South Ribble Borough Council

2025 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 2025

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Local Responsibilities and Commitment

This ASR was prepared by the Climate Team of South Ribble Borough Council with the support and agreement of the following officers and departments:

Environmental Health

Active Health

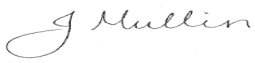
Investment and Skills

This ASR has been approved by:

Chris Sinnott, Chief Executive, South Ribble Borough Council

Signature: 

Jennifer Mullin, Director of Communities, South Ribble Borough Council

Signature: 

This ASR has not been signed off by a Director of Public Health, but has been provided for information

If you have any comments on this ASR, please send them to The Climate Team at:

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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 work that has been done in respect of air quality in South Ribble over recent years along with traffic management work undertaken by Lancashire County Council, has enabled the revocation of the Penwortham Air Quality Management Area in 2023/24. Current data supports the revocation of all remaining AQMAs in the Borough. This process will start in 2025.

The new Air Quality Strategy and Action Plan were adopted by Council in September 2024.

Social value Themes, Outcomes and Measures (TOMs) are now being collated and recorded when created by organisations and projects undertaken in South Ribble. Many of these impact on air quality

- NT31 – savings in CO2 emissions on contracts not from transport
- NT32 – car miles saved on the project (cycling, car-pooling and public transport)
- NT33 – business miles driven using low or zero emission vehicles
- NT114 - buildings meeting energy efficiency targets
- NT115 – reductions in freight tonne-kilometres from green logistic plans

In 2024

- Social value TOMs NT31 – 1.21 tCO2e saved (133% of target achieved)
- Social value TOMs NT33 – 240 miles driven in low or no emission vehicles (88% of target achieved)

Other work undertaken this year includes,

- Continuation of the air quality monitoring program.
- Continuation of the DEFRA grant funded Clean Air Crew project to enable all primary schools within South Ribble to have access to an air quality online resource to raise awareness and evoke behaviour change across the borough.
- Continuing to request electric vehicles (EV) charging points on planning applications and to have air quality assessed as part of these.
- Development work for the installation of a further 19 EV chargepoints (38 bays) across the Borough as part of the On-street Residential Chargepoint Scheme. These new chargepoint locations will allow residents the opportunity to consider an electric vehicle (new or second hand) by breaking down some of the barriers to accessing chargepoints near to where they live.
- Continuing to provide Dr Bike events, a free Council service where residents can bring their bike along for repairs and maintenance.
- Delivery of Bikeability, a cycling training scheme designed to give adults and children the skills and confidence to ride a bicycle.
- Delivery of 'Tots on Tyres', CPD training for primary school teachers to encourage reception children to ride a bike.

Figure 1 - Tots on Tyres training and Bikeability award for South Ribble's Active Health Team

Air Quality in South Ribble

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.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Low-income communities are also disproportionately impacted by poor air quality, exacerbating health and social inequalities.

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 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.

The principal pollutants of concern within South Ribble are those associated mainly with traffic, these being Nitrogen Dioxide, and Particulate Matter. The Council has historically only monitored Nitrogen Dioxide emissions via a network of diffusion tubes. Although during 2022, three air quality sensors were purchased and deployed across two of the AQMAs, Leyland (AQMA 5), and Lostock Hall (AQMA 3), monitoring Nitrogen Dioxide and Particulate Matter. It is noted that this data is indicative only and cannot be used to demonstrate compliance with National Objectives.

The borough currently has four declared Air Quality Management Areas. The firth AQMA Penwortham (AQMA 1) was legally revoked in 2024.

Trend data over the last five years indicates that levels have generally reduced or remained stable, the results from 2024 show no areas of exceedance or near exceedance of the national objectives within the borough.
2024 monitoring results indicate that pollutant levels across the borough are generally declining and the continuous sensor indicative data suggests that the particulate matter levels are not currently at significantly high enough levels to require any formal action by the Council.

The new Air Quality Strategy and Action Plan were formally adopted by Council in September 2024. These two documents sit with our existing Strategies and Action Plans for Climate Emergency and Biodiversity.

Full details of the AQMAs and actions being taken in South Ribble can be found on our website - Air quality - South Ribble Borough Council

South Ribble Borough Council is committed to improving air quality by working with partners to

- improve public health under the Local Air Quality Management process.
- embed air quality and other climate and environment priorities into the emerging Central Lancashire Local Plan
- further develop EV charging and active travel infrastructures that link with neighbouring boroughs and fit with wider county level proposals.

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[1] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant of most harmful to human health. Defra's Air

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

Quality Strategy[2] 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[3] 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) were designated due to elevated concentrations heavily influenced by transport emissions.

Over the last year the Council has continued to progress work to improve air quality and lower emissions. Much of the work undertaken is also identified within South Ribble Borough Council's Climate Emergency and Biodiversity Strategies and Action Plans, both corporate priorities for the Council.

The core actions include,

- The Council continues to use an online public portal for residents to view real-time air quality data from our three EarthSense Zephyr air quality sensors via South Ribble's public air quality portal and continues to promote "Ready to Burn" and smoke control campaigns.
- South Ribble Borough Council's Active Health Team continue to deliver Bikeability training in schools and bespoke training for adults, alongside their popular Dr Bike campaign to repair and repurpose bicycles free of charge to encourage active travel amongst residents.
- The Council's Tree for Every Resident tree planting project has been extended beyond its initial four-year lifespan. A total of 33,188 trees were planted or gifted to residents, schools and businesses in 2024, achieving a cumulative planting total of 220,861 trees planted in the Borough since the project started in winter 2019.
- The Defra funded Clean Air Crew schools project continues to be a success with local primary schools. By the end of 2024, 57% of all eligible schools had signed up to the project. The home sign in portal indicates that there is continued parental interaction

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

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

with the website, showing that the message is being cascaded through the wider school community. Feedback from all participating schools has been positive.

- The Council has received grant funding from the Office for Zero Emission Vehicles (OZEV) to install a further 19 EV charging points (serving 38 car parking bays) in six public car parks across the Borough. Reducing barriers to EV uptake by those residents living in terraced properties without the option to charge at home. These will become live in 2025.
- South Ribble's Business Energy Efficiency scheme continues to support businesses on energy and carbon footprint reduction options in 2024 via energy audits and opportunities for grant funding.

Conclusions and Priorities

Over the reporting period of 2024, there have been no likely exceedances of the national objective values for any of the pollutants of concern. The trend data shows that NOx levels remain stable or are decreasing in the majority of receptor locations. The real time results are not in exceedance or likely exceedance of the objective levels.

Monitoring results for 2024, support the move to revoke all the AQMAs in the Borough during 2025.

The Defra funded Clean Air Crew project continues until March 2025, so there will be ongoing engagement with local primary schools around air quality.

Key actions 2025 will include

- Continue with air quality monitoring across the Borough
- Work with Defra on the revocation of the Air Quality Management Areas
- Start the process of updating the Smoke Control Orders for the Borough
- Complete the installation of the remaining 19 EV chargepoints
- Working in partnership with Lancashire County Council their delivery of the Local Electric Vehicle Infrastructure (LEVI) grant funded scheme (£10.1 million) to provide further EV charge points across the County, including South Ribble
- Investigate the options for building on the success of the Clean Air Crew school behaviour change air quality project once the Defra funding ends

- Continue to carry out the inspections and enforcement of permitted premises within the borough under the Environmental Permitting Regulations
- To continue to work with the Central Lancashire planning team to embed the guidance within the emerging Central Lancashire Local Plan due in 2025.

How to get Involved

South Ribble Borough Council's website has a page dedicated to air quality Air Quality - South Ribble Borough Council. This includes a Beginners Guide to Air Quality, an explanation of the monitoring that is undertaken in the Borough, the AQMAs and a list of actions that residents can take to improve air quality, indoors and outdoors.

All South Ribble Primary Schools are invited to sign up to the Clean Air Crew website and take advantage of the curriculum linked resources for free until the end of March 2025. Beyond March schools are still welcome to sign up to the website at their own expense and use this as part of their Climate Action Plans.

If anyone would like further information or to get involved in future project work, then please contact the Climate Team at South Ribble Borough Council on 01772 625625 or climate.emergency@southribble.gov.uk

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1 Local Air Quality Management

This report provides an overview of air quality in South Ribble during 2024. 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 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 (in Appendix E).

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

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

- NO_2 annual mean

We propose to revoke AQMA 2 Walton le Dale, AQMA 3 Lostock Hall, AQMA 4 Bamber Bridge and AQMA 5 Leyland in 2025.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA1	Declared August 2005 Revoked Sept 2024	NO_2 Annual Mean	An area encompassing several residential properties at the junction of Cop Lane, Liverpool Road and Priory Lane	NO	44.7	0	6	South Ribble Borough Council, Air Quality Action Plan, 2024	air-quality-action-plan-2024
AQMA2	Declared August 2005	NO_2 Annual Mean	An area encompassing several residential properties along Victoria Road.	NO	52	0	7	South Ribble Borough Council, Air Quality Action Plan, 2024	air-quality-action-plan-2024
AQMA3	Declared August 2005	NO_2 Annual Mean	An area encompassing residential properties at the Tardy Gate Junction.	NO	48	0	6	South Ribble Borough Council, Air Quality Action Plan, 2024	air-quality-action-plan-2024

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA4	Declared August 2005	NO_2 Annual Mean	An area encompassing several residential properties along Station Road.	NO	44.9	0	7	South Ribble Borough Council, Air Quality Action Plan, 2024	air-quality-action-plan-2024
AQMA5	Declared December 2017	NO_2 Annual Mean	An area encompassing several residential properties along Turpin Green Lane, through Churchill Way to Golden Hill Lane. Also encompassing properties along Chapel Brow.	NO	41	0	7	South Ribble Borough Council, Air Quality Action Plan, 2024	air-quality-action-plan-2024

☒ **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**

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

Defra's appraisal of last year's ASR concluded that the report was well structured, detailed and provided the information specified. In this report for 2024 the following comments have been actioned

- Earthsense Zephyr air quality sensors will be referred to as such in this report and not automatic monitors.
- Data in tables will be given to one decimal place
- The bias adjustment factor has been included in the column header in table B1

South Ribble Borough Council has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 24 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 2024 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 their respective Action Plans - Air Quality Action Strategy and Plan, Climate Emergency Strategy and Action Plan and the Biodiversity Strategy and Action Plan all of which can be found at Climate Change – South Ribble. Key completed measures are:

- Legal revocation of the Penwortham AQMA in September 2024
- Adoption by Council of the new Air Quality Strategy and updated Action Plan
- Completion of ORCS1 EV infrastructure project with 19 new chargepoints installed

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

- Completion of the Defra funded Clean Air Crew school's project
- Completion of ORCS2 EVI infrastructure project to install a further 19 chargepoints

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

- Start the revocation process for the remaining AQMAs in the Borough

- Start the process to update the Smoke Control Orders for the Borough
- Continue to work with environment groups and schools on air quality education and engagement through the deployment of NOx tubes and the explanation of the results.

South Ribble Borough Council worked to implement these measures in partnership with the following stakeholders during 2024:

- Neighbouring local authorities
- National Highways Authority
- Defra
- Sefton Council – Eco Centre staff
- Penwortham Town Council and members of their Climate Working Group
- Local primary schools

The principal challenges and barriers to implementation that South Ribble Borough Council anticipates facing are a lack of resources, internally both financially and in terms of staffing and externally with public engagement in the AQMA revocation and Smoke Control processes.

South Ribble Borough Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in Bamber Bridge, Walton le Dale, Lostock Hall and Leyland AQMAs.

Table 2.2 – 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	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	Revocation of remaining AQMAs	Public information	Other	2018	2026	SRBC DEFRA	Existing revenue budgets	Not funded	<£10k	Planning	Reduction of NO_2 and PM	Revocation of AQMAs	NOx tube data collated and analysed.	
2	Updating the existing Smoke Control Orders, to replace with a borough wide smoke control order	Public information	Other	2018	2026	SRBC DEFRA	Existing revenue budgets	Not funded	<£10k	Planning	Reduction of NO_2 and PM	Updating the SCO	Search for a consultant to create a roadmap of the work required with associated documents	
3	Community engagement with NOx tube monitoring at sites of concern.	Public information	Other	2024	2026	SRBC Schools Community groups Town / Parish Councils	Existing revenue budgets	Not funded	<£10k	Implementation	Reduction of NO_2 and PM	Understanding of air quality	NOx tubes installed at areas of public concern outside the AQMAs for a 12-month period	
4	Working with partners to tackle air quality across South Ribble and surrounding areas	Public information	Other	2018	2025	SRBC DEFRA HSE EA UKHSA	Existing revenue budgets	Not Funded	<£10k	Implementation	Reduction of NO_2 and PM	NOx results	Undertaking annual NO_2 and PM monitoring programme as part of Defra national monitoring	One AQMA formally revoked, others under review
				2018		SRBC	Existing revenue budgets	Not Funded	<£10k	Implementation		ASR completed	Submit annual ASR report	Ongoing
				2018	2026	SRBC Town Council Residents Group	Existing revenue budgets	Not Funded	<£10k	Implementation		Education and engagement of residents and partners	Working with local groups to improve monitoring in areas outside of AQMAs	NOx tubes deployed at identified locations for 12 months
5	Embedding air quality improvement into the Council's culture	Policy Guidance and Development Control	Other policy	2018	2026	SRBC	Existing revenue budgets	Not Funded	<£10k	Implementation	Reduction of NO_2 and PM	Air quality embedded in Council reports and policies	Air Quality is considered within the decision-making process on every report to cabinet, council, portfolio holder decision.	Ongoing
6	Continue to deliver the Bikeability scheme, adult cycle training and Dr Bike	Promoting Travel Alternatives	Promotion of cycling	2018		SRBC	Cycling UK	Funding secured	<£10k	Implementation	Reduction of NO_2 and PM Improve physical and mental wellbeing	Increase in active travel	Providing Dr Bike events, a free Council service where residents can bring their bike along for repairs and maintenance	Ongoing

