Mae'r ddogfen hon ar gael yn Gymraeg hefyd

North Wales Authorities Collaborative Project 2024 Air Quality Progress Report

In fulfilment of Part IV of the Environment Act 1995, as amended by the Environment Act 2021

Local Air Quality Management

Date: (August, 2024)

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Executive Summary: Air Quality in Our Area

Air Quality in North Wales

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work. This Annual Progress Report is a requirement of the ninth Round of Review and Assessment and is a requirement for all local authorities. This Annual Progress Report has been undertaken in accordance with the Technical Guidance LAQM.TG (22) and associated tools. It covers the six local authorities which encompass the North Wales region (The North Wales Authorities). The local authorities are as follows:

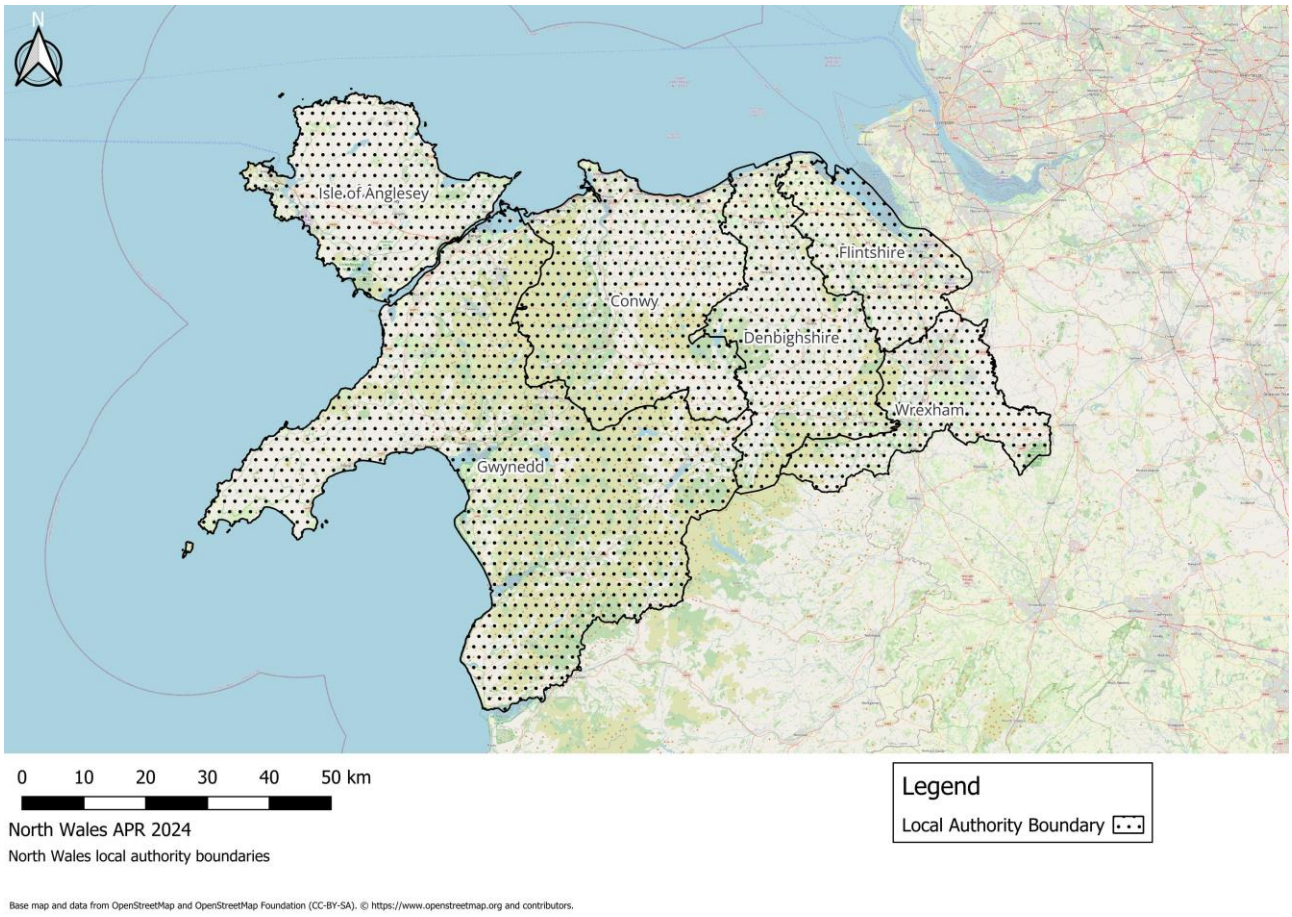
- Isle of Anglesey County Council (**IACC**);
- Denbighshire County Council (**DCC**);
- Gwynedd Council (**GC**);
- Wrexham County Borough Council (**WCBC**);
- Conwy County Borough Council (**CCBC**); and
- Flintshire County Council (**FCC**).

The North Wales Authorities have not declared any Air Quality Management Areas (AQMAs) and as a result, have not published any Action Plans. Air quality monitoring is undertaken by all six local authorities with a total of three automatic monitoring stations measuring nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) concentrations and 162 NO_2 diffusion tube monitoring sites, located at key locations within town centres and along main transport links.

Monitored concentrations are compared with Air Quality Objectives (AQO), a summary is provided in Appendix A. In 2023 there was no exceedance of the NO_2 annual mean AQO of 40 µg/m^3. Having considered each pollutant and reviewed the new developments approved in 2023, it can be concluded that there is no requirement for any of the six North Wales Authorities to undertake a detailed assessment.

The Figure below presents the administrative boundaries of the local authorities in North Wales.

Map of local authority boundaries in North Wales



Actions to Improve Air Quality

Currently there are no designated AQMAs in North Wales, and therefore no Air Quality Action Plans (AQAPs) have been published.

As detailed in Section 4, air quality is considered in the wider context in the following adopted local policies:

- **IACC** and **GC** adopted a joint Local Development Plan (LDP) in 2017 which provides the land use strategy for the next 15 years. The plan addresses the need to maintain good air quality in the area and ensure new development does not cause adverse impacts.
- **IACC** Isle of Anglesey Electric Vehicle Charging Plan 2022 to 2030 responds to the Welsh Government's 'Electric vehicle charging strategy for Wales' and acts as an essential component of **IACC's** commitments to reduce its carbon footprint.
- **CCBC** LDP 2007-2022 includes strategic policies (NTE/1) to ensure natural resources including air quality are protected. CCBC are developing a replacement local plan which is currently at the public consultation phase. CBCC expect to submit the plan to the Welsh government in late 2024.
- **DCC** LDP 2006-2021 was adopted in 2013 and includes a commitment to avoid reaching critical air quality levels. DCC are currently developing a replacement plan in line with the latest national policies.
- **WCBC** LDP was adopted by the Council on 20/12/23 and covers the period 2013 to 2028. It forms part of the statutory development plan alongside Future Wales: The National Plan 2040. The remaining part of the statutory development plan will be the Strategic

Development Plan (SDP) for North Wales, once prepared and adopted. The LDP addresses several areas with the objective of improving air quality; a commitment to decarbonisation, active travel, restoring and protecting green areas with one of the key priorities of the plan to improve wellbeing.

- **FCC** Climate Change Strategy 2022 - 2030 Objective 2 summarises the ongoing measures that the council is taking to minimise air pollution such as developing active travel routes, upgrading the fleet mix to euro 6 vehicles and developing community-based transport options. The document further outlines the next steps to continue improving air quality.

In **WCBC**, a speed restriction between junctions 5 and 6 of the A483 has been implemented with the objective of improving local air quality. The North and Mid Wales Trunk Road Agency conducts the air quality monitoring and maintain the scheme. The results of this monitoring survey have not been included in report. **WCBC** concurrently undertakes monitoring in the same area to fulfil LAQM requirements. NO_2 concentrations between J5 and J6 of the A483 have reduced over the past 5 years, however, a slight increase was observed at diffusion tubes 54 and 56 between 2022 and 2023.

A small number of new non-automatic monitoring sites were introduced in North Wales for 2023.

There were no monitoring sites introduced in **IACC.**

There was one new monitoring site introduced in **DCC**. Diffusion tube DBR64 was added to address public concerns of poor air quality outside Prestatyn School. The air quality monitoring site DRB38 was removed from the 2023 survey.

There were no new monitoring sites introduced in in **GC.**

There were no new monitoring sites introduced in **WCBC.**

There were no new monitoring sites introduced in **CCBC**.

There were no new monitoring sites introduced in **FCC**.

The total number of monitoring sites remains the same as in the 2022 monitoring survey.

Local Priorities and Challenges

The North Wales Authorities will continue to maintain their monitoring programmes and ensure new monitoring sites are installed as required. Each year new monitoring sites are introduced primarily in road traffic locations where concerns have been expressed by members of the public, locally elected members or organisations.

How to Get Involved

Further information on air quality in North Wales is available here.

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1 Actions to Improve Air Quality

Previous Work in Relation to Air Quality

This Progress Report has been undertaken in accordance with the Technical Guidance LAQM.TG (22) and associated tools. It has been produced collaboratively between the six local authorities which encompass the North Wales region (The North Wales Authorities). The local authorities are Isle of Anglesey County Council (**IACC**); Denbighshire County Council (**DCC**); Gwynedd Council (**GC**); Wrexham County Borough Council (**WCBC**); Conwy County Borough Council (**CCBC**); and Flintshire County Council (**FCC**).

Previous reports have identified areas within North Wales where there are potential exceedances of various Air Quality Objectives (AQOs). Detailed assessments have been carried out where exceedances of the air quality objectives have been recorded to evaluate whether there is a need to declare an Air Quality Management Area (AQMA). Currently, there are no AQMA's declared in North Wales. A summary of the previous rounds of Review and Assessment in North Wales is available in Table 1.1 below.

Table 1.1 - Previous Work in Relation to Air Quality

Year	Report Type	Detailed Assessment Recommended	AQMA Declared
2003	Updating and Screening Assessment	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2004	Progress Report	Detailed assessment carried out for particulate matter (PM_{10}) and nitrogen dioxide (NO_2) close to the A494 in FCC. No other detailed assessments required in any Local Authority Area	No AQMA declared in any Local Authority Area.
2005	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2006	Updating and Screening Assessment	Detailed assessment required at Trimm Rock and Aberdo Limestone Quarries and at Roadrunner Waste Transfer Station in FCC. No other detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2007	Progress Report	Detailed assessment carried out for sulphur dioxide (SO_2) 15- minute mean objective for Penrhos Coastal Park in IACC. No other detailed assessments required in any Local Authority Area	No AQMA declared in any Local Authority Area.
2008	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2009	Updating and Screening Assessment	Detailed assessment no longer required at Trimm Rock and Aberdo Limestone Quarries and at Roadrunner Waste Transfer Station in FCC. Detailed assessment carried out for SO_2 15-	No AQMA declared in any Local Authority Area.

Year	Report Type	Detailed Assessment Recommended	AQMA Declared
		minute mean objective for Holyhead Railway Station in IACC. Detailed assessment required for SO_2 as a result of steam trains in GC. No other detailed assessments required in any Local Authority Area.	
2010	Progress Report	Detailed assessment required for the area around Wrexham Road in Cefn Y Bedd in FCC. Detailed assessment carried out for SO_2 as a result of steam trains in GC. No other detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2011	Progress Report	Detailed assessment carried out for NO_2 along Vale Street, Denbigh in DCC.	No AQMA declared in any Local Authority Area.
2012	Updating and Screening Assessment	Detailed assessment no longer required for the area around Wrexham Road in Cefn Y Bedd in FCC. Detailed assessment carried out for the junction of the A5119 and A494 in Mold in FCC. No other detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2013	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2014	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2015	Updating and Screening Assessment	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2016	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2017	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2018	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2019	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2020	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.

Year	Report Type	Detailed Assessment Recommended	AQMA Declared
2021	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2022	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.
2023	Progress Report	No detailed assessments required in any Local Authority Area.	No AQMA declared in any Local Authority Area.

North Wales APR 2023 DEFRA Appraisal

Following submission of the 2022 APR the following appraisal from DEFRA identified one critical error within the report and consequently the report could not be accepted. DEFRA concluded:

"*On the basis of the evidence provided by the local authority the conclusions reached in the report are **not accepted** for all sources and pollutants as the incorrect factor appears to have been applied to raw data for CCBC*."

Further detail on the error is summarised in the commentary of the appraisal, all text quoted from the appraisal is in italics, with a response from the North Wales combined authorities in standard font following each commentary bullet.

1. *It appears that the correct factor used to adjust raw data for CCBC has not been used. It is quoted in Table C.1 that the factor used if 0.84, however the raw concentrations in Table A.1 appear to have been multiplied by 0.76 (the factor used to adjust data for all other authorities). Concentrations should be adjusted by the correct factor.* The incorrect bias adjustment factor identified in the 2023 report was subsequently amended to include the correct bias adjustment factor for CBCC. The revised report was later accepted by the Welsh Government. All diffusion tube monitoring locations in this 2024 APR are subject to the same national bias adjustment factor of 0.77, for the 50:50 TEA in acetone analysis methodology.

Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when air quality is close to or above an acceptable level of pollution (known as the air quality objective (Please see Appendix B)). After declaring an AQMA the authority must prepare an Air Quality Action Plan (AQAP) within 18 months setting out measures it intends to put in place to improve air quality to at least the air quality objectives, if not even better. AQMA(s) are seen by local authorities as the focal points to channel resources into the most pressing areas of pollution as a priority.

There are no current AQMAs within the North Wales Authorities, subsequently no AQAPs have been published.

2 Air Quality Monitoring Data and Comparison with Air Quality Objectives

Summary of Monitoring Undertaken in 2023

2.1.1 Automatic Monitoring Sites

This section sets out the monitoring that has taken place and how results compare with the objectives.

WCBC undertook automatic (continuous) monitoring at 3 sites during 2023. Table 2.1 presents the details of the sites.

2.1.2 Non-Automating Monitoring Sites

IACC undertook non- automatic (passive) monitoring of NO_2 at 4 sites during 2023. Table 2.2 presents the details of the sites.

DCC undertook non- automatic (passive) monitoring of NO_2 at 29 sites during 2023. Table 2.2 presents the details of the sites.

GC undertook non- automatic (passive) monitoring of NO_2 at 17 sites during 2023. Table 2.2 presents the details of the sites.

WCBC undertook non- automatic (passive) monitoring of NO_2 at 33 sites during 2023. Table 2.2 presents the details of the sites.

CCBC undertook non- automatic (passive) monitoring of NO_2 at 20 sites during 2023. Table 2.2 presents the details of the sites.

FCC undertook non- automatic (passive) monitoring of NO_2 at 59 sites during 2023. Table 2.2 presents the details of the sites.

Maps showing the location of the monitoring sites are provided in Figure 2.2 to Figure 2.15. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Table 2.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	Associated with AQMA?	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	Monitoring Technique	Inlet Height (m)	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
WCBC 1	Victoria Road AURN	Roadside	N	332863	349913	NO_2, SO_2, PM_{10}, $PM_{2.5}$	All continuous (PM: light scattering)	3	20	24	4
WCBC 2	Wrexham Chirk	Urban Industrial	N	329318	338300	NO_2, NO, VOCs, PM_{10}, $PM_{2.5}$	All continuous (PM: light scattering)	1.5	10	15	80
WCBC 3	Wrexham Chirk Community Hospital	Urban Background	N	329329	338992	NO_2, NO, VOCs, PM_{10}, $PM_{2.5}$	All continuous (PM: light scattering)	2	30	40	60

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

Figure 2.1 – North Wales Automatic Monitoring Sites

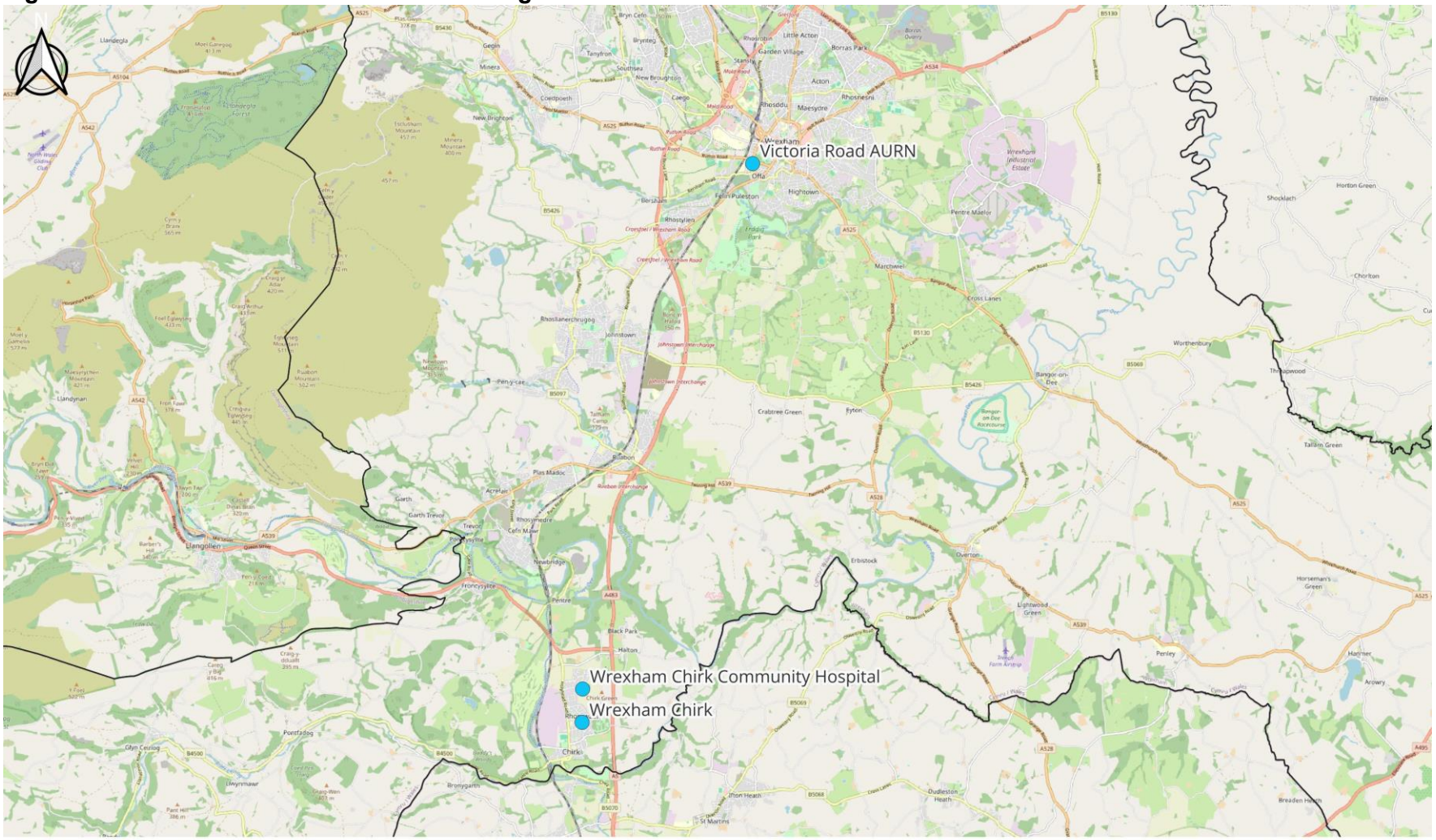

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Figure 2.1 - North Wales automatic monitoring sites

Table 2.2 – Details of IACC 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)
IACC										
IACC-81	Marine Square, Holyhead	Roadside	224942	382866	NO_2	No	15.0	0.7	No	3.0
IACC-82	Opp. Panton Arms, Pentraeth	Roadside	252360	378402	NO_2	No	1.3	2.0	No	3.0
IACC-83	Llanfairpwll A55 Bridge	Roadside	253057	372313	NO_2	No	13.0	1.0	No	2.0
IACC-84	Orthios Penrhos Lodge	Roadside	226681	381486	NO_2	No	6.0	7.0	No	3.5

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 2.2 – Map of IACC Non-Automatic Monitoring Sites

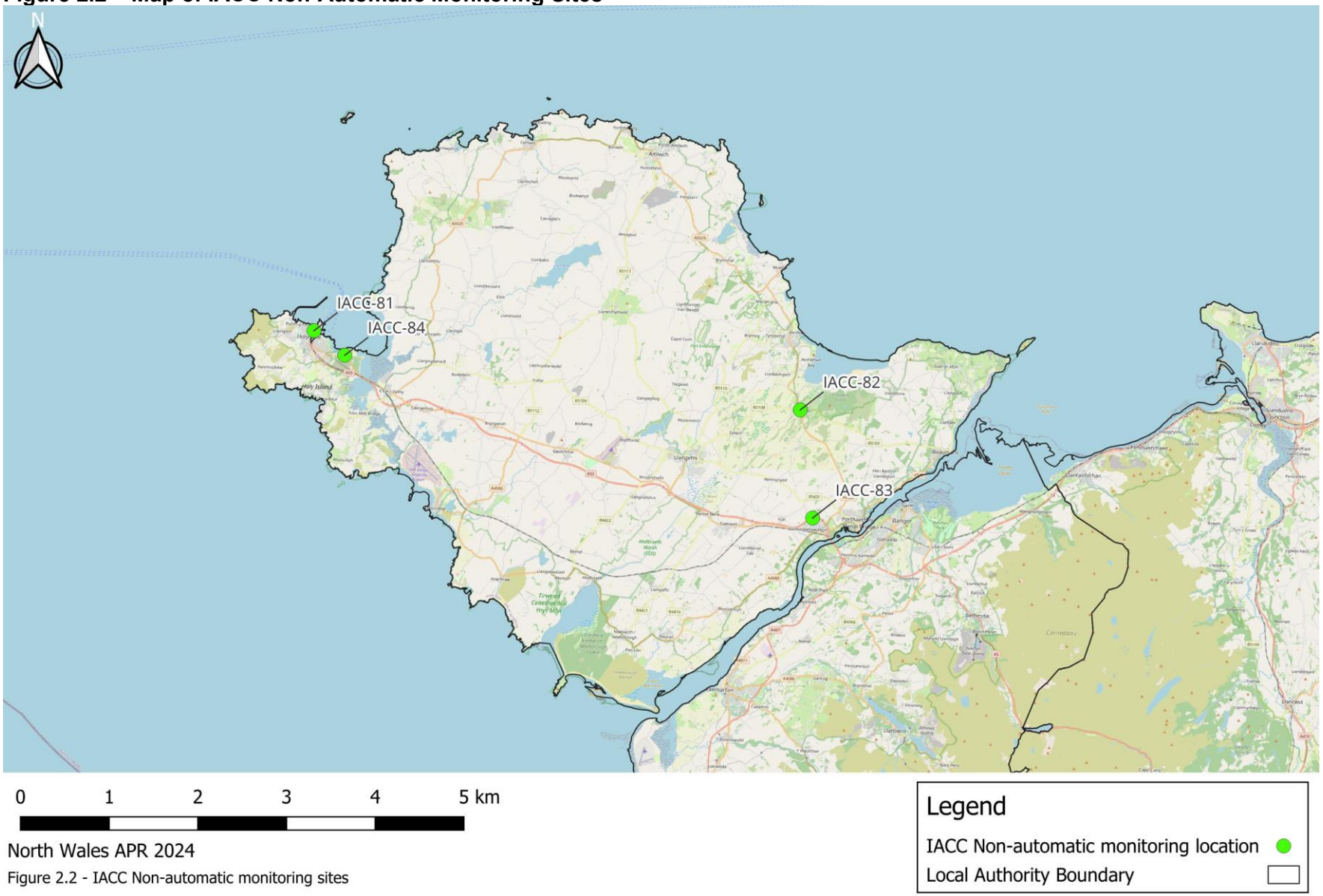

Table 2.3 – Details of DCC Non-Automatic Monitoring Sites

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)
DCC										
DBK1	Wellington Road, Rhyl	Roadside	300800	381400	NO_2	No	0.5	2.2	No	2.3
DBR2	10 Kinmel Street, Rhyl	Roadside	300900	381300	NO_2	No	2.5	0.3	No	2.5
DBR55	Adj. 7 Berwyn Street, Llangollen	Roadside	321484	341920	NO_2	No	0.8	1.0	No	3.0
DBR57	Adj. 48 Church Street, Llangollen	Roadside	321815	341914	NO_2	No	0.0	0.5	No	2.3
DBR5	2 Pant Glas, St. Asaph	Intermediate	302900	374600	NO_2	No	9.6	27.5	No	2.0
DBR48	Adj. 1 Vale Street, Denbigh	Roadside	305276	366119	NO_2	No	0.0	1.0	No	2.4
DBR23	31 Ruthin Road, Denbigh	Roadside	305879	366425	NO_2	No	1.4	2.5	No	2.5
DBR60	14 Maes Helyg, Rhuddlan	Suburban	302184	378415	NO_2	No	8.8	1.0	No	2.8
DBR9	7 Roe Park, St. Asaph	Intermediate	303200	374900	NO_2	No	0.0	14.0	No	2.0
DBR59	Hennessey Terrace, Denbigh	Roadside	305097	366100	NO_2	No	3.7	2.5	No	2.6
DBR24	Denbigh Cutters, 21 Vale Street, Denbigh	Roadside	305327	366164	NO_2	No	0.0	3.0	No	2.2
DBR56	Adj. 6-7 Castle Street, Llangollen	Roadside	321492	342091	NO_2	No	3.4	0.4	No	2.7
DBR20	25 Park Road, Ruthin.	Roadside	312105	358306	NO_2	No	4.0	1.4	No	2.2
DBR43	Adj HSBC Bank, Vale Street, Denbigh	Roadside	305314	366153	NO_2	No	5.5	2.5	No	2.6

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)
DBR44	Opp Rowlands Pharm., Vale Street, Denbigh	Roadside	305386	366191	NO_2	No	1.7	1.2	No	2.6
DBR45	Adj 50 Vale Street, Denbigh	Roadside	305467	366246	NO_2	No	3.9	2.0	No	2.5
DBR37	Haul Fryn Depot, Ruthin	Roadside	312800	358200	NO_2	No	1.0	3.5	No	2.3
DBR64	Opposite Prestatyn High School	Roadside	306495	381894	NO_2	No	14.0	1.0	No	2.8
DBR52	Adj. Swayne Johnston Sol., Vale Street, Denbigh	Roadside	305308	366130	NO_2	No	N/A	1.8	No	2.9
DBR53	7 Vale Street, Denbigh	Roadside	305390	366130	NO_2	No	N/A	2.0	No	2.3
DBR31	2 Rhyl Road, Denbigh	Roadside	305805	366480	NO_2	No	1.3	0.8	No	2.4
DBR32	47 High Street, Denbigh	Roadside	305179	366089	NO_2	No	N/A	5.9	No	2.4
DBR33	Adj CO-OP, High Street, Denbigh	Roadside	305253	366095	NO_2	No	N/A	5.3	No	2.3
DBR34	Adj Fairyburn, Rhyl Road, Denbigh	Roadside	305868	366653	NO_2	No	11.4	0.9	No	2.5
DBR49	79 High Street, Prestatyn	Roadside	306580	382907	NO_2	No	N/A	1.0	No	2.6
DBR58	Adj. 1 Vale View, High Street, Rhuddlan	Roadside	302271	378074	NO_2	No	4.4	0.5	No	2.3
DBR61	Adj. Jacobs Ladder, St. Asaph	Roadside	303921	374387	NO_2	No	5.5	1.0	No	2.7
DBR62	Adj. The Old Rectory, High Street, St. Asaph	Roadside	303852	374361	NO_2	No	3.8	1.5	No	2.8
DBR63	Adj. Barclay House, Gemig Street, St. Asaph	Roadside	303778	374326	NO_2	No	4.0	4.7	No	2.5

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 2.3 – DCC Non-Automatic Monitoring Sites (North)

Figure 2.4 – DCC Non-Automatic Monitoring Sites (Denbigh)

