a map of the diffusion tube monitoring network; trends are displayed in the report. The Council also included maps of their monitoring locations.
4. Council is encouraged to fix AQ mesh continuous analyser, so air quality in AQMA 1 could be monitored continually. *It should be noted that while a fix has been attempted, we have not been able to continue to the use of this piece of equipment. The equipment was purchased by and is owned and operated by the County Highways team.*
5. The report includes trend graphs of monitoring locations within each AQMA, which is useful. However further discussion regarding the trends, especially within each AQMA would be beneficial.
6. The Council is again encouraged to consider the revocation of AQMAs 1 and 2. Both AQMAs have seen a continuation of no exceedances above the annual mean NO2 objective, with no readings within 5% of the objective in the past five years. *This is being considered following the receipt of a full years of monitoring data, unaffected by any pandemic restrictions. The area has recently undergone changes to the traffic management system brought on by the creation of a new superstore in the centre of the AQMA. A new by-pass road has also been completed around the town.*

South Ribble Borough Council has taken forward several direct measures during the current reporting year of 2021 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 58 measures are included within

Table 2.2, with the type of measure and the progress South Ribble Borough Council have made during the reporting year of 2021 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in the South Ribble Action Plan. Key completed measures are:

- Provision of four additional Electric vehicle charging points on council car parks and grant funding for an additional 19 EV chargers (38 spaces) on Council carparks, as part of the OLEV, On-Street Residential Charging Scheme
- Improved engagement with schools, community groups and businesses.
- Development of the 'Beginners Guide to Air Quality' Learning pack for schools.
- Embedding the Low Emissions Strategy within the planning process
- Securing funding for three continuous analysers and the ADMS roads, modelling software the later through developers contributions.

South Ribble Borough Council expects the following measures to be completed over the course of the next reporting year:

- Additional engagement with schools, community groups and businesses
- Complete installation of the 19 EV charging points and submit a bid for further charging points
- Increase the number of electric vehicles within the Councils fleet.
- Undertake a review of traffic movements within AQMA's
- Revoke at least one AQMA 9AQMA 1 – Penwortham)

South Ribble Borough Council's priorities for the coming year are:

- Continue the monitoring programme across the borough.
- Revoke AQMA1 – Penwortham (subject to monitoring results)
- Improve on the engagement with schools, community groups and businesses
- To seek additional funding for secure public cycle storage, Traffic flowing monitoring equipment and EV charging points.

The principal challenges and barriers to implementation that South Ribble Borough Council anticipates facing are lack of resources, both financially and in terms of staffing. Lack of involvement from Lancashire County Highways team.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, South Ribble Borough Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the AQMA's, particularly AQMA 3 & 5 (Lostock Hall and Leyland).

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	To publicise and encourage the use of the Lancashire based Air Quality Guidance Document for Developers.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	-	2021	Lancashire Authorities EHL AQ Subgroup	internal staff time	NO	Not Funded	< £10k	Implementation	Additional mitigation measures incorporated in planning developments - trying to maintain the status quo	Completion of the guidance document. Publication of the Guidance document. Inclusion of the Guidance Document within the Central Core Strategy	Actively being used by consultants within the planning process.	Lack of identifiable mitigation measures
2	To include the Lancashire based Air Quality Guidance Document for Developers within the revised Central Lancashire Core Strategy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	-	2024	SRBC Planning	Central Core Strategy Development	NO	Not Funded	< £10k	Implementation	Additional mitigation measures incorporated in planning developments - trying to maintain the status quo	Inclusion of the Guidance Document within the Central Core Strategy	On-going consultation with planners	Waiting for the Lancashire Core Strategy Team to progress Core Strategy
3	To develop and embed a low emission strategy into planning decisions	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	-	2022	SRBC Planning	Central Core Strategy currently being developed.	NO	Not Funded	< £10k	Implementation	Additional mitigation measures incorporated in planning developments - trying to maintain the status quo	Inclusion of the Strategy Document within the Central Core Strategy	Implementation on-going	Waiting for the Lancashire Core Strategy Team to progress Core Strategy, being used by planners on request.
4	To require a suitable air quality assessment in line with a published Air Quality Guidance Document for Developers for all planning applications as identified within the document	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	ongoing	2032	SRBC Planning/EH	internal staff time	NO	Not Funded	< £10k	Implementation	Additional mitigation measures incorporated in planning developments - trying to maintain the status quo	AQA required for relevant developments - new guidance to be introduced	Implementation on-going	Development of the Central Core Strategy

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5	Develop an 'Electric Vehicle Charging Points Guidance for Development' guidance document and have this included within the revised Central Lancashire Core Strategy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	-	2022	SRBC EH/planning	internal staff time	NO	Not Funded	< £10k	Implementation	Reduced vehicle emissions from new developments - maintaining the status quo	Completion of the guidance document. Inclusion in the Central Core Strategy	Implementation on-going	Development of the Central Core Strategy
6	Ensure adequate Electrical Vehicle charging infrastructure is provided on all Planning Applications in line with the Council's Electric Vehicle Charging Points Guidance for Developments	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2016	2032	SRBC Planning	-	NO	Not Funded	< £10k	Implementation	encourage uptake of electric vehicles - maintain status quo	Inclusion of EVR points on all relevant planning applications	Implementation on-going	Planning
7	Require suitable travel plans to be produced, and implemented on all relevant developments in line with the low emissions strategy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2016	2032	SRBC Planning	-	NO	Not Funded	< £10k	Implementation	encourage uptake of alternative forms of transport - maintain status quo	Inclusion of travel plans on all relevant planning applications	Implementation on-going	Planning
8	Require secure cycle storage to be included on all relevant domestic, commercial, industrial, and leisure developments	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	2032	SRBC Planning	-	NO	Not Funded	< £10k	Implementation	encourage uptake of alternative forms of transport - maintain status quo	Inclusion of secure cycle storage on relevant planning applications.	Implementation on-going	Planning

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9	Require adequate changing facilities to be provided for use of staff / visitors for all relevant commercial and industrial developments	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	2032	SRBC Planning	-	NO	Not Funded	< £10k	Implementation	encourage uptake of alternative forms of transport - maintain status quo	Inclusion of adequate changing facilities as part of planning applications.	Implementation on-going	Planning
10	Promotion of living walls / green roofs	Other	Other	Not Started	2031	SRBC	-	NO	Not Funded	£10k - 50k	Planning				
11	Investigate ways to limit the use of solid fuel heating in developments	Promoting Low Emission Plant	Other Policy	Not Started	2023	SRBC EH	-	NO	Not Funded	£10k - 50k	Planning			Advertising campaign regarding current Smoke Control areas and legislation undertaken.	
12	Improved Planning enforcement	Policy Guidance and Development Control	Other policy	ongoing	2031	SRBC Planning	planning budget	NO	Funded	£50k - £100k	Implementation	Job advert released to fill vacant post	Timely Planning enforcement undertaken	on-going	Post is only temporary
13	Securing three major road developments identified within the Lancashire County Council 'Central Lancashire Highways and Transport Masterplan'	Transport Planning and Infrastructure	Other	2013	2025	LCC Highways	City Deal	NO	Funded	£500k - £1 million	Implementation	Re-direct traffic away from areas of poor air quality	Completion and opening of the new roads	Cawsey link rd. complete, Duelling of A582 progressing, Penwortham by-pass completely new junction complete	Funding
14	To review all traffic light sequencing within AQMA's to reduce the amount of standing traffic	Transport Planning and Infrastructure	Other	2017	2023	LCC Highways	unknown	NO	Not Funded	£50k - £100k	Planning	Improved traffic flow in the area to reduce idling, stop/start and traffic congestion	To review Traffic Signal sequencing at locations where Air Quality problems have been identified in order to ensure the safe and expeditious movement of traffic around the highway network.	County highways have stated they have no funding, time or staff to undertake this work. We need to provide evidence of an issue before they will look at it.	LCC Highways - funding, prioritisation

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15	To investigate the provision of a link road between Centurion Way and Tomlinson Road	Transport Planning and Infrastructure	Other	2019	2032	SRBC Planning / EH	unknown	NO	Not Funded	£100k - £500k	Aborted	Remove traffic from a declared AQMA	Development of the link road.	LCC highways against action, developer of land against action, no funding. Planning application for the site has now been passed and in the process of being constructed	No land available anymore.
16	Consider road layouts within the AQMA's to see whether improvements can be made to reduce congestion	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2019	2023	LCC Highways / SRBC EH	unknown	NO	Not Funded	< £10k	Planning	Reduced vehicle emissions	Review of all road layouts within the declared AQMAs	ADMS software purchased to enable modelling work to be undertaken, looking at traffic monitoring equipment	Finance, Staffing, LCC
17	Look to improve signage to re-direct HGV traffic away from areas of poor air quality	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2018	2032	SRBC	unknown, SRB internal	NO	Not Funded	£10k - 50k	Planning	Reduced traffic	Improved signage	All businesses have been contacted again asking them to use alternative routes	Funding & suitable location for signage
18	Work with Highways England to improve signage to the motorways to advise HGV's to use Junction 29 instead of junction28	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2018	2032	Highways England / SRBC EH	N/A	NO	Not Funded	£50k - £100k	Planning	Re-direct traffic away from declared AQMA	New signage in place	Highways England willing to undertake work for new sign at SRBC expense ~£70K,	Funding £70K for new motorway sign.

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19	Provide advice and contacts to businesses to help them choose low emission vehicles, & develop travel plans	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	Not Started	2023	SRBC EH / Public Health Lancashire / Chorley BC	unknown	NO	Not Funded	< £10k	Planning	reduced vehicle emissions	production of advice literature (inc social media)	Engagement officer filled. Businesses have been contacted again	Resources
20	Improve the cycle infrastructure within the borough, especially along routes to schools and employment sites	Transport Planning and Infrastructure	Cycle network	2018	2021	LCC Highways / SRBC - Green links	Planning - S106, CIL, grants	NO	Partially Funded	£100k - £500k	Implementation	reduced vehicle trips	Green Links project completed	Green Links project progressing,	resources, funding, commitment from LCC Highways
21	Maintain & Sweep cycle routes on a regular basis throughout the borough	Transport Planning and Infrastructure	Cycle network	2018	2032	LCC Highways / SRBC Neighbourhoods	N/A	NO	Not Funded	< £10k	Planning	reduced vehicle trips	clean well-maintained cycle routes	LCC highways have stated no funding availble to maintain cycle routes/	There is currently no budget provision within LCC Highways to resource this measure.
22	Improve the electric vehicle infrastructure across the borough	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2016	2032	SRBC EH	grants	NO	Not Funded	£500k - £1 million	Planning	reduced vehicle emissions	Number of EVR points	Grant bids to be submitted	Resources, electrical infrastructure, finance
23	Provide electric vehicle charging points on council owned car parks and buildings	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2025	SRBC - EH / Neighbourhoods / Estates	grants	NO	Funded	£100k - £500k	Planning	reduced vehicle emissions	number of charging points provided	Grant bids are being applied for	resources
24	Offer free or reduced parking tariffs for electric vehicles	Promoting Low Emission Transport	Priority parking for LEV's	-	2023	SRBC Neighbourhoods	N/A	NO	Not Funded	£10k - 50k	Planning	reduced vehicle emissions	New charging policy	To be considered with each carpark EV charging point	resources, willingness with council
25	Anti-Idling Campaign in declared AQMA's and outside schools, colleges and	Traffic Management	Anti-idling enforcement	2019	2025	SRBC - EH / Neighbourhoods / Estates	internal staff time	NO	Not Funded	< £10k	Implementation	reduced vehicle emissions	Number of schools visited for enforcement	Campaign run in 2019, postponed in 2020. Staffing is an issue to attend sites at the correct times. Looking	Resources

