2024 Air Quality Annual Status Report (ASR)

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

Date: June, 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Chorley

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[1].

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[2].

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter (PM) is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

[1] UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

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

The principal pollutants of concern within Chorley are those associated mainly with traffic, these being Nitrogen Dioxide, and Particulate Matter. The Council currently monitors Nitrogen Dioxide emissions via a network of diffusion tubes and currently has no declared Air Quality Management Areas within the Borough.

Available trend data over the last five years indicates that levels have generally reduced but have now stabilised. The reduction was likely because of the Covid-19 pandemic on traffic flows up to 2021 and increased take-up of electric vehicles. The results from 2023 show no areas of exceedance or near exceedance of the national objectives within the Borough. The areas with the highest readings correspond to the section of the A6 entering Chorley town centre from the north (CH60, CH61 and CH62). Three additional monitoring sites were introduced in 2023 and do not yet have sufficient data available to ascertain a definite trend, this will be kept under review.

During 2023 the evidence identifying the harmful effects of both Particulate Matter and Nitrogen Dioxide has continued to build. Chorley Council is committed to improve local air quality by working:

- With partners to improve public health and the environment under the Local Air Quality Management regime.
- With South Ribble and Preston Councils to improve and maintain the air quality in the Central Lancashire Local Plan for our areas.
- With Lancashire County Council to increase the availability and attractiveness of active travel options and equitable access to electric vehicle charging infrastructure.

Actions to Improve Air Quality

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

The Environmental Improvement Plan[3] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for

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

fine particulate matter ($PM_{2.5}$), the pollutant of most harmful to human health. The Air Quality Strategy[4] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[5] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

During 2023 Chorley Council continued working towards both our Clean Air Strategy and Climate Change Strategy to reaffirm our commitment to the Climate Emergency which was declared in November 2019. There is some crossover between the Clean Air Strategy and the Climate Change strategy. Therefore, for consistency and accountability some actions were reviewed and incorporated elsewhere. The Clean Air Strategy is available on the Council's Air Quality website, using this link to the Chorley Air Quality webpage.

Chorley marked Clean Air Day 2023 with social media posts and suggestions for residents to get involved in our Air Quality programme. The Council also launched an online public portal for residents to view real-time air quality data from our three EarthSense Zephyr monitors and continues to promote "Ready to Burn" and smoke control campaigns.

A number of work programmes were carried out to promote sustainable travel across the Borough, including through the development of the Central Lancashire Local Plan, promoting flexible and homeworking to reduce commuting and avoidable travel and adopting a hybrid-working charter.

Improving access to Electric Vehicles charging options is on-going and options are being considered to cater for residents who do not have their own off-street parking, so that they can access suitable electric vehicle charging infrastructure.

Chorley Council is a member of the AQHub and LGA network groups for Air Quality to share best practice and learning from other local authorities.

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

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[4] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

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

- Review Clean Air Strategy and Climate Change Strategy to improve air quality.
- Continuing with the diffusion tube monitoring programme
- Review the performance of continuous air quality Zephyr monitors.
- Continue to consider air quality for all relevant planning applications.
- Continue to liaise with colleagues across the Council and with South Ribble and Preston City councils to develop the revised Central Lancashire Local Plan
- Encourage greater use of public transport and alternative forms of travel, including the provision of electric vehicle charging 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
- Through the Climate Emergency work we will continue to embed air quality actions and improvements through the Council's operations
- Working with third sector partners to encourage active travel and make our greens spaces more inviting.
- Work with Lancashire County Council and the Highways Authority on improved active travel infrastructure and representing Chorley in the development of the Local Cycling and Walking Infrastructure Plan.

Conclusions and Priorities

The results from the 2023 monitoring programme and review of the government data have identified no areas of likely exceedances of the national objective values for any of the pollutants of concern. The monitoring programme has identified that nitrogen dioxide levels are low across the Borough at sensitive receptor locations.

All existing monitoring locations have shown a stabilisation in Nitrogen Dioxide concentrations on previous years. The monitoring sites introduced in 2021 also appear stable, and three new locations were added for 2023.

Chorley Council will continue to monitor the NOx readings along the A6 passing through Chorley town centre, as this is an area of higher readings in comparison to others. As a priority over the coming months the Council will continue to work with partner organisations on ways to reduce PM pollution across the Borough, and with neighbouring local authorities on the development of the Central Lancashire Local Plan to include

guidance for developers. The document is required to ensure all developments adequately address air quality impacts.

In addition, Chorley Council have relaunched the Clean Air Strategy to drive forward air quality improvements throughout the Borough and will be working on a number of actions to achieve this. Monitoring locations will also continually be reviewed to maintain their relevance.

Local Engagement and How to get Involved

Chorley Council welcome scrutiny and suggestions from residents about our Air Quality monitoring programme. To get involved in work to tackle air pollution within Chorley Borough; or for more information on how to reduce your personal emissions, please contact Chorley Council Environmental Health Department on 01257 515151 or e-mail contact@chorley.gov.uk.

Air Quality is an issue that everyone can take responsibility for and make small changes to achieve improvements. Further information is available on the Council's Air Quality website, using this link to the Chorley Air Quality webpage, and our Climate Change website, using this link to the Chorley Climate Change webpage.

Further opportunities to voice opinions on air quality, climate change and the environment are regularly posted on our online consultation portal, link to Citizen Space. Over the past year opportunities to get involved included suggestions for new air quality monitoring locations and how the Council can better enable active travel across the Borough.

Our social media pages also regularly suggest ways we can all minimise our air quality and wider environmental impact.

Chorley Borough has many cycle routes that can be used for commuting as well as leisure purposes. More information can be found on the Check Out Chorley website: Link to Check Out Chorley.

Chorley Borough has good train connections to the rest of the North West, from railway stations at Chorley, Buckshaw Village, Euxton, Adlington, Croston and Bamber Bridge, which offer alternatives to driving. National Rail provides timetabling information (Link to National Rail website) and money saving offers for choosing rail travel (Link to offers by train by National Rail).

Lancashire County Council are responsible for public transport in our area with information available on their website: Link to Lancashire County Council public transport website.

Local Responsibilities and Commitment

This ASR was prepared by the Public Protection service of Chorley Council with the support and agreement of the following officers and departments:

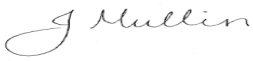
Spatial Planning

This ASR has been approved by:

Endorsed By: Chris Sinnott, Chief Executive Chorley Council

Signature: 

Endorsed By: Jennifer Mullin, Director of Communities

Signature: 

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

If you have any comments on this ASR please send them to Chorley Council at:

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1 Local Air Quality Management

This report provides an overview of air quality in in Chorley during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Chorley Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

Chorley Council currently does not have any declared AQMAs. A local Air Quality Strategy is in place to prevent and reduce polluting activities. The Local Air Quality Strategy is available on the Council's website, using this link to the Chorley Air Quality webpage.

2.2 Progress and Impact of Measures to address Air Quality in Chorley

Defra's appraisal of last year's ASR concluded that the report was well structured, detailed, and provided the information specified in the Guidance. Chorley Council is grateful for the feedback received and has noted the following comments which were provided to help inform future reports:

- The Council continues to include and respond to comments from previous ASRs. This is welcomed and encourage for future reports.
- The Council continues to prioritise air quality despite not having a formal AQAP. It is encouraging to see that the Council has implemented an Air Quality Strategy, which is required of councils without an AQMA from 2023.
- The council has clearly and concisely laid out their priorities for the upcoming year. This is useful.
- The council has provided a long list of measures that are currently being actioned to combat $PM_{2.5}$ in the borough. This is great to see.
- The council has included a good section regarding new developments in the borough. It is encouraging to see the council monitor developments in the borough.
- The council has robust QA/QC procedure and has included the relevant information and calculations. However, it would be beneficial to include a screenshot of the bias adjustment factor spreadsheet for reference.
- There are several places where pollutants and units are not appropriately subscripted or superscripted, in text and tables. Whilst this does not affect the readability of the report, the council should check future reports for such errors.

Chorley Council has taken on-board the comments from the previous ASR submission and has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality.

Details of all measures completed, in progress or planned are set out in Table 2.1. 13 measures are included within Table 2.1, with the type of measure and the progress Chorley Council have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

More detail on these measures can be found in their respective Action Plans Clean Air Strategy and Climate Change Strategy. Key completed measures are:

- Updated Air Quality Strategy and published online, along with website refresh, to detail Chorley Council's activities and advice for residents. (Measure 13)
- Appraisal of the functioning of our EarthSense Zephyr PM monitors and launched a public data portal, to gain an understanding of the local PM_{10} and $PM_{2.5}$ concentrations. (Supporting multiple Measures)
- Rolled out electric vehicles for Council Streetscene and Environmental Health to replace diesel vans. (Measure 3)

Chorley Council expects the following measures to be completed over the course of the next reporting year:

- Review and update Chorley Council's Climate Change strategy to integrate air quality improvement co-benefits. (Measure 13)
- Work to improve access to electric vehicle charging options – Feasibility studies received, and a car park trial planned. (Measure 6)

Chorley Council's priorities for the coming year are continuing to support Local Plan development, work to promote active travel alternatives and access to electric vehicle charging points for residents.

Chorley Council worked to implement these measures in partnership with the following stakeholders during 2023:

- Neighbouring local authorities
- The Highways Authority

The principal challenges and barriers to implementation that Chorley Council anticipates facing are lack of resources both internally and from partner organisations.