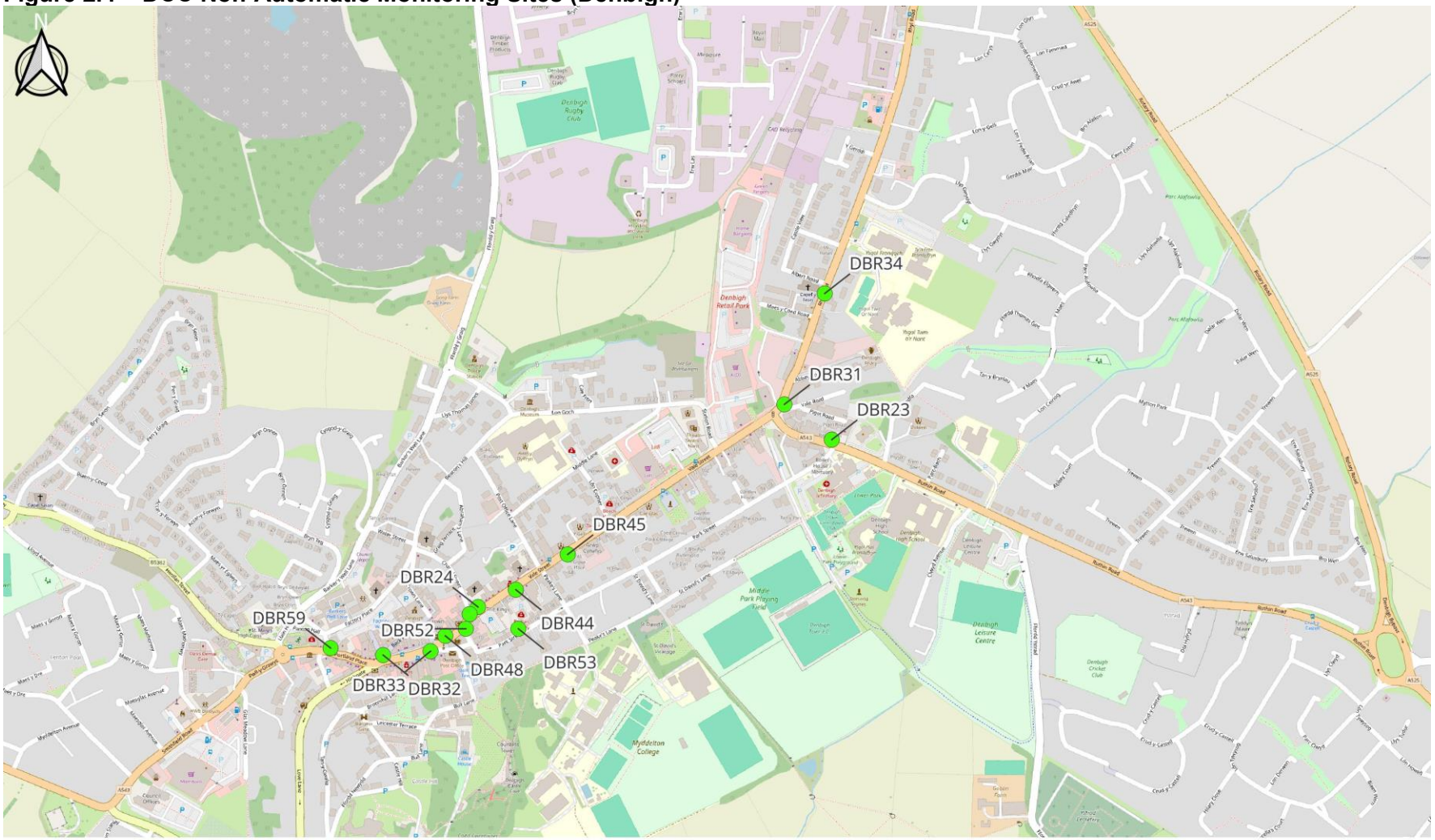

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Figure 2.4 - DCC Non-automatic monitoring sites (Denbigh)

Figure 2.5 – DCC Non-Automatic Monitoring Sites (Ruthin)

Figure 2.6 – DCC Non-Automatic Monitoring Sites (Llangollen)

Table 2.4 – Details of GC 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)
GC										
GCC 002	Roundabout A487, Caernarfon (C1)	Kerbside	248273	362132	NO_2	No	9.0	10.0	No	2.0
GCC 003	Lon Campbell, Caernarfon (C3)	Urban Background	248480	363456	NO_2	No	N/A	5.0	No	2.0
GCC 005	Ffordd Bangor, Caernarfon (C5)	Kerbside	248892	364120	NO_2	No	6.0	7.0	No	1.8
GCC 008	A4087, Bangor (B3)	Kerbside	257587	371543	NO_2	No	1.0	2.0	No	1.9
GCC 011	A5122, Bangor (B5)	Kerbside	256292	371663	NO_2	No	>25.0	>25.0	No	1.7
GCC 012	Faenol Roundabout, Bangor (B6)	Kerbside	254286	368835	NO_2	No	>25.0	>25.0	No	1.8
GCC 013	Bethesda (BETH 1)	Kerbside	261529	367380	NO_2	No	9.0	10.0	No	2.0
GCC 015	Llanwnda (LL1)	Roadside	247770	358663	NO_2	No	3.0	4.0	No	1.9
GCC 037	Poolside, Caernarfon (C6)	Kerbside	248022	362757	NO_2	No	1.0	2.0	No	1.9
GCC 038	A55, Bangor (CO-LOC)	Roadside	256871	369493	NO_2	No	>25.0	>25.0	No	1.3
GCC 039	A55, Bangor (CO-LOC)	Roadside	256871	369493	NO_2	No	>25.0	>25.0	No	1.3
GCC 040	Pwllheli (PW1)	Kerbside	237517	335217	NO_2	No	1.0	2.0	No	2.0
GCC 041	LLYS 1	Roadside	248514	362795	NO_2	No	4.0	5.0	No	2.2
GCC 042	BR 1	Urban Background	249647	362923	NO_2	No	0.0	14.0	No	1.3
GCC 043	BR 2	Roadside	249634	362917	NO_2	No	1.0	7.0	No	1.7
GCC 044	LLNFR 1	Kerbside	293769	336564	NO_2	No	0.0	1.0	No	1.7
GCC 045	LLNFR 2	Roadside	293878	336609	NO_2	No	20.0	6.0	No	1.7

Notes:
(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 2.7 – GC Non-Automatic Monitoring Sites (North)

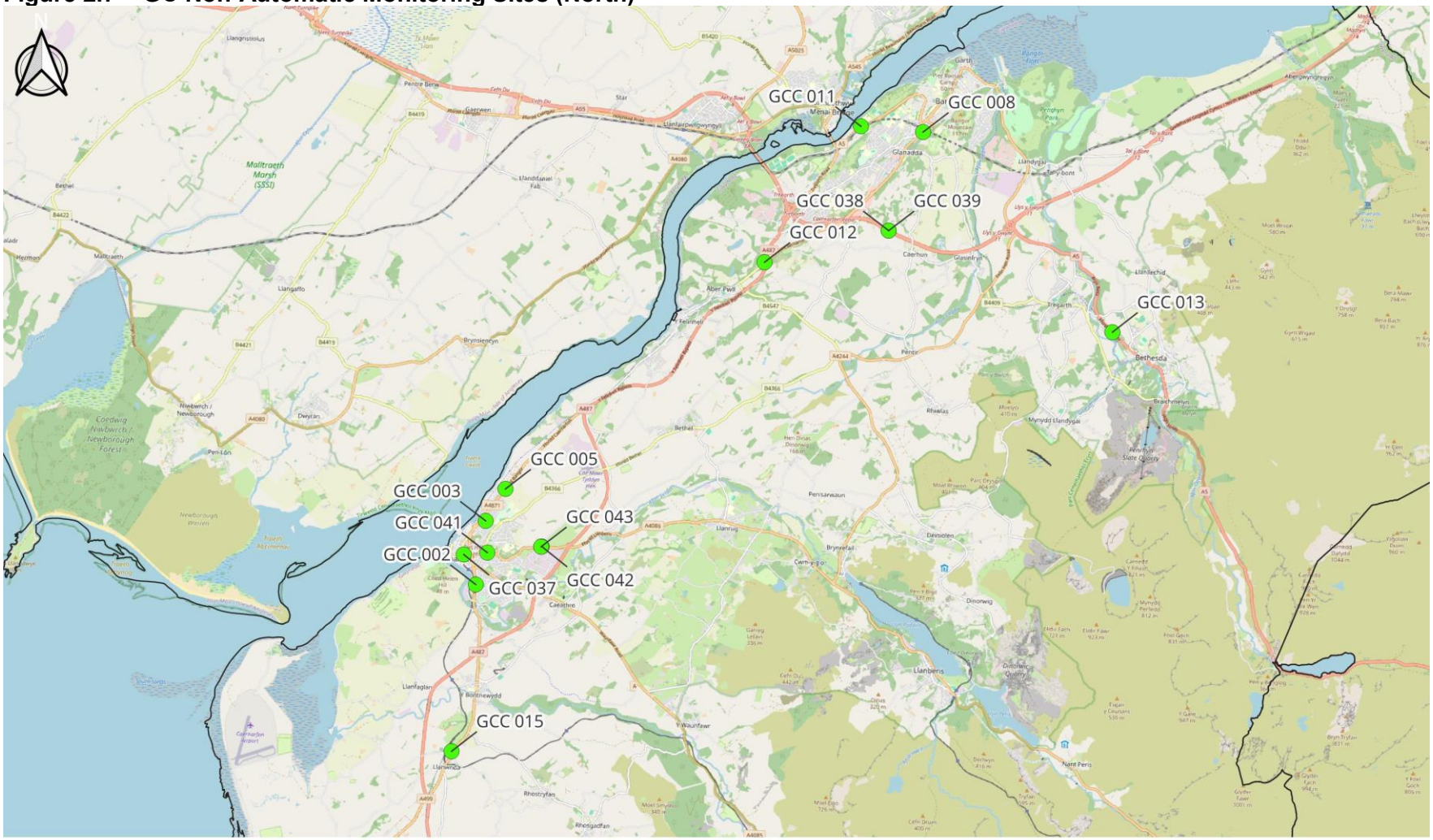

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Figure 2.7 - GC Non-automatic monitoring sites (North)

Figure 2.8 – GC Non-Automatic Monitoring Sites (South East)

Figure 2.9 – GC Non-Automatic Monitoring Sites (South West)

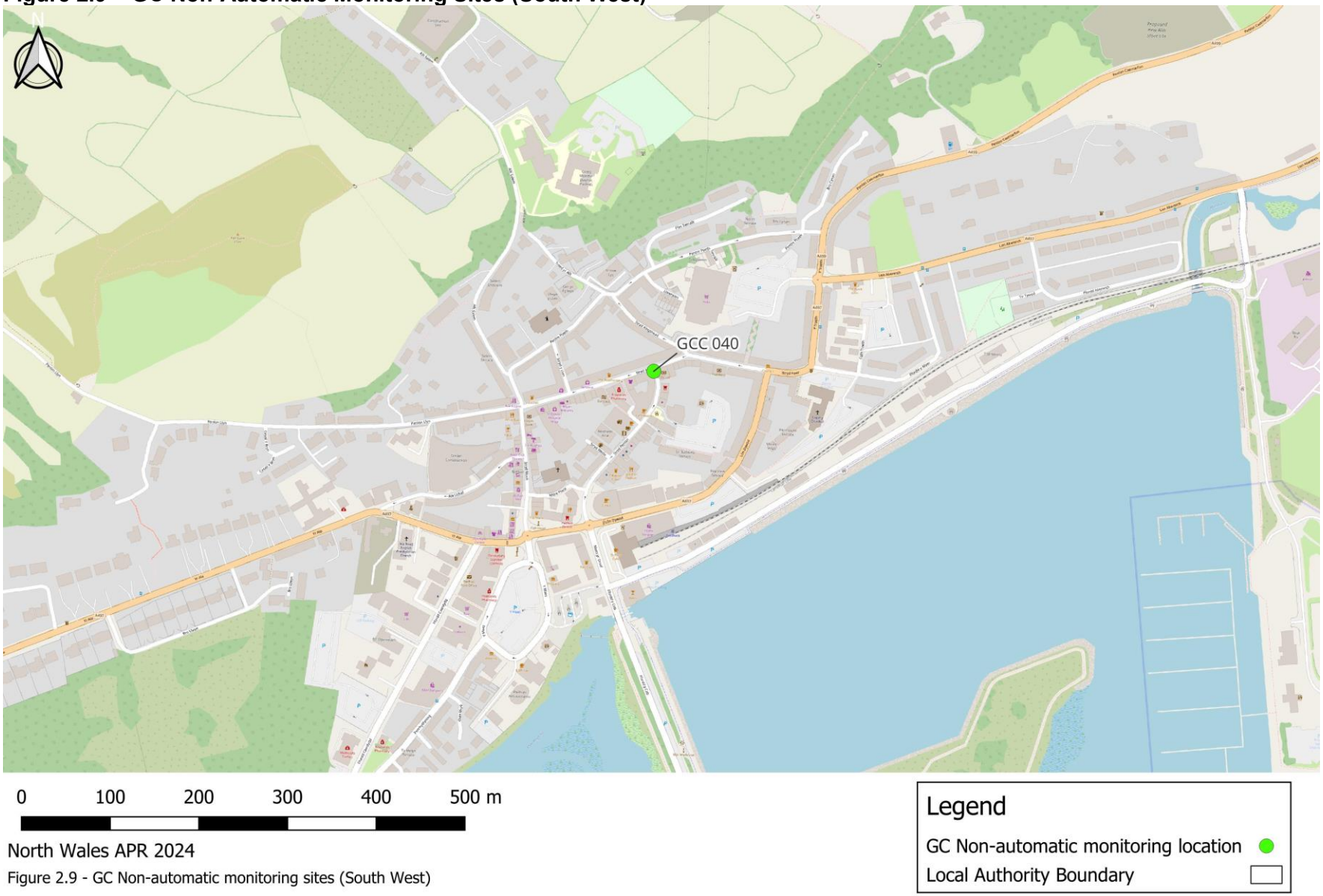

Table 2.5 – Details of WCBC Non-Automatic Monitoring Sites

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)
WCBC										
1	Grosvenor Road	Roadside	333200	350600	NO_2	No	10.0	2.0	No	1.5
34	Coed Poeth	Roadside	329017	351002	NO_2	No	1.0	9.0	No	2.0
45	Crispin Lodge	Roadside	332214	351503	NO_2	No	8.0	8.0	No	1.6
36	Acrefair	Roadside	327630	342990	NO_2	No	0.0	2.0	No	2.0
10	Ysgol Y Waun	Suburban	329300	338300	NO_2	No	18.0	2.0	No	2.0
49	Black Lane School	Suburban	330221	353428	NO_2	No	1.0	1.5	No	2.0
42	Llan-Y-Pwll	Roadside	335359	352178	NO_2	No	4.0	5.0	No	1.6
50	Llys Y Groes	Roadside	331924	350638	NO_2	No	0.0	9.0	No	1.5
51	Ysgol Yr Hafod	Suburban	330125	346099	NO_2	No	3.5	1.5	No	1.5
52	Woodbank Court	Other	330703	334004	NO_2	No	0.0	20.0	No	1.5
53	Froncysyllte	Roadside	327263	341184	NO_2	No	0.0	2.0	No	1.5
22	Holyhead Road	Other	328900	338700	NO_2	No	28.0	2.0	No	1.5
32	Sycamores	Roadside	333887	353222	NO_2	No	22.0	8.0	No	1.5
30	Rhostyllen Rbt	Roadside	330950	348170	NO_2	No	31.0	4.0	No	1.2
31	Bus Station	Roadside	333350	350590	NO_2	No	1.0	2.0	No	3.0
33	Smithfield Road	Roadside	333981	350171	NO_2	No	3.0	1.0	No	1.5
37	Rossett	Roadside	336635	357211	NO_2	No	5.0	2.0	No	1.5
38	Pentre Bach	Roadside	331765	350132	NO_2	No	0.0	2.0	No	1.2
44	Cobden Road	Roadside	332935	350278	NO_2	No	4.0	1.0	No	2.0
40	Overton	Roadside	337449	341702	NO_2	No	12.0	2.0	No	1.5
41	Marchwiel	Roadside	335407	347890	NO_2	No	1.0	2.0	No	2.0
43	Hightown	Roadside	333966	349691	NO_2	No	9.0	1.0	No	2.0
46	Regent Street	Roadside	333063	350587	NO_2	No	14.0	1.0	No	2.0
48	Church Street	Roadside	329082	337590	NO_2	No	4.0	1.0	No	1.5
54	Pandy Lane	Roadside	333628	352942	NO_2	No	4.0	5.0	No	1.5
55	Llay	Suburban	333078	355649	NO_2	No	0.0	9.0	No	1.0
56	Top Farm Road	Roadside	332944	352293	NO_2	No	0.0	12.0	No	1.5
57	Ysgol Plas Coch	Other	332786	351637	NO_2	No	0.0	20.0	No	1.5
58	St Annes School	Suburban	334954	350090	NO_2	No	38.5	1.5	No	2.0
59	Cross Lanes	Roadside	337541	346942	NO_2	No	0.0	6.0	No	1.5
60	St Pauls School	Suburban	340016	349982	NO_2	No	13.5	1.5	No	2.0
61	Berse Road	Roadside	332363	351095	NO_2	No	0.0	12.0	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)
AURN (triplicate)	Victoria Road	Roadside	332900	349900	NO_2	No	9.0	5.0	Yes	2.0

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 2.10 – WCBC Non-Automatic Monitoring Sites (North)

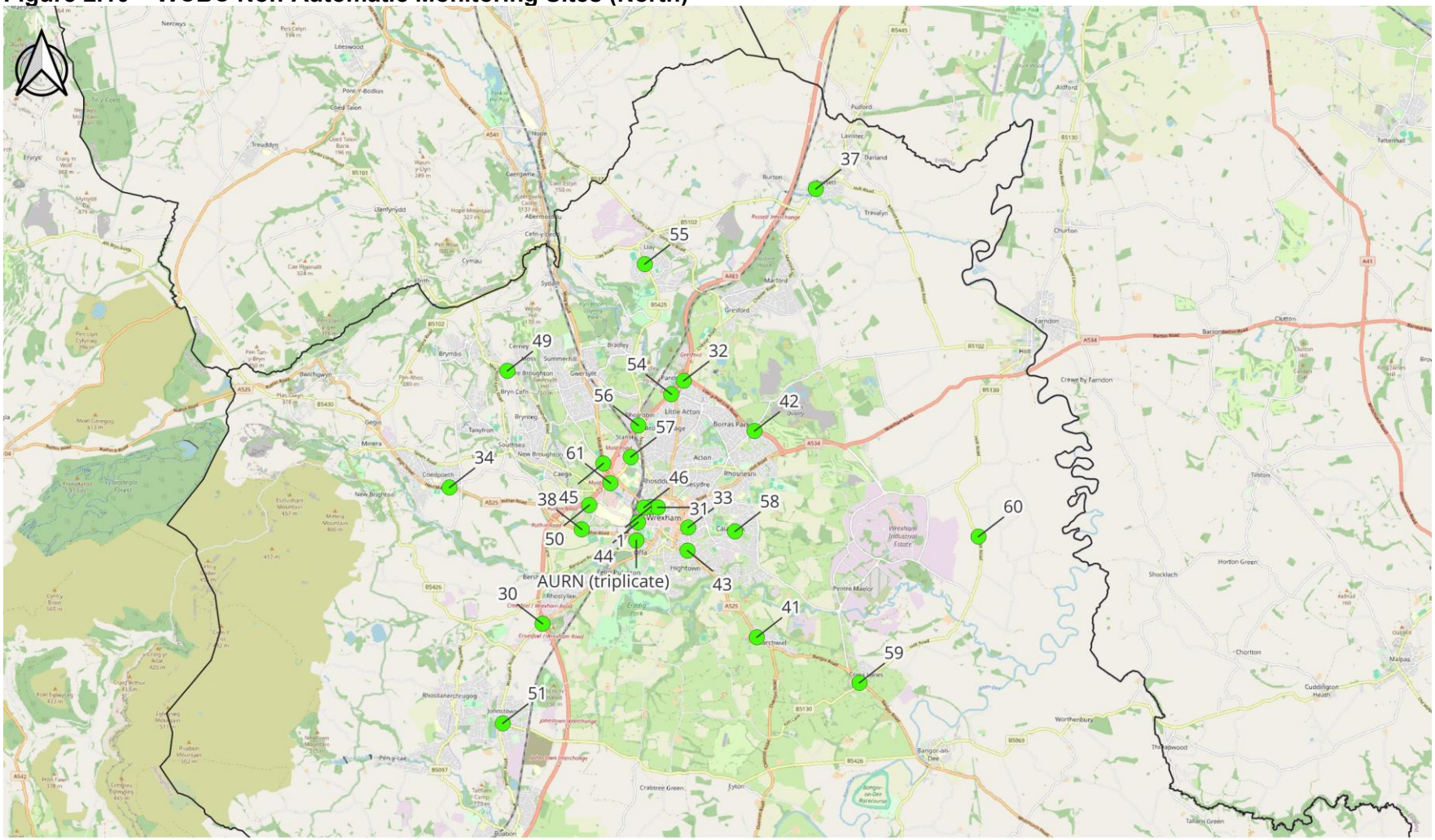

Figure 2.11 – WCBC Non-Automatic Monitoring Sites (South)

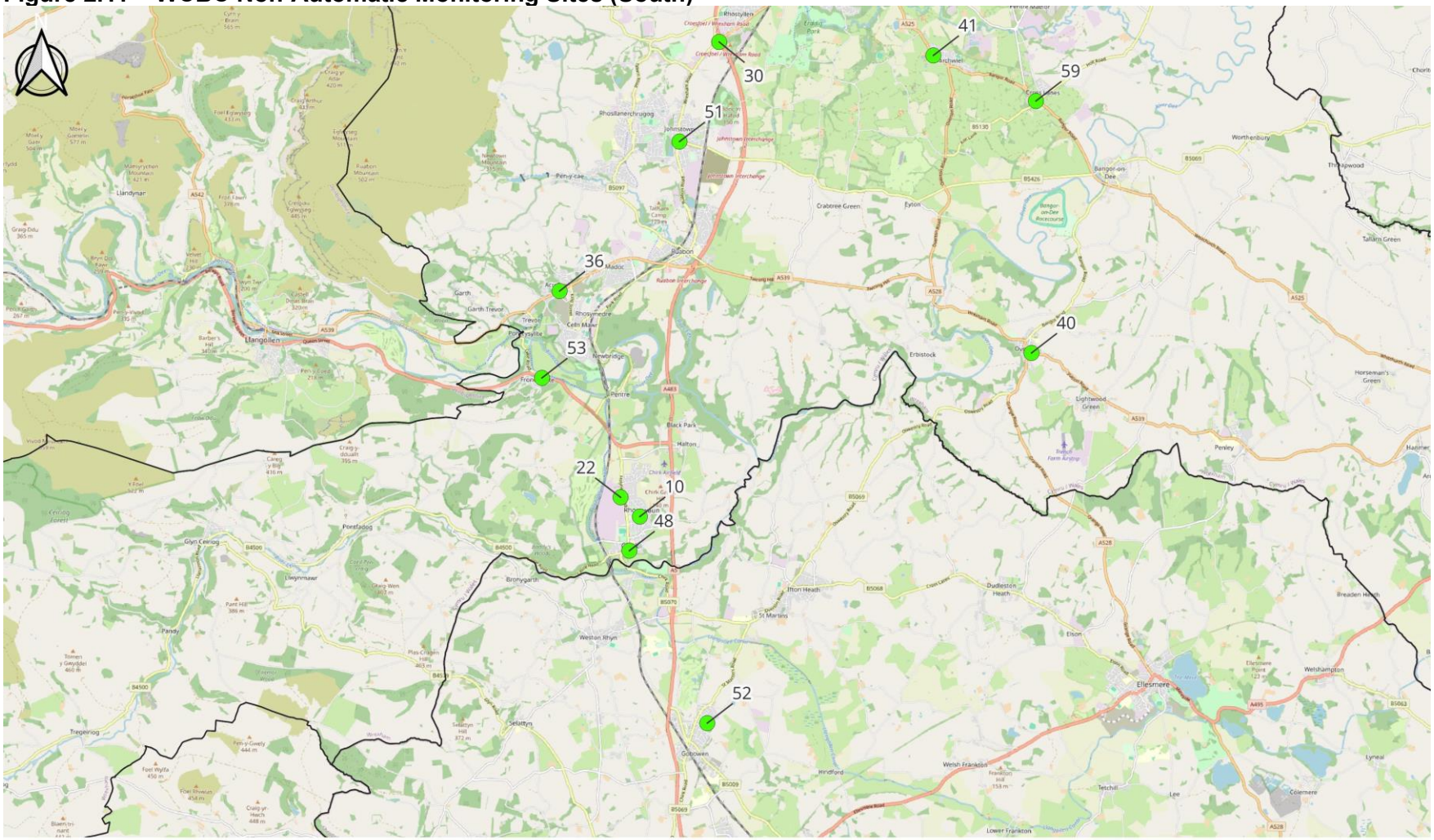

Table 2.6 – Details of CCBC Non-Automatic Monitoring Sites

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)
CCBC										
DT/CCBC 017	Kingsway, Colwyn Bay	Roadside	284526	379417	NO_2	No	1.0	1.1	No	3.0
DT/CCBC 018	Heol Dewi, Pensarn	Roadside	295049	378144	NO_2	No	3.5	3.0	No	2.1
DT/CCBC 022	Bryn Marl, Mochdre	Roadside	282362	378757	NO_2	No	2.0	1.5	No	3.0
DT/CCBC 034	Victoria Drive, Llandudno Junction	Roadside	279245	377995	NO_2	No	2.5	2.2	No	3.0
DT/CCBC 035	Ysgol Bod Alaw, Colwyn Bay	Roadside	285506	378295	NO_2	No	2.0	2.2	No	3.0
DT/CCBC 036	Ysgol Tudno, Llandudno	Roadside	278131	381907	NO_2	No	2.5	1.5	No	3.0
DT/CCBC 041	Faenol Avenue, Abergele	Roadside	295075	377678	NO_2	No	3.5	2.7	No	3.0
DT/CCBC 042	Yr Angorfa, Conwy Marina	Roadside	277318	378576	NO_2	No	30.0	30.0	No	3.0
DT/CCBC 043	Ysgol Pant y Rhedyn, Llanfairfechan	Roadside	268425	375266	NO_2	No	3.0	2.2	No	3.0
DT/CCBC 044	Busgate, Llanfairfechan	Roadside	268845	375713	NO_2	No	2.0	1.3	No	3.0
DT/CCBC 046	Eagles, Town Centre, Llanrwst	Roadside	279833	361573	NO_2	No	1.5	1.2	No	2.5
DT/CCBC 047	Maes-y-Llan, Dwygyfylchi	Roadside	273223	377460	NO_2	No	2.0	1.0	No	3.0
DT/CCBC 048	A55 Conwy (road barrier)	Roadside	276115	378273	NO_2	No	22.0	22.0	No	2.5
DT/CCBC 053	Upper Promenade, Colwyn Bay	Roadside	284433	379529	NO_2	No	1.7	1.7	No	3.0
DT/CCBC 054	Wainwright Close, Colwyn Bay	Roadside	284362	379559	NO_2	No	35.0	35.0	No	3.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT/CCBC 055	Ysgol Llandrillo yn Rhos, Rhos on Sea	Roadside	283523	380857	NO_2	No	2.1	2.1	No	3.2
DT/CCBC 056	Ysgol Deganwy, Deganwy	Roadside	278751	378797	NO_2	No	1.7	1.7	No	3.0
DT/CCBC 057	Ffordd Seiriol, Penmaenmawr	Roadside	271771	376105	NO_2	No	2.0	1.2	No	2.5
DT/CCBC 058	Gilfach Road, Penmaenmawr	Roadside	271627	375978	NO_2	No	2.5	0.0	No	2.5
DT/CCBC 059	Deganwy Road, Deganwy	Roadside	277744	379865	NO_2	No	3.0	2.0	No	2.5

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 2.12 – CCBC Non-Automatic Monitoring Sites