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	leisure centres													again in late 2022/23	
26	Encourage the greater use of public Transport	Promoting Travel Alternatives	Other	Not Started	2032	SRBC	-	NO	Not Funded	< £10k	Planning	reduced vehicle emissions	Great use of public transport and less private car journeys	Engagement Officer post to be created.	UK central government & Covid
27	Work with taxi firms to encourage the uptake of low emission vehicles (Electric)	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2025	SRBC EH / Licensing	OLEV bid	NO	Not Funded	£10k - 50k	Planning	reduced vehicle emissions	Number of LEV in taxi fleet	EV charging infrastructure installed - COVID has prevented some engagement.	Taxi drivers, charging infrastructure
28	Further reduce the age limit of taxis within the borough	Promoting Low Emission Transport	Taxi Licensing conditions		2025	SRBC EH / Licensing / AQ Sub-group	-	NO	Not Funded	< £10k	Planning	reduced vehicle emissions	New taxi policy	Taxi licensing adverse to intro tighter requirements to neighbouring authorities. Discussions held on a Lancashire wide basis, but no consensus reached.	Licensing committee
29	Stop taxis and buses idling within AQMA's and outside schools & Colleges	Traffic Management	Anti-idling enforcement	2019	2023	SRBC EH	internal staff resources	NO	Not Funded	< £10k	Planning	reduced vehicle emissions	Anti-idling enforcement visits	Anti-idling campaign started in 2019, stopped due to covid, will resume in 2022	Resources
30	To consider a reduced taxi license fee for electric vehicles	Promoting Low Emission Transport	Taxi emission incentives		2025	SRBC EH / Licensing	-	NO	Not Funded	< £10k	Planning	reduced vehicle emissions	reduced emissions	Taxi licensing teams are not in favour of this and don't think it will make any difference - still to be progressed.	Licensing committee
31	To work with both bus and taxi companies to apply for any grant bids available	Promoting Low Emission Transport	Other		2032	SRBC	on going	NO	Not Funded	£10k - 50k	Planning	reduced vehicle emissions	reduced emissions	-	

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
32	Implement an 'Electrify campaign – encouraging businesses to only use electric taxis	Traffic Management	Other	Not Started	2022	SRBC		NO	Not Funded	£10k - 50k	Planning	reduced vehicle emissions		To be started as part of the rapid EV charging infrastructure work with Electric Blue once installed in 2021.	Charging infrastructure
33	Encouraging Car Sharing within the borough	Traffic Management	Other	Not Started	2025	SRBC	-	NO	Not Funded	< £10k	Planning	reduced vehicle emissions	reduced vehicle trips	N/A - covid has prevented this work from progressing	resources / CoVid-19
34	Development and delivery of educational programmes to schools	Public Information	Other		2032	SRBC EH / PHL / Chorley BC	unknown	NO	Not Funded	£10k - 50k	Planning	reduced vehicle emissions	reduced vehicle trips	Engagement officer post filled, Beginners guide to air quality written and sent out to pilot schools.	Resources / schools
35	Development of educational material for businesses	Public Information	Other		2024	SRBC EH / PHL / Chorley BC	unknown	NO	Not Funded	£10k - 50k	Planning	reduce vehicle trips	reduced vehicle trips	Engagement officer post filled	Resources / business
36	Development and run a campaign to reduce school traffic e.g. walk/cycle to school	Promoting Travel Alternatives	Promotion of cycling	Not Started	2024	SRBC EH / Members	planning applications	NO	Not Funded	£10k - 50k	Planning	reduce vehicle trips	reduced vehicle trips	Engagement officer post filled	Resources/ planning
37	Investigate the provision of personal travel plans for residents and employees within the borough	Promoting Travel Alternatives	Personalised Travel Planning	Not Started	2028	SRBC EH	planning applications	NO	Not Funded	£100k - £500k	Planning	reduce vehicle trips	reduced vehicle trips	Engagement officer post filled	Resources/ planning
38	Promote cycling within the borough, including cycle to work day, salary sacrifice scheme	Promoting Travel Alternatives	Promotion of cycling		2032	SRBC EH / Sports Development	-	NO	Not Funded	£50k - £100k	Planning	reduce vehicle trips	reduced vehicle trips	Engagement officer post filled, internal bike to work scheme promoted via intranet	Resources
39	Promote walking within the borough, including promotion of walking routes, the Leyland Loop	Promoting Travel Alternatives	Promotion of walking		2032	SRBC EH / Sports Development	-	NO	Not Funded	£50k - £100k	Planning	reduce vehicle trips	reduced vehicle trips	Engagement officer post filled	Resources

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
40	Encourage 'walk to school' and the use of 'walking buses' across the borough for all schools	Promoting Travel Alternatives	Promotion of walking	Not started		SRBC EH	planning applications	NO	Not Funded	£50k - £100k	Planning	reduced vehicle trips	No of walk to school/buses	Engagement officer post filled	resources, schools' parents
41	Encourage elected members to car share and use alternative forms of transport, in particular to council meetings and functions	Traffic Management	Other			SRBC Cabinet	ongoing	NO	Not Funded	< £10k	Implementation	reduced emissions	Members car shared on official duties	Promotion of car sharing among members undertaken but Covid has prevented this progressing.	Members / Covid 19
42	Replace the mayoral car with an electric car	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles		2020	SRBC Cabinet	internal	NO	Funded	£10k - 50k	Aborted		Provision of an electric mayoral car	Hybrid brought instead	ELT / member commitment
43	Provide education and information relating to air quality through members learning hours, leaflets and councillor connect	Public Information	Other	2016	2032	SRBC EH / Cllrs	internal	NO	Not Funded	< £10k	Implementation	reduced emissions	production and roll out of educational material	On-going training/learning hours undertaken, nothing in 2020-21 due to covid	resources / CoVid-19
44	Air Quality shall be considered within the decision making process on every report to cabinet, council, portfolio holder decision etc	Policy Guidance and Development Control	Other policy	2019	2021	SRBC - EH / Democratic Serrvices	-	NO	Not Funded	< £10k	Implementation	-	AQ considered on all reports	Air Quality is being considered on each report (in theory)	Needs proper consideration on the reports by authors
45	Replace the civic centre pool car with an electric car	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	Stalled	2022	SRBC - ELT	Vehicle fleet budget	NO	Partially Funded	£10k - 50k	Planning		Provision of an electric pool car	Pool Car removed	
46	Systematically replace the depot vans with electric vehicles	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2020	2030	SRBC - Neighbourhoods Cllrs	Vehicle fleet budget	NO	Partially Funded	£1 million - £10 million	Planning			3 small electric vans have been purchased, technology is still not good enough for bin wagons and larger/high mileage vehicles	commitment, funding

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
47	Systematically replace grounds vehicles with electric vehicles as technology becomes available	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2021	2032	SRBC - Neighbourhoods / Cllrs	Equipment fleet budget	NO	Partially Funded	£100k - £500k	Planning	reduced emissions	programe to exchange vehicles required and to be followed	hand held equipment being replaced with electric/battery operated equipment.	Willingness to consider alternatives / funding / provision of suitable technology
48	The provision of electric vehicle charging points at council buildings, initially the civic centre and depot. These may be provided free of charge to enable the installation of cheaper charging points and encourage the uptake of electric vehicles	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2025	SRBC Neighbourhoods	ongoing	NO	Partially Funded	£100k - £500k	Implementation	Encourage uptake of LEV	Provision of EVR points at council buildings	2 chargers at civic centre and 2 at depot installed. 4 rapid chargers installed, grant obtained from ORCS scheme for 19 chargers. 86 publicly available EV chargers in district.	funding
49	Apply for the Workplace EVR point Government scheme	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Not started		SRBC Neighbourhoods		NO			Planning				
50	Sign up to the ‘nhs fleet solutions salary sacrifice scheme’ this allows staff to purchase via salary sacrifice a new car (to be restricted to electric vehicles only) including all insurance, tax, and servicing	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	Stalled		SRBC ELT / HR	Stalled	NO				up to - based on mileage claims made to the Council from use of private cars	Provision of a suitable salary sacrifice scheme	New salary sacrifices lease scheme launched internally, not as good as nhs and allows all vehicle types due to equality issues with staff pay.	Equality issues.

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
51	Provide secure lockable cycle storage facilities at the civic and depot	Promoting Travel Alternatives	Promotion of cycling	2018	2021	SRBC EH / Neighbourhoods	-	NO	Not Funded	£10k - 50k	Implementation	reduced commuter mileage, encourage uptake of cycling	Provide secure cycle storage at Civic Centre and Moss Side Depot	Complete	
52	Provide suitable changing rooms and storage facilities for use of staff	Promoting Travel Alternatives	Other	2018	2021	SRBC - ELT	-	NO	Funded	£10k - 50k	Completed	reduced commuter mileage, encourage uptake of cycling / walking	Provision of changing facilities at Civic Centre	Complete	-
53	Continue with the 'bike to work' salary sacrifice scheme	Promoting Travel Alternatives	Promotion of cycling	2018	2032	SRBC HR	internal	NO	Not Funded	£10k - 50k	Implementation	reduced commuter mileage, encourage uptake of cycling	Provision of the bike to work scheme	ongoing offer for staff	-
54	Provide cycle reassurance training for any member of staff, elected members who wish to receive it	Promoting Travel Alternatives	Promotion of cycling	2018	2032	SRBC Sports Development	internal	NO	Not Funded	£10k - 50k	Implementation	reduced commuter mileage, encourage uptake of cycling	Provision of training. Uptake of training	ongoing offer for staff	Staff
55	Encourage staff to use alternative modes of travel e.g. cycling and walking	Promoting Travel Alternatives	Other	2018	2032	SRBC	internal	NO	Not Funded	£10k - 50k	Implementation	reduce vehicle trips	increased use of alternative travel options	Engagement officer post filled	resources, facilities staff willingness to change
56	Promote car sharing among staff	Traffic Management	Other	2018	2032	SRBC	internal	NO	Not Funded	£10k - 50k	Implementation	Reduced vehicle emissions	Increase in car sharing among staff	Covid has prevent this from progressing	Covid - 19 / resources / staff willingness to adapt
57	Alter the policy to allow essential users to leave their cars at home and walk/cycle to work on certain days in line with business requirements and manager agreement without the risk of loss of the lump sum	Policy Guidance and Development Control	Other policy		2022	SRBC ELT / HR	-	NO	Not Funded	< £10k	Completed	Encourage uptake of alternative forms of transport	Change of Policy	Policy has been changed / Complete	-

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
58	Develop an internal travel plan and offer individual travel planning guidance to staff and elected members	Promoting Travel Alternatives	Workplace Travel Planning	Not Started	2024	SRBC	-	NO	Not Funded	£50k - £100k	Planning	Reduce Vehicle emissions	Less staff travelling to work in private cars	Engagement officer post filled	Resources

$PM_{2.5}$ – 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.