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	repair workshops			2018		SRBC	Bikeability Trust and Lancashire County Council	Funding secured	£50 - £100k	Implementation	Reduction of NO_2 and PM Improve physical and mental wellbeing	Increase in active travel	Delivery of Bikeability, a cycling training scheme designed to give adults and children the skills and confidence to ride a bicycle	Pool of bicycles available to aid inclusivity
7	Reduce staff mileage associated with Council business	Promoting Travel Alternatives	Workplace Travel Planning	2018	2028	SRBC	SRBC	Not Funded	<£10k	Implementation	Reduction of NO_2 and PM Reduced CO2e	Increases in mileage for EV	Continue to include staff mileage CO_2e in our Greenhouse Gas Report	EV mileage is increasing
				2024	2025/26	SRBC		Not Funded	<£10k	Planning	Reduction of NO_2 and PM Reduced CO2e	Improved scope 3 reporting	Extend the GHG reporting to include staff commuting	
				2018	2028	SRBC		Not Funded	<£10k	Planning	Reduction of NO_2 and PM Reduced CO2e	Increases in car sharing	Promote car sharing amongst staff and continue to provide hybrid meeting options	
8	Council Electric Vehicles	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2018	2045	SRBC	SRBC	Not funded	>£10m	Implementation	Reduction of NO_2 and PM Reduced CO2e	Increased EV fleet	Continue with the rolling programme to systematically replace the Council vans and grounds machinery with electric machinery as technology becomes available	
				2024	2045	SRBC DNO - ENWL		Not funded	£500k - £1m	Planning	Reduction of NO_2 and PM Reduced CO2e	EV infrastructure at Depot	Plan to provide the electric vehicle infrastructure required for the growing fleet of Council electric vehicles.	Expected to require new substation
9	Control of industrial emissions	Environmental Permits	Other measure through permit systems and economic instruments	2018	2045	SRBC Environmental Health	SRBC	Not funded	<£10k	Implementation	Reduction of industrial related pollutants	Premisses complying	Continue with regulatory function of relevant industrial activities with emissions to air (environmental permitted processes)	Ongoing interventions to ensure compliance
				2018	2045			Not funded	<£10k	Implementation	Reduction of NO_2 and PM Reduction of industrial related pollutants	Premises complying	Inspect all permitted industrial activities at the required frequency	Ongoing interventions to ensure compliance

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
10	Active Transport	Promoting Travel Alternatives	Promotion of cycling	2018	2030	SRBC Estates, Facilities, and Streetscene Lancashire County Council	SRBC or grant funding as available	Not funded	£100k - £500k	Planning	Reduction of NO_2 and PM Improve physical and mental wellbeing		Increased cycle path provision Improve the cycle infrastructure within the borough, especially along routes to schools and employment sites	Green links project completed
				2024	2028			Not funded		Planning		Plan implementation	To support Lancashire County Council's Actively Moving Forward Plan	
11	Encourage the greater use of public transport including buses and taxis	Promoting Travel alternatives	Other	2018	2020	SRBC LCC Energy Saving Trust	OZEV / EST	Funded	£100k - £500k	Phase 1 complete	Reduction of NO_2 and PM	Taxis using EVI	To work with both bus and taxi companies to apply for any grant funding available	Round 1 of taxi funding rapids complete
				2018	2028		Grants if available	Not funded	£50 - £100k	Planning		Businesses committing to using EV taxis	Undertake an 'Electrify campaign' – encouraging businesses to only use electric taxis	
				2018	2028		Grants if available	Not funded	£50 - £100k	Planning		Policy changes	Explore the opportunity to promote the use of electric vehicles for taxis via licencing and their taxi policy	
12	Electric Vehicles	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2028	SRBC	Grants if available	Not funded	£100k - £500k	Planning	Reduction of NO_2 and PM	Increased EVI	Seek funding opportunities to enable the development of the EV infrastructure across the borough	
					2026	SRBC OZEV EST	ORCS 1 ORCS 2	Funded	£100k - £500k	ORCS1 complete ORCS2 Implementation		Installed EVI	Provide electric vehicle charging points on council owned car parks and buildings as appropriate.	ORCS1 complete ORCS2 ongoing
					2028	SRBC LCC	LEVI	Funded	>£10m	Planning		Installed EVI	Work with LCC to enable delivery on EV charging points on the highways.	LEVI ongoing
13	Freight and delivery	Promoting Low Emission Transport	Other	2018	2028	SRBC	Unknown	Not funded	<£10k	Planning	Reduction of NO_2 and PM	Travel plans in place	Provide advice to businesses to help them chose low emission vehicles	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	management												and develop travel plans.	
				2018	2028	SRBC	Unknown	Not funded	<£10k	Planning	Reduction of NO_2 and PM	Idling policies in place	To promote anti-idling policies with businesses operating within the Borough	
14	Threats and pressures	Public Information	Other	2024	2045	SRBC	Existing revenue budgets Grants if available	Not funded	<£10k	Planning	Reduction of NO_2 and PM	Improved air quality	To highlight threats and issues likely to adversely impact air quality as they arise and outline measures to combat these threats	
15	To improve air quality by encouraging behaviour change	Public Information	Other	2018	2030	SRBC, HSE, EA	DEFRA new burdens	Funded	£10k - £50k	Planning	Reduction of NO_2 and PM Reduced CO_2e Improve physical and mental wellbeing	Updated SCO	To review the Smoke control areas	
							Council budget / grant funding as available		<£10k	Implementation		Behaviour change	Continued enforcement of smoke control legislation	Work ongoing
									<£10k	Implementation		Behaviour change	To engage with residents, businesses and partners to maintain and improve air quality (including indoor air quality)	Work ongoing
									<£10k	Implementation		Behaviour change	Ensure only authorised fuel used within the borough (as it is a smoke control area)	Work ongoing
									<£10k	Implementation		Enforcement	Continue to enforcement statutory nuisance legislation	Work ongoing
									<£10k	Implementation		Engagement	To support partners in their regulatory functions e.g. Health and Safety Executive, Environment Agency	Work ongoing
16	Mitigation	Policy Guidance and Development Control	Other policy	2019	2024	SRBC Landowners Residents Schools Businesses	Existing capital budget	Secured	£100k - £500k	Implemented	Reduction of NO_2 and PM	Number of trees planted – target 27,500 per year	Increase numbers of trees and plants to help absorb air pollution, improve mental health and	End of winter 23/24 – 173,197 trees planted

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
													improve resilience to climate change	
17	Integrated air quality into wider sustainable development	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	2030	SRBC	Existing revenue budgets Grant funding as available	Not funded	<£10k	Implemented	Reduction of NO_2 and PM	Policy changes and enforcement	To ensure planning applications are submitted and processed (where relevant) in line with Council's Electric Vehicle Charging Points Guidance for Developers Low emissions developer guidance (travel plans). Air Quality Guidance Document for Developers Cycle storage and changing facilities Construction Management Plan	Embedded into the planning process and guidance documents published
				2018	2024	SRBC	Existing revenue budgets Grant funding as available	Not funded	<£10k	Complete	Reduction of NO_2 and PM	Policy changes and enforcement	Planning enforcement to ensure compliance with conditions of planning contents	Embedded into the Planning process
18	Transport planning and infrastructure	Public Information	Other	2018	2030	LCC SRBC	LCC budgets	Not funded	£100 - £500k	Planning	Reduction of NO_2 and PM	Project implementation	To review all traffic light sequencing to reduce the amount of standing traffic – LCC A582 project	
				2018	2028	SRBC Schools	Existing budgets DEFRA grant funding	DEFRA funded for schools	£50k - £100k	Implemented for schools	Reduction of NO_2 and PM	Anti idling campaigns	Anti-Idling Campaign in declared AQMA's and outside schools, colleges and leisure centres	Schools undertaking anti idling campaigns as part of the Clean Air Crew project
19	Businesses advice	Public Information	Other	2018	2028	SRBC NWNZ Hub	Existing revenue budgets UKSPF	Partially funded	£100k - £500k	Implementation	Reduction of NO_2 and PM	Number of businesses engaged	To provide advice to businesses on how they can take positive action to reduce the impact of their business upon air quality	Wait times for audits due to number of auditors available

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
20	Delivering social benefits	Policy Guidance and Development Control	Other policy	2024	2028	SRBC	Existing revenue budgets	Not funded	<£10k	Implementation	Reduction of NO_2 and PM	Number of social value opportunities	To provide opportunities for corporate engagement and volunteering opportunities that support local projects	Social value volunteering has been undertaken by local businesses
				2024	2028	SRBC	Existing revenue budgets	Not funded	<£10k	Planning	Reduction of NO_2 and PM	Policy changes	To integrate the air quality action plan into our Procurement process and encourage contractors working on our property to do their bit for air quality and climate change.	
21	National campaigns and lobbying	Public Information	Other	2018	2030	SRBC UK100	Existing revenue budgets	Not funded	<£10k	Implementation	Reduction of NO_2 and PM		To stay up to date with national campaigns and lobbying for air quality	Member of UK100 since 2021
				2018	2030	SRBC	Existing revenue budgets	Not funded	<£10k	Planning	Reduction of NO_2 and PM	Policy changes	To implement new policy according to national guidelines and emerging technologies	
22	Raise awareness of air quality in South Ribble and regionally	Public Information	Other	2018	2030	SRBC	Existing revenue budgets	Not funded	<£10k	Implementation	Reduction of NO_2 and PM	Behaviour change	To raise awareness and understanding of air quality issues - Continue to promote information and activities on our website Participate in the national 'Clean Air Day' Promote walking and cycling within the borough Publish the local air quality monitoring results on the Council's website Support the Ready to Burn campaign	Public events in 2023 and 2024 including Air Quality awareness Public consultation on revocation of Penwortham AQMA Public consultation on draft AQAP Air quality monitoring results on Council website

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
23	Working with the local community	Public Information	Other	2018	2030	SRBC	Existing revenue budgets	Not funded	£10k - £50k	Planning	Reduction of NO_2 and PM	Behaviour change	Encouraging car sharing within the borough	
				2018	2030	SRBC	Existing revenue budgets	Not funded	£50 - £100k	Planning	Reduction of NO_2 and PM	Number of cycle stores	Promote the provision of secure cycle storage and changing rooms at businesses and schools	
				2018	2030	SRBC	Existing revenue budgets	Not funded	<£10k	Planning	Reduction of NO_2 and PM	Uptake of travel plans	Investigate the provision of personal travel plans for residents and employees within the borough, produce a template for external organisations.	
				2018	2030	SRBC	Existing revenue budgets	Not funded	£10k - £50k	Planning	Reduction of NO_2 and PM	Number of green walls	Promotion of living walls / green roofs	
24	Schools	Public Information	Other	2018	2030	SRBC, DEFRA LCC, Schools	Existing revenue budgets	Funded	<£10k	Implementation	Reduction of NO_2 and PM	Number of participants	Continue with cycle proficiency (Bikeability) courses in local schools*	Delivery of bikeability training
				2018	2030	SRBC DEFRA Eco Centre	DEFRA grant funding	funded	£50k - £100k	Implementation		Schools signing up to project	Deliver the Clean Air Crew project (Defra funded KS2 project)	Delivery of the Clean Air Crew project

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[4], 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.

South Ribble Borough Council is taking the following measures to address $PM_{2.5}$, either directly or indirectly as a co benefit of other projects.

- Delivery of the Air Quality Action Plan
- Waiting for DNO connections to enable decarbonisation work at all of our leisure centres to go live.
- Continuing to install EV charging points and working with Lancashire County Council to secure addition chargers via LEVI funding.
- Continual monitoring of PM levels via the Zephyr air quality sensors to establish levels and trends within two of our AQMAs and to promote the live public portal to residents.
- Continue to promote and support the Defra funded Clean Air Crew schools' project.
- Continue to support national campaigns such as Ready to Burn and Clean Air Day
- Working with Lancashire County Council and other Lancashire authorities to develop the Lancashire Local Cycling and Walking Infrastructure Plan
- Continuing to deliver bikeability and Dr Bike workshops to encourage the use of active travel options.

The majority of the borough of South Ribble is covered by 34 smoke control orders. The process to start updating these orders into one borough wide order will commence in 2025.

In 2024, 79 smoke related contacts were dealt with by our Environmental Health Team. None required warning letters, all were responded to, and advice given where necessary.

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

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

This section sets out the monitoring undertaken within 2024 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 2020 and 2024 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

The following interpretation of data is sourced from Earthsense Zephyr continuous monitoring sensors and are for indicative purposes only.

3.1.1 Continuous Monitoring Sites

South Ribble Borough Council undertook continuous monitoring at 3 sites during 2024. Table A.2 in Appendix G shows the details of the air quality sensor monitoring sites.

The South Ribble Borough Council | EarthSense page presents air quality sensor monitoring results for South Ribble Borough Council, with automatic monitoring results also 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

South Ribble Borough Council undertook non-automatic (i.e. passive) monitoring of NO_2 at 45 sites during 2024. South Ribble does **not have automatic monitors.**

Equivalent EarthSense continuous monitoring sensor data is available in Appendix G

Table A.3 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)

South Ribble does **not have automatic monitors.**

Equivalent EarthSense continuous monitoring sensor data is available in Appendix G

Table A.5 in Appendix A and Table G.2 in Appendix G 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 2024 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 G.3 in Appendix G compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

The data that is available indicates that there are no exceedances of the annual mean objectives. The process to start the revocation of the AQMAs will start in 2025.

3.2.2 Particulate Matter (PM_{10})

Table G.4 in Appendix G 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 G.5 in Appendix G 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.

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 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 G.3 in Appendix G compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

The data that is avaliable indicates that there are no exceedances of the annual mean objective.

3.2.3 Particulate Matter (PM_{10})

Table G.4 in Appendix A: Monitoring Results G 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 G.5 in Appendix G 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.

South Ribble Borough Council monitors PM_{10} using Zephyr air quality sensors. The data indicates that there are no exceedances of the annual mean objective. There were four exceedances of the PM_{10} means >50µg/m^3 at site Z3 which is situated in AQMA5. This result is well below the allowed 35 exceedances in a year and will not impact on the revocation of the AQMA.

3.2.4 Particulate Matter ($PM_{2.5}$)

Table G.6 in Appendix G presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

South Ribble Borough Council monitors $PM_{2.5}$ using Zephyr air quality sensors. The data indicates that there are no exceedances of the annual mean objective.

3.2.5 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.2 – Details of Automatic Monitoring Sites

South Ribble does not have automatic monitors.

