



Cheshire West and Chester

2024 Air Quality Annual Status Report (ASR)

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Date:
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Cheshire West
and Chester

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 Cheshire West and Chester

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 year¹.

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 pollution².

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})	<p>Particulate matter is everything in the air that is not a gas.</p> <p>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.</p> <p>PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.</p>

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

This annual status report (ASR) covers monitoring results for 2023 and action that the Council is taking in a bid to improve local air quality. In Cheshire West and Chester the main pollutants of concern are nitrogen dioxide (NO₂), particulate matter (PM) and sulphur dioxide (SO₂). National government has set health-based objectives for a range of pollutants and, where these are not met, the Council must declare an air quality management area (AQMA) and commit to improving local air quality through action planning. Throughout 2023 and up to 21 June 2024 there were four designated AQMAs in the borough. Three of these AQMAs were located in Chester City Centre, Whitby Road/Station Road and Frodsham and related to exceedances of the annual mean NO₂ objective due to road traffic emissions. The fourth AQMA, in Thornton-le-Moors, was declared because of exceedances of the 15-minute mean SO₂ objective caused by industrial emissions. On 20 June 2024 the AQMA's at Whitby Road/Station Road and Frodsham were revoked. Details of the AQMAs and their associated action plans (AQAPs) can be found on the council website at www.cheshirewestandchester.gov.uk/aqmanagement.

In 2023, for the fourth year in a row, the UK National Objective for the annual mean of NO₂ concentrations was not exceeded at any monitoring site in the Chester City Centre, Frodsham and Whitby Road/Station Road AQMAs. Current UK National Air Quality Objectives (UK NAQO) for PM₁₀ (Particulate Matter with an aerodynamic diameter of ≤10 micrometres) are complied with in Cheshire West and Chester. Cheshire West and Chester Council (CW&C) do not currently monitor PM_{2.5}, however, the PM_{2.5} concentrations were estimated using PM₁₀ concentrations and modelled background maps for 2023 using the 2018 base map. The modelled background maps had an average concentration of 6.3 µg/m³. The PM_{2.5} concentration estimations (based on measured PM₁₀ concentrations in 2023) ranged from 8.9 – 12.4 µg/m³. The upper end of this range exceeds the Environmental Targets for PM_{2.5} (2023) interim target for January 2028 of 12 µg/m³. Subject to available funding, CW&C aim to deploy PM_{2.5} monitors in the area to ensure compliance with the new targets.

At the long-term monitoring sites, there is a discernible downwards trend in annual mean NO₂ concentrations over time, with most NO₂ measurements in 2023 being lower than those in 2019, 2021 and 2022. PM₁₀ annual means, have also decreased over time. It is not possible to derive significant trends in the data from SO₂ monitoring stations, but this is expected due to the episodic nature of the exceedances however the number of episodes continues to remain below the air quality objective. As a unitary authority, CW&C benefits

from interdepartmental working with all areas that may have an interest in and influence over local air quality matters. Externally, effective lines of communication have been established between the Council and the Environment Agency, which is particularly important in respect of the air quality AQAP for Thornton-le-Moors.

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 Plan³ 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 harm to human health. The Air Quality Strategy⁴ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁵ 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.

In 2023, CW&C published its Electric Vehicle Charging Infrastructure Strategy and commenced work on a Local Electric Vehicle Infrastructure (LEVI) grant bid. The application for £2 Million pounds was approved in March 2024. It will enable the installation of approximately 600 chargers across the borough in car parks and on-street locations with the roll-out expected to commence in early 2025.

A total of 21 additional fast chargers (41 sockets) were installed in April 2023 in the Council's New Market Car Park and further chargers providing 18 sockets are expected to become operational in Winsford town centre in November/December 2024.

³ Defra. Environmental Improvement Plan 2023, January 2023

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

In 2023, CW&C commenced work on the new Local Transport Plan. The plan aims to encompass the different ways the public currently accesses work, education, goods and services. It also aims to address climate change, deliver on net zero objectives and reduce social inequalities.

The transition of the Council fleet to electric vehicles continues. The Council operates a relatively typical local authority vehicle fleet comprising some 235 vehicles of a range of sizes and types, but mainly small and medium sized vans, and cage tippers, along with small cars and some large specialist vehicles. From a technical and operational perspective, approximately 90% of the current fleet could effectively be replaced with an electric alternative and a managed replacement programme has been introduced. At the time of writing, a total of 49 ICE (internal combustion engine) vehicles have been replaced by 27 electric vehicles and 22 hybrids. Subject to additional charging infrastructure this transition will continue in accordance with the replacement programme.

The requirements to install electric vehicles for new developments under Approved Document S of the Building Regulations, reinforced by local policy through the Council's Parking Standards Document, continued. Figures for the numbers installed throughout 2023 have not yet been calculated.

Conclusions and Priorities

There were no exceedances of the UK NAQO for the annual mean of NO₂ and PM₁₀ concentrations within or outside any existing AQMAs in 2023. In 2023, hourly NO₂ averages exceeded 200 µg/m³ on two occasions at Chester Bus Interchange monitoring station (CBI). However, this site was still compliant as the exceedances were below the 18 exceedances permitted for the hourly UK NAQO for NO₂. The 15-minute NAQO for SO₂ was exceeded once within the Thornton le Moors AQMA and exceeded seven times outside of the AQMA at the Elton monitoring site (ELT).

Long-term monitoring data shows a noticeable reduction in NO₂ levels over time. Monitoring results in the Whitby Road/Station Road AQMA have been consistently below the air quality objective for NO₂ in 2023, as such, we have revoked the AQMA in 2024. The Frodsham AQMA was in place during 2023 but it has been revoked during the time of writing this ASR, as there have been no exceedances in NO₂ concentrations for six years. The finalised action plan for the Chester AQMA has been published and a measures appraisal is underway. AQAP measures, as well as measures from the Low Emission Strategy (LES), may be

required to bring forward compliance in coming years. For 2024, the Council's priorities remain as such:

- Implement the adopted EV strategy and expand the availability of electric vehicle charging points (EVCPs) in the borough funded by the £2 million LEVI grant award.
- Update and progress measures within the LES.
- Continue development of the Local Transport Plan (LTP4).
- Revise the Bus Service Improvement Plan.
- Review the status of the AQMA in Thornton-le-Moors and Chester City Centre.
- Continue to lead by example and expand the number of ultra-low emission vehicles within the Council fleet.
- Engage with funding opportunities for the adoption of further air quality improvement measures.

Local Engagement and How to get Involved

There are many ways that we can all help to reduce outdoor air pollution:

- Leave your car at home and walk, cycle or use public transport instead. Car drivers can be exposed to significantly more air pollution than pedestrians or cyclists using the same streets.
- When choosing your next car, consider alternatives to petrol and diesel such as electric cars or plug-in hybrids. Tailpipe emissions from these vehicles are much lower (or even zero) and running costs are significantly cheaper. Lease costs of electric cars are often similar to an equivalent petrol/diesel model, road tax is zero and the benefit in kind (BIK) tax cost is a fraction of that for traditional models.
- Switch your car's engine off whenever you're not moving and it's safe to do so. You'll improve air quality for yourself and others.
- Keep your car regularly serviced and the tyres correctly inflated.
- Adopt an efficient driving style – anticipate the road ahead, change up the gears earlier and brake smoothly. It could save you a lot of money over the course of a year.
- Burning wood and other solid fuels produces a lot of air pollutants. If you do intend to buy a wood-burning stove, choose a Department for Environment, Food and Rural Affairs (Defra) approved Eco-Design Ready model. Make sure that the wood you use

meets the 'Woodsure ready to burn' requirements (seasoned dry wood with moisture content below 20%).

- Compost your garden waste or use green wheelie bins rather than burning it.

Adults and children with lung problems and adults with heart problems may be particularly affected by air pollution. Information on local air quality is available on the Council's website www.cheshirewestandchester.gov.uk/airquality and further information on forecasting and health advice is available on Defra's UK-air website <https://uk-air.defra.gov.uk/>.

Local Responsibilities and Commitment

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1 Local Air Quality Management

This report provides an overview of air quality in Cheshire West and Chester 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 CW&C to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in [Appendix E: Summary of Air Quality Objectives in England](#).

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 which are declared by CW&C can be found in Table 2-1. The table presents a description of the four AQMAs that were active within Cheshire West and Chester in 2023. Appendix D 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:

- NO₂ annual mean; (Chester City Centre AQMA, Frodsham AQMA, Whitby Road/Station Road AQMA)
- SO₂ 15-minute mean (Thornton-le-Moors AQMA)

The revocation of an AQMA should be considered following three consecutive years of compliance, 10% below the relevant objective at the point of exposure. Where there have been no exceedances for the past five years, local authorities should proceed with plans to revoke the AQMA.⁶

As a result of this, the Council has revoked the AQMAs at Whitby Road/Station Road and Frodsham within the next reporting year (see Appendix F for details on revocation).

⁶ <https://laqm.defra.gov.uk/faqs/faq-142-three-or-more-years-of-compliance-with-air-quality-objectives/>

Table 2-1 – Declared Air Quality Management Areas (active in 2023)

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
Chester City Centre AQMA (No.5)	23/05/2017	NO ₂ Annual Mean	An area that incorporates the entire area within the inner ring road and the adjoining sections of Liverpool Road, Parkgate Road, Hoole Way, Boughton gyratory and Watergate Street.	NO	50.3 µg/m ³ (T6)	32.7 µg/m ³ (C36)	4 years	Chester City Centre Air Quality Action Plan 2022	https://www.cheshirewestandchester.gov.uk/asset-library/pollution-and-air-quality/chester-air-quality-plan.pdf
Frodsham AQMA Cheshire West and Chester ⁷	27/11/2015	NO ₂ Annual Mean	An area at the junction of Fluin Lane with the A56 High St.	NO	41.5 µg/m ³ (FJ)	26.5 µg/m ³ (FJ)	6 years	Frodsham air quality action plan 2018	https://www.cheshirewestandchester.gov.uk/documents/pests-pollution-food-safety/pollution-and-air-quality/air-quality-review-and-assessment/action-plans/action-plan-frodsham-0118.pdf

⁷ Revoked as of June 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
Thornton-le-Moors AQMA No. 4	30/09/2016	SO ₂ 15 Minute Mean	An area encompassing the entire village of Thornton-le-Moors, its surroundings and parts of the adjacent area of Stanlow.	NO	56 exceedances (TLM)	1 exceedances of the 15 minute mean threshold (TLP) (18 exceedances allowed)	5 years	Thornton-le-Moors air quality action plan 2023	https://www.cheshirewestandchester.gov.uk/asset-library/aqap-thornton-le-moors-revised-2023-final.pdf
Whitby Road/Station Road AQMA ⁸	16/05/2005	NO ₂ Annual Mean	An area incorporating residential properties on Whitby Road, between Enfield Rd and Cromwell Rd, Princes Road, between Whitby Rd and Ashfield Rd and Station Road, in Ellesmere Port.	NO	44.5 µg/m ³ (SK)	25.7 µg/m ³ (SR, WH3)	7 years	Ellesmere Port and Neston BC air quality action plan 2007	https://www.cheshirewestandchester.gov.uk/documents/pests-pollution-food-safety/pollution-and-air-quality/air-quality-review-and-assessment/action-plans/action-plan-ellesmere-port-011118.pdf

Cheshire West & Chester Council confirm the information on UK-Air regarding their AQMA(s) is up to date.

Cheshire West & Chester Council confirm that all current AQAPs have been submitted to Defra.

⁸ Revoked as of June 2024

2.2 Progress and Impact of Measures to address Air Quality in Cheshire West and Chester

Defra's appraisal of last year's ASR concluded that "the report was well structured, detailed, and provides the information specified in the Guidance".

The appraisers' comments said:

- The AQAP measures are detailed and thorough, outlining 40 measures which are either in progress, in the planning stage or have been completed.
- The AQAP measures address PM_{2.5} concentration, showing CW&C are committed to improving air quality in their jurisdiction.
- QA/QC of non-automatic monitoring results is robust and contains a thorough justification of why they annualisation and bias adjustment factors are used.
- QA/QC of automatic monitoring is also robust, with calibration of reference monitors being undertaken by Council staff and data management through an independent contractor. All data retrieved from monitors went through a ratification process indicating that CW&C are committed to having a high-quality dataset which is commended.
- The revocation of an AQMA should be considered following three consecutive years of compliance. Subject to 2023's results, revocation of the Whitby Road / Station Road AQMA should be considered. An air quality strategy (AQS) should be drafted prior to revocation of an AQMA.

Additional recommendations were also given:

- Chester City Centre AQMA is within 10% of the limit value. Consider mitigation and additional monitoring to ensure concentrations stay below the objective value.
- Ensure that the number formatting is consistent in the report. If using 2 decimal places, stick with this style.

The 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 CW&C 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. Key completed measures are:

Borough Wide:

- 20mph limits on most residential streets.
- Promotion of national £2 bus fares “Get around for £2”.
- The introduction of itravel on demand rural bus service.
- Publication of Council Electric Vehicle Charging Infrastructure Strategy.
- Application for Local Electric Vehicle Infrastructure funding.
- Bus Service Improvement Plan.
- Local Cycling and Walking Infrastructure Plan

Chester AQMA:

- Installation of 21 electric vehicle charge points at the New Market Multi-Storey Car Park in Chester city centre.
- **Measure 10:** Conduct behaviour change campaigns to reduce single occupancy car trips.
- **Measure 11:** Encourage flexible working and home working to reduce travel to work.
- **Measure 13:** Conduct Park and Ride schemes with Euro VI vehicles.
- **Measure 17:** Review active travel policy/strategy to identify opportunities to support delivery, for example improved signage and cycle route/parking.
- **Measure 18:** Work together with developers to improve sustainable transport links serving new developments.
- **Measure 20:** Conduct local air quality monitoring within the unitary authority to ensure a high standard of data is achieved.
- **Measure 21:** Produce a Low Emissions Strategy.
- **Measure 22:** Enforcement of anti-idling at all on-street locations.
- **Measure 24:** Explore the potential for extension of 20mph zones throughout the Chester AQMA.

Frodsham AQMA⁹:

- **Measure 1:** Video survey of the Fluin Lane and Bears Paw junctions.

⁹ Following the revocation of the Frodsham AQMA this year, all ongoing measures specific to the AQMA will not be carried into the next ASR.

- **Measure 8:** Explore traffic regulation order options for restricting HGVs travelling through the AQMA and Church Street.
- **Measure 11:** Box junction at the Main Street/Fluin Lane junction to remove queuing traffic at that point and reduce the impact of emissions.

Thornton-le-Moors AQMA:

- **Measure 1:** Remove sulphur compounds at different stages of processing.
- **Measure 2:** Schedule maintenance/ repair on sulphur critical plant to suit the weather.
- **Measure 3:** Isolation of sulphur recovery units to allow independent operation on environmental permit sites.
- **Measure 4:** Fuel gas scrubbing and fuel substitution on environmental permit sites.
- **Measure 5:** Address fugitive emissions on environmental permit sites.
- **Measure 6:** Air quality monitoring.
- **Measure 7:** Real-time data provision to operator with trigger capability for environmental permit sites.

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

- Issue of Invitation to Tender and appointment of delivery partner(s) for rollout of LEVI funded EV charging infrastructure.
- Revision of Low Emission Strategy (LES).

The Council's priorities for the coming year are:

- The appointment by October of a delivery partner(s) for the roll out of public electric vehicle charging infrastructure and subsequent commencement of a borough wide public electric vehicle charging infrastructure installation programme in late Autumn 2024.
- The continued conversion of the Council transport fleet to Ultra Low Emission Vehicles in accordance with the Replacement Programme and the appointment of a delivery partner(s) for the roll out of electric vehicle charging infrastructure across private Council offices and depot sites.
- Progressing the development of the new Local Transport Plan (LTP4).

The principal challenges and barriers to implementation that CW&C anticipates facing are:

- Tender process - A legal query has been raised around regulated concession contracts and whether it is lawful to procure one through a procurement framework. As a consequence, the Oxford City Council Dynamic Procurement System, the chosen procurement platform by CW&C for the LEVI funded procurement, has been suspended for this purpose pending legal advice. CW&C may have to review procurement options to meet our targets. This has affected the timeframe of the procurement process for the electric vehicle charging infrastructure.
- Resources – The loss of key personnel within the Environmental Protection Team and others and current recruitment challenges experienced by the Council combined with reduction in capital could jeopardise delivery and or reporting of measures.

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	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
Chester AQAP measure number 5	Alternative fuel (EV) infrastructure development in city centre.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2030	CW&C	CW&C/LEP/DfT/3rd-party	NO	Funded	£500k - £1 million	Implementation	NO ₂ Emission Reduction	Number of alternative fuel (EV) infrastructure development in the city centre	Fast chargers delivered at Brook St & Bishop St car parks, EV hub comprising 21 fast chargers online 2023 at Northgate MSCP. Additional chargers planned as part of major EV charging infrastructure procurement 2024.	Borough-wide EV strategy published. LEVI funding secured. Comprehensive rollout of EVCPs to commence 2024.
Chester AQAP measure number 6	Procuring low emission vehicles for Council-owned fleets	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2019	2030	CW&C	CW&C	NO	Funded	< £10k	Implementation	NO ₂ Emission Reduction	Number of Council-owned low emission fleet vehicles	Procurement policy amended to require ULEV first approach. EV chargers installed at depots	Dependent on fleet renewal dates, replacement has commenced and will run until 2030.
Borough-wide measure 1	Development of Local Transport Plan 4 – “Let’s talk about transport”	Promoting Travel Alternatives	Promoting Low Emission Public Transport	2023	2025	CW&C	CW&C	NO	Funded	Existing budgets	In development	Pollutant emission reduction	Increase modal choice, improve connectivity and health outcomes	Ongoing – adoption 2025	Consultation and engagement exercises have begun but elections may delay delivery
Chester AQAP measure number 10	Behaviour change campaigns to reduce single occupancy car trips	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2018	2030	CW&C	CW&C	NO	Funded	£10k – 50k	Planning	NO ₂ Emission Reduction	% modal shift to car share/public transport	Funding has been identified and ring fenced.	A series of promotions have been planned to promote discussion around sustainable transport options.
Chester AQAP measure number 1	Freight delivery and service plans, work with local distribution centres to change delivery emissions	Freight and Delivery Management	Delivery and Service plans	2021	2025	CW&C Transport	Levelling Up Fund	NO	Not Funded	£1 million - £10 million	Planning	Reducing emissions contribution from HGVs, reduced queuing traffic in peak hours	Successful bid to the Levelling Up Fund. Detailed design completion.	Bid not successful.	Unsuccessful. Integrated Sustainable Transport Taskforce will set up a freight subgroup as part of the work programme.
Chester AQAP measure number 2	HGV/LGV recognition schemes for Council contracts	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2021	2025	CW&C Transport	N/A	NO	Not Funded	£10k - 50k	Planning	NO ₂ Emission Reduction	Amended procurement procedure	Not commenced	To ensure Council contracts require use of FORS or similar in Chester AQMA
Chester AQAP measure number 3	Collaborating with bus operators to introduce ultra-low emission vehicles into the bus fleet (new or retrofit). Target use of ULEV into the problem areas	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2017	2023	CW&C Transport	N/A	NO	Not Funded	£500k - £1 million	Implementation	Reduced vehicle emissions	Number of ultra-low emission bus fleets introduced	On-going	Falling bus patronage and Covid disruption has impacted on operator priorities and profit. Bus Service Improvement Plan (BSIP) approved Oct 2021 - initial focus on passenger recovery.
Chester AQAP measure number 4	Update taxi / private hiring policy	Promoting Low Emission Transport	Taxi Licensing conditions	2021	2022	CW&C Licensing	CW&C	NO	Funded	£10k - 50k	Implementation	NO ₂ /PM Emission Reduction	Amendment of Taxi Licensing Policy	Amended policy change adopted Nov '21 - require fleet transition to ULEV by 2031/2036, commencing 2025. Age policy also revised	Policy implemented This measure requires successful implementation of charging infrastructure, either by commercial third parties or the Council (Measure 5 above). Also there needs to be sufficient availability of electric hackney carriages.

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
Chester AQAP measure number 7	Work together with developers to promote the inclusion of electric charging points for electric/hybrid vehicles at new development sites	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2030	CW&C	CW&C	NO	Funded	< £10k	Implementation	NO ₂ Emission Reduction	Number of properties and premises where charging points have been required through planning condition	Year 2022/23 planning permission issued for 64 residential schemes including 113 charge points, 160 dwellings with infrastructure/cabling, and 30 commercial schemes including 138 parking spaces with charge points. Now superseded by Approved Document Part S of Building regulations as of 15 June 2023.	As of 15 June 2023, Building Regulations Approved Document S: infrastructure for charging electric vehicles, now imposes a legal duty on all new development to provide a minimum provision.
Chester AQAP measure number 8	Public transport infrastructure improvements, e.g. - Enhanced bus shelters - Accurate electronic timetables - m-tickets / contactless payment options	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2018	2022	CW&C / Public transport bodies	CW&C	NO	Not Funded	£100k - £500k	Completed	NO ₂ Emission Reduction	% modal shift to car share/public transport	Completed	Real-time passenger info provided at P&R sites, bus interchanges and some bus stops e.g. rail stations. Quarterly timetable updates agreed in the BSIP. Accurate information is available on operators' and Council websites and iTravel Smart app. Contactless payment available on bus and operator apps.
Chester AQAP measure number 9	Incentivise public transport usage, e.g. - Provision of information about existing services - Campaigns - Season ticket loan/discounts - Subsidised tickets	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2021	2025	CW&C	tbc	NO	Not Funded	£50k - £100k	Implementation	NO ₂ Emission Reduction	% modal shift to car share/public transport	Work not commenced locally beyond national government scheme "Get around for £2".	£2 bus fare cap in place and extended until December 2024. Introduction of the Flexible Shuttle Service.
Chester AQAP measure number 11	Flexible working and home working encouraged	Promoting Travel Alternatives	Encourage / Facilitate home-working	2019	2022	CW&C	CW&C	NO	Funded	< £10k	Planning	NO ₂ Emission Reduction	Number of people working from home	Modern workforce programme fully implemented 2022	Staff are now classed as either fully agile, hybrid or fixed workers.
Chester AQAP measure number 12	Promoting Car Club / Car Sharing Schemes/ Car Pooling	Promoting Travel Alternatives	Workplace Travel Planning	2021	2025	CW&C	CW&C	NO	Not Funded	< £10k	Planning	NO ₂ Emission Reduction	% modal shift to car share/public transport	Not commenced	This work area needs substantial further development.
Chester AQAP measure number 13	Park and Ride Schemes with Euro VI Vehicles	Alternatives to private vehicle use	Bus based Park & Ride	2017	2023	CW&C / Bus operator	CW&C / Bus operator	NO	Funded	£1 million - £10 million	Implementation	NO ₂ Emission Reduction	% modal shift to car share/public transport	Implemented	Euro VI vehicles on the Park & Ride (P&R) services. The focus is now on growing the passenger base and reducing single occupancy journey into Chester.

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
Chester AQAP measure number 14	On and off-street parking charges linked to vehicle emission standards - including any residents permits.	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	2021	2030	CW&C	bid application required	NO	Not Funded	£100k - £500k	Planning	NO ₂ Emission Reduction	Improve traffic management	2021 funding application to appoint consultants unsuccessful.	This is a substantial work area and there is a need to identify funding to advance it both in terms of development, infrastructure / implementation.
Chester AQAP measure number 15	Restrict long stay parking in AQMA.	Traffic Management	Other	2021	2025	CW&C	CW&C	NO	Not Funded	£10k - 50k	Planning	NO ₂ Emission Reduction	Improve traffic management	Not commenced	Substantial work area requiring funding and resourcing.
Chester AQAP measure number 16	Improve signage at main junctions within the AQMA and major spurs.	Transport Planning and Infrastructure	Other	2021	2025	CW&C	CW&C	NO	Not Funded	£50k - £100k	Planning	NO ₂ Emission Reduction	Improve traffic management	Not commenced	Focus on smart digital signage to assist driver choice.
Chester AQAP measure number 17	Review active travel policy/strategy to identify opportunities to support delivery, for example improved signage and cycle route/parking	Transport Planning and Infrastructure	Cycle network	2020	2023	CW&C	CW&C	NO	Funded	< £10k	Implementation	NO ₂ Emission Reduction	Improve traffic management	LCWIP published July 2020 Section 106 requirements successfully implemented through planning approval	LTN 1/20 published by Government. CW&C updating our Local Cycling and Walking Infrastructure Plan in line with new guidance. Active Travel England want to invest in walking and cycling schemes which will have most impact and lead to modal change to more active modes for short journeys.
Chester AQAP measure number 18	Work together with developers to improve sustainable transport links serving new developments	Transport Planning and Infrastructure	Other	2019	2023	CW&C	CW&C	NO	Funded	< £10k	Implementation	NO ₂ Emission Reduction	To be determined	Local Plan Part 2 adopted 18 July 2019 strengthening planning obligations.	Borough-wide impact. Sustainable criteria are a fundamental requirement of the Local Plan. There is a need to devise an internal mechanism for gauging performance over time
Chester AQAP measure number 19	Provision of high quality, bespoke and accessible information on sustainable travel, e.g. on a dedicated travel website with route/mode options	Public Information	Via the Internet	2017	2024	CW&C	CW&C	NO	Funded	£10k - 50k	Implementation	NO ₂ Emission Reduction	Number of hits on upgraded website per annum	Council have produced an app called iTravelsmart	Explore options to improve app and utilise it fully for the purpose of raising awareness and supporting other sustainable transport measures.
Chester AQAP measure number 20	Local air quality monitoring within the unitary authority to ensure a high standard of data is achieved	Public Information	Other	2021	2023	CW&C	CW&C	NO	Funded	£10k - 50k	Planning	NO ₂ Emission Reduction	Number of monitoring locations	Funding has been ring fenced to introduced portable real-time monitors	Assessment and selection of appropriate monitoring devices needs to be undertaken.