Progress on the following measures has been slower than expected due to:

- Develop engagement strategy to support air quality across the Borough – Slowed due to staff absence, potential to combine with Climate Change work. (Measure 4)
- Improved access to Electric vehicles Charging options - Slowed due to increase in cost projections, work will be trialled on small-scale and reassessed. (Measure 6)
- Local Plan Development – Affected by challenges in the relevant team. (Measure 1)
- Local Cycling Walking Infrastructure Plan – Working to timescale of Lancashire County Council. (Measure 12)

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Local Plan Development	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2020	2024	Preston City Council, South Ribble Borough Council and Chorley Council	Existing Budgets	NO	Partially Funded	£50k - £100k	Implementation	Reduced Emissions	Inclusion within the Central Lancs Plan	Central Lancs Local Plan progressing across the 3 LA's with Part One preferred Options consultation complete. Work being taken forward.	Developers' reluctance to implement planning policy guidance. Timescale extended to external factors affecting progress by Local Plan Team.
2	Introduction of Air Quality and Climate Change Strategy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020	2022	Chorley Council	Existing Budgets	NO	Not Funded	< £10k	Completed	Reduced Emissions	Adoption of air quality and climate change strategy	Held public consultation and refreshed website. Individual action planning under development	Focus of the Strategies will be to promote and support behavioural change and sustainable development
3	Plan to progress the Council's conversion to electric vehicles	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2020	2024	Chorley Council	Existing Budgets	NO	Partially Funded	£500k - £1 million	Implementation	Reduced Emissions	Implementation	Develop a plan to progress the Council's conversion to electric vehicles. Some electric vans purchased and in-use.	Cost of EV vehicles. Needs assessment of suitability for intended use
4	Develop an engagement strategy to support the AQ agenda across the borough	Public Information	Other	2022	2023	Chorley Council	Existing Budgets	NO	Not Funded	< £10k	Implementation	Reduced Emissions	Implementation	Produced calendar of AQ activities, e.g. ASR publication, "Clean Air Day" and "Ready to Burn" campaigns for council social media channels.	Resistance from residents and businesses. Concerns over conflict with Cost of Living. New legislation and Guidance from Central Government needed.
5	Promote flexible and homeworking to reduce commuting and avoidable travel	Promoting Travel Alternatives	Encourage / Facilitate homeworking	2021	2022	Chorley Council	Existing Budgets	NO	Not Funded	< £10k	Completed	Reduced staff travel	Implementation	Adopted a hybrid-working charter, incorporated into business plan by service leads.	Public accessibility to Council services and staff. Availability of homeworking equipment.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
6	Improved access to Electric vehicles Charging options	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2021	2023	Chorley Council	Existing Budgets + External Grants	NO	Partially Funded	£10k - 50k	Implementation	Reduced Emissions	Reliable EV charging network across Borough	Feasibility studies complete. Review car park charging policy relating to EV's.	Cost of EV vehicles. Availability of space for EV charging points. Cost of electricity supply.
7	Cycle parking, repair and changing facilities	Promoting Travel Alternatives	Promotion of cycling	2022	2024	Chorley Council	Existing Budgets + External Grants	NO	Partially Funded	< £10k	Planning	Reduced Emissions	Implementation	Developing plans following active travel consultation. Sites identified for secure storage pods with potential for ebike charging.	Cost and identifying suitable locations. Resistance from residents and businesses.
8	Complete and evaluate the trial use of hydrogenated vegetable oil (HVO) fuel throughout Council fleet	Freight and Delivery Management	Other	2022	2024	Chorley Council	Existing Budgets	NO	Partially Funded	< £10k	Completed	Reduced Emissions	Completed review	Initial trial carried out on a bin lorry. Trial now on indefinite pause due to rising cost of HVO and evaluation of availability of sustainable material.	Cost of HVO. Performance in standard diesel engines. Maintenance costs. Sustainability of the fuel.
9	Bonfires and dark smoke offences	Public Information	Other	2022	2024	Chorley Council	Existing Budgets	NO	Not Funded	< £10k	Planning	Reduced Emissions	Implementation	Assessing implication of Environment Act on enforcement. Creating internal training document and guidance for Environmental Health Officers	Resistance from residents and businesses. Concerns over conflict with Cost of Living.
10	Health based campaigns	Public Information	Other	2022	2024	Chorley Council	Existing Budgets	NO	Not Funded	< £10k	Planning	Reduced Emissions	Implementation	Developing strategy across Council involving Health Protection and Communications officers	Resistance from residents and businesses. Concerns over conflict with Cost of Living.
11	Potential for cycle couriers	Freight and Delivery Management	Freight Partnerships for city centre deliveries	2023	2025	Chorley Council	Existing Budgets	NO	Not Funded	< £10k	Aborted	Reduced Emissions	Ecargo bike(s) in use	Aborted due to cost of scheme and whether priority for the Council at the current time	Resistance from residents and businesses. Unsuitable for proposed tasks.
12	Lancashire Local Cycling and Walking Infrastructure Plan	Promoting Travel Alternatives	Other	2022	2024	Lancashire LA's	Existing Budgets	NO	Not Funded	< £10k	Planning	Reduced Emissions	Implementation of plan by Lancashire County Council	Chorley have provided comments and resident views on draft plan to ensure representation	Cost and identifying suitable locations. Resistance from residents and businesses.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
															Priorities of LCC Highways Authority.
13	Review Air Quality and Climate change Strategies	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2023	2025	Chorley Council	Existing Budgets	NO	Partially Funded	< £10k	Planning	Reduced Emissions	Implementation	Review of AQ strategy in 2023. Potential to merge and enhance during review of CC strategy. Review has included refreshing advice and information available on council website.	Focus of the Strategies will be to promote and support behavioural change and sustainable development. Potential barriers due to staff workload and budget availability.

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[6], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter ($PM_{2.5}$). There is clear evidence that $PM_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Chorley Council is taking the following measures which will either address $PM_{2.5}$ directly or as a co-benefit of other measures. Where applicable, reference to specific measures in Section 2.2 above is shown in **bold**:

- Continued implementation of the Clean Air and Climate Change Strategies which contains actions that have co-benefits for reducing $PM_{2.5}$ (e.g. decarbonisation of heating and development of local EV strategy). (**1, 2, 3, 13**)
- Chorley promotes national campaigns such as “Clean Air Day/Night”, “Ready to Burn”, DEFRA’s “Burn Better” and “Burnright”. (**4, 9, 10**)
- Developing a public engagement strategy to support the air quality agenda across the Borough to raise awareness with residents on how to make better choices to prevent $PM_{2.5}$ (e.g. reducing solid fuel burning, choosing active travel options etc.). This includes health-based campaigns. (**4, 10**)
- Chorley’s Health Protection Officer previously undertook some preliminary research on the local health context of $PM_{2.5}$ on residents. Calculations using 2015-2017 data suggest that the 'premature mortality' rate in Chorley Borough attributable to all particulate matter is 13.5 per 100,000 population. This compares to 13.9 in Lancashire-12, and 16.9 in England. It was not possible to identify more detailed local correlations due to confounding factors or lack of data broken-down to ward level. (**10**)
- Working in conjunction with neighbouring local authorities we have introduced a Public Spaces Protection Order to prevent West Pennine Moorland fires. (**4, 9)**

[6] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

- Chorley Council have concluded the trial roll-out of PM monitoring using EarthSense Zephyr continuous automatic particulate monitors at three locations across the borough. Though this system is not approved for inclusion in the ASR or certified using the Environment Agency's Indicative instrument certification scheme, the data collected is providing qualitative data on the scale of the issue, particulate pollution trends and a benchmark against which to measure progress. (**4, 10, 13**)
- An appraisal report was produced in 2023, using data collected during 2022, and concluded that particulate matter levels meet our obligations under UK local air quality management guidance and do not exceed Air Quality Objective limits. Furthermore, there are no exceedances of World Health Organisation Interim Target 4 for PM. The report is included as an addendum. (**4, 9, 10, 13**)
- At the three monitoring locations we recorded PM_{10} annual mean concentrations of 10–14 $\mu g.m^{-3}$ and $PM_{2.5}$ concentrations of 7-9 $\mu g.m^{-3}$. The highest 24-hour mean concentrations across the three sites recorded were 50 $\mu g.m^{-3}$ for PM_{10} and 47 $\mu g.m^{-3}$ for $PM_{2.5}$.
- DEFRA background maps for 2023 suggest $PM_{2.5}$ concentrations of 6-8 $\mu g.m^{-3}$ across the Borough, of which ~53% is from secondary sources, ~31% residual and salt sources, ~8% from domestic heating, ~4% from industry, ~2% from transport sources and ~2% point sources.
- To support this work a public portal has been launched allowing residents to view live air quality data from the EarthSense monitors (link to the online portal). (**4, 10**)
- Of the transport sources, the motorway network is currently a large source of PM pollution. The exposure from the M6, M61 and M61 will likely reduce in-line with national targets and standards for vehicles. (**3, 6, 7, 12**)
- During 2024 the location and operation of the EarthSense sensors will be validated against PAS 4023:2032 (Selection, deployment, and quality control of low-cost air quality sensor systems in outdoor ambient air – Code of practice, BSI). (**13**)
- Promoting flexible and homeworking to reduce commuting and avoidable travel. (**5**)
- Investing in secure cycle parking to reduce personal car use. (**7, 11, 12**)
- Proactively inputting into Lancashire Local Cycling and Walking Infrastructure Plan to increase attractiveness and safety of walking, cycling, and wheeling. (**12**)
- Chorley Council acknowledge that there are some concerns regarding increased $PM_{2.5}$ emissions from the tyre and brake dust of Electric Vehicles and alternative

fuels, though there are beneficial reductions in NO_x and CO_2. This is under constant review and responsive to national guidance. (**6, 8**)

- Chorley Council engages with UK government on this issue and provided a response to the Air Quality Strategy Consultation in April 2023, as well attended DEFRA webinars and feedback sessions on smoke control and air quality. (**9**)

Chorley has three smoke control areas, details of which can be found using this link to the Noise, nuisance and environmental complaints section of the website. In 2023, no enforcement activity was carried out. Currently the Council finds that homeowners are receptive to the initial advice provided following a complaint, so no further action was required. Property owners will continue to be encouraged to use authorised fuels, to burn better and to improve their home energy efficiency before financial penalties are considered. A review of the Smoke Control Areas in Chorley will be completed in the future.

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

This section sets out the monitoring undertaken within 2023 by Chorley Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Chorley Council undertook indicative automatic (continuous) monitoring at three sites during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites.

This system uses Zephyr continuous air quality monitors provided by EarthSense Systems Limited.

The data collected from these monitors are not certified for compliance reporting against the Ambient Air Quality Directives using the Environment Agency's Indicative instrument certification scheme and not able to be presented as such in the ASR.

The data from the EarthSense automatic monitors are presented below in order to give an indicative view of the pollutant levels across the Borough and are provided for the purposes of transparency.