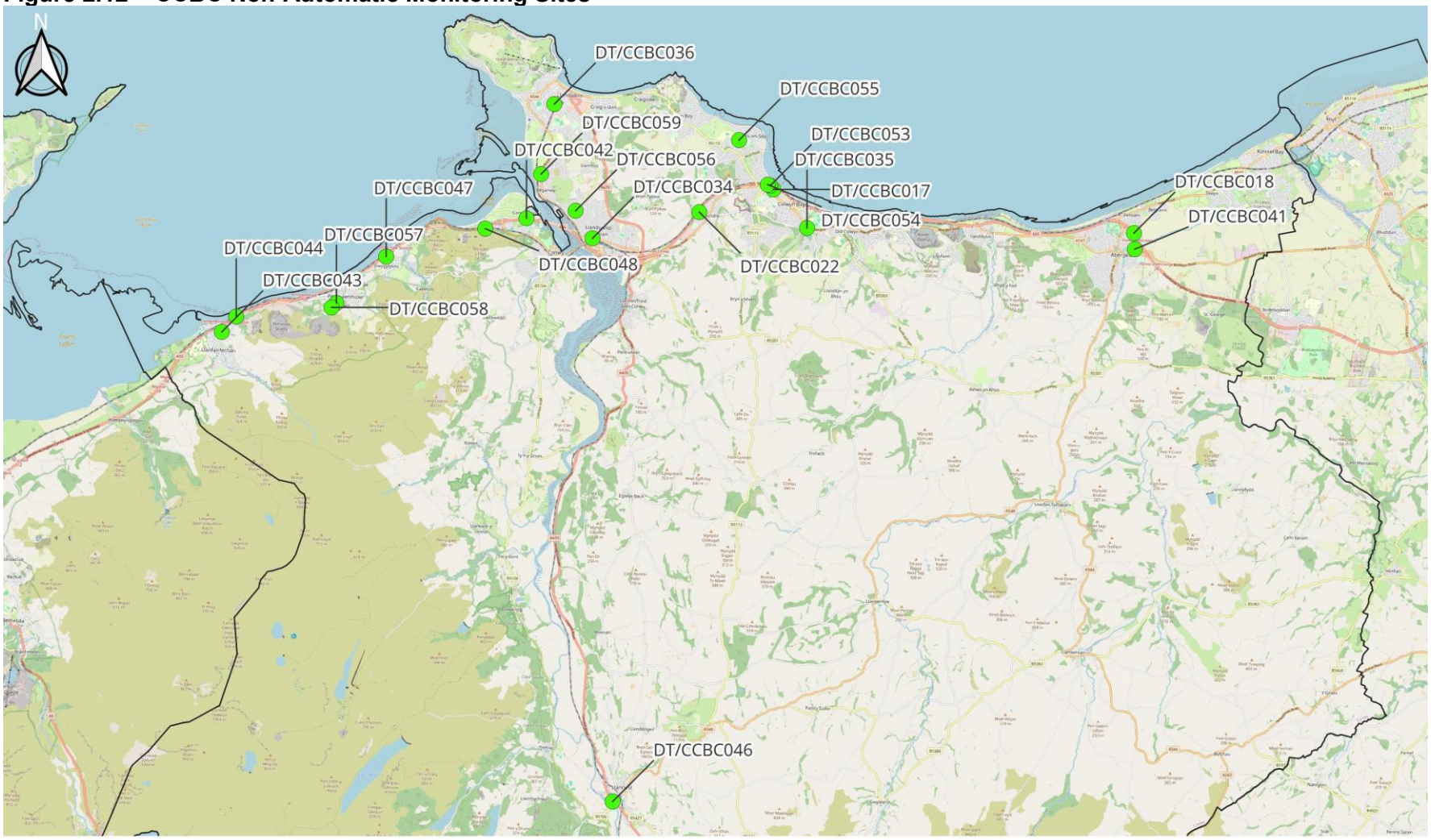

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Figure 2.12 - CCBC Non-automatic monitoring sites

Table 2.7 – Details of FCC 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)
FCC										
ADDC-008	Lamppost Aston Hill co-loc (24&51)	Kerbside	330792	367434	NO_2	No	20.0	1.0	No	1.8
ADDC-009	1, St.Davids Close, Ewloe CH5 3AP	Roadside	329830	366682	NO_2	No	0.0	35.0	No	1.8
ADDC-085	Aston Hill Roadside	Kerbside	330718	367350	NO_2	No	10.0	1.0	No	2.0
ADDC-111	Hawarden High School CH5 3DL	Kerbside	330614	366195	NO_2	No	7.0	3.0	No	1.6
ADDC-105	Abermorddu/Cyma u Crossroads	Roadside	330986	356538	NO_2	No	9.0	2.0	No	2.0
ADDC-013	Kelsterton Farm, Kelsterton Lane, Connah's Quay	Rural	327307	369856	NO_2	No	26.0	1.0	No	2.2
ADDC-014	Kelsterton Road, Connah's Quay	Kerbside	327187	371243	NO_2	No	5.0	5.0	No	1.8
ADDC-015	86, Kelsterton Road, Connah's Quay CH5 4BJ	Urban Background	328032	370647	NO_2	No	0.0	20.0	No	1.6
ADDC-106	Outside The Nook, Village Road, Pentre Halkyn	Roadside	320126	372346	NO_2	No	13.0	1.0	No	2.0
ADDC-107	Bryn Coch Lane, Mold (started Aug 20)	Roadside	323500	363397	NO_2	No	15.0	2.0	No	2.0
ADDC-084	3 Davies Cottage, Mold Road, Alltami	Kerbside	326643	365550	NO_2	No	0.0	3.0	No	2.0
ADDC-064	20/22 Glynne Way, Hawarden	Kerbside	331648	365730	NO_2	No	0.0	1.0	No	1.6
ADDC-098	20/22 Glynne Way, Hawarden - Duplicate Tube	Kerbside	331648	365730	NO_2	No	0.0	1.0	No	1.6

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)
ADDC-117	Sandycroft CP School Leaches Lane CH5 2EH	Kerbside	332500	367357	NO_2	No	1.0	1.0	No	2.0
ADDC-099	Aston Hill, Roadside - Additional Tube within 12m of ADDC/085	Kerbside	330727	367354	NO_2	No	10.0	1.0	No	1.8
ADDC-023	4, Belvedere Close, Queensferry CH5 1TG	Urban Background	331663	368028	NO_2	No	0.0	20.0	No	2.3
ADDC-024	32 Chester Road West, Shotton	Kerbside	330599	368922	NO_2	No	0.0	4.0	No	2.0
ADDC-118	Saltney Ferry CP School CH4 0BN	Kerbside	336904	364852	NO_2	No	7.0	1.0	No	2.0
ADDC-080	Gwylfa, Northop Rd., Flint Mountain	Kerbside	323864	370368	NO_2	No	0.0	3.0	No	2.2
ADDC-066	Coed Mawr Cott., Mostyn Road, Greenfield CH8 9DN	Kerbside	318669	378290	NO_2	No	0.0	2.0	No	1.8
ADDC-116	Sealand CP School Welsh Road CH5 2RA	Kerbside	332535	368907	NO_2	No	1.0	1.0	No	2.2
ADDC-029	Green Lane West, Sealand	Rural	333645	370898	NO_2	No	29.0	17.0	No	2.0
ADDC-030	Second Avenue, Deeside Industrial Estate (Valspar)	Industrial	332764	370981	NO_2	No	N/A	2.0	No	1.8
ADDC-083	Lamppost Aston Hill co-loc (1&51) start 2 June	Kerbside	330792	367434	NO_2	No	20.0	1.0	No	1.8
ADDC-032	BASF, Deeside Industrial Park, Sealand	Industrial	332031	371562	NO_2	No	N/A	3.0	No	2.2

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
ADDC-033	Corus rear entrance DIP, Sealand	Industrial	329906	370882	NO_2	No	N/A	1.0	No	2.0
ADDC-034	89, Riverside Park, Garden City	Roadside	333040	369051	NO_2	No	5.0	5.0	No	2.2
ADDC-120	Ysgol St John Penymynydd CH4 0LG	Kerbside	330528	362756	NO_2	No	4.0	1.0	No	1.8
ADDC-036	Weighbridge Road, Deeside Industrial Park, Sealand	Kerbside	330575	371802	NO_2	No	N/A	2.0	No	2.0
ADDC-037	28, Chester Road, Pentre, Deeside CH5 2DT	Kerbside	332221	367723	NO_2	No	0.0	5.0	No	4.0
ADDC-093	Trelawney Towers 79 Chester Road, Flint CH6 5DU	Kerbside	324935	372722	NO_2	No	1.0	4.0	No	2.4
ADDC-044	Flint Town Council Buildings.	Kerbside	324459	373141	NO_2	No	0.0	3.0	No	2.4
ADDC-067	133, Main Road, Broughton CH4 0NR	Kerbside	333568	363511	NO_2	No	0.0	1.0	No	2.2
ADDC-068	2, Coleshill Street, Holywell CH8 7UP	Kerbside	318766	375758	NO_2	No	0.0	1.0	No	2.0
ADDC-069	Sycamore House, Greenfield Road, Holywell CH8 7PY	Kerbside	318735	376611	NO_2	No	0.0	1.0	No	2.0
ADDC-070	43, Station Road, Queensferry CH5 1SU	Kerbside	331806	368271	NO_2	No	0.0	4.0	No	1.8
ADDC-081	Glendale Lodge, Rhydgaled, Mold A5119	Kerbside	324281	364926	NO_2	No	15.0	2.0	No	1.8

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)
ADDC-119	Castell Alun Fagl Lane Hope LL129PY	Kerbside	330705	358429	NO_2	No	8.0	2.0	No	1.8
ADDC-114	Ysgol Y Fron Halkyn St Holywell CH8 7TX	Kerbside	318851	375592	NO_2	No	6.0	2.0	No	2.0
ADDC-052	1 Manor Road, Sealand CH5 2SB	Kerbside	333731	369079	NO_2	No	0.0	8.0	No	1.8
ADDC-115	Ysgol Y Llan Whitford CH8 9AN	Kerbside	314615	378238	NO_2	No	4.0	1.0	No	1.8
ADDC-112	RGHS Ffordd Llewelyn Flint CH6 5JZ	Kerbside	324838	372198	NO_2	No	1.0	1.0	No	2.2
ADDC-113	Flint HS Fifth Avenue Flint CH6 5LW	Kerbside	324357	372008	NO_2	No	4.0	1.0	No	1.8
ADDC-091	413 Chester Road, Oakenholt, Flint CH6 5SF	Kerbside	325961	371822	NO_2	No	3.0	1.0	No	1.8
ADDC-108	Ysgol Bryn Coch Victoria Road Mold CH7 1EW	Kerbside	323975	363794	NO_2	No	4.0	1.0	No	1.6
ADDC-110	Ewloe Green School CH5 3AU	Kerbside	329284	366504	NO_2	No	9.0	1.0	No	1.8
ADDC-100	3 Davies Cottage, Mold Road, Alltami - Duplicate Tube	Kerbside	326643	365550	NO_2	No	0.0	3.0	No	2.0
ADDC-060	74, High Street, Saltney CH4 8SQ	Kerbside	338283	365032	NO_2	No	0.0	6.0	No	2.0
ADDC-061	Centenary Close Broughton CH4 0FY on lighting pole	Kerbside	334739	363340	NO_2	No	8.0	4.0	No	1.8
ADDC-121	Ysgol Estyn Hawarden Road Hope LL12 9NL	Kerbside	330898	357996	NO_2	No	2.0	3.0	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)
ADDC-101	Lamppost Aston Hill co-loc (1&24) start 2 June	Kerbside	330792	367434	NO_2	No	20.0	1.0	No	1.8
ADDC-109	Westwood CP School Padeswood Rd CH7 2JT	Kerbside	327843	363856	NO_2	No	4.0	1.0	No	2.0
ADDC-075	17, Mill Lane, Buckley CH7 3HA	Kerbside	327849	364146	NO_2	No	1.0	1.0	No	2.3
ADDC-102	Elm Tree Rd Saughall	Kerbside	335594	369179	NO_2	No	10.0	1.0	No	2.3
ADDC-103	Ferry Lane, Chester	Kerbside	337632	366682	NO_2	No	13.0	2.0	No	2.2
ADDC-104	Claremont Ave GC opp N0. 28 Start 3 June	Kerbside	332558	368750	NO_2	No	8.0	10.0	No	2.0
ADDC-089	Rose Cottage Junction A5119/A494	Kerbside	324375	365007	NO_2	No	2.0	1.0	No	2.2
ADDC-122	Bryn Mair 114 Chester Road Mold CH7 1UQ	Roadside	324530	363839	NO_2	No	8.0	2.0	No	3.0
ADDC-123	30 High Street Mold CH7 1BH	Roadside	324562	363840	NO_2	No	0.0	1.0	No	3.0

Notes:

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 2.13 – FCC Non-Automatic Monitoring Sites (North West)

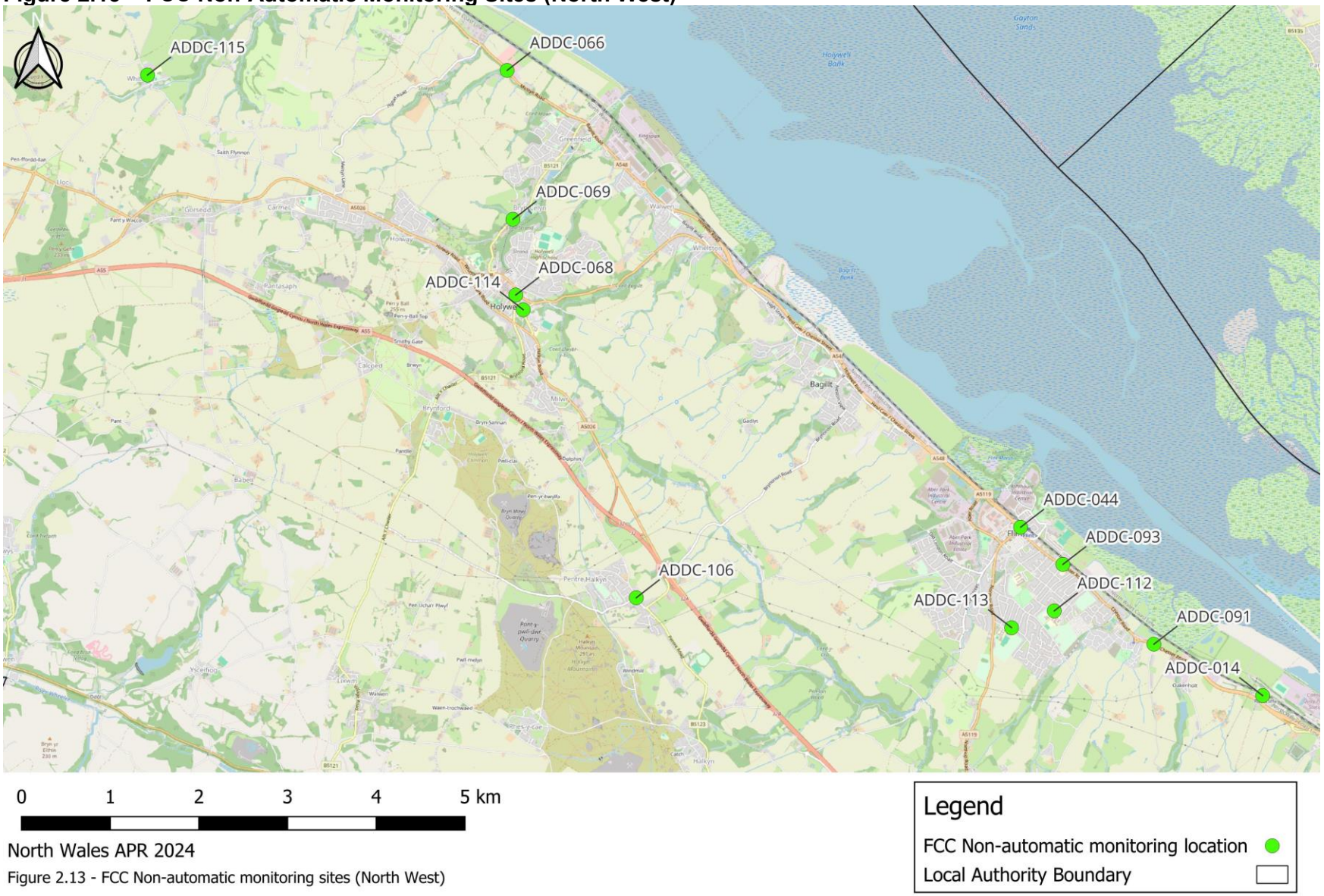

Figure 2.14 – FCC Non-Automatic Monitoring Sites (North East)

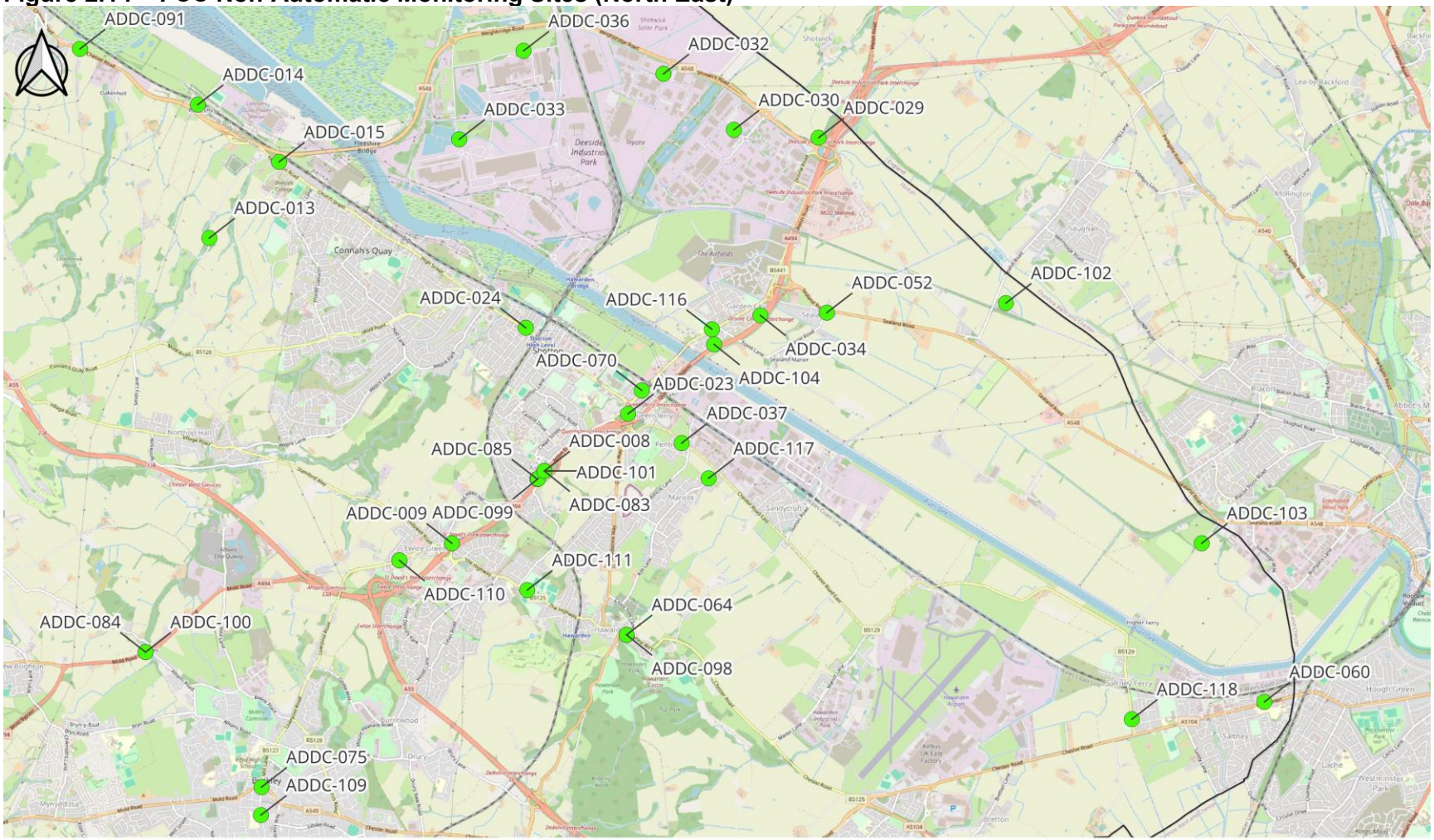

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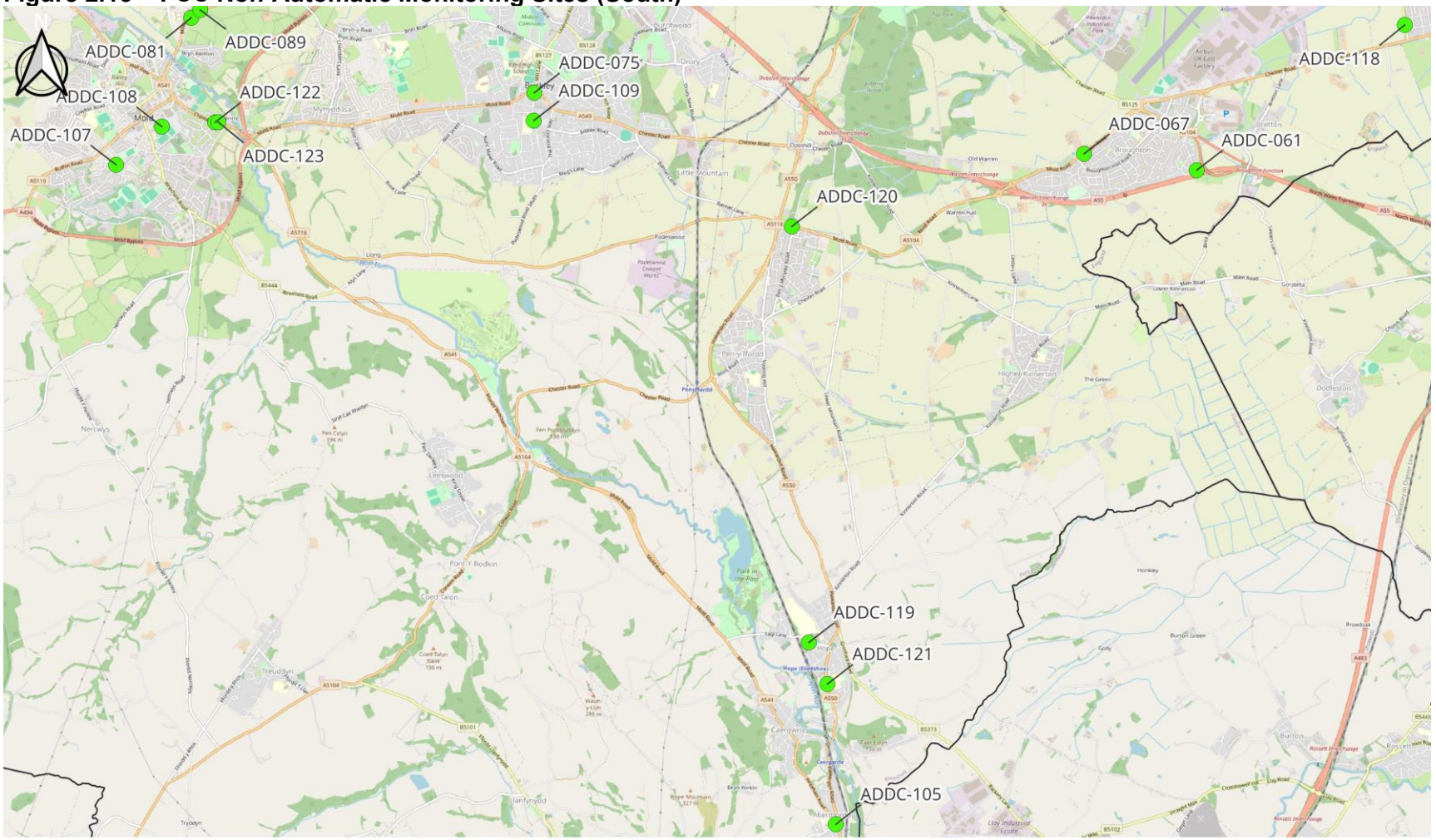
Figure 2.14 - FCC Non-automatic monitoring sites (North East)

Figure 2.15 – FCC Non-Automatic Monitoring Sites (South)



2023 Air Quality Monitoring Results

Table 2.8 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
AURN	Roadside	Automatic	94.5	94.5	16.0	13.0	14.7	14.2	13.4
Wrexham Chirk	Urban industrial	Automatic	80.5	80.5	-	21.0	18.1	11.6	13.8
Wrexham Chirk Community Hospital	Urban Background	Automatic	91.5	91.5	-	-	-	13.3	20.3*

Notes:

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

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

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.

(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%).

* 2023 monitoring data at Wrexham Chirk Community Hospital has had zero values removed.