South Ribble Borough Council is taking the following measures to address $PM_{2.5}$:

The continuation of the borough wide Smoke Control Area.

- The inclusion of $PM_{2.5}$ assessment within Air Quality Assessments carried out through the planning process.
- Progression of the action plan measures, which include;
    - Encouraging the use of alternative travel options e.g. cycling, walking, and use of public transport.
    - The four major road improvements to divert traffic away from residential areas.
    - Provision of EVR points on all new developments.
    - The provision of EVR points on Council car parks.
- Raise awareness of the harmful effects of $PM_{2.5}$ using the Public Health Indicator's which demonstrate that South Ribble suffers from the fifth highest adult mortality attributed to particulate matter in Lancashire at 4.0%, encouraging people to take actions to reduce their own emission rates.
- Work with the County Public Health Lancashire to develop actions to tackle $PM_{2.5}$ levels.
- An awareness campaign relating to solid fuel burning

Lancashire County Council Actions on $PM_{2.5}$

Lancashire County Council's Public Health Summary for Air Quality Annual Status Reports, 2022

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 (4.6%) is lower than the England average (5.6%), 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 Lancashire. LCWIP's have been defined for seven areas across Lancashire. These are:

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

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

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

2. Supporting the transition to low emission vehicles

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

LCC is currently focussing on supporting residents who do not have off-street parking charge at home, this is a real issue in Lancashire, with up to 65% of households estimated to have no off-street parking. The Council is currently trailing an innovative footway cable tray which will provide a low cost and practical solution to support residents without off street parking charge at home. The cable-tray will enable residents to safely pass an electric cable across the footway from their property to the carriageway enabling charging their vehicle from their domestic supply. Two products (1 designed in-house and 1 adapted product) are currently being trialled in several residential properties in the county.

Almost £3m has been invested in new electric vehicles and charging points for county council services. Following trials, the first service to go electric will be the county council's parking enforcement team, with 12 new electric vehicles. Work will get underway to install charging infrastructure at the offices and depots where the vehicles are based, and where they regularly visit. Trials have also been undertaken on small and medium battery electric plant, for example hedge trimmers, mowers and mini-diggers that will inform a move to battery electric plant from conventional petrol and diesel plant.

3. Creating cleaner, healthier road networks

Work to develop the next Local Transport Plan (LTP4) for Lancashire, Blackpool and Blackburn with Darwen is underway. The Public Health team has submitted an evidence base to inform the process, highlighting transport related health challenges affecting the population of Lancashire and making recommendations about how local transport planning policy can make a contribution to addressing these. 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 which looked at how vehicular, public transport and pedestrian walking movements could be improved across the city, recently received approval and is now moving towards implementation. A key facet of the study was to examine what improvements could 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.

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

This section sets out the monitoring undertaken within 2021 by South Ribble Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2017 and 2021 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Changes to the Local Authority Area

A review of the area has been undertaken to assess any changes that have occurred over the last 12 months and the potential for these to impact either negatively or positively on-air quality.

As part of the Preston, South Ribble and Lancashire City Deal, further significant residential development has been granted planning permission, and a further two large sites are currently being considered one in Lostock Hall, adjacent to the AQMA, for over 1350 properties and another in Samlesbury. Construction having been commenced on many of the other sites previously granted planning permission.

Air quality has been considered for the above developments, with those using nationally recognised assessment methodology unsurprising concluding a negligible impact. Developers are starting to use the emerging low emissions guidance document. In line with the proposed Lancashire wide guidance document mitigation measures have been requested on all of these sites.

Monitoring of the area using diffusion tubes is currently being undertaken by the Council and the results are detailed below.

Progress is continuing on the construction of the major road infrastructure improvements identified in the ‘South Ribble Borough Council Air Quality Action Plan’ and ‘Central Lancashire Highways and transport Masterplan’. These road improvements once completed should help to reduce congestion and improve air quality within the towns of South Ribble.

Following a planning application to redevelop a derelict site to the southeast of the Penwortham AQMA (AQMA 1.) a large supermarket has been constructed and road improvements undertaken around the junction. These include new lanes, changes to the traffic lights and a new dedicated cycle path. The site is now open for business.

3.1.2 Automatic Monitoring Sites

South Ribble Borough Council did not undertake any automatic (continuous) monitoring during 2020.

3.1.3 Non-Automatic Monitoring Sites

South Ribble Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 42 sites during 2021. Table A.1 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.

3.1.4 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compare 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 2021 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.

3.1.5 Trend Data

The data shows that all areas have seen an increase in 2021 over 2020 Covid pandemic year, back in line with previous years monitoring. A general reduction in pollutant levels is observed.

AQMA 1, Penwortham is consistently below the Objective value, the new by-pass road has recently been opened but so has a large shopping complex. Following a return to 'normal traffic flows' post pandemic if levels continue to remain at this level then the Council will be revoking the AQMA will be made.

AQMA 2, Walton-le-Dale, remains a main route into the City of Preston and levels over the preceding three years had remained consent and below the objective value. Following a return to 'normal traffic flows' post pandemic if levels continue to remain at this level then the Council will be looking to revoke the AQMA will be made.

AQMA 3, in Lostock Hall has historically remained close to the objective value and further large development is planned in the area (~1200 properties).

AQMA 4, Bamber Bridge has historically remained fairly consent. Additional development is underway in the area.

AQMA 5, the latest area to be declared in Leyland has seen an increase in pollutant levels in previous years which corresponds to an increase in both residential development within the area and increased freight. Further large residential development is planned nearby which is likely to impact on the area.

3.1.6 Particulate Matter (PM_{10} & $PM_{2.5}$)

The data shows that all areas have seen an increase in 2021 over 2020 Covid pandemic year, back in line with previous years monitoring. A general reduction in pollutant levels is observed.

AQMA 1, Penwortham is consistently below the Objective value, the new by-pass road has recently been opened but so has a large shopping complex. Following a return to 'normal traffic flows' post pandemic if levels continue to remain at this level then the Council will be revoking the AQMA will be made.

AQMA 2, Walton-le-Dale, remains a main route into the City of Preston and levels over the preceding three years had remained consent and below the objective value. Following a return to 'normal traffic flows' post pandemic if levels continue to remain at this level then the Council will be looking to revoke the AQMA will be made.

AQMA 3, in Lostock Hall has historically remained close to the objective value and further large development is planned in the area (~1200 properties).

AQMA 4, Bamber Bridge has historically remained fairly consent. Additional development is underway in the area.

AQMA 5, the latest area to be declared in Leyland has seen an increase in pollutant levels in previous years which corresponds to an increase in both residential development within the area and increased freight. Further large residential development is planned nearby which is likely to impact on the area.

3.1.7 Sulphur Dioxide (SO_2)

South Ribble Borough Council does not monitor SO_2 levels. However, a check of the Defra background maps indicates no likely exceedances of the objective levels for this pollutant.

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, 2, 3	Civic Centre, Leyland	Urban Background	353626	421783	NO2	No			No	2.4
4	12 Turpin Green Lane/Charnock St, Leyland	Roadside	354527	422371	NO2	AQMA5 - Leyland	0.0	5.2	No	2.3
5	38 Turpin Green Lane, Leyland	Roadside	354588	422269	NO2	AQMA5 - Leyland	0.0	5.6	No	2.6
6	"Gentle Touch" 65 Turpin Green Lane, Leyland	Roadside	354678	422249	NO2	AQMA5 - Leyland	0.0	5.6	No	2.2
7	66 Turpin Green Lane, Leyland	Roadside	354730	422212	NO2	AQMA5 - Leyland	0.0	7.8	No	2.2
8	87 Turpin Green Lane, Leyland	Roadside	354744	422231	NO2	AQMA5 - Leyland	0.0	5.7	No	2.0
9, 10, 11	36 Golden Hill Lane	Roadside	354438	422645	NO2	AQMA5 - Leyland	0.0	2.9	No	2.2
12, 13, 14	130 Golden Hill Lane	Roadside	353890	422654	NO2	AQMA5 - Leyland	0.0	2.6	No	2.1
15	57 Leyland Lane	Roadside	353048	422809	NO2	No	0.0	4.9	No	2.6
16	The Mill, Longmeanygate	Roadside	352970	422796	NO2	No	0.0	1.8	No	2.4

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)
17	28-30 Watkin Lane, Lostock Hall	Roadside	354515	425695	NO2	AQMA3 - Lostock	4.0	2.4	No	2.2
18	Spar, Watkin Lane, Lostock Hall	Roadside	354368	425783	NO2	AQMA3 - Lostock	0.0	5.4	No	2.4
19	13 Brownedge Road, Lostock Hall	Roadside	354410	425835	NO2	AQMA3 - Lostock	0.0	2.4	No	2.3
20, 21, 22	Tardy Gate PH, Leyland Rd, Lostock Hall	Roadside	354353	425844	NO2	AQMA3 - Lostock	0.0	2.7	No	2.3
23	477 Leyland Road, Lostock Hall	Roadside	354296	425903	NO2	AQMA3 - Lostock	0.0	4.1	No	2.3
24	11 Library Liverpool Road, Penwortham	Roadside	352122	428449	NO2	AQMA1 - Penwortham	4.9	2.6	No	2.1
25	"Robert&Co", 36e Liverpool Road, Penwortham	Roadside	351875	428427	NO2	AQMA1 - Penwortham	0.0	9.8	No	2.8
26	Fleece Inn, 43 Liverpool Road, Penwortham	Kerbside	351884	428404	NO2	AQMA1 - Penwortham	0.0	2.4	No	2.2
27	Upper Crust / Dewhurst Homes, Liverpool Road, Penwortham. LOWER	Kerbside	351947	428434	NO2	AQMA1 - Penwortham	3.5	1.5	No	2.0
28	Upper Crust / Dewhurst Homes, Liverpool Road,	Kerbside	351947	428434	NO2	AQMA1 - Penwortham	3.5	1.5	No	3.0

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)
	Penwortham. UPPER									
29	The Cawsey, Penwortham	Roadside	351879	426964	NO2	No	0.0	6.8	No	2.2
30	Board Oak Lane, Penwortham	Roadside	351880	426962	NO2	No	0.0	9.7	No	2.2
31	14 Victoria Road, Walton-le-Dale	Roadside	355370	428571	NO2	AQMA2 - Walton-le-Dale	0.0	6.4	No	2.0
32, 33, 34	40 Victoria Road, Walton-le-Dale	Roadside	355429	428518	NO2	AQMA2 - Walton-le-Dale	4.4	2.7	No	2.2
35	69 Victoria Road, Walton-le-Dale	Roadside	355521	428467	NO2	AQMA2 - Walton-le-Dale	0.0	2.0	No	2.8
36	146/Library, Station Road, Bamber Bridge	Roadside	356437	426303	NO2	AQMA4 - Bamber Bridge	0.0	2.0	No	2.2
37	243 Station Road, Bamber Bridge	Roadside	356530	425840	NO2	AQMA4 - Bamber Bridge	0.0	6.1	No	2.5
38	244 Station Road, Bamber Bridge	Roadside	356506	425793	NO2	AQMA4 - Bamber Bridge	0.0	8.9	No	2.2
39	266 Station Road, Bamber Bridge	Roadside	356511	425692	NO2	AQMA4 - Bamber Bridge	4.1	2.9	No	2.4
40	301 Station Road, Bamber Bridge	Roadside	356000	425578	NO2	AQMA4 - Bamber Bridge	0.0	3.0	No	2.2