This link to the online portal page presents real-time automatic monitoring results for Chorley Council. They are not available through the UK-Air website.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Chorley Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 42 sites during 2023. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 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).

The data from the EarthSense automatic monitors are presented below in order to give an indicative view of the pollutant levels across the Borough and are provided for the purposes of transparency. These readings do not replace the diffusion tube network.

For diffusion tubes, the full 2023 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.

Table A.5 in Appendix A is not used, as Chorley Council does not collect data to compare the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3. However, based on available data, no exceedances of this objective are expected.

There are no exceedances of the air quality objectives, either by the annual mean concentrations of 40µg/m^3 or any tube result exceeding 60µg/m^3, which indicates that an exceedance of the 1-hour mean objective is unlikely.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

Chorley Council continues to monitor PM_{10} and $PM_{2.5}$ levels as part of the Zephyr continuous air quality monitor trial. The data from the EarthSense automatic monitors are presented below in order to give an indicative view of pollutant levels across the Borough and are provided for the purposes of transparency. These readings will support our on-going work regarding PM pollution across the Borough.

A confirmatory check of the Defra background maps indicates no likely exceedances of the objective levels for these pollutants.

Indicative monitoring data collected over the past two years shows PM_{10} annual mean concentrations of less than 15µg/m^3 at the three monitoring locations. For 2023, there were no days when the air quality objective of 50µg/m^3 was exceeded.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

Chorley Council continues to monitor PM_{10} and $PM_{2.5}$ levels as part of the Zephyr continuous air quality monitor trial. The data from the EarthSense automatic monitors are presented below in order to give an indicative view of pollutant levels across the Borough and are provided for the purposes of transparency. These readings will support our on-going work regarding PM pollution across the Borough.

A confirmatory check of the Defra background maps indicates similar concentrations for these pollutants.

Indicative monitoring data collected over the past two years shows $PM_{2.5}$ annual mean concentrations of less than 10µg/m^3 at the three monitoring locations.

3.2.4 Sulphur Dioxide (SO_2)

Chorley Council does not monitor SO_2 levels, a check of the Defra background maps indicates that there are no likely exceedances of the objective levels for this pollutant.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CH05	Adlington	Roadside	360086	413012	NO, NO_2, O_3, PM_{10}, $PM_{2.5}$, PM_1	NO	Optical particle counter	0.5	1.5	2.5
CH51	Clayton - le - Woods	Roadside	355697	422432	NO, NO_2, O_3, PM_{10}, $PM_{2.5}$, PM_1	NO	Optical particle counter	3.5	2	2.5
CH59	Chorley	Roadside	358448	418540	NO, NO_2, O_3, PM_{10}, $PM_{2.5}$, PM_1	NO	Optical particle counter	0.5	3	2.5

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 – 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)
CH35	St Thomas Road	Roadside	358145	417645	NO_2	No	3.0	3.2	No	2.5
CH23	Market St, Chorley	Roadside	358357	417297	NO_2	No	1.5	2.5	No	2.5
CH25	Bolton Street	Roadside	358518	417072	NO_2	No	0.5	1.8	No	2.5
CH36	Bolton Road	Roadside	358714	416839	NO_2	No	0.4	2.0	No	2.5
CH37	Bolton Road	Roadside	358830	416726	NO_2	No	0.0	2.2	No	2.5
CH38	Bolton Road	Roadside	359060	416468	NO_2	No	0.0	2.9	No	2.5
CH39	Duxbury Manor Gardens	Roadside	358933	415862	NO_2	No	0.0	13.0	No	2.5
CH65	Bolton Road, Heath Charnock	Roadside	359538	415419	NO_2	No	0.0	12.0	No	2.0
CH05	Market St, Adlington	Kerbside	360095	413089	NO_2	No	2.5	0.5	No	2.5
CH40	Devonshire Road	Roadside	358092	416925	NO_2	No	0.0	2.3	No	2.5
CH06	Moor Road	Kerbside	357436	416130	NO_2	No	8.5	0.5	No	2.5
CH42	Spendmore Lane – Coppull	Roadside	356547	414525	NO_2	No	0.0	5.5	No	2.5
CH43	Spendmore lane – Coppull	Roadside	356339	414150	NO_2	No	0.0	2.5	No	2.5

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)
CH44	Spendmore lane – Coppull	Roadside	356039	414054	NO_2	No	0.0	1.5	No	2.5
CH45	Preston Road Coppull	Roadside	355534	413755	NO_2	No	3.5	5.0	No	2.5
CH46	A49 Wigan Road South	Roadside	355540	418309	NO_2	No	7.5	2.0	No	2.5
CH08	Balshaw Lane	Roadside	355891	418467	NO_2	No	11.0	2.0	No	2.5
CH11	A49 Wigan Road South, Euxton Ln	Kerbside	355454	419317	NO_2	No	1.5	0.5	No	2.5
CH47	Buckshaw Avenue	Roadside	356464	420218	NO_2	No	4.5	2.0	No	2.5
CH63	Main Street, Buckshaw	Kerbside	356345	420733	NO_2	No	1.5	1.5	No	2.5
CH50	M6, Moss Lane	Roadside	355400	422696	NO_2	No	0.0	17.5	No	2.5
CH51	A49 Wigan Road - Lancaster Lane	Roadside	355697	422432	NO_2	No	3.8	2.0	No	2.5
CH52	A6 Preston Road – near M65	Roadside	357335	424499	NO_2	No	0.0	5.5	No	2.5
CH53	A6 Preston Road	Roadside	357902	423586	NO_2	No	5.0	1.0	No	2.5
CH32	M61, Ashdown	Roadside	358313	422937	NO_2	No	5.5	0.9	No	2.5
CH31	A6 Preston Road Clayton	Roadside	357879	423303	NO_2	No	1.2	2.9	No	2.5
CH17	A6 Preston Rd, Whittle	Kerbside	357936	422176	NO_2	No	0.5	4.0	No	2.5

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)
CH17A	A6 Preston Rd, Whittle	Roadside	357885	421524	NO_2	No	7.0	1.5	No	2.5
CH33	A6 Preston Road Whittle	Kerbside	358110	420361	NO_2	No	2.4	1.4	No	2.5
CH34	M61, Fallow Close	Kerbside	358568	420246	NO_2	No	3.3	0.5	No	2.5
CH54	A6 Preston Road	Roadside	358193	419909	NO_2	No	0.0	8.4	No	2.5
CH55	Blackburn Road	Roadside	359415	419740	NO_2	No	0.0	11.5	No	2.5
CH56	BOTANY BAY – Millennium way	Roadside	359110	419646	NO_2	No	320.0	2.0	No	2.5
CH19	A6, Chorley Hospital	Roadside	358335	419226	NO_2	No	10.0	4.0	No	2.5
CH24	Euxton Lane, Hospital	Roadside	358023	419151	NO_2	No	1.0	1.5	No	2.5
CH20	A6 South Chorley Hospital	Roadside	358325	418987	NO_2	No	13.0	1.0	No	2.5
CH58	A6 Preston Road	Roadside	358399	418579	NO_2	No	30.0	1.0	No	2.5
CH59	A6 Preston Road	Roadside	358448	418540	NO_2	No	0.0	3.0	No	2.5
CH60	Water Street	Kerbside	358541	417816	NO_2	No	2.0	0.5	No	2.5
CH61	Water Street	Roadside	358526	417847	NO_2	No	1.0	1.0	No	2.5
CH62	Water Street	Roadside	358566	418400	NO_2	No	6.0	1.0	No	2.5

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)
CH64	Brown Street	Kerbside	359064	417752	NO_2	No	10.0	0.5	No	2.5

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CH05	360086	413012	Roadside	98	98	-	-	-	-	17
CH51	355697	422432	Roadside	100	100	-	-	-	-	17.8
CH59	358448	418540	Roadside	100	100	-	-	-	-	16

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

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

☒ **Where exceedances of the NO_2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023.**

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**.

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
CH35	358145	417645	Roadside	84.6	84.6	-	-	21.6	18.1	18.9
CH23	358357	417297	Roadside	92.3	92.3	32.8	23.3	25.7	24.1	22.8
CH25	358518	417072	Roadside	92.3	92.3	25.7	26.2	20.8	18.0	18.4
CH36	358714	416839	Roadside	100.0	100.0	-	-	32.3	28.3	26.3
CH37	358830	416726	Roadside	100.0	100.0	-	-	28.1	23.4	22.9
CH38	359060	416468	Roadside	100.0	100.0	-	-	19.5	17.0	15.7
CH39	358933	415862	Roadside	100.0	100.0	-	-	11.3	10.1	10.0
CH65	359538	415419	Roadside	100.0	92.3	-	-	-	-	17.7
CH05	360095	413089	Kerbside	100.0	100.0	32.2	23.4	24.8	22.8	21.9
CH40	358092	416925	Roadside	100.0	100.0	-	-	13.8	12.1	11.9
CH06	357436	416130	Kerbside	92.3	92.3	27.1	22.0	21.9	19.4	19.9
CH42	356547	414525	Roadside	100.0	100.0	-	-	17.3	14.5	15.0
CH43	356339	414150	Roadside	92.3	92.3	-	-	20.3	18.1	18.3
CH44	356039	414054	Roadside	90.4	90.4	-	-	24.5	19.4	22.1

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 2023 (%) [2]	2019	2020	2021	2022	2023
CH45	355534	413755	Roadside	100.0	100.0	-	-	23.8	19.5	19.8
CH46	355540	418309	Roadside	100.0	100.0	-	-	27.6	22.6	21.9
CH08	355891	418467	Roadside	100.0	100.0	29.0	21.6	23.4	20.5	20.6
CH11	355454	419317	Kerbside	90.4	90.4	24.2	19.5	21.5	18.9	20.5
CH47	356464	420218	Roadside	100.0	100.0	-	-	17.8	16.7	15.7
CH63	356345	420733	Kerbside	100.0	92.3	-	-	-	-	11.1
CH50	355400	422696	Roadside	100.0	100.0	-	-	21.9	19.5	18.5
CH51	355697	422432	Roadside	100.0	100.0	-	-	27.1	22.2	22.3
CH52	357335	424499	Roadside	100.0	100.0	-	-	17.7	16.0	15.7
CH53	357902	423586	Roadside	100.0	100.0	-	-	29.7	24.0	24.0
CH32	358313	422937	Roadside	100.0	100.0	-	17.2	18.7	17.1	16.7
CH31	357879	423303	Roadside	100.0	100.0	-	16.9	18.7	17.8	16.5
CH17	357936	422176	Kerbside	100.0	100.0	-	-	23.9	19.9	19.5
CH17A	357885	421524	Roadside	92.3	92.3	27.0	20.3	20.5	19.5	17.9