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Chester AQAP measure number 21	Low Emissions Strategy (LES)	Policy Guidance and Development Control	Low Emissions Strategy	2018	2021	CW&C	CW&C	YES	Funded	£10k - 50k	Completed	NO ₂ Emission Reduction	The implementation of Low Emissions Strategy	Published September 2018	Targeting and prioritising implementation of measures on the AQMA. LES applies borough-wide
Chester AQAP measure number 22	Anti-idling enforcement at all on-street locations	Traffic Management	Other	2018	2020	CW&C	CW&C	NO	Funded	£10k - 50k	Completed	NO ₂ Emission Reduction	Idling reduction	Legislation adopted, regular patrols in place.	Periodic review of intelligence to enable targeted patrols. Implemented borough-wide
Chester AQAP measure number 23	Review access permissions and use of the Northgate Street traffic barrier.	Traffic Management	Other	2021	2022	CW&C	CW&C	NO	Not Funded	< £10k	Planning	NO ₂ Emission Reduction	Reduction in vehicles accessing the city centre during restricted day time hours.	Work not commenced	Presently access for taxis, hotel guests and disabled vehicles appears to be permitted although it is not clear whether this is supported by a traffic order.
Chester AQAP measure number 24	Explore the potential for extension of 20mph zones throughout the Chester AQMA.	Traffic Management	Reduction of speed limits, 20mph zones	2018	2022	CW&C	CW&C	NO	Not Funded	£10k - 50k	Planning	NO ₂ Emission Reduction	Implementation of 20mph zones.	Work not commenced	A detailed scheme for reducing speed limits across the borough has been rolled out very successfully, the potential for further extending the scheme to additional areas within the AQMA is believed to be low..
Thornton AQAP measure number 1	Remove sulphur compounds in process	Environmental Permits	Measures to reduce pollution through IPPC Permits going beyond BAT	2017	2025	Essar refinery	Operator	NO	Funded	Implementation	Reduction in 15-min exceedances to less than 35 per year. Potential air quality benefit = medium (in the range of 25-40%)	SO ₂ measured at CCU stack / SO ₂ measured at local AQ monitoring stations	Number of exceedances in 2020 and 2021 significantly lower than previous years. Dosing percentage reformulated 2020 to optimise at 20-30% SO _x reduction. Trial ongoing to assess variables e.g. ambient conditions, operational parameters, feedstock concentrations. Ongoing monitoring.	Trial of 'de-SO _x ' additive on the catalytic cracking unit in progress. Improvement in emissions over last 3 substantially reduced SO _x emissions.	Assessment of success still ongoing but further modelling in 2024 is expected to demonstrate success and enable revocation of AQMA.
Thornton AQAP measure number 2	Schedule maintenance / repair on sulphur-critical plant to suit the weather	Environmental Permits	Other	2017	2030	Essar refinery	Operator	NO	Funded	Implementation	SO ₂ Emission Reduction (negligible)	SO ₂ measured at local AQ monitoring stations	Ongoing	Essar uses weather data to plan activities. Essar uses real time AQ monitoring data to respond rapidly to spikes.	

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
Thornton AQAP measure number 3	Isolation of sulphur recovery units (SRU) to allow independent operation	Environmental Permits	Other	2017	2018	Essar refinery	Operator	NO	Funded	Completed	SO ₂ Emission Reduction (negligible)	Reduced sour gas flaring	Complete. Installed during 2018 turnaround	This allows one SRU to be shut down for maintenance while keeping the other online. Reduces sour gas flaring	Completed reducing process contribution within AQMA.
Thornton AQAP measure number 4	Fuel gas scrubbing and fuel substitution	Environmental Permits	Other	2017	2018	Essar refinery	Operator	NO	Funded	Completed	SO ₂ Emission Reduction (negligible)	Sulphur content in refinery fuel gas	Complete. Installed during 2018 turnaround	Additional capability for removing sulphur from fuel gas (in addition to natural gas switch for some boilers)	Completed reducing process contribution within AQMA.
Thornton AQAP measure number 5	Address fugitive emissions	Environmental Permits	Other	2017	2018	Essar refinery	Operator	NO	Funded	Completed	SO ₂ Emission Reduction (negligible)	SO ₂ measured at local AQ monitoring stations	Completed. Medium pressure (MP) superheater replaced in 2018 turnaround	Fugitive emissions are addressed as they are identified, e.g. MP superheater replaced as it was approaching end of life	Completed reducing process contribution within AQMA.
Thornton AQAP measure number 6	Air quality monitoring	Public Information	Via the Internet	2017	2017	CW&C	CW&C	NO	Funded	< £10k	Implementation	Nil	Real-time data published on website	Ongoing	Results published on Council website, updated hourly. Currently posted daily due to system fault. Replacement commissioned 2019. Launch delayed to late 2022
Thornton AQAP measure number 7	Real-time data provision to operator (with trigger capability)	Public Information	Via the Internet	2017	2021	CW&C / Essar	CW&C	NO	Funded	£10k - 50k	Implementation	Nil	Ongoing data sharing	Complete. Output data from both SO ₂ monitoring stations shared with Essar	Supports AQAP measure 2 above. Due to be superseded in tandem with measure 27 above
Borough-wide measure 2	LEVI grant funding application	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023	2028	CW&C / DfT	DfT	No	Funded	£2M	In development	NO _x / Particulates	Number of alternative fuel (EV) infrastructure development throughout borough	Grant application successful, £2M awarded by DfT. Procurement for delivery partner underway.	Appointment of delivery partner(s) underway. Comprehensive rollout of EVCPs to commence late 2024.
Borough-wide measure 3	Bikeability campaign (schools and adults only schemes)	Promoting Travel Alternatives	Promotion of cycling	2010	2025	CW&C Road safety	CW&C / Active Travel	NO	Funded	£50k - £100k	Implementation	Pollutant emission reduction	Increase in number cyclists	Ongoing. Subject to annual project review	DfT Active Travel / Council funded programmes. e.g. Sustrans secured Capability funding to work with Helsby High school and feeder schools in relation to the new cycling and walking infrastructure in Helsby (Applicable for 37, too)
Borough-wide measure 4	Let's Walk	Promoting Travel Alternatives	Promotion of walking	2015	2025	CW&C Road safety	CW&C	NO	Funded	< £10k	Implementation	Pollutant emission reduction	Improve pedestrian confidence to encourage more sustainable trips	Ongoing. Subject to annual project review	Child training promotes independence. DfT Active Travel / Council funded programmes. e.g. Sustrans secured Capability funding to work with Helsby High school and feeder schools in

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
															relation to the new cycling and walking infrastructure in Helsby
Borough-wide measure 5	Schools crossing patrols	Promoting Travel Alternatives	Promotion of walking	2010	2030	CW&C Road safety	CW&C	NO	Funded	£100k - £500k	Implementation	Pollutant emission reduction	Improve pedestrian confidence to encourage more sustainable trips	Ongoing. Subject to annual project review	Supporting vulnerable road users cross the highway – when arriving and leaving educational establishments
Borough-wide measure 6	20mph limits on residential streets (740km)	Traffic Management	Reduction of speed limits, 20mph zones	2015	2021	CW&C	CW&C	NO	Funded	£500k - £1 million	Implementation	Reduced vehicle emissions borough wide	Successful rollout of scheme over four-year programme	Implemented	Promotes smoother driving style. Emissions reduction from vehicles should lead to overall emissions reduction. Programme complete. Ongoing monitoring
Borough-wide measure 7	Moving traffic offences	Traffic Management	Reducing dangerous manoeuvres, congestion and disruption	2024	2028	CW&C	CW&C	NO	Funded	tbd	Planning	Reduced vehicle emissions borough wide	Successful rollout of scheme over four-year programme	Ongoing	4 locations have been identified for installation of cameras as part of Phase 1. Roll-out is expected Autumn 2024.
Chester	Bus lane enforcement in Chester using automatic number plate recognition (ANPR)	Traffic Management	Strategic highway improvements, re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2019	2030	CW&C	CW&C	NO	Funded	£100k - £500k	Implementation	Reduced vehicle emissions	Bus patronage	Ongoing	To date over 1800 fines issued.

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 Strategy¹⁰, 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.

The Council considers that the measures listed in [Table 2-2](#) above will contribute in general to improvements in levels of PM_{2.5}. The Council's Low Emission Strategy (LES) aims to tackle NO₂, PM₁₀ and PM_{2.5}, with a focus on reducing emissions from road vehicles and supporting more sustainable modes of transport. The ultimate ambition is to improve the health of residents and reduce the number of deaths attributable to poor air quality that arise every year. The action toolbox, Table A.1 in LAQM.TG22, lists a range of measures that can be implemented to tackle PM_{2.5} and many of these are incorporated into the LES. Examples include:

- Smoke Control Areas (SCAs) are in place in a number of the borough's urban areas and the LES includes a measure focused on exploring the feasibility of expanding SCAs and publicising health concerns related to domestic burning. A local study of SCAs and health impacts of domestic smoke had commenced in 2020 however work is currently paused initially due to COVID and subsequently due to recruitment issues.
- The Council has introduced 20mph speed limits on numerous residential roads, particularly around schools, one of the benefits of which is to reduce emissions through the encouragement of smoother driving styles.
- A reduction in vehicle idling will deliver an immediate improvement in air quality particularly in urban centres. In January 2019, the Council approved the use of powers to require drivers of idling vehicles to switch off their engines while stationary. Enforcement officers are now authorised to issue fixed penalty notices to drivers who refuse to do so.

¹⁰ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

- A shift to electric vehicles is key in improving local air quality as there are no tailpipe emissions of PM_{2.5} (as well as NO₂ and other gaseous pollutants). The first 30 public charge point equipped bays went live in May 2021. In 2022 a further 21 fast chargers with 41 sockets were commissioned as part of the Council's New Market Car Park and became operational in April 2023, 10 fast chargers were commissioned in Winsford Town Centre as part of the redevelopment scheme and should become operational in November 2024. Enabling the transition of the Council's fleet to EVs, there is now coverage across five depots, with plans for more to be installed in the near future. The Council is also due to embark of a programme of installation of ultra-rapid charging hubs across the borough.
- The Council has been successful with a LEVI application and has been awarded £2 million grant funding. The application process was advanced throughout 2023, supported by the publication of the Council's Electric Vehicle Charging Infrastructure Strategy. The Council is now in the final stages of commencing a procurement exercise to identify delivery partners for the rollout of charging infrastructure throughout the borough, both on-street and across the Council estate.
- In November 2021, the Licensing Committee approved changes to the current hackney carriage / private hire vehicle age policy to accelerate the uptake of ULEVs across the fleet. All new entrants from 2025 are now required to be ULEVs and the exit age policy has been removed for ULEVs such that, provided they pass inspection and testing, there is no set exit age. There is also a transitional exit age policy for the phase out of existing petrol/diesel vehicles, which is intended to ensure that they are gradually removed from the fleet by the end of 2030 (in the case of private hire vehicles) and 2035 (for hackney carriages). Therefore from 2031 (private hire) and 2036 (hackney carriages), the fleet will comprise 100% ULEVs.

The Environmental Protection team has a good working relationship with the Public Health team and will continue to work collaboratively to determine how air quality can be prioritised across a wide range of policy areas as well identifying specific measures to address PM_{2.5}.

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

This section sets out the monitoring undertaken within 2023 by CW&C 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

The Council undertook automatic (continuous) monitoring at six sites during 2023. Table A-1 in Appendix A shows the details of the automatic monitoring sites¹¹. The [Air Quality in Cheshire West and Chester \(cheshirewest-air.info\)](https://www.cheshirewest-air.info) page presents automatic monitoring results for Cheshire West and Chester, 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

The Council undertook non- automatic (i.e. passive) monitoring of NO₂ at 86 sites during 2023¹². 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

¹¹ NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem.

¹² Cheshire West and Chester Council maintain 90 monitoring sites, two of which are triplicate sites (CBI, WH).

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 (NO₂)

Table A-3 and Table A-4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. 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 A.4 includes distance corrected values, only where relevant.

Table A-5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

- **No exceedances of the UK NAQO for NO₂ annual mean at monitoring sites within or outside of AQMAs**

In 2023, there were no exceedances of the UK NAQO for NO₂ annual mean, recorded at any monitoring sites either within or outside of an AQMA. As such, there is no need to declare additional AQMAs or extend existing AQMAs. The highest results for annual mean NO₂ concentrations were 32.7 µg/m³ at site C36 and 32.0 µg/m³ at site T6 in the Chester City Centre AQMA. There were no sites that were within 10% of the NO₂ annual mean UK National Objective for in 2023. The highest annual mean recorded by an automatic analyser in 2023 was 31.6 µg/m³ at site Chester Bus Interchange (CBI), which is adjacent to the bus interchange in Chester.

On the A530 in Rudheath / Lostock, the diffusion tube sites KR and GR, which were established in response to local concerns about the anticipated increase in HGV movements

along the A530 associated with industrial development, produced annual means of 22.6 $\mu\text{g}/\text{m}^3$ and 16.4 $\mu\text{g}/\text{m}^3$ respectively. Both were therefore well below the annual objective.

In Northwich, the highest annual mean recorded was at site NWH (30.2 $\mu\text{g}/\text{m}^3$) on Winnington Hill. The residential receptor is set further back from the road so this is another location at which the annual mean would be lower than the monitoring result.

Annual mean results from diffusion tubes that are above 60 $\mu\text{g}/\text{m}^3$ may indicate a likely exceedance of the hourly objective (as per LAQM.TG22 technical guidance). But in 2023, no diffusion tube results were close to 60 $\mu\text{g}/\text{m}^3$ (the highest being 32.7 $\mu\text{g}/\text{m}^3$) so on the basis of monitoring, it is highly unlikely that the hourly objective is exceeded anywhere in the borough.

A 2019 modelling study conducted by consultants Bureau Veritas, in preparation for the Chester AQAP, predicted potential exceedances over a small discrete area adjacent to the inner ring road. This has been investigated through the deployment of latest diffusion tubes sites CBR and SAB, which are close to the bus interchange in Chester. In 2023, the annual means recorded at these sites were 26.1 $\mu\text{g}/\text{m}^3$ (CBR) and 23.6 $\mu\text{g}/\text{m}^3$ (SAB). As such the hourly objective is not at risk of exceedance.

- **There were 2 exceedances of the NO₂ hourly mean concentration at Chester Bus Interchange.**

Table A-5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with UK NAQO of 200 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 18 times per year. In 2023, there were 2 exceedances of the NO₂ hourly mean concentration at Chester Bus Interchange (CBI). Despite this, the national air quality objective was still not exceeded, as there are 18 allowances of instances above >200 $\mu\text{g}/\text{m}^3$.

- **General decrease in NO₂ concentrations during the past 5 years**

Annual mean concentrations of NO₂ from non-automatic and automatic monitoring in 2023 were generally lower than those in 2022 except for 3 diffusion tubes within the Chester City Centre AQMA (GE, LVS and TB).

Five-year trends in the annual mean NO₂ are presented in the bar charts in Figure A-1 and Figure A-18. Most sites, particularly those at roadside locations, show a noticeable reduction in NO₂ levels over time. For the majority of sites, the abnormally low NO₂ concentrations

resulting from the reduction in road traffic due to national lockdown in 2020 can be clearly discerned. In 2021 and 2022, roadside concentrations of NO₂ increased following the easing of lockdowns during the COVID-19 pandemic, although the annual mean concentrations are significantly lower than 2019. The reduction in NO₂ concentrations in 2023 shows that the downward trend in annual mean NO₂ concentrations are likely caused by the measures implemented by CW&C to decrease congestion and improve traffic flows, which includes support for remote and hybrid working. Levels of NO₂ in the Whitby Road/Station Road AQMA have been consistently below the national objective for seven years and show a steady downward trend.

- **Review of AQMAs at Whitby Road/Station Road and Frodsham**

Monitored levels of NO₂ in the Whitby Road/Station Road AQMA in Ellesmere Port have steadily declined over time and no exceedances have been recorded between 2018 to 2023. The Council has revoked the AQMA as it has been compliant for over 5 consecutive years. There have been no exceedances since 2017 within the AQMA, and no measurements within 10 % of the objective since 2020.

In the Frodsham AQMA, all annual mean diffusion tube results were below the UK National Objective, the highest being 26.5 µg/m³ at site FJ. The Council has revoked this AQMA as an exceedance of the objective was last recorded in the AQMA in 2017, and readings within 10% of the objective were last recorded in 2019.

The Christleton area was considered to be close to being a candidate for AQMA declaration in earlier rounds of LAQM review and assessment. In this area in 2023, the highest NO₂ annual mean was 27.2 µg/m³ at site TA. On the stretch of the A51 passing through Littleton and Tarvin, the highest annual mean NO₂ was 31.8 µg/m³ at site TBV. As these measurements are still below 10% under the objective (36 µg/m³), it is not necessary to declare an AQMA in this area.

- **Monitoring sites nearby schools and residential receptors were compliant with the annual mean NO₂ National Air Quality Objectives**

Eight NO₂ monitoring sites were on (or close to) school premises in 2023 (sites BE, CPL, CRH, FRC, HSS, LVS, OWR and RPS). The highest recorded annual mean at these locations was 26.5 µg/m³ at site RPS. However, the school itself is set much further back from the carriageway than the monitoring site.

The annual mean for NO₂ at the residential receptor site AP in Allostock, close to the M6 motorway (at which monitoring was re-established in 2016 to address concerns over the smart motorway upgrade) was 17.3 µg/m³ in 2023. This is less than half of the UK NAQO.

3.2.2 Particulate Matter (PM₁₀)

Table A-6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years with the UK NAQO of 40µg/m³.

Table A-7 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past five years with the UK NAQO of 50µg/m³, not to be exceeded more than 35 times per year.

Long term trends in annual PM₁₀ monitoring are shown in Figure A-20. The general trend shows that PM₁₀ concentrations are decreasing, with 2023 annual mean PM₁₀ concentrations below those of 2019, at all monitoring sites. There were no instances of 24-hour mean PM₁₀ concentrations >50µg/m³ in 2023 (Figure A-21). There were no exceedances of the 24-hour mean objectives over the last five years.

3.2.3 Particulate Matter (PM_{2.5})

The Council does not monitor PM_{2.5} using reference analysers. However, as PM_{2.5} is a constituent fraction of PM₁₀, it is possible to estimate the probable local levels by considering the ratio of the two fractions of particulate matter, as detailed in the technical guidance LAQM.TG22.¹³

The 2023 nationally derived background correction factor (4.7 µg/m³) was applied to PM₁₀ concentrations at Frodsham urban background site, with estimated PM_{2.5} concentrations of 8.9 µg/m³ (FMH). The 2023 nationally derived roadside correction factor 5.9 µg/m³ was used

¹³ [Estimating PM_{2.5} from PM₁₀ Measurements | LAQM \(defra.gov.uk\)](https://www.defra.gov.uk/laqm-tg22/)

for Chester Bus Interchange roadside site. PM₁₀ concentrations from Thornton-le-Moors were not included due to this monitoring site being characterised as industrial. The estimated PM_{2.5} concentrations ranged from 8.9 to 12.4 µg/m³ (CBI).

In April 2023, Defra published a new Air Quality Strategy (AQS) for local authorities¹⁴, which includes two legally binding PM_{2.5} concentration targets which local authorities are responsible in working towards achieving:

- 10 µg/m³ annual mean PM_{2.5} concentration nationwide by 2040, with an interim target of 12 µg/m³ by January 2028
- 35% reduction in average population exposure by 2040, with an interim target of a 22% reduction by January 2028 compared to a 2018 baseline.

This shows that CW&C may need to implement more air quality measures to reduce PM_{2.5} concentrations as the current PM_{2.5} concentrations are above the interim target of 12 µg/m³ by 2028.

From latest available 1 km x 1 km background maps for PM_{2.5} for 2024 (using 2018 baseline)¹⁵, the Cheshire West and Chester area has an average background annual mean PM_{2.5} concentration of 6.3 µg/m³ which currently satisfies both PM_{2.5} objectives. This is an improvement on the average background annual mean PM_{2.5} concentration of 6.9 µg/m³ in 2018. Considering each data point at 1 km resolution from 2023 background concentration projections, 100% of the Cheshire West and Chester is still below the 12 µg/m³ concentration objective for 2028 and the 10 µg/m³ concentration objective for 2040.

As there is disparity between the PM_{2.5} calculations using PM₁₀ measurements and the Defra modelled background PM_{2.5} concentrations for 2024, this suggests CW&C should deploy PM_{2.5} monitors in the future to ensure compliance with the new Environmental Targets for PM_{2.5}.

3.2.4 Sulphur Dioxide (SO₂)

Table A-8 in Appendix A compares the ratified continuous monitored SO₂ concentrations for 2023 with the air quality objectives for SO₂.

¹⁴ <https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery#>

¹⁵ <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

In 2023, there were eight occasions where the 15-minute objective of $266 \mu\text{g}/\text{m}^3$ was exceeded in Cheshire West and Chester. One instance occurred in the village of Thornton-le-Moors (monitoring site TLP, within the AQMA). Seven instances occurred at Elton (monitoring site ELT) which lies less than a kilometre outside the eastern edge of the AQMA. The objective allows for 35 exceedances of the 15-min mean in a calendar year therefore both sites were compliant with the air quality objectives. However, the AQMA will remain in place and unaltered for the foreseeable future. Five-year trends in the number of 15-minute mean SO_2 results exceeding $266 \mu\text{g}/\text{m}^3$ are presented in the bar charts in Figure A-22. Both sites show a noticeable reduction in SO_2 levels over time.

The hourly mean standard was not exceeded at either Thornton-le-Moors or Elton in 2023. The 24-hour SO_2 objective was not exceeded at either Thornton-le-Moors or Elton in 2023. Overall, all sites complied with the UK national air quality objectives.

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)
BO	Boughton	Roadside	341864	366444	NO ₂	Yes, Chester City Centre	Chemiluminescent	25	3	1.0
CBI	Chester Bus Interchange	Roadside	340645	366802	NO ₂ , PM ₁₀	Yes, Chester City Centre	Chemiluminescent, BAM	5.1	6.6	1.6
ELT	Elton	Industrial	345642	375522	SO ₂	No	UV-fluorescent	0	N/A	2
FMH	Frodsham	Urban Background	352445	378031	NO ₂ , PM ₁₀	No	Chemiluminescent, TEOM	24	7	2.5
TLP	Thornton-le-Moors, Park Road	Industrial	344103	374330	NO ₂ , PM ₁₀ , SO ₂	Yes, Thornton-le-Moors	Chemiluminescent UV-fluorescent BAM	38	N/A	2.5
WH	Whitby Road	Roadside	340197	376363	NO ₂	Yes, Whitby Road/Station Road	Chemiluminescent	15	2.5	3.5

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)
AP	Pine Cottage, Allstock	Roadside	373386	371500	NO ₂	No	0.0	34.0	No	1.8
BE	Bedward Row	Roadside	340239	366418	NO ₂	Yes, Chester City Centre AQMA	0.5	2.4	No	2.4
BJ	Backpackers / Jade, Boughton	Roadside	341401	366512	NO ₂	Yes, Chester City Centre AQMA	0.1	2.5	No	2.4
BSP	Brookside Primary, E.Port	Roadside	338380	375840	NO ₂	No	12.0	0.5	No	2.0
C11	Christleton Road (11)	Roadside	341915	366427	NO ₂	Yes, Chester City Centre AQMA	0.0	1.0	No	2.0
C36	Christleton Road (36)	Roadside	342000	366374	NO ₂	Yes, Chester City Centre AQMA	0.5	1.4	No	2.5
C75	Christleton Road (75)	Roadside	342056	366354	NO ₂	Yes, Chester City Centre AQMA	0.5	2.0	No	2.5
CAN	Canal Street	Roadside	340375	366730	NO ₂	Yes, Chester City Centre AQMA	1.0	1.5	No	3.0
CBI1, CBI2, CBI3	Bus Interchange CBI	Other	340647	366803	NO ₂	Yes, Chester City Centre AQMA	5.1	6.6	Yes	1.6
CBR	Bus ramp CBR	Other	340676	366782	NO ₂	Yes, Chester City Centre AQMA	0.0	1.6	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)
CFL	Church St Frodsham	Roadside	351762	377862	NO ₂	No	4.8	1.0	No	2.2
CM	Christleton Mill Apartments	Roadside	343761	365528	NO ₂	No	0.0	5.0	No	2.2
CN	Chester Way, Northwich	Roadside	366070	373905	NO ₂	No	3.8	1.6	No	3.0
CP3	Canal Place, Christleton (3)	Roadside	343970	365295	NO ₂	No	4.0	2.3	No	2.4
CPL	Plough Lane, Christleton (adj Smithy)	Roadside	344377	365375	NO ₂	No	1.1	0.7	No	2.1
CRH	Rookery Cottages Chester Rd Hartford	Roadside	364171	372697	NO ₂	No	0.0	3.5	No	1.5
CUD	Cuddington A49	Roadside	359436	370534	NO ₂	No	4.5	1.5	No	2.2
DA	453 London Rd, Davenham	Roadside	365953	371113	NO ₂	No	0.1	1.6	No	2.0
EB	Edgeley, Boughton	Roadside	341658	366487	NO ₂	Yes, Chester City Centre AQMA	0.0	2.0	No	2.5
FH	72 High St Frodsham	Roadside	352146	378139	NO ₂	Yes, Frodsham AQMA	0.2	2.0	No	2.5
FJ	Fluin Lane (r/o 76 Chester Rd).	Roadside	352171	378140	NO ₂	Yes, Frodsham AQMA	0.5	2.0	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)
FM	Fluin Lane (r/o 10 Manor Fm Ct)	Roadside	352189	378094	NO ₂	Yes, Frodsham AQMA	0.3	2.0	No	2.5
FRC	Rock Cottage, Frodsham (67)	Roadside	352023	378121	NO ₂	No	1.3	1.6	No	2.5
FT	Fluin Lane (terrace)	Roadside	352176	378105	NO ₂	Yes, Frodsham AQMA	0.2	1.7	No	2.0
GE	George Street	Roadside	340657	366730	NO ₂	Yes, Chester City Centre AQMA	1.0	5.0	No	2.4
GR	Griffths Road, Lostock	Roadside	368634	374714	NO ₂	No	0.2	8.0	No	1.8
GSW	Gorse Stacks (Waterside)	Roadside	340700	366687	NO ₂	Yes, Chester City Centre AQMA	1.0	1.6	No	2.1
GT	George Street (10)	Roadside	340611	366747	NO ₂	Yes, Chester City Centre AQMA	0.0	1.9	No	2.6
HB	Hoole Lane Boughton	Roadside	341605	366527	NO ₂	No	3.0	1.2	No	2.4
HC	5 Holmes Chapel Rd. Sproston	Roadside	373375	366928	NO ₂	No	3.0	1.0	No	1.8
HHB	Holme Bank Cott. Holme St	Roadside	347953	366723	NO ₂	No	5.3	2.9	No	2.5
HIN	Upper Raby/Chester High	Roadside	330317	378536	NO ₂	No	9.5	1.6	No	2.2
HO	Hoole Road (no. 7)	Roadside	341311	367207	NO ₂	No	0.0	7.1	No	1.9