Equivalent EarthSense continuous monitoring sensor data is available in Appendix G

Table A.3 – 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	421781	NO_2	No	0.0		No	2.4
4	12 Turpin Green Lane/Charnock St, Leyland	Roadside	354527	422371	NO_2	AQMA 5	0.0	5.2	No	2.3
5	38 Turpin Green Lane, Leyland	Roadside	354588	422269	NO_2	AQMA 5	0.0	5.6	No	2.6
6	"Gentle Touch" 65 Turpin Green Lane, Leyland	Roadside	354678	422249	NO_2	AQMA 5	0.0	5.6	No	2.2
7	66 Turpin Green Lane, Leyland	Roadside	354730	422212	NO_2	AQMA 5	0.0	7.8	No	2.2
8	87 Turpin Green Lane, Leyland	Roadside	354744	422231	NO_2	AQMA 5	0.0	5.7	No	2.0
9, 10, 11	36 Golden Hill Lane	Roadside	354438	422645	NO_2	AQMA 5	0.0	2.9	No	2.2
12, 13, 14	130 Golden Hill Lane	Roadside	353890	422654	NO_2	AQMA 5	0.0	2.6	No	2.1
15	57 Leyland Lane	Roadside	353048	422809	NO_2	No	0.0	4.9	No	2.6
16	233 Leyland Lane, Penwortham	Roadside	353751	426828	NO_2	No	4.0	2.4	No	2.2
17	28-30 Watkin Lane, Lostock Hall	Roadside	354514	425695	NO_2	AQMA 3	0.0	5.4	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)
18	Spar, Watkin Lane, Lostock Hall	Roadside	354368	425783	NO_2	AQMA 3	0.0	2.4	No	2.3
19	13 Brownedge Road, Lostock Hall	Roadside	354410	425835	NO_2	AQMA 3	0.0	2.7	No	2.3
20, 21, 22	Tardy Gate PH, Leyland Rd, Lostock Hall	Roadside	354354	425845	NO_2	AQMA 3	0.0	4.1	No	2.3
23	477 Leyland Road, Lostock Hall	Roadside	354296	425903	NO_2	AQMA 3	4.9	2.6	No	2.3
24	11 Library Liverpool Road, Penwortham	Roadside	352116	428445	NO_2	No	0.0	9.8	No	2.1
25	"Robert & Co", 36e Liverpool Road, Penwortham	Roadside	351875	428428	NO_2	No	0.0	2.4	No	2.8
26	Fleece Inn, 43 Liverpool Road, Penwortham	Roadside	351891	428404	NO_2	No	3.5	1.5	No	2.2
27, 28	Upper Crust / Dewhurst Homes, Liverpool Road, Penwortham. LOWER	Roadside	351927	428460	NO_2	No	3.5	1.5	No	2.0
29	The Cawsey, Penwortham	Roadside	354175	426713	NO_2	No	0.0	9.7	No	2.3
30	Boad Oak Lane, Penwortham	Roadside	351879	426968	NO_2	No	0.0	6.4	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)
31	14 Victoria Road, Walton-le-Dale	Roadside	355370	428571	NO_2	AQMA 2	4.4	2.7	No	2.0
32, 33, 34	40 Victoria Road, Walton-le-Dale	Roadside	355429	428518	NO_2	AQMA 2	0.0	2.0	No	2.2
35	69 Victoria Road, Walton-le-Dale	Roadside	355521	428467	NO_2	AQMA 2	0.0	2.0	No	2.8
36	146/Library, Station Road, Bamber Bridge	Roadside	356437	426303	NO_2	AQMA 4	0.0	6.1	No	2.2
37	243 Station Road, Bamber Bridge	Roadside	356530	425840	NO_2	AQMA 4	0.0	8.9	No	2.5
38	244 Station Road, Bamber Bridge	Roadside	356506	425793	NO_2	AQMA 4	4.1	2.9	No	2.2
39	266 Station Road, Bamber Bridge	Roadside	356511	425695	NO_2	AQMA 4	0.0	3.0	No	2.4
40	361 Station Road, Bamber Bridge	Roadside	356426	425364	NO_2	AQMA 4	0.0	1.6	No	2.2
41	301 Station Road, Bamber Bridge	Roadside	356510	425601	NO_2	AQMA 4	0.0	7.1	No	2.2
42	M6, Brindle Road, Bamber Bridge	Roadside	357241	426078	NO_2	No	0.0	1.5	No	2.0
43	111 Leyland Road, Penwortham	Roadside	353231	427710	NO_2	No	0.0	1.3	No	2.2
44	St Mary Mag. Church, Buller Road, Penwortham	Roadside	353261	427780	NO_2	No	0.0	2.5	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)
45	Middleforth Pharmacy, Leyland Road, Penwortham	Roadside	353154	427880	NO_2	No	0.0	4.5	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.4 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

South Ribble does not have automatic monitors.

Equivalent EarthSense continuous monitoring sensor data is available in Appendix G

Table A.5 – 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 2024 (%) (2)	2020	2021	2022	2023	2024
1	353626	421781	Urban Background	91.7	91.7	12.4	12.2	11.7	10.6	9.8
2	353626	421781	Urban Background	100.0	100.0	12.4	12.2	11.7	10.6	9.8
3	353626	421781	Urban Background	91.7	91.7	12.4	12.2	11.7	10.6	9.8
4	354527	422371	Roadside	100.0	100.0	28.9	26.5	25.5	24.9	22.7
5	354588	422269	Roadside	100.0	100.0	26.2	21.1	23.8	23.1	22.8
6	354678	422249	Roadside	100.0	100.0	31.8	33.8	27.8	30.6	30.5
7	354730	422212	Roadside	91.7	91.7	19.0	21.0	19.3	20.3	18.0
8	354744	422231	Roadside	100.0	100.0	30.1	32.3	29.6	29.8	26.5
9	354438	422645	Roadside	100.0	100.0	30.9	28.9	26.9	28.0	25.5
10	354438	422645	Roadside	91.7	91.7	30.9	28.9	26.9	28.0	25.5
11	354438	422645	Roadside	91.7	91.7	30.9	28.9	26.9	28.0	25.5
12	353890	422654	Roadside	100.0	100.0	28.2	28.1	27.0	27.8	26.0
13	353890	422654	Roadside	100.0	100.0	28.2	28.1	27.0	27.8	26.0
14	353890	422654	Roadside	100.0	100.0	28.2	28.1	27.0	27.8	26.0
15	353048	422809	Roadside	100.0	100.0	20.9	21.3	22.5	20.5	20.5
16	353751	426828	Roadside	100.0	100.0			17.0	15.8	14.9
17	354514	425695	Roadside	100.0	100.0	22.0	25.0	22.6	21.6	21.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
18	354368	425783	Roadside	100.0	100.0	23.8	25.6	24.5	24.4	23.8
19	354410	425835	Roadside	91.7	91.7	29.7	28.2	27.5	26.7	26.2
20	354354	425845	Roadside	100.0	100.0	27.7	28.4	26.6	25.8	25.0
21	354354	425845	Roadside	100.0	100.0	27.7	28.4	26.6	25.8	25.0
22	354354	425845	Roadside	100.0	100.0	27.7	28.4	26.6	25.8	25.0
23	354296	425903	Roadside	100.0	100.0	22.6	24.6	22.0	21.8	21.1
24	352116	428445	Roadside	91.7	91.7	16.4	18.2	19.9	17.5	15.7
25	351875	428428	Roadside	83.3	83.3	17.7	17.7	14.7	14.1	13.8
26	351891	428404	Roadside	91.7	91.7	18.0	17.9	17.3	15.6	15.7
27	351927	428460	Roadside	58.0	58.0	17.9	16.9	18.0	17.1	14.9
28	351927	428460	Roadside	100.0	100.0	19.0	17.6	16.9	16.5	16.3
29	354175	426713	Roadside	100.0	100.0		12.5	12.5	11.8	11.7
30	351879	426968	Roadside	91.7	91.7	21.0	22.0	20.3	18.9	16.8
31	355370	428571	Roadside	100.0	100.0	23.4	25.0	24.0	21.2	21.2
32	355429	428518	Roadside	100.0	100.0	23.0	22.9	24.1	22.3	20.6
33	355429	428518	Roadside	100.0	100.0	23.0	22.9	24.1	22.3	20.6
34	355429	428518	Roadside	100.0	100.0	23.0	22.9	24.1	22.3	20.6
35	355521	428467	Roadside	91.7	91.7	25.1	25.5	26.9	25.2	24.2
36	356437	426303	Roadside	100.0	100.0	23.5	24.6	23.4	21.9	20.6
37	356530	425840	Roadside	91.7	91.7	22.7	22.9	21.7	20.5	19.3

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 2024 (%) (2)	2020	2021	2022	2023	2024
38	356506	425793	Roadside	91.7	91.7	19.1	16.3	16.8	15.3	14.5
39	356511	425695	Roadside	91.7	91.7	26.9	27.2	28.2	23.4	21.5
40	356426	425364	Roadside	100.0	100.0	20.3	28.0	25.9	25.9	22.7
41	356510	425601	Roadside	100.0	100.0	28.4	20.5	18.8	17.4	18.1
42	357241	426078	Roadside	66.7	33.3					17.9
43	353231	427710	Roadside	100	50.0					23.1
44	353261	427780	Roadside	100	50.0					15.7
45	353154	427880	Roadside	100	50.0					18.9

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

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

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

Notes:

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

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

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

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

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

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

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

Figure A.1.1 – Trends in Annual Mean NO_2 Concentrations – AQMA 2 Walton le Dale

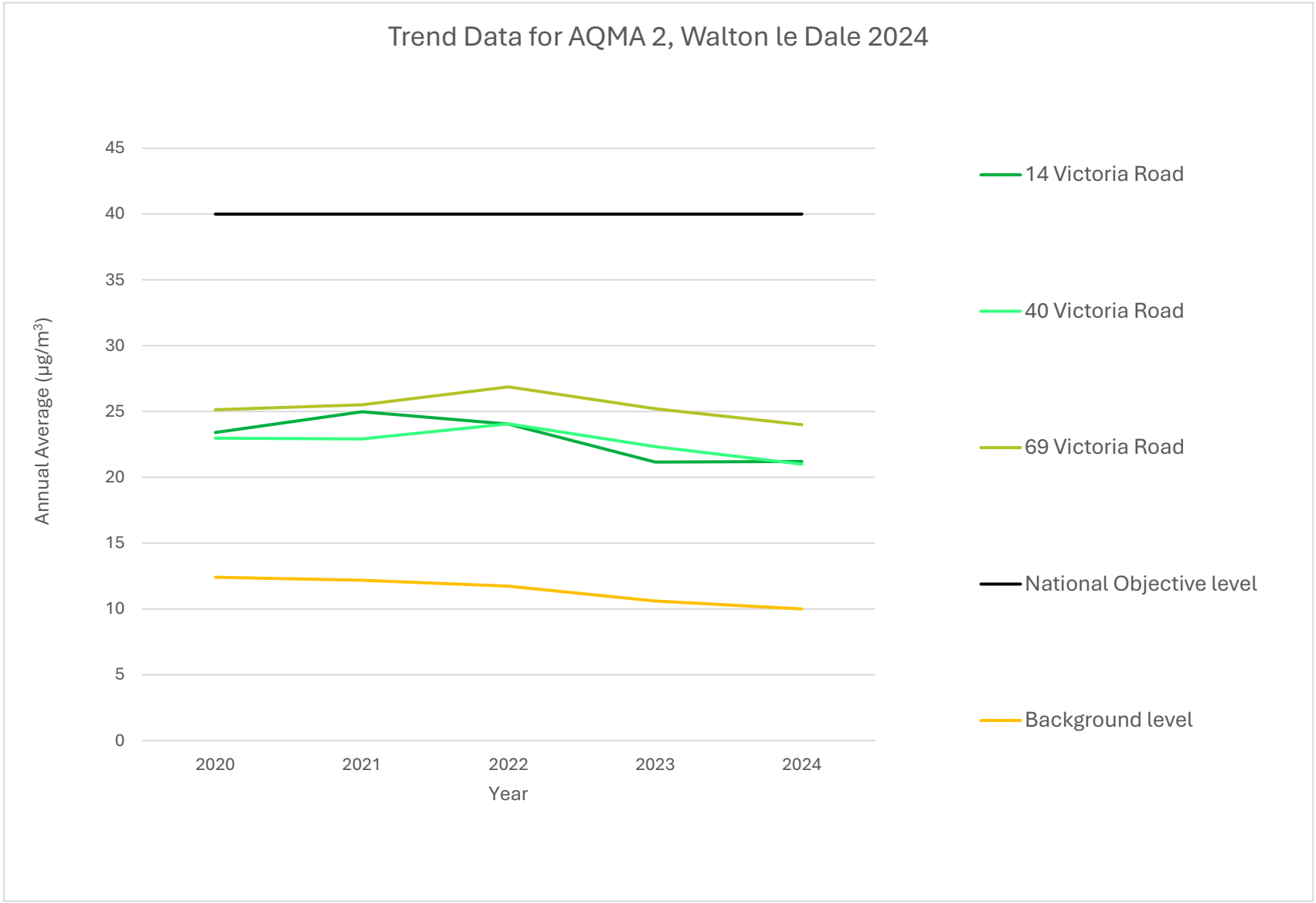


Figure A.2.2 – Trends in Annual Mean NO_2 Concentrations – AQMA 3 Lostock Hall

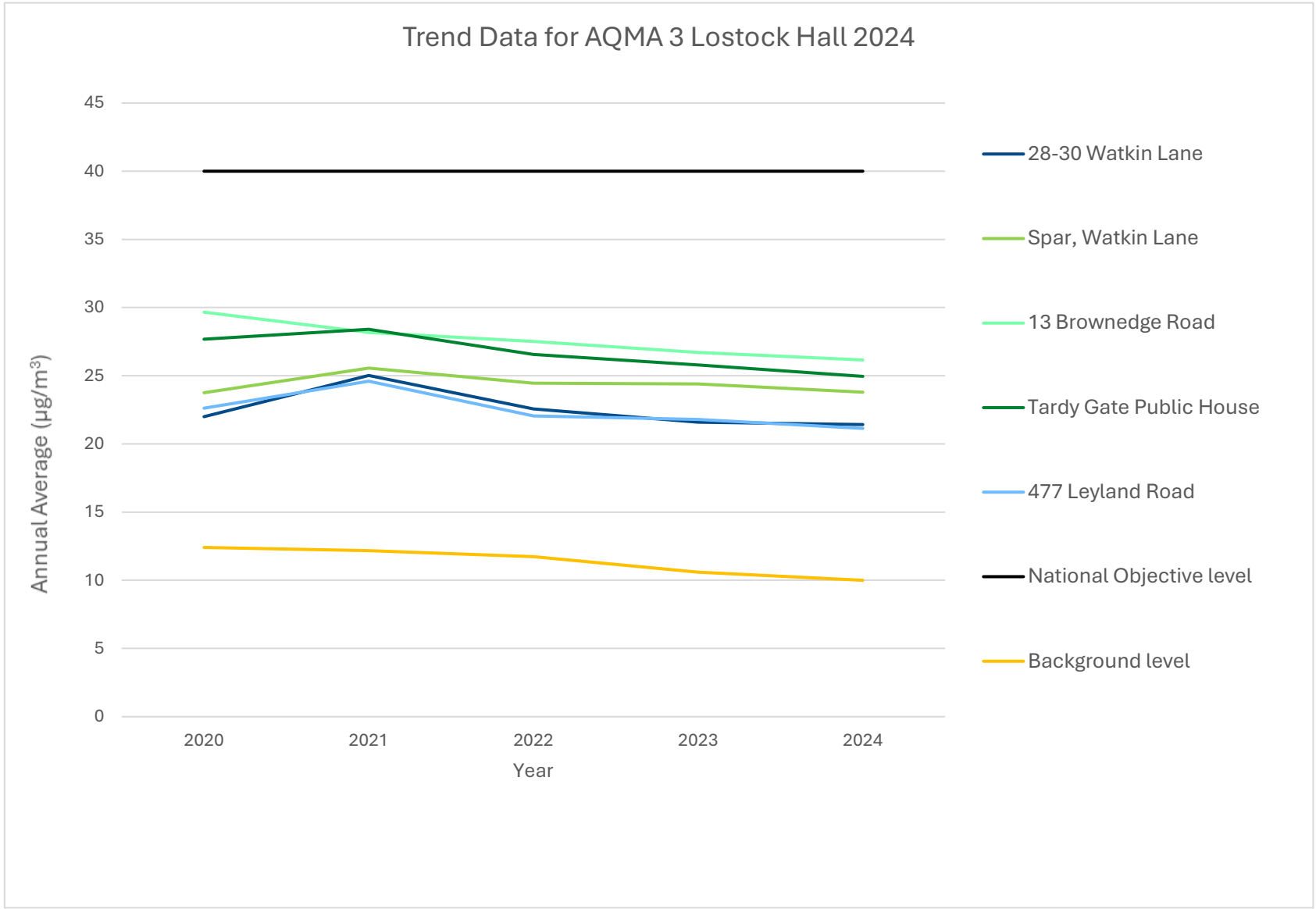


Figure A.3.3 – Trends in Annual Mean NO_2 Concentrations – AQMA 4 Bamber Bridge

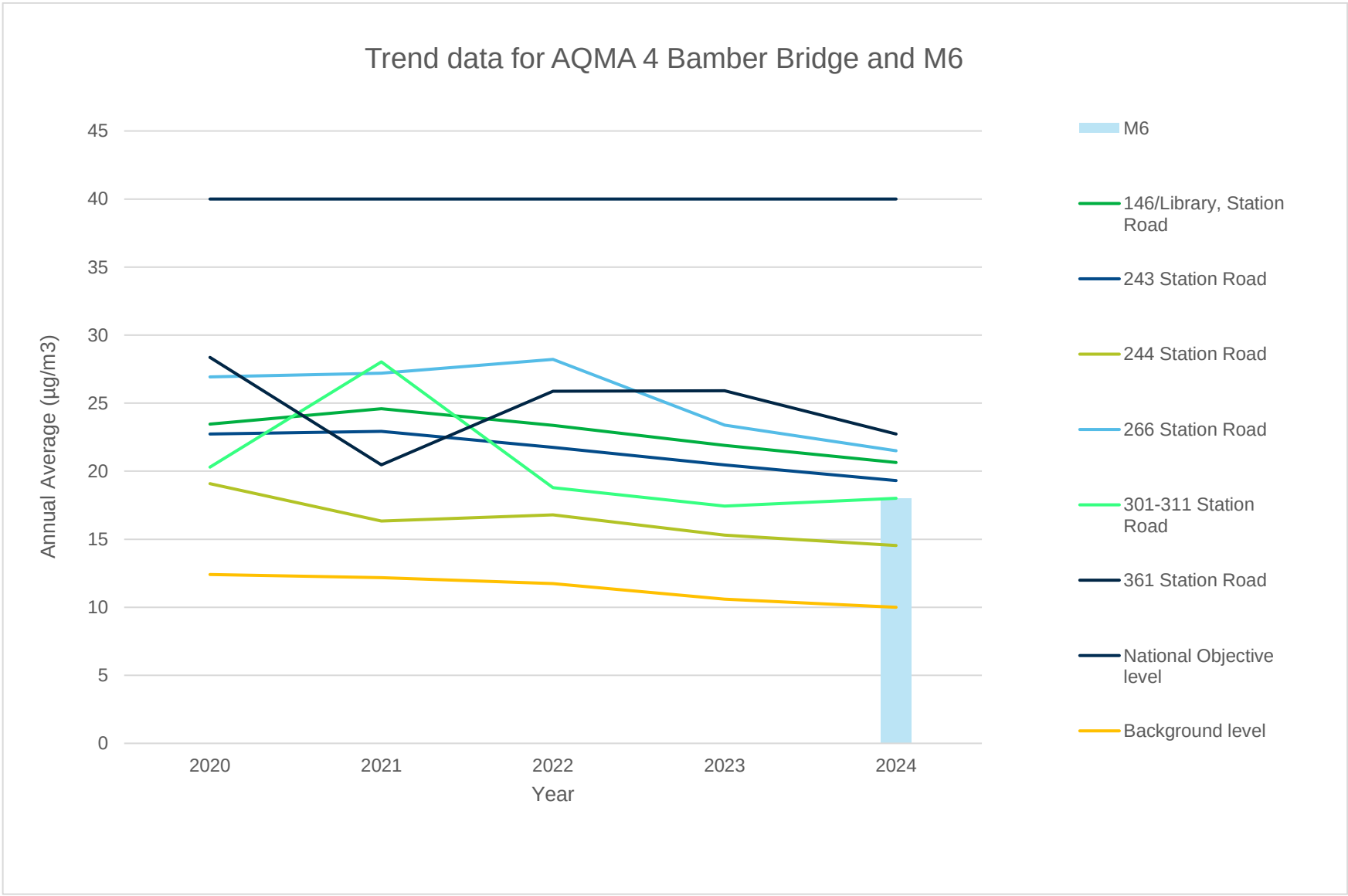


Figure A.4.4 – Trends in Annual Mean NO_2 Concentrations – AQMA 5 Leyland

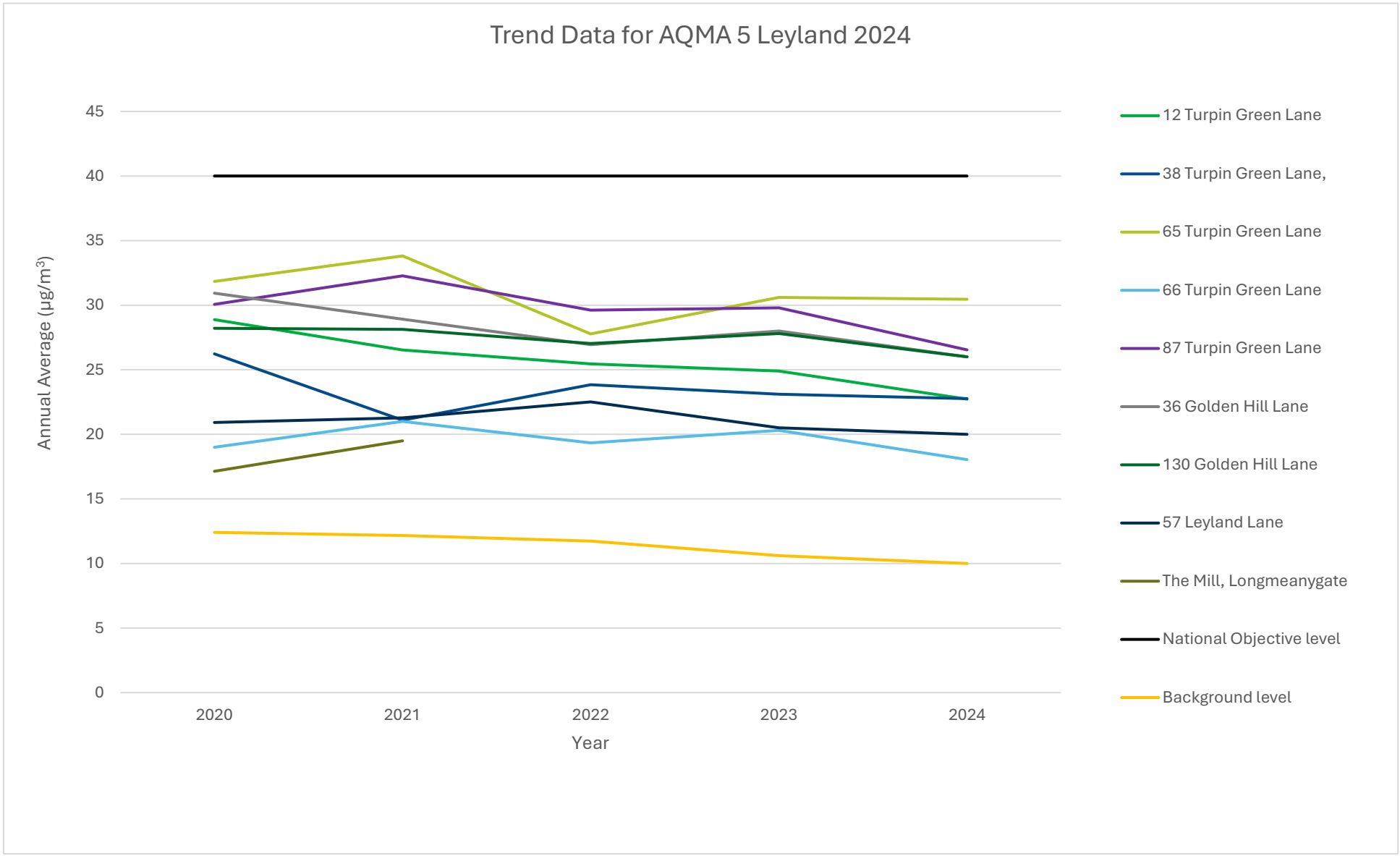


Figure A.5.5 – Trends in Annual Mean NO_2 Concentrations – Penwortham area

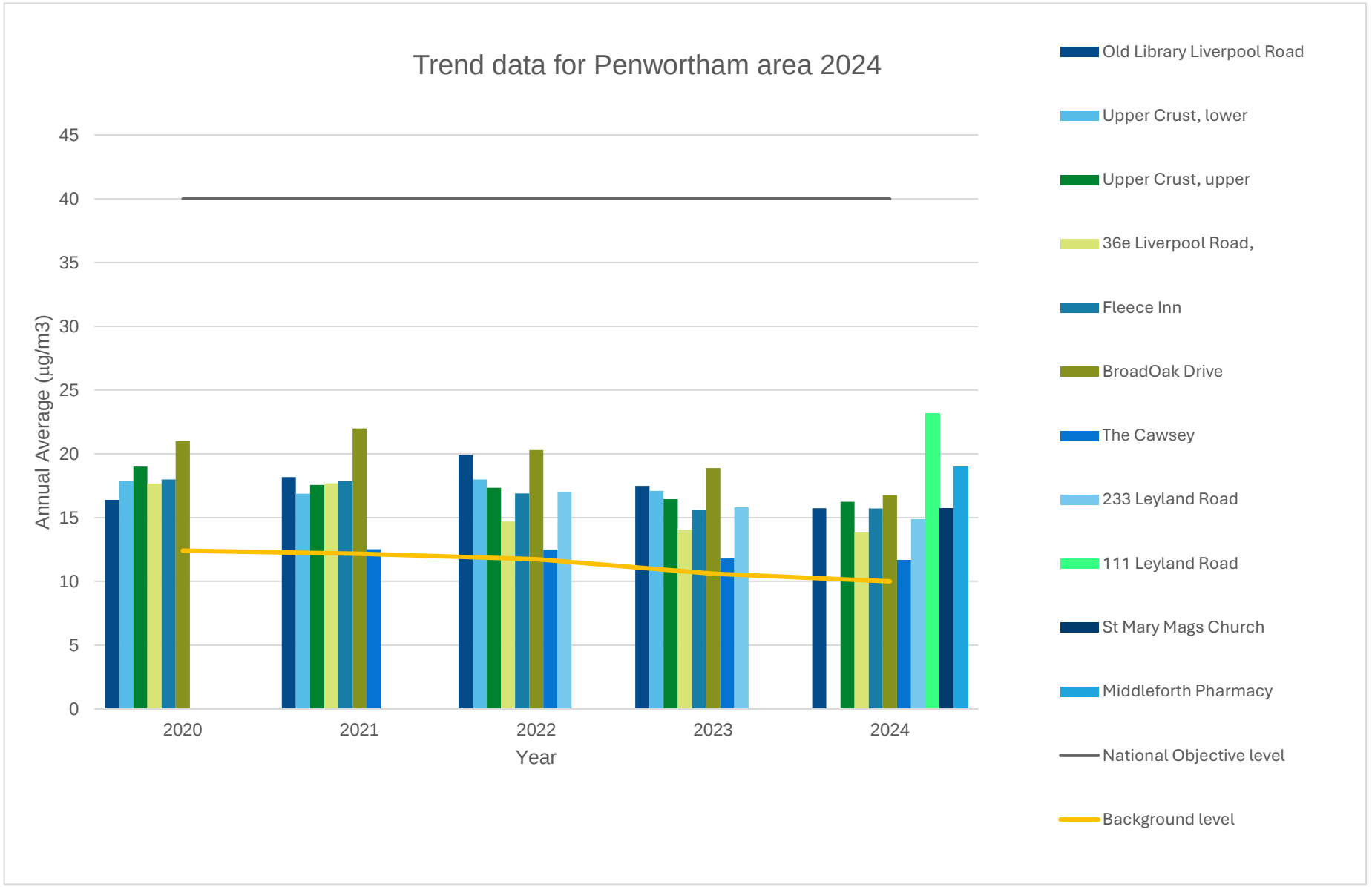


Table A.6 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

South Ribble does not have automatic monitors.

Equivalent EarthSense continuous monitoring sensor data is available in Appendix G

Table A.7 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

South Ribble does not have automatic monitors.

Equivalent EarthSense continuous monitoring sensor data is available in Appendix G

Table A.8 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

South Ribble does not have automatic monitors.

Equivalent EarthSense continuous monitoring sensor data is available in Appendix G

Table A.9 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

South Ribble does not have automatic monitors.

Equivalent EarthSense continuous monitoring sensor data is available in Appendix G

Table A.10 – SO_2 2024 Monitoring Results, Number of Relevant Instances

South Ribble Borough Council does not collect this data.