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 2023 (%) [2]	2019	2020	2021	2022	2023
CH33	358110	420361	Kerbside	100.0	100.0	-	19.6	21.0	19.0	17.5
CH34	358568	420246	Kerbside	100.0	100.0	-	18.6	20.1	17.9	17.2
CH54	358193	419909	Roadside	100.0	100.0	-	-	18.4	18.0	15.2
CH55	359415	419740	Roadside	90.4	90.4	-	-	15.8	14.7	13.8
CH56	359110	419646	Roadside	67.3	67.3	-	-	23.8	18.6	18.9
CH19	358335	419226	Roadside	100.0	100.0	30.4	21.1	22.2	20.2	19.6
CH24	358023	419151	Roadside	100.0	100.0	31.4	23.7	26.7	24.4	24.1
CH20	358325	418987	Roadside	100.0	100.0	30.2	22.7	24.4	21.5	20.7
CH58	358399	418579	Roadside	92.3	92.3	-	-	33.3	26.0	26.1
CH59	358448	418540	Roadside	100.0	100.0	-	-	24.6	22.6	21.3
CH60	358541	417816	Kerbside	100.0	100.0	-	-	37.6	34.1	33.1
CH61	358526	417847	Roadside	100.0	100.0	-	-	32.1	30.2	29.2
CH62	358566	418400	Roadside	100.0	100.0	-	-	30.2	25.5	23.1
CH64	359064	417752	Kerbside	100.0	92.3	-	-	-	-	11.2

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

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

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

Notes:

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

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

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

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

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

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

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

Figure A.1a – Trends in Annual Mean NO_2 Concentrations Across Chorley North Sampling Sites

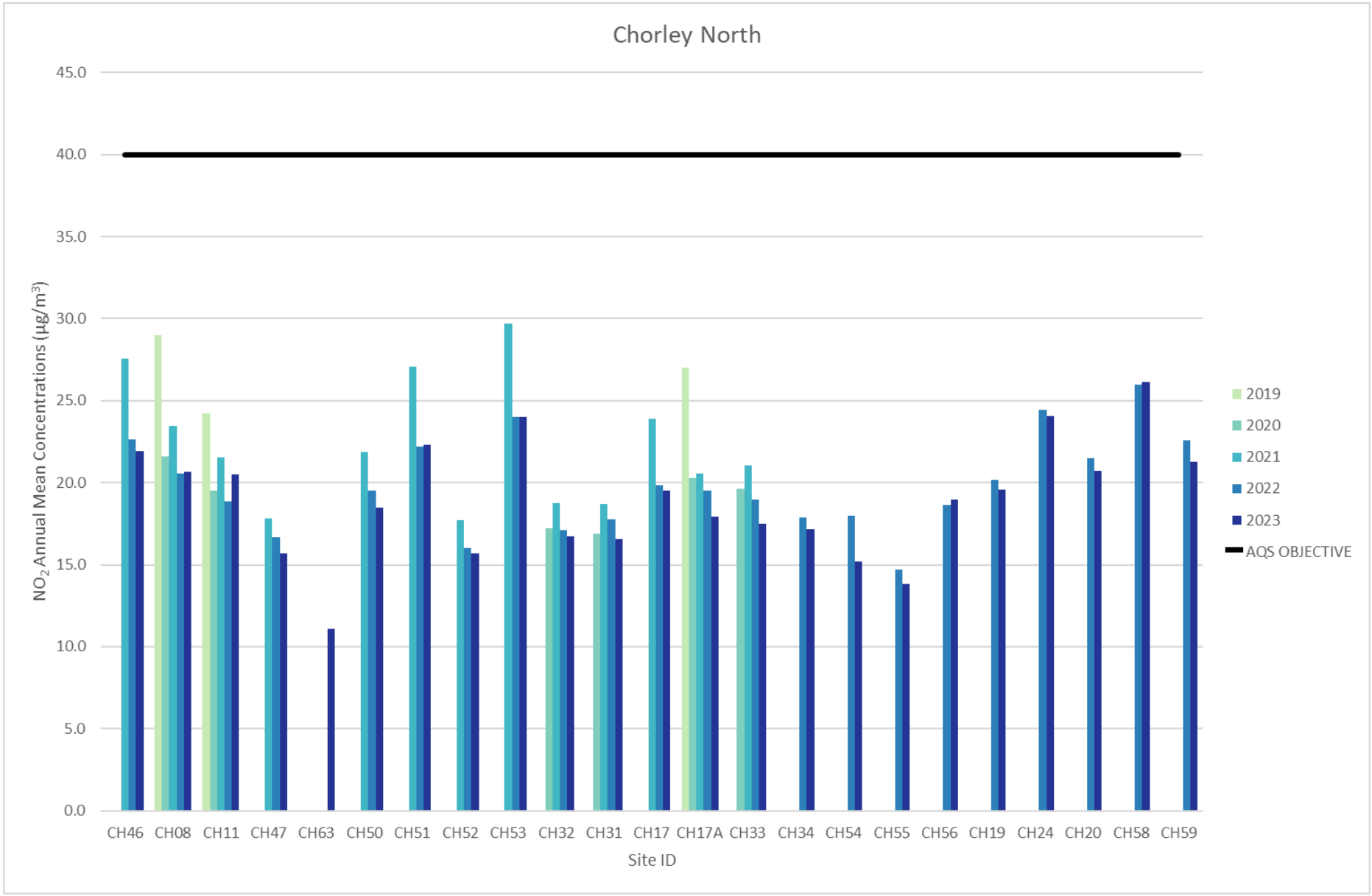


Figure A.2b – Trends in Annual Mean NO_2 Concentrations Across Chorley South Sampling Sites

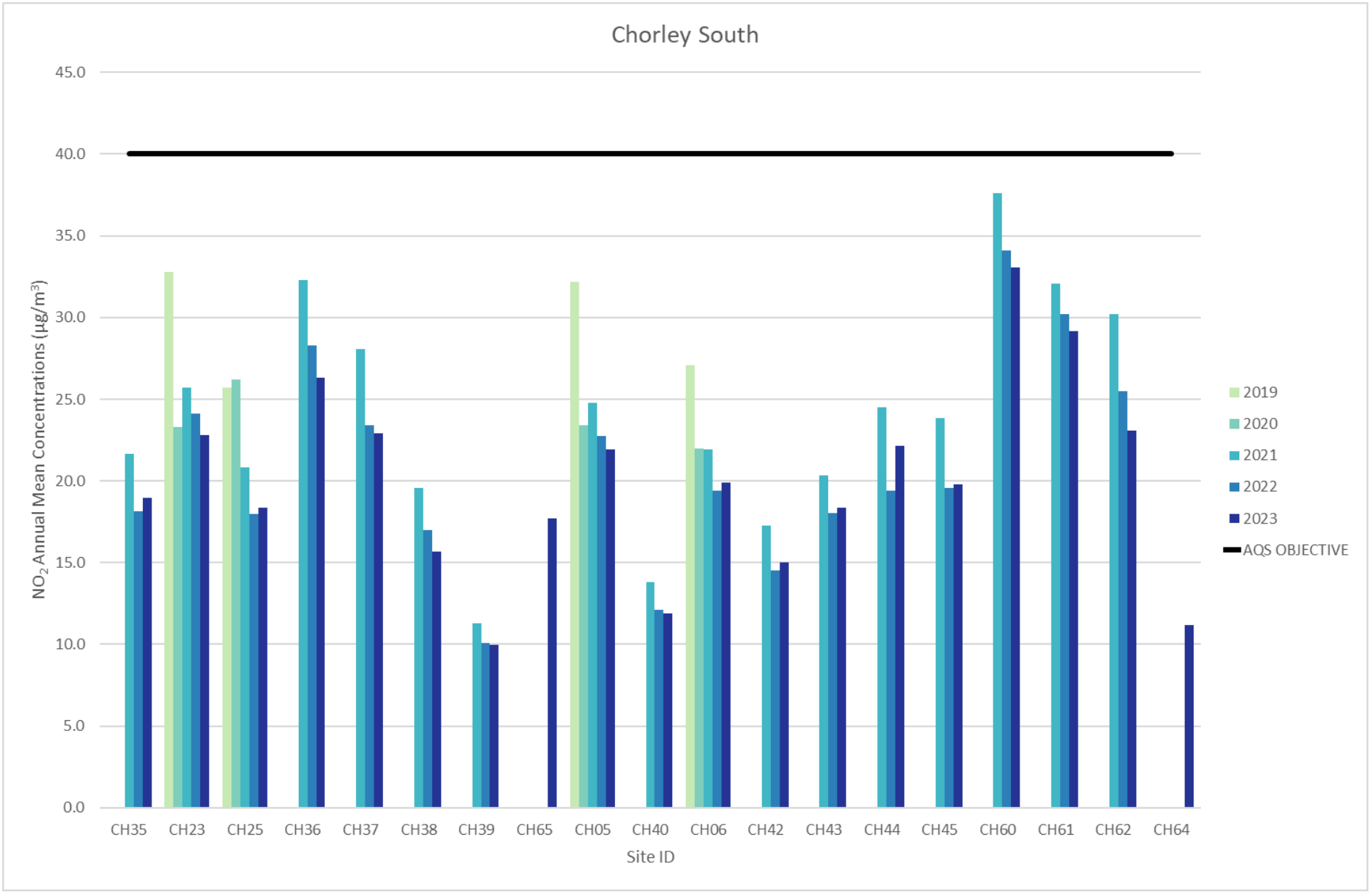


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Chorley Council does not collect this data.

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

Chorley Council does not collect this data.

Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CH05	360086	413012	Roadside	98	98	-	-	-	14	12.1
CH51	355697	422432	Roadside	100	100	-	-	-	11	9.8
CH59	358448	418540	Roadside	98	98	-	-	-	10	9.3

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

Notes:

Indicative data, provided for the purposes of transparency.