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)
HSS	High St Sch, Winsford	Roadside	364711	366339	NO ₂	No	8.0	4.0	No	2.4
HTC	The Cottage, Holme St	Roadside	348333	366763	NO ₂	No	3.1	2.0	No	2.0
HW	Hoole Way	Roadside	340881	366826	NO ₂	No	1.0	1.9	No	2.4
IC	Ingham Close 8	Roadside	342068	366332	NO ₂	Yes, Chester City Centre AQMA	2.0	2.0	No	2.0
KR	King St. Rudheath	Roadside	368432	372988	NO ₂	No	4.5	2.2	No	2.0
LH	Lincoln House (r/o The Bars)	Roadside	341126	366540	NO ₂	Yes, Chester City Centre AQMA	3.0	2.0	No	3.0
LI2	Liverpool Road (2)	Roadside	340354	367034	NO ₂	Yes, Chester City Centre AQMA	7.0	2.5	No	2.2
LLH	A41 Long Lane/Greenfield Lane	Roadside	342464	368461	NO ₂	No	15.0	1.5	No	2.2
LU	Lumley Place	Roadside	340838	366215	NO ₂	Yes, Chester City Centre AQMA	0.0	9.4	No	2.1
LVS	Love Street	Roadside	340990	366317	NO ₂	Yes, Chester City Centre AQMA	8.0	1.8	No	2.2
MCC	Christleton (Mill Cottages)	Roadside	343785	365502	NO ₂	No	0.5	2.4	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
MUL	1 Mulberry Close, Elton	Roadside	346258	375321	NO ₂	No	0.0	27.0	No	2.0
NCS	New Crane Street	Roadside	339857	366460	NO ₂	No	0.0	1.8	No	2.0
NIN	Nicholas Street (North)	Roadside	340284	366199	NO ₂	Yes, Chester City Centre AQMA	0.0	3.0	No	2.3
NIS	Nicholas Street (South)	Roadside	340329	366114	NO ₂	Yes, Chester City Centre AQMA	0.0	4.3	No	2.2
NSR	Station Rd crossroads, Northwich	Roadside	366796	373984	NO ₂	No	0.6	1.7	No	2.2
NWH	Winnington Hill, Northwich	Roadside	365590	373904	NO ₂	No	2.4	0.7	No	2.4
OB	105 Boughton	Roadside	341633	366510	NO ₂	Yes, Chester City Centre AQMA	0.6	2.5	No	2.5
OF	St Oswalds / Fountain	Roadside	340453	366853	NO ₂	Yes, Chester City Centre AQMA	0.0	4.8	No	3.0
OP	Oulton Place	Roadside	340636	366770	NO ₂	Yes, Chester City Centre AQMA	0.0	1.6	No	2.1
OSQ	Over Square, Winsford	Roadside	364053	365977	NO ₂	No	5.5	2.2	No	2.4
OVH	Overleigh Rd, Handbridge	Roadside	340770	365605	NO ₂	No	0.0	1.3	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)
OW	St Oswalds Way	Roadside	340623	366823	NO ₂	Yes, Chester City Centre AQMA	2.3	2.3	No	2.3
OWR	Old Wrexham Rd. Handbridge (Catholic High Sch.)	Roadside	340482	365062	NO ₂	No	29.0	2.3	No	3.0
PA	Parkgate Road (19)	Roadside	340313	367014	NO ₂	Yes, Chester City Centre AQMA	2.4	0.8	No	2.4
PG	Parkgate Road (5)	Roadside	340322	366989	NO ₂	Yes, Chester City Centre AQMA	0.2	1.8	No	2.0
QRN	Quarry Road, Neston	Roadside	330565	378063	NO ₂	No	0.0	3.0	No	2.0
RIV	Rivacre Road	Roadside	337242	378569	NO ₂	No	14.4	4.5	No	1.8
RM	Rock Mount, Parkgate Road	Roadside	340291	367108	NO ₂	Yes, Chester City Centre AQMA	0.0	3.8	No	2.2
RPS	Rudheath Primary School	Roadside	367856	372667	NO ₂	No	19.0	5.2	No	2.2
RR	Richfield Recruitment	Roadside	340180	376338	NO ₂	Yes, Whitby Road/Station Road AQMA	3.0	2.1	No	2.5
SA	Samaritans, Liverpool Road	Roadside	340364	366929	NO ₂	Yes, Chester City Centre AQMA	0.2	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)
SAB	Stanley Arms, Brook St	Roadside	340838	366746	NO ₂	Yes, Chester City Centre AQMA	4.9	2.3	No	2.5
SF	Station Road Flats	Roadside	341238	366976	NO ₂	No	0.0	3.2	No	2.2
SLW	Stanney/Wellington E.Port	Roadside	339889	375755	NO ₂	No	3.0	3.2	No	2.0
SMH	St Martins / Hunter St	Roadside	340243	366511	NO ₂	Yes, Chester City Centre AQMA	0.7	2.2	No	2.0
SR	68 Station Rd	Roadside	340435	376790	NO ₂	Yes, Whitby Road/Station Road AQMA	0.0	1.6	No	2.5
ST	St Anne's Place	Roadside	340794	366778	NO ₂	Yes, Chester City Centre AQMA	18.4	0.1	No	2.2
SZ	Specialized Bikes, Boughton	Roadside	341819	366475	NO ₂	Yes, Chester City Centre AQMA	0.5	2.0	No	2.5
T11	Tarvin Road (11)	Roadside	341931	366458	NO ₂	Yes, Chester City Centre AQMA	2.7	1.5	No	2.1
T44	Tarvin Road (44)	Roadside	342085	366446	NO ₂	Yes, Chester City Centre AQMA	3.5	1.0	No	2.5
T6	Tarvin Road (6)	Roadside	341926	366446	NO ₂	Yes, Chester City Centre AQMA	0.2	2.0	No	2.0
TA	Tarvin Road (52)	Roadside	344519	366898	NO ₂	No	6.0	2.0	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
TB	The Bars, Boughton (nr. Gyratory)	Roadside	341202	366470	NO ₂	Yes, Chester City Centre AQMA	2.0	1.0	No	2.5
TBV	1 Tarvin Rd (Barnhouse Vets)	Roadside	344013	366830	NO ₂	No	14.4	1.4	No	2.5
UN	44 Upper Northgate St	Roadside	340357	366960	NO ₂	Yes, Chester City Centre AQMA	0.2	3.0	No	2.2
VXR	Vicars Cross Road (LP34)	Roadside	343365	366694	NO ₂	No	1.7	11.2	No	1.8
WCR	Whitchurch Road (58)	Roadside	342951	366029	NO ₂	No	7.2	1.5	No	2.0
WG	Watergate St.	Roadside	340217	366209	NO ₂	Yes, Chester City Centre AQMA	0.2	1.5	No	2.0
WGW	Watergate St. / Walls	Roadside	340165	366198	NO ₂	Yes, Chester City Centre AQMA	0.0	2.2	No	2.2
WH1, WH2, WH3	Whitby Rd collocated triplicate tubes	Roadside	340196	376363	NO ₂	Yes, Whitby Road/Station Road AQMA	15.0	1.2	Yes	3.5
WVC	Weaver Court, Northwich	Roadside	365788	373744	NO ₂	No	0.0	4.0	No	2.0
XR	Boughton Heath roundabout	Roadside	343117	365949	NO ₂	No	4.5	3.2	No	2.0

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 NO₂ Monitoring Results: Automatic Monitoring (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 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
BO	341864	366444	Roadside	67.4	67.4	23	17	19	18	15.5
CBI	340645	366802	Roadside	99.3	99.3	38	29	30	32	31.6
FMH	352445	378031	Urban Background	99.6	99.6	15	13	15	14	9.7
TLP	344103	374330	Industrial	98.9	51.8	13	9	11	11	10.4
WH	340197	376363	Roadside	93.3	93.3	35	28	29	29	27.9

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

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 NO₂ 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/m³.

Exceedances of the NO₂ annual mean objective of 40µg/m³ 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 NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
AP	373386	371500	Roadside	100.0	100.0	23.9	16.3	19.7	19.2	17.3
BE	340239	366418	Roadside	82.6	82.6	32.1	22.2	27.1	25.2	21.8
BJ	341401	366512	Roadside	100.0	100.0	33.9	24.6	26.1	26.4	25.7
BSP	338380	375840	Roadside	82.9	82.9	-	16.2	19.5	19.0	18.5
C11	341915	366427	Roadside	100.0	100.0	41.0	27.8	31.8	30.6	29.9
C36	342000	366374	Roadside	90.6	90.6	43.9	31.8	33.6	36.4	32.7
C75	342056	366354	Roadside	100.0	100.0	26.4	18.9	21.2	21.1	19.1
CAN	340375	366730	Roadside	100.0	100.0	31.2	19.4	23.9	22.5	21.8
CBI1, CBI2, CBI3	340647	366803	Other	100.0	100.0	36.4	26.4	28.2	29.5	28.3
CBR	340676	366782	Other	100.0	100.0	-	24.4	26.1	27.0	26.1
CFL	351762	377862	Roadside	90.6	90.6	29.9	21.6	23.3	22.8	20.6
CM	343761	365528	Roadside	100.0	100.0	32.6	23.1	24.3	23.6	22.1
CN	366070	373905	Roadside	100.0	100.0	31.0	24.1	25.3	26.0	23.3

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
CP3	343970	365295	Roadside	100.0	100.0	30.9	22.9	22.8	22.7	20.2
CPL	344377	365375	Roadside	100.0	100.0	18.2	11.8	12.2	13.3	11.6
CRH	364171	372697	Roadside	82.4	82.4	-	12.6	16.7	17.5	15.5
CUD	359436	370534	Roadside	90.6	90.6	-	-	-	19.6	18.9
DA	365953	371113	Roadside	90.6	90.6	19.1	14.9	15.8	16.3	15.2
EB	341658	366487	Roadside	92.3	92.3	30.7	22.4	24.4	24.3	23.1
FH	352146	378139	Roadside	100.0	100.0	36.9	27.4	28.8	28.2	25.9
FJ	352171	378140	Roadside	100.0	100.0	36.9	28.6	28.3	28.4	26.5
FM	352189	378094	Roadside	92.0	92.0	29.4	24.3	28.5	27.5	22.4
FRC	352023	378121	Roadside	90.6	90.6	31.0	24.3	25.6	23.9	22.1
FT	352176	378105	Roadside	100.0	100.0	29.8	23.7	24.1	24.3	20.7
GE	340657	366730	Roadside	73.0	73.0	30.7	20.1	26.4	25.5	25.9
GR	368634	374714	Roadside	84.6	84.6	21.6	17.0	17.2	18.1	16.4
GSW	340700	366687	Roadside	100.0	100.0	33.9	23.2	28.1	27.9	25.6

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
GT	340611	366747	Roadside	82.9	82.9	30.5	23.0	29.0	25.9	24.3
HB	341605	366527	Roadside	100.0	100.0	30.9	21.6	22.7	23.8	21.2
HC	373375	366928	Roadside	90.6	90.6	-	-	23.3	21.2	19.7
HHB	347953	366723	Roadside	100.0	100.0	32.1	17.8	22.0	24.6	22.7
HIN	330317	378536	Roadside	82.9	82.9	-	-	-	-	24.3
HO	341311	367207	Roadside	100.0	100.0	28.6	21.6	23.3	24.8	21.3
HSS	364711	366339	Roadside	84.6	84.6	-	19.2	22.9	22.3	21.4
HTC	348333	366763	Roadside	57.9	57.9	33.2	19.7	25.1	24.3	20.5
HW	340881	366826	Roadside	100.0	100.0	32.0	21.1	26.1	27.1	25.0
IC	342068	366332	Roadside	92.3	92.3	34.5	23.7	26.6	26.9	24.1
KR	368432	372988	Roadside	92.3	92.3	32.2	26.0	25.9	25.7	22.6
LH	341126	366540	Roadside	92.0	92.0	29.7	22.8	27.5	27.0	26.4
LI2	340354	367034	Roadside	100.0	100.0	38.8	27.6	29.9	30.9	28.9
LLH	342464	368461	Roadside	84.6	84.6	-	-	-	22.6	18.4

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 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
LU	340838	366215	Roadside	90.4	90.4	24.1	16.4	16.9	17.7	16.8
LVS	340990	366317	Roadside	63.6	63.6	28.3	19.2	17.5	21.7	23.7
MCC	343785	365502	Roadside	100.0	100.0	36.9	22.9	27.4	25.8	23.7
MUL	346258	375321	Roadside	100.0	100.0	16.8	13.4	14.2	14.0	12.2
NCS	339857	366460	Roadside	100.0	100.0	27.8	20.4	20.7	21.4	19.4
NIN	340284	366199	Roadside	100.0	100.0	33.9	24.0	29.8	26.2	25.8
NIS	340329	366114	Roadside	65.8	65.8	29.0	21.2	19.5	21.2	17.7
NSR	366796	373984	Roadside	100.0	100.0	35.3	27.6	31.0	30.1	27.1
NWH	365590	373904	Roadside	90.4	90.4	41.7	27.8	34.6	35.9	30.2
OB	341633	366510	Roadside	100.0	100.0	36.1	29.0	30.2	30.8	29.0
OF	340453	366853	Roadside	100.0	100.0	30.6	21.5	24.3	24.3	23.2
OP	340636	366770	Roadside	90.6	90.6	30.8	22.3	26.2	26.3	25.0
OSQ	364053	365977	Roadside	84.3	84.3	-	23.2	29.0	29.4	26.0
OVH	340770	365605	Roadside	90.4	90.4	-	19.3	20.4	20.8	19.1

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
OW	340623	366823	Roadside	57.9	57.9	43.3	27.2	32.2	33.7	31.1
OWR	340482	365062	Roadside	100.0	100.0	-	-	-	9.5	8.8
PA	340313	367014	Roadside	100.0	100.0	40.3	27.9	30.3	30.7	27.7
PG	340322	366989	Roadside	100.0	100.0	40.8	29.9	33.1	32.6	30.1
QRN	330565	378063	Roadside	81.0	81.0	-	26.6	29.3	27.2	25.9
RIV	337242	378569	Roadside	83.2	83.2	-	-	-	-	28.0
RM	340291	367108	Roadside	82.9	82.9	38.8	28.6	31.4	30.6	29.9
RPS	367856	372667	Roadside	100.0	100.0	40.5	29.0	29.5	30.8	26.5
RR	340180	376338	Roadside	0.0	0.0	35.2	30.0	31.4	29.2	-
SA	340364	366929	Roadside	100.0	100.0	34.4	24.8	27.5	28.2	26.1
SAB	340838	366746	Roadside	90.6	90.6	28.5	23.3	28.1	25.0	23.6
SF	341238	366976	Roadside	74.9	74.9	32.0	21.8	24.0	24.6	22.8
SLW	339889	375755	Roadside	100.0	100.0	-	16.8	18.3	20.3	19.1
SMH	340243	366511	Roadside	90.6	90.6	26.0	15.7	21.1	22.0	21.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
SR	340435	376790	Roadside	100.0	100.0	31.0	26.3	29.3	27.3	25.7
ST	340794	366778	Roadside	100.0	100.0	40.2	30.1	33.8	30.8	30.2
SZ	341819	366475	Roadside	65.8	65.8	32.1	22.9	25.3	25.8	24.6
T11	341931	366458	Roadside	100.0	100.0	28.6	19.6	21.3	23.3	20.6
T44	342085	366446	Roadside	100.0	100.0	37.6	25.7	28.5	30.5	27.5
T6	341926	366446	Roadside	82.6	82.6	43.6	31.5	34.1	35.1	32.0
TA	344519	366898	Roadside	84.6	84.6	38.6	26.7	27.6	28.0	27.2
TB	341202	366470	Roadside	82.9	82.9	33.3	25.0	25.4	24.2	26.4
TBV	344013	366830	Roadside	82.6	82.6	44.4	28.2	30.9	33.4	31.8
UN	340357	366960	Roadside	84.6	84.6	33.5	21.4	23.9	23.9	22.0
VXR	343365	366694	Roadside	100.0	100.0	-	19.0	22.2	22.8	20.5
WCR	342951	366029	Roadside	90.4	90.4	41.1	25.8	30.1	29.2	26.5
WG	340217	366209	Roadside	90.6	90.6	35.2	27.3	25.4	27.0	26.0
WGW	340165	366198	Roadside	90.6	90.6	29.6	23.7	22.1	24.5	22.6

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
WH1, WH2, WH3	340196	376363	Roadside	100.0	100.0	31.4	25.8	27.4	27.0	25.7
WVC	365788	373744	Roadside	100.0	100.0	-	17.3	18.2	18.2	16.0
XR	343117	365949	Roadside	73.6	73.6	29.7	18.2	23.0	22.4	19.8

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 $\mu\text{g}/\text{m}^3$.

Exceedances of the NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 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%).

Trends in Annual Mean NO₂ Concentrations

Figure A-1 – Trends in annual mean NO₂ concentrations – Within Chester City Centre AQMA (North I)

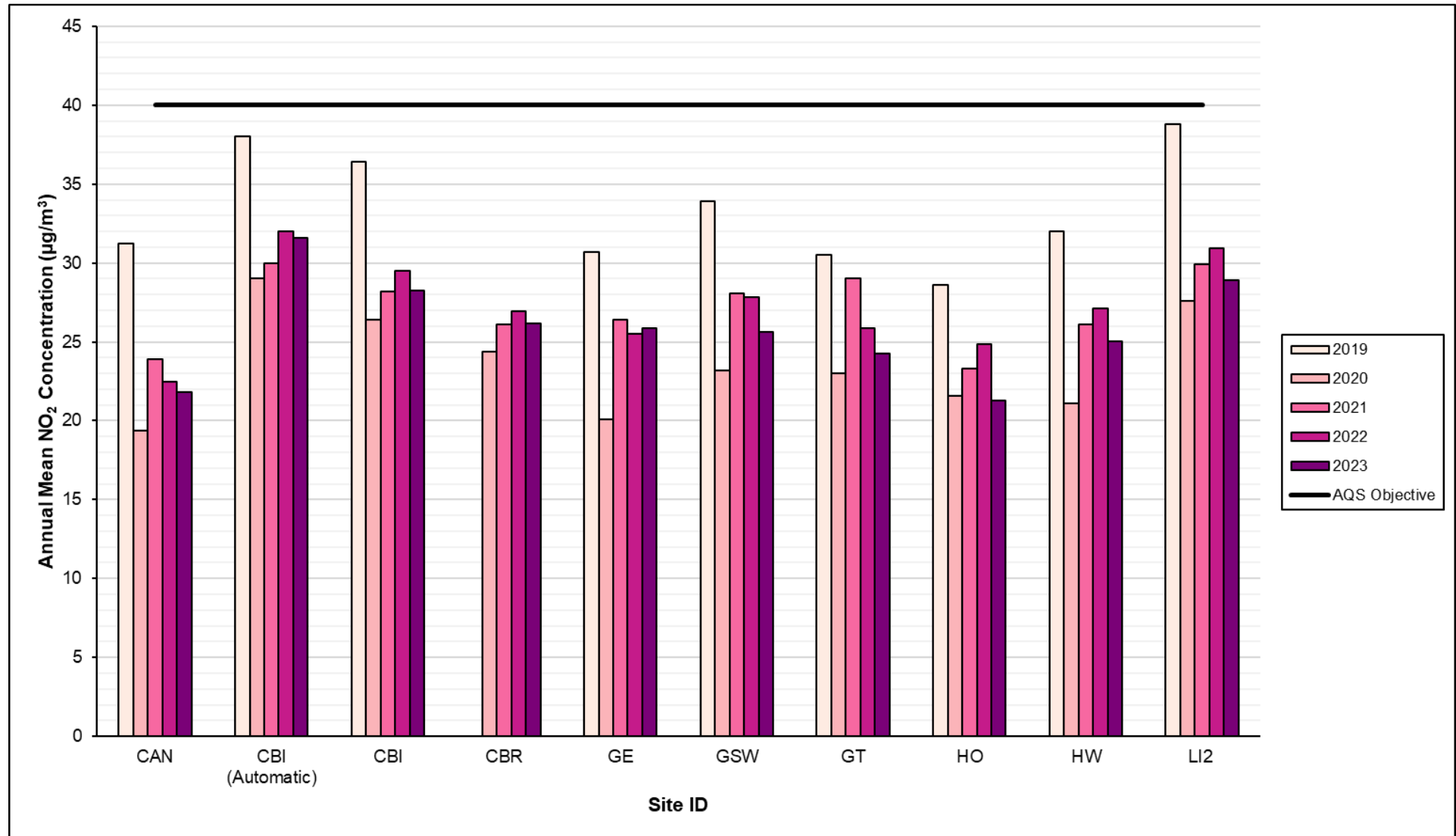


Figure A-2 – Trends in annual mean NO₂ concentrations – Within Chester City Centre AQMA (North II)

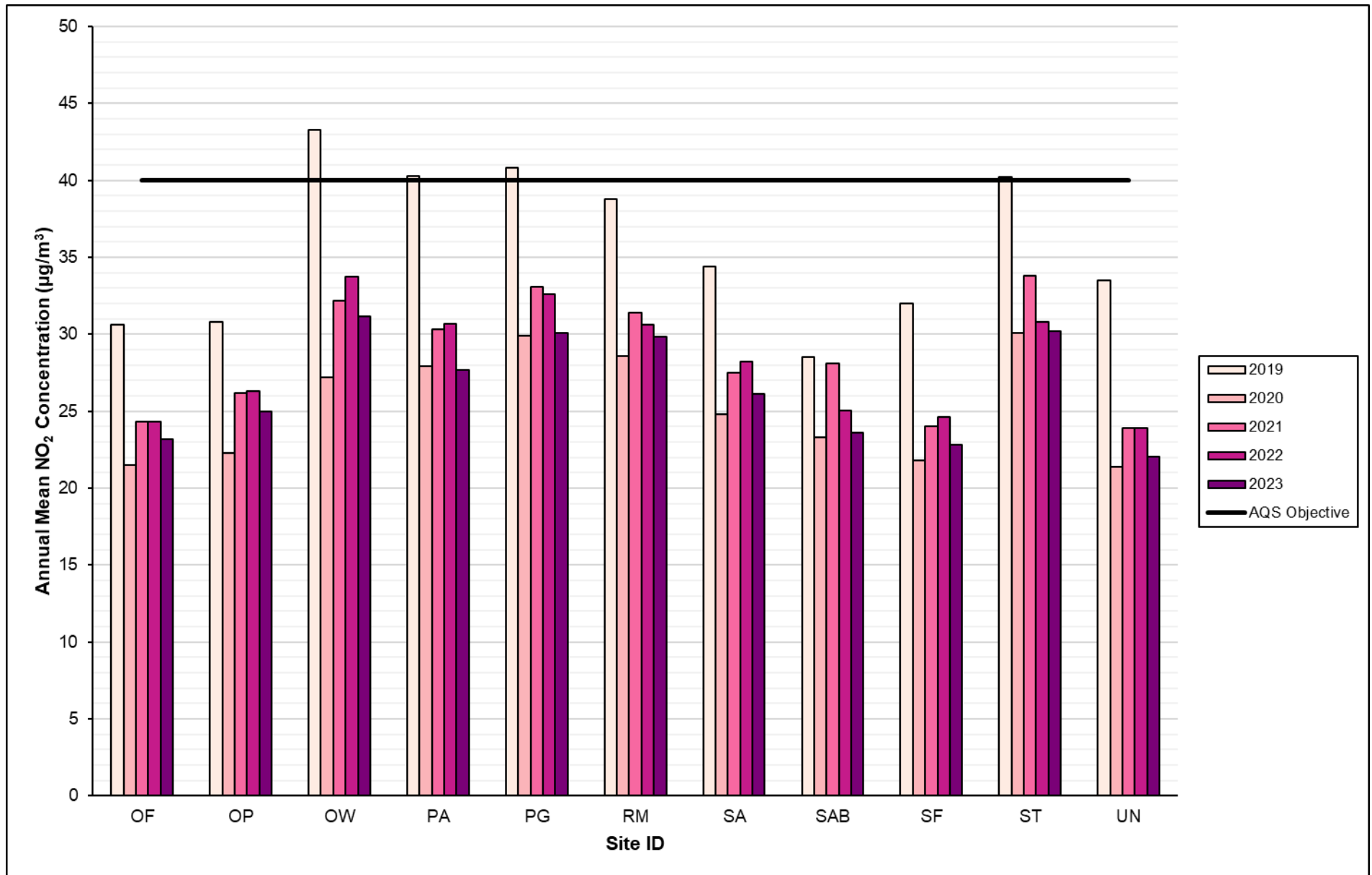


Figure A-3 – Trends in annual mean NO₂ concentrations – Within Chester City Centre AQMA (East/South I)