Figure 2.16 – Trends in Annual Mean NO_2 Concentrations at Automatic Sites

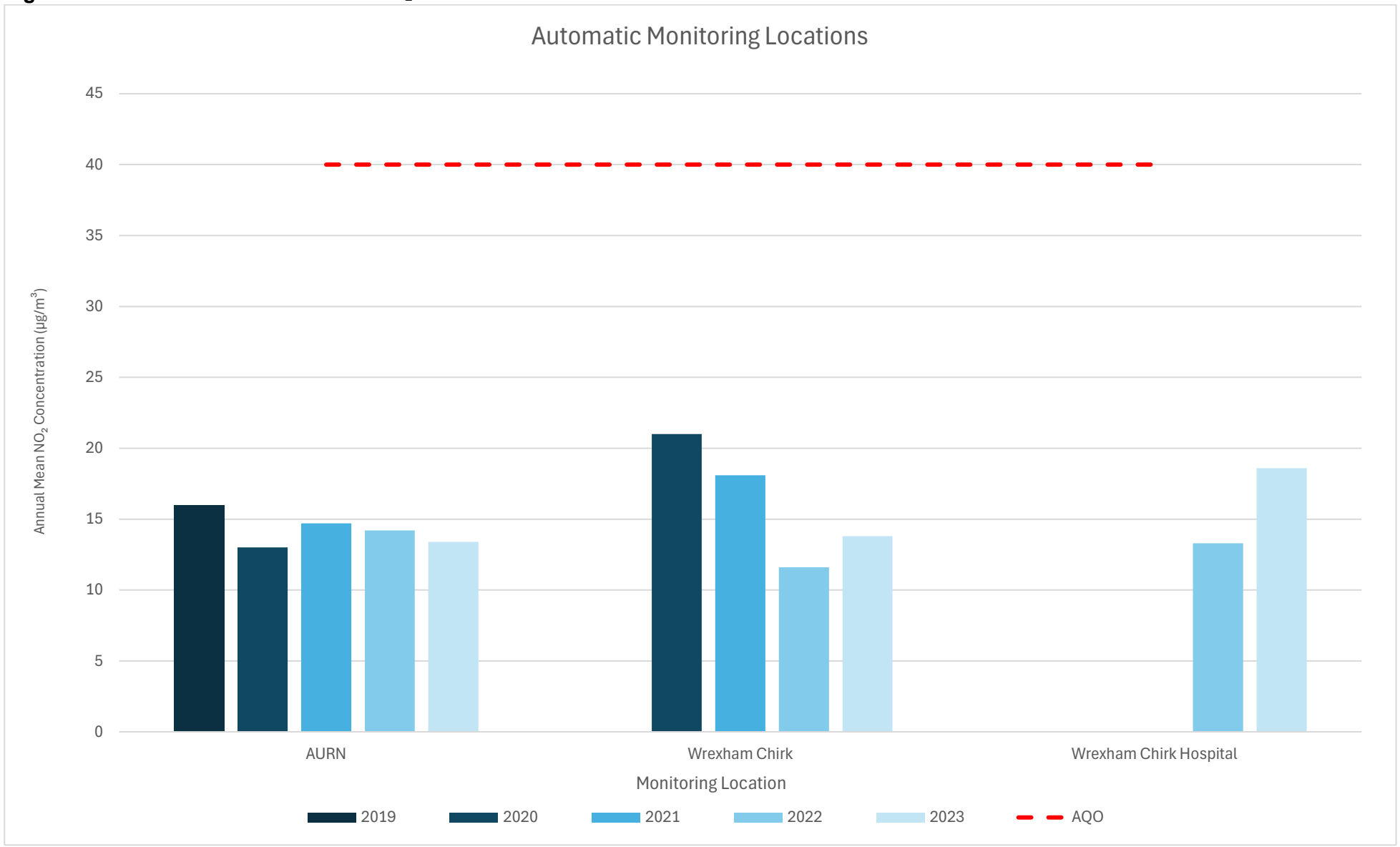


Table 2.9 – IACC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
IACC										
IACC-81	224942	382866	roadside	100.0	100.0	18.7	14.8	14.2	14.1	12.2
IACC-82	252360	378402	roadside	100.0	100.0	18.1	13.6	16.2	15.4	14.1
IACC-83	253057	372313	roadside	100.0	100.0	10.8	7.9	8.5	8.0	7.0
IACC-84	226681	381486	roadside	100.0	100.0	7.8	6.4	6.3	6.5	6.9

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

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

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

Notes:

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

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

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

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

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

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

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

Figure 2.17 – Trends in Annual Mean NO_2 Concentrations IACC

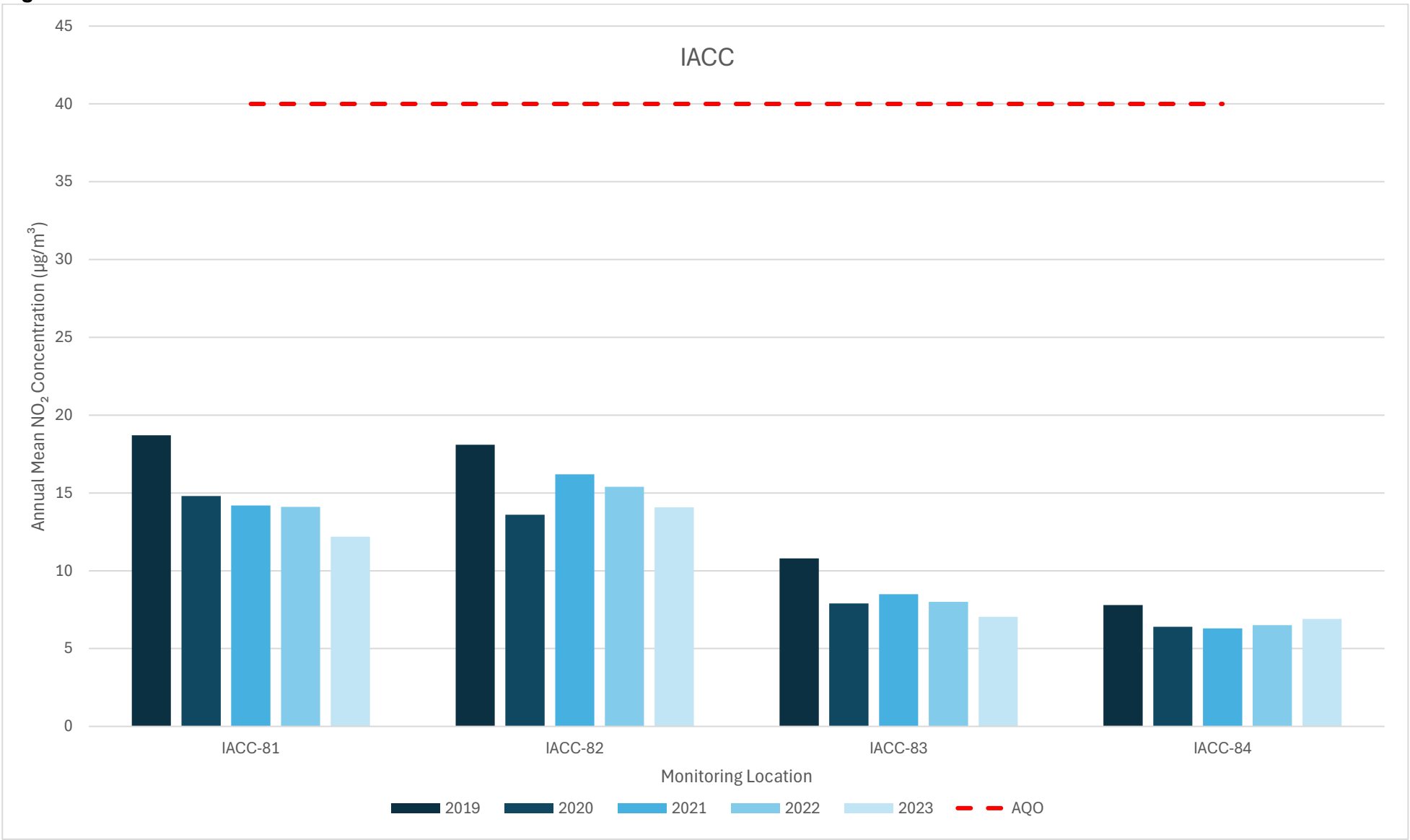


Table 2.10 – DCC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
DCC										
DBK1	300800	381400	Roadside	90.1	90.1	23.6	18.3	20.9	19.7	19.9
DBR2	300900	381300	Roadside	92.3	92.3	23.4	22.3	20.5	18.8	18.7
DBR55	321484	341920	Roadside	66.7	66.7	34.2	24.5	26.2	26.3	24.6
DBR57	321815	341914	Roadside	92.3	92.3	10.4	8.3	7.7	7.6	6.9
DBR5	302900	374600	Intermediate	100.0	100.0	12.9	10.5	11.7	10.4	9.9
DBR48	305276	366119	Roadside	90.7	90.7	21.8	18.7	21.5	20.8	18.2
DBR23	305879	366425	Roadside	91.0	91.0	16.7	14.1	15.0	13.6	12.8
DBR60	302184	378415	Suburban	92.3	92.3	11.8	7.2	7.0	6.2	6.0
DBR9	303200	374900	Intermediate	100.0	100.0	18.6	15.2	14.7	14.8	12.9
DBR59	305097	366100	Roadside	92.3	92.3	13.8	17.6	16.8	15.7	14.5
DBR24	305327	366164	Roadside	92.3	92.3	30.0	27.2	29.0	25.7	23.8
DBR56	321492	342091	Roadside	100.0	100.0	14.4	11.2	12.2	12.0	11.9
DBR20	312105	358306	Roadside	100.0	100.0	20.3	16.1	17.6	15.9	14.7
DBR43	305314	366153	Roadside	92.3	92.3	28.6	23.6	23.7	23.7	23.4
DBR44	305386	366191	Roadside	100.0	100.0	22.3	20.3	21.0	18.7	17.8
DBR45	305467	366246	Roadside	75.0	75.0	21.3	20.0	19.4	18.1	17.3
DBR37	312800	358200	Roadside	100.0	100.0	26.4	22.5	24.7	22.0	20.7
DBR64	306495	381894	Roadside	100.0	100.0					9.6
DBR52	305308	366130	Roadside	100.0	100.0	19.7	17.1	17.2	15.4	14.9
DBR53	305390	366130	Roadside	100.0	100.0	26.1	23.2	23.1	20.3	20.0
DBR31	305805	366480	Roadside	82.2	82.2	16.2	14.1	13.2	12.9	12.2
DBR32	305179	366089	Roadside	100.0	100.0	16.8	13.2	14.0	13.3	12.0
DBR33	305253	366095	Roadside	100.0	100.0	24.8	20.0	18.9	19.2	17.6
DBR34	305868	366653	Roadside	100.0	100.0	14.1	10.9	11.0	10.0	10.5
DBR49	306580	382907	Roadside	100.0	100.0	14.8	11.6	11.9	12.3	12.0
DBR58	302271	378074	Roadside	100.0	100.0	14.5	12.0	12.5	11.8	11.2
DBR61	303921	374387	Roadside	100.0	100.0	-	-	-	13.7	15.0
DBR62	303852	374361	Roadside	75.0	75.0	-	-	-	18.7	20.8
DBR63	303778	374326	Roadside	100.0	100.0	-	-	-	11.6	12.2

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

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

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

Notes:

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

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

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

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

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

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

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

Figure 2.18 – Trends in Annual Mean NO_2 Concentrations DCC 1

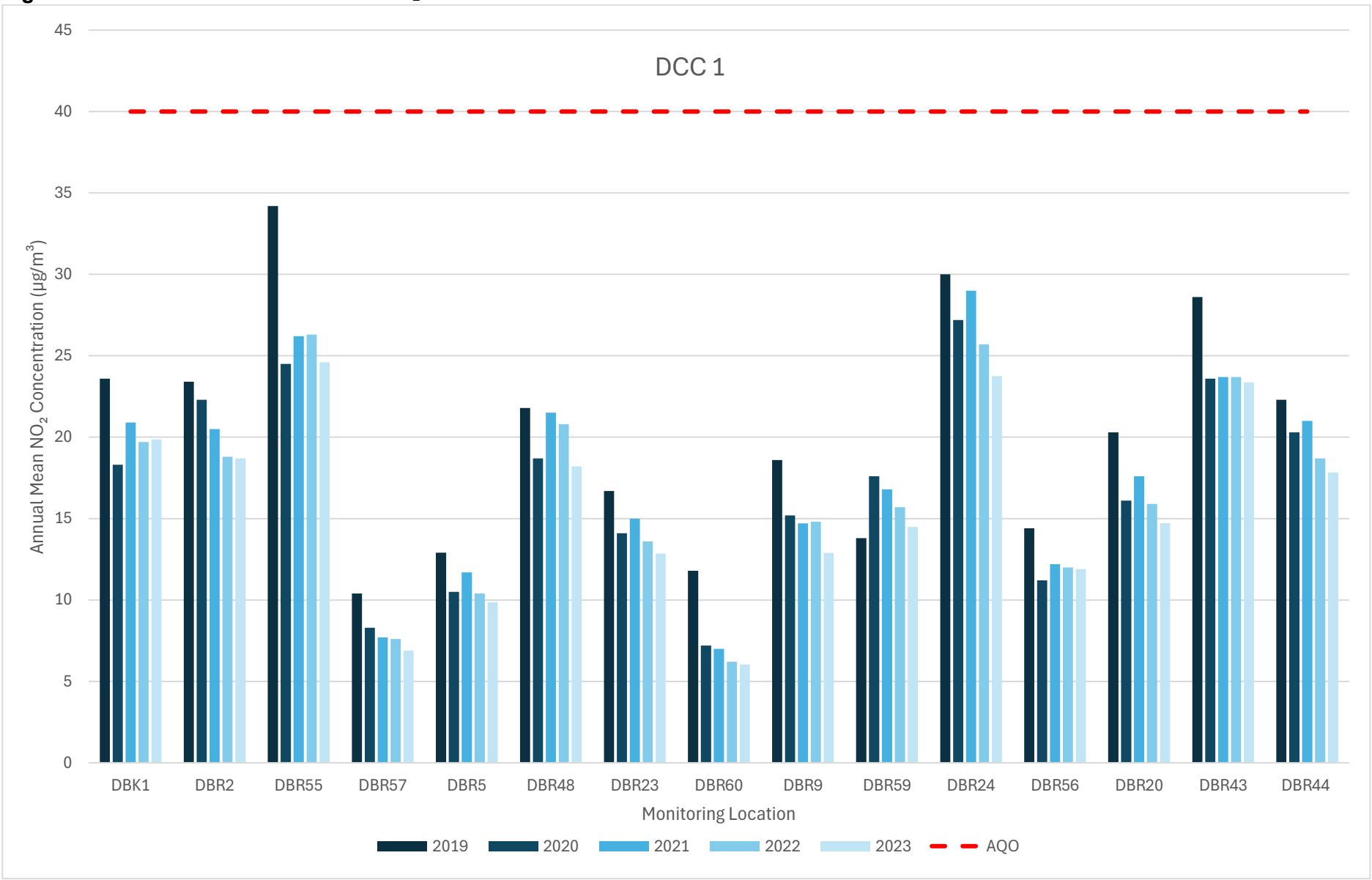


Figure 2.19 – Trends in Annual Mean NO_2 Concentrations DCC 2

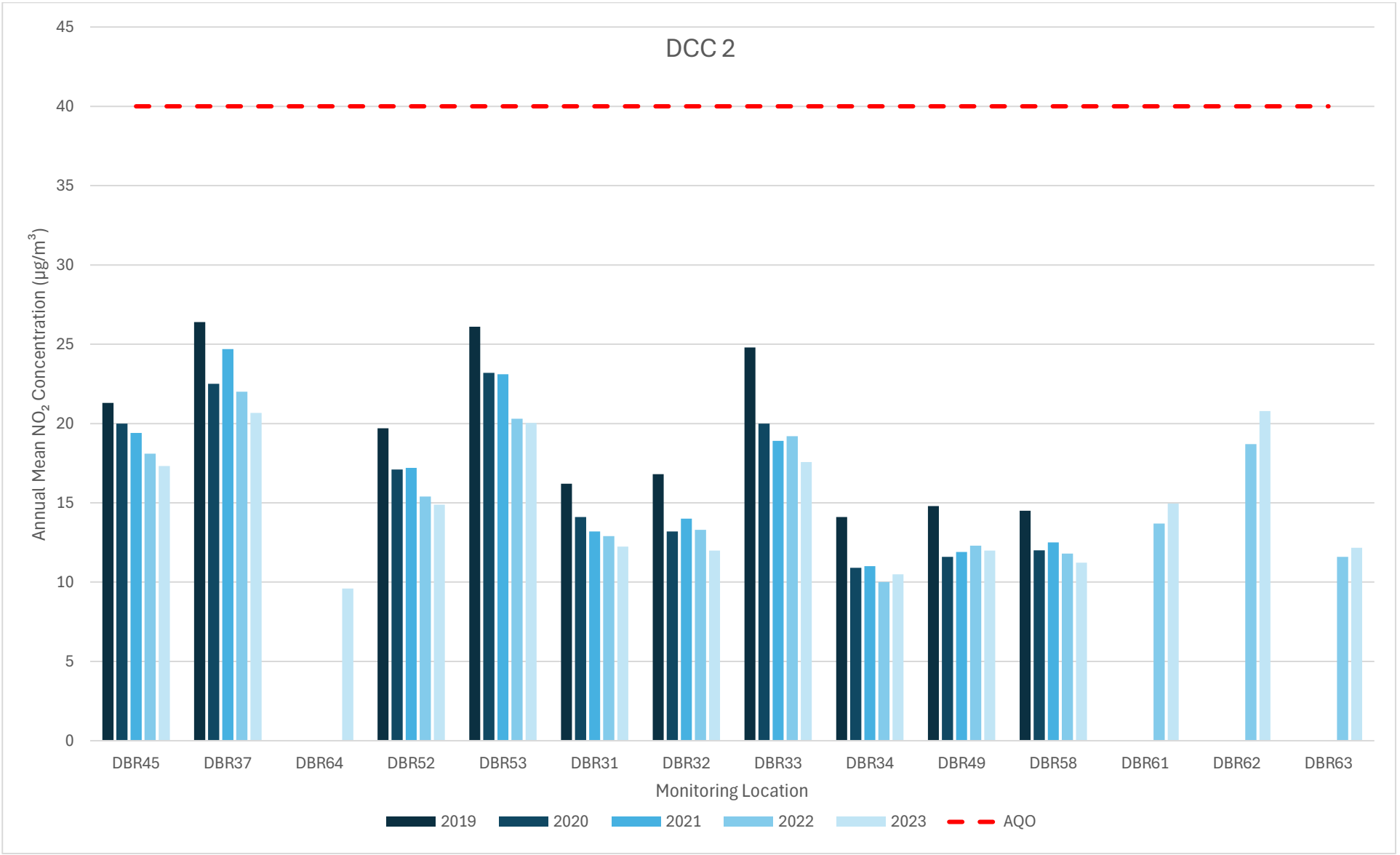


Table 2.11 – GC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
GC										
GCC 002	248273	362132	Kerbside	100.0	100.0	30.1	26.0	26.0	19.2	18.7
GCC 003	248480	363456	Urban Background	100.0	100.0	9.3	7.1	8.1	6.3	5.9
GCC 005	248892	364120	Kerbside	90.4	90.4	28.5	17.4	25.2	12.2	10.6
GCC 008	257587	371543	Kerbside	100.0	100.0	22.2	15.7	17.3	15.8	16.5
GCC 011	256292	371663	Kerbside	100.0	100.0	22.8	16.4	18.2	15.5	16.3
GCC 012	254286	368835	Kerbside	100.0	100.0	24.6	17.8	20.5	18.6	19.7
GCC 013	261529	367380	Kerbside	100.0	100.0	19.9	15.2	17.6	14.7	14.7
GCC 015	247770	358663	Roadside	100.0	100.0	21.3	15.0	17.6	7.8	7.0
GCC 037	248022	362757	Kerbside	100.0	100.0	21.6	17.0	19.6	15.1	13.2
GCC 038	256871	369493	Roadside	100.0	100.0	27.5	18.5	21.2	18.7	18.8
GCC 039	256871	369493	Roadside	100.0	100.0	26.1	20.0	20.4	18.4	18.7
GCC 040	237517	335217	Kerbside	100.0	100.0	16.7	13.1	13.4	12.2	12.0
GCC 041	248514	362795	Roadside	100.0	100.0	-	-	9.5	7.5	8.0
GCC 042	249647	362923	Urban Background	67.3	67.3	-	-	9.7	7.8	8.0
GCC 043	249634	362917	Roadside	100.0	100.0	-	-	8.9	8.2	8.0
GCC 044	293769	336564	Kerbside	92.3	92.3	-	-	13.3	11.5	12.0
GCC 045	293878	336609	Roadside	84.6	84.6	-	-	10.5	8.4	8.8

☒ **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 µg/m^3.

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

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

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

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

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

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

Figure 2.20 – Trends in Annual Mean NO_2 Concentrations GC

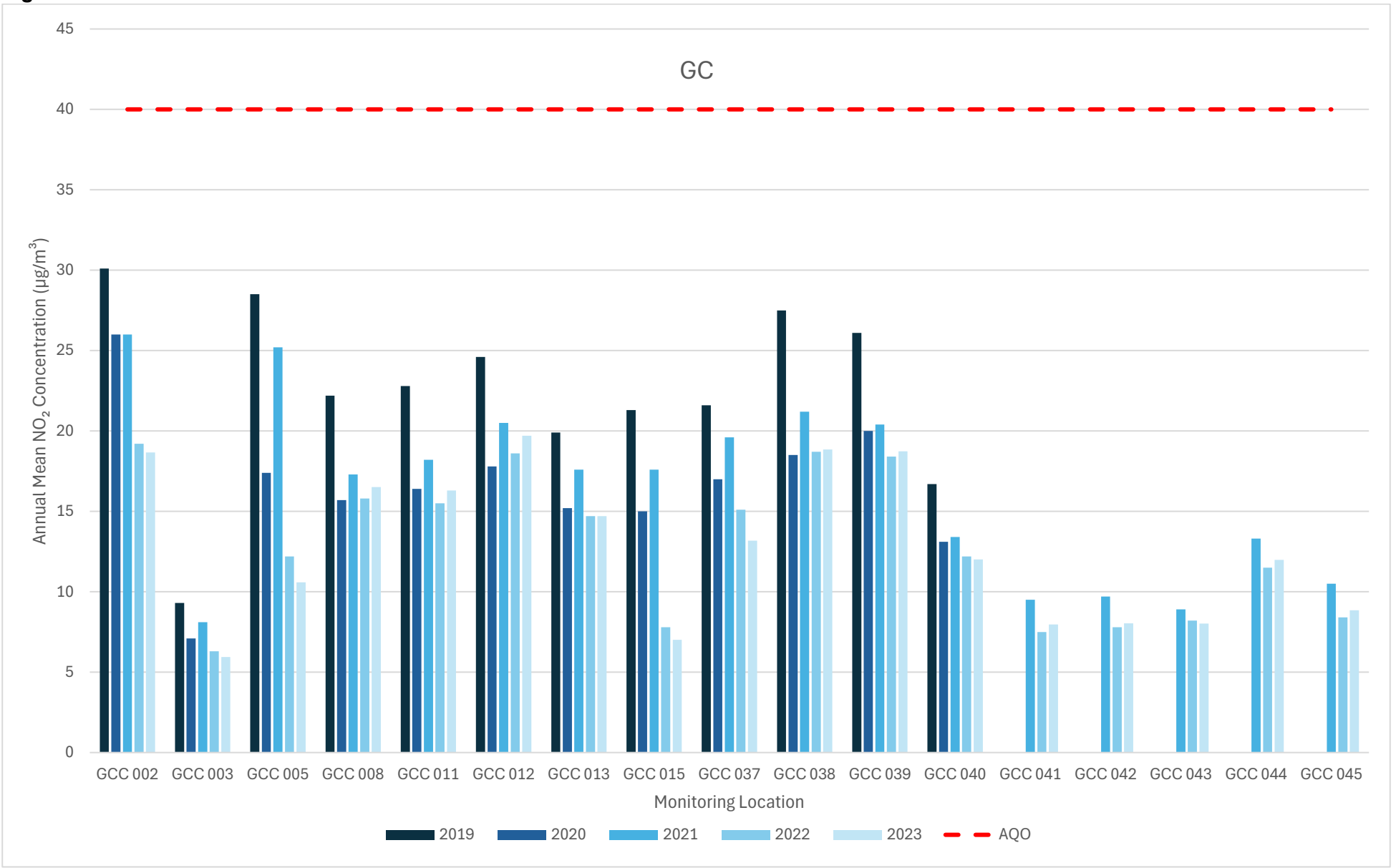


Table 2.12 – WCBC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
WCBC										
1	333200	350600	Roadside	100.0	100.0	24.2	18.8	22.8	20.5	22.7
34	329017	351002	Roadside	100.0	100.0	13.9	10.0	11.4	10.5	10.1
45	332214	351503	Roadside	100.0	100.0	17.3	13.6	15.3	14.3	18.3
36	327630	342990	Roadside	100.0	100.0	17.7	12.2	14.3	12.9	15.4
10	329300	338300	Suburban	90.4	90.4	12.4	10.0	10.7	9.2	12.2
49	330221	353428	Suburban	100.0	100.0	9.7	7.2	7.9	6.6	8.4
42	335359	352178	Roadside	100.0	100.0	20.6	17.1	19.6	18.3	17.4
50	331924	350638	Roadside	100.0	100.0	19.6	14.7	15.1	14.9	15.2
51	330125	346099	Suburban	92.3	92.3	16.8	13.6	15.5	15.2	15.5
52	330703	334004	Other	100.0	100.0	21.4	15.1	18.2	17.6	17.6
53	327263	341184	Roadside	100.0	100.0	20.1	16.6	18.4	17.7	16.9
22	328900	338700	Other	100.0	100.0	14.7	13.3	13.3	13.5	15.7
32	333887	353222	Roadside	100.0	100.0	23.7	18.2	18.9	19.1	18.3
30	330950	348170	Roadside	100.0	100.0	31.7	26.3	29.5	28.6	27.4
31	333350	350590	Roadside	100.0	100.0	27.3	20.0	24.0	22.6	23.9
33	333981	350171	Roadside	100.0	100.0	15.6	19.3	21.0	17.4	17.6
37	336635	357211	Roadside	100.0	100.0	16.9	12.1	13.5	11.6	11.7
38	331765	350132	Roadside	100.0	100.0	16.5	12.5	14.8	13.8	13.2
44	332935	350278	Roadside	100.0	100.0	20.5	16.3	18.8	16.7	17.5
40	337449	341702	Roadside	100.0	100.0	9.7	7.4	7.5	6.3	6.9
41	335407	347890	Roadside	100.0	100.0	13.9	10.3	13.0	12.2	11.1
43	333966	349691	Roadside	100.0	100.0	17.0	14.4	16.5	17.5	16.5
46	333063	350587	Roadside	92.3	92.3	22.7	16.1	19.7	18.3	18.0
48	329082	337590	Roadside	100.0	100.0	14.3	12.3	13.7	12.6	14.3
54	333628	352942	Roadside	90.4	90.4	22.7	15.2	18.4	16.8	17.7
55	333078	355649	Suburban	100.0	100.0	11.8	9.4	9.8	8.3	11.9
56	332944	352293	Roadside	92.3	92.3	18.8	13.4	15.0	14.1	14.5
57	332786	351637	Other	92.3	92.3	17.7	10.0	11.2	10.8	10.3
58	334954	350090	Suburban	92.3	92.3	12.7	10.5	10.7	9.7	11.8
59	337541	346942	Roadside	100.0	100.0	11.2	8.4	9.7	8.4	9.6
60	340016	349982	Suburban	100.0	100.0	7.7	6.8	7.4	5.8	6.0
61	332363	351095	Roadside	100.0	100.0	-	12.6	15.4	14.6	15.6

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

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

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

Notes:

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

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

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

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

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

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

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

Figure 2.21 – Trends in Annual Mean NO_2 Concentrations WBC 1

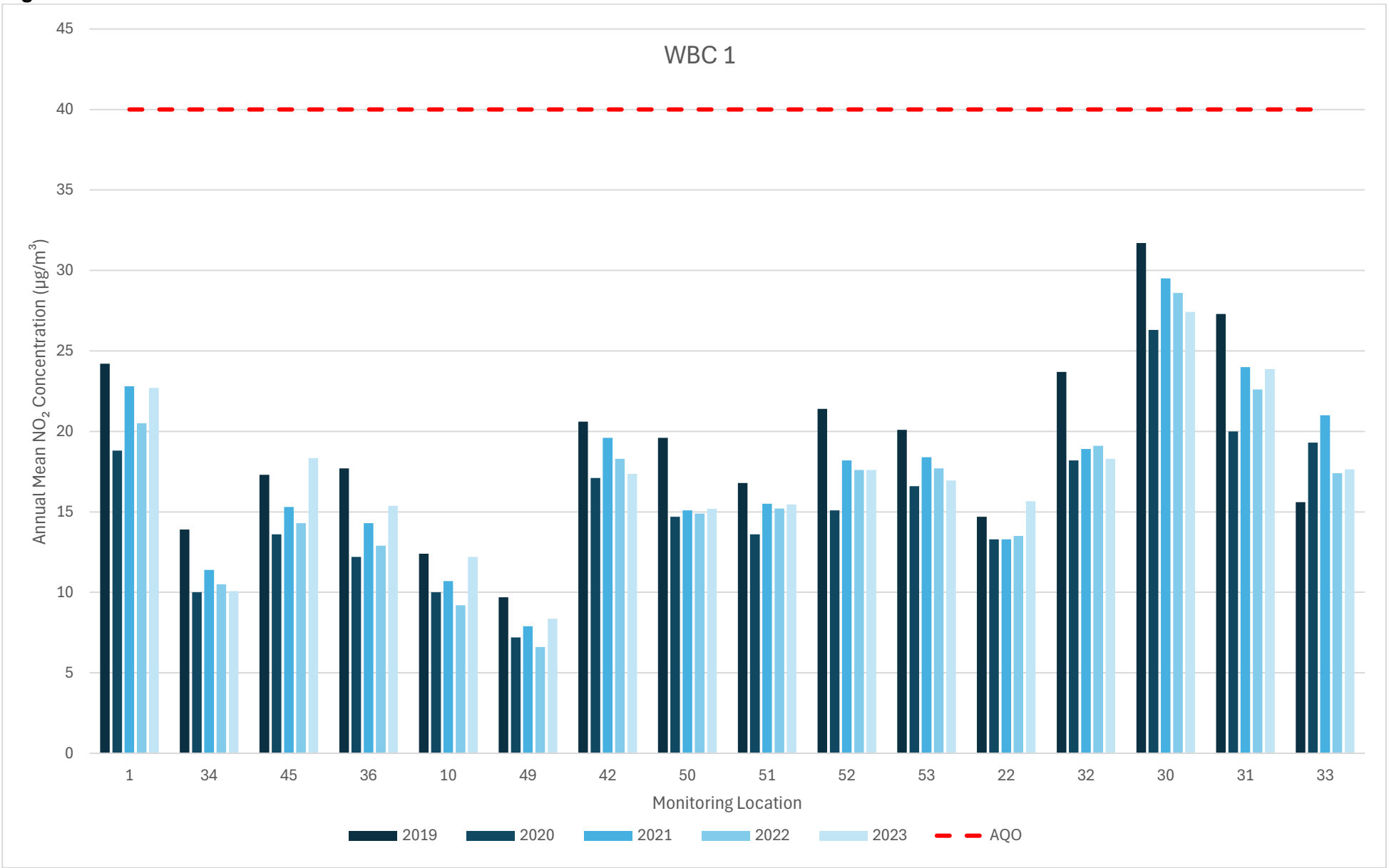


Figure 2.22 – Trends in Annual Mean NO_2 Concentrations WBC 2

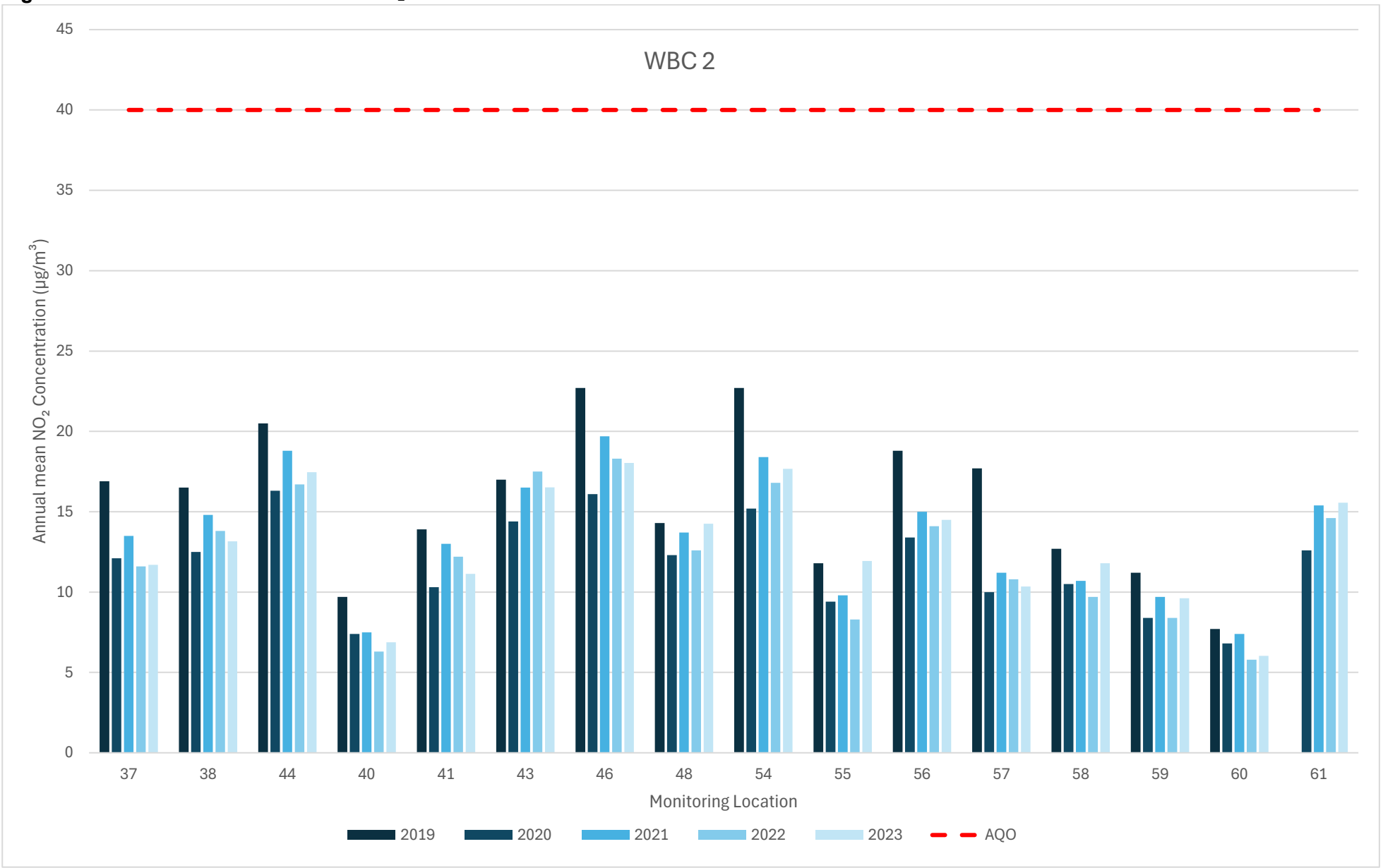


Table 2.13 – CCBC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CCBC										
CBC-017	284526	379417	Roadside	100.0	100.0	16.3	11.6	13.0	12.3	11.9
CBC-018	295049	378144	Roadside	100.0	100.0	17.2	13.0	14.0	12.3	11.9
CBC-022	282362	378757	Roadside	100.0	100.0	16.7	13.2	13.5	15.8	12.3
CBC-034	279245	377995	Roadside	100.0	100.0	20.0	15.4	16.9	13.7	13.2
CBC-035	285506	378295	Roadside	92.3	92.3	16.1	11.8	13.7	8.4	12.5
CBC-036	278131	381907	Roadside	100.0	100.0	11.1	8.0	8.6	10.5	7.3
CBC-041	295075	377678	Roadside	92.3	92.3	14.0	10.2	11.2	9.2	9.2
CBC-042	277318	378576	Roadside	100.0	100.0	15.8	11.7	11.4	14.3	11.4
CBC-043	268425	375266	Roadside	100.0	100.0	11.4	8.8	10.2	15.4	8.0
CBC-044	268845	375713	Roadside	100.0	100.0	18.5	13.4	15.4	11.5	13.7
CBC-046	279833	361573	Roadside	100.0	100.0	21.3	15.2	16.3	12.2	14.5
CBC-047	273223	377460	Roadside	100.0	100.0	15.4	12.2	12.8	12.5	10.3
CBC-048	276115	378273	Roadside	100.0	100.0	16.7	12.2	10.2	9.4	10.6
CBC-053	284433	379529	Roadside	100.0	100.0	-	-	11.7	7.8	10.8
CBC-054	284362	379559	Roadside	55.8	55.8	-	-	13.5	5.1	10.8
CBC-055	283523	380857	Roadside	100.0	100.0	-	-	9.5	3.9	8.8
CBC-056	278751	378797	Roadside	100.0	100.0	-	-	8.7	8.8	6.6
CBC-057	271771	376105	Roadside	100.0	100.0				5.1	4.6
CBC-058	271627	375978	Roadside	100.0	100.0				3.9	3.9
CBC-059	277744	379865	Roadside	100.0	100.0				8.8	7.6

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

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

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

Notes:

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

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

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

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

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

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

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

Figure 2.23 – Trends in Annual Mean NO_2 Concentrations CCBC

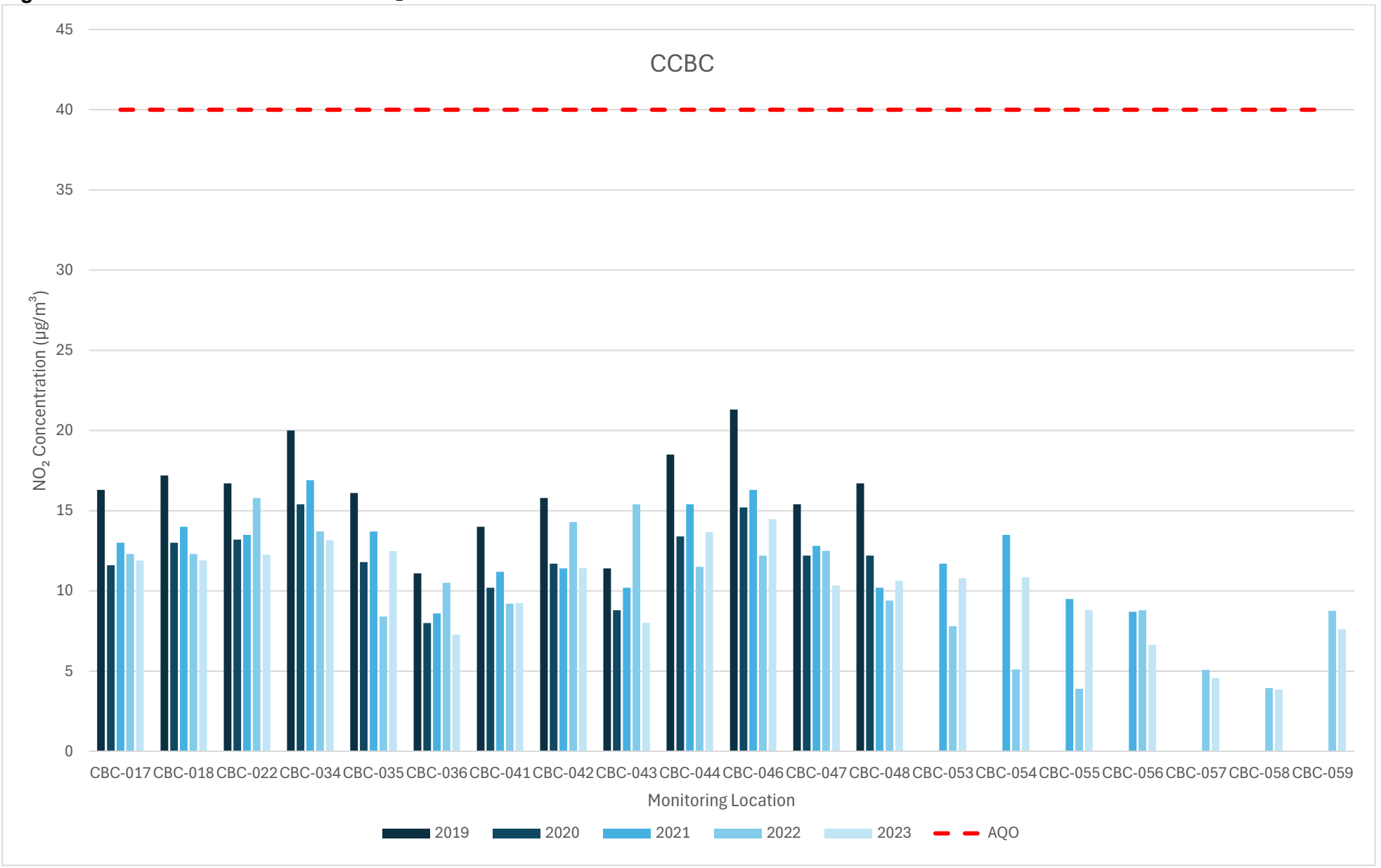


Table 2.14 – FCC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
FCC										
ADDC-008	330792	367434	Kerbside	82.4	82.4	24.3	14.4	-	26.6	25.3
ADDC-009	329830	366682	Roadside	75.0	75.0	17.5	13.4	13.6	13.9	14.0
ADDC-085	330718	367350	Kerbside	75.0	75.0	25.2	19.1	20.4	20.7	18.3
ADDC-111	330614	366195	Kerbside	75.0	75.0	16.0	10.7	11.9	12.5	11.9
ADDC-105	330986	356538	Roadside	82.4	82.4	14.5	10.8	12.2	11.9	11.9
ADDC-013	327307	369856	Rural	75.0	75.0	10.5	6.7	8.6	7.2	8.5
ADDC-014	327187	371243	Kerbside	82.4	82.4	14.8	11.0	10.5	11.3	11.5
ADDC-015	328032	370647	Urban Background	82.4	82.4	12.3	9.7	10.1	10	10.2
ADDC-106	320126	372346	Roadside	65.1	65.1	12.5	9.6	9.7	9.4	10.0
ADDC-107	323500	363397	Roadside	82.4	82.4	-	7.8	8.2	7.7	8.1
ADDC-084	326643	365550	Kerbside	82.4	82.4	28.2	23.6	-	21.8	23.1
ADDC-064	331648	365730	Kerbside	82.4	82.4	-	-	-	23.9	24.1
ADDC-098	331648	365730	Kerbside	82.4	82.4	28.2	23.6	23.2	23.6	24.7
ADDC-117	332500	367357	Kerbside	82.4	82.4	32.5	10.0	11.1	10.3	11.0
ADDC-099	330727	367354	Kerbside	82.4	82.4	13.9	17.7	19.0	18.5	21.6
ADDC-023	331663	368028	Urban Background	82.4	82.4	27.8	18.6	20.1	19.3	19.8
ADDC-024	330599	368922	Kerbside	58.0	58.0	24.3	17.6	20.5	20.1	18.0
ADDC-118	336904	364852	Kerbside	56.3	56.3	23.6	10.7	11.2	10	11.3
ADDC-080	323864	370368	Kerbside	82.4	82.4	13.6	13.4	14.5	14	14.3
ADDC-066	318669	378290	Kerbside	82.4	82.4	19.3	17.7	17.3	16.6	17.9
ADDC-116	332535	368907	Kerbside	75.0	75.0	22.1	14.6	14.7	15.5	15.2
ADDC-029	333645	370898	Rural	82.4	82.4	19.1	14.3	12.3	12.5	13.8
ADDC-030	332764	370981	Industrial	82.4	82.4	17.2	17.7	18.5	17.2	14.0
ADDC-083	330792	367434	Kerbside	82.4	82.4	24.3	14.4	-	26	25.8
ADDC-032	332031	371562	Industrial	58.2	58.2	31.8	11.0	14.9	14.6	13.0
ADDC-033	329906	370882	Industrial	82.4	82.4	16.6	12.9	11.1	10.6	10.1
ADDC-034	333040	369051	Roadside	75.0	75.0	14.4	14.1	14.0	14.3	12.9
ADDC-120	330528	362756	Kerbside	82.4	82.4	17.1	11.5	14.7	13.4	14.8
ADDC-036	330575	371802	Kerbside	82.4	82.4	18.3	20.1	11.4	11.6	12.5
ADDC-037	332221	367723	Kerbside	67.3	67.3	16.6	14.3	18.5	18.3	14.3
ADDC-093	324935	372722	Kerbside	82.4	82.4	24.3	-	15.9	16.6	17.2
ADDC-044	324459	373141	Kerbside	82.4	82.4	20.3	15.8	15.8	14	14.0

ADDC-067	333568	363511	Kerbside	75.0	75.0	16.4	16.7	19.0	17.1	16.8
ADDC-068	318766	375758	Kerbside	82.4	82.4	24.4	14.0	16.5	16.7	17.9
ADDC-069	318735	376611	Kerbside	82.4	82.4	21.2	17.4	13.4	15	16.0
ADDC-070	331806	368271	Kerbside	82.4	82.4	17.6	18.7	17.6	17.3	16.6
ADDC-081	324281	364926	Kerbside	65.4	65.4	20.8	8.4	16.3	17.3	19.2
ADDC-119	330705	358429	Kerbside	75.0	75.0	24.8	11.8	9.6	8.5	8.9
ADDC-114	318851	375592	Kerbside	75.0	75.0	11.7	10.8	13.5	14.0	14.0
ADDC-052	333731	369079	Kerbside	82.4	82.4	16.7	7.2	10.5	10.3	9.8
ADDC-115	314615	378238	Kerbside	82.4	82.4	13.4	9.2	7.0	5.9	5.9
ADDC-112	324838	372198	Kerbside	82.4	82.4	8.8	8.8	9.4	10.0	9.2
ADDC-113	324357	372008	Kerbside	25.0	25.0	11.9	18.2	9.3	8.2	7.6
ADDC-091	325961	371822	Kerbside	55.5	55.5	11.2	7.8	18.6	18.2	19.3
ADDC-108	323975	363794	Kerbside	75.0	75.0	21.8	13.8	8.2	7.5	7.1
ADDC-110	329284	366504	Kerbside	82.4	82.4	10.0	21.4	13.5	12.4	13.6
ADDC-100	326643	365550	Kerbside	75.0	75.0	17.8	15.3	23.3	21.2	22.4
ADDC-060	338283	365032	Kerbside	82.4	82.4	16.7	12.6	14.9	13.1	13.2
ADDC-061	334739	363340	Kerbside	82.4	82.4	16.6	12.7	12.1	12.4	12.7
ADDC-121	330898	357996	Kerbside	75.0	75.0	16.4	25.3	10.5	12.6	12.8
ADDC-101	330792	367434	Kerbside	82.4	82.4	24.3	14.4	27.3	24.3	24.8
ADDC-109	327843	363856	Kerbside	82.4	82.4	10.4	8.6	8.6	8.3	9.1
ADDC-075	327849	364146	Kerbside	82.4	82.4	21.2	17.8	17.1	15.2	17.7
ADDC-102	335594	369179	Kerbside	82.4	82.4	11.1	8.4	8.3	7.5	8.2
ADDC-103	337632	366682	Kerbside	75.0	75.0	9.8	8.5	8.1	7.3	7.8
ADDC-104	332558	368750	Kerbside	82.4	82.4	-	-	12.5	16.5	16.1
ADDC-089	324375	365007	Kerbside	82.4	82.4	35.9	26.3	24.9	28.6	30.4
ADDC-122	324530	363839	Roadside	75.0	75.0	26.5	23.3	21.6	20.6	20.0
ADDC-123	324562	363840	Roadside	49.5	49.5	23.2	15.8	17.3	17.5	18.3

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

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

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

Notes:

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

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

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

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

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

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

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

Figure 2.24 – Trends in Annual Mean NO_2 Concentrations FCC 1

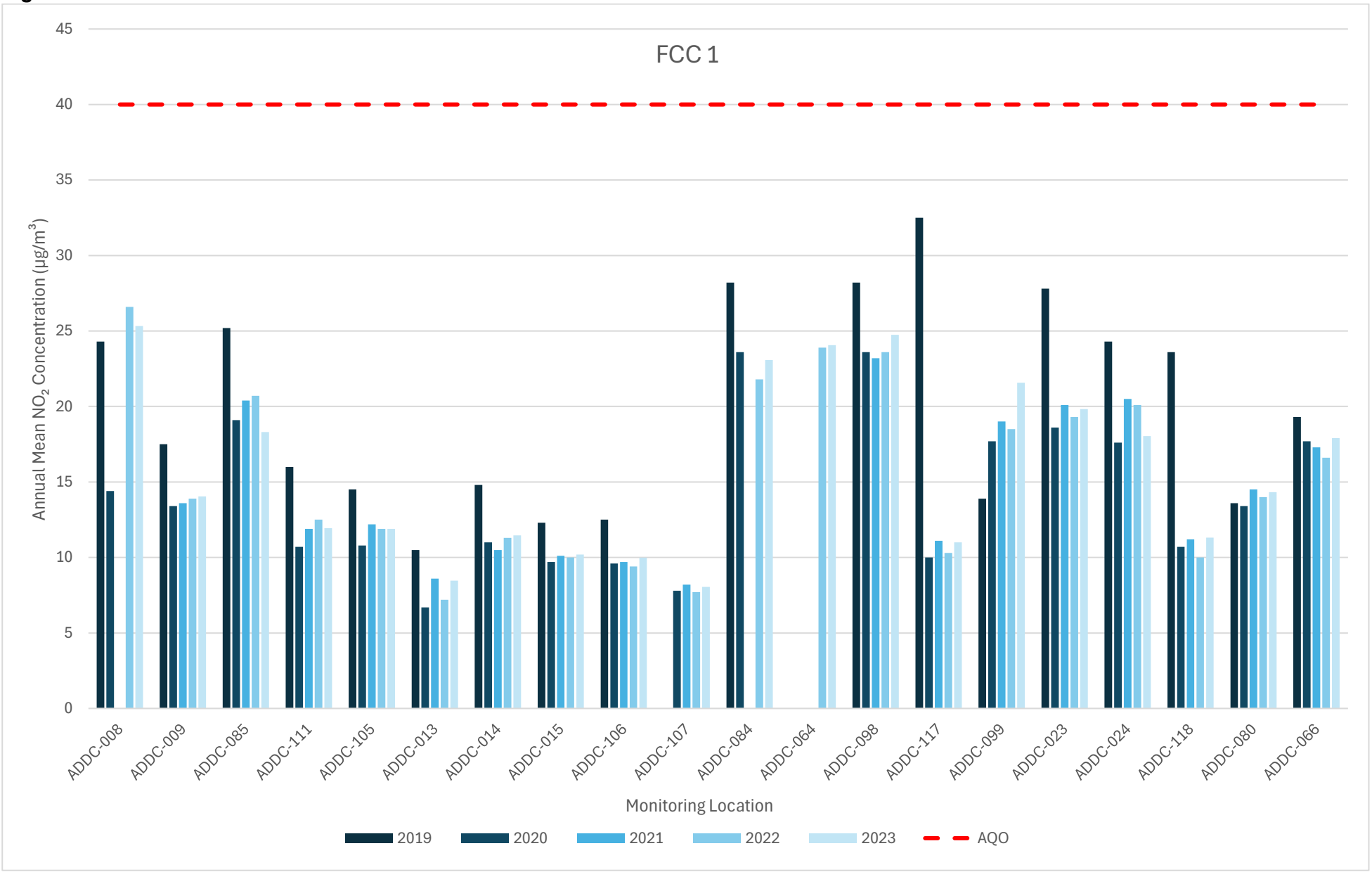


Figure 2.25 – Trends in Annual Mean NO_2 Concentrations FCC 2

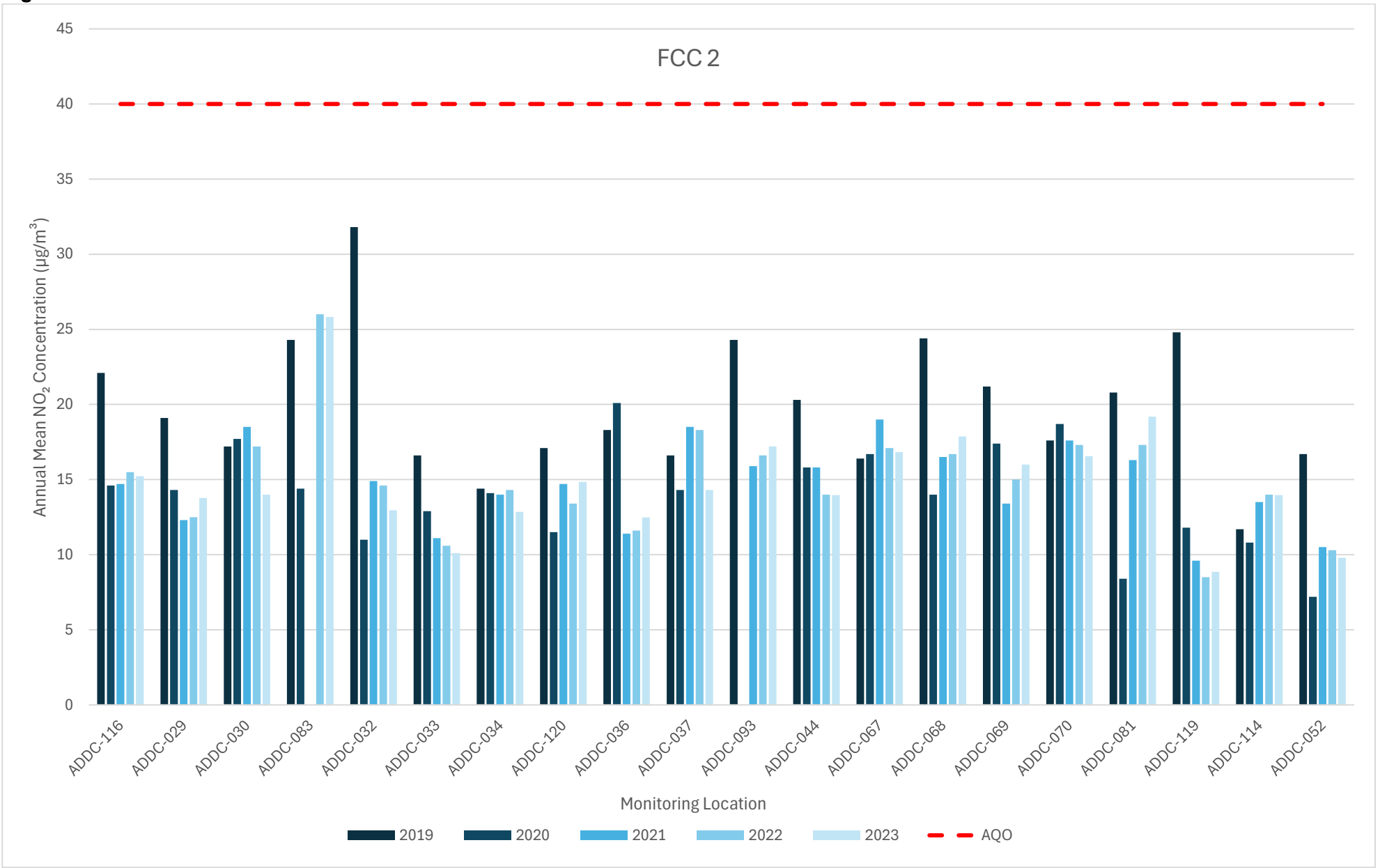


Figure 2.26 – Trends in Annual Mean NO_2 Concentrations FCC 3

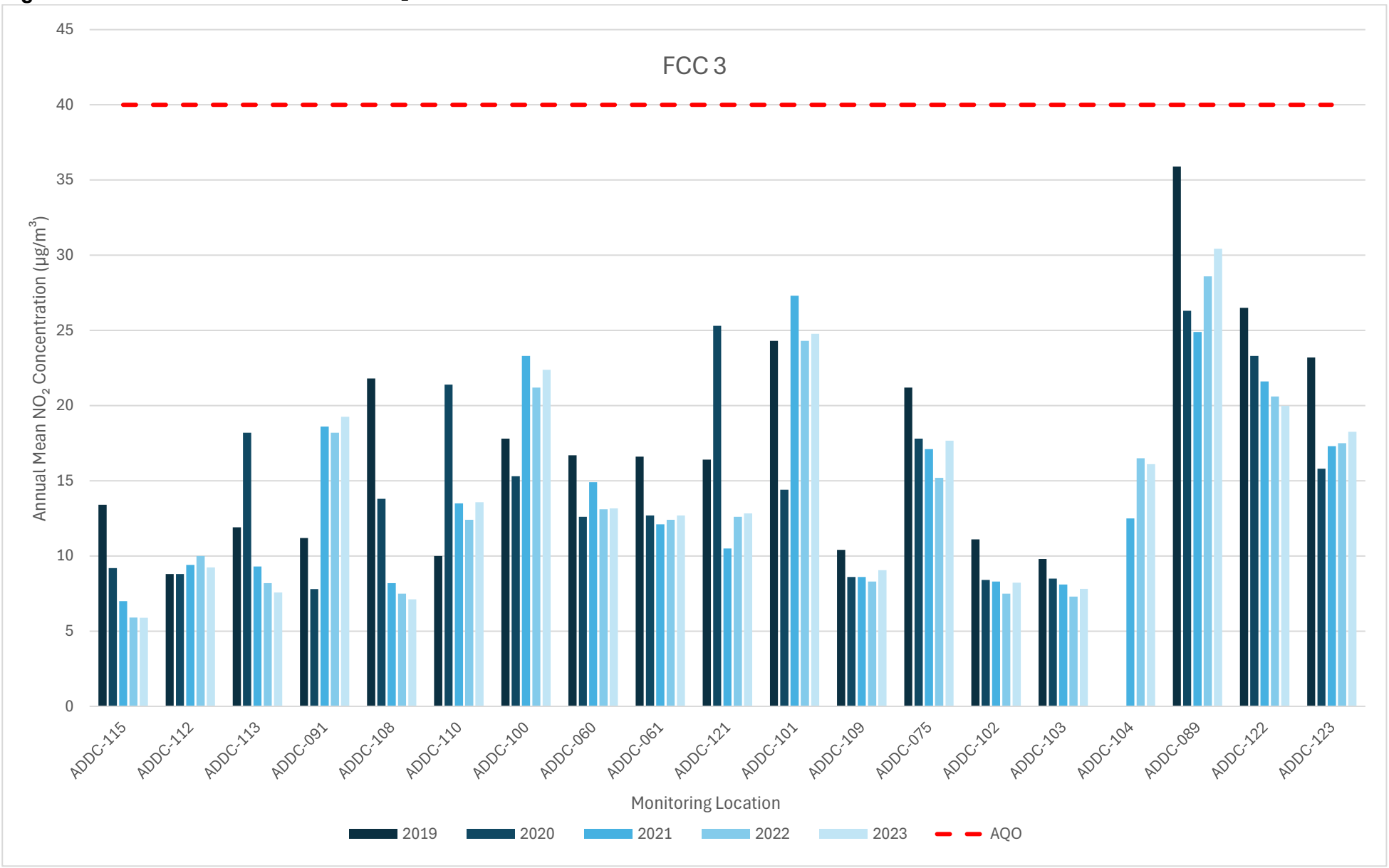


Table 2.15 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
Victoria Road AURN	Roadside	Automatic	94.5	94.5	0	0	0	0	0
Wrexham Chirk	Urban industrial	Automatic	80.5	80.5	-	-	0	0	0
Wrexham Chirk Community Hospital	Urban Background	Automatic	99.8	99.8	-	-	-	0	0

Notes:

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 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%).