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)
41	361 Station Road, Bamber Bridge	Roadside	356426	425364	NO2	AQMA4 - Bamber Bridge	0.0	1.6	No	2.2
42	233 Leyland Road, Penwortham	Roadside	353755	426827	NO2	No	0.0	6.8	No	2.2

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
1, 2, 3	353626	421783	Urban Background	100	100.0	13.6	15.1	17.2	12.4	12.2
4	354527	422371	Roadside	100	100.0	30.4	31.7	31.4	28.9	26.5
5	354588	422269	Roadside	90.4	90.4	32.7	32.8	31.3	26.2	21.1
6	354678	422249	Roadside	100	100.0	35.3	36.3	38.6	31.8	33.8
7	354730	422212	Roadside	90.4	90.4	25.2	28.3	28.6	19.0	21.0
8	354744	422231	Roadside	100	100.0	34.8	36.8	33.9	30.1	32.3
9, 10, 11	354438	422645	Roadside	100	100.0	34.7	34.8	36.2	30.9	28.9
12, 13, 14	353890	422654	Roadside	100	100.0	32.5	34.1	34.6	28.2	28.1
15	353048	422809	Roadside	100	100.0	25.1	26.8	25.9	20.9	21.3
16	352970	422796	Roadside	50	50.0	23.3	23.5	24.1	17.1	19.5
17	354515	425695	Roadside	82.7	82.7	25.7	27.7	26.1	22.0	25.0
18	354368	425783	Roadside	100	100.0	33.1	32.8	32.1	23.8	25.6
19	354410	425835	Roadside	100	100.0	**40.0**	**40.3**	38.8	29.7	28.2

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 2021 (%) [2]	2017	2018	2019	2020	2021
20, 21, 22	354353	425844	Roadside	100	100.0	35.3	37.8	35.4	27.7	28.4
23	354296	425903	Roadside	100	100.0	27.7	30.9	30.5	22.6	24.6
24	352122	428449	Roadside	84.6	84.6	28.2	26.5	25.9	16.4	18.2
25	351875	428427	Roadside	92.3	92.3		34.0	23.0	17.9	16.9
26	351884	428404	Kerbside	84.6	84.6		34.0	31.0	19.0	17.6
27	351947	428434	Kerbside	100	100.0	23.2	25.0	30.0	17.7	17.7
28	351947	428434	Kerbside	100	100.0	29.0	32.3	30.0	18.0	17.9
29	351879	426964	Roadside	76.9	76.9					12.5
30	351880	426962	Roadside	92.3	92.3				21.0	21.7
31	355370	428571	Roadside	100	100.0	32.1	32.2	32.0	23.4	25.0
32, 33, 34	355429	428518	Roadside	100	100.0	27.7	26.7	25.0	23.0	22.9
35	355521	428467	Roadside	100	100.0	30.8	32.3	31.7	25.1	25.5
36	356437	426303	Roadside	73.1	73.1	29.2	32.1	29.8	23.5	24.6
37	356530	425840	Roadside	100	100.0	28.7	29.2	29.0	22.7	22.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
38	356506	425793	Roadside	75	75.0	24.8	22.9	22.3	19.1	16.3
39	356511	425692	Roadside	65.4	65.4	26.2	26.1	30.0	26.9	27.2
40	356000	425578	Roadside	84.6	84.6	22.9	25.6	24.8	20.3	28.0
41	356426	425364	Roadside	100	100.0	35.1	35.2	35.9	28.4	20.5
42	353755	426827	Roadside	15.4	15.4					-

☐ **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 µg/m^3.

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

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

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

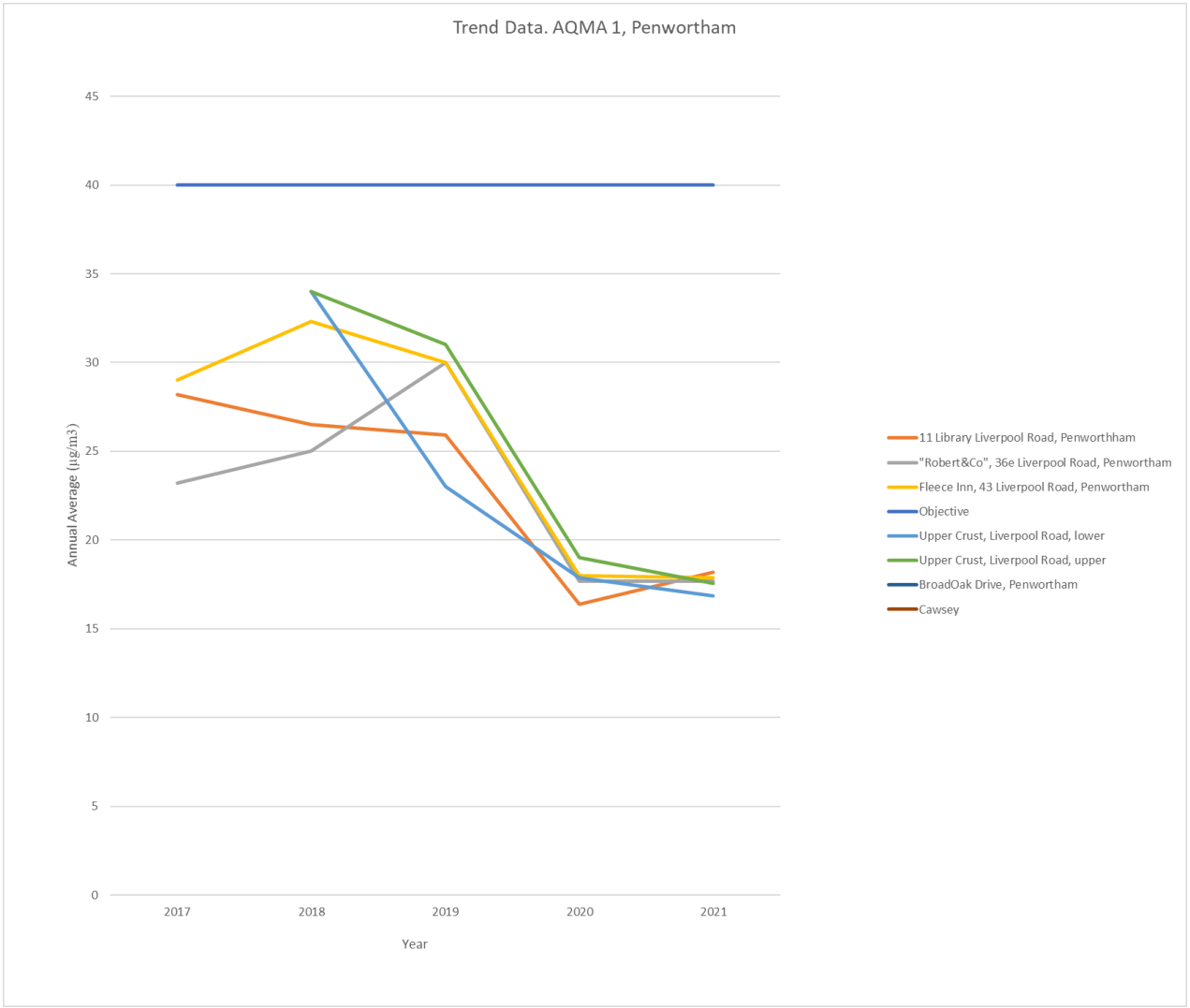
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

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

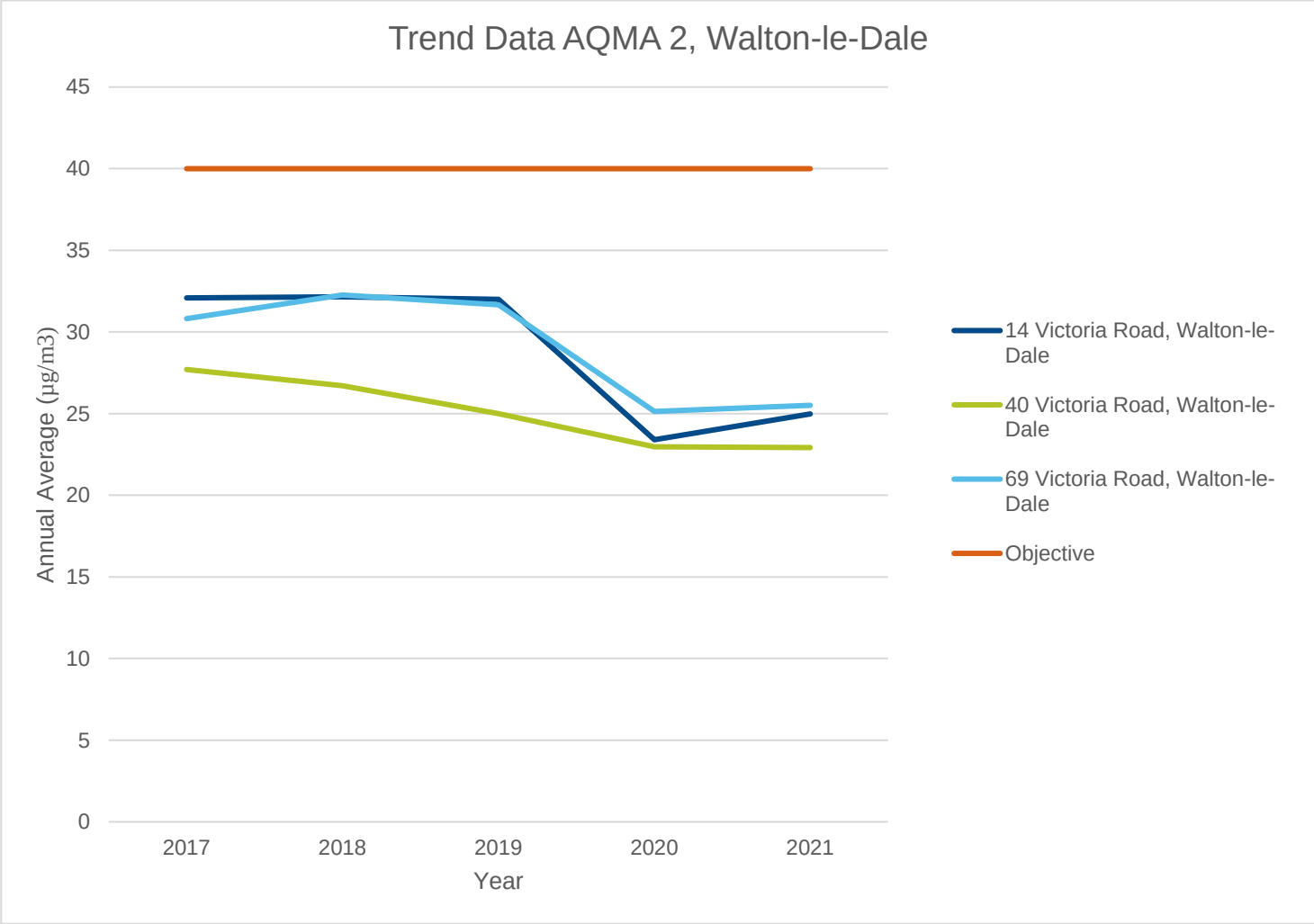
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