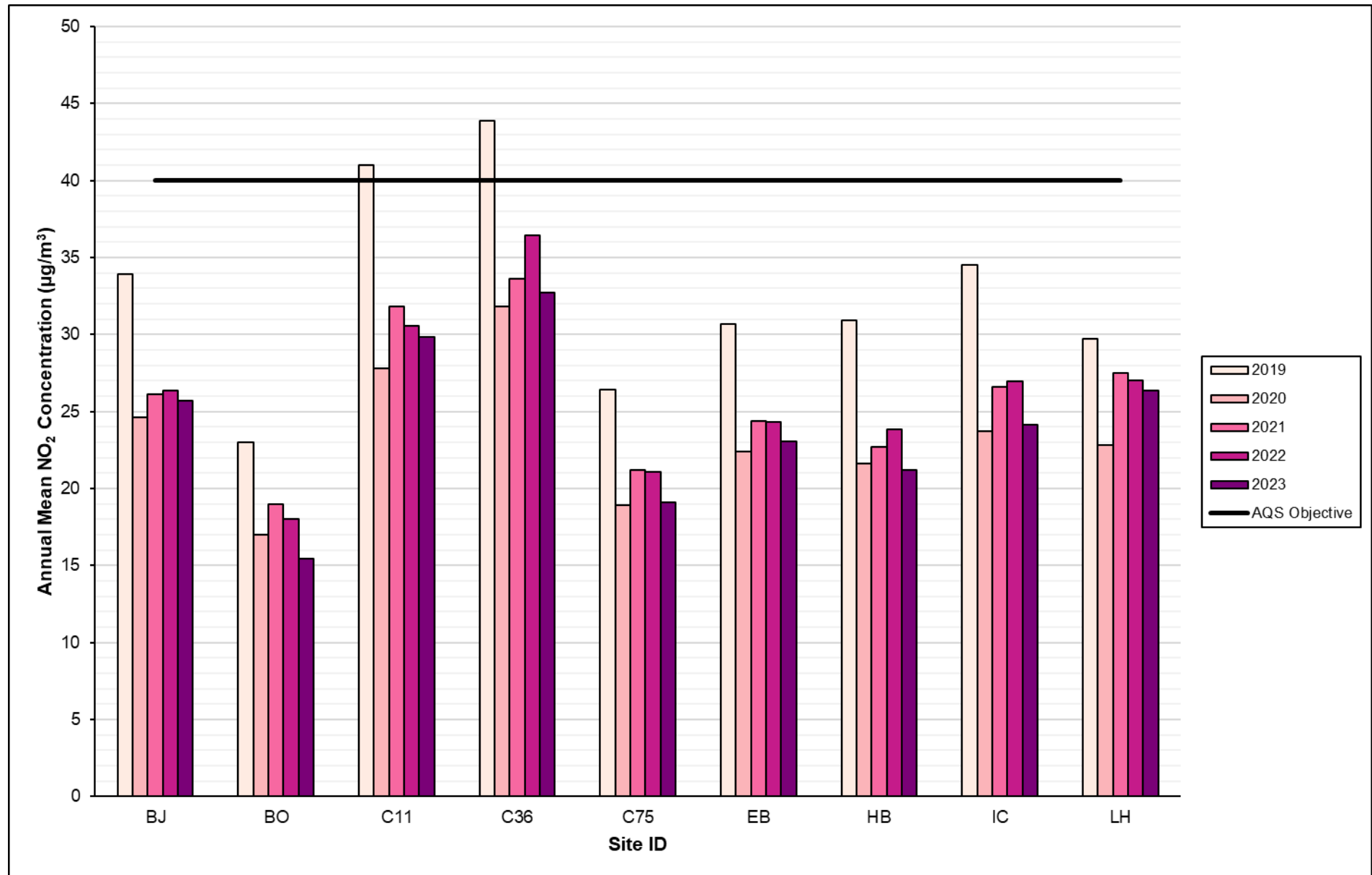


Figure A-4 – Trends in annual mean NO₂ concentrations – Within Chester City Centre AQMA (East/South II)

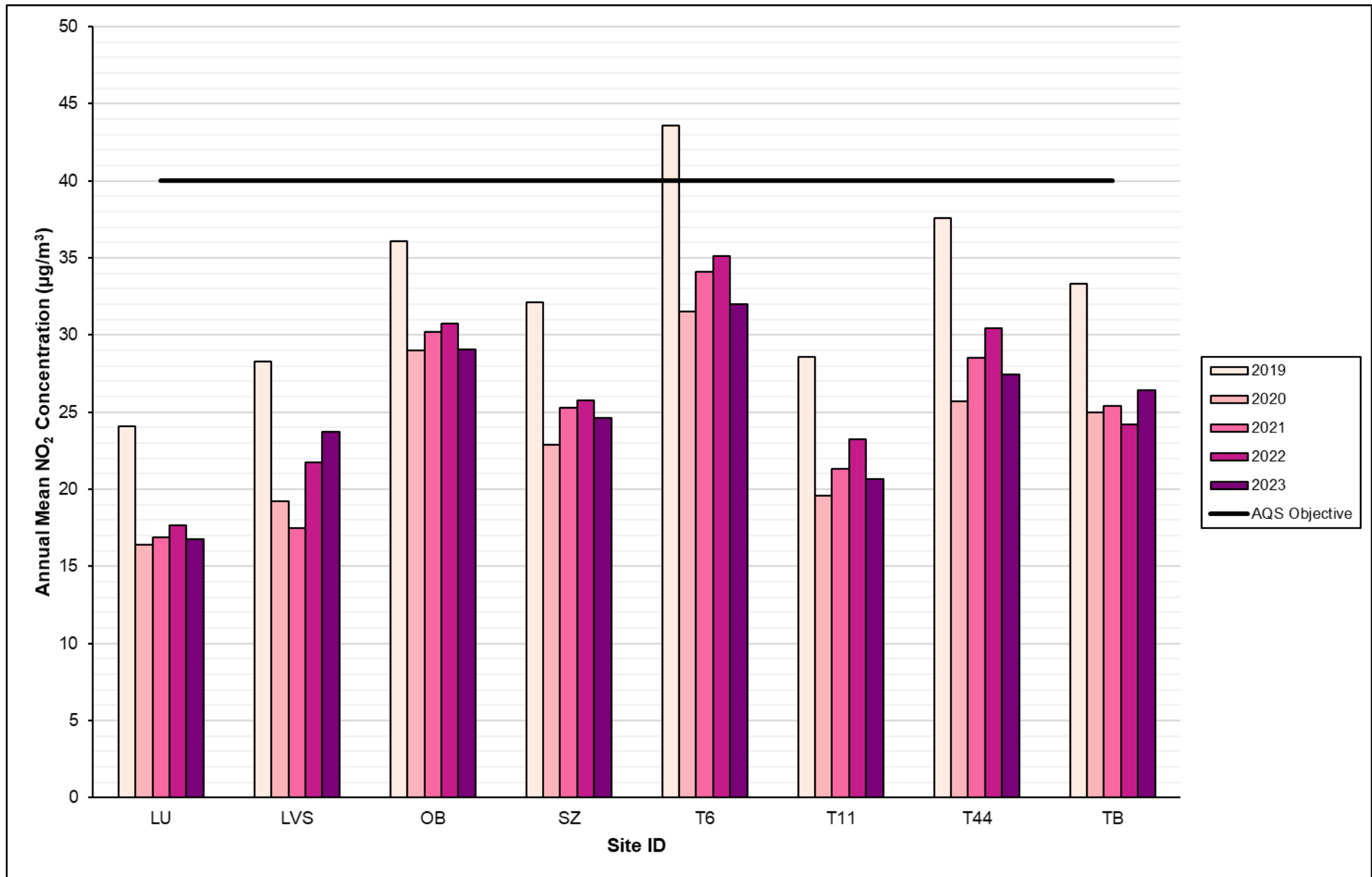


Figure A-5 – Trends in annual mean NO₂ concentrations – Within Chester City Centre AQMA (West)

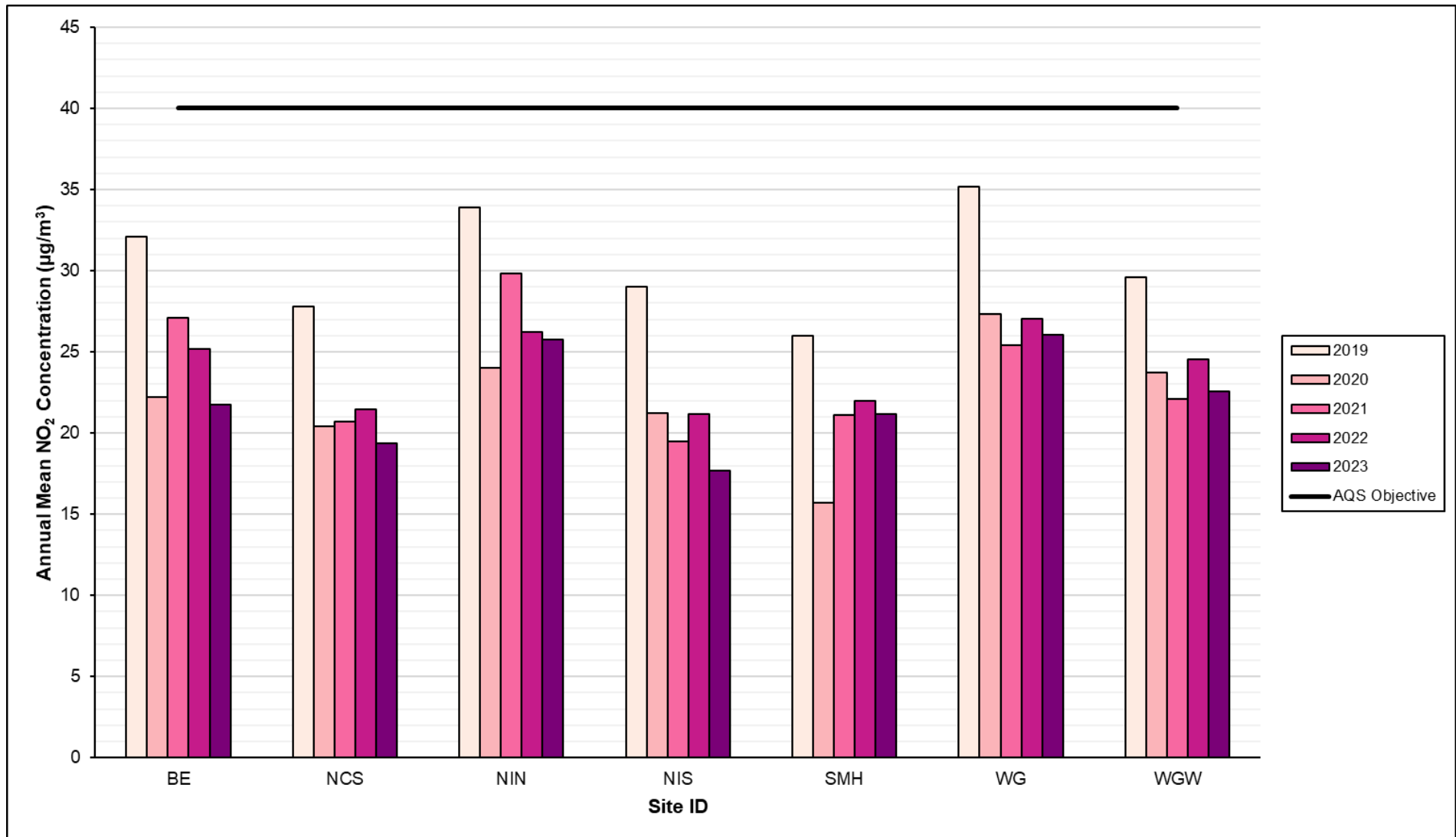


Figure A-6 – Trends in annual mean NO₂ concentrations – Within Whitby Road/Station Road AQMA

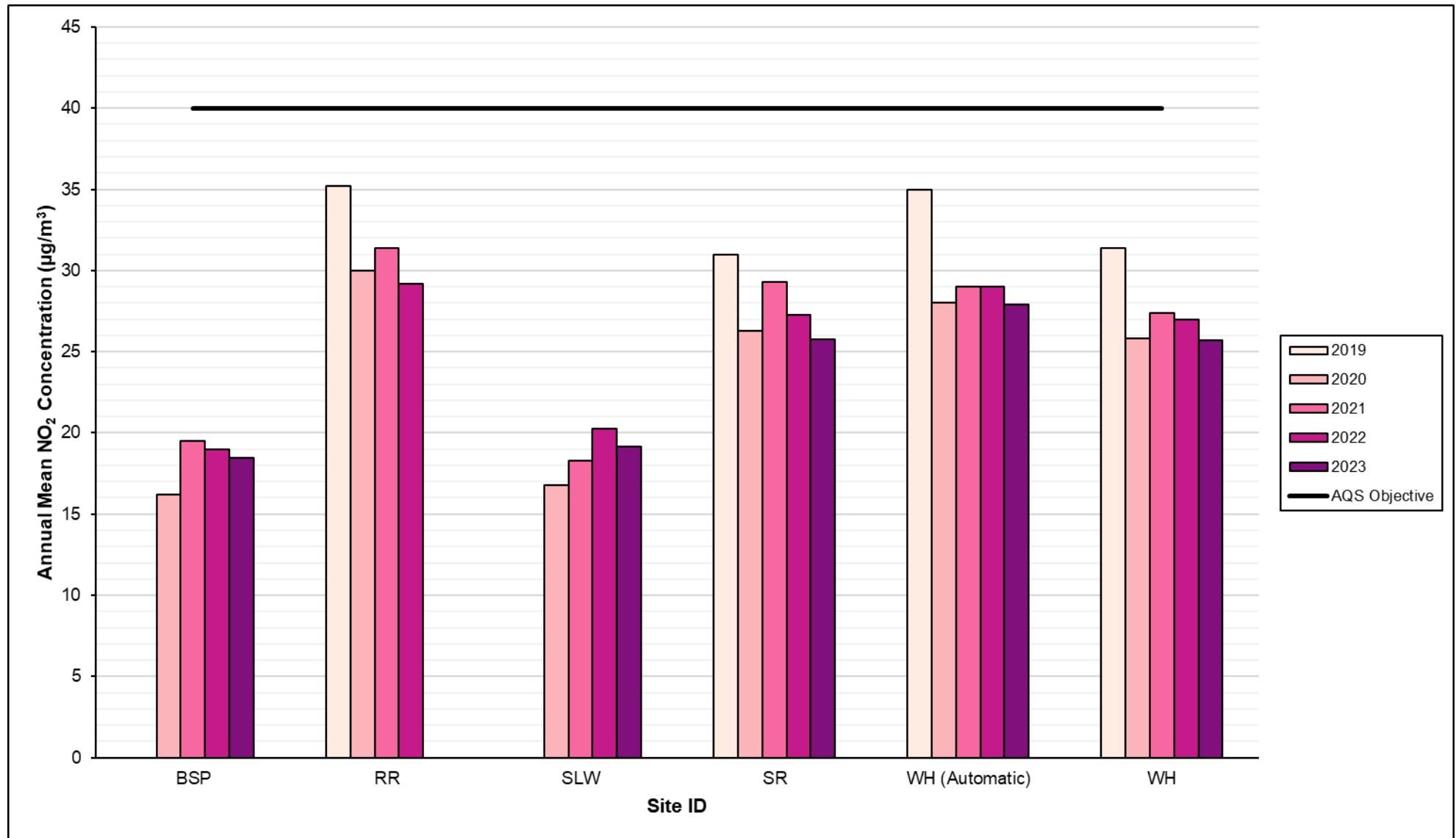


Figure A-7 – Trends in annual mean NO₂ concentration – Within Frodsham AQMA

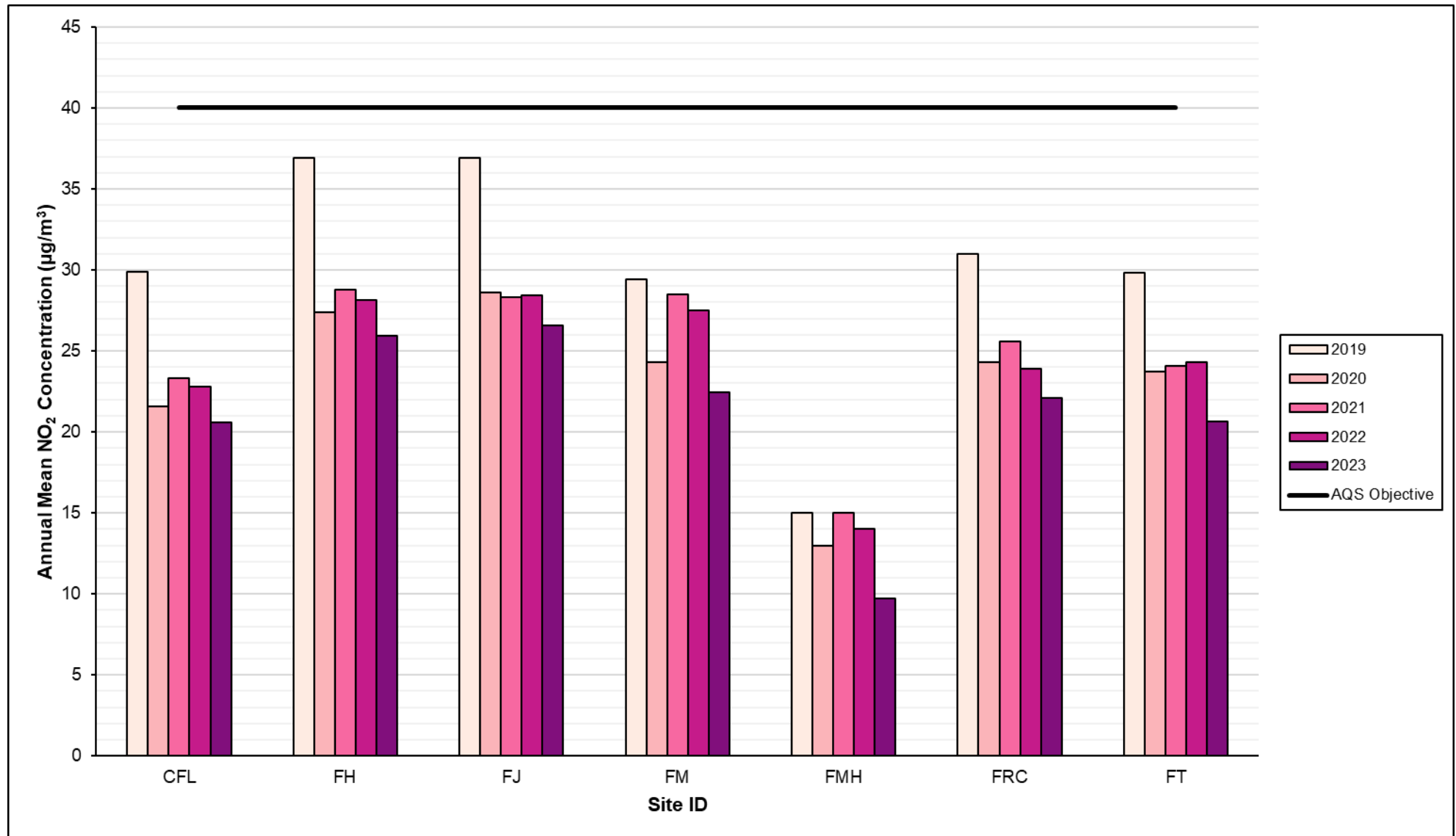


Figure A-8 – Trends in annual mean NO₂ concentration – Within Thornton-Le-Moors AQMA

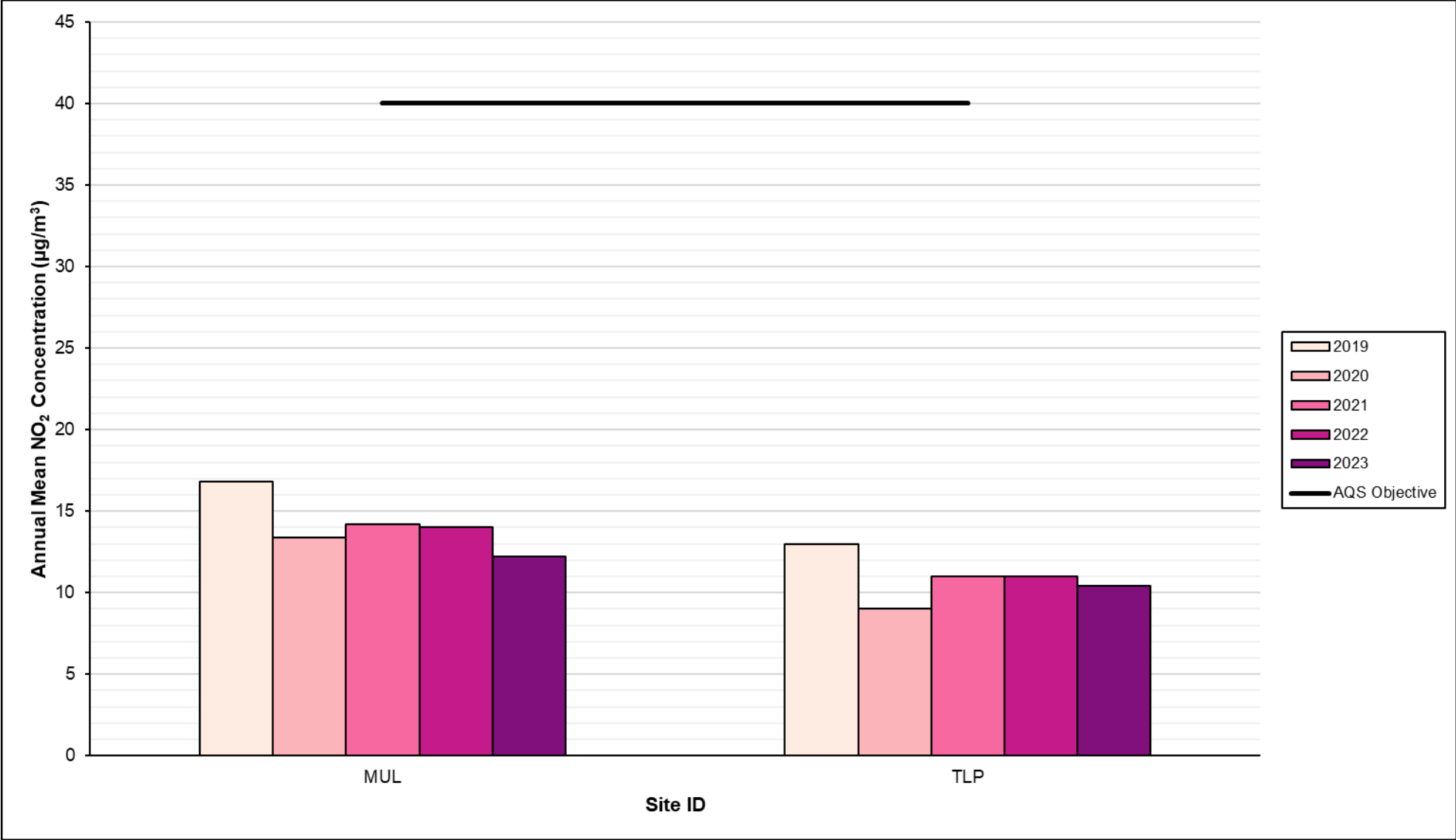


Figure A-9 – Trends in annual mean NO₂ concentration – Christleton / Littleton / Boughton Heath