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

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold**.

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

(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.4 – Trends in Annual Mean PM_{10} Concentrations

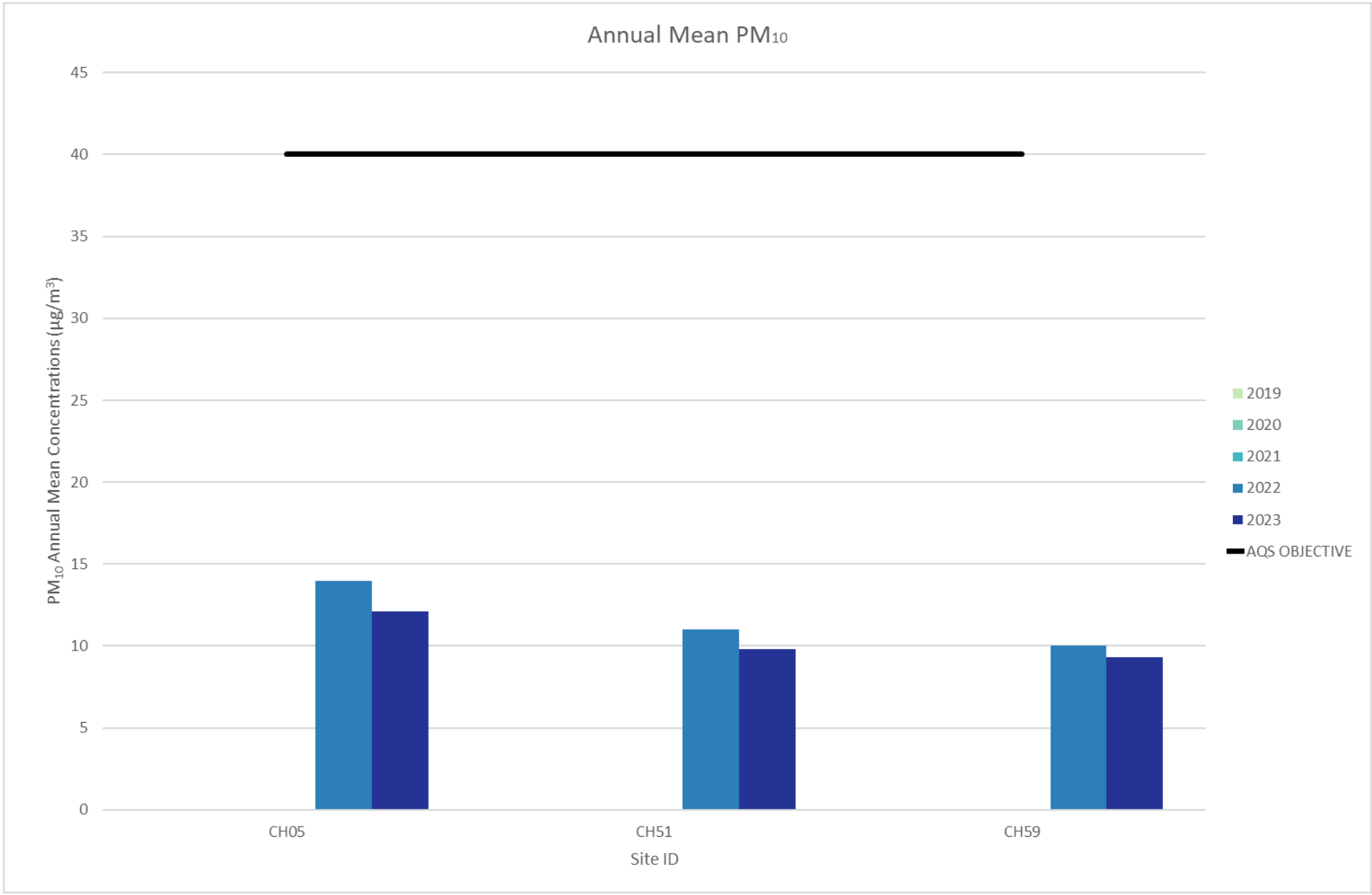


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CH05	360086	413012	Roadside	98	98	-	-	-	1	0
CH51	355697	422432	Roadside	100	100	-	-	-	0	0
CH59	358448	418540	Roadside	98	98	-	-	-	0	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Indicative data, provided for the purposes of transparency.

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

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

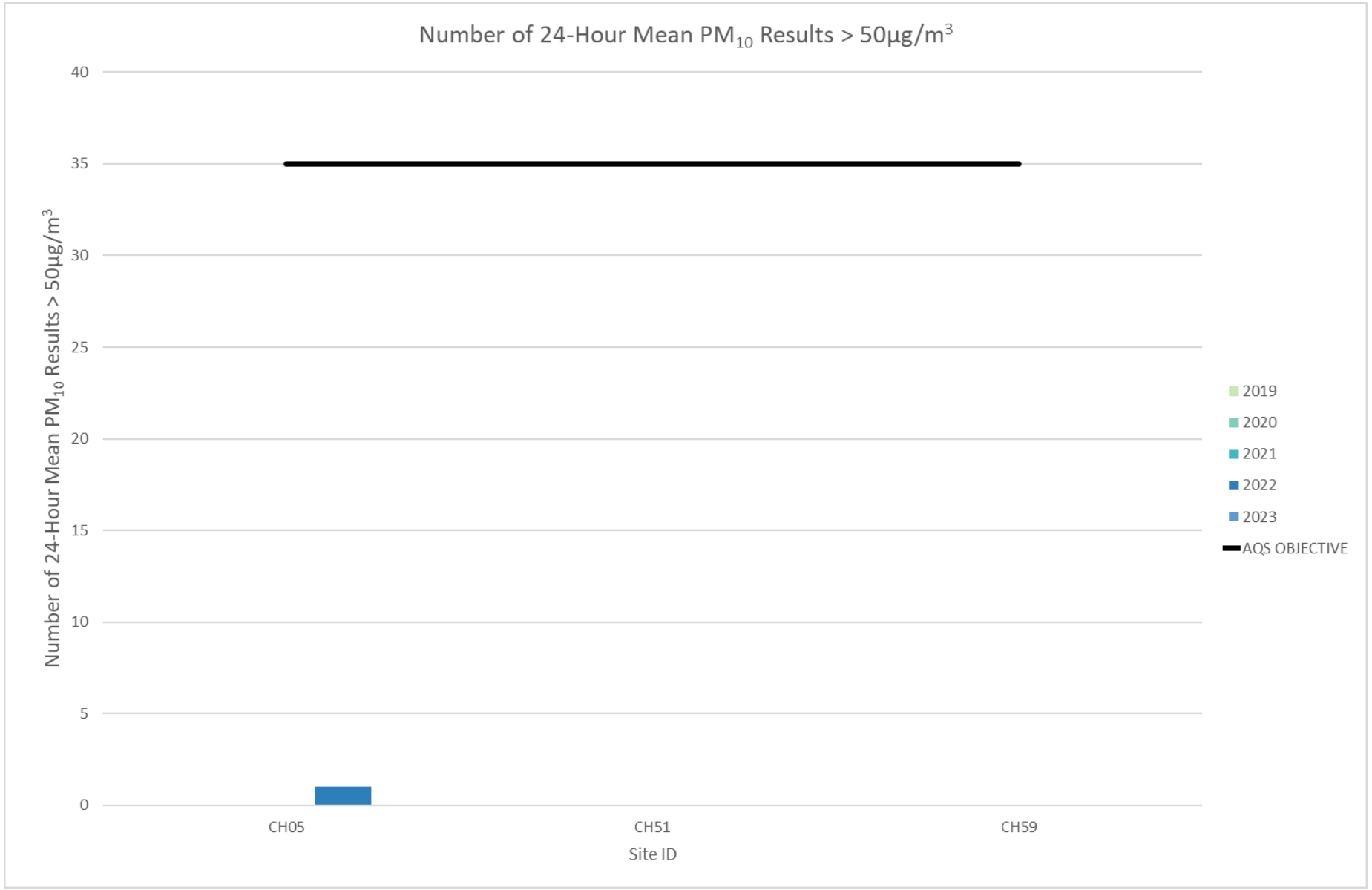


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CH05	360086	413012	Roadside	98	98	-	-	-	9	7.7
CH51	355697	422432	Roadside	100	100	-	-	-	7	5.8
CH59	358448	418540	Roadside	98	98	-	-	-	7	6

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

Notes:

Indicative data, provided for the purposes of transparency.