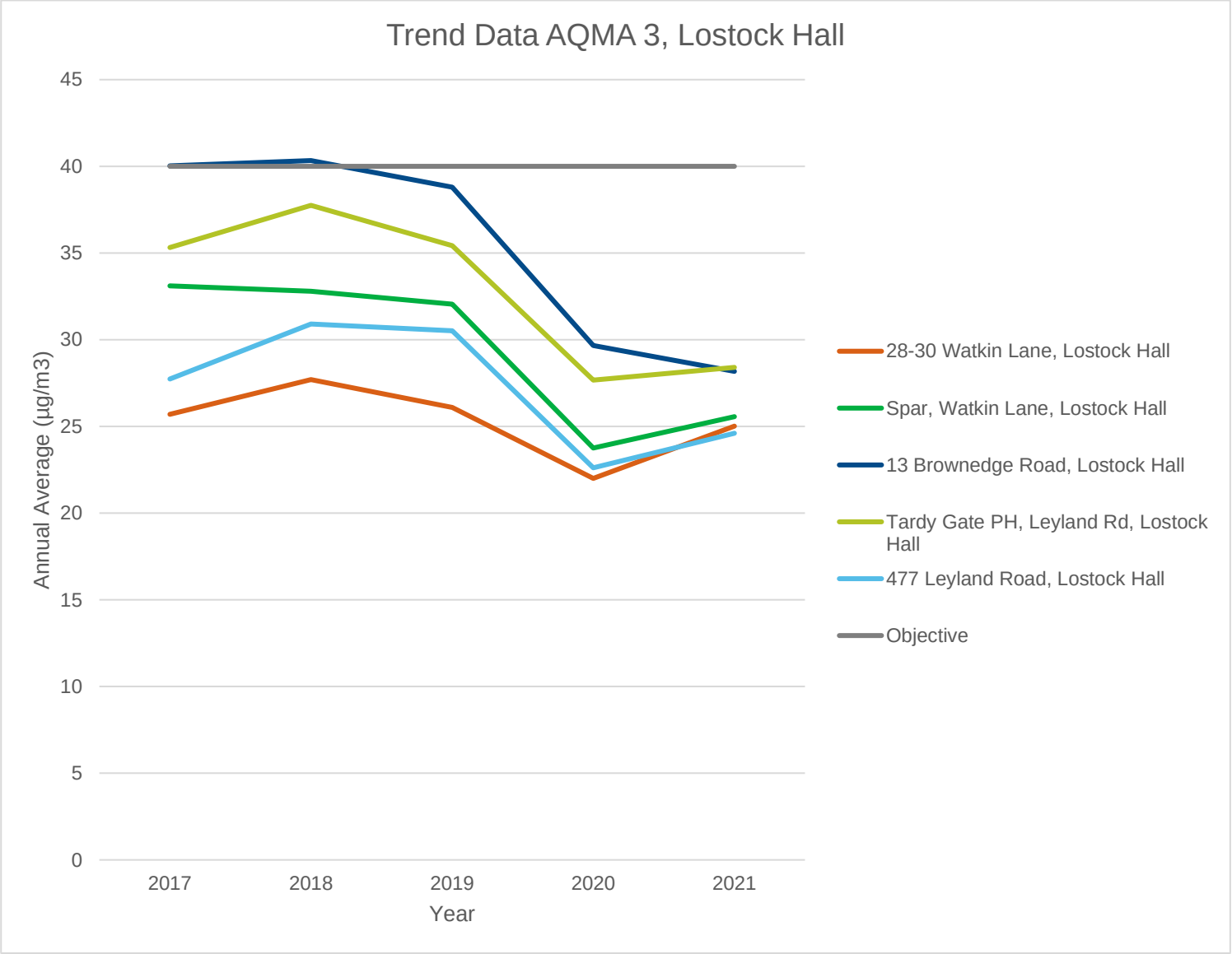
AQMA 1 – Penwortham



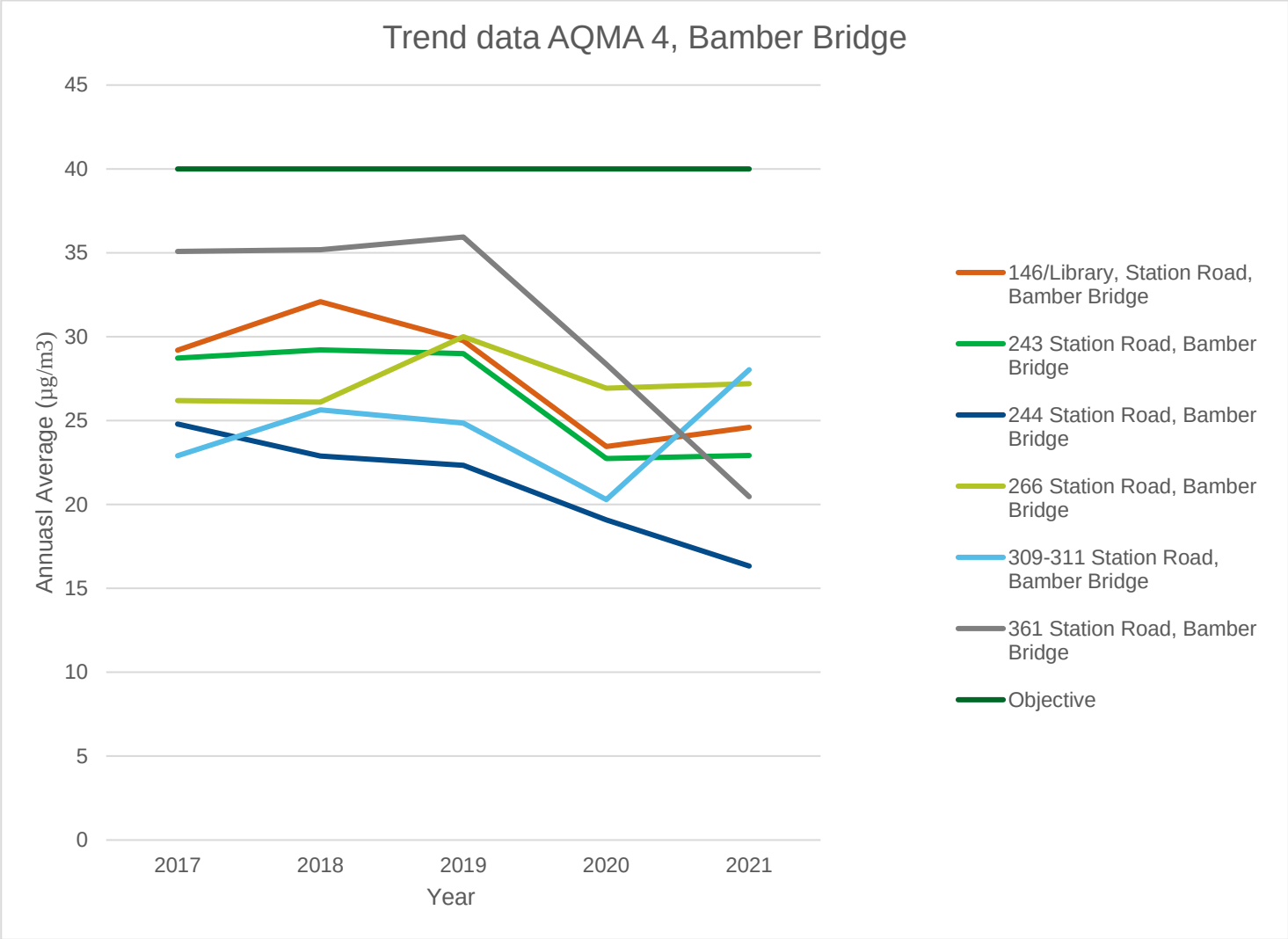
AQMA2 – Walton-le-Dale



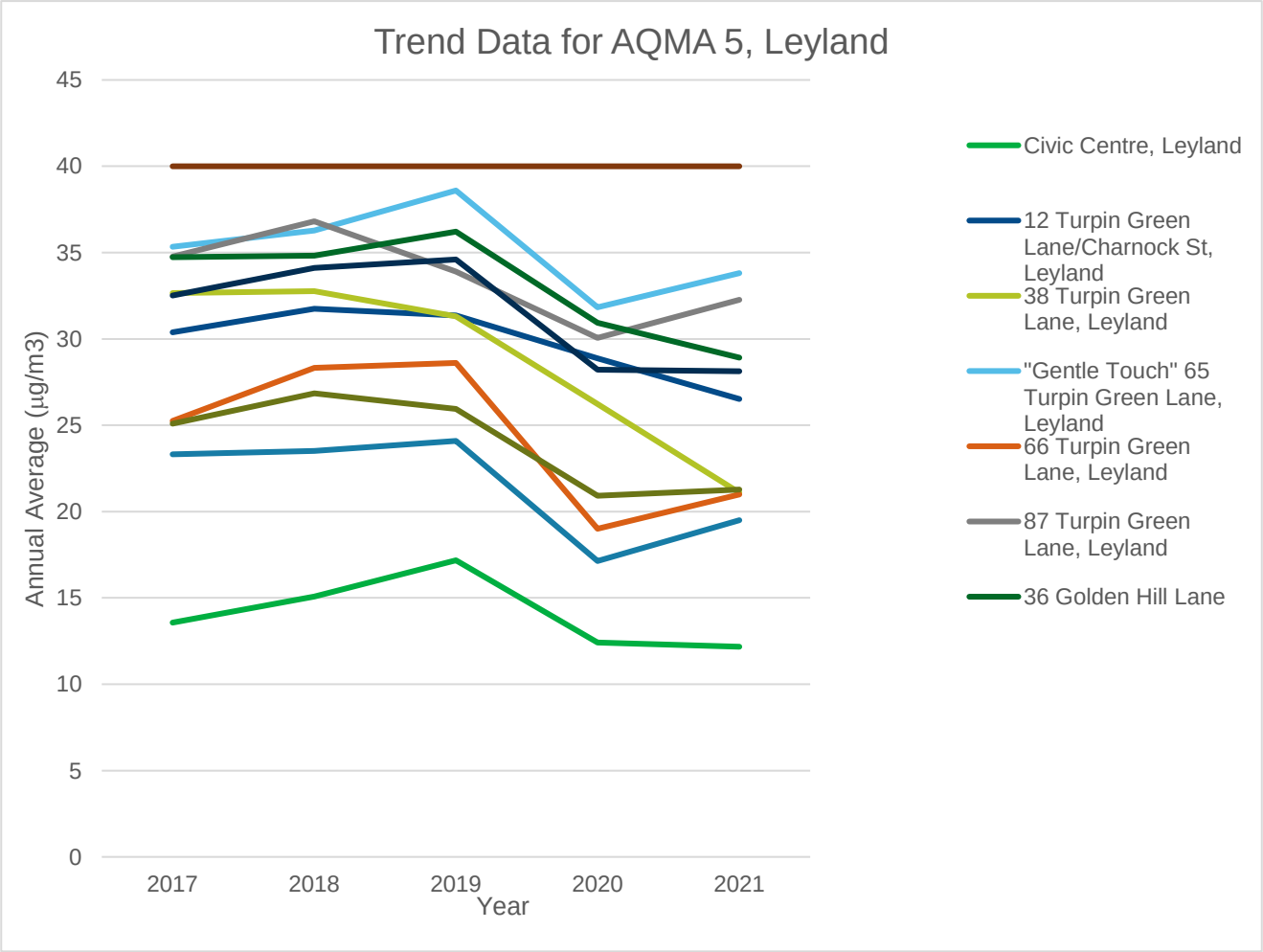
AQMA 3 – Lostock Hall



AQMA 4 – Bamber Bridge



AQMA 5 – Leyland



Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (x,x)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	353626	421783	20.4	19.3	10.4	14.3	11.7	9.6	11.1	9.4	14.8	14.0	18.2	19.3	-	-	-	
2	353626	421783	25.0	18.9	13.2	14.8	11.2	10.1	11.4	9.4	14.4	13.0	17.7	21.1	-	-	-	
3	353626	421783	22.1	18.9	13.9	13.6	11.3	9.9	9.8	8.8	14.9	13.7	17.7	20.8	14.7	12.2	-	
4	354527	422371	43.0	40.7	30.3	30.9	29.0	24.3	24.3	21.2	34.7	33.0	35.8	36.4	32.0	26.5	-	
5	354588	422269	46.0	28.1	34.5	31.0	31.2	27.5		24.5	19.1	6.7	14.3	16.8	25.4	21.1	-	
6	354678	422249	49.4	38.7	40.6	47.6	39.5	39.1	41.5	36.2	45.2	32.7	44.6	33.9	40.7	33.8	-	
7	354730	422212	36.0	30.1	24.1	28.6	23.8	20.7	20.7	21.3	24.6	21.4	27.1		25.3	21.0	-	
8	354744	422231	45.6	34.4	38.9	43.8	37.2	37.6	38.8	37.4	43.4	32.3	44.4	32.7	38.9	32.3	-	
9	354438	422645	37.6	38.5	27.5	33.4	32.6	30.2	30.8	27.8	37.1	34.3	38.6	33.1	-	-	-	
10	354438	422645	45.4	41.0	37.6			26.9	33.7	28.7	39.9	35.6	41.4	38.2	-	-	-	
11	354438	422645	44.2	38.1				30.5	33.1	24.9	39.2	34.0	39.1	36.7	34.8	28.9	-	
12	353890	422654	41.2	41.9	33.0	32.4	29.8	29.5	27.8	25.8	36.9	35.0	40.5	38.2	-	-	-	
13	353890	422654	43.7	40.8	34.1	34.2	30.4	26.2	29.4	25.5	37.7	28.4	38.2	34.2	-	-	-	
14	353890	422654	40.0	41.7	31.2	33.1	27.3	27.6	30.0	26.7	39.4	34.5	36.7	37.0	33.9	28.1	-	
15	353048	422809	36.7	33.5	25.7	23.6	24.5	19.8	19.8	18.6	25.6	28.2	31.2	20.4	25.6	21.3	-	
16	352970	422796	38.5	26.4	23.2	26.4	23.2							24.5	27.0	19.5	-	
17	354515	425695	37.7	33.5		29.3	30.0	19.8		21.5	31.6	30.6	34.2	33.2	30.1	25.0	-	
18	354368	425783	39.9	27.6	29.8	33.0	31.3	27.2	31.3	26.6	34.8	29.7	27.3	31.0	30.8	25.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (x.x)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
19	354410	425835	40.9	30.7	28.8	36.9	32.0	32.4	35.6	29.0	37.3	34.8	37.4	31.6	33.9	28.2	-	
20	354353	425844	47.1	36.9	31.1	34.9	31.0	28.7	33.1	28.5	38.3	31.6	39.9	34.4	-	-	-	
21	354353	425844	45.4	35.6	29.0	35.8	31.3	29.1	30.1	26.6	36.9	31.0	40.1	32.1	-	-	-	
22	354353	425844		35.5	35.2	35.8	31.0	30.9	33.4	27.3	38.2	28.4	38.9	32.8	34.2	28.4	-	
23	354296	425903	38.9	36.0	21.9	34.2	27.9	25.4	24.9	24.2	31.8	27.5	31.0	32.0	29.6	24.6	-	
24	352122	428449			24.4	22.5	18.8	17.1	18.6	17.9	24.3	18.7	29.5	27.1	21.9	18.2	-	
25	351875	428427	34.2	26.3		17.9	17.8	14.3	14.0	13.7	21.8	18.0	22.8	22.6	20.3	16.9	-	
26	351884	428404	26.8	27.6		19.6	19.1	15.4	17.2	16.5	25.2	20.8		23.4	21.2	17.6	-	
27	351947	428434	32.9	26.8	20.8	21.0	17.7	14.1	14.9	15.3	24.5	16.7	22.7	28.4	21.3	17.7	-	
28	351947	428434	31.7	32.6	23.1	18.7	17.0	15.1	15.4	13.8	23.5	18.0	23.0	26.5	21.5	17.9	-	
29	351879	426964	21.7			15.5	11.4	10.3	12.3	11.0	17.2	16.3		20.2	15.1	12.5	-	
30	351880	426962	29.4	26.6		34.5	21.7	18.7	19.9	23.1	31.3	27.5	27.8	27.3	26.2	21.7	-	
31	355370	428571	32.7	29.5	29.9	26.6	30.9	24.0	28.8	24.9	32.5	33.3	35.2	32.9	30.1	25.0	-	
32	355429	428518	31.4	28.5	28.0	24.8	28.0	22.6	26.4	22.3	29.1	30.0	36.4	33.4	-	-	-	
33	355429	428518	33.4	28.3	26.2	25.1	28.6	20.0	3.5	22.2	30.7	32.2	31.2	31.5	-	-	-	
34	355429	428518	32.9	26.1	27.0	25.5	29.0	22.3	26.8	21.0	28.8	33.5	36.2	31.5	27.6	22.9	-	
35	355521	428467	33.6	29.1	26.4	29.5	30.7	26.6	30.1	28.3	33.9	29.6	33.9	37.0	30.7	25.5	-	
36	356437	426303	37.0	30.1			27.4	26.3	26.5	24.6	32.3	29.2	33.3		29.6	24.6	-	
37	356530	425840	34.1	29.3	27.4	26.2	25.9	20.6	22.5	21.9	29.4	30.3	32.4	31.7	27.6	22.9	-	
38	356506	425793			16.6		17.0	15.9	16.7	15.8	22.9	20.1	24.8	27.4	19.7	16.3	-	
39	356511	425692	39.0	36.1	32.1	26.3	27.4	26.1	29.8		32.7				31.2	27.2	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (x.x)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
40	356000	425578		41.7	32.5	34.8	33.4	30.0	30.5		36.7	34.3	40.3	23.5	33.8	28.0	-	