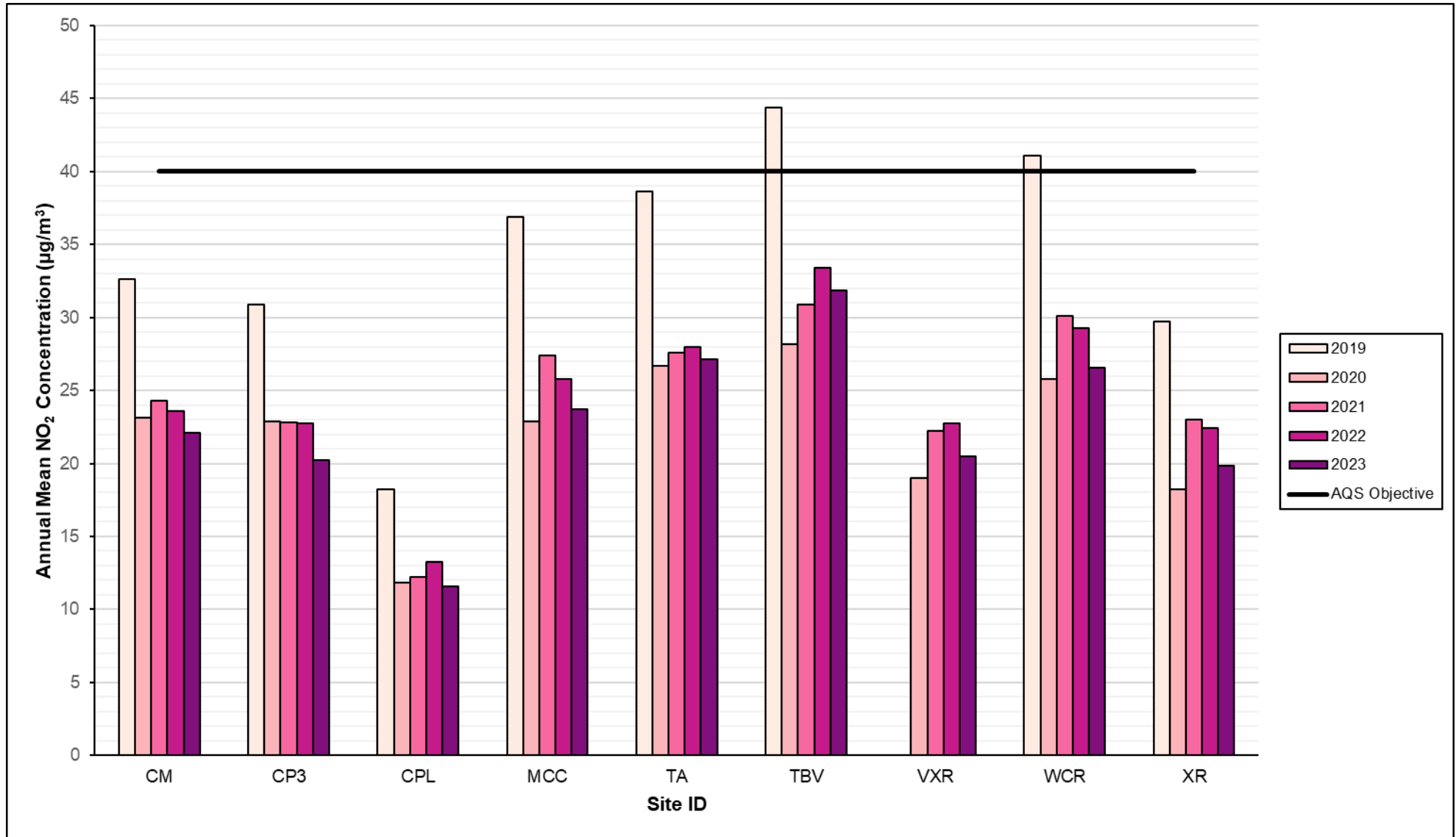


Figure A-10 – Trends in annual mean NO₂ concentration – Tarvin

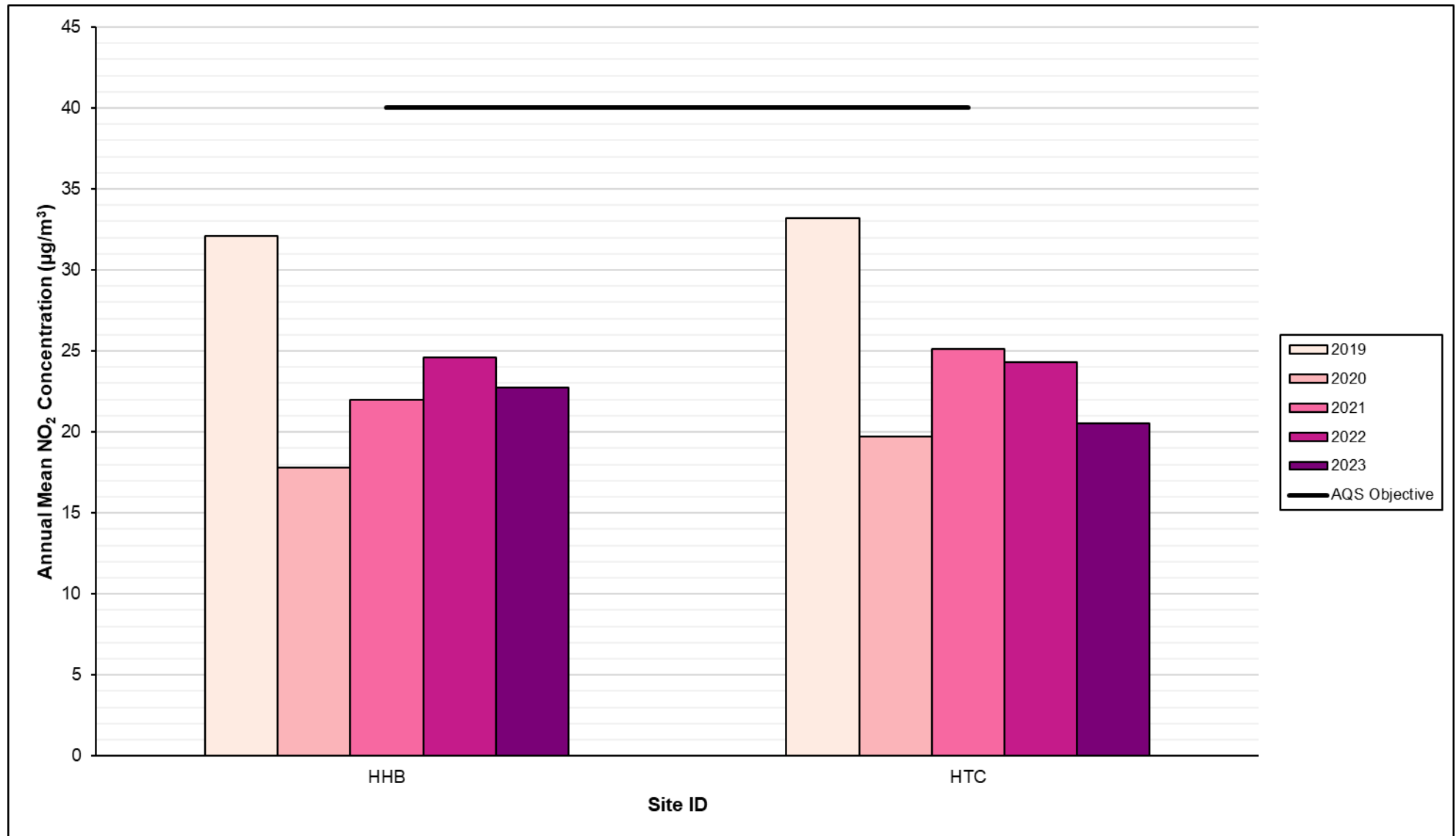


Figure A-11 – Trends in annual mean NO₂ concentration – Neston

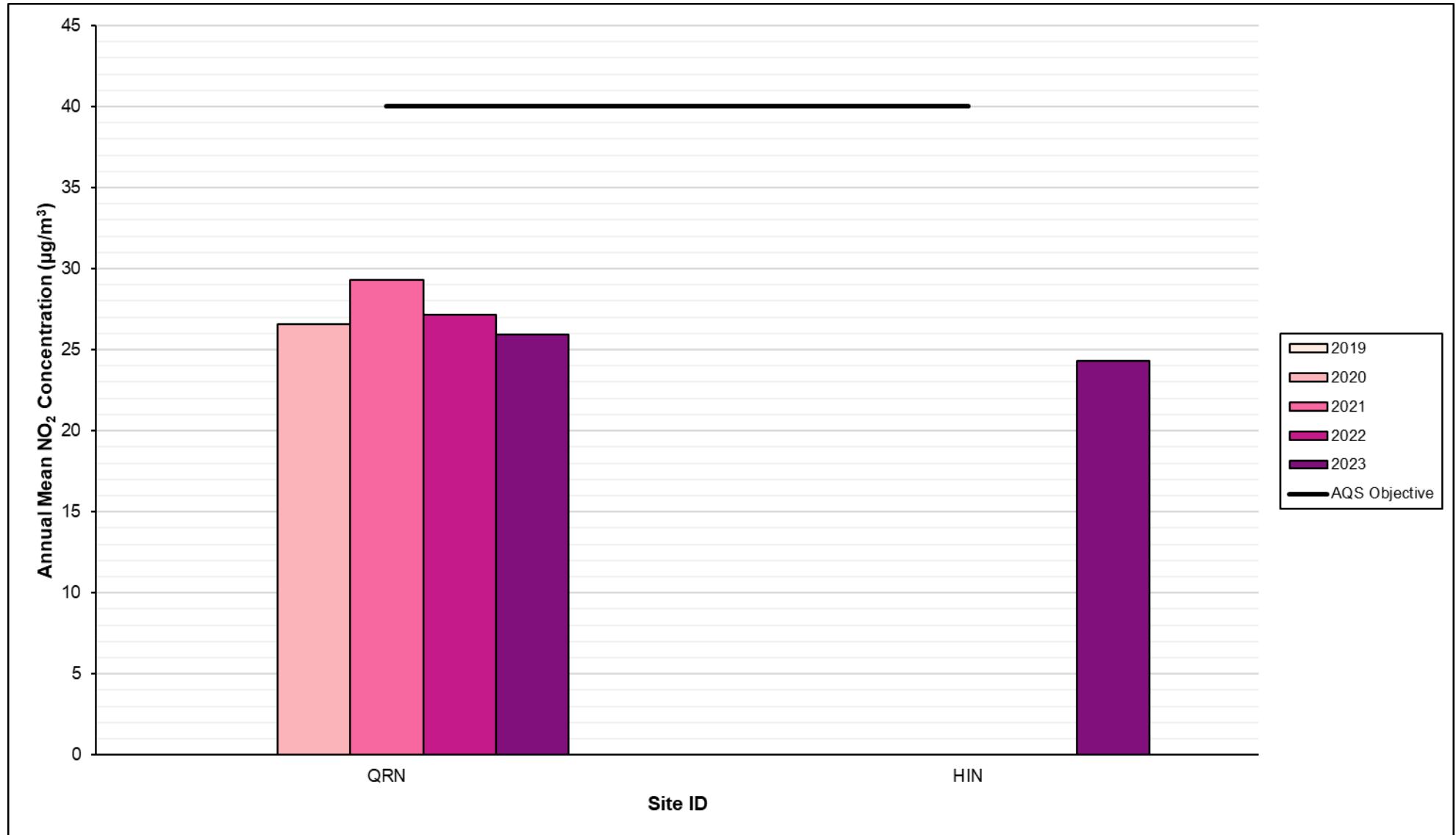


Figure A-12 – Trends in annual mean NO₂ concentration – Northwich

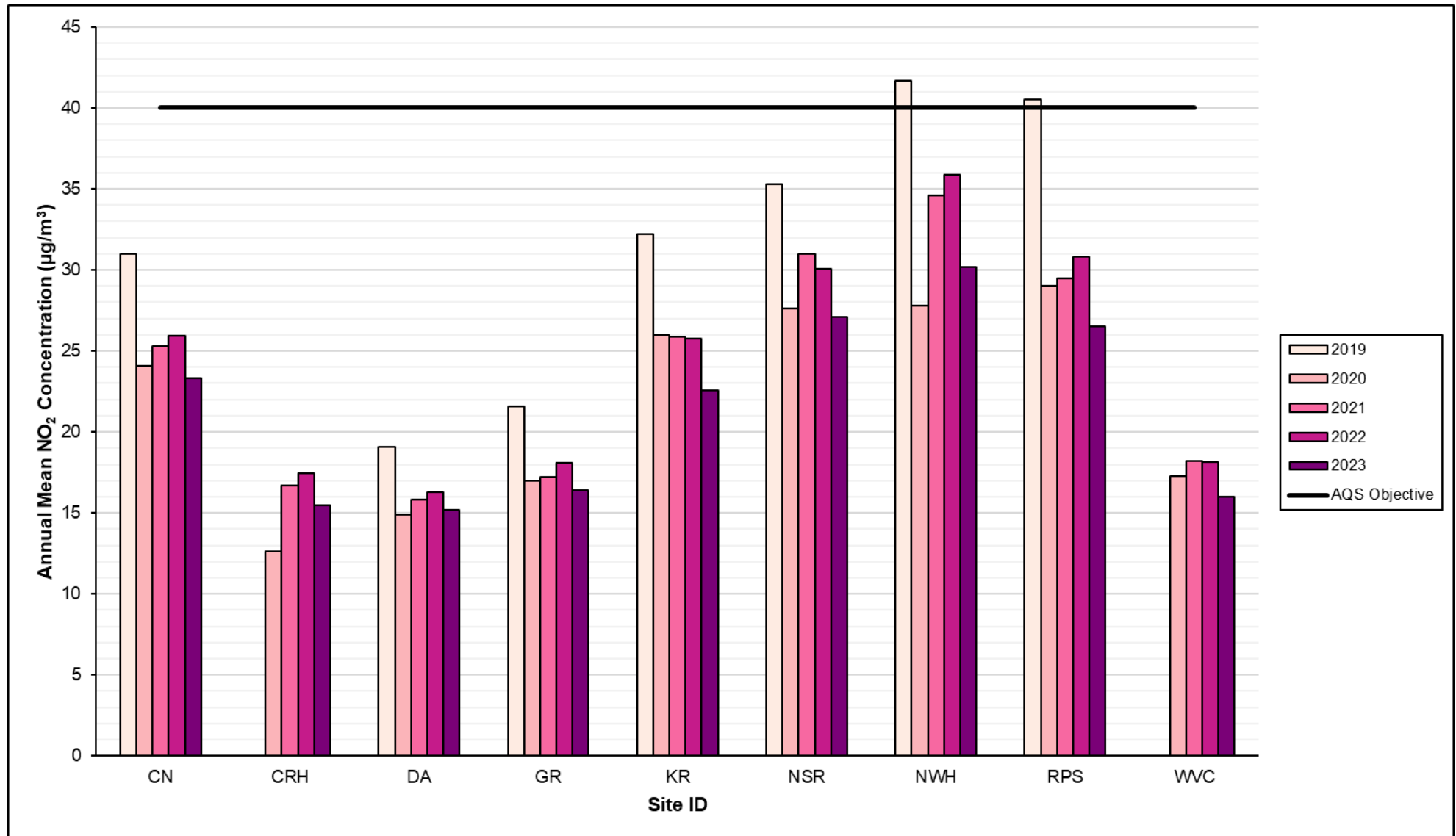


Figure A-13 – Trends in annual mean NO₂ concentration – Winsford

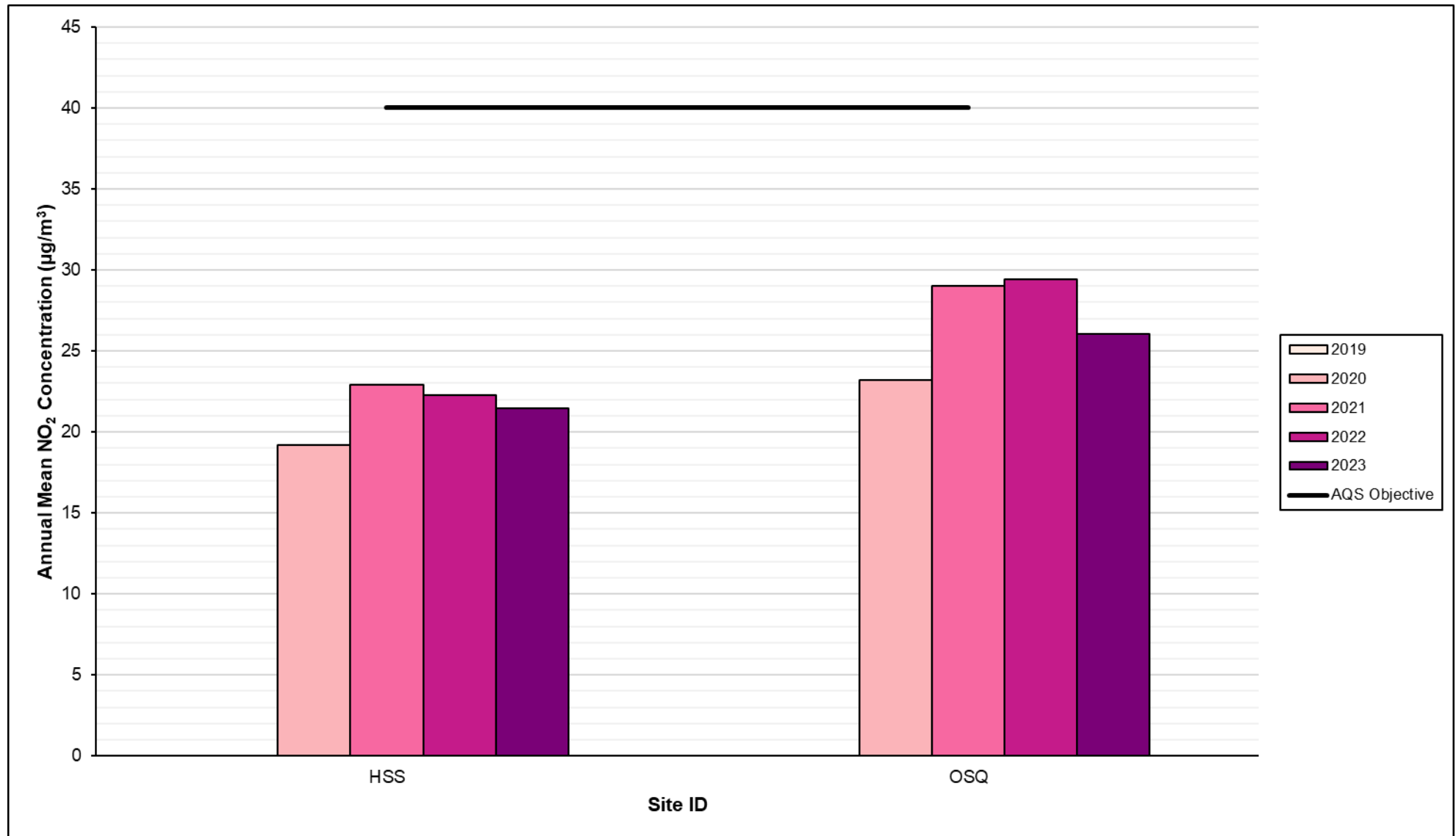


Figure A-14 – Trends in annual mean NO₂ concentration – Allstock

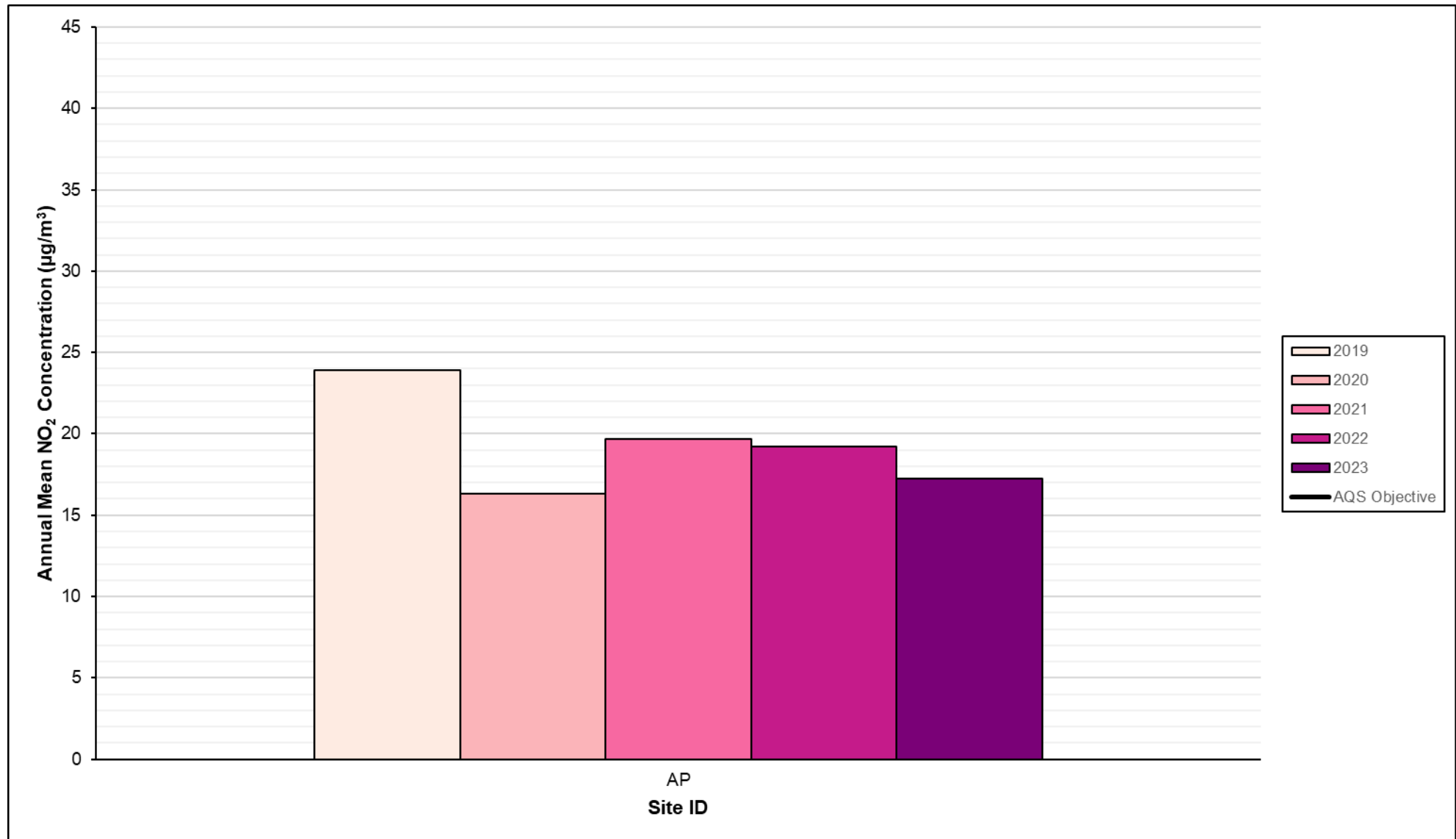


Figure A. 1 – Trends in annual mean NO₂ concentration – Sproston

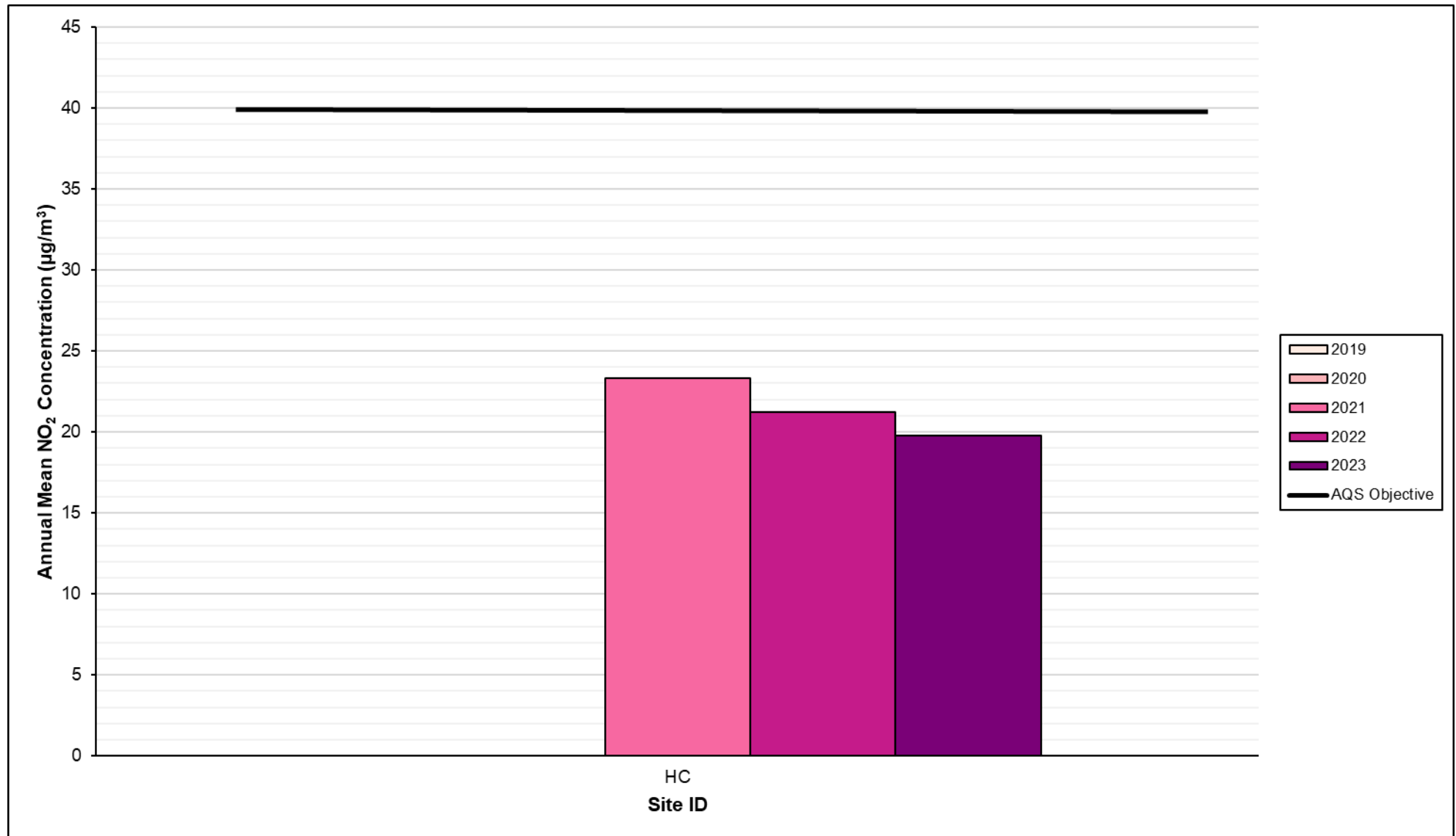


Figure A-15 – Trends in annual mean NO₂ concentration – A41 Long Lane / Greenfield Lane