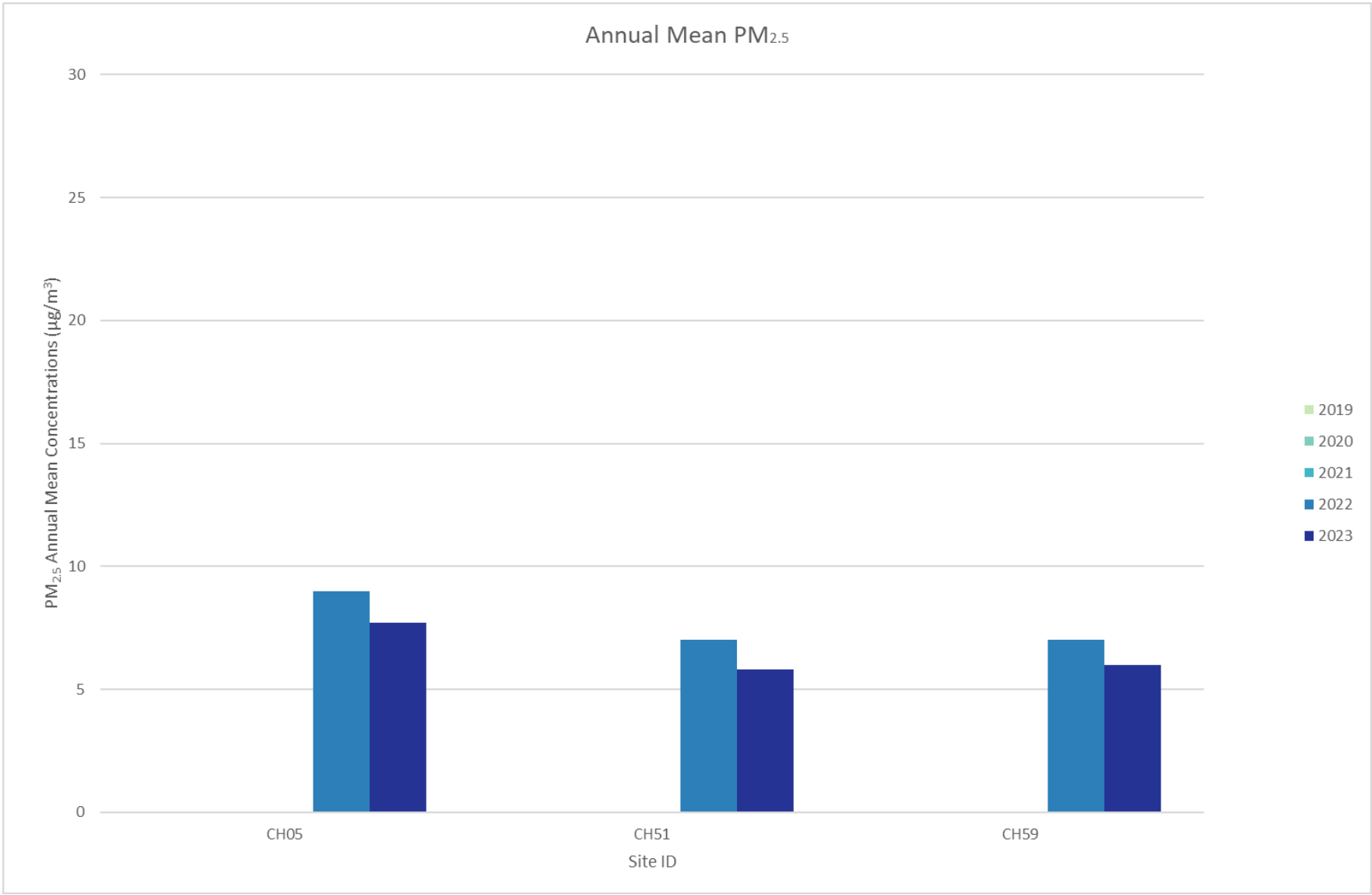
The annual mean concentrations are presented as µg/m^3.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(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.6 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Diffusion Tube Results (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.81) and Annualised	Distance Corrected to Nearest Exposure	
CH35	358145	417645	32.5		24.0		19.2	20.0	16.4	17.1	25.4	26.2	29.3	23.7	23.4	18.9	-	
CH23	358357	417297	25.7	33.0	31.7	28.9	23.1	24.1	21.8	21.9	32.3	32.4	34.9		28.2	22.8	-	
CH25	358518	417072	33.6	25.9	22.1	22.0	19.7	19.2	13.9	16.6	23.1	25.1	28.4		22.7	18.4	-	
CH36	358714	416839	44.3	34.3	33.4	31.5	31.0	26.4	28.3	27.0	33.0	32.7	37.1	31.4	32.5	26.3	-	
CH37	358830	416726	39.1	32.2	26.2	27.3	25.8	21.1	23.4	23.8	27.2	28.6	35.5	29.6	28.3	22.9	-	
CH38	359060	416468	28.9	22.4	19.9	19.5	15.9	14.6	12.4	14.4	20.2	21.5	24.8	17.4	19.3	15.7	-	
CH39	358933	415862	21.8	16.4	12.1	10.7	8.7	8.1	7.2	8.0	11.7	12.8	17.1	13.0	12.3	10.0	-	
CH65	359538	415419		27.8	22.5	21.3	17.9	19.3	18.5	18.3	23.5	21.5	26.8	23.2	21.9	17.7	-	
CH05	360095	413089	38.3	31.1	28.5	25.4	23.9	20.6	22.5	22.0	27.7	28.9	29.0	26.7	27.0	21.9	-	
CH40	358092	416925	25.0	18.1	13.7	13.2	10.6	9.8	8.7	9.7	14.3	15.9	21.1	15.8	14.7	11.9	-	
CH06	357436	416130	35.0	29.4	22.9	21.2		19.4	18.7	18.3	25.9	24.3	31.0	24.4	24.6	19.9	-	
CH42	356547	414525	28.6	22.8	18.2	16.5	15.9	14.1	12.2	14.1	18.6	20.1	23.2	18.4	18.6	15.0	-	
CH43	356339	414150	29.0	27.5	23.8	23.0	18.0	18.8	15.0	17.0	24.5	24.4	28.2		22.6	18.3	-	
CH44	356039	414054	35.6	30.5	23.0	25.1	24.6	21.3	17.0	19.7	25.4	26.1		52.4	27.3	22.1	-	
CH45	355534	413755	33.1	28.0	23.2	22.1	21.5	21.1	19.6	20.9	25.9	25.2	29.9	22.6	24.4	19.8	-	
CH46	355540	418309	37.3	32.8	25.0	24.4	24.4	23.5	18.5	23.6	29.1	27.7	31.9	26.8	27.1	21.9	-	
CH08	355891	418467	37.8	29.7	25.1	23.6	20.9	21.5	17.6	18.5	26.0	28.1	31.9	25.1	25.5	20.6	-	
CH11	355454	419317	32.4	29.0		46.6	18.2	15.6	15.9	17.2	25.3	24.3	28.6	25.0	25.3	20.5	-	

CH47	356464	420218	28.3	24.5	17.9	18.0	15.7	14.4	12.8	14.8	19.0	21.3	25.9	19.4	19.3	15.7	-	
CH63	356345	420733		18.8	13.6	12.4	11.1	9.6	9.8	10.7	13.5	15.5	21.2	14.2	13.7	11.1	-	
CH50	355400	422696	34.4	28.9	22.1	20.2	19.9	14.9	19.4	20.8	21.7	21.0	27.4	22.9	22.8	18.5	-	
CH51	355697	422432	39.4	33.0	26.2	24.8	23.7	23.0	22.1	23.6	28.8	26.7	32.1	27.3	27.6	22.3	-	
CH52	357335	424499	29.6	23.7	17.5	18.5	17.8	14.1	13.1	15.5	19.1	20.7	24.7	17.6	19.3	15.7	-	
CH53	357902	423586	38.7	34.3	27.8	26.1	26.8	24.5	25.7	25.9	30.9	31.1	35.1	29.2	29.7	24.0	-	
CH32	358313	422937	27.0	24.3	19.3	23.1	19.7	21.0	12.1	15.7	21.7	22.7	25.4	15.9	20.7	16.7	-	
CH31	357879	423303	31.4	23.7	19.2	18.7	17.4	15.1	14.4	15.6	20.9	21.4	27.0	20.3	20.4	16.5	-	
CH17	357936	422176	37.6	29.5	22.8	22.9	20.0	19.7	15.9	18.0	25.1	25.1	31.0	21.8	24.1	19.5	-	
CH17A	357885	421524	31.5	26.0	24.4	23.4		17.3	14.8	16.6	22.0	20.2	25.5	21.6	22.1	17.9	-	
CH33	358110	420361	31.5	26.4	22.4	20.8	18.6	15.3	16.0	17.3	21.0	20.9	27.4	21.6	21.6	17.5	-	
CH34	358568	420246	30.1	24.3	20.9	22.3	18.3	18.9	13.6	16.5	23.2	22.5	24.9	19.2	21.2	17.2	-	
CH54	358193	419909	28.5	23.2	17.1	16.8	15.6	16.6	12.9	14.4	19.3	18.9	24.0	17.4	18.7	15.2	-	
CH55	359415	419740	25.7	20.7	13.4	14.9	14.3		14.6	13.2	16.3	16.7	21.4	16.4	17.1	13.8	-	
CH56	359110	419646	32.2	26.2	21.0	19.6	18.4	16.6	18.1	20.2					21.5	18.9	-	
CH19	358335	419226	28.7	32.7	25.2	24.4	21.3	17.8	16.0	20.4	25.4	22.0	32.6	23.4	24.2	19.6	-	
CH24	358023	419151	40.0	32.9	30.0	30.0	26.4	26.8	25.6	25.2	30.8	30.8	31.0	27.0	29.7	24.1	-	
CH20	358325	418987	40.2	33.0	23.8	23.4	23.1	15.9	19.9	19.9	24.3	25.0	32.3	26.0	25.6	20.7	-	
CH58	358399	418579	43.7	35.9	31.2	32.1		25.4	23.4	24.7	34.1	35.4	37.7	31.0	32.2	26.1	-	
CH59	358448	418540	37.4	31.3	27.1	27.2	23.0	19.2	19.0	20.9	28.2	25.8	31.5	24.6	26.3	21.3	-	
CH60	358541	417816	49.4	46.8	43.2	40.9	38.6	36.6	30.6	34.0	40.3	40.1	44.2	45.0	40.8	33.1	-	
CH61	358526	417847	48.8	41.1	38.1	36.7	30.2	28.7	37.9	29.2	37.6	27.1	38.6	38.2	36.0	29.2	-	
CH62	358566	418400	41.5	29.8	25.5	27.8	26.9	23.2	21.5	22.9	28.4	36.3	31.7	26.2	28.5	23.1	-	

CH64	359064	417752		18.7	14.2	12.2	10.1	9.5	10.0	9.3	14.4	15.9	21.9	15.3	13.8	11.2	-

☒ **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.TG22.**

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **Chorley Council confirm that all 2023 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 Chorley Council During 2023

Where there is a potential for an impact upon air quality, comments are requested from Environmental Health consultees. If appropriate recommendations on further sustainability measures could apply to an application, Environmental Health consultees made these, for example, to include EV charging points in developments or the use of renewable heating systems.

As with most areas there are pockets of residential development that have been granted planning permission. Air quality reports have been prepared for the majority of these developments with most indicating a negligible impact. Most of the sites that have been granted permission have begun (and in some cases completed) construction work during 2023.

There have been no major road improvements or new roads or significant changes in traffic flow over the last year, with no significant changes to the railway network throughout the borough. 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 upon air quality.