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO_2 2024 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 (0.88)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	353626	421781	19.0		11.2	9.1	9.4	5.2	8.7	7.0	11.2	16.7	20.7	12.7	11.1	9.8		
2	353626	421781	19.1	17.1	11.6	9.1	9.3	5.4	8.5	6.6	9.9	14.3	21.6	13.4	11.1	9.8		
3	353626	421781	18.9	14.9	12.4	8.7	9.2	5.3	8.7	6.8	10.4	15.5		13.4	11.1	9.8		
4	354527	422371	34.8	32.4	23.8	25.2	23.3	16.6	22.6	22.3	23.0	32.3	36.2	17.5	25.8	22.7		
5	354588	422269	33.0	28.7	21.9	25.8	23.5	21.0	22.6	23.7	22.4	29.7	34.6	23.4	25.9	22.8		
6	354678	422249	38.6	35.4	31.9	36.6	39.3	31.1	31.5	25.8	39.4	34.3	39.4	32.0	34.6	30.5		
7	354730	422212	26.2	24.3	17.5	17.0	21.4	13.8	17.0	14.0	21.6	23.5	29.3		20.5	18.0		
8	354744	422231	34.9	32.7	26.1	33.6	34.7	30.4	29.4	23.0	37.4	30.7	24.7	24.3	30.2	26.5		
9	354438	422645	16.7	34.2	28.3	30.4	31.5	28.3	26.9	25.5	31.6	33.9	41.8	32.0	29.0	25.5		
10	354438	422645	36.9	33.0	27.8	29.2	29.6	26.7	28.6	25.0	32.2	34.2	39.1		29.0	25.5		
11	354438	422645	37.7	33.2	23.4	31.4	30.5	27.7	27.2	23.8	29.9	33.8	**40.2**		29.0	25.5		
12	353890	422654	36.2	32.8	25.5	25.9	30.3	20.9	25.5	22.2	27.1	32.3	37.4	27.5	29.5	26.0		
13	353890	422654	39.3	35.8	31.4	25.9	29.6	20.2	22.9	22.5	26.2	34.1	**41.8**	31.8	29.5	26.0		
14	353890	422654	38.7	33.1	31.9	27.8	29.3	20.6	24.9	22.2	26.1	32.6	**40.0**	30.2	29.5	26.0		
15	353048	422809	27.6	27.9	24.4	21.2	20.6	13.4	19.1	16.5	20.0	0.7	63.9	23.8	23.3	20.5		
16	353751	426828	25.2	19.0	16.4	16.1	15.2	12.3	13.6	12.8	7.5	21.4	26.5	17.2	16.9	14.9		
17	354514	425695	31.7	28.7	22.1	21.0	24.9	16.7	19.1	17.6	23.0	27.8	36.7	22.9	24.3	21.4		
18	354368	425783	32.2	30.7	22.5	27.2	26.9	27.0	26.2	22.3	23.6	28.9	32.8	24.1	27.0	23.8		
19	354410	425835	35.7	25.9	25.4	29.1	32.9	27.5		23.2	31.2	29.2	37.8	29.0	29.7	26.2		
20	354354	425845	38.3	30.7	26.2	29.7	31.5	19.6	24.4	20.6	32.4	30.8	38.5	26.0	28.4	25.0		
21	354354	425845	**40.5**	28.4	28.5	24.3	29.1	21.9	24.1	19.1	28.5	31.4	36.9	25.8	28.4	25.0		
22	354354	425845	34.2	27.4	24.4	24.2	29.6	22.9	23.7	19.0	28.6	32.3	37.7	29.6	28.4	25.0		
23	354296	425903	29.3	26.8	25.8	23.3	25.9	14.2	18.9	16.4	26.2	26.0	34.9	20.5	24.0	21.1		
24	352116	428445	26.6	24.1	19.4	17.6	17.2	14.4	16.9	5.7	15.1		28.4	11.5	17.9	15.7		
25	351875	428428	23.7	22.9	18.4	11.5	5.3	7.8		10.8	13.7		26.3	16.9	15.7	13.8		
26	351891	428404	23.4	25.3	16.8	15.4	15.9	9.8	13.6	10.9	16.8	22.1	28.0	16.4	17.9	15.7		
27	351927	428460	23.7	20.6	15.6	12.8	16.9	11.2	13.0				10.3		15.5	14.9		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.88)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
28	351927	428460	23.1	20.3	18.4	15.7	16.8	10.0	15.2	10.9	15.7	24.7	30.2	20.6	18.5	16.3		
29	354175	426713	17.9	15.9	12.0	10.9	12.8	9.8	10.5	9.6	9.6	14.2	22.5	13.7	13.3	11.7		
30	351879	426968	21.4	22.2	18.2	17.8	19.1	14.6	18.7	19.0	17.3	22.5		18.8	19.0	16.8		
31	355370	428571	24.5	28.3	23.2	23.5	23.7	20.3	21.5	21.6	18.4	28.1	32.3	23.7	24.1	21.2		
32	355429	428518	29.9	29.3	20.7	21.3	19.2	21.4	22.0	20.7	19.3	26.1	31.3	25.3	23.4	20.6		
33	355429	428518	25.5	30.1	21.8	22.4	21.5	20.8	20.4	18.1	18.6	28.3	30.0	7.3	23.4	20.6		
34	355429	428518	31.6	26.6	24.1	23.6	20.9	19.8	20.8	21.5	19.1	29.6	28.0	26.7	23.4	20.6		
35	355521	428467	34.5	29.3		25.1	29.1	22.0	22.6	19.7	25.8	28.9	**40.2**	25.5	27.5	24.2		
36	356437	426303	31.3	28.4	22.8	23.1	23.1	16.2	20.3	8.0	23.7	26.7	33.9	24.0	23.5	20.6		
37	356530	425840	27.2	28.0	21.4	21.0	18.2	15.4	17.5	16.7	22.0		32.8	21.3	21.9	19.3		
38	356506	425793		18.6	16.8	14.5	15.8	9.6	13.3	11.6	15.4	21.3	26.0	18.8	16.5	14.5		
39	356511	425695	20.4	30.8	23.3	24.0	22.5	19.4	23.5	18.6	19.9	31.3	35.1		24.4	21.5		
40	356426	425364	35.4	33.7	29.0	25.8	7.4	18.7	24.1	23.0	23.2	32.4	30.2	27.3	25.8	22.7		
41	356510	425601	25.8	22.4	18.4	15.8	17.4	10.9	14.9	14.7	17.0	26.1	43.1	19.9	20.5	18.1		
42	357241	426078								10.2	2.5		35.2	23.0	17.7	17.9		
43	353231	427710							23.9	21.2	22.3	29.0	36.7	28.1	26.9	23.1		
44	353261	427780							13.4	11.3	17.1	21.9	28.5	17.2	18.2	15.7		
45	353154	427880							18.2	17.9	16.8	23.5	31.9	23.4	22.0	18.9		

☒ **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**

☒ **South Ribble Borough Council confirm that all 2024 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 During 2024

South Ribble Borough Council has not identified any new sources relating to air quality within the reporting year of 2024

Additional Air Quality Works Undertaken by South Ribble Borough Council During 2024

Source apportionment work was undertaken as part of the preparation of the Air Quality Strategy. This identified that within the borough of South Ribble, the percentage source contributions were as follows:

Main Sources of air pollution in South Ribble (according to DEFRA, 2022 data)

NO_2 (all results are below national targets)

1) Road transport (particularly diesel cars)
2) Industry combustion
3) Other UK sources

$PM_{2.5}$ and PM_{10} (all results are below national targets)

1) Road transport brake and tyre wear
2) Secondary inorganic aerosols (nitrate, ammonium, sulphate)
3) Domestic combustion

SO_2 emissions for the Borough are related to the West Coast Mainline but all the Defra data shows that levels are well below national targets.

Defra data suggests a hotspot of emissions around the M6 / A675 crossover. Subsequently new NO_2 monitoring equipment has been installed in this area in 2024.

Air quality modelling for 2018, 2023 and predictions for 2030 has been undertaken and the maps are available in Appendix F

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 2023 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 March 2025 spreadsheet.

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

Summary of Precision Results for Nitrogen Dioxide Diffusion Tube Collocation Studies by Laboratory, 2022 – 2024

Diffusion Tube Preparation Method	2022 Good	2022 Bad	2023 Good	2023 Bad	2024 Good	2024 Bad
Gradko, 50% TEA in Acetone	**16**	**0**	**14**	**0**	**11**	**0**
Gradko, 20% TEA in Water	33	0	21	0	26	0
ESG Didcot / SOCOTEC, 50% TEA in Acetone	29	0	28	0	30	3
ESG Didcot / SOCOTEC, 20% TEA in Water	11	0	4	0	1	0
Staffordshire Scientific Services	13	0	11	0	16	0
Glasgow Scientific Services	3	3	1	0	1	0
Edinburgh Scientific Services	1	0	0	1	1	1

Milton Keynes Council	1	0	1	0	1	0
Tayside Scientific Services	1	0	1	0	1	0
Lambeth Scientific Services	6	4	3	0	2	0
Aberdeen Scientific Services	7	0	7	0	6	0
ESG Glasgow, 50% TEA in Acetone	1	0	1	0	1	0
ESG Glasgow, 20% TEA in Water	1	0	1	0	1	0
Somerset County Council	14	0	4	0	4	0

The diffusion tube monitoring program has been completed in line with the 2024 Diffusion Tube Monitoring Calendar. All tubes were exposure for the minimum of 4 weeks with no tubes exposed for longer than 5 weeks.

Diffusion Tube Annualisation

Annualisation was required at five sites for the 2024 monitoring data.

Data from the nearest automatic continuous analysers at Preston and Wigan has been used to determine a suitable correction factor for each site.

Table C.1 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor <Site 1 Name>	Annualisation Factor <Site 2 Name>	Annualisation Factor <Site 3 Name>	Annualisation Factor <Site 4 Name>	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
27	Preston	Wigan	-	-	1.09	15.5	16.96
42	Preston	Wigan	-	-	1.15	17.7	20.32

Site ID	Annualisation Factor <Site 1 Name>	Annualisation Factor <Site 2 Name>	Annualisation Factor <Site 3 Name>	Annualisation Factor <Site 4 Name>	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
43	Preston	Wigan	-	-	0.98	26.9	26.30
44	Preston	Wigan	-	-	0.98	18.2	17.85
45	Preston	Wigan	-	-	0.98	22.0	21.50

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.

South Ribble Borough Council have applied a national bias adjustment factor of 0.88 to the 2024 monitoring data. A summary of bias adjustment factors used by South Ribble Borough Council over the past five years is presented in

Table C.2.

National Diffusion Tube Bias Adjustment Factor Spreadsheet

National Diffusion Tube Bias Adjustment Factor Spreadsheet

Spreadsheet Version Number: 04/25

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 2025

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)
Aberdeen Scientific Services	20% TEA in water	2024		Overall Factor[3] (6 studies)				Use		0.76
Edinburgh Scientific Services	50% TEA in acetone	2024		Overall Factor[3] (2 studies)				Use		0.83
Glasgow Scientific Services	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.82
Gradko	20% TEA in water	2024		Overall Factor[3] (27 studies)				Use		0.84
Gradko	50% TEA in acetone	2024		Overall Factor[3] (12 studies)				Use		0.88
Lambeth Scientific Services	50% TEA in acetone	2024		Overall Factor[3] (2 studies)				Use		0.81
Milton Keynes Council	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.75
SOCOTEC Didcot	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.75
SOCOTEC Didcot	50% TEA in acetone	2024		Overall Factor[3] (33 studies)				Use		0.78
SOCOTEC Glasgow	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.77
SOCOTEC Glasgow	50% TEA in acetone	2024		Overall Factor[3] (1 study)				Use		0.79
Somerset County Council	20% TEA in water	2024		Overall Factor[3] (4 studies)				Use		0.81
Staffordshire County Council	20% TEA in water	2024		Overall Factor[3] (16 studies)				Use		0.82
Tayside Scientific Services	20% TEA in water	2024		Overall Factor[3] (1 study)				Use		0.76

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	04/25	0.88
2023	National	03/24	0.83
2022	National	03/23	0.82
2021	National	03/22	0.83
2020	National	06/21	0.83

Table C.3 – 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 South Ribble Borough Council required distance correction during 2024.

QA/QC of Automatic Monitoring

The following data is sourced from Earthsense Zephyr continuous monitoring sensors and is for indicative purposes only.

Three Zephyr air quality sensors 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 South Ribble Borough Council officers.

Live and historic data is available at the following website: South Ribble Borough Council | EarthSense

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

The type of PM_{10}/$PM_{2.5}$ monitor(s) utilised within South Ribble do not require the application of a correction factor.

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

The type of EarthSense Zephyr sensor(s) utilised within South Ribble do not require the application of a correction factor.

Automatic Monitoring Annualisation

All continuous monitoring locations within South Ribble 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 South Ribble Borough Council required distance correction during 2024.

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

Figure D.1.1 – Map of Non-Automatic Monitoring Site – AQMA Locations in South Ribble