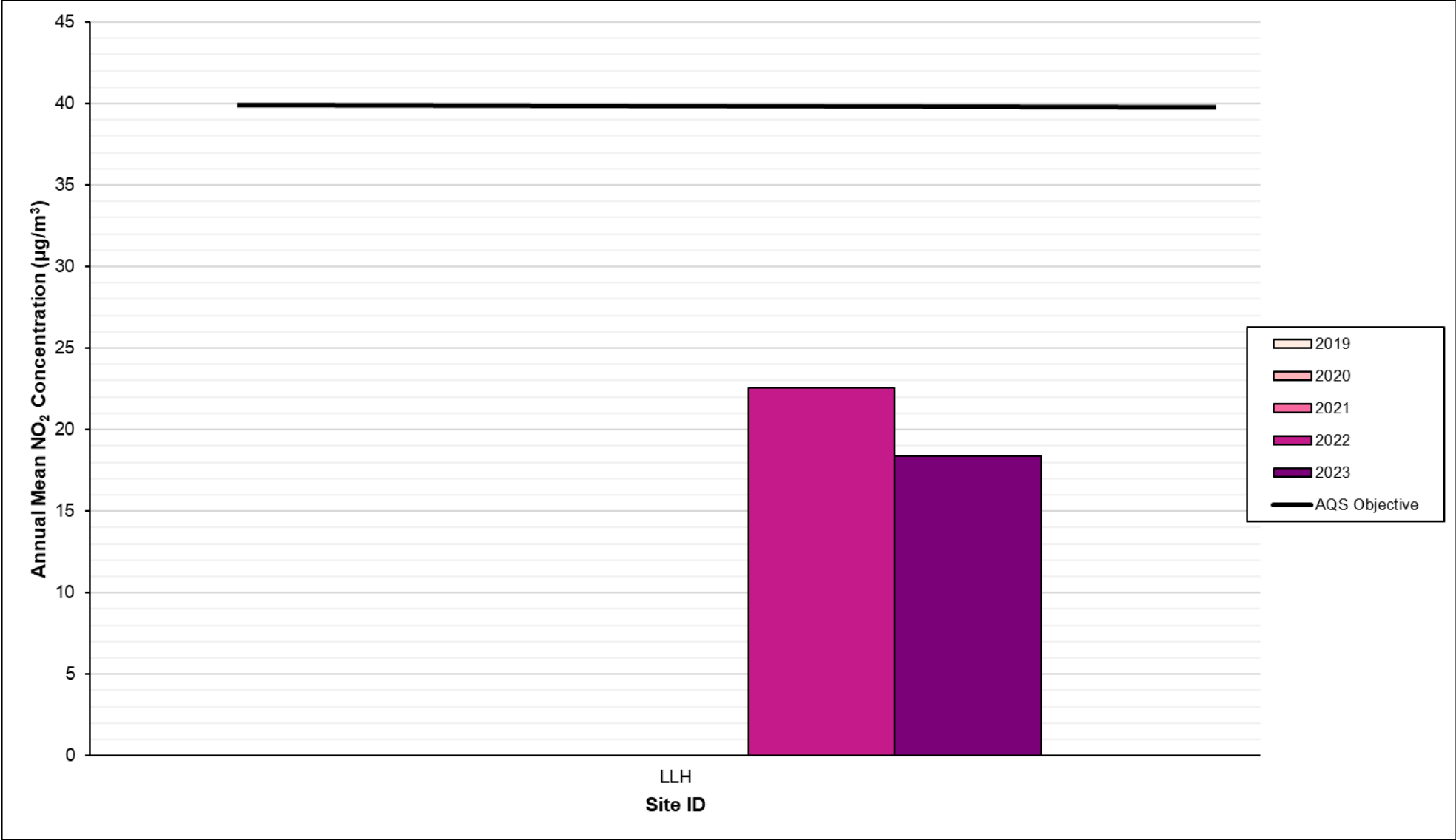


Figure A-16 – Trends in annual mean NO₂ concentration – Cuddington A49

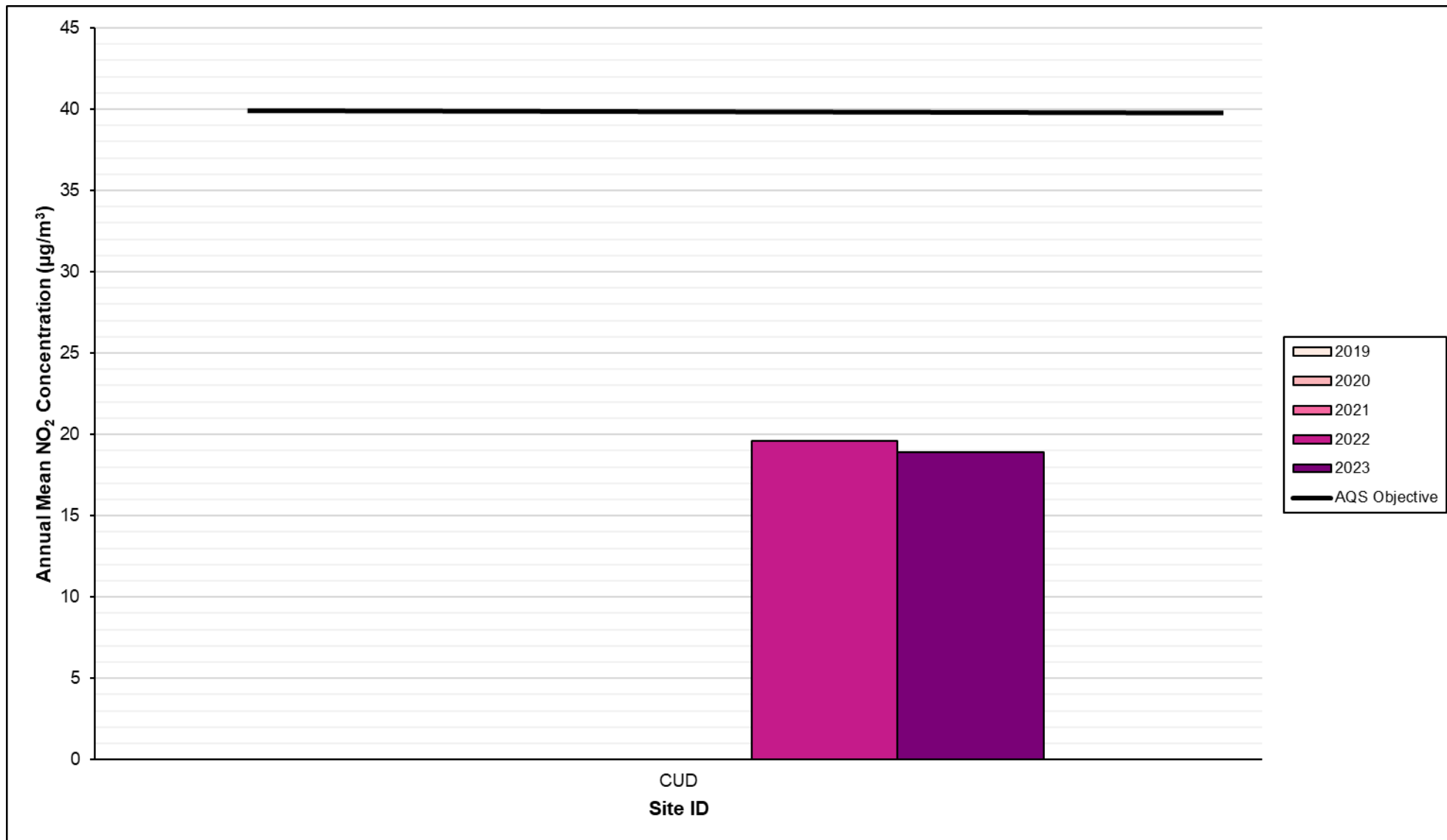


Figure A-17 – Trends in annual mean NO₂ concentration – Handbridge

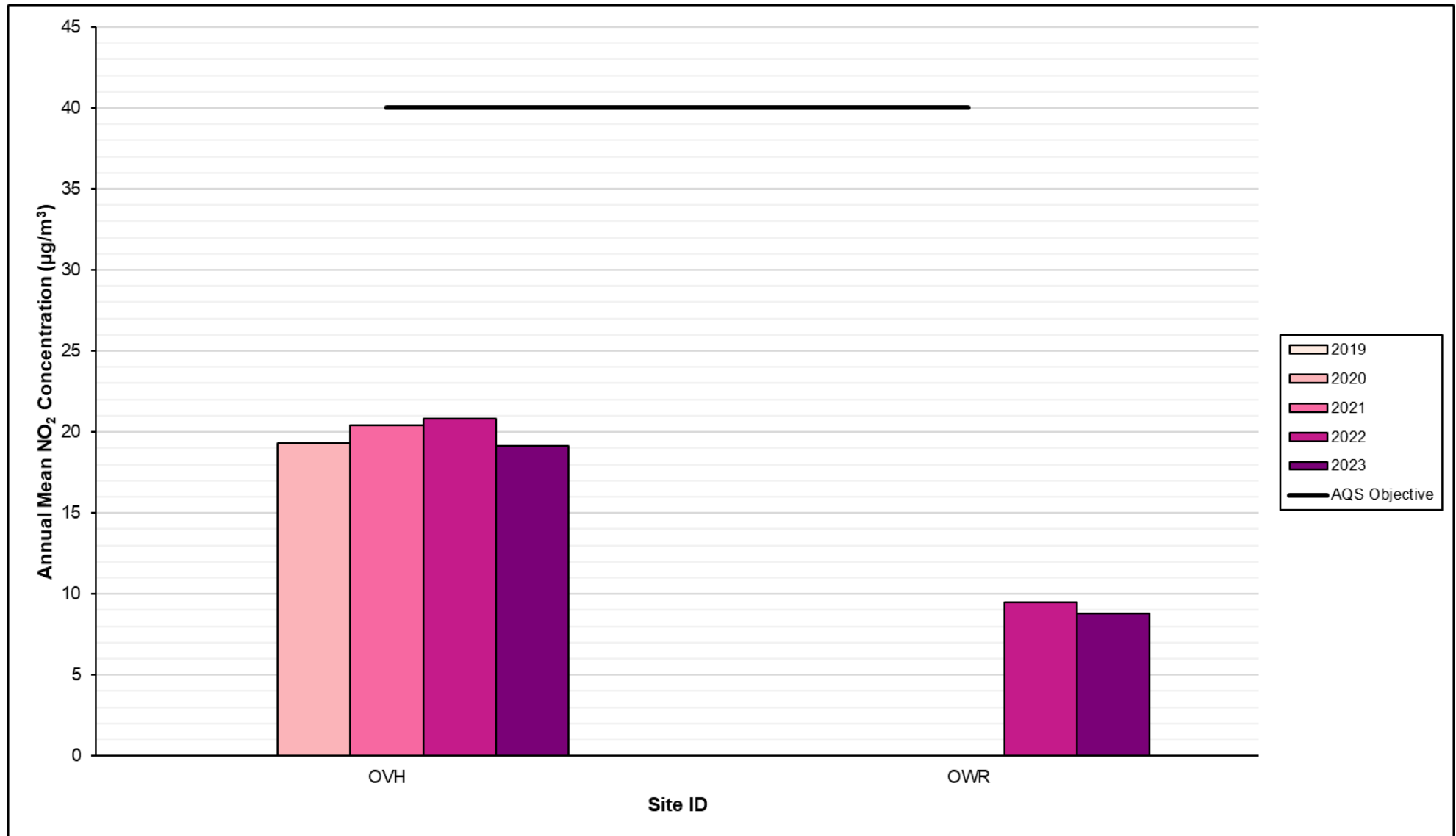


Figure A-18 – Trends in annual mean NO₂ concentration – Childer Thornton, Ellesmere Port

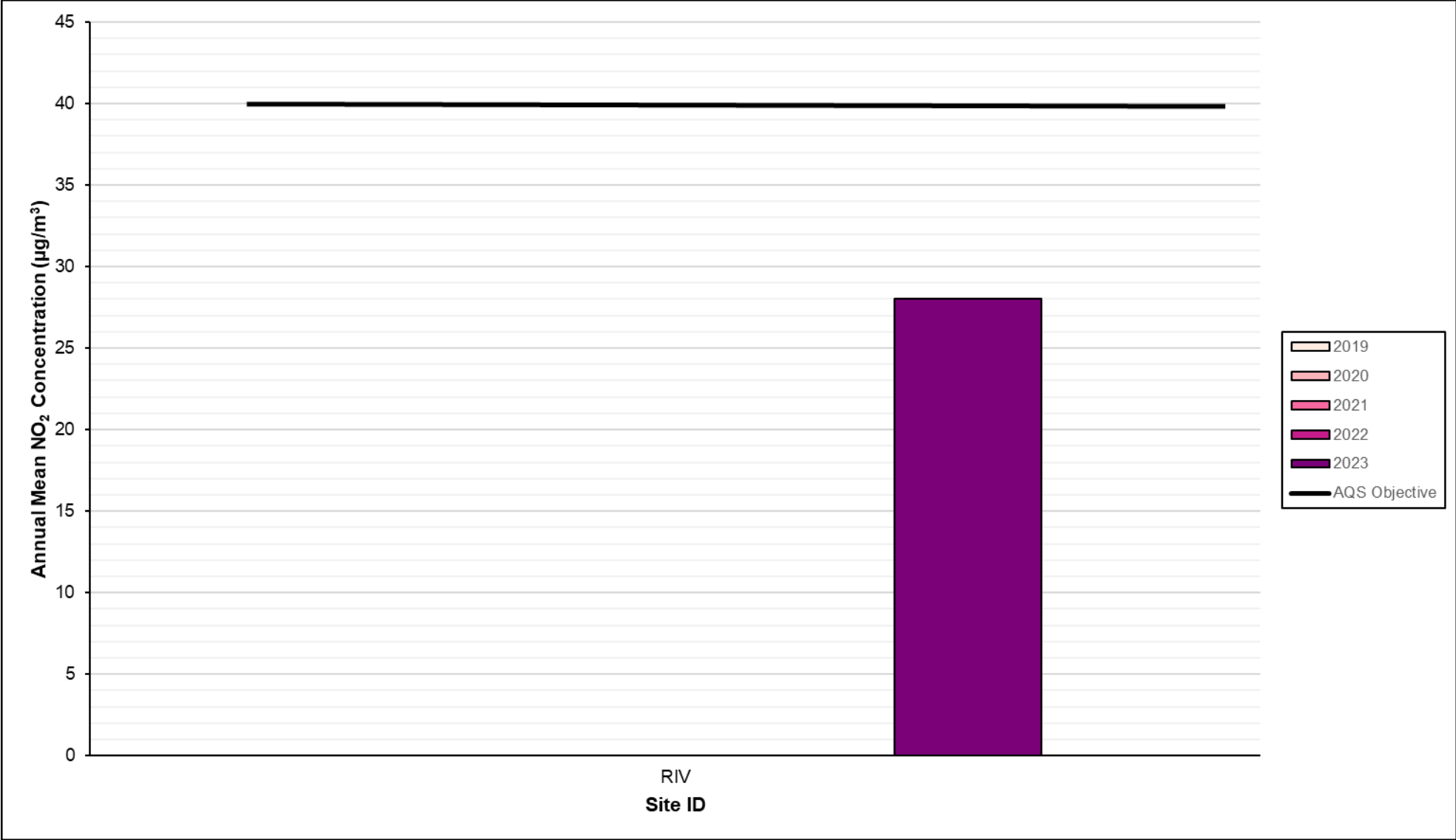


Table A-5– 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
BO	341864	366444	Roadside	67.4	67.4	0	0	2	0	0
CBI	340645	366802	Roadside	99.3	99.3	0	0	0	0	2
FMH	352445	378031	Urban Background	99.6	99.6	0	0	0	0	0
TLP	344103	374330	Industrial	98.9	51.8	0	0	0	0	0
WH	340197	376363	Roadside	93.3	93.3	0	0	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded.

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-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-19 – Trends in Number of NO₂ 1-Hour Means > 200µg/m³

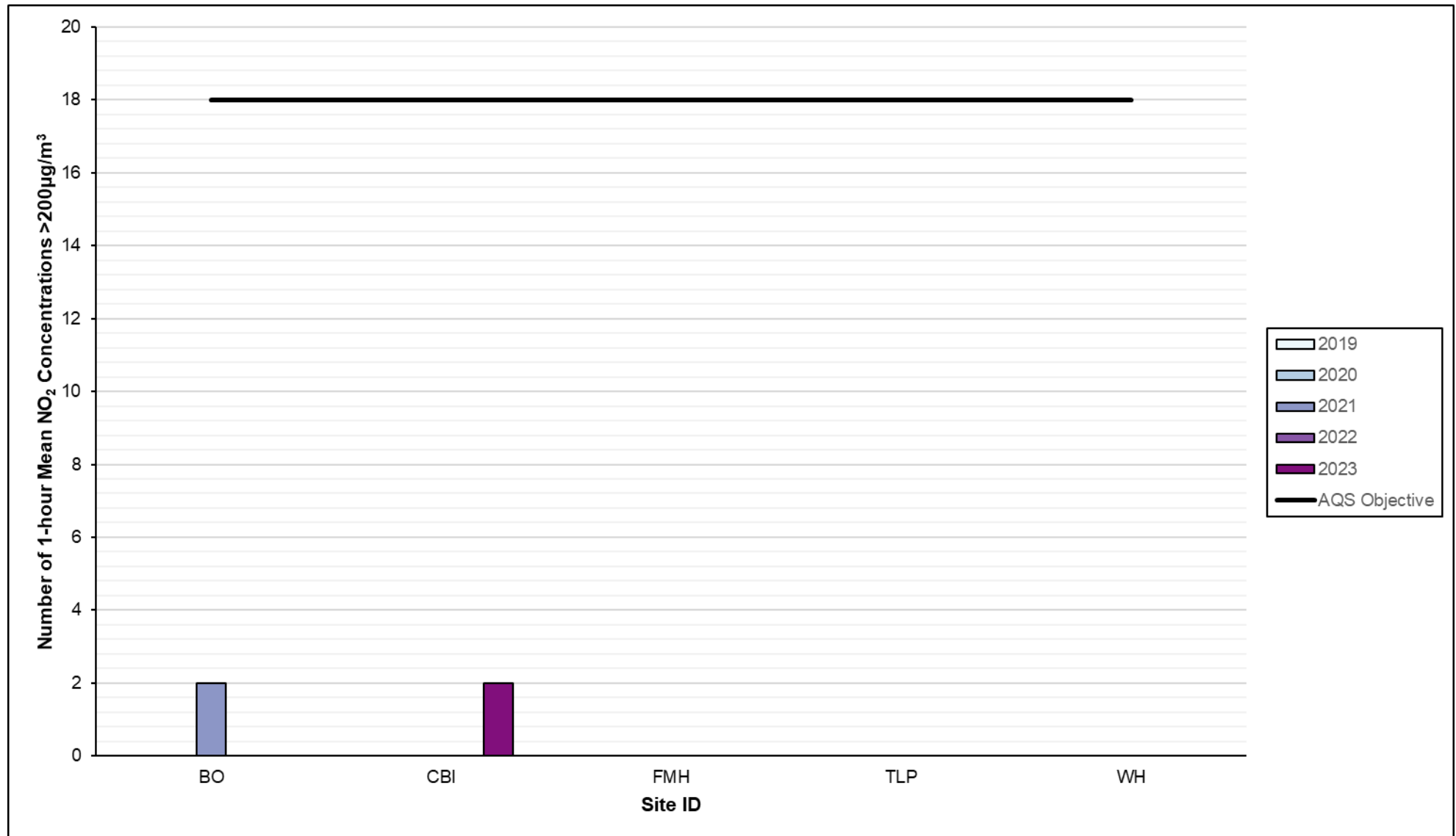


Table A-6 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CBI	340645	366802	Roadside	95.3	95.3	21	23	22	20	18.3
FMH	352445	378031	Urban Background	98.4	98.4	15	12	13	15	13.6
TLP	344103	374330	Industrial	85.1	85.1	14	13	13	13	11.9

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

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ 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-20 – Trends in Annual Mean PM₁₀ Concentrations

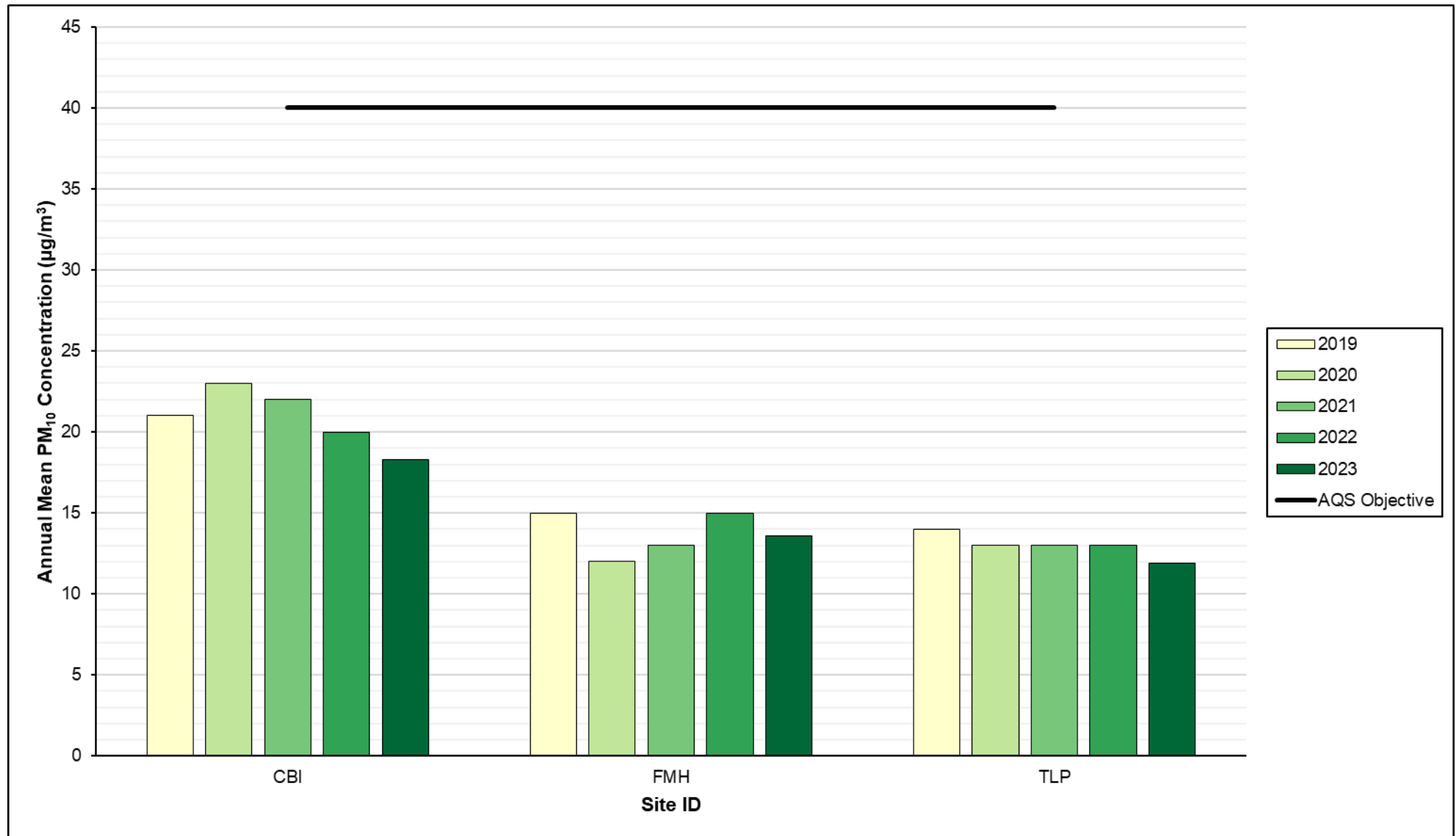


Table A-7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
CBI	340645	366802	Roadside	95.3	95.3	9	4	2	5	0
FMH	352445	378031	Urban Background	98.4	98.4	1	0	0	2	0
TLP	344103	374330	Industrial	85.1	85.1	3	0	0	0	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ 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-21 – Trends in Number of 24-Hour Mean PM₁₀ Results > 50µg/m³

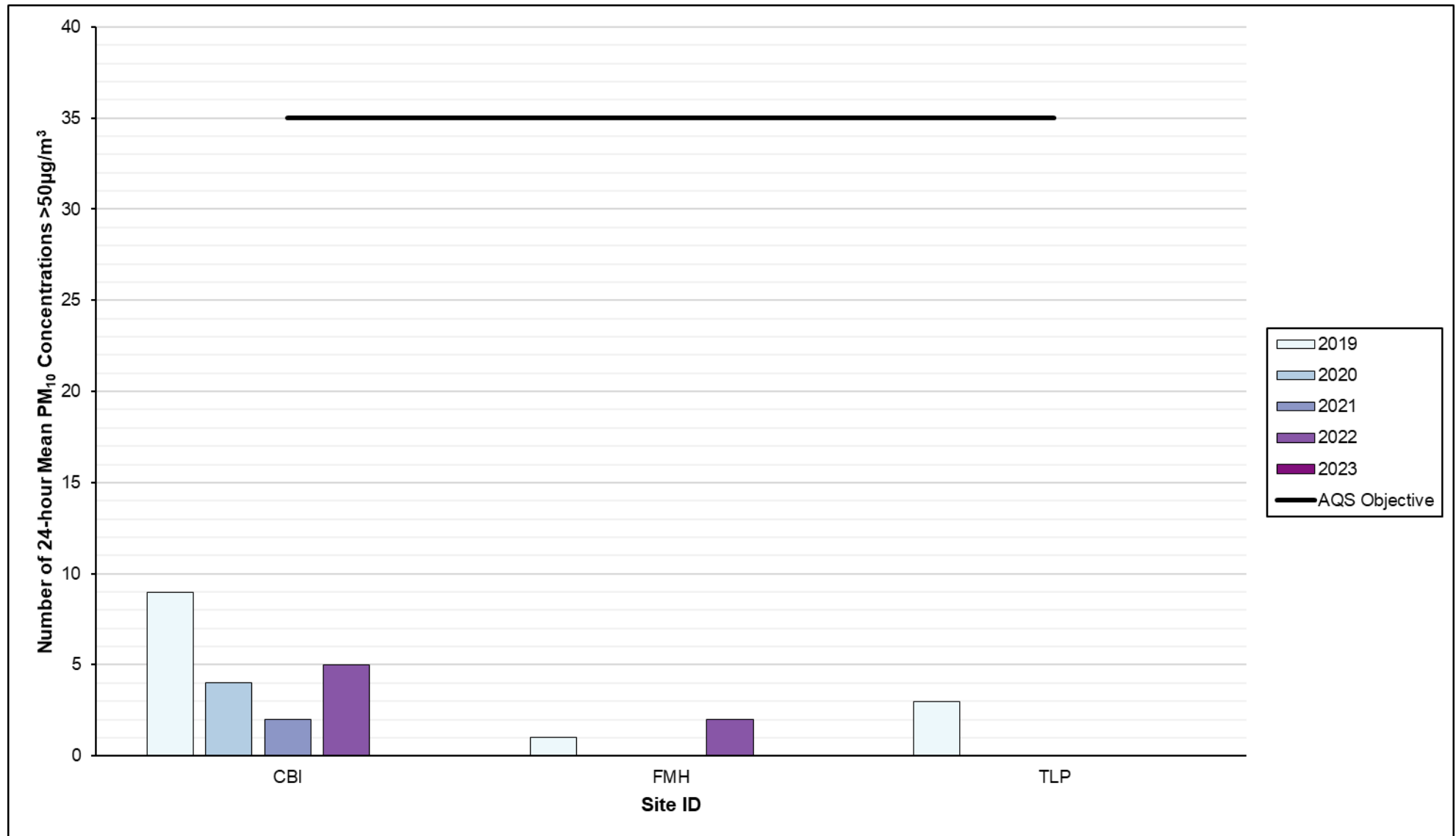


Table A-8 – SO₂ 2023 Monitoring Results, Number of Relevant Instances

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⁾	Number of 15-minute Means > 266µg/m ³	Number of 1-hour Means > 350µg/m ³	Number of 24-hour Means > 125µg/m ³
ELT	345642	375522	Industrial	96.6	96.6	7	0	0
TLP	344103	374330	Industrial	91.7	91.7	1	0	0

Notes:

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

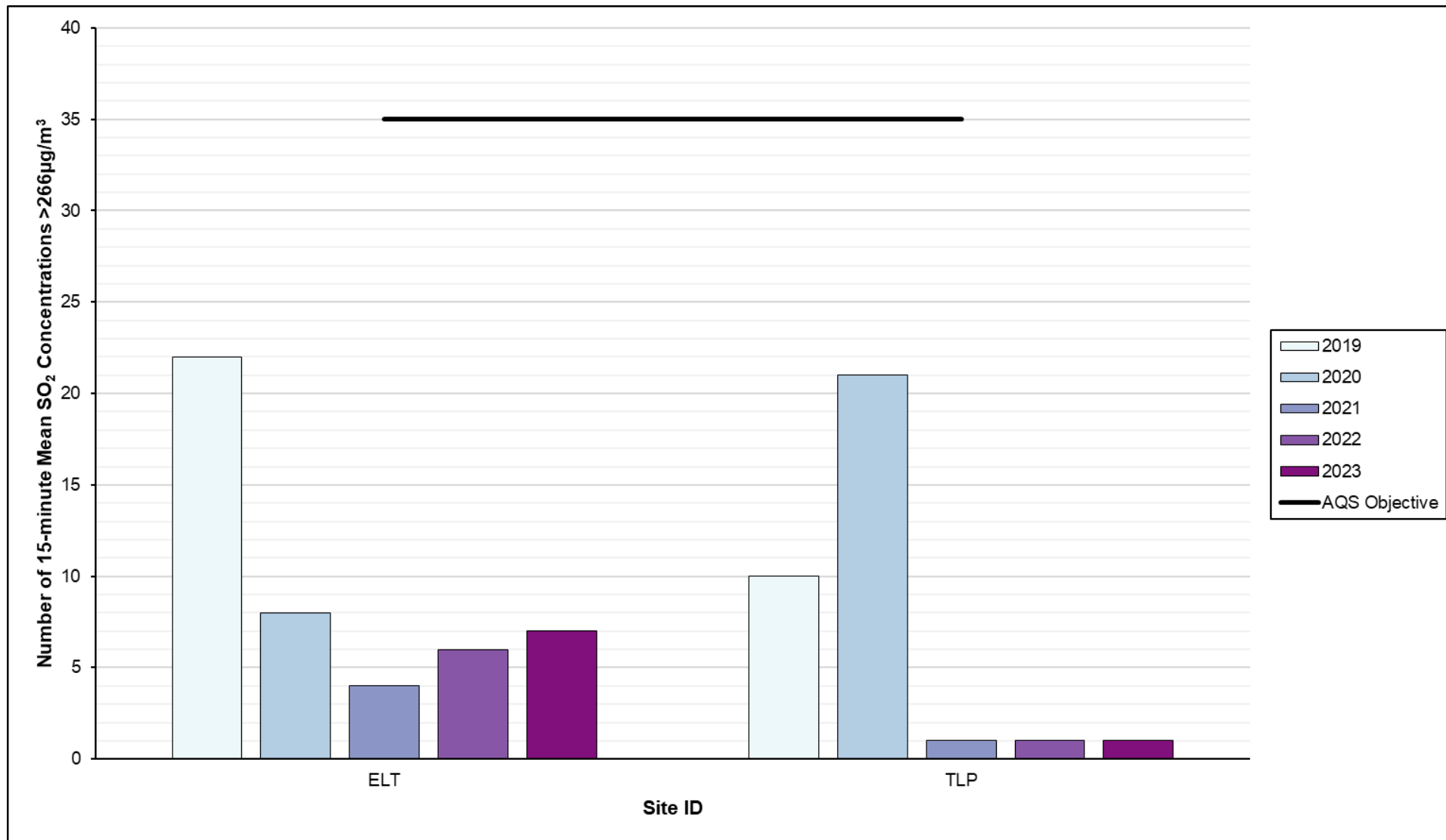
Exceedances of the SO₂ objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year).