Chorley Council has identified a new source relating to air quality within the reporting year of 2023. The Environment Agency issued a permit (EPR/RP3842YJ) for a 3.05 MWth input Combined Heat and Power (CHP) plant, used to supply electrical power and heat to a manufacturing site in Adlington, Chorley. Chorley Council questioned the use of background monitoring stations at Wigan Centre and Preston as the most relevant sources of background concentrations of emissions to air used by the applicant in the air dispersion modelling. An updated air dispersion model using data from local passive diffusion tubes was requested and supported by the Environment Agency. The permit was issued following an audit of the applicant's air dispersion modelling and a consideration of the impact of using more conservative background concentrations as part of this audit. The audit concluded that the relevant environmental standards would not be exceeded at any sensitive human receptor.

Additional Air Quality Works Undertaken by Chorley Council During 2023

As noted above, Chorley Council completed an appraisal report on the functioning of the EarthSense Zephyr PM monitors. This study has been attached as an additional appendix.

QA/QC of Diffusion Tube Monitoring

The diffusion tube monitoring program has been completed in line with the 2023 Diffusion Tube Monitoring Calendar.

The diffusion tubes used by Chorley Council in 2023 were supplied by Gradko Environmental Ltd, using a 20% TEA / Water solution.

The results of the AIR NO_2 Proficiency Testing (PT) Scheme and a field inter-comparison exercise precision survey indicated a good overall level of precision with collocated studies for the Gradko diffusion tubes.

The AIR PT scheme uses laboratory spiked Palmes type diffusion tubes to test each participating laboratory's analytical performance on a quarterly basis and continues the format used in the preceding WASP PT scheme. The results are published and are detailed below.

Gradko International have provided a 100% satisfactory response to tested samples up to October 2023.

Table C.1 lists those UK laboratories undertaking LAQM activities that have participated in recent AIR NO2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be satisfactory.

Diffusion tube precision can be described as the ability of a measurement to be consistently reproduced, i.e., how similar the results of duplicate or triplicate tubes are to each other. For the purposes of Local Air Quality Management, tube precision is separated into two categories, "good" or "poor". Gradko International presented a "good" level of precision over the past three years. A summary of the results of collocated diffusion tube analysis by various laboratories is presented in Table C.2.

Table C.1 - Laboratory summary performance for AIR Nitrogen Dioxide PT rounds, 2019-2021

AIR PT Round	AR046	AR049	AR050	AR052	AR053	AR055	AR056	AR058	AR059
Round conducted in the period	**Sep – Oct 2021**	**Jan – Feb 2022**	**May – Jun 2022**	**Jul – Aug 2022**	**Sep – Oct 2022**	**Jan – Feb 2023**	**May – Jun 2023**	**Jul – Aug 2023**	**Sep – Oct 2023**
Aberdeen Scientific Services	100%	100%	100%	100%	100%	0%	100%	100%	100%
Edinburgh Scientific Services	75%	NR	50%	100%	100%	100%	75%	100%	50%
SOCOTEC	100% [1]	100% [1]	100% [1]	100% [1]	100% [1]	100% [1]	100% [1]	100 % [1]	100 % [1]
Glasgow Scientific Services	NR	100%	100%	100%	100%	100%	100%	100%	100%
Gradko International	**100%**	**100%**	**100% [1]**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Lambeth Scientific Services	75%	50%	75%	100%	50%	0%	75%	50%	0%
Milton Keynes Council	100%	75%	100%	75%	100%	50%	75%	100%	100%
Somerset Scientific Services	100%	75%	100%	75%	100%	100%	75%	100%	100%

South Yorkshire Air Quality Samplers	100%	NR	NR	NR	NR	NR	NR	NR	NR
Staffordshire County Council	100%	100%	100%	0%	100%	100%	100%	100%	100%
Tayside Scientific Services (formerly Dundee CC)	100%	NR	NR	100%	100%	NR	100%	NR	NR

[1] Participant subscribed to two sets of test results (2 x 4 test samples) in each AIR PT round.

NR, no results reported.

Table C.2 - Summary of Precision Results for Nitrogen Dioxide Diffusion Tube Collocation Studies by Laboratory, 2021-2023

Diffusion Tube Preparation Method	2021 Good	2021 Bad	2022 Good	2022 Bad	2023 Good	2023 Bad
Gradko, 50% TEA in Acetone	16	0	16	0	14	0
Gradko, 20% TEA in Water	**34**	**0**	**33**	**0**	**21**	**0**
ESG Didcot / SOCOTEC, 50% TEA in Acetone	25	3	29	0	28	0
ESG Didcot / SOCOTEC, 20% TEA in Water	14	1	11	0	4	0
Staffordshire Scientific Services	15	1	13	0	11	0
Glasgow Scientific Services	2	5	3	3	1	0
Edinburgh Scientific Services	6	0	1	0	0	1
Milton Keynes Council	4	0	1	0	1	0
Tayside Scientific Services	1	0	1	0	1	0

Lambeth Scientific Services	8	1	6	4	3	0
Aberdeen Scientific Services	7	0	7	0	7	0
South Yorkshire Air Quality Samplers	1	0	0	0	0	0
ESG Glasgow, 50% TEA in Acetone	0	1	1	0	1	0
ESG Glasgow, 20% TEA in Water	0	1	1	0	1	0
Somerset County Council	11	0	14	0	4	0

Diffusion Tube Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%.

Annualisation was required for one location which had less than a 75% capture rate, due to missing diffusion tubes at the collection times.

The site requiring annualisation was: CH56.

The Automatic Urban and Rural Network urban background sites at Wigan (UKA00482, Easting/Northing: 357816, 406024) and Preston (UKA00408, Easting/Northing: 355250, 430131) have been used to provide an annualisation correction factor which was applied to the sites. Details of the calculation method undertaken are provided in Table C.3.

The remaining diffusion tube monitoring locations within Chorley Council recorded data capture of greater than 75% and so it was not required to annualise these monitoring data.

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

Site ID	Annualisation Factor Wigan (UKA00482) Urban B/g	Annualisation Factor Preston (UKA00408) Urban B/g	Annualisation Factor <Site 3 Name>	Annualisation Factor <Site 4 Name>	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
CH56	1.1008	1.0713	-	-	1.0860	21.5	23.4

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

No co-location study has been undertaken by Chorley Council, and so the national bias adjustment figure derived from the table below has been used to adjust all results obtained by Chorley Council.

Chorley Council have applied a national bias adjustment factor of 0.81 to the 2023 monitoring data. This is based on the overall factor calculated from 23 studies of Gradko 20% TEA in Water diffusion tubes. A summary of bias adjustment factors used by Chorley Council over the past five years is presented in

Table C.44.

A screenshot of the March 2024 National Diffusion Tube Bias Adjustment Factor spreadsheet for Gradko 20% TEA in Water diffusion tubes is included below for reference.

Figure C.1 – Screenshot of National Diffusion Tube Bias Adjustment Factor Spreadsheet

National Diffusion Tube Bias Adjustment Factor Spreadsheet

Spreadsheet Version Number: 03/24

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 spreadsheet 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 June 2024

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@bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (To undo 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)
Gradko	20% TEA in Water	2023	R	Monmouthshire County Council	11	33	26	26.5%	G	**0.79**
Gradko	20% TEA in water	2023	R	Blackburn With Darwen Bc	12	23	16	43.8%	G	**0.70**
Gradko	20% TEA in water	2023	R	Lancaster City Council	10	35	27	28.6%	G	**0.78**
Gradko	20% TEA in water	2023	R	Eastleigh Borough Council	12	33	26	26.4%	G	**0.79**
Gradko	20% TEA in water	2023	R	Eastleigh Borough Council	12	22	19	12.5%	G	**0.89**
Gradko	20% TEA in water	2023	R	Plymouth City Council	12	35	26	38.3%	S	**0.72**
Gradko	20% TEA in water	2023	R	Plymouth City Council	10	39	31	24.2%	S	**0.80**
Gradko	20% TEA in water	2023	UC	Belfast City Council	10	26	19	38.3%	G	**0.72**
Gradko	20% TEA in water	2023	R	Cheshire West And Chester	12	35	32	10.0%	G	**0.91**
Gradko	20% TEA in water	2023	R	Cheshire West And Chester	10	32	28	14.6%	G	**0.87**
Gradko	20% TEA in water	2023	R	Dudley Mbc	12	27	23	17.1%	G	**0.85**
Gradko	20% TEA in water	2023	UB	Dudley Mbc	12	19	13	45.4%	G	**0.69**
Gradko	20% TEA in water	2023	R	Dudley Mbc	12	40	37	7.7%	G	**0.93**
Gradko	20% TEA in water	2023	R	Gateshead Council	12	23	20	17.7%	G	**0.85**
Gradko	20% TEA in water	2023	R	Gateshead Council	11	23	18	26.9%	G	**0.79**
Gradko	20% TEA in water	2023	R	Gateshead Council	12	27	22	20.7%	G	**0.83**
Gradko	20% TEA in water	2023	R	Gateshead Council	12	29	23	25.9%	G	**0.79**
Gradko	20% TEA in water	2023	R	Gateshead Council	12	30	33	-7.8%	G	**1.08**
Gradko	20% TEA in water	2023	KS	Marylebone Road intercomparison	11	45	38	20.3%	G	**0.83**
Gradko	20% TEA in water	2023	B	South Holland District Council	10	8	7	12.4%	G	**0.89**
Gradko	20% TEA in water	2023	R	Worcestershire	12	12	11	17.4%	G	**0.85**
Gradko	20% TEA in Water	2023	R	Ards And North Down Borough Council	12	33	21	60.2%	G	**0.62**
Gradko	20% TEA in Water	2023	R	Lisburn & Castlereagh City Council	11	24	20	22.1%	G	**0.82**
Gradko	20% TEA in water	2023		**Overall Factor[3] (23 studies)**				**Use**		**0.81**

Table C.4 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.81
2022	National	03/23	0.83
2021	National	04/22	0.84
2020	National	06/21	0.81
2019	National	03/20	0.93

Table C.5 – Local Bias Adjustment Calculation

No local bias adjustment factor has been calculated.

NO_2 Fall-off with Distance from the Road

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

No diffusion tube NO_2 monitoring locations within Chorley Council required distance correction during 2023.

QA/QC of Automatic Monitoring

Three Zephyr continuous air quality monitors manufactured by EarthSense Systems Limited (Leicester, UK) were purchased in 2021. Calibration was carried out prior to installation over seven days in June 2021, at the EarthSense manufacturing facility.