Table 2.16 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
Victroia Road AURN	Roadside	99.9	99.9	12.0	11.0	11.3	11.7	10.4
Wrexham Chirk	Urban industrial	89.9	89.9	-	9.3	8.3	11.0	10.5
Wrexham Chirk Community Hospital	Urban Background	74.2	74.2	-	-	-	10.0	9.4

Notes:

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

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

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

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

Figure 2.27 – Trends in Annual Mean PM_{10} Concentrations

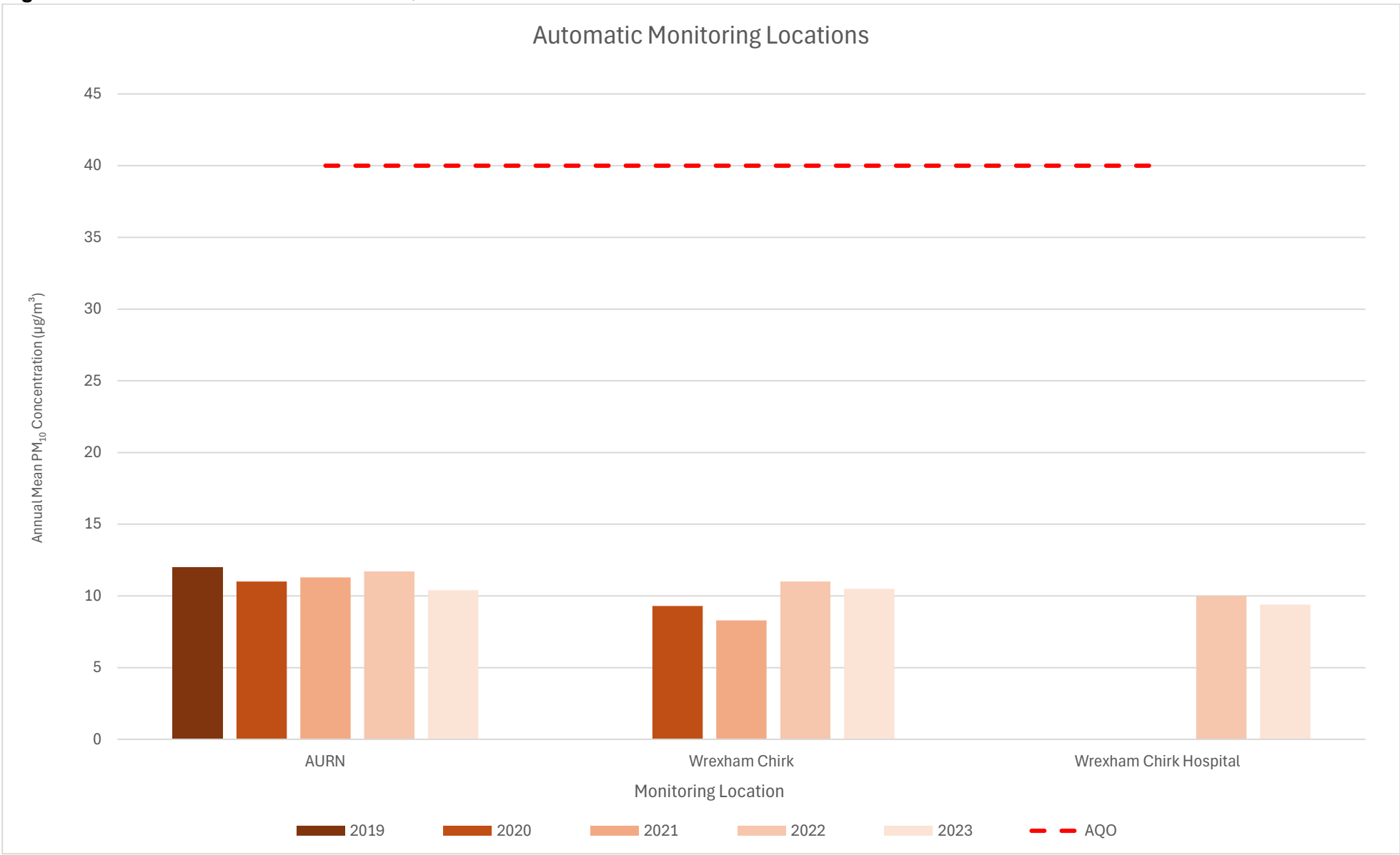


Table 2.17 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
Victoria Road AURN	Roadside	99.9	99.9	0	0	1	0	0
Wrexham Chirk	Industrial	89.9	89.9	-	0	0	0	0
Wrexham Chirk Community Hospital	Urban Background	74.2	74.2	-	-	-	0	0

Notes:

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

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

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

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

Table 2.18 – $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
Victoria Road AURN	Roadside	99.9	99.9	8.0	7.0	7.0	7.1	6.2
Wrexham Chirk	Industrial	89.9	89.9	-	3.0	2.9	4.0	3.9
Wrexham Chirk Community Hospital	Urban Background	74.2	74.2	-	-	-	5.0	4.7

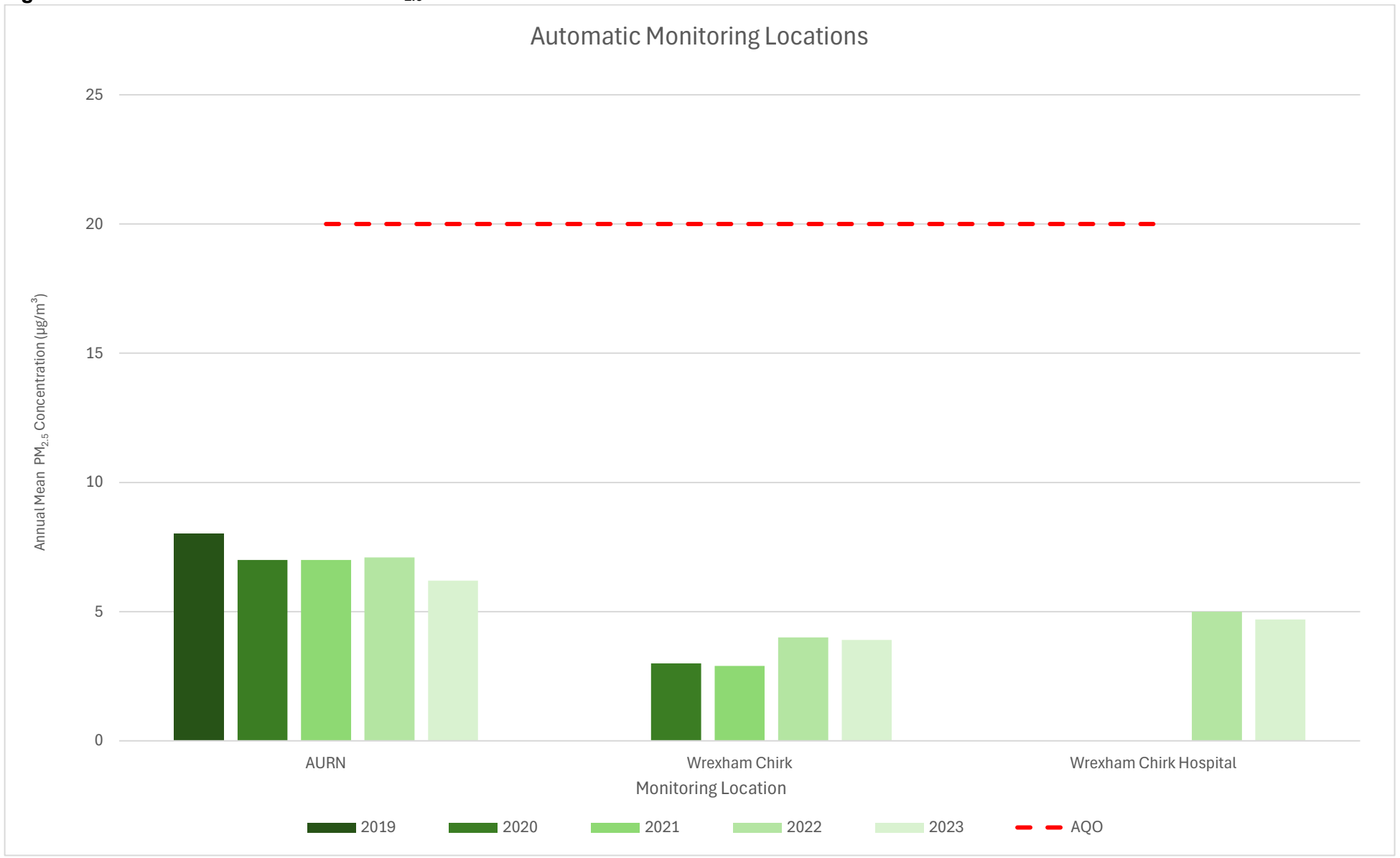
Notes:

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 2.28 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Comparison of 2023 Monitoring Results with Previous Years and the Air Quality Objectives

2.1.3 Nitrogen Dioxide (NO_2)

The extensive monitoring survey across North Wales has not identified any new exceedances of any of the air quality objectives for 2023 in any local authority. Moreover, given that there are no previous exceedances of any air quality objective, this monitoring survey supports a continuation of not declaring any AQMAs within the North Wales Authorities.

Overall air quality in North Wales is good. Every air quality monitoring location recorded pollutant concentrations well below the respective air quality objective. One diffusion tube location measured an annual mean NO_2 concentration above 30 µg/m^3 (75% of the annual mean air quality objective). The highest NO_2 concentration of 30.4 µg/m^3 was recorded at ADDC-089 in Flintshire. This site recorded an increase in NO_2 of 1.8 µg/m^3 since 2022. The reason behind this increase is unknown. Importantly, there were no observed annual mean concentrations within 10% of the annual mean NO_2 air quality objective.

Significant increases of greater than 10% of the air quality objective (4 µg/m^3) were recorded at three monitoring locations. The greatest increase in NO_2 was observed at CBC-035, CBC-054 and CBC-055, (4.1 µg/m^3, 5.7 µg/m^3 and 4.9 µg/m^3 respectively). Nevertheless, the three sites in **CBCC** still measured low overall NO_2 concentrations, between 8.8 µg/m^3 and 12.5 µg/m^3, and do not indicate any risk of an exceedance of the relevant air quality objective.

Two monitoring locations, CBC-43 and ADDC-032 observed a reduction in NO_2 of greater than 10% of the annual mean air quality objective. The respective annual mean NO_2 concentrations reduced by 7.4 µg/m^3 from 15.4 µg/m^3 to 8.0 µg/m^3 and 6.2 µg/m^3 from 19.2 µg/m^3 to 13.0 µg/m^3

Generally, air quality across North Wales remained similar to 2022, with small variations across the six counties:

A reduction in NO_2 concentrations was recorded at 3 of the 4 **IACC** tubes.

Table 2.9 – IACC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
IACC										
IACC-81	224942	382866	roadside	100.0	100.0	18.7	14.8	14.2	14.1	12.2
IACC-82	252360	378402	roadside	100.0	100.0	18.1	13.6	16.2	15.4	14.1
IACC-83	253057	372313	roadside	100.0	100.0	10.8	7.9	8.5	8.0	7.0
IACC-84	226681	381486	roadside	100.0	100.0	7.8	6.4	6.3	6.5	6.9

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

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

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

Notes:

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

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

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

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

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

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

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

- Figure 2.17 demonstrates the trend over the past 5 years.

A reduction in NO_2 concentrations was recorded at 23 of the 28 **DCC** tubes.

Table 2.10 – DCC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
DCC										
DBK1	300800	381400	Roadside	90.1	90.1	23.6	18.3	20.9	19.7	19.9
DBR2	300900	381300	Roadside	92.3	92.3	23.4	22.3	20.5	18.8	18.7
DBR55	321484	341920	Roadside	66.7	66.7	34.2	24.5	26.2	26.3	24.6
DBR57	321815	341914	Roadside	92.3	92.3	10.4	8.3	7.7	7.6	6.9
DBR5	302900	374600	Intermediate	100.0	100.0	12.9	10.5	11.7	10.4	9.9
DBR48	305276	366119	Roadside	90.7	90.7	21.8	18.7	21.5	20.8	18.2
DBR23	305879	366425	Roadside	91.0	91.0	16.7	14.1	15.0	13.6	12.8
DBR60	302184	378415	Suburban	92.3	92.3	11.8	7.2	7.0	6.2	6.0
DBR9	303200	374900	Intermediate	100.0	100.0	18.6	15.2	14.7	14.8	12.9
DBR59	305097	366100	Roadside	92.3	92.3	13.8	17.6	16.8	15.7	14.5
DBR24	305327	366164	Roadside	92.3	92.3	30.0	27.2	29.0	25.7	23.8
DBR56	321492	342091	Roadside	100.0	100.0	14.4	11.2	12.2	12.0	11.9
DBR20	312105	358306	Roadside	100.0	100.0	20.3	16.1	17.6	15.9	14.7
DBR43	305314	366153	Roadside	92.3	92.3	28.6	23.6	23.7	23.7	23.4
DBR44	305386	366191	Roadside	100.0	100.0	22.3	20.3	21.0	18.7	17.8
DBR45	305467	366246	Roadside	75.0	75.0	21.3	20.0	19.4	18.1	17.3
DBR37	312800	358200	Roadside	100.0	100.0	26.4	22.5	24.7	22.0	20.7
DBR64	306495	381894	Roadside	100.0	100.0					9.6
DBR52	305308	366130	Roadside	100.0	100.0	19.7	17.1	17.2	15.4	14.9
DBR53	305390	366130	Roadside	100.0	100.0	26.1	23.2	23.1	20.3	20.0
DBR31	305805	366480	Roadside	82.2	82.2	16.2	14.1	13.2	12.9	12.2
DBR32	305179	366089	Roadside	100.0	100.0	16.8	13.2	14.0	13.3	12.0
DBR33	305253	366095	Roadside	100.0	100.0	24.8	20.0	18.9	19.2	17.6
DBR34	305868	366653	Roadside	100.0	100.0	14.1	10.9	11.0	10.0	10.5
DBR49	306580	382907	Roadside	100.0	100.0	14.8	11.6	11.9	12.3	12.0
DBR58	302271	378074	Roadside	100.0	100.0	14.5	12.0	12.5	11.8	11.2
DBR61	303921	374387	Roadside	100.0	100.0	-	-	-	13.7	15.0
DBR62	303852	374361	Roadside	75.0	75.0	-	-	-	18.7	20.8
DBR63	303778	374326	Roadside	100.0	100.0	-	-	-	11.6	12.2

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

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

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

Notes:

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

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

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

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

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

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

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

- Figure 2.18 and Figure 2.19 demonstrate the trend over the past 5 years. *

A reduction in NO_2 concentrations was recorded at 7 of the 17 GC tubes. Table 2.11 – GC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
GC										
GCC 002	248273	362132	Kerbside	100.0	100.0	30.1	26.0	26.0	19.2	18.7
GCC 003	248480	363456	Urban Background	100.0	100.0	9.3	7.1	8.1	6.3	5.9
GCC 005	248892	364120	Kerbside	90.4	90.4	28.5	17.4	25.2	12.2	10.6
GCC 008	257587	371543	Kerbside	100.0	100.0	22.2	15.7	17.3	15.8	16.5
GCC 011	256292	371663	Kerbside	100.0	100.0	22.8	16.4	18.2	15.5	16.3
GCC 012	254286	368835	Kerbside	100.0	100.0	24.6	17.8	20.5	18.6	19.7
GCC 013	261529	367380	Kerbside	100.0	100.0	19.9	15.2	17.6	14.7	14.7
GCC 015	247770	358663	Roadside	100.0	100.0	21.3	15.0	17.6	7.8	7.0
GCC 037	248022	362757	Kerbside	100.0	100.0	21.6	17.0	19.6	15.1	13.2
GCC 038	256871	369493	Roadside	100.0	100.0	27.5	18.5	21.2	18.7	18.8
GCC 039	256871	369493	Roadside	100.0	100.0	26.1	20.0	20.4	18.4	18.7
GCC 040	237517	335217	Kerbside	100.0	100.0	16.7	13.1	13.4	12.2	12.0
GCC 041	248514	362795	Roadside	100.0	100.0	-	-	9.5	7.5	8.0
GCC 042	249647	362923	Urban Background	67.3	67.3	-	-	9.7	7.8	8.0
GCC 043	249634	362917	Roadside	100.0	100.0	-	-	8.9	8.2	8.0
GCC 044	293769	336564	Kerbside	92.3	92.3	-	-	13.3	11.5	12.0
GCC 045	293878	336609	Roadside	84.6	84.6	-	-	10.5	8.4	8.8

☒ **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 µg/m^3.

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

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

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

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

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

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

- Figure 2.20 demonstrates the trend over the past 5 years.

A reduction in NO_2 concentrations was recorded at 7 of the 33 WCBC tubes. Table 2.12 – WCBC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
WCBC										
1	333200	350600	Roadside	100.0	100.0	24.2	18.8	22.8	20.5	22.7
34	329017	351002	Roadside	100.0	100.0	13.9	10.0	11.4	10.5	10.1
45	332214	351503	Roadside	100.0	100.0	17.3	13.6	15.3	14.3	18.3
36	327630	342990	Roadside	100.0	100.0	17.7	12.2	14.3	12.9	15.4
10	329300	338300	Suburban	90.4	90.4	12.4	10.0	10.7	9.2	12.2
49	330221	353428	Suburban	100.0	100.0	9.7	7.2	7.9	6.6	8.4
42	335359	352178	Roadside	100.0	100.0	20.6	17.1	19.6	18.3	17.4
50	331924	350638	Roadside	100.0	100.0	19.6	14.7	15.1	14.9	15.2
51	330125	346099	Suburban	92.3	92.3	16.8	13.6	15.5	15.2	15.5
52	330703	334004	Other	100.0	100.0	21.4	15.1	18.2	17.6	17.6
53	327263	341184	Roadside	100.0	100.0	20.1	16.6	18.4	17.7	16.9
22	328900	338700	Other	100.0	100.0	14.7	13.3	13.3	13.5	15.7
32	333887	353222	Roadside	100.0	100.0	23.7	18.2	18.9	19.1	18.3
30	330950	348170	Roadside	100.0	100.0	31.7	26.3	29.5	28.6	27.4
31	333350	350590	Roadside	100.0	100.0	27.3	20.0	24.0	22.6	23.9
33	333981	350171	Roadside	100.0	100.0	15.6	19.3	21.0	17.4	17.6
37	336635	357211	Roadside	100.0	100.0	16.9	12.1	13.5	11.6	11.7
38	331765	350132	Roadside	100.0	100.0	16.5	12.5	14.8	13.8	13.2

44	332935	350278	Roadside	100.0	100.0	20.5	16.3	18.8	16.7	17.5
40	337449	341702	Roadside	100.0	100.0	9.7	7.4	7.5	6.3	6.9
41	335407	347890	Roadside	100.0	100.0	13.9	10.3	13.0	12.2	11.1
43	333966	349691	Roadside	100.0	100.0	17.0	14.4	16.5	17.5	16.5
46	333063	350587	Roadside	92.3	92.3	22.7	16.1	19.7	18.3	18.0
48	329082	337590	Roadside	100.0	100.0	14.3	12.3	13.7	12.6	14.3
54	333628	352942	Roadside	90.4	90.4	22.7	15.2	18.4	16.8	17.7
55	333078	355649	Suburban	100.0	100.0	11.8	9.4	9.8	8.3	11.9
56	332944	352293	Roadside	92.3	92.3	18.8	13.4	15.0	14.1	14.5
57	332786	351637	Other	92.3	92.3	17.7	10.0	11.2	10.8	10.3
58	334954	350090	Suburban	92.3	92.3	12.7	10.5	10.7	9.7	11.8
59	337541	346942	Roadside	100.0	100.0	11.2	8.4	9.7	8.4	9.6
60	340016	349982	Suburban	100.0	100.0	7.7	6.8	7.4	5.8	6.0
61	332363	351095	Roadside	100.0	100.0	-	12.6	15.4	14.6	15.6

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

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

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

Notes:

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

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

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

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

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

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

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

- Figure 2.21 and Figure 2.22 demonstrate the trend over the past 5 years.

A reduction in NO_2 concentrations was recorded at 11 of the 20 CCBC tubes. Table 2.13 – CCBC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CCBC										
CBC-017	284526	379417	Roadside	100.0	100.0	16.3	11.6	13.0	12.3	11.9
CBC-018	295049	378144	Roadside	100.0	100.0	17.2	13.0	14.0	12.3	11.9
CBC-022	282362	378757	Roadside	100.0	100.0	16.7	13.2	13.5	15.8	12.3
CBC-034	279245	377995	Roadside	100.0	100.0	20.0	15.4	16.9	13.7	13.2
CBC-035	285506	378295	Roadside	92.3	92.3	16.1	11.8	13.7	8.4	12.5
CBC-036	278131	381907	Roadside	100.0	100.0	11.1	8.0	8.6	10.5	7.3
CBC-041	295075	377678	Roadside	92.3	92.3	14.0	10.2	11.2	9.2	9.2
CBC-042	277318	378576	Roadside	100.0	100.0	15.8	11.7	11.4	14.3	11.4
CBC-043	268425	375266	Roadside	100.0	100.0	11.4	8.8	10.2	15.4	8.0
CBC-044	268845	375713	Roadside	100.0	100.0	18.5	13.4	15.4	11.5	13.7
CBC-046	279833	361573	Roadside	100.0	100.0	21.3	15.2	16.3	12.2	14.5
CBC-047	273223	377460	Roadside	100.0	100.0	15.4	12.2	12.8	12.5	10.3
CBC-048	276115	378273	Roadside	100.0	100.0	16.7	12.2	10.2	9.4	10.6
CBC-053	284433	379529	Roadside	100.0	100.0	-	-	11.7	7.8	10.8
CBC-054	284362	379559	Roadside	55.8	55.8	-	-	13.5	5.1	10.8
CBC-055	283523	380857	Roadside	100.0	100.0	-	-	9.5	3.9	8.8
CBC-056	278751	378797	Roadside	100.0	100.0	-	-	8.7	8.8	6.6
CBC-057	271771	376105	Roadside	100.0	100.0				5.1	4.6
CBC-058	271627	375978	Roadside	100.0	100.0				3.9	3.9
CBC-059	277744	379865	Roadside	100.0	100.0				8.8	7.6

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

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

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

Notes:

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

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

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

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

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

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

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

- Figure 2.23 demonstrates the trend over the past 5 years.

A reduction in NO_2 concentrations was recorded at 21 of the 59 FCC tubes. Table 2.14 – FCC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
FCC										
ADDC-008	330792	367434	Kerbside	82.4	82.4	24.3	14.4	-	26.6	25.3
ADDC-009	329830	366682	Roadside	75.0	75.0	17.5	13.4	13.6	13.9	14.0
ADDC-085	330718	367350	Kerbside	75.0	75.0	25.2	19.1	20.4	20.7	18.3
ADDC-111	330614	366195	Kerbside	75.0	75.0	16.0	10.7	11.9	12.5	11.9
ADDC-105	330986	356538	Roadside	82.4	82.4	14.5	10.8	12.2	11.9	11.9
ADDC-013	327307	369856	Rural	75.0	75.0	10.5	6.7	8.6	7.2	8.5
ADDC-014	327187	371243	Kerbside	82.4	82.4	14.8	11.0	10.5	11.3	11.5
ADDC-015	328032	370647	Urban Background	82.4	82.4	12.3	9.7	10.1	10	10.2
ADDC-106	320126	372346	Roadside	65.1	65.1	12.5	9.6	9.7	9.4	10.0
ADDC-107	323500	363397	Roadside	82.4	82.4	-	7.8	8.2	7.7	8.1
ADDC-084	326643	365550	Kerbside	82.4	82.4	28.2	23.6	-	21.8	23.1
ADDC-064	331648	365730	Kerbside	82.4	82.4	-	-	-	23.9	24.1
ADDC-098	331648	365730	Kerbside	82.4	82.4	28.2	23.6	23.2	23.6	24.7
ADDC-117	332500	367357	Kerbside	82.4	82.4	32.5	10.0	11.1	10.3	11.0
ADDC-099	330727	367354	Kerbside	82.4	82.4	13.9	17.7	19.0	18.5	21.6
ADDC-023	331663	368028	Urban Background	82.4	82.4	27.8	18.6	20.1	19.3	19.8

ADDC-024	330599	368922	Kerbside	58.0	58.0	24.3	17.6	20.5	20.1	18.0
ADDC-118	336904	364852	Kerbside	56.3	56.3	23.6	10.7	11.2	10	11.3
ADDC-080	323864	370368	Kerbside	82.4	82.4	13.6	13.4	14.5	14	14.3
ADDC-066	318669	378290	Kerbside	82.4	82.4	19.3	17.7	17.3	16.6	17.9
ADDC-116	332535	368907	Kerbside	75.0	75.0	22.1	14.6	14.7	15.5	15.2
ADDC-029	333645	370898	Rural	82.4	82.4	19.1	14.3	12.3	12.5	13.8
ADDC-030	332764	370981	Industrial	82.4	82.4	17.2	17.7	18.5	17.2	14.0
ADDC-083	330792	367434	Kerbside	82.4	82.4	24.3	14.4	-	26	25.8
ADDC-032	332031	371562	Industrial	58.2	58.2	31.8	11.0	14.9	14.6	13.0
ADDC-033	329906	370882	Industrial	82.4	82.4	16.6	12.9	11.1	10.6	10.1
ADDC-034	333040	369051	Roadside	75.0	75.0	14.4	14.1	14.0	14.3	12.9
ADDC-120	330528	362756	Kerbside	82.4	82.4	17.1	11.5	14.7	13.4	14.8
ADDC-036	330575	371802	Kerbside	82.4	82.4	18.3	20.1	11.4	11.6	12.5
ADDC-037	332221	367723	Kerbside	67.3	67.3	16.6	14.3	18.5	18.3	14.3
ADDC-093	324935	372722	Kerbside	82.4	82.4	24.3	-	15.9	16.6	17.2
ADDC-044	324459	373141	Kerbside	82.4	82.4	20.3	15.8	15.8	14	14.0
ADDC-067	333568	363511	Kerbside	75.0	75.0	16.4	16.7	19.0	17.1	16.8
ADDC-068	318766	375758	Kerbside	82.4	82.4	24.4	14.0	16.5	16.7	17.9
ADDC-069	318735	376611	Kerbside	82.4	82.4	21.2	17.4	13.4	15	16.0
ADDC-070	331806	368271	Kerbside	82.4	82.4	17.6	18.7	17.6	17.3	16.6
ADDC-081	324281	364926	Kerbside	65.4	65.4	20.8	8.4	16.3	17.3	19.2
ADDC-119	330705	358429	Kerbside	75.0	75.0	24.8	11.8	9.6	8.5	8.9
ADDC-114	318851	375592	Kerbside	75.0	75.0	11.7	10.8	13.5	14.0	14.0
ADDC-052	333731	369079	Kerbside	82.4	82.4	16.7	7.2	10.5	10.3	9.8
ADDC-115	314615	378238	Kerbside	82.4	82.4	13.4	9.2	7.0	5.9	5.9
ADDC-112	324838	372198	Kerbside	82.4	82.4	8.8	8.8	9.4	10.0	9.2
ADDC-113	324357	372008	Kerbside	25.0	25.0	11.9	18.2	9.3	8.2	7.6
ADDC-091	325961	371822	Kerbside	55.5	55.5	11.2	7.8	18.6	18.2	19.3
ADDC-108	323975	363794	Kerbside	75.0	75.0	21.8	13.8	8.2	7.5	7.1
ADDC-110	329284	366504	Kerbside	82.4	82.4	10.0	21.4	13.5	12.4	13.6

ADDC-100	326643	365550	Kerbside	75.0	75.0	17.8	15.3	23.3	21.2	22.4
ADDC-060	338283	365032	Kerbside	82.4	82.4	16.7	12.6	14.9	13.1	13.2
ADDC-061	334739	363340	Kerbside	82.4	82.4	16.6	12.7	12.1	12.4	12.7
ADDC-121	330898	357996	Kerbside	75.0	75.0	16.4	25.3	10.5	12.6	12.8
ADDC-101	330792	367434	Kerbside	82.4	82.4	24.3	14.4	27.3	24.3	24.8
ADDC-109	327843	363856	Kerbside	82.4	82.4	10.4	8.6	8.6	8.3	9.1
ADDC-075	327849	364146	Kerbside	82.4	82.4	21.2	17.8	17.1	15.2	17.7
ADDC-102	335594	369179	Kerbside	82.4	82.4	11.1	8.4	8.3	7.5	8.2
ADDC-103	337632	366682	Kerbside	75.0	75.0	9.8	8.5	8.1	7.3	7.8
ADDC-104	332558	368750	Kerbside	82.4	82.4	-	-	12.5	16.5	16.1
ADDC-089	324375	365007	Kerbside	82.4	82.4	35.9	26.3	24.9	28.6	30.4
ADDC-122	324530	363839	Roadside	75.0	75.0	26.5	23.3	21.6	20.6	20.0
ADDC-123	324562	363840	Roadside	49.5	49.5	23.2	15.8	17.3	17.5	18.3

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

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

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

Notes:

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

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

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

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

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

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

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

- Figure 2.24 to Figure 2.26 demonstrate the trend over the past 5 years.