If the period of valid data is less than 85%, the relevant percentiles are 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-22 - SO₂ 2023 Monitoring Results, Number of Relevant Instances



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B-1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

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 <(0.81)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
AP	373386	371500	26.1	22.6	20.5	16.3	21.1	18.2	21.0	23.1	21.6	19.2	25.9	19.8	21.3	17.3	-	
BE	340239	366418	31.0	28.4	29.7	28.6	26.6	25.3	21.9	23.1	28.2			25.8	26.9	21.8	-	
BJ	341401	366512	35.4	34.0	31.7	33.5	35.5	28.7	24.1	28.6	30.5	31.9	39.9	26.9	31.7	25.7	-	
BSP	338380	375840	25.7	25.2	20.8	22.2	21.4	21.3	14.1		22.9	26.9	27.4		22.8	18.5	-	
C11	341915	366427	39.3	36.1	38.4	41.3	42.4	37.9	26.8	32.5	36.8	39.8	43.6	27.3	36.9	29.9	-	
C36	342000	366374	48.4	40.3	41.6	39.8	41.3		34.4	37.0	38.6	40.5	44.2	38.0	40.4	32.7	-	
C75	342056	366354	27.4	22.9	24.1	27.4	26.3	23.9	15.4	20.2	22.9	26.7	27.2	18.4	23.6	19.1	-	
CAN	340375	366730	28.6	28.0	28.0	30.3	29.4	26.7	19.0	23.2	26.5	29.4	33.1	21.1	26.9	21.8	-	
CBI1	340647	366803	41.8	32.3	37.4	31.3	36.2	32.5	31.0	30.9	33.4	34.0	39.9	34.3	-	-	-	Triplicate Site with CBI1, CBI2 and CBI3 - Annual data provided for CBI3 only
CBI2	340647	366803	39.7	33.0	37.6	37.8	36.3	34.6	30.0	30.3	33.7	34.3	38.3	31.6	-	-	-	Triplicate Site with CBI1, CBI2 and CBI3 - Annual data provided for CBI3 only
CBI3	340647	366803	42.3	35.6	38.2	36.5	36.3	33.5	29.5	31.6	32.1	34.5	39.2	34.7	34.9	28.3	-	Triplicate Site with CBI1, CBI2 and CBI3 - Annual data provided for CBI3 only
CBR	340676	366782	35.4	33.1	35.3	36.2	32.4	33.1	26.9	30.1	32.1	33.4	29.9	29.4	32.3	26.1	-	
CFL	351762	377862	28.8	24.1	25.0	26.8	25.5	24.1	18.7		25.1	28.4	32.0	21.4	25.4	20.6	-	
CM	343761	365528	33.1	26.4	27.7	30.6	29.6	26.0	21.4	24.2	26.5	24.1	36.6	21.1	27.3	22.1	-	
CN	366070	373905	36.0	28.3	29.5	28.5	24.6	26.0	23.9	24.7	30.3	30.9	33.6	29.7	28.8	23.3	-	
CP3	343970	365295	31.5	28.2	25.3	24.1	24.1	22.5	20.1	22.3	25.3	23.3	31.9	21.3	25.0	20.2	-	
CPL	344377	365375	20.7	15.2	14.7	13.7	13.2	11.8	9.6	10.2	14.1	14.6	21.2	12.4	14.3	11.6	-	
CRH	364171	372697	26.6			18.9	16.5	16.1	12.7	14.7	20.3	26.0	22.2	17.4	19.1	15.5	-	

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 <(0.81)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CUD	359436	370534	25.3	21.6	20.1	23.1	26.2	22.8	19.2		27.7	26.1	29.0	15.8	23.4	18.9	-	
DA	365953	371113	21.1	19.4	18.5	17.1	15.6	23.7	11.3		17.0	20.5	26.2	15.8	18.7	15.2	-	
EB	341658	366487	37.7	30.3	31.3	28.7	23.6	23.1	21.5	22.8		27.9	36.8	29.6	28.5	23.1	-	
FH	352146	378139	36.2	29.6	32.8	36.6	28.0	32.5	25.6	27.5	33.5	35.5	37.7	28.4	32.0	25.9	-	
FJ	352171	378140	39.2	31.9	33.0	32.4	31.4	30.4	29.7	29.6	33.5	31.8	40.5	30.1	32.8	26.5	-	
FM	352189	378094	33.9		28.7	32.2	28.4	26.0	20.3	21.8	28.5	31.7	30.9	22.2	27.7	22.4	-	
FRC	352023	378121	32.1	26.0	26.9	29.9	29.1	24.3	21.6		25.2	26.4	35.8	23.0	27.3	22.1	-	
FT	352176	378105	33.3	23.2	24.0	23.9	24.8	22.8	22.8	23.2	25.7	26.1	32.4	24.0	25.5	20.7	-	
GE	340657	366730	35.3	31.5		33.9	27.6	30.6			31.0	33.1	34.9	29.7	32.0	25.9	-	
GR	368634	374714	25.0	22.0	21.4	17.9		16.4	16.7	17.1	22.6		24.9	18.4	20.2	16.4	-	
GSW	340700	366687	36.7	36.5	33.8	29.8	30.0	29.1	28.4	28.1	30.6	30.7	36.1	29.8	31.6	25.6	-	
GT	340611	366747	30.8	31.1	29.6		28.1		25.8	28.5	31.0	33.8	33.7	27.1	29.9	24.3	-	
HB	341605	366527	33.2	25.0	27.8	26.3	21.3	24.0	19.8	20.9	27.6	26.7	33.6	28.0	26.2	21.2	-	
HC	373375	366928	28.9	20.7	21.9	25.3	28.1		17.8	23.4	23.9	27.9	33.4	17.0	24.4	19.7	-	
HHB	347953	366723	33.1	27.0	27.2	29.1	29.1	29.1	22.8	27.2	26.4	29.4	32.5	23.7	28.1	22.7	-	
HIN	330317	378536	28.2	31.1	32.1	37.3	26.6	32.2	22.2			33.0	36.9	20.2	30.0	24.3	-	
HO	341311	367207	29.8	30.1	29.8	26.4	24.4	22.4	21.1	22.9	27.3	27.2	30.0	23.8	26.3	21.3	-	
HSS	364711	366339	35.8	26.1	25.3	22.8		22.8	21.2	23.2	26.6		33.7	27.3	26.5	21.4	-	
HTC	348333	366763	32.9	26.1	32.3	26.8	30.7						31.7	24.2	29.2	20.5	-	
HW	340881	366826	36.1	33.5	34.0	32.2	26.9	26.5	24.1	24.5	31.9	34.6	37.7	28.8	30.9	25.0	-	
IC	342068	366332	38.9	32.9	30.8	28.1	28.7	24.3	24.2	26.1	29.4		37.2	27.0	29.8	24.1	-	

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 <(0.81)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
KR	368432	372988	34.7	28.1	29.4	24.7		21.4	22.5	23.4	31.3	30.9	36.2	23.7	27.8	22.6	-	
LH	341126	366540	36.5	32.9	32.5	32.5	39.1	30.1		29.5	29.3	29.6	38.6	27.3	32.5	26.4	-	
LI2	340354	367034	43.1	36.7	41.8	38.4	34.7	31.8	30.3	30.6	34.3	36.7	40.0	30.3	35.7	28.9	-	
LLH	342464	368461	31.6	23.7	24.3	15.0		17.8	17.2	17.9		23.5	30.7	25.0	22.7	18.4	-	
LU	340838	366215	28.9	22.4	20.4	19.2	19.4	16.3	17.0	17.7	21.4	22.0		22.9	20.7	16.8	-	
LVS	340990	366317	31.9	31.8		27.3	27.5	24.4	22.6		27.9			23.7	27.1	23.7	-	
MCC	343785	365502	34.5	32.8	31.4	34.4	30.6	27.8	22.8	25.7	30.0	22.9	37.1	21.4	29.3	23.7	-	
MUL	346258	375321	21.8	15.9	14.1	14.9	11.1	11.3	9.2	11.5	15.8	17.4	21.4	16.7	15.1	12.2	-	
NCS	339857	366460	25.5	26.7	27.6	27.8	21.0	21.7	18.5	18.6	23.4	26.5	28.2	21.5	23.9	19.4	-	
NIN	340284	366199	38.6	33.9	32.1	32.1	34.8	28.0	27.5	29.9	29.9	29.5	37.8	27.4	31.8	25.8	-	
NIS	340329	366114	30.9	28.4	28.5				0.9		27.4	30.8	32.0	19.9	24.8	17.7	-	
NSR	366796	373984	35.9	31.4	36.0	35.8	37.2	35.0	22.6	29.8	33.6	39.4	39.2	25.6	33.5	27.1	-	
NWH	365590	373904	46.9	37.7		40.0	35.2	33.5	35.5	31.8	36.6	35.4	39.0	38.4	37.3	30.2	-	
OB	341633	366510	43.6	34.3	38.5	39.4	39.0	34.3	27.0	30.1	33.8	36.8	42.5	30.9	35.9	29.0	-	
OF	340453	366853	31.1	29.9	31.3	29.1	27.2	26.3	24.3	25.1	28.4	30.5	35.4	25.0	28.6	23.2	-	
OP	340636	366770	36.5	30.4	33.8	31.6	29.7		26.8	28.8	30.6	31.0	37.0	22.7	30.8	25.0	-	
OSQ	364053	365977	35.9	30.0	30.8	35.8		30.6		23.9	31.7	34.6	39.4	28.9	32.2	26.0	-	
OVH	340770	365605	29.9	26.4	26.2	22.4	23.6	19.9	19.5	19.8	25.2	23.1		24.0	23.6	19.1	-	
OW	340623	366823		35.1		40.3	38.5			39.8	39.2		43.3	41.5	39.7	31.1	-	
OWR	340482	365062	15.7	14.0	11.3	9.4	8.8	7.7	6.9	7.4	10.0	11.5	17.9	10.1	10.9	8.8	-	
PA	340313	367014	39.3	41.9	36.4	36.1	30.3	29.5	27.2	30.3	34.5	36.8	38.0	29.4	34.1	27.7	-	

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 <(0.81)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
PG	340322	366989	41.7	32.0	42.9	40.3	38.1	33.2	31.0	33.2	39.1	37.2	41.4	35.5	37.1	30.1	-	
QRN	330565	378063	33.4	33.7	33.6	33.5	34.2	32.4	23.4		35.1	37.4		23.4	32.0	25.9	-	
RIV	337242	378569		40.4	36.3	31.6	36.2		28.9	29.1	32.2	36.1	43.1	32.0	34.6	28.0	-	
RM	340291	367108	35.7	36.8	39.7	39.7	40.0	37.9	27.3			40.0	41.7	29.8	36.9	29.9	-	
RPS	367856	372667	39.3	30.9	35.9	35.8	29.7	30.2	25.2	27.9	32.9	38.2	39.2	27.7	32.7	26.5	-	
RR	340180	376338														-	-	
SA	340364	366929	34.4	31.4	38.4	37.4	28.7	30.6	24.9	27.4	32.0	37.4	36.9	27.5	32.3	26.1	-	
SAB	340838	366746	34.6	35.0	28.9	30.1	26.6		21.8	24.6	27.3	28.9	36.1	26.7	29.2	23.6	-	
SF	341238	366976	32.2	29.0	31.6	29.8	23.7	25.3			26.1		31.0	24.8	28.2	22.8	-	
SLW	339889	375755	25.2	25.5	25.2	28.0	23.5	23.5	14.7	20.6	24.5	30.1	28.2	14.5	23.6	19.1	-	
SMH	340243	366511	27.0	27.6	28.9	29.5	21.3		17.4	21.5	27.5	31.7	32.1	22.9	26.1	21.2	-	
SR	340435	376790	36.5	35.2	32.2	31.7	33.3	27.3	25.0	27.7	33.0	33.0	38.7	27.8	31.8	25.7	-	
ST	340794	366778	40.0	38.9	41.7	39.0	35.4	36.5	31.3	32.5	37.3	38.3	40.0	36.2	37.3	30.2	-	
SZ	341819	366475		32.1	34.8	37.2	37.3				30.3	32.6	37.4	24.4	33.3	24.6	-	
T11	341931	366458	31.8	25.8	26.4	26.8	23.5	21.6	18.4	21.9	25.0	27.4	32.8	24.4	25.5	20.6	-	
T44	342085	366446	36.8	36.6	35.1	35.1	29.9	32.9	26.8	29.3	36.3	37.6	40.7	29.8	33.9	27.5	-	
T6	341926	366446	46.4	41.2	44.1	41.3	35.6	37.9	33.8	34.9		44.8		35.3	39.5	32.0	-	
TA	344519	366898	42.7	33.0	36.9	35.8		31.7	25.1	27.7	32.3		38.3	31.8	33.5	27.2	-	
TB	341202	366470	38.4	32.7	34.8	31.8	30.9		27.6	29.7		31.7	38.6	30.1	32.6	26.4	-	
TBV	344013	366830	45.2	33.1			34.8	43.1	38.8	39.7	40.5	35.2	45.9	36.6	39.3	31.8	-	
UN	340357	366960	29.6	29.0	31.3	31.1		25.3	19.0	20.8		30.6	34.2	21.2	27.2	22.0	-	

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 <(0.81)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
VXR	343365	366694	30.0	26.3	28.4	28.5	24.7	25.9	16.9	20.6	24.6	25.2	29.2	22.8	25.3	20.5	-	
WCR	342951	366029	36.9	31.5	36.9	38.7	31.1	31.4	26.8	28.5	34.3	32.9		31.3	32.8	26.5	-	
WG	340217	366209	32.9	30.8	31.0	35.1	33.9	31.9	23.9		31.4	37.3	38.3	27.3	32.2	26.0	-	
WGW	340165	366198	28.8	27.0	27.3	32.9	33.8	28.0	20.7		26.2	29.8	32.3	19.7	27.9	22.6	-	
WH1	340196	376363	36.2	37.4	32.6	32.0	33.1	26.1	23.8	27.9	34.2	33.2	38.6	28.6	-	-	-	Triplicate Site with WH1, WH2 and WH3 - Annual data provided for WH3 only
WH2	340196	376363	36.1	36.5	32.0	31.7	31.7	26.2	24.1	27.6	34.8	33.6	40.3	28.1	-	-	-	Triplicate Site with WH1, WH2 and WH3 - Annual data provided for WH3 only
WH3	340196	376363	35.3	36.3	33.7	31.6	31.5	26.3	24.0	27.5	34.0	31.5	36.9		31.8	25.7	-	Triplicate Site with WH1, WH2 and WH3 - Annual data provided for WH3 only
WVC	365788	373744	26.5	21.3	20.8	21.4	15.6	15.8	11.7	15.4	19.5	23.2	26.0	19.2	19.7	16.0	-	
XR	343117	365949	29.6	25.8	26.4		25.0		19.4		25.4	21.2	27.2	20.2	24.5	19.8	-	

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

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

Cheshire West and Chester Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Cheshire West and Chester During 2023

Cheshire West and Chester Council has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Cheshire West and Chester During 2023

CW&C has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

Environmental Protection staff follow internal QA/QC procedures relating to the use of diffusion tubes for the purpose of air quality monitoring. The procedures cover key stages in the monitoring process including storage, deployment, record keeping and management of NO₂ diffusion tube data.

NO₂ diffusion tubes are supplied and analysed by Gradko Ltd laboratory which holds UKAS accreditation. The method of preparation is 20% TEA in water. Gradko participate in the AIR NO₂ Proficiency Testing Scheme, and their performance is publicly available on the Defra website. In rounds AR046, 49, 50, 52, 53, 55, 56, 58 and 59 (September 2021 to October 2023) 100 % of Gradko's submitted results were determined to be satisfactory. ¹⁶ Gradko's precision score for 2023 was Good = 21, Poor = 0.

¹⁶ <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/qa-qc-framework/>

Diffusion Tube Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%. 2023 data from eight non-automatic monitoring sites in Table C-1. The Diffusion Tube Data Processing Tool was used for these calculations.

Table C-1 – Annualisation Summary (concentrations presented in $\mu\text{g}/\text{m}^3$)

Site ID	Annualisation Factor Crewe Copenhall	Annualisation Factor Glazebury	Annualisation Factor Wigan	Annualisation Factor Wirral Tranmere	Average Annualisation Factor	Raw Data Annual Mean ($\mu\text{g}/\text{m}^3$)	Annualised Annual Mean ($\mu\text{g}/\text{m}^3$)
GE	0.9213	0.9053	0.9241	0.9517	0.9256	32.0	29.6
HTC	0.8591	0.8162	0.8698	0.9227	0.8670	29.2	25.4
LVS	1.0754	1.0956	1.0573	1.0897	1.0795	27.1	29.3
NIS	0.9002	0.8675	0.8714	0.8771	0.8791	24.8	21.8
OW	0.9572	0.9425	0.9774	0.9994	0.9691	39.7	38.4
SF	0.9355	0.9117	0.9365	0.9780	0.9404	28.2	26.5
SZ	0.9165	0.8876	0.9189	0.9309	0.9135	33.3	30.4
XR	0.9306	0.9082	0.9167	0.9206	0.9190	24.5	22.5

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.

The Council has applied a national bias adjustment factor of 0.81 to the 2023 monitoring data. The local bias adjustment factor was not applied due to one out of two of the co-located sites having a poor overall automatic monitoring data capture. A summary of bias adjustment factors used by CW&C over the past five years is presented in Table C-2.

Table C-2 – Bias Adjustment Factor

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

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. No diffusion tube NO₂ monitoring locations within Cheshire West and Chester required distance correction during 2023.

QA/QC of Automatic Monitoring

Council staff perform fortnightly span and zero calibrations on the chemiluminescent analysers at the BO, CBI and WH roadside sites, and four-weekly span and zero calibrations on the remaining chemiluminescent and UV-fluorescent analysers, using BOC spectra-seal certified gas standards. The resultant span and offset values are used in the ratification of datasets. Automated internal zero checks are run overnight daily. Data from different sites is compared on a regular basis for the purposes of QA/QC. Data management and ratification is performed by an independent contractor, AQDM Ltd. This includes production of weekly, quarterly and annual summaries as well as ad hoc notifications of any exceedance episodes where necessary. The ratification process also involves comparison against national network sites to identify regional patterns and trends. Automatic analysers are serviced and calibrated at six-monthly intervals by Enviro Technology Services Ltd. Currently, air quality monitoring data, is publicly available at: www.cheshirewestandchester.gov.uk/airquality. This includes daily updates of automatic monitoring data, presented as both air quality index gauges and static time series graphs and the ability to download datasets from over 10 years ago. Diffusion tube data is also available on the site.

PM₁₀ and PM_{2.5} Monitoring Adjustment

PM₁₀ monitoring data recorded by the BAM analysers at Thornton-le-Moors (TLP) and Chester bus interchange (CBI) have been adjusted by the factor 0.96618, to give the indicative gravimetric equivalent figure.

The volatile correction model (VCM) was used to correct TEOM monitoring data at Frodsham (FMH) to produce a gravimetric equivalent figure.

Automatic Monitoring Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%. 2023 data from two automatic monitoring sites Boughton (BO) and Thornton-le-Moors, Park Road (TLP) were annualised, as shown in Table C-3. The annualization was conducted manually in excel.

Table C-3 - Automatic Monitoring Annualisation

Diffusion Tube ID	Annualisation Factor Crewe Copenhall	Annualisation Factor Glazebury	Annualisation Factor Wigan	Annualisation Factor Wirral Tranmere	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m ³)	Annualised Data Simple Annual Mean (µg/m ³)
BO	0.94	0.93	0.92	0.93	0.93	16.67	15.45
TLP	0.95	0.99	0.98	1.02	0.98	10.56	10.44

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the NO₂ fall-off with distance calculator available on the LAQM Support website.

No automatic NO₂ monitoring locations within Cheshire West and Chester required distance correction during 2023.