41	356426	425364	33.5	27.4	23.4	23.9	22.8	18.9	20.2	17.8	24.1	21.5	28.1	34.4	24.7	20.5	-	
42	353755	426827									19.5		28.4		-	-	-	

☒ **All erroneous data has been removed from the NO_2 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.**

☒ **South Ribble Borough Council confirm that all 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within South Ribble Borough Council During 2021

South Ribble Borough Council has not identified any new sources relating to air quality within the reporting year of 2021.

Additional Air Quality Works Undertaken by South Ribble Borough Council During 2021

South Ribble Borough Council has not completed any additional works within the reporting year of 2021.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes used by South Ribble Borough Council were supplied by Gradko Environmental Ltd, using a 50% TEA / Acetone solution. The Air Quality Review and Assessment website gives a bias adjustment figure of 0.83 for the 2021 data set.

No co-location study has been undertaken by South Ribble Borough Council, and so the national bias adjustment figure derived from the table below has been used to adjust all results obtained by South Ribble Borough Council. This bias adjust figure has been obtained from the June 2020 spreadsheet.

The results of the AIR NO_2 Proficiency Testing Scheme have not been released beyond March 2021 and a field inter-comparison exercise, precision survey indicated a good overall level of precision with collocated studies for the Gradko diffusion tubes.

The diffusion tube monitoring program has been completed generally in line with the 2021 Diffusion Tube Monitoring Calendar. All tubes were exposure for the minimum of 4 weeks with no tubes exposed for longer than 4.5 weeks.

Precision Summary Table

Diffusion Tube Preparation Method	2019 Good	2019 Bad	2020 Good	2020 Bad	2021 Good	2021 Bad
Gradko, 50% TEA in Acetone	27	0	19	1	14	0
Gradko, 20% TEA in Water	30	1	27	0	32	0
ESG Didcot / SOCOTEC, 50% TEA in Acetone	40	1	24	0	20	3
ESG Didcot / SOCOTEC, 20% TEA in Water	12	0	6	0	4	1
Staffordshire Scientific Services	17	0	15	0	13	1
Glasgow Scientific Services	9	2	2	7	1	5
Edinburgh Scientific Services	4	2	4	1	1	0
Milton Keynes Council	2	0	4	0	1	0
Tayside Scientific Services	1	0	1	0	1	0
Lambeth Scientific Services	8	1	8	2	4	1
West Yorkshire Analytical Services	1	1	0	0	0	0
Aberdeen Scientific Services	6	0	7	0	7	0
South Yorkshire Air Quality Samplers	3	0	1	0	1	0
ESG Glasgow, 50% TEA in Acetone	1	0	1	0	0	1
ESG Glasgow, 20% TEA in Water	1	0	1	0	0	1
Somerset County Council	9	0	10	0	2	0

Diffusion Tube Annualisation

Annualisation of two sites was required for the 2021 monitoring data. Details of these are provided below within Table C. 2. Data from the nearest automatic continuous analysers at Blackpool, Preston, Blackburn and Wigan has been used to determine a suitable correction factor for each site.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 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.

South Ribble Borough Council have applied a national bias adjustment factor of 0.83 to the 2021 monitoring data. A summary of bias adjustment factors used by South Ribble Borough Council over the past five years is presented in **Error! Not a valid bookmark self-reference.**.

The bias adjustment figure used has been obtained from the National Diffusion Bias Adjustment Factor Spreadsheet, for Gradko 50% in Acetone diffusion tubes for the year 2021, spreadsheet version 03/22.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	03/22	0.83
2020	National	06/21	0.83
2019	National	06/20	0.89
2018	National	03/19	0.92
2017	National	03/18	0.97

NO_2 Fall-off with Distance from the Road

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

No diffusion tube NO_2 monitoring locations within South Ribble Borough Council required distance correction during 2021.