Figure D.2.2 – Map of Non-Automatic Monitoring Site – AQMA 2 Walton le Dale

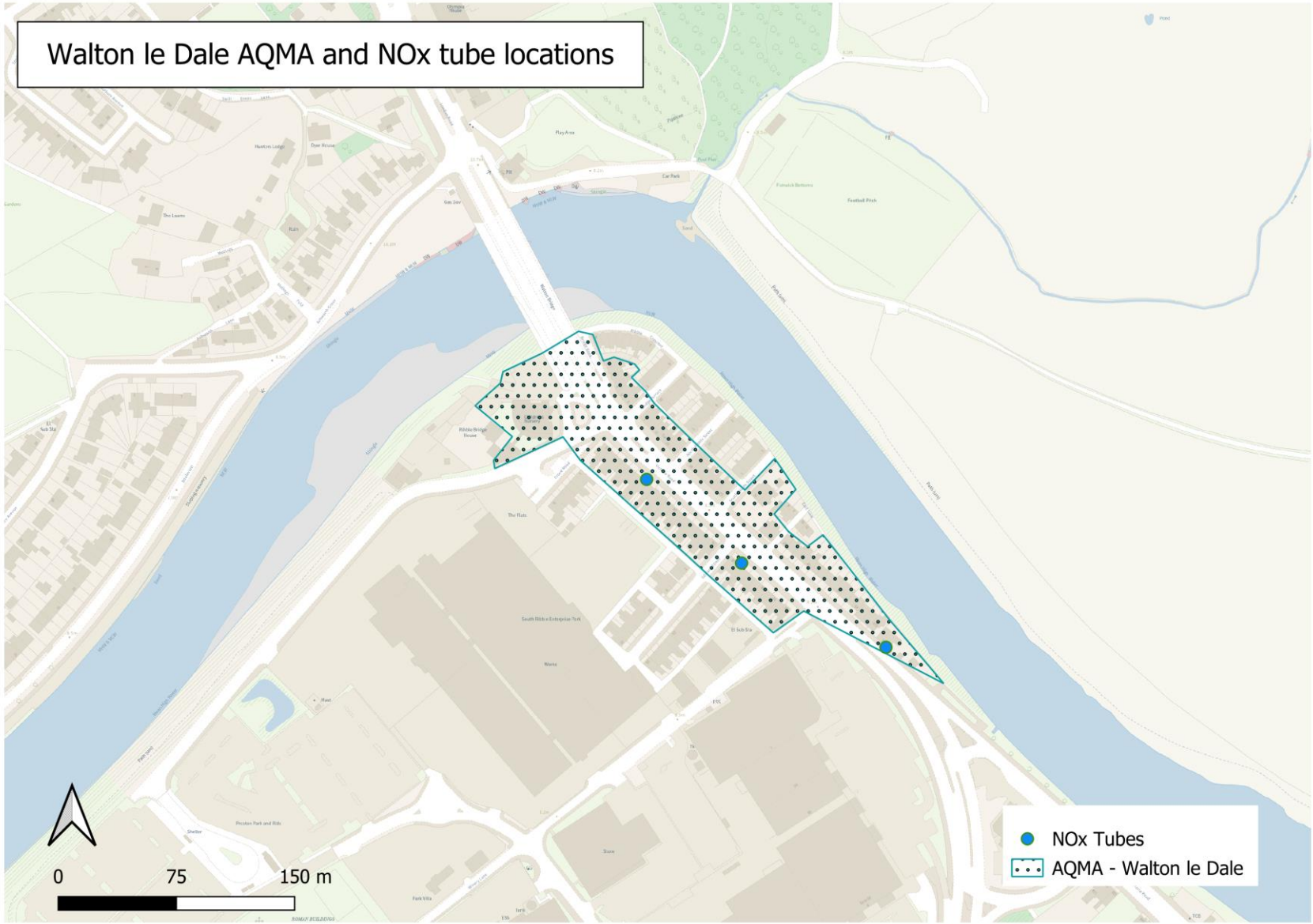


Figure D.3.3 – Map of Non-Automatic Monitoring Site – AQMA 3 Lostock Hall

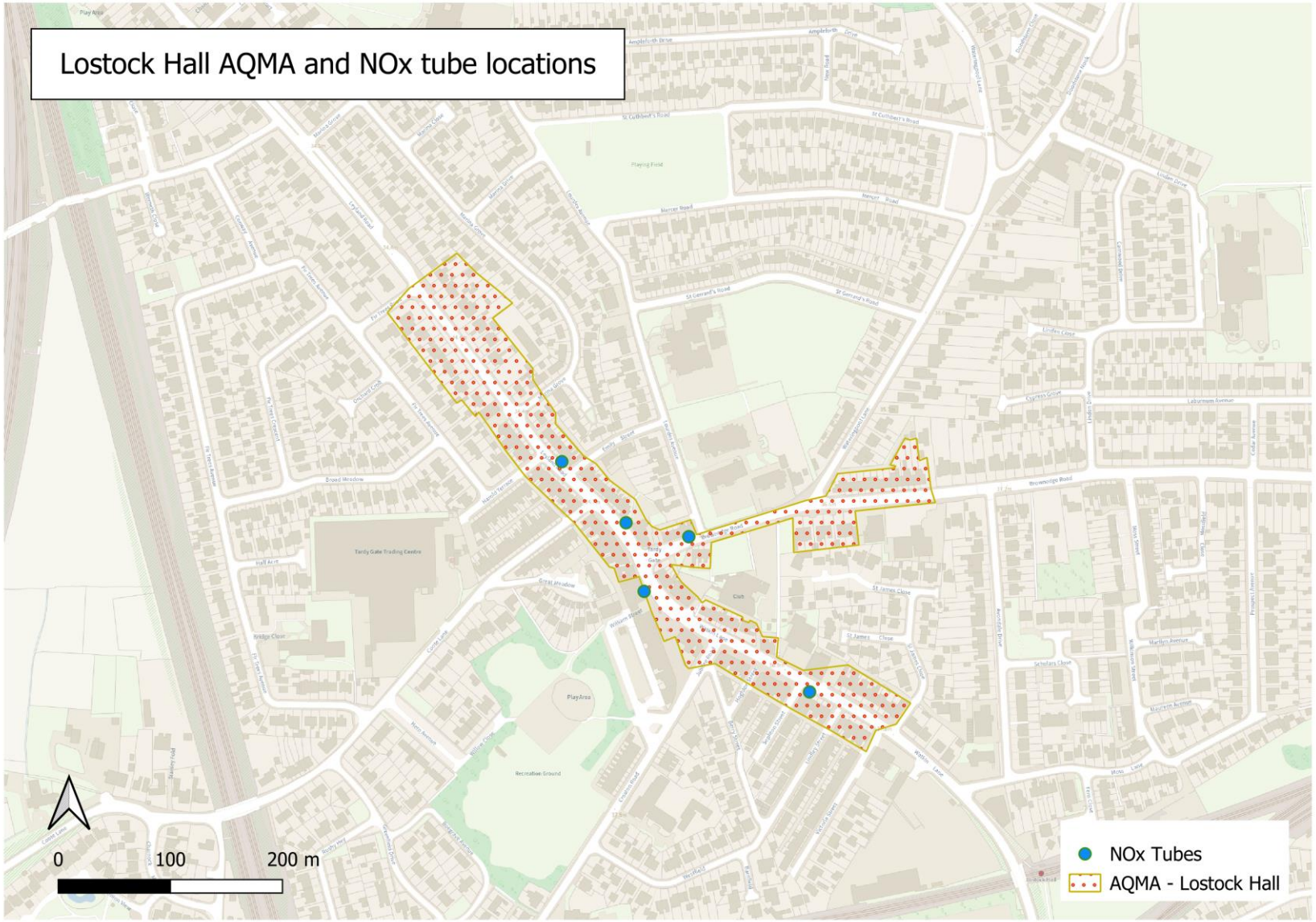


Figure D.4.4 – Map of Non-Automatic Monitoring Site – AQMA 4 Bamber Bridge and M6