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

Figure D-1 – Map of Monitoring sites and AQMA, Chester

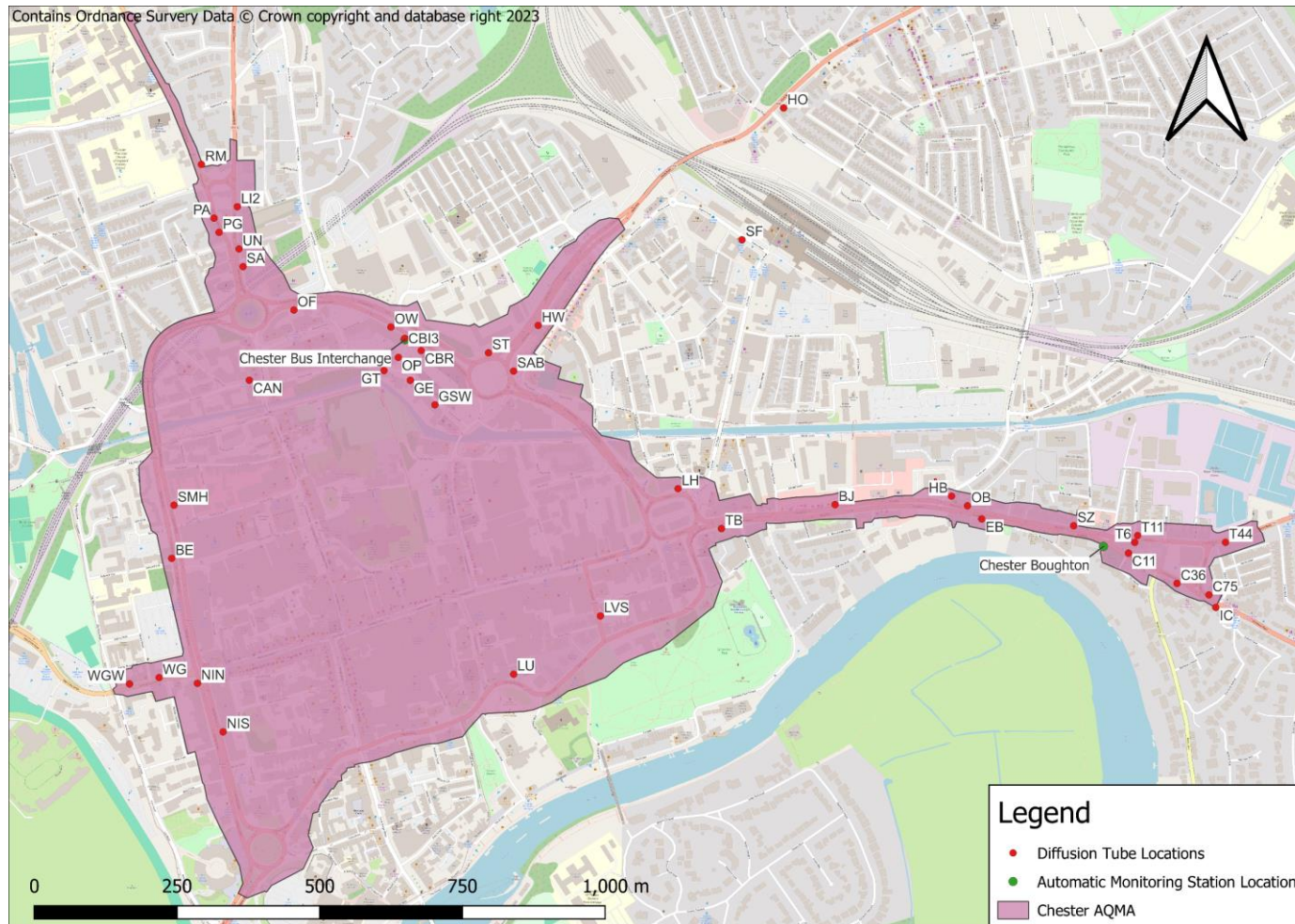


Figure D-2 –Map of Monitoring sites and AQMA, Whitby Road/Station Road Port

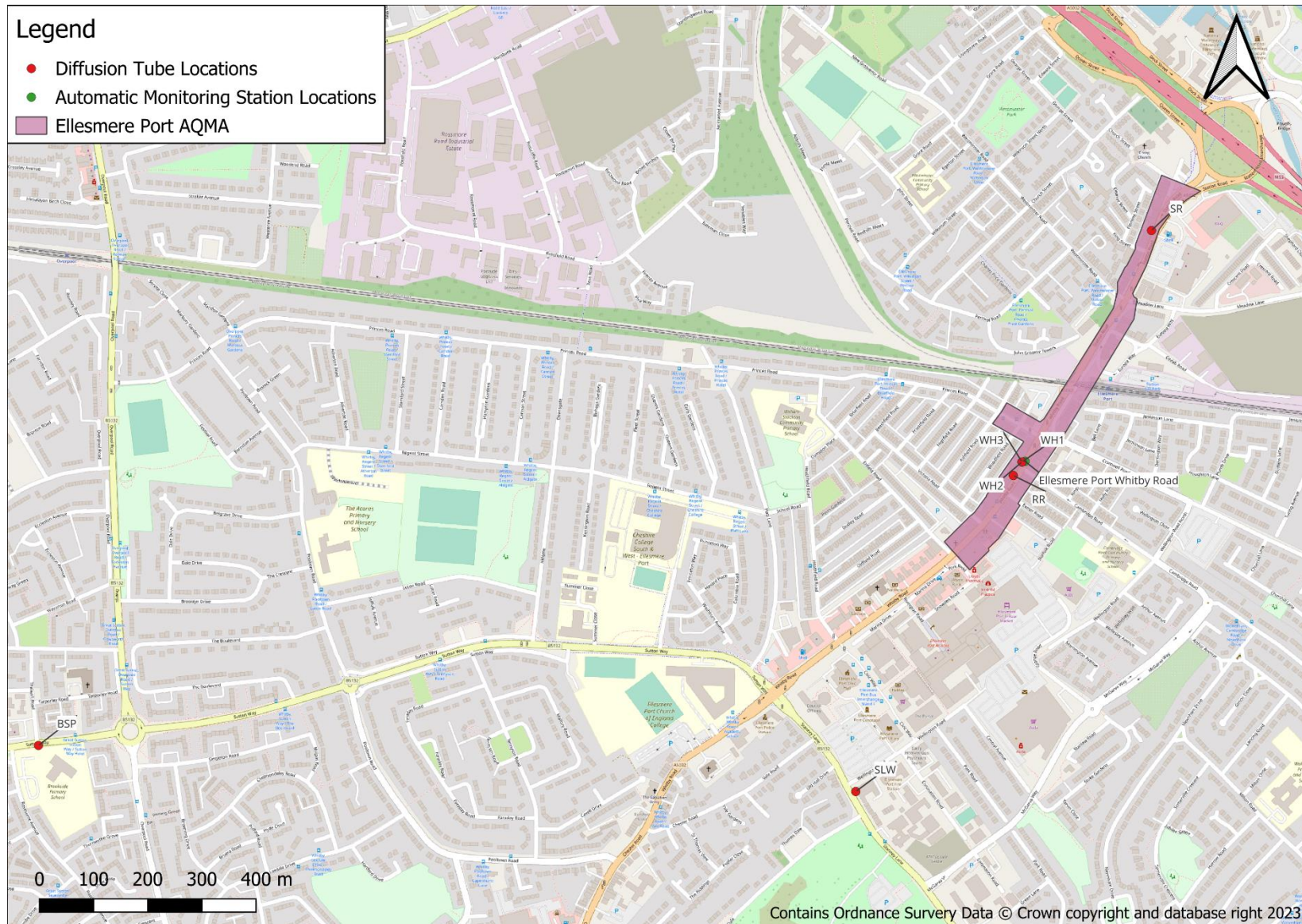


Figure D-3 – Map of Monitoring sites and AQMA, Frodsham

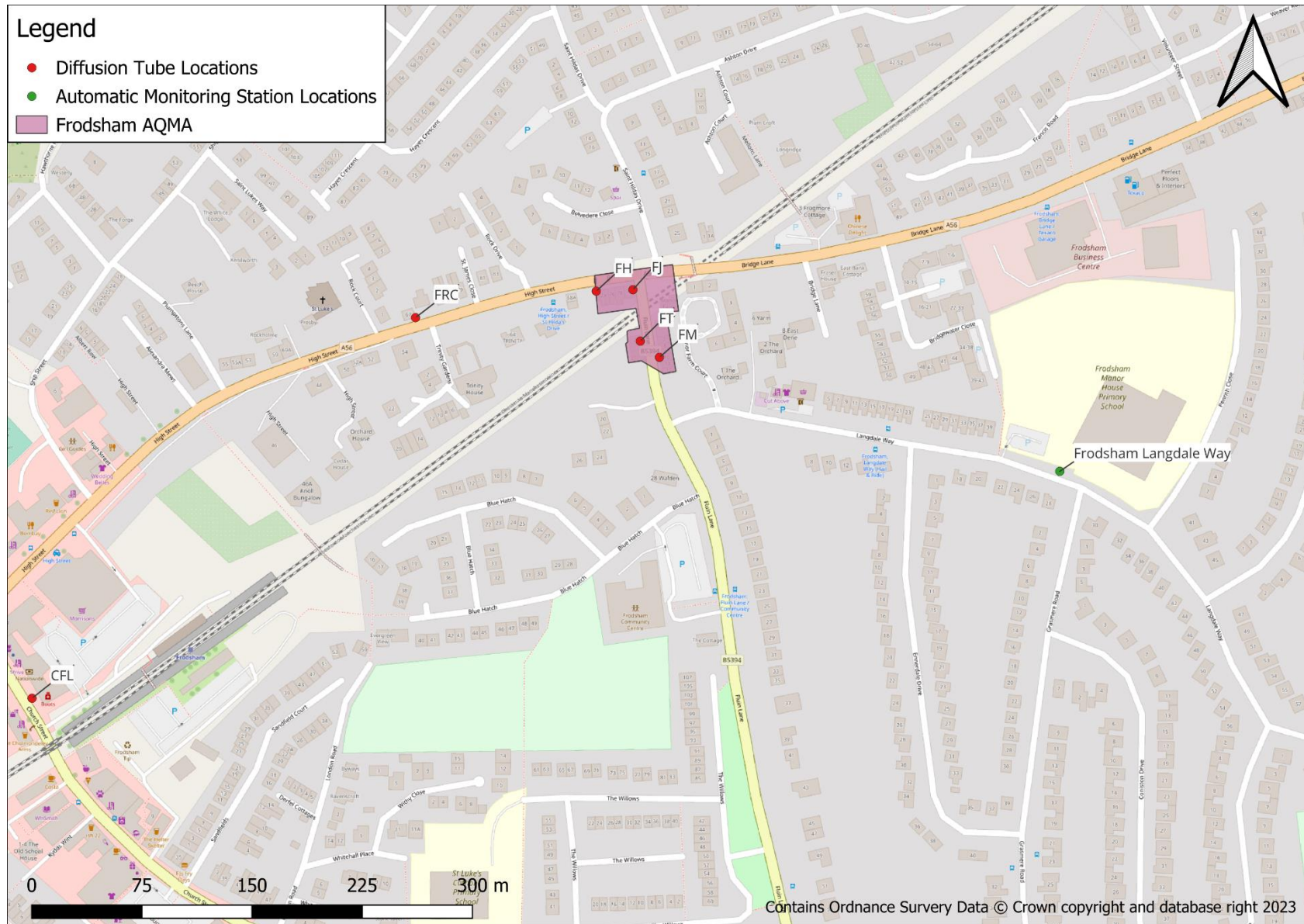


Figure D-4 –Map of Monitoring sites and AQMA, Thornton-le-Moors & Elton

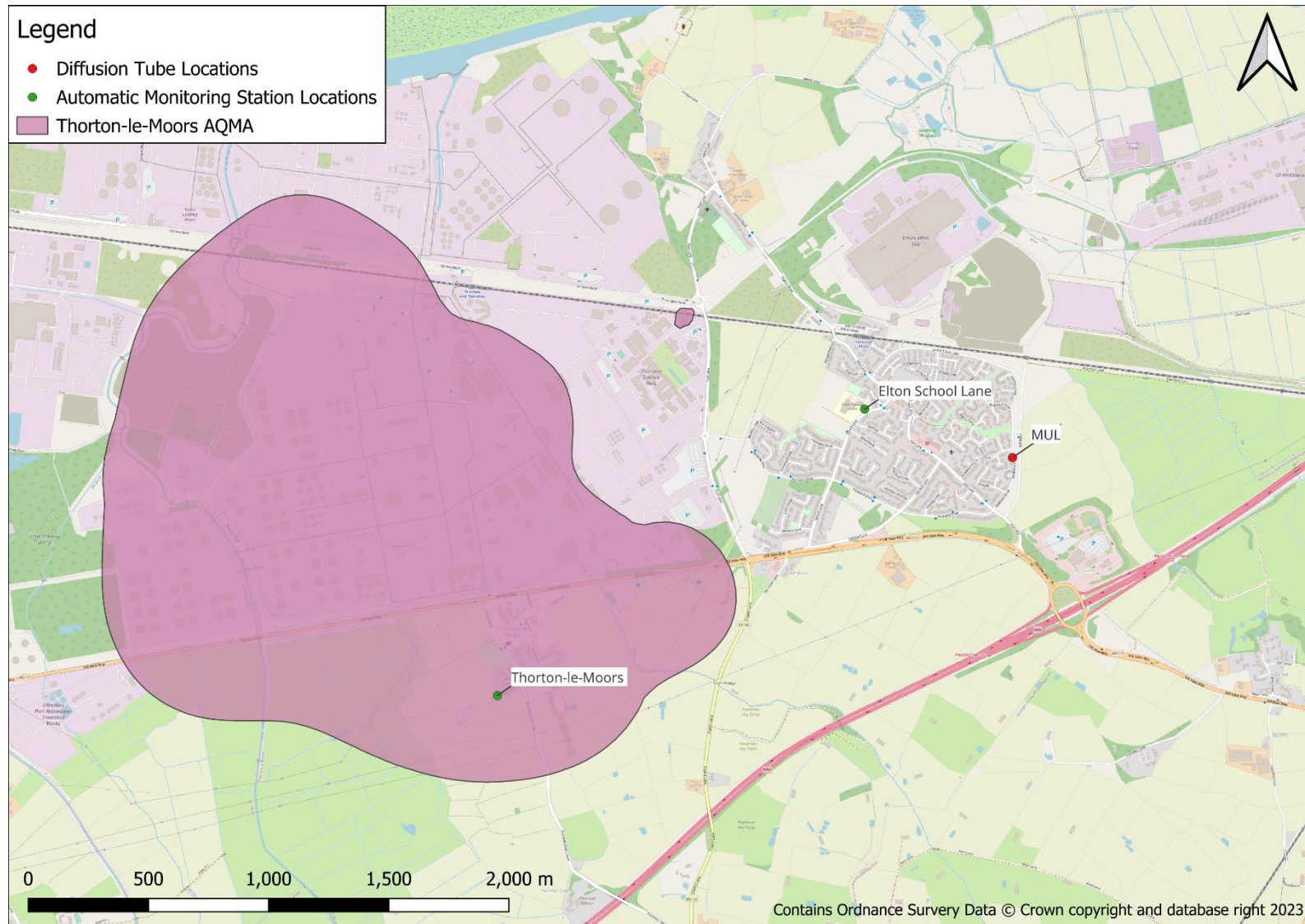


Figure D-5 – Map of Monitoring sites, Christleton / Littleton / Boughton Heath

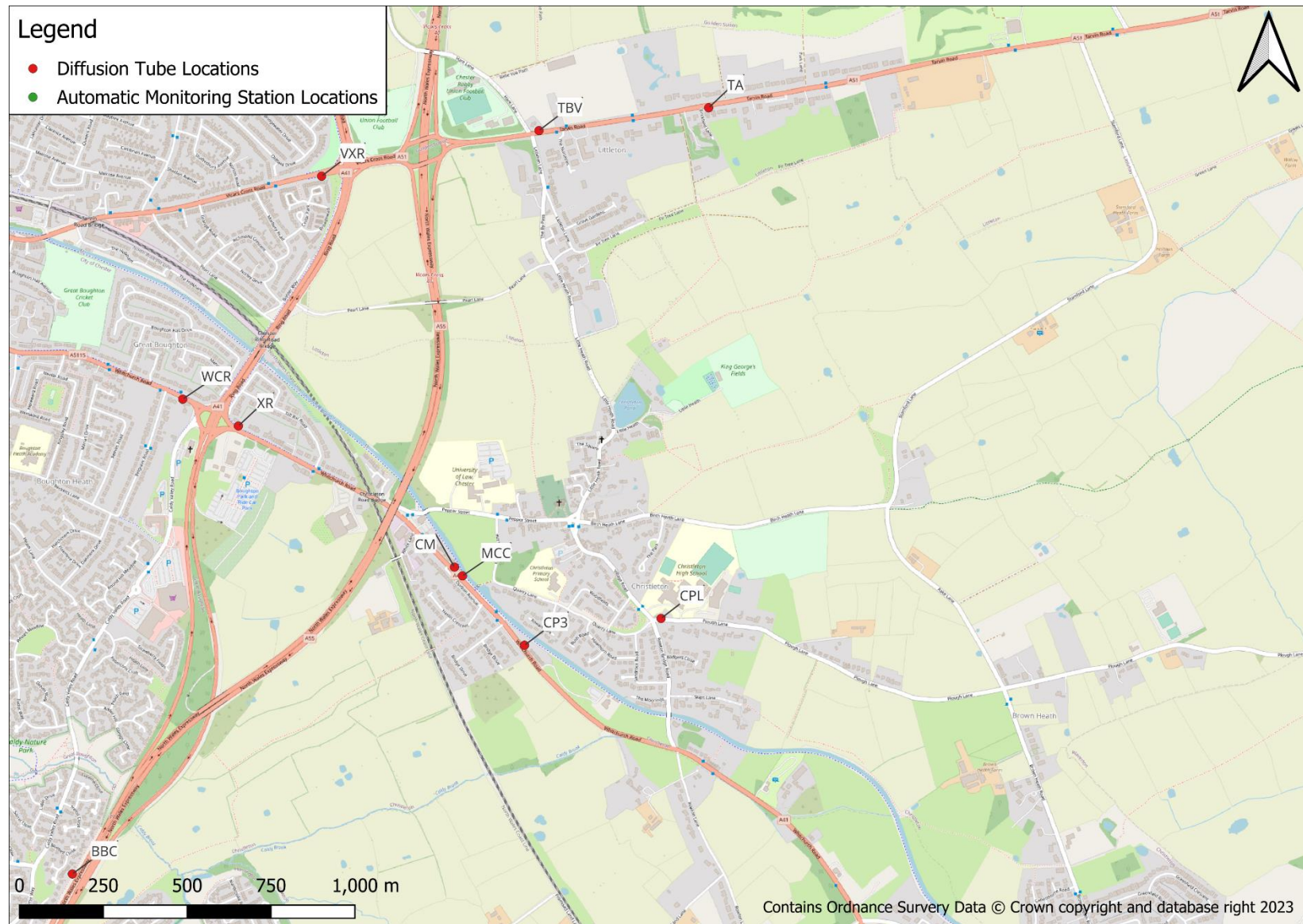


Figure D-6 –Map of Monitoring sites, Tarvin



Figure D-7 –Map of Monitoring sites, Neston

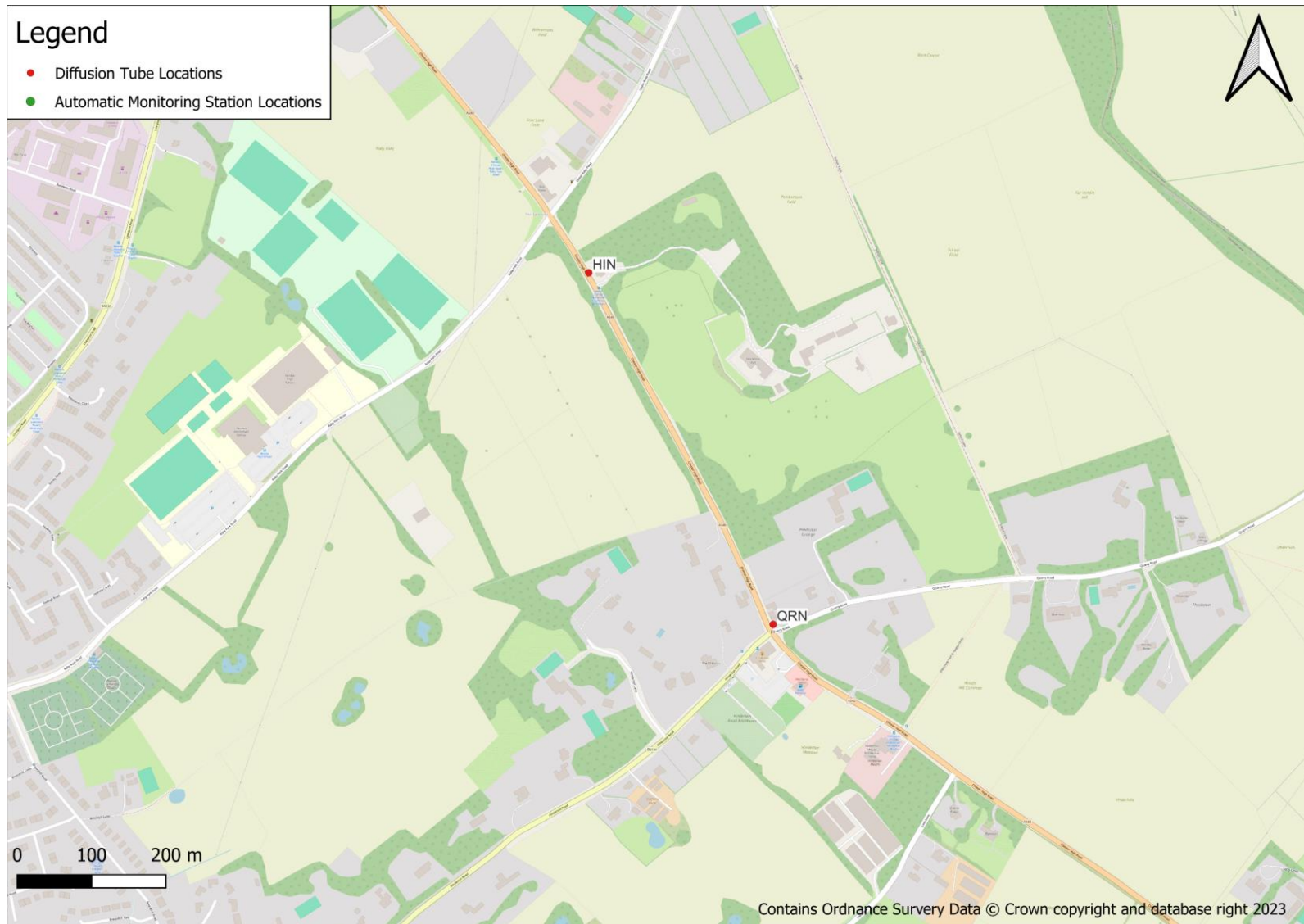


Figure D-8 –Map of Monitoring sites, Childer Thornton, Ellesmere Port



Appendix E: Summary of Air Quality Objectives in England

Table E-1 – Air Quality Objectives in England¹⁷

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

¹⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Appendix F: Revocation Order for Frodsham AQMA and Whitby Road/Station Road AQMA

Cheshire West and Chester Borough Council Order 2024

Environment Act 1995 Part IV Section 83(2)(b)

Order Revoking an Air Quality Management Area

Cheshire West and Chester Borough Council, in exercise of the powers conferred on it by Section 83(2)(b) of the Environment Act 1995 hereby makes the following order:

1. This Order shall revoke the area known as the Cheshire West and Chester Borough Council (Frodsham) Air Quality Management Area 2015 (No.1) (as shown in the attached map) declared for the exceedance of the nitrogen dioxide (NO₂) - annual mean objective on 26/11/2015.

2. The Order shall be cited as the **Cheshire West and Chester Council Frodsham Air Quality Management Revocation Order 2024**.

3. This Order shall come into force on 20 June 2024

The Common Seal of
Cheshire West and Chester Borough Council

was hereunto affixed

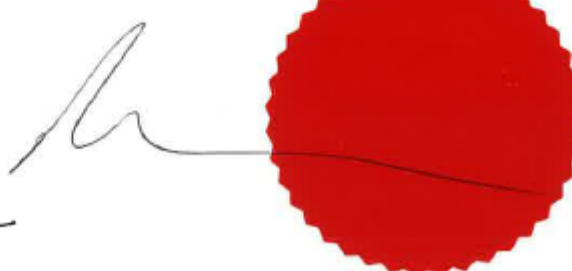
in the presence of:

A. H. ALLEN

Authorised Signatory

Position: *Secretary*

Dated: *20th June 2024*

A handwritten signature in black ink is written over a large, red, circular embossed seal. The seal has a scalloped edge and is partially obscured by the signature.



Cheshire West and Chester Borough Council Order 2024

Environment Act 1995 Part IV Section 83(2)(b)

Order Revoking an Air Quality Management Area

Cheshire West and Chester Borough Council, in exercise of the powers conferred on it by Section 83(2)(b) of the Environment Act 1995 hereby makes the following order:

1. This Order shall revoke the area known as the Ellesmere Port and Neston Borough Council Air Quality Management Area No.1 (Whitby Road / Station Road) (as shown in the attached (original) map) declared for the nitrogen dioxide (NO₂) - annual mean objective on 16/05/2005.
2. The Order shall be cited as the **Cheshire West and Chester Council Ellesmere Port Air Quality Management Revocation Order 2024**.
3. This Order shall come into force on 20 June 2024

**The Common Seal of
Cheshire West and Chester Borough Council**

was hereunto affixed

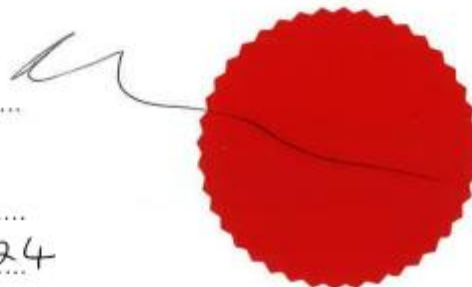
in the presence of:

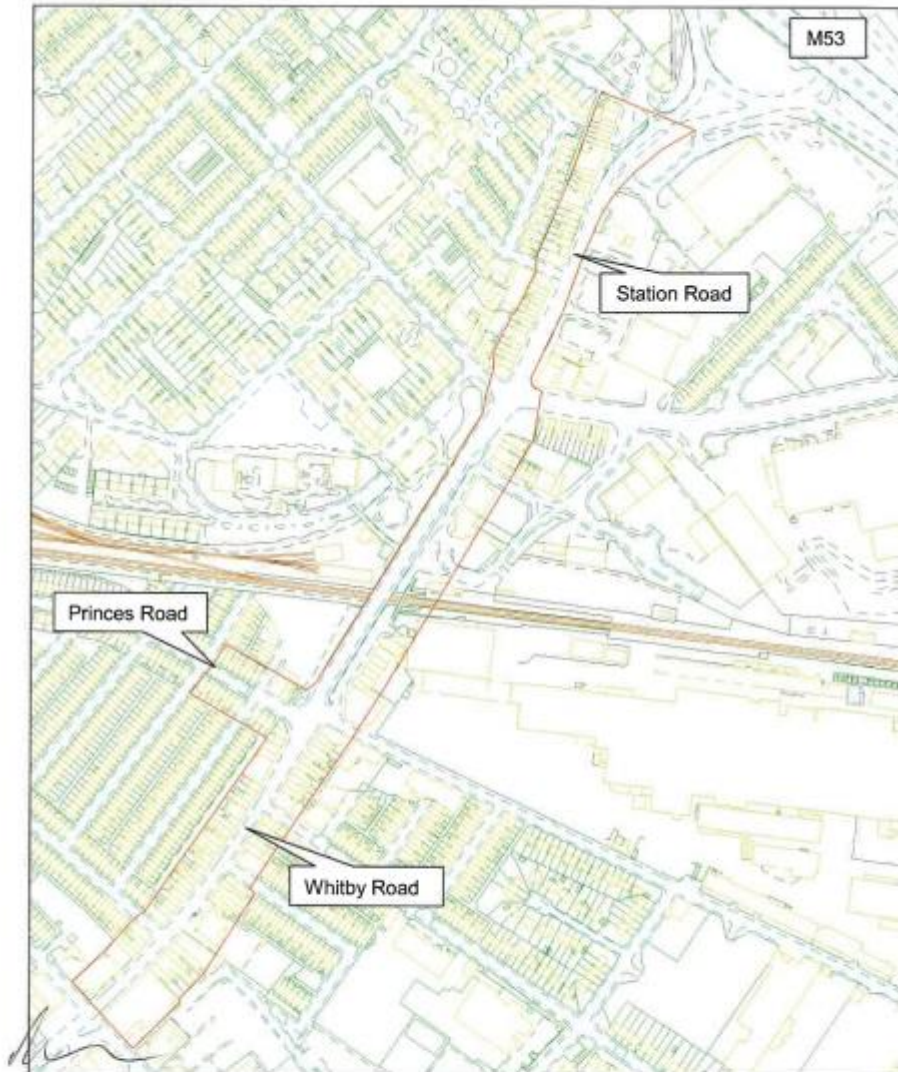
A. Harrison


Authorised Signatory

Position: *Secretary*

Dated: *20th June 2024*





<p>Ellesmere Port and Neston Borough Council</p>	
<p>Air Quality Management Area No.1 (Whitby Road / Station Road)</p>	
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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
AQS	Air Quality Strategy
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
CW&C	Cheshire West and Chester Council
EU	European Union
EVCP	Electric Vehicle Charging Points
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
LES	Low Emission Strategy
LEVI	Local Electric Vehicle Investment fund
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
SCA	Smoke Control Area
SO ₂	Sulphur Dioxide
ULEV	Ultra Low Emission Vehicles

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.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- 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.