* One DCC monitoring location is new for 2023 and has not been included in the above comparison.

In **IACC** and **DCC** annual mean NO_2 concentrations reduced from 2022 at most monitoring sites. Contrastingly, within **GC**, **WCBC** and **FCC** most monitoring locations recorded an increase in NO_2. Just over half the monitoring locations in **CBCC** recorded a reduction in NO_2. No new exceedances of the air quality objectives were recorded.

Recent air quality monitoring data is likely to have been impacted by the travel restrictions as a result of the Covid 19 pandemic. When compared to then 'typical' monitoring year prior to the pandemic (2019), 15 of the 145 present diffusion tubes have recorded an increase in NO_2, of which 10 of these tubes are located within **FCC**.

Table 2.9 – IACC Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
IACC										
IACC-81	224942	382866	roadside	100.0	100.0	18.7	14.8	14.2	14.1	12.2
IACC-82	252360	378402	roadside	100.0	100.0	18.1	13.6	16.2	15.4	14.1
IACC-83	253057	372313	roadside	100.0	100.0	10.8	7.9	8.5	8.0	7.0
IACC-84	226681	381486	roadside	100.0	100.0	7.8	6.4	6.3	6.5	6.9

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

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

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

Notes:

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

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

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

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

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

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

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

Figure 2.17-Figure 2.26 summarise the trend in NO_2 concentrations across all six local authorities.

Since 2019 there has been a clear reduction in NO_2 concentrations across all local authorities. The greatest year on year reduction was between 2019 and 2020, which was likely a consequence of the COVID 19 pandemic and associated travel restrictions. Nevertheless, it is acknowledged by **CCBC** that the volume of traffic has returned to pre pandemic levels.

Since 2020, there has been a less consistent trend in NO_2 across North Wales; generally, in either 2021 or 2022 most monitoring locations recorded an increase in NO_2, although not to the extent of the 2019 peak. Most recently, measured 2023 NO_2 concentrations indicate that overall, a reducing trend has been restored in **IACC**, **GC** and **DCC** and to a limited extent in **CCBC**. In **WBC** and **FCC** NO_2 concentrations have remained in line with concentrations NO_2 recorded in 2021 and 2022. Nevertheless, all recorded NO_2 concentrations remain well below the long term NO_2 AQO.

NO_2 was also monitored at three automatic monitoring sites in **WCBC**. No exceedances of the 1-hour mean AQO have been recorded since 2017. Similarly to the non-automatic monitoring data, there has been a reducing trend in annual mean NO_2 recorded at automatic sites. NO_2 has clearly reduced since 2019. Since 2020 NO_2 has remained constant at the Victoria Road AURN site whereas there has been a consistent reduction at Wrexham Chirk. Both Wrexham Chirk and Wrexham Chrik Community Hospital both recorded an increase in NO_2 in 2023 compared to 2022.

Annual mean concentrations were processed using the LAQM diffusion tube processing tool released in March 2023[1]. The diffusion tube processing tool automatically calculates time-weighted averages for tubes exposed longer than the recommended period of 5 weeks.

2.1.4 Particulate Matter (PM_{10})

In 2023, PM_{10} was monitored at three automatic monitoring stations in **WCBC**. Annual mean concentrations were obtained from the Air Quality in Wales website (https://airquality.gov.wales/).

The concentrations recorded were well below the annual mean AQO of 40 µg/m^3 at all stations. The highest concentration recorded was 10.5 µg/m^3 at Wrexham Chirk site.

There was no exceedance of the 24-hour mean AQO of 50 µg/m^3 reported at any site within **WCBC** during 2023.

Annual mean PM_{10} concentrations are included in Table 2.16 and the number of exceedances of the 24-hour mean AQO are included in Table 2.17. Figure 2.27 represents the trend in annual mean PM_{10}. Overall, annual mean PM_{10} concentrations has remained mostly constant since 2020. In 2023, a slight reduction in annual mean PM_{10} was recorded at all three monitoring locations compared against 2022 data. Similarly to NO_2, ambient PM_{10} remains well below the long-term air quality objective.

2.1.5 Particulate Matter ($PM_{2.5}$)

In 2023, $PM_{2.5}$ was monitored at three automatic monitoring stations in **WCBC**. Annual mean concentrations were obtained from the Air Quality in Wales website.

Whilst there are no $PM_{2.5}$ objectives included in regulations for the purpose of LAQM in Wales, the concentrations recorded in 2023 were below the annual mean EU limit Value of 20 µg/m^3 and the interim WHO guideline value of 10 µg/m^3 at all stations. The highest concentration recorded was 6.2 µg/m^3 at **WCBC** Victoria Road AURN (Wrexham) site

Table 2.18 includes the annual mean $PM_{2.5}$ concentrations and Figure 2.28 represents the trend in annual mean concentrations.

[1] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-data-processing-tool/

Similarly to PM_{10}, annual mean $PM_{2.5}$ remained relatively constant between 2020 and 2022, with a slight increase being observed at the Wrexham Chirk monitoring location. Further, $PM_{2.5}$ annual mean concentrations reduced in 2023 at all monitoring locations when compared against 2022 data.

Summary of Compliance with AQS Objectives as of 2023

The local authorities in North Wales (**IACC, DCC, GC, WCBC, CCBC**, and **FCC**) have examined the results from monitoring in their respective boroughs. Concentrations are all below the air quality objectives, therefore no further action is required.

3 New Local Developments

This section identifies any changes within the North Wales Authorities area that may affect air quality.

Road Traffic Sources (and Other Transport)

IACC reports no new road traffic sources identified in 2023.

DCC reports no new road traffic sources identified in 2023.

GC reports no new road traffic sources identified in 2023.

WCBC reports no new road traffic sources identified in 2023.

CCBC reports no new road traffic sources identified in 2023.

FCC reports no new road traffic sources identified in 2023.

Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

IACC reports no new industrial, fugitive or uncontrolled sources, or commercial sources identified in 2023.

DCC reported the authorisation of two new biomass combustion plant planning applications in 2023.

- Planning Application 42/2023/0591 - Merseyside Holiday Camp, Allt Y Graig, Dyserth, Y Rhyl - Erection of building to house 2 no 500kw biomass boilers, flue and associated works (partly retrospective)
- Planning Application 42/2023/0495 - Seaview Filling Station, Meliden Road, Dyserth, Y Rhyl - 1x 199 kW biomass

GC reports no new industrial, fugitive or uncontrolled sources, or commercial sources identified in 2023.

WCBC identified two new applications for permitted processes in 2023.

- Poundfield Precast Ltd (concrete block manufacturing) - no air quality assessment required.
- Dearboy Petcare Ltd (pet food manufacturing) - Permitted in 2024 on the condition that odour controls are implemented. - no air quality assessment required

CCBC identified one new application for a permitted process in 2023.

- Thorncliffe Recycling Centre, Rhuddlan Road, Abergele, LL22 9SE (0/51162)

FCC reports no new industrial, fugitive or uncontrolled sources, or commercial sources identified in 2023.

Other Sources

IACC confirms that there are no reports of other sources that may affect air quality, including bonfires/ incidents, firework displays and domestic wood burners.

DCC confirms that there are no reports of other sources that may affect air quality, including bonfires/ incidents, firework displays and domestic wood burners.

GC received 70 complaints related to air quality during 2023. Of the 70 complaints, 46 were from domestic bonfires; 4 from smoke from domestic chimneys; 11 from smoke from industrial bonfires; 2 from smoke from industrial chimneys; 6 from dust from commercial, industrial or building activities and 1 from air pollution from vehicle exhausts.

CCBC confirms that there are no reports of other sources that may affect air quality, including bonfires/ incidents, firework displays and domestic wood burners.

FCC confirms that there are no reports of other sources that may affect air quality, including bonfires/ incidents, firework displays and domestic wood burners.

WCBC received 75 domestic bonfire complaints in 2023. No complaints of other sources that may affect air quality were received.

New planning applications

DCC has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

- 43/2023/0071 - Mid Nant Farm, Gronant Road, Prestatyn, Denbighshire, LL19 9HP. Erection of 45 dwellings, construction of a new vehicular access, landscaping and associated works. Approved.

CBCC has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area:

- 0/51162 - Thorncliffe Recycling Centre, Rhuddlan Road, Abergele, LL22 9SE. Approved

WCBC has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

- P/2023/0050 - Land At Stansty Fields, Mold Road, Stansty, Wrexham, LL11 4AX. Air quality assessment recommended, decision pending the outcome of the assessment.
- Pre-application - Land East Of Tan Y Bont Main road, Old Rhosrobin, Rhosrobin, Wrexham, LL11 4RL. Application awaited.
- P/2023/0280 - Bryn Lane, Wrexham Industrial Estate, Wrexham, LL13 9UT. Air quality assessment recommended, decision pending the outcome of the assessment.
- P/2023/0497 - Land North of Bryn Lane, Wrexham Industrial Estate, Wrexham, LL13 9US Decision pending.
- P/2023/0500 - Davy Way Llay, Industrial Estate, Llay, Wrexham, LL12 0PG Granted.
- P/2023/0593 - Land at Lower Berse Farm Ruthin Road, Wrexham, LL14 4HP, Decision pending.

4 Policies and Strategies Affecting Airborne Pollution

Local / Regional Air Quality Strategy

There are no AQMAs declared in North Wales. Therefore, there are currently no active AQAPs. As air quality is considered to be good within all six local authority areas, there have been no local policies specifically related to air quality developed.

Air Quality Planning Policies

Five of the six North Wales Authorities have not issued any updates to local/ regional air quality through the provision of a new local plan. **WCBC** adopted a new 2023-2028 local plan which is discussed below.

Air quality is considered in the wider context in the following local policies:

IACC and **GC** have adopted a joint Local Development Plan (LDP) which provides the land use strategy for the next 15 years. The plan addresses the need to maintain good air quality in the area and ensure new development does not cause adverse impacts.

The **DCC** LDP sets out the proposals and policies for future development and use of land in Denbighshire. The LDP was adopted in June 2013 and was due for update in 2021. The **DCC** LDP update is being progressed by the council, progress on the completion of the report can be found on the Denbighshire County Council website, here.

CCBC's LDP 2007 – 2022 contains a Spatial Objective SO9 to 'encourage efficient patterns of movements and to recognise the strategic role that the A55 and rail corridors will play in meeting the development needs of the Plan Area and to give particular attention to development locations that are convenient to pedestrians, walking and cycling in Conwy to aid the reduction of transport CO_2 emissions'. The LDP also includes Strategic Policy NTE/1 – The Natural Environment. This policy 'seeks to regulate development so as to conserve and, where possible, enhance the Plan Area's natural environment, countryside and coastline'. CCBC are currently working on a replacement local plan and expect to submit an updated plan to the Welsh Government this year.

WCBC is committed to the sustainable development principle and the 'five ways of working' which the Welsh Government introduced to help public bodies shape their decisions to help them meet the sustainable development principle.

In 2023, **WCBC** adopted the Council Plan 2023-28. This document supersedes the 2020-23 local plan and outlines the Councils updated vision. The main priority areas of the plan are outlined below:

- Delivering efficient street scene services and decarbonising our environment.
- Developing the economy.
- Ensuring Wrexham is a fair and safe place.
- Improving education and learning.
- Promoting good health and well-being (with a focus on social services and good mental health).
- Supporting a highly skilled and engaged workforce, focussed on delivering services.

The plan recognises that the climate emergency is one of the most important topics of our time and we all have a responsibility to reduce our carbon footprint. Wrexham Council declared a climate emergency in 2019 and has been working towards reducing its carbon footprint with the plan detailing such initiatives as:

- To decarbonise council-owned buildings through projects such as the introduction of airsource heating, LED lighting upgrades and improved insulation.
- **WCBC** will work towards reducing carbon emissions from our work related travel: both by electrifying those vehicles within our own fleet, as well as reducing the business miles travelled in personal vehicles.
- Council will seek to reduce the significant amount of carbon emissions attributed to the goods and services we procure and commission, through changing our practices and supporting our suppliers.
- **WCBC** will also look to off-set carbon which we cannot remove, by making environmental improvements, such as creating woodland and wildflower meadows.

FCC has recently submitted its updated Council Plan (2023 - 2028) for public consultation and review. Priority: Green Society and Environment of the plan outlines several measures the council are planning on implementing which have the potential to impact air quality:

- Net Zero Carbon Council: A net carbon zero Council by 2030 and supporting wider decarbonisation actions across the County, making this central to Covid-19 recovery
- Fleet strategy: Reducing the environmental impact of our feet.
- Active and Sustainable Travel Options: Create opportunities to increase levels of walking and cycling (active travel) and the use of sustainable public transport options, enabling the undertaking of multi-modal transport journeys to access key destinations.

Local Transport Plans and Strategies

CCBC's LDP 2007 – 2022 contains a Spatial Objective SO9 to "encourage efficient patterns of movement and to recognise the strategic role that the A55 and rail corridors will play in meeting the development needs of the Plan Area and to give particular attention to development locations that are convenient to pedestrians, walking and cycling in Conwy to aid the reduction of transport CO_2 emissions".

The North Wales Joint Local Transport Plan (LTP) (2015-2025) has been jointly produced by the six North Wales local authorities in response to the Welsh Government requirement for LTPs to be submitted by the end of January 2015. The plan preparation has been overseen by Taith as a Joint Committee of the local authorities for transport. The Plan is a statutory document for transport in the region.

A review of the Wales Transport Strategy Objectives, the Welsh Government targets for investment and the Regional Transport Plan priorities, together with the review of issues and opportunities led to the drafting of outcomes for the Local Transport Plan. The Local Transport Plan Outcomes that relate to bringing about air quality improvements includes:

- Connections to Key Destinations and Markets: Support for Economic Growth through an improvement in the efficiency, reliability, resilience, and connectivity of movement, including freight, within and between North Wales and other regions and countries (with a particular focus on accessibility to the Enterprise Zones and an improvement in the vitality and viability of towns and other key centres); and
- Benefits and Minimised Impacts on the Environment: the potential for transport improvements to positively affect the local and global natural and built environment will have been maximised and negative impacts minimised, including adaptation to the effects of climate change.

A set of higher-level interventions have been developed which together aim to deliver the vision and outcomes sought for the LTP:

- Transport network resilience improvements – Improvements to key county corridors to remove/ improve resilience problems;

- Integration with strategic public transport services – Schemes to improve access to rail stations including road access and bus services and interchange facilities, support for park and ride, walking and cycling routes and facilities;
- Improved links to Employment – Schemes to provide improved access to Enterprise Zones (EZs), ports, employment sites and town centres;
- Access to services – Range of integrated transport measures to improve access to education, health, community, shopping and other services by public transport, walking and cycling as well as community transport, taxi, car share sites; and
- Encouraging sustainable travel – Infrastructure improvements and promotional initiatives to increase levels of walking and cycling both for travel and for leisure as well as public transport. May include road and rail bridges/ crossings, cycle routes, footway/ footpath provision, safe routes to school, travel planning as well as road safety measures to assist vulnerable users.

Transport is a key part of **WCBC's** development and for the decarbonising environment for example by ensuring that supporting infrastructure including road, rail, public transport modes and active travel solutions is developed to interface with improved A483, which will improve routes to the town centre, and contribute to decarbonisation, increased wellbeing and improving the economy.

Transport & mobility is an identified priority in the Council Plan 2023 - 28: "*The council has a modern and environmentally responsible transport fleet, supported by increased high-quality infrastructure, which allows us to be a leader in low carbon emissions vehicles. We will consider our requirements to travel, and ensure that sustainable travel options are in place to help reduce our overall carbon emissions. To ensure transport infrastructure meets the needs of its residents and the economy, with improved public transport services and sustainable options for travel and parking in and around the City Centre, Wrexham Industrial Estate, and across the rural communities, and in support of Wrexham as a significant visitor destination*."

Active Travel Plans and Strategies

IACC submitted an Active Travel Plan. **IACC** will take minor works to the Active Travel Network, as well as further pre scheme development focusing on the 8 settlements chosen for Active Travel improvements for 2022-2023. Further bids will be submitted for 2023-2024 in due course. The Welsh Government have successfully approved our ATNM on the 3 August 2022. The ATNM will be made available to the public on this page soon.

In **CCBC**, 15 towns and villages meet the Welsh Government requirements of Active Travel Areas.

Promoting active travel is a key priority of **WCBC**'s local plan. The local authority recognises that improving active travel will in turn contribute to the development of the economy.

Local Authorities Well-being Objectives

CCBC and **DCC** have used the power within the Wellbeing of Future Generations (Wales) Act 2015 to form a single Public Services Board.

IACC and **GC** have published Wellbeing Plans, the plan recognises that the population of Anglesey considers that the natural environment improves well-being and contributes towards quality of life. As a consequence, the Board recognised the importance of protecting the natural environment. While this does not make specific reference to Air Quality, there could be an implied reference and future plans will be required by law to report on progress made.

FCC has published its Wellbeing Plan 2017-2023. The plan recognises the importance of protecting and enhancing the Environment. It states that the Authority wants to ensure 'air quality is the best it can be by working with partners to monitor and reduce harmful emissions'.

FCC and **WCBC** have also published their combined Wellbeing plan 2023-2028. Promoting good health and wellbeing is one of the six wellbeing and improvement priorities for **WCBC** Plan 2023 - 28. It is the Councils vision for the future that all the people that live here are supported to fulfil their potential, prosper, and achieve a high standard of well-being. Active Wrexham is a new initiative to empower local communities to be more active – leading to healthier and happier lives through developing and supporting inclusive physical activity.

Green Infrastructure Plans and Strategies

IACC has started a UK CRF Adfywio Môn Renewal Programme.

FCC has published a background paper on Green infrastructure.

Climate Change Strategies

IACC has committed to becoming a net-zero local authority by 2030.

CCBC has made a Climate Emergency Declaration to become a net zero Authority by 2030.

DCC has adopted a Climate and Nature Strategy Year 3 Updated Version (2021-2022 to 2029-2030). The aim of the Plan is to address the Council's Net Carbon Zero and Ecologically Positive goals and the tasks we are going to seek to deliver to achieve our 2030 goals. As well as the Council's work in climate action and nature recovery across Denbighshire and its goal to increase climate risk resilience.

FCC has published its Climate change strategy (2022-2030).

WCBC is committed to play its part in being a globally responsible Wales. The Council has already worked on a wealth of carbon reduction initiatives over the last decade, which have established their reputation as a leader in delivering carbon saving initiatives. **WCBC** declared a Climate and Ecological Emergency in September 2019, and published a Decarbonisation Plan (The Plan) in May 2021. The Plan focusses on four key themes (Buildings, Transport and Mobility, Land Use and Procurement) as well as some higher-level actions which are integral to **WCBC**'s response to addressing the climate emergency. One of the indicators of the success of this plan is for a County Borough that is becoming more resilient in planning for the effects of climate change.

5 Conclusion and Proposed Actions

Conclusions from New Monitoring Data

There were no exceedances of the respective NO_2, PM_{10}, $PM_{2.5}$ AQOs recorded at any monitoring sites in 2023. Annual mean concentrations were generally lower than previous years except when comparing annual mean NO_2 concentrations in **GC**, **WCBC**, **CCBC** and **FCC** between 2020 and 2022. Lower annual mean concentrations from 2020 are likely due to reduced traffic flows associated with the Covid-19 pandemic in 2020. Considering the change in NO_2 concentrations between 2019 and 2023, air quality has generally improved in every local authority in North Wales.

Conclusions relating to New Local Developments

There are no new or newly identified local developments which are expected to cause a significant adverse air quality impact on the surrounding area within North Wales

Other Conclusions

No detailed assessments are required as a result of exceedances of pollutant concentrations and no AQMAs need to be declared. Nonetheless, wider policy documents discussed in Section 4 address air quality issues to ensure concentrations remain below the AQOs.

Proposed Actions

The recommendations for the coming year are listed below:

- Proceed to the 2024 Updating and Screening Assessment;
- Maintain the air quality monitoring programmes in each local authority; and
- Ensure new monitoring sites are added as required.

References

- Conwy County Borough Council (2016) Annual Status Report
- Denbighshire County Council (2016) Annual Status Report
- Department for Environment, Food and Rural Affairs (Defra) (2016) Local Air Quality Management Technical Guidance LAQM.TG(16).
- Flintshire County Council (2016) Annual Status Report
- Flintshire County Council Unitary Development Plan 2000-2015.
- Gwynedd Council (2016) Annual Status Report
- Isle of Anglesey County Council (2016) Annual Status Report
- Isle of Anglesey County Council (2018) Wylfa Newydd: Supplementary Planning Guidance May 2018
- National Diffusion Tube Bias Adjustment Spreadsheet, Version Number 03/24. March 2024.
- The Anglesey and Gwynedd Joint Local Development Plan.
- The Conwy Local Development Plan 2007-2022
- The Denbighshire County Council Local Development Plan 2006-2021.
- Welsh Government (2017) Local air quality Management in Wales
- Wood Environment and Infrastructure Solutions UK Ltd (Wood) (2018) North Wales Combined Authority 2018 Air Quality Progress Report. f
- Wood Environment and Infrastructure Solutions UK Ltd (Wood) (2019) North Wales Combined Authority 2019 Air Quality Progress Report.
- Wood Environment and Infrastructure Solutions UK Ltd (Wood) (2020) North Wales Combined Authority 2020 Air Quality Progress Report.
- Wood Environment and Infrastructure Solutions UK Ltd (Wood) (2021) North Wales Combined Authority 2021 Air Quality Progress Report.
- WSP UK Limited (2022) North Wales Combined Authority 2021 Air Quality Progress Report.
- WSP UK Limited (2023) North Wales Combined Authority 2022 Air Quality Progress Report.
- Wrexham County Borough Council (2016) Annual Status Report

- Wrexham County Borough Council Unitary Development Plan 1996 to 2011.

Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Table A.1 – IACC Full Monthly Diffusion Tube Results for 2023 (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
IACC																		
IACC-81	224942	382866	5.1	20.3	17.5	19.7	16.0	19.7	14.0	8.8	15.6	20.5	16.9		15.8	12.2	N/A	
IACC-82	252360	378402	19.9	18.7	17.1	8.0	19.7	19.1	18.5	17.9	17.7	24.0	20.4		18.3	14.1	N/A	
IACC-83	253057	372313	10.3	9.3	10.8	9.2	9.7	8.0	5.7	8.9	5.9	11.2	11.5		9.1	7.0	N/A	
IACC-84	226681	381486	11.1	8.9	8.1	10.7	7.6	7.5	7.8	15.9	5.1	6.6	9.4		9.0	6.9	N/A	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table A.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.**

☒ **All North Wales Combined Authorities confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Table A.2 – DCC Full Monthly Diffusion Tube Results for 2023 (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DCC																		
DBK1	300800	381400	25.1	32.0	29.4	28.0	25.2	24.1	18.5	22.6	31.7	30.6		16.5	25.8	19.9	N/A	
DBR2	300900	381300	23.1	26.6	26.6	26.0	22.0	23.7		21.3	26.8	27.3	25.9	17.8	24.3	18.7	N/A	
DBR55	321484	341920					30.8	33.4	25.2	31.4	36.4	33.7	33.4	25.2	31.2	24.6	N/A	
DBR57	321815	341914	11.7	12.8	9.1		6.6	6.2	4.2	5.7	9.1	12.6	11.3	9.2	9.0	6.9	N/A	
DBR5	302900	374600	10.4	16.5	13.8	14.0	17.6	12.0	7.5	11.9	10.8	14.8	15.8	8.7	12.8	9.9	N/A	
DBR48	305276	366119	22.0	29.2	27.9	19.1	23.5	21.0	14.7		28.0	27.0	29.5	18.2	23.6	18.2	N/A	
DBR23	305879	366425	22.0	22.4		14.9	16.2	12.4	9.6	13.8	17.1	18.8	23.2	13.1	16.7	12.8	N/A	
DBR60	302184	378415	6.8	10.7	5.9	9.0	8.0	6.7	4.4	6.0	8.4	9.8	10.6		7.8	6.0	N/A	
DBR9	303200	374900	20.2	22.9	8.3	20.5	17.2	15.0	12.2	15.0	21.4	25.0	10.0	13.1	16.7	12.9	N/A	
DBR59	305097	366100	21.0		11.9	19.6	17.1	17.4	13.9	15.5	23.6	21.9	24.8	20.2	18.8	14.5	N/A	
DBR24	305327	366164	34.1		32.3	32.1	34.7	26.2	22.3	25.5	30.7	31.3	39.1	31.0	30.8	23.8	N/A	
DBR56	321492	342091	16.3	21.7	15.0	12.6	14.7	14.0	10.7	12.6	15.5	18.1	19.2	15.0	15.5	11.9	N/A	
DBR20	312105	358306	23.7	27.3	20.6	18.8	19.8	16.4	12.2	16.1	19.4	18.1	20.0	16.9	19.1	14.7	N/A	
DBR43	305314	366153	31.2	39.5	30.5	28.1	29.3	26.7		24.0	27.9	31.8	33.8	30.9	30.3	23.4	N/A	
DBR44	305386	366191	19.5	31.4	24.4	27.1	22.4	21.1	14.2	18.5	25.3	25.7	27.1	21.3	23.2	17.8	N/A	
DBR45	305467	366246	19.6	28.3	24.0	23.8	22.1	21.9	16.6				26.6	19.5	22.5	17.3	N/A	
DBR37	312800	358200	25.8	33.1	28.7	29.4	33.3	31.1	17.8	26.6	26.5	24.8	26.7	18.4	26.9	20.7	N/A	
DBR64	306495	381894	12.9	16.0	13.1	11.3	12.6	11.2	5.7	16.9	13.6	13.0	15.6	7.7	12.5	9.6	N/A	
DBR52	305308	366130	21.3	26.4	19.7	20.0	18.9	19.5	14.0	8.6	20.6	25.8	25.1	12.1	19.3	14.9	N/A	
DBR53	305390	366130	23.4	35.3	27.7	27.0	27.2	22.1	16.5	22.6	26.4	24.2	33.1	26.7	26.0	20.0	N/A	
DBR31	305805	366480	19.2	23.5	16.5	15.3	14.0		10.5	10.2		18.2	18.2	13.4	15.9	12.2	N/A	
DBR32	305179	366089	15.0	21.3	9.8	15.6	17.5	13.5	8.9	15.0	15.5	19.5	20.0	15.3	15.6	12.0	N/A	
DBR33	305253	366095	22.2	27.5	24.0	19.1	21.1	21.9	17.4	18.7	26.2	24.9	29.5	21.4	22.8	17.6	N/A	
DBR34	305868	366653	15.5	17.8	15.1	13.4	13.2	11.7	8.8	8.2	15.1	16.3	18.4	10.0	13.6	10.5	N/A	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DBR49	306580	382907	14.1	18.9	15.8	16.9	16.3	15.8	9.2	13.1	17.4	18.9	19.7	10.8	15.6	12.0	N/A	
DBR58	302271	378074	16.7	21.0	17.5	13.0	14.1	14.6	11.1	11.3	14.9	13.4	15.2	12.2	14.6	11.2	N/A	
DBR61	303921	374387	23.6	24.1	20.6	23.8	15.8	18.6	12.6	13.9	20.0	19.5	24.3	16.2	19.4	15.0	N/A	
DBR62	303852	374361	30.3	35.1	25.2	29.5				18.5	26.7	27.3	29.4	21.0	27.0	20.8	N/A	
DBR63	303778	374326	17.3	18.8	18.2	18.8	15.7	18.2	8.1	10.9	16.4	20.2	17.5	9.6	15.8	12.2	N/A	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table A.2.**