The performance of Zephyr units is periodically checked remotely by EarthSense and, where required, remote re-calibrations are applied to the collected data. This process does not overwrite existing data but is applied to all newly acquired data.

Periodic re-calibrations are made where systematic biases are present when comparing Zephyr data with a regional average of EU-standard reference stations for a representative environment category. This second re-calibration was not required during this study.

Day-to-day data management and periodic visual inspections are undertaken by Chorley Council officers.

Live and historic data is available at the following website: https://portal.earthsense.co.uk/SouthRibblePublic/data

The MCERTS Certificate No: MC210393/00 for EarthSense Systems Indicative Ambient Particulate Monitors is at: https://www.csagroup.org/wp-content/uploads/MC21039300a.pdf

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

The type of PM_{10}/$PM_{2.5}$ monitors utilised within Chorley Council do not require the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within Chorley Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

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 NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO_2 concentrations corrected for distance are presented in Table A.3.

No automatic NO_2 monitoring locations within Chorley Council required distance correction during 2023.

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

Figure D.1 – Map of Non-Automatic Monitoring Sites Chorley North

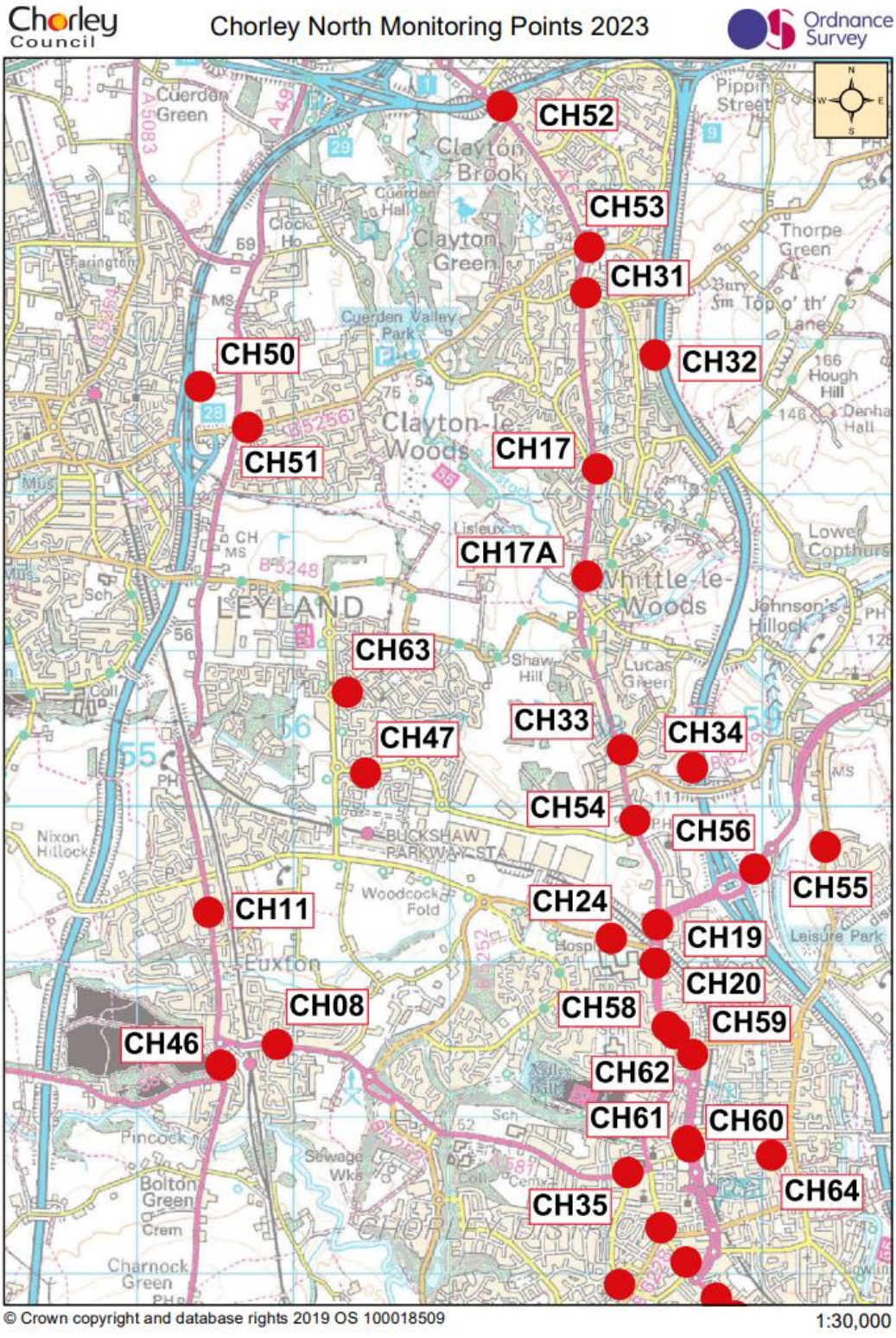
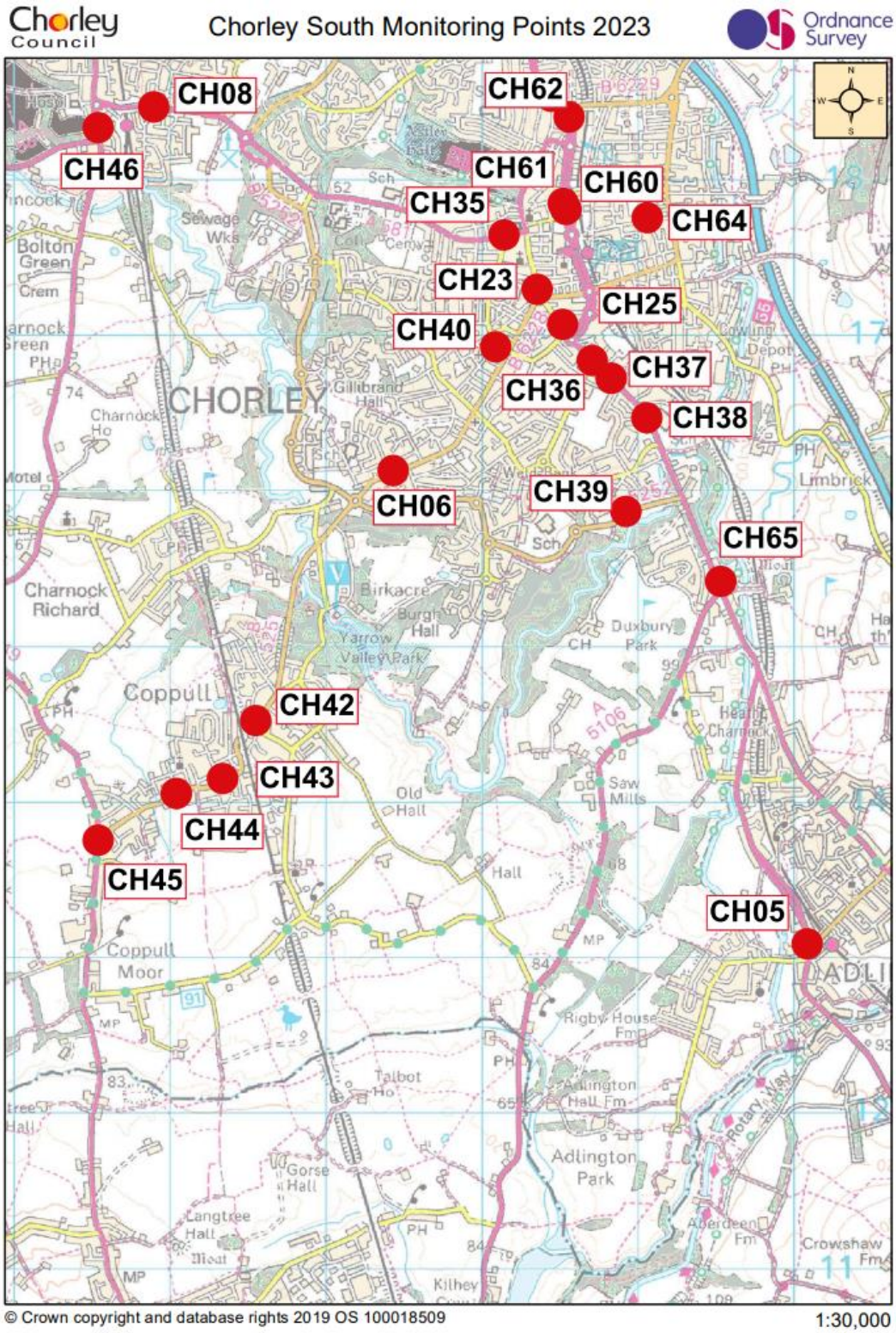


Figure D.2 – Map of Non-Automatic Monitoring Sites Chorley South



Appendix E: Summary of Air Quality Objectives in England

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

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

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

Glossary of Terms

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

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
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- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.
- Chorley Council Clean Air Strategy as updated May 2022
- Chorley Council Climate Change Strategy 2022-2024
- Chorley Council Report: Particulate Matter in Chorley
- Chorley Council Air Quality webpages: https://www.chorley.gov.uk/article/1991/Air-quality?ccp=true
- Chorley Council Climate Change webpages: https://chorley.gov.uk/ClimateChange
- Chorley Council Citizen Space webpage: https://yoursay.citizenspace.com/chorley/
- Live and historic air quality data is available at the following website: https://portal.earthsense.co.uk/SouthRibblePublic/data
- Chorley Council Official Facebook page: https://www.facebook.com/chorleycouncil
- Chorley Council Official Twitter page: https://twitter.com/ChorleyCouncil
- Check Out Chorley website: https://checkoutchorley.com/.
- Lancashire County Council public transport website: http://www.lancashire.gov.uk/roads-parking-and-travel/public-transport.aspx
- National Rail train timetable information: https://www.nationalrail.co.uk/
- National Rail offers for rail travel: https://www.daysoutguide.co.uk/
- The MCERTS Certificate No: MC210393/00 for EarthSense Systems Indicative Ambient Particulate Monitors is at: https://www.csagroup.org/wp-content/uploads/MC21039300a.pdf