Figure D.5.5 – Map of Non-Automatic Monitoring Site – AQMA 5 Leyland

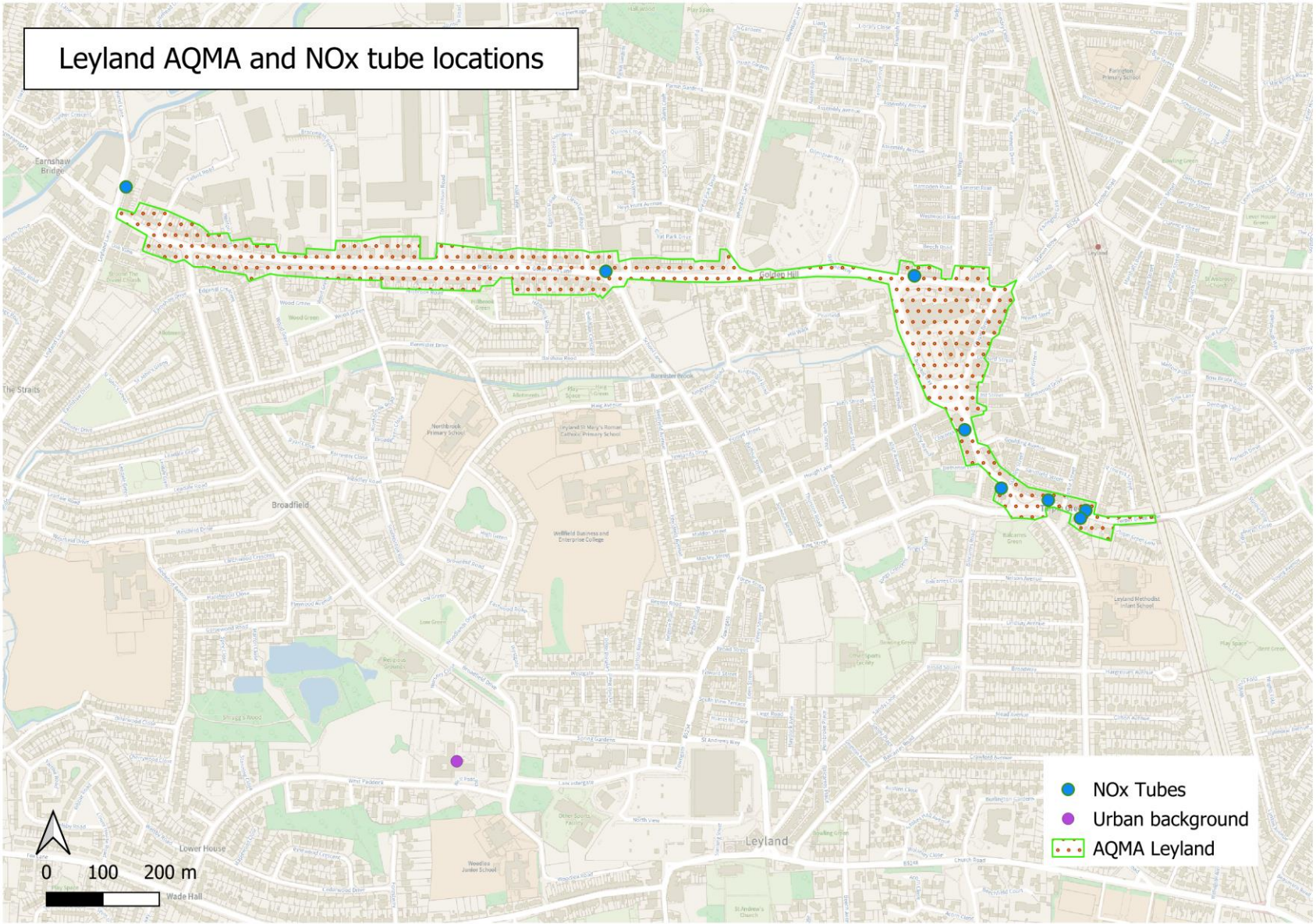


Figure D.6.6 – Map of Non-Automatic Monitoring Site – Penwortham area

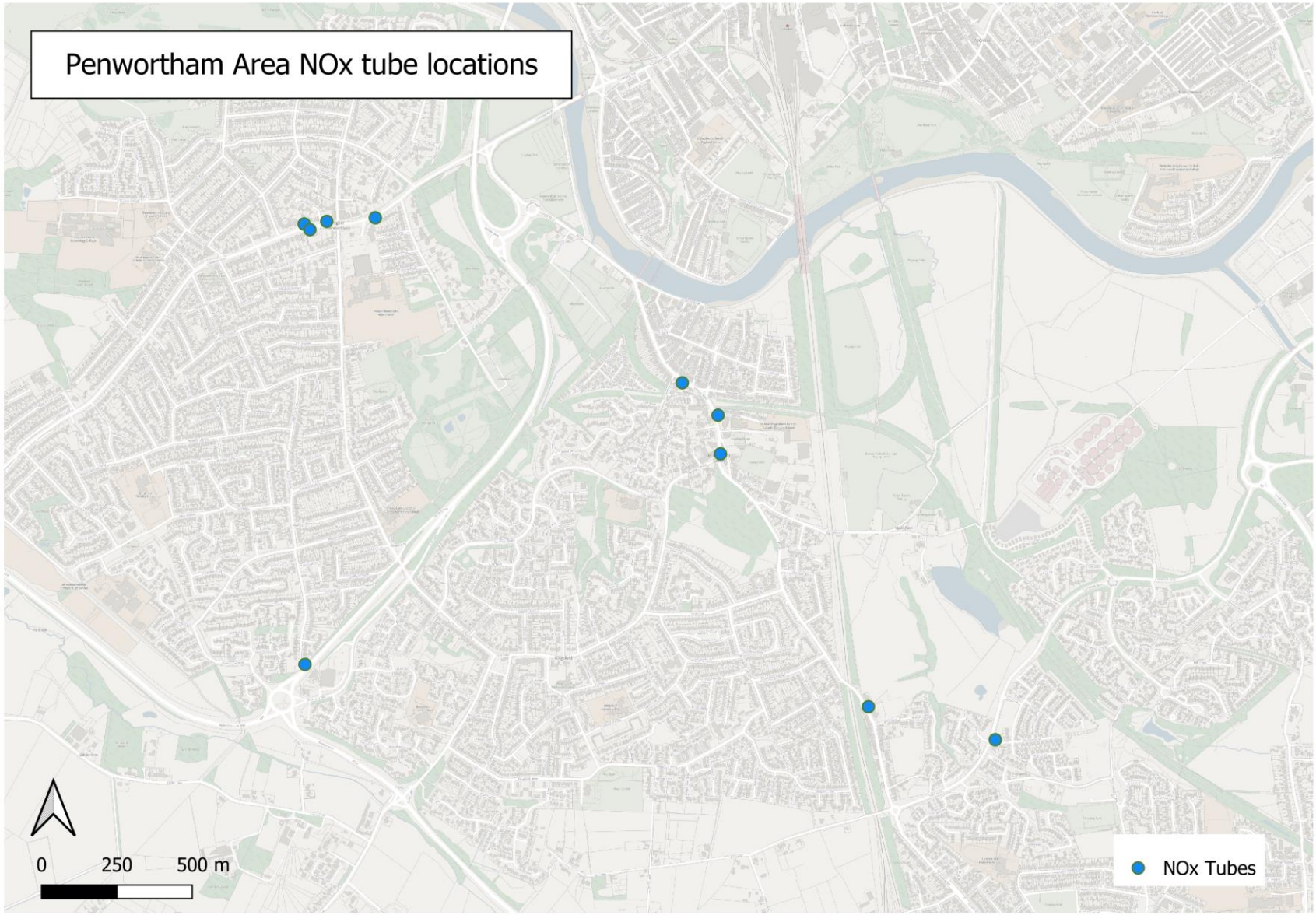


Figure D.7.7 – Map of Air Quality Sensor site – AQMA 3 Lostock Hall

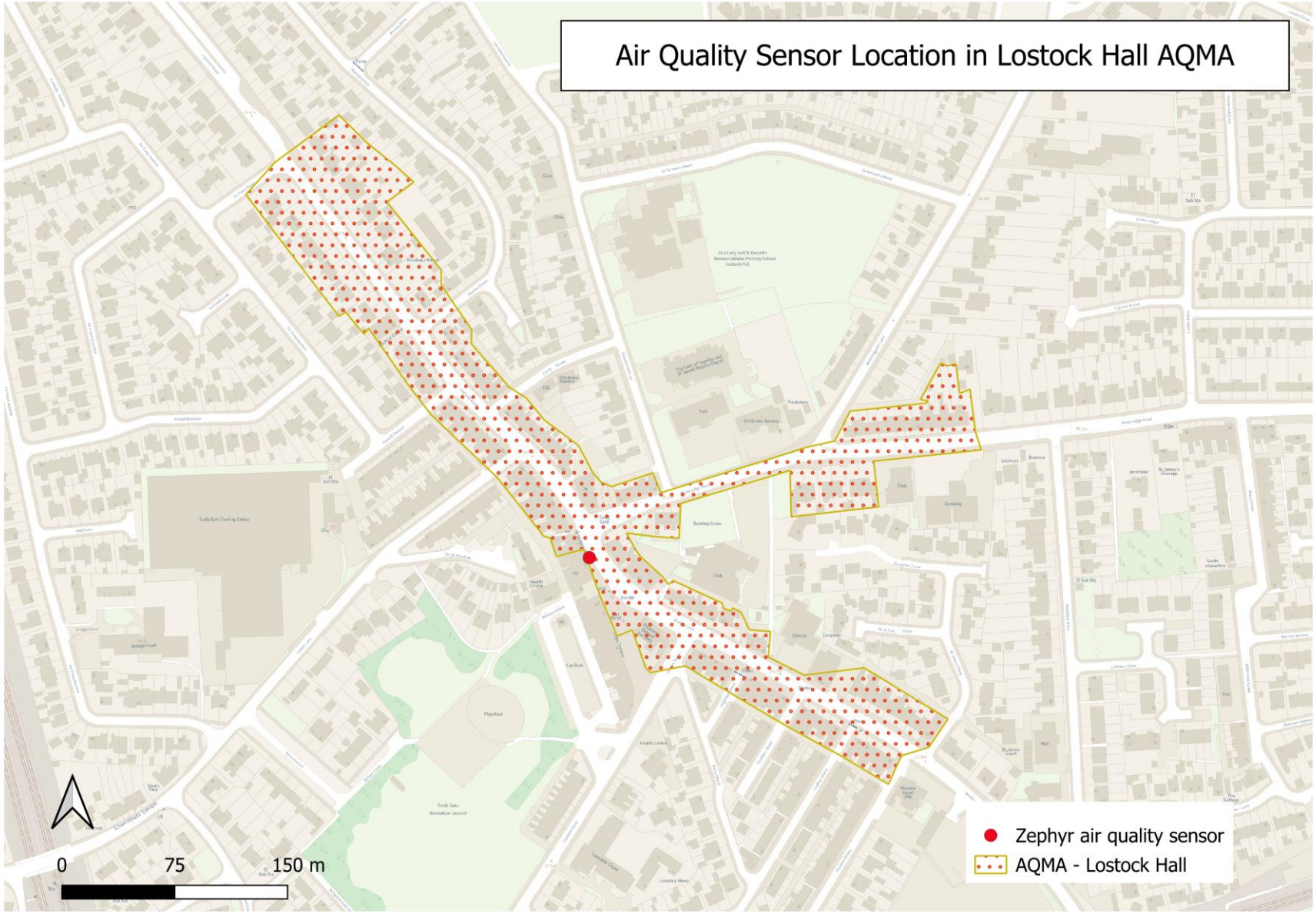
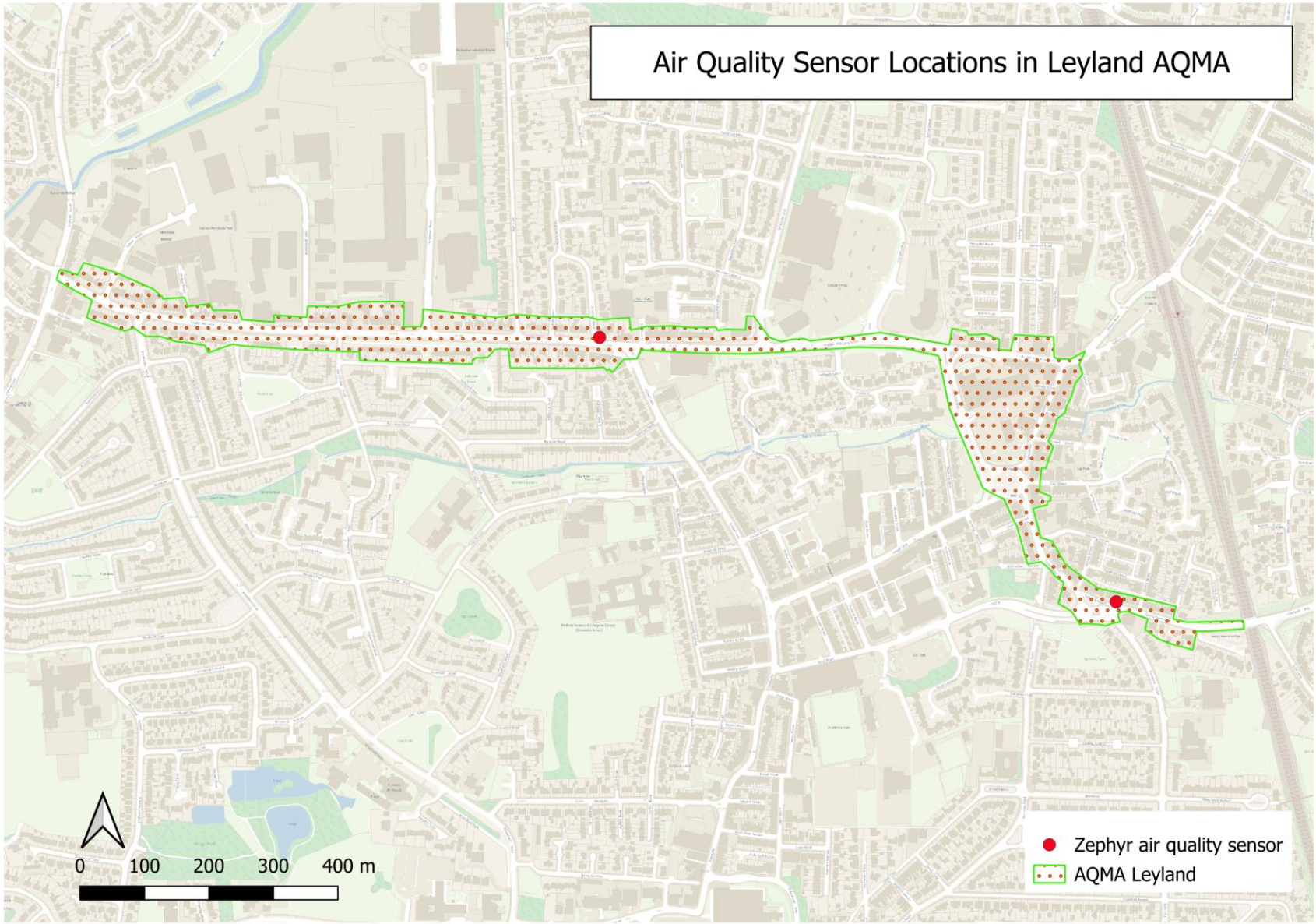


Figure D.8.8 – Map of Air Quality Sensor site – AQMA 5 Leyland



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[5]

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

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

Appendix F: Air quality modelling for 2018, 2023 and 2030 for NO_2, PM_{10} and $PM_{2.5}$

Figure F 1.1 – Maps of NO2 modelling for 2018, 2023 and 2030.

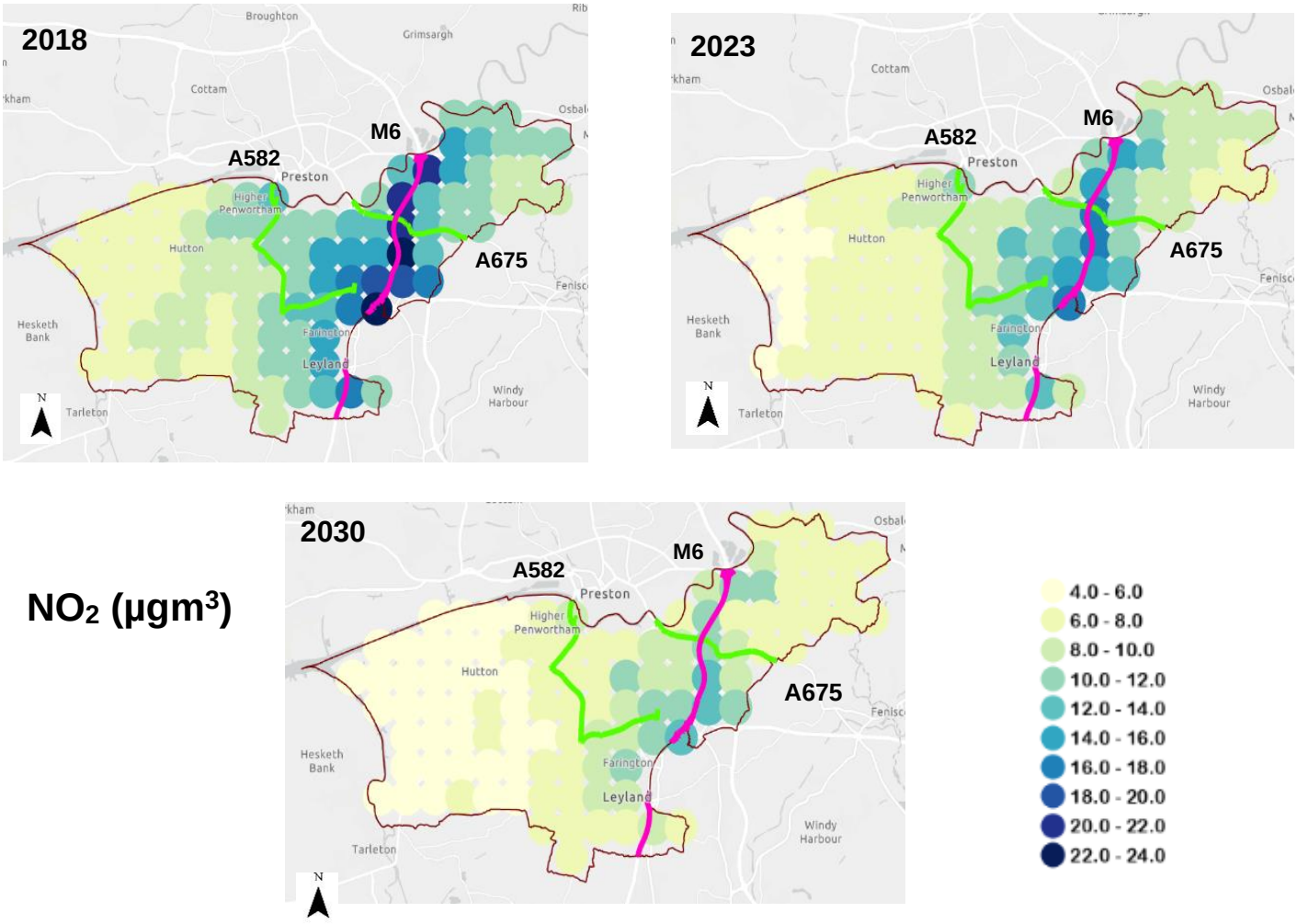


Figure F 1.2 – Maps of NO_2 modelling for 2018, 2023 and 2030.

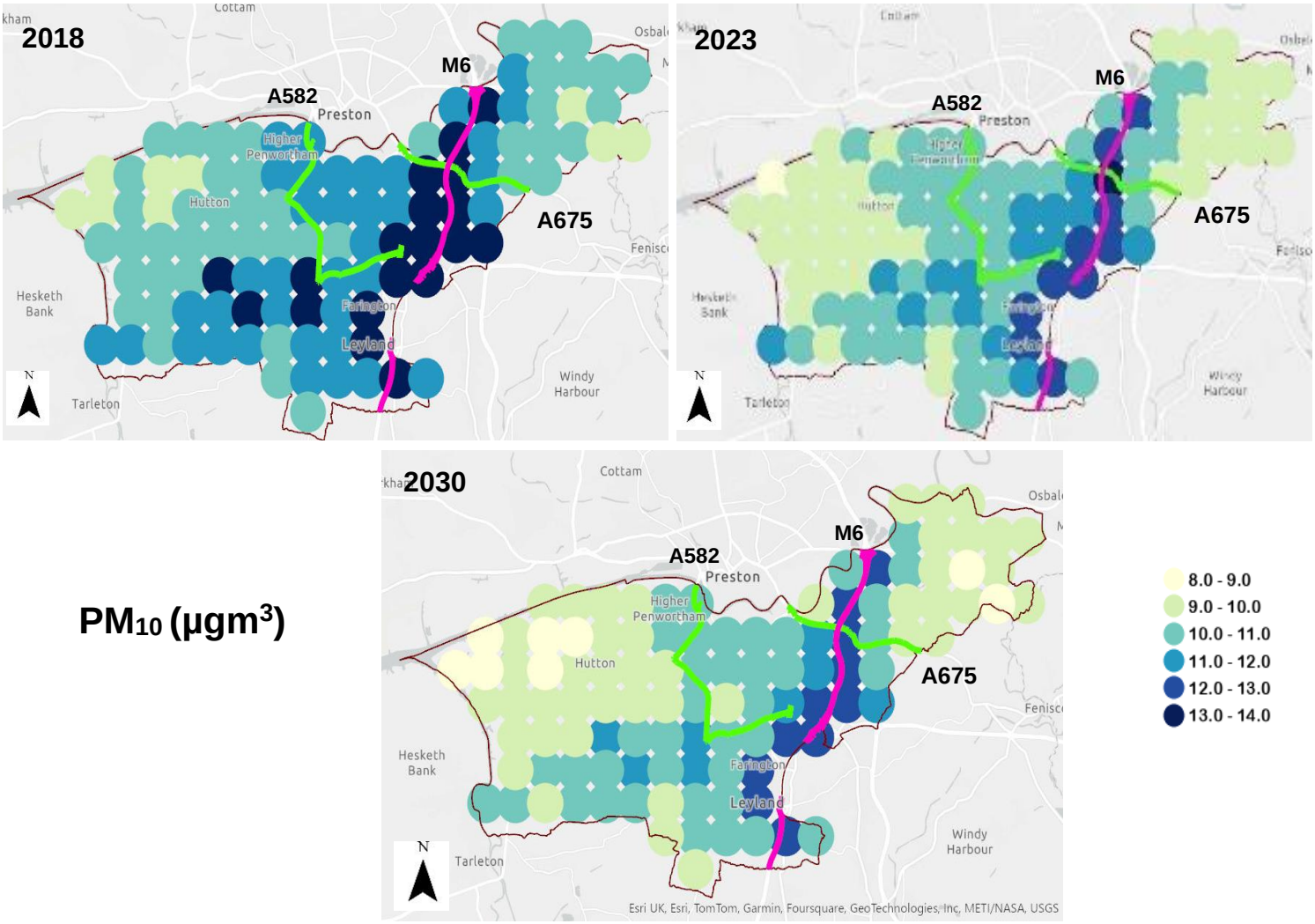
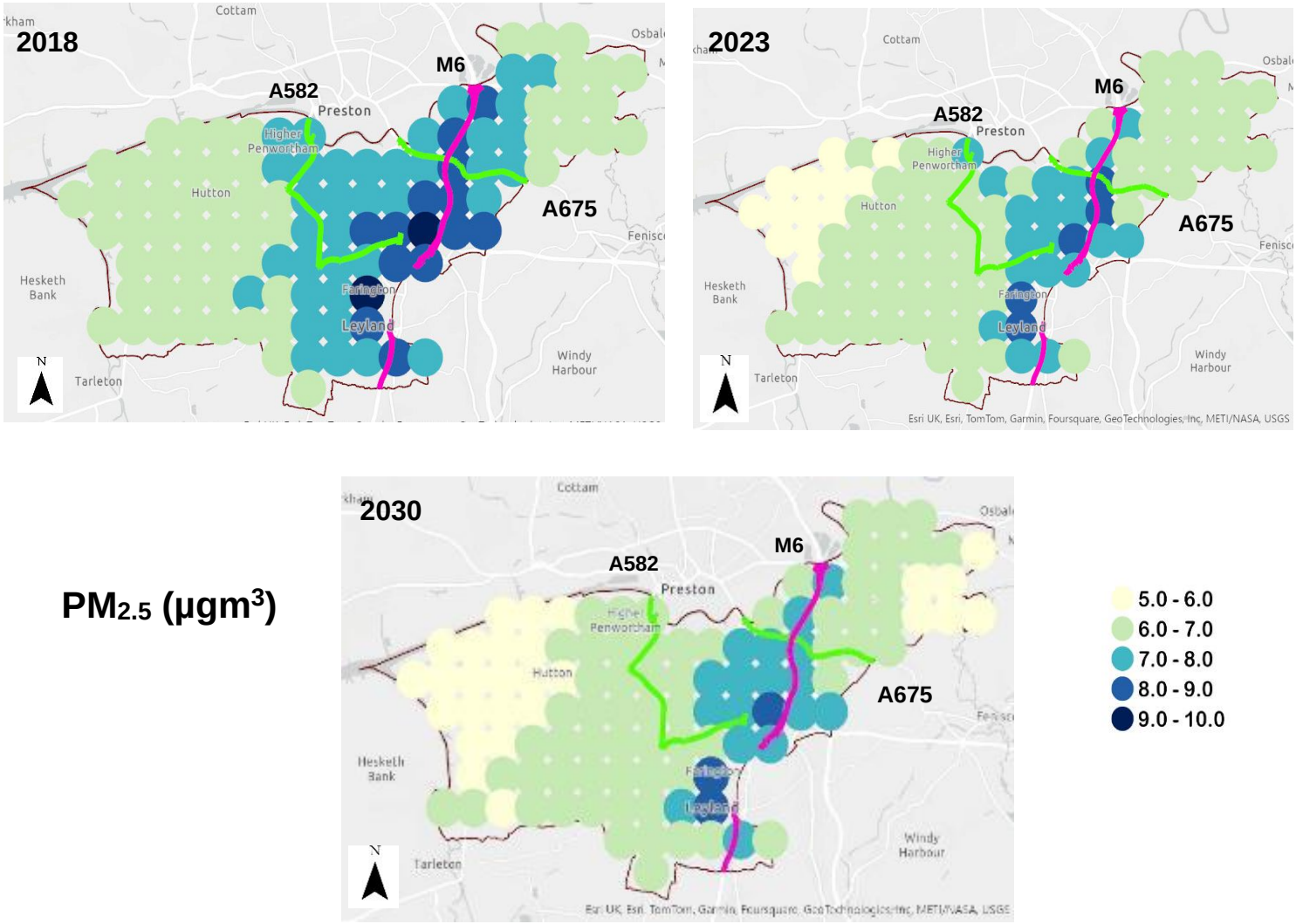