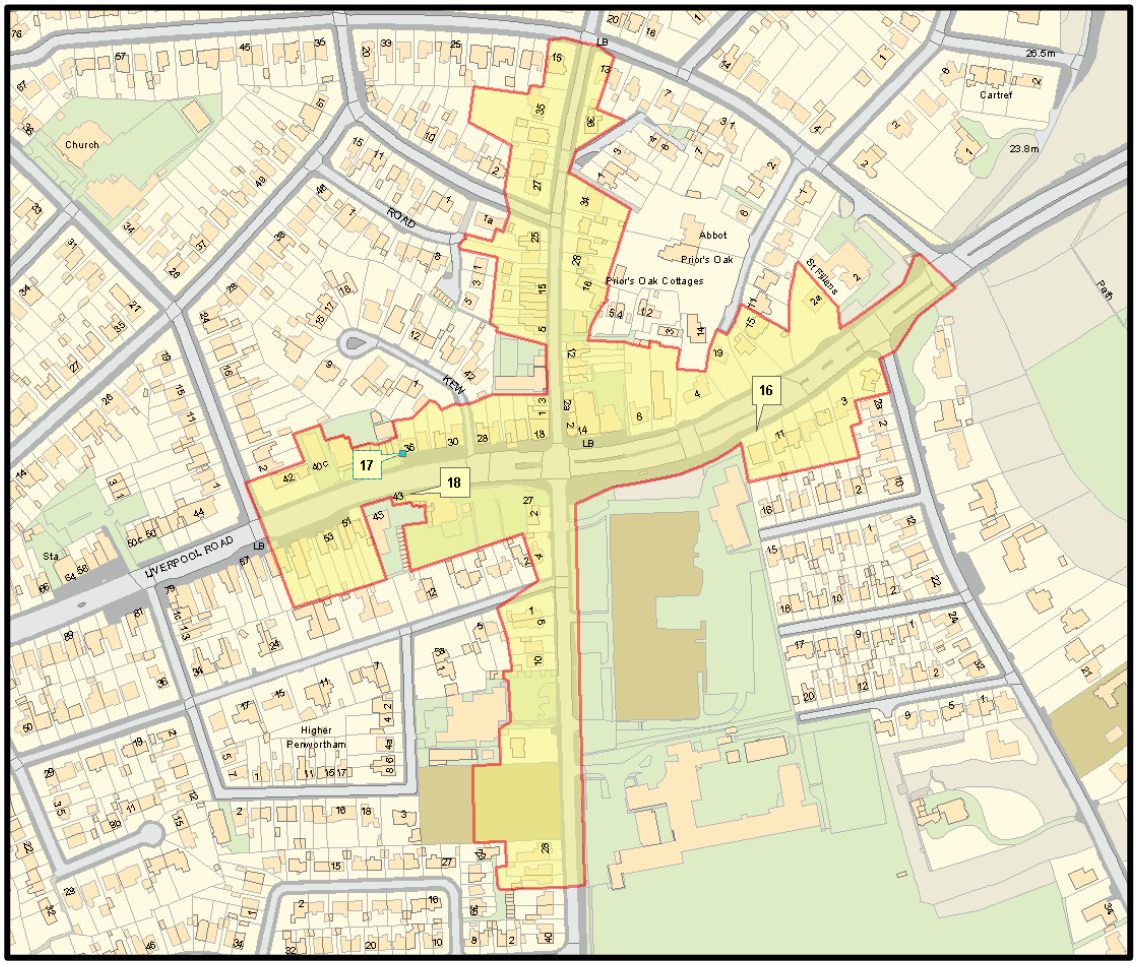
Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Blackpool	Annualisation Factor Preston	Annualisation Factor Blackburn	Annualisation Factor Wigan	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
16	0.8424	0.8780	0.9067	0.8501	0.8693	27.0	23.5	
39	1.0688	1.0359	1.0293	1.0680	1.0505	31.2	32.8	

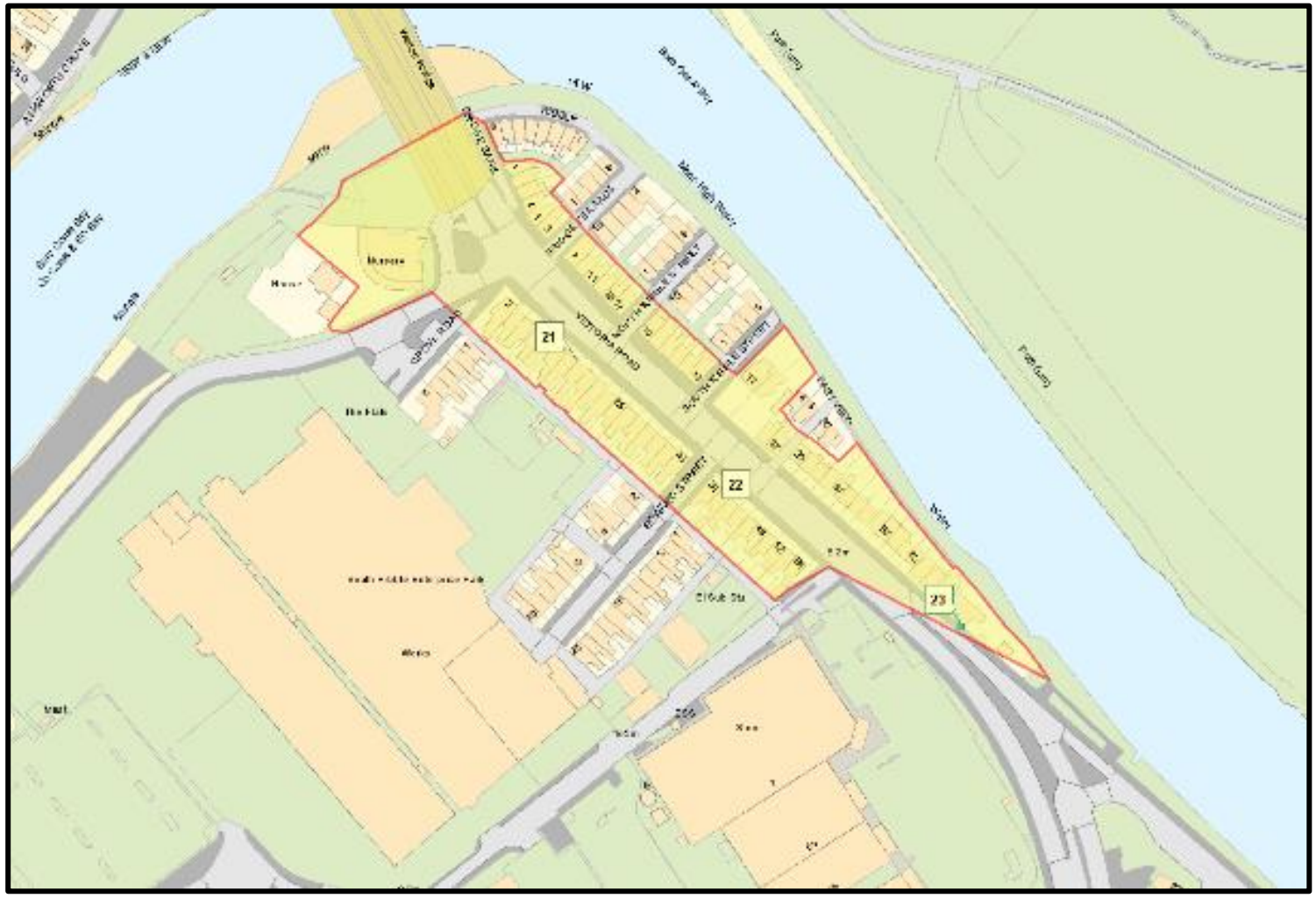
Appendix D: Map(s) of Monitoring Locations and AQMAs

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

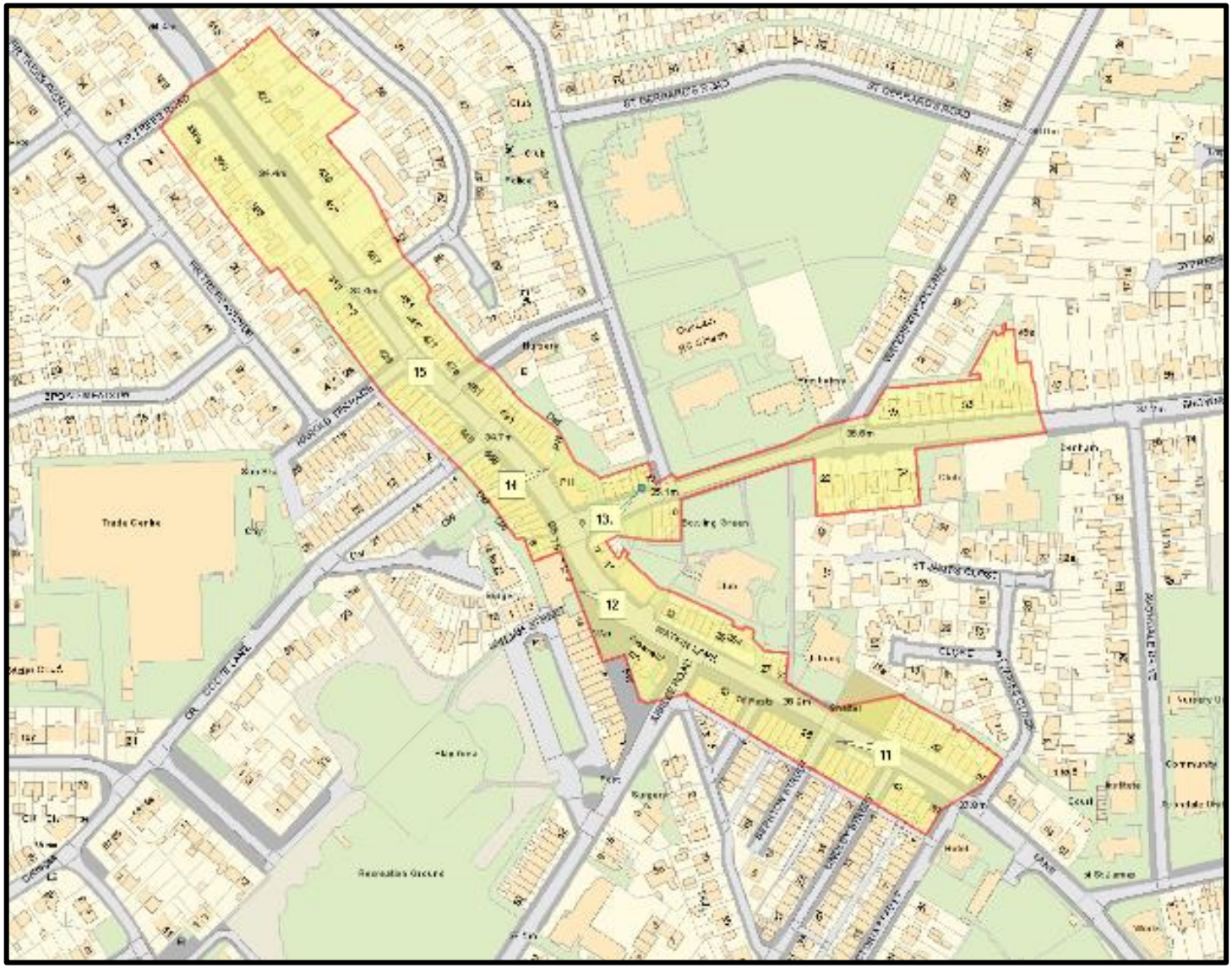
AQMA 1 – Penwortham



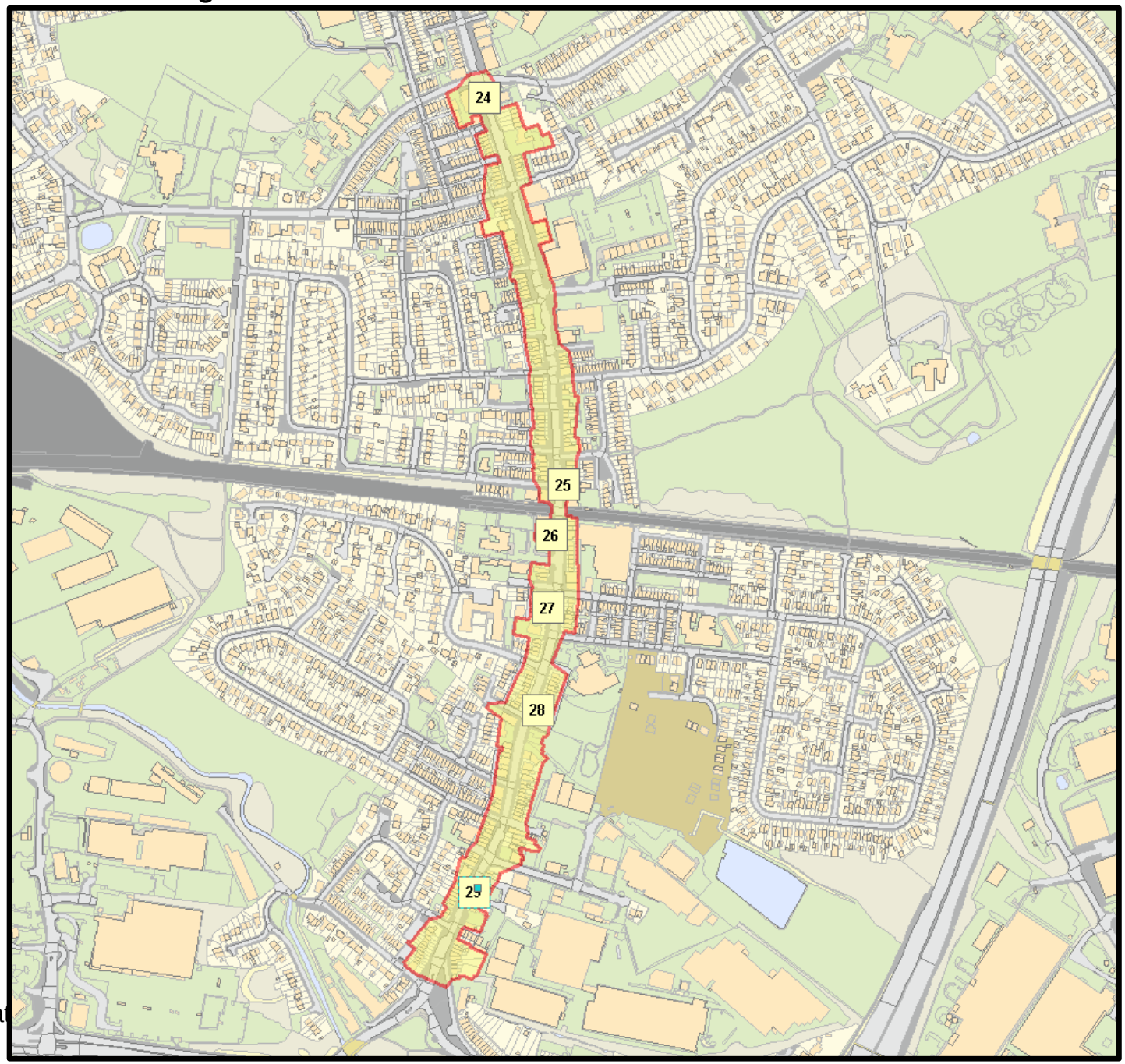
AQMA 2 – Walton-Le-Dale



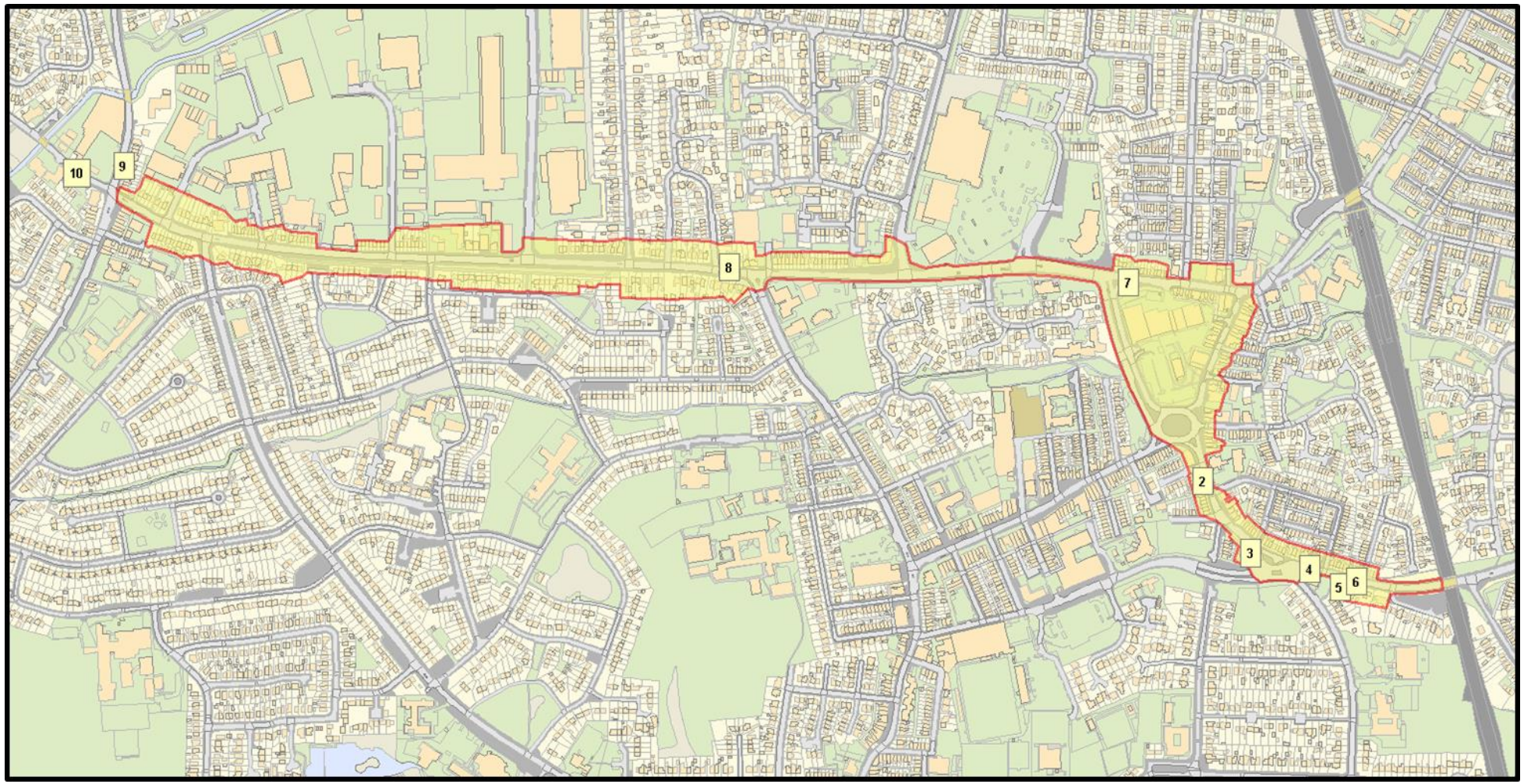
AQMA 3 – Lostock Hall



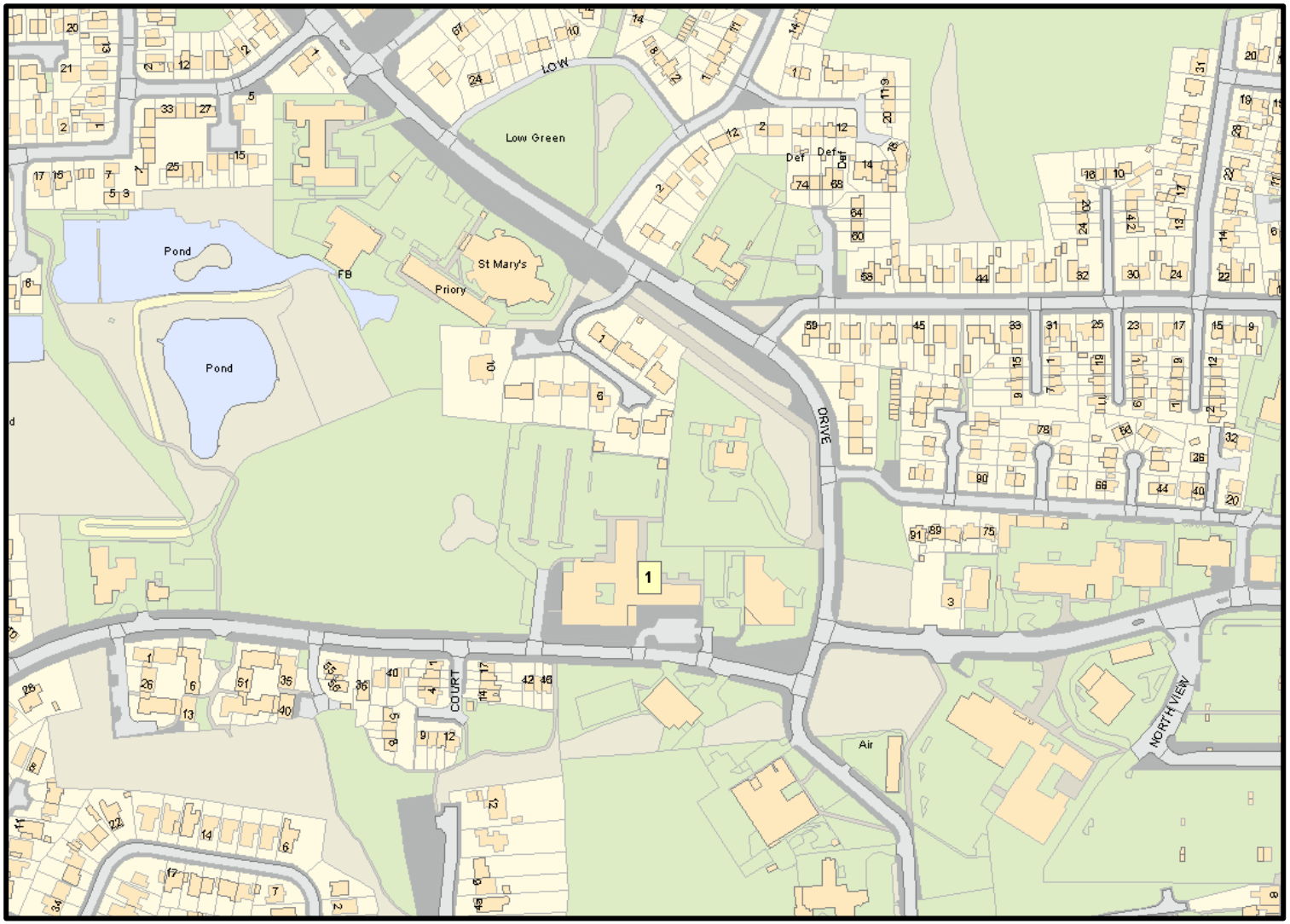
Bamber Bridge



AQMA 5 - Leyland



Leyland – Civic Centre


Low Green
Pond
Pond
FB
St Mary's
Priory
1
COURT
NORTH VIEW
Air

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[8]

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

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

Glossary of Terms

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

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