Figure F 1.3 – Maps of NO_2 modelling for 2018, 2023 and 2030.



Appendix G – Monitoring Results – Continuous Monitoring Sensors

The following data is sourced from Earthsense Zephyr continuous monitoring sensors and is for indicative purposes only.

Table G.11 – Details of Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? (1)	Monitoring Technique	Distance to Relevant Exposure (m) (2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
Z1	Lostock Hall	Roadside	354370	425788	NO, NO_2, O_3, PM_1, $PM_{2.5}$, PM_{10}	Yes	AQMA 3	Electrochemical sensor / Mass Concentration	3.2	1.4	3.0
Z2	Golden Hill Lane	Roadside	353866	422656	NO, NO_2, O_3, PM_1, $PM_{2.5}$, PM_{10}	Yes	AQMA 5	Electrochemical sensor / Mass Concentration	2.0	2.1	3.0
Z3	Turpin Green Lane	Roadside	354667	422249	NO, NO_2, O_3, PM_1, $PM_{2.5}$, PM_{10}	Yes	AQMA 5	Electrochemical sensor / Mass Concentration	4.9	1.6	3.0

Table G 2 - Annual Mean NO2 Monitoring Results: (µg/m3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
Z1	354370	425788	Roadside	100	78.0			21.6	23.9	28.7
Z2	353866	422656	Roadside	100	97.5			18.1	17.3	18.7
Z3	354667	422249	Roadside	100	91.8			26.6		39.0

Monitor was stolen in 2023 so no data to submit in the report

Table G 3 – 1 Hour Mean NO2 Monitoring Results, Number of 1-Hour Means > 200µg/m3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
Z1	354370	425788	Roadside	78.0	78.0			0	0	0
Z2	353866	422656	Roadside	97.5	97.5			0	0	0
Z3	354667	422249	Roadside	91.8	91.8			9		0

Monitor was stolen in 2023 so no data to submit in the report

Table G 4 - Annual Mean PM10 Monitoring Results (µg/m3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
Z1	354370	425788	Roadside	78.0	78.0			12.7	10.8	11.5
Z2	353866	422656	Roadside	97.5	97.5			11.0	9.5	10.4
Z3	354667	422249	Roadside	91.8	91.8			12.4		19.8

Monitor was stolen in 2023 so no data to submit in the report

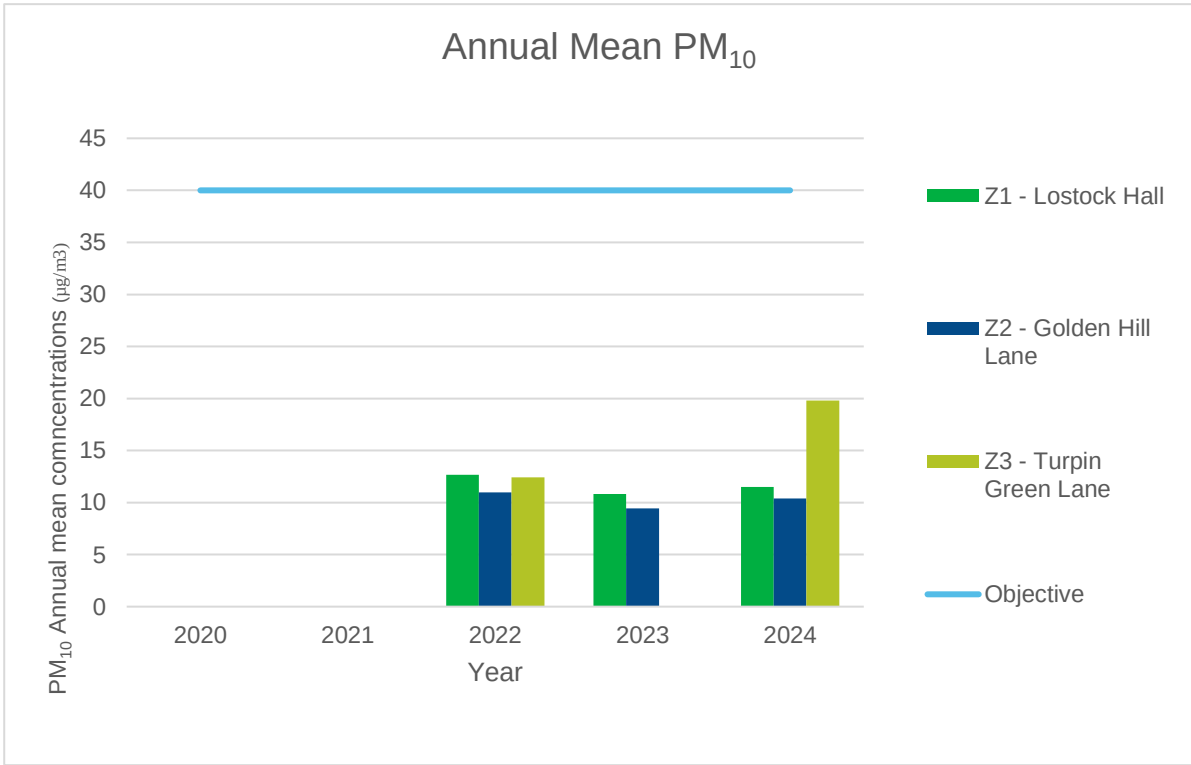


Table G 5 - 24-Hour Mean PM10 Monitoring Results, Number of PM10 24-Hour Means > 50µg/m3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
Z1	354370	425788	Roadside	78.0	78.0			1	0	0
Z2	353866	422656	Roadside	97.5	97.5			0	0	0
Z3	354667	422249	Roadside	91.8	91.8			1		4

Monitor was stolen in 2023 so no data to submit in the report

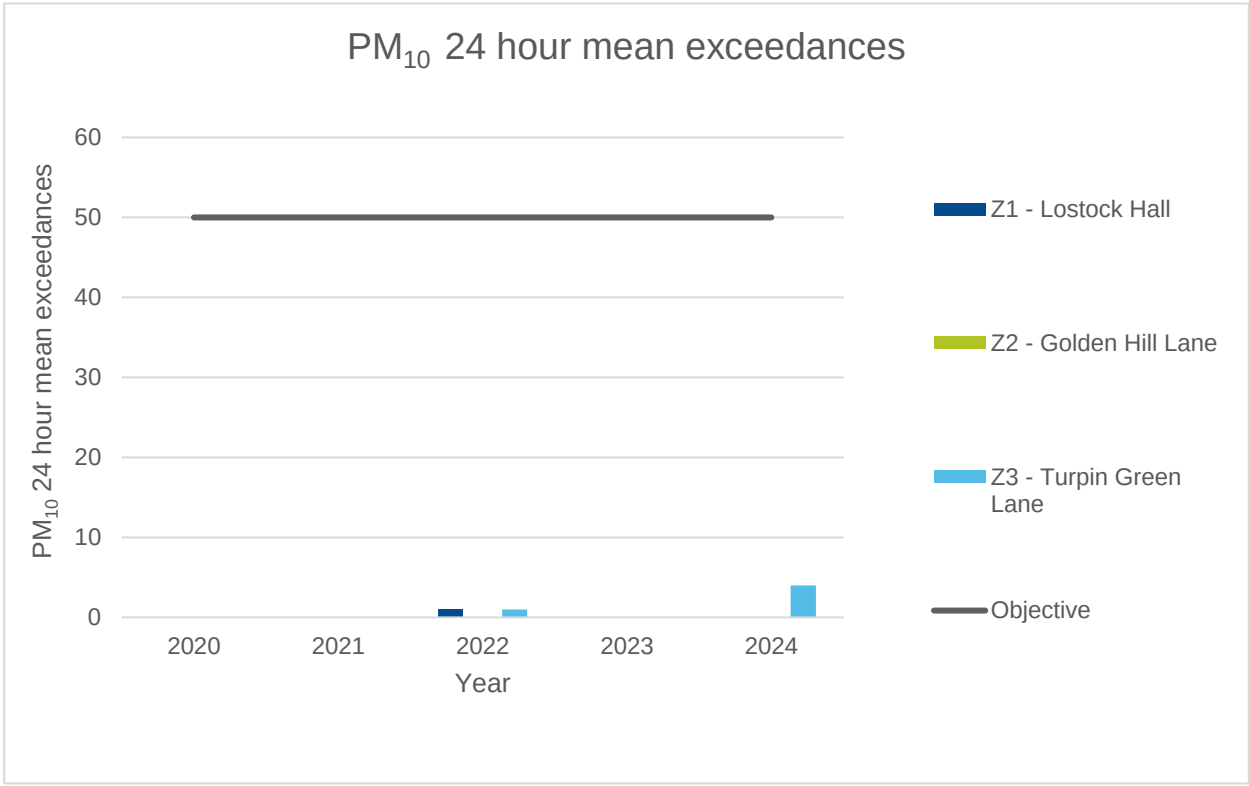
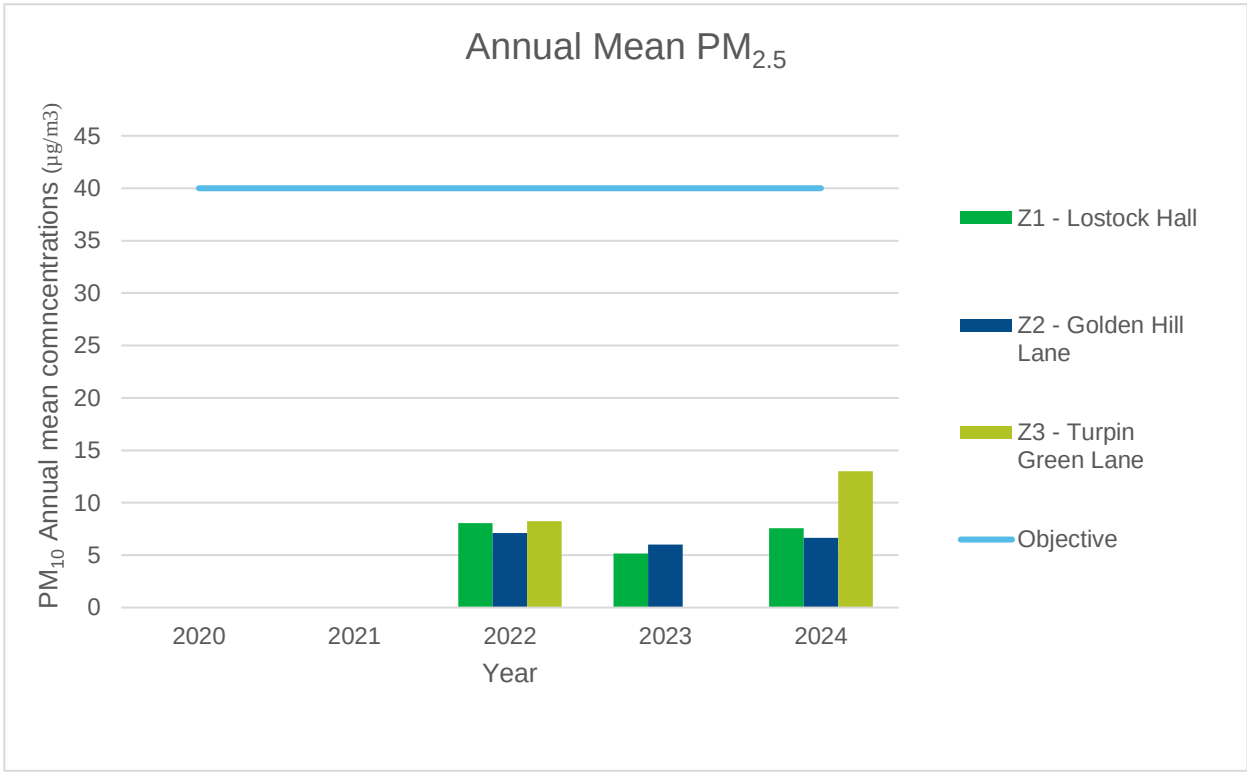


Table G 6 - Annual Mean PM2.5 Monitoring Results (µg/m3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
Z1	354370	425788	Roadside	78.0	78.0			8.1	5.2	7.6
Z2	353866	422656	Roadside	97.5	97.5			7.1	6	6.7
Z3	354667	422249	Roadside	91.8	91.8			8.2		13

Monitor was stolen in 2023 so no data to submit in the report



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
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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