☒ **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.**

☒ **All North Wales Combined Authorities confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Table A.3 – GC Full Monthly Diffusion Tube Results for 2023 (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
GC																		
GCC 002	248273	362132	29.2	26.9	23.1	25.6	20.9	27.4	20.9	23.5	23.0	25.7	24.7	19.8	24.2	18.7	N/A	
GCC 003	248480	363456	10.8	9.5	7.2	7.8	7.1	6.9	4.8	5.8	6.7	8.4	10.0	7.7	7.7	5.9	N/A	
GCC 005	248892	364120	15.2	16.2	13.1	14.9	14.6	13.7	11.3	-	12.9	15.4	13.8	10.1	13.7	10.6	N/A	
GCC 008	257587	371543	27.3	25.4	21.4	23.2	20.0	21.3	14.9	16.8	19.5	21.4	24.1	22.0	21.4	16.5	N/A	
GCC 011	256292	371663	23.7	23.2	19.9	20.0	17.3	20.3	15.9	22.1	23.0	25.6	25.1	17.9	21.2	16.3	N/A	
GCC 012	254286	368835	26.5	28.7	22.3	27.5	27.5	28.6	18.7	23.9	23.7	32.1	28.1	19.5	25.6	19.7	N/A	
GCC 013	261529	367380	20.7	23.3	17.2	18.7	19.0	19.5	15.0	19.0	17.7	22.4	22.0	14.7	19.1	14.7	N/A	
GCC 015	247770	358663	11.5	12.9	8.9	9.1	8.4	8.7	6.6	7.7	8.7	8.9	10.5	7.7	9.1	7.0	N/A	
GCC 037	248022	362757	24.6	21.6	17.0	18.1	12.8	14.7	12.7	14.9	15.7	19.8	18.4	15.1	17.1	13.2	N/A	
GCC 038	256871	369493	22.8	26.2	20.7	27.9	26.5	28.6	19.3	24.7	24.1	28.3	25.1	19.5	24.5	18.8	N/A	
GCC 039	256871	369493	25.8	23.6	22.2	27.3	25.8	27.4	17.7	25.2	23.7	28.2	26.1	19.0	24.3	18.7	N/A	
GCC 040	237517	335217	21.1	18.8	16.5	15.2	13.7	14.6	14.0	14.4	13.0	11.2	18.3	16.3	15.6	12.0	N/A	
GCC 041	248514	362795	13.4	12.9	9.5	10.8	10.1	8.8	6.0	8.0	8.1	13.7	12.9	9.9	10.3	8.0	N/A	
GCC 042	249647	362923	14.0	12.0	9.5	10.2	9.1	7.9	6.0	7.9	-	-	-	-	9.6	8.0	N/A	
GCC 043	249634	362917	16.1	11.2	10.2	10.1	6.8	7.7	6.9	8.7	10.0	12.5	13.7	11.2	10.4	8.0	N/A	
GCC 044	293769	336564	17.9	18.3	13.7	15.1	16.5	16.5	14.4	17.3	-	13.0	16.3	12.1	15.6	12.0	N/A	
GCC 045	293878	336609	12.3	12.3	10.0	11.4	11.8	11.2	-	11.2	12.4	-	13.5	8.8	11.5	8.8	N/A	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table A.3.**

☒ **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.**

☒ **All North Wales Combined Authorities confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Table A.4 – WCBC Full Monthly Diffusion Tube Results for 2023 (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
WCBC																		
1	333200	350600	25.5	33.2	28.6	33.4	24.7	21.9	23.7	25.2	29.9	32.3	38.4	23.8	28.4	22.7	N/A	
34	329017	351002	22.4	11.0	16.0	16.4	11.1	13.0	9.3	10.9	12.5	12.3	7.8	8.4	12.6	10.1	N/A	
45	332214	351503	31.7	21.6	25.6	22.6	28.5	29.7	21.1	25.2	2.3	29.5	19.0	18.2	22.9	18.3	N/A	
36	327630	342990	32.9	18.3	22.4	21.0	12.8	15.6	13.2	14.2	18.6	22.8	18.1	20.7	19.2	15.4	N/A	
10	329300	338300	37.3	15.9	13.1	12.0	9.2		12.6	9.9	12.5	9.5	18.1	17.7	15.3	12.2	N/A	
49	330221	353428	26.2	9.5	9.8	9.5	8.6	7.7	6.5	7.3	9.2	9.9	13.6	7.6	10.5	8.4	N/A	
42	335359	352178	20.1	24.8	24.5	23.0	21.0	20.4	17.9	23.4	20.1	22.6	28.4	14.3	21.7	17.4	N/A	
50	331924	350638	17.1	22.7	20.8	20.8	23.8	15.5	12.9	20.9	19.3	21.0	18.7	14.3	19.0	15.2	N/A	
51	330125	346099	18.0	25.7	27.8	22.1	18.8	18.8	17.8	11.2		17.8	20.3	14.3	19.3	15.5	N/A	
52	330703	334004	17.2	21.2	25.2	28.0	23.9	24.0	16.8	18.2	25.3	25.0	23.4	15.9	22.0	17.6	N/A	
53	327263	341184	19.5	25.1	27.6	24.8	19.6	20.3	19.4	22.3	23.7	17.6	14.7	19.6	21.2	16.9	N/A	
22	328900	338700	24.1	20.9	22.8	18.2	12.6	16.7	17.8	15.7	19.6	19.4	23.3	23.8	19.6	15.7	N/A	
32	333887	353222	9.9	35.1	29.8	24.4	22.2	18.0	16.2	20.0	19.7	20.8	33.5	24.8	22.9	18.3	N/A	
30	330950	348170	15.2	41.2	40.5	38.5	37.0	38.4	31.4	33.7	38.3	33.7	39.6	23.9	34.3	27.4	N/A	
31	333350	350590	21.2	38.2	35.9	31.9	28.3	24.1	24.5	26.0	30.7	34.7	36.7	25.8	29.8	23.9	N/A	
33	333981	350171	27.4	29.2	23.0	22.6	18.1	16.8	16.3	19.4	23.7	22.7	27.1	18.4	22.1	17.6	N/A	
37	336635	357211	18.3	19.9	18.5	15.6	13.8	12.8	10.8	11.7	14.3	16.2	9.9	13.6	14.6	11.7	N/A	
38	331765	350132	15.1	20.4	20.7	20.0	16.0	14.9	8.1	16.7	15.5	14.7	23.5	11.8	16.5	13.2	N/A	
44	332935	350278	18.3	26.0	25.1	23.9	18.2	19.6	14.4	17.5	23.0	23.0	32.1	20.7	21.8	17.5	N/A	
40	337449	341702	11.9	10.9	8.5	8.7	8.2	7.7	4.1	7.1	7.2	9.8	12.6	6.5	8.6	6.9	N/A	
41	335407	347890	7.5	16.1	17.5	20.0	14.5	15.0	9.3	12.6	14.4	18.0	12.9	9.3	13.9	11.1	N/A	
43	333966	349691	21.5	28.0	21.6	22.3	17.0	19.7	15.2	19.3	22.3	19.2	22.9	18.7	20.6	16.5	N/A	
46	333063	350587	<0.6	23.5	26.6	27.6	19.1	22.0	14.7	19.1	22.7	31.0	24.4	17.2	22.5	18.0	N/A	
48	329082	337590	31.2	20.3	18.4	17.9	15.1	12.3	11.0	16.5	14.0	16.3	24.0	16.8	17.8	14.3	N/A	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
54	333628	352942	36.6	27.9		19.7	21.3	14.7	14.6	20.3	21.1	19.9	26.0	20.9	22.1	17.7	N/A	
55	333078	355649	49.4	11.2	14.7	11.5	12.6	7.8	8.9	9.4	11.8	18.6	13.7	9.5	14.9	11.9	N/A	
56	332944	352293	<0.6	20.7	20.4	20.8	15.8	14.7	11.6	12.9	18.9	23.9	23.0	16.5	18.1	14.5	N/A	
57	332786	351637	<0.6	16.8	14.8	10.4	11.1	8.7	8.2	10.3	12.8	16.0	20.6	12.6	12.9	10.3	N/A	
58	334954	350090	<0.6	18.6	17.2	12.9	12.7	11.2	9.7	12.4	15.4	15.3	22.7	14.0	14.7	11.8	N/A	
59	337541	346942	13.9	14.4	14.2	13.2	13.2	10.6	7.9	9.0	11.1	10.6	16.7	9.5	12.0	9.6	N/A	
60	340016	349982	10.3	7.8	8.8	6.5	10.2	7.7	3.9	5.4	6.8	7.6	10.6	4.9	7.5	6.0	N/A	
61	332363	351095	17.2	24.4	21.2	19.9	20.5	15.2	14.6	17.0	18.4	20.0	28.5	16.6	19.5	15.6	N/A	
AURN (triplicate)	332900	349900	27.1	20.6	19.1	19.0	15.1	14.9	10.2	13.2	17.0	16.2	20.9	14.4	-	-	N/A	Triplicate Site with AURN (triplicate), AURN (triplicate) and AURN (triplicate) - Annual data provided for AURN (triplicate) only
AURN (triplicate)	332900	349900	27.1	20.6	19.1	19.0	15.1	14.9	10.2	13.2	17.0	16.2	20.9	14.4	-	-	N/A	Triplicate Site with AURN (triplicate), AURN (triplicate) and AURN (triplicate) - Annual data provided for AURN (triplicate) only
AURN (triplicate)	332900	349900	27.1	20.6	19.1	19.0	15.1	14.9	10.2	13.2	17.0	16.2	20.9	14.4	-	-	N/A	Triplicate Site with AURN (triplicate), AURN (triplicate) and AURN (triplicate) - Annual data provided for AURN (triplicate) only

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table A.4.**

☒ **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.**

☒ **All North Wales Combined Authorities confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Table A.5 – CCBC Full Monthly Diffusion Tube Results for 2023 (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CCBC																		
DT/CCBC017	284526	379417	14.6	16.4	14.0	21.1	19.1	14.9	8.2	15.4	15.5	20.7	16.3	9.1	15.4	11.9	N/A	
DT/CCBC018	295049	378144	17.2	16.6	15.2	17.2	19.3	14.3	15.1	12.0	14.7	17.1	12.7	14.3	15.5	11.9	N/A	
DT/CCBC022	282362	378757	18.8	19.9	13.7	14.6	18.9	13.8	12.1	13.8	14.6	15.8	19.3	15.7	15.9	12.3	N/A	
DT/CCBC034	279245	377995	21.1	13.2	19.5	15.3	15.9	12.6	15.6	17.2	14.3	19.6	19.8	21.0	17.1	13.2	N/A	
DT/CCBC035	285506	378295	11.2	17.2	19.9		20.8	17.1	12.7	13.6	18.5	18.7	15.0	13.7	16.2	12.5	N/A	
DT/CCBC036	278131	381907	10.4	10.5	10.3	10.3	10.4	9.0	6.7	7.2	8.2	11.1	11.3	8.1	9.5	7.3	N/A	
DT/CCBC041	295075	377678	13.2	12.5	13.6	13.2		12.1	7.2	10.2	11.4	14.4	15.1	9.2	12.0	9.2	N/A	
DT/CCBC042	277318	378576	16.1	16.2	12.5	16.0	13.3	14.1	14.9	12.4	13.4	18.0	15.8	15.2	14.8	11.4	N/A	
DT/CCBC043	268425	375266	11.7	11.5	8.7	12.2	14.7	12.3	7.9	9.0	9.8	10.2	9.4	7.5	10.4	8.0	N/A	
DT/CCBC044	268845	375713	14.4	19.0	17.7	26.8	25.8	23.6	14.9	20.3	14.8	15.4	11.2	9.1	17.8	13.7	N/A	
DT/CCBC046	279833	361573	21.7	23.6	20.2	21.0	19.4	20.3	14.9	15.0	17.4	15.6	20.0	16.5	18.8	14.5	N/A	
DT/CCBC047	273223	377460	12.0	15.8	12.6	14.2	19.6	15.1	13.2	15.0	12.5	11.2	11.1	8.8	13.4	10.3	N/A	
DT/CCBC048	276115	378273	9.5	12.9	12.7	18.0	19.2	15.2	12.4	15.1	14.0	14.0	11.1	11.5	13.8	10.6	N/A	
DT/CCBC053	284433	379529	18.6	17.3	13.4	14.9	12.8	10.8	9.3	10.9	12.1	16.8	17.4	13.8	14.0	10.8	N/A	
DT/CCBC054	284362	379559	21.7	19.9		13.2	3.5	11.6			12.6	14.0			13.8	10.8	N/A	
DT/CCBC055	283523	380857	6.4	14.1	9.3	12.0	15.1	10.9	9.4	9.9	12.8	14.0	12.9	10.5	11.4	8.8	N/A	
DT/CCBC056	278751	378797	6.4	11.8	9.3	11.0	9.8	8.2	3.2	6.9	6.9	10.8	11.1	7.9	8.6	6.6	N/A	
DT/CCBC057	271771	376105	5.9	6.8	5.2	6.6	8.1	6.7	3.7	5.5	4.8	6.4	6.3	5.2	5.9	4.6	N/A	
DT/CCBC058	271627	375978	5.3	5.7	4.0	5.9	7.4	5.1	3.9	3.9	3.7	4.9	5.2	5.0	5.0	3.9	N/A	
DT/CCBC059	277744	379865	11.0	11.0	10.9	10.7	9.9	8.1	5.4	7.4	10.2	14.8	10.4	8.8	9.9	7.6	N/A	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table A.5.**

☒ **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.**

☒ **All North Wales Combined Authorities confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Table A.6 – FCC Full Monthly Diffusion Tube Results for 2023 (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
FCC																		
ADDC-008	330792	367434	30.8	36.5	40.7	39.7		29.7	24.2		32.9	36.3	32.8	25.3	32.9	25.3	N/A	
ADDC-009	329830	366682	12.9	19.3	22.9	23.4		16.1	11.4		20.7	20.7	16.8		18.2	14.0	N/A	
ADDC-085	330718	367350	24.0	25.3		31.0		25.9	14.3		25.6	26.3	23.0	18.5	23.8	18.3	N/A	
ADDC-111	330614	366195	19.2	14.0	16.7	19.9		12.3	10.4		15.1	17.7	14.2		15.5	11.9	N/A	
ADDC-105	330986	356538	15.4	19.8	18.0	18.9		15.5	6.6		14.9	16.8	14.4	14.1	15.4	11.9	N/A	
ADDC-013	327307	369856	10.3	10.1	10.5	15.3		9.6	5.8		13.6	11.0	12.7		11.0	8.5	N/A	
ADDC-014	327187	371243	17.1	15.8	16.8	16.4		12.3	8.8		13.4	18.8	15.5	13.9	14.9	11.5	N/A	
ADDC-015	328032	370647	13.9	16.0	15.3	14.7		9.2	6.6		11.3	16.1	16.7	12.7	13.3	10.2	N/A	
ADDC-106	320126	372346	15.6	14.6	14.0	13.9		9.8	6.4		12.1	13.8			12.5	10.0	N/A	
ADDC-107	323500	363397	13.7	12.4	12.5	12.0		7.8	4.4		9.4	10.4	11.3	10.7	10.5	8.1	N/A	
ADDC-084	326643	365550	34.8	34.5	29.8	32.8		29.0	22.1		29.2	26.9	34.0	26.6	30.0	23.1	N/A	
ADDC-064	331648	365730	36.4	37.3	36.2	34.2		27.4	26.4		32.0	18.3	32.8	31.4	31.2	24.1	N/A	
ADDC-098	331648	365730	38.3	37.3	35.1	33.4		29.1	23.7		31.0	32.7	30.0	30.8	32.1	24.7	N/A	
ADDC-117	332500	367357	17.3	17.3	16.3	16.3		11.4	7.8		13.3	15.4	15.6	12.1	14.3	11.0	N/A	
ADDC-099	330727	367354	26.4	27.5	34.3	37.3		27.2	14.9		32.7	35.6	20.6	23.7	28.0	21.6	N/A	
ADDC-023	331663	368028	26.2	26.2	30.7	32.4		22.4	18.4		26.1	24.7	26.5	23.9	25.8	19.8	N/A	
ADDC-024	330599	368922		29.2				24.9	16.6		22.6	28.8	25.2	18.9	23.7	18.0	N/A	
ADDC-118	336904	364852		17.8	15.7	15.5			8.5		15.2	14.6		12.0	14.2	11.3	N/A	
ADDC-080	323864	370368	20.8	21.0	23.0	22.3		17.0	11.0		19.1	17.9	17.4	16.6	18.6	14.3	N/A	
ADDC-066	318669	378290	30.1	27.8	27.6	23.3		19.9	18.7		21.3	20.9	17.7	25.2	23.3	17.9	N/A	
ADDC-116	332535	368907	20.2	24.2	23.1	18.7			12.4		18.7	20.7	23.0	17.0	19.8	15.2	N/A	
ADDC-029	333645	370898	19.8	20.1	20.3	20.4		14.8	10.9		17.4	17.7	19.4	18.1	17.9	13.8	N/A	
ADDC-030	332764	370981	24.0	22.7	20.6	22.8		14.8	9.7		15.3	16.4	19.5	15.9	18.2	14.0	N/A	
ADDC-083	330792	367434	33.3	35.5	39.9	42.9		34.0	21.4		31.5	36.8	31.1	28.9	33.5	25.8	N/A	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
ADDC-032	332031	371562		21.2	19.2			10.0	9.9		23.9	18.6		13.7	16.6	13.0	N/A	
ADDC-033	329906	370882	6.1	16.4	15.5	16.2		10.0	7.6		12.5	17.1	17.9	12.0	13.1	10.1	N/A	
ADDC-034	333040	369051	9.8	19.6	14.9	20.0		15.2	11.4		17.3	20.4	21.6		16.7	12.9	N/A	
ADDC-120	330528	362756	21.1	24.0	20.7	19.3		18.7	15.2		18.8	20.2	16.4	18.3	19.3	14.8	N/A	
ADDC-036	330575	371802	16.1	17.7	17.1	16.7		15.8	8.8		15.6	19.8	19.3	15.1	16.2	12.5	N/A	
ADDC-037	332221	367723		23.0	14.3	22.6		17.4			14.5	22.5	22.8	19.8	19.6	14.3	N/A	
ADDC-093	324935	372722	25.4	25.7	22.3	24.2		20.9	16.0		20.8	24.8	24.9	18.3	22.3	17.2	N/A	
ADDC-044	324459	373141	15.3	11.4	21.6	23.6		16.7	17.3		16.9	20.5	20.7	17.3	18.1	14.0	N/A	
ADDC-067	333568	363511	17.3	27.4	27.7	24.6		20.9	17.1		24.7	14.1		22.9	21.9	16.8	N/A	
ADDC-068	318766	375758	27.3	25.9	26.6	24.4		20.4	17.7		22.6	22.0	23.9	21.3	23.2	17.9	N/A	
ADDC-069	318735	376611	24.9	25.7	23.4	21.3		17.3	13.5		21.2	21.2	18.2	21.1	20.8	16.0	N/A	
ADDC-070	331806	368271	24.4	26.3	25.6	24.5		17.9	13.8		21.4	20.7	22.5	18.0	21.5	16.6	N/A	
ADDC-081	324281	364926	23.1	25.5	27.4	27.2					22.8	35.3	22.7	17.6	25.2	19.2	N/A	
ADDC-119	330705	358429	11.6	15.3		12.4		8.7	5.6		10.3	13.6	15.2	10.8	11.5	8.9	N/A	
ADDC-114	318851	375592	21.1	21.8	18.1	20.5		15.9	11.6			17.6	21.0	15.6	18.1	14.0	N/A	
ADDC-052	333731	369079	16.3	15.7	14.7	14.1		8.9	7.5		10.7	12.0	16.9	10.3	12.7	9.8	N/A	
ADDC-115	314615	378238	6.2	6.9	3.9	10.2		12.3	5.0		7.3	9.9	7.3	7.5	7.7	5.9	N/A	
ADDC-112	324838	372198	13.8	14.8	13.9	14.2		9.2	7.0		11.0	13.2	11.9	10.9	12.0	9.2	N/A	
ADDC-113	324357	372008						10.4	5.9		10.7				9.0	7.6	N/A	
ADDC-091	325961	371822	26.4	27.6		27.3		22.6	17.5		21.4	24.7			23.9	19.3	N/A	
ADDC-108	323975	363794	9.4		11.4	10.9		7.5	5.5		8.4	8.4	12.6	9.0	9.2	7.1	N/A	
ADDC-110	329284	366504	20.4	21.5	18.9	18.7		14.0	10.2		15.5	19.5	20.6	17.0	17.6	13.6	N/A	
ADDC-100	326643	365550	34.8	37.1	31.8	29.7		29.7	17.9		28.2		31.7	20.7	29.1	22.4	N/A	
ADDC-060	338283	365032	18.5	22.5	19.0	19.0		15.0	10.2		15.7	15.8	22.0	13.3	17.1	13.2	N/A	
ADDC-061	334739	363340	16.3	18.9	16.1	18.5		14.4	12.1		15.9	19.6	20.4	12.7	16.5	12.7	N/A	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
ADDC-121	330898	357996	16.1	21.1	20.9	18.3			9.4		15.1	18.3	18.5	12.2	16.7	12.8	N/A	
ADDC-101	330792	367434	32.6	35.5	41.9	37.7		28.1	21.4		34.0	32.3	31.8	26.4	32.2	24.8	N/A	
ADDC-109	327843	363856	13.7	13.2	13.5	14.8		10.1	4.6		9.9	13.3	14.2	10.4	11.8	9.1	N/A	
ADDC-075	327849	364146	26.7	27.1	20.0	23.9		21.1	16.9		21.3	24.0	26.0	22.4	22.9	17.7	N/A	
ADDC-102	335594	369179	11.4	13.0	9.9	11.7		7.3	5.5		8.3	12.5	16.4	10.7	10.7	8.2	N/A	
ADDC-103	337632	366682	12.4	12.6	10.1	9.4			5.8		10.7	9.4	12.3	8.7	10.2	7.8	N/A	
ADDC-104	332558	368750	21.3	23.3	24.4	23.8		22.8	15.6		21.1	20.4	21.7	14.7	20.9	16.1	N/A	
ADDC-089	324375	365007	45.4	48.4	43.6	43.2		41.3	33.5		40.5	31.1	38.2	30.0	39.5	30.4	N/A	
ADDC-122	324530	363839	35.4	34.7	32.1	20.8		27.4	19.4			23.2	15.5	25.1	26.0	20.0	N/A	
ADDC-123	324562	363840	29.4		26.3	25.8		19.4	15.8		20.7				22.9	18.3	N/A	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table A.6.**

☒ **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.**

☒ **All North Wales Combined Authorities confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Appendix B: A Summary of Local Air Quality Management

Purpose of an Annual Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment Act 1995, as amended by the Environment Act 2021, and associated government guidance. 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 being achieved. Where exceedances occur, or are likely to occur, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) within 18 months of declaration setting out the measures it intends to put in place in pursuit of the objectives. Action plans must then be reviewed and updated no later than every five years; or if a local authority considers there is a need for further or different measures to be taken in order to achieve air quality standards; or if significant changes to sources occur within your local area.

For Local Authorities in Wales, an Annual Progress Report replaces all other formal reporting requirements and have a very clear purpose of updating the general public on air quality, including what ongoing actions are being taken locally to improve it if necessary.

Air Quality Objectives

The Air Quality Objectives (AQO) applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table B.1.

The table shows the objectives in units of microgrammes per cubic metre μg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table B.1 – Air Quality Objectives Included in Regulations for the Purpose of LAQM in Wales

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as	Date to be achieved by
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	40µg/m^3	Annual mean	31.12.2010
Sulphur dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	16.25µg/m^3	Running annual mean	31.12.2003
Benzene	5µg/m^3	Annual mean	31 12 2010
1,3 Butadiene	2.25µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0mg/m^3	Maximum Daily Running 8-Hour mean	31.12.2003
Lead	0.25µg/m^3	Annual Mean	31.12.2008

Appendix C: Air Quality Monitoring Data QA/QC

QA/QC of Diffusion Tube Monitoring

Socotec Didcot is a UKAS accredited laboratory which participates in the new AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance. In the latest assessment (AIR PT AR063) Socotec achieved 100% satisfactory results, the maximum possible score.

In most instances, the diffusion tube monitoring survey was carried out in adherence with the DEFRA diffusion tube calendar by all local authorities. When the tubes were not collected on the exact day specified by the diffusion tube calendar, actual collection occurred within +/- 2 days of the specified date, which is within acceptable margins. The December exposure period for IACC diffusion tubes was 54 days, well beyond the manufacturer recommendation, for this reason the December results have been excluded from analysis.

Diffusion Tube Annualisation

All sites which recorded a data capture of less than 75% during 2023 have been annualised according to the methodology set out in LAQM.TG(22). Annualisation is required for any site with data capture less than 75% but greater than 25%. Details of the calculation method undertaken are provided in Table C.1, Table C.2 and Table C.3.

NO_2 diffusion tubes concentrations were annualised using automatic monitoring sites which reported data capture above 85% during 2023. Monitoring sites in background locations were prioritised to avoid any local effects that may occur at Urban Centre, Roadside or Kerbside sites. In some instances, it was necessary to use non-background local automatic monitoring stations, in addition to, the data obtained from the background monitoring locations due to insufficient data capture.

GC, DCC, CCBC and **FCC** used data from the Victoria Road AURN (roadside), Marchlyn Mawr (rural background) and Wrexham Chirk Community Hospital (urban background) continuous analysers to derive an annualisation factor, in addition **GC** also uses data obtained from Aston Hill (roadside). These monitoring locations are representative of the environment surrounding the diffusion tubes that need annualisation. In summary, the annualisation factors for the local authorities were:

- The annualisation factor used for **GC** was 1.09
- The annualisation factor used for **DCC** was 1.03
- The annualisation factor used for **CCBC** was 1.02
- The annualisation factors used for **FCC** were between 0.95 - 1.09 depending on the sample period duration.

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

Site ID	Annualisation Factor Marchlyn Mawr	Annualisation Factor Wrexham Chirk Community Hospital	Annualisation Factor Victoria Road AURN	Annualisation Factor Aston Hill Bangor	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m^3)	Annualised Data Simple Annual Mean (µg/m^3)
GCC 042	1.0152	1.2577	1.0696	1.0233	1.0915	9.6	10.4

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

Diffusion Tube ID	Annualisation Factor Marchlyn Mawr	Annualisation Factor Wrexham Chirk Community Hospital	Annualisation Factor Victoria Road AURN	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m^3)	Annualised Data Simple Annual Mean (µg/m^3)
DBR55	1.0417	0.9076	1.1264	1.0252	31.2	32.0

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

Site ID	Annualisation Factor Marchlyn Mawr	Annualisation Factor Wrexham Chirk Community Hospital	Annualisation Factor Victoria Road AURN	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m^3)	Annualised Data Simple Annual Mean (µg/m^3)
DT/CCBC054	0.9796	1.1377	0.9475	1.0216	13.8	14.1

Table C.4 – Annualisation Summary (concentrations presented in µg/m^3), FCC

Site ID	Annualisation Factor Marchlyn Mawr	Annualisation Factor Wrexham Chirk Community Hospital	Annualisation Factor Victoria Road AURN	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m^3)	Annualised Data Simple Annual Mean (µg/m^3)
ADDC-106	1.0292	1.1091	0.9690	1.0357	12.5	13.0
ADDC-024	1.0802	0.8761	1.0046	0.9870	23.7	23.4
ADDC-118	1.1752	0.9772	0.9558	1.0360	14.2	14.7
ADDC-032	1.0481	0.9542	1.0298	1.0107	16.6	16.8
ADDC-037	1.0219	0.9204	0.8986	0.9470	19.6	18.6
ADDC-081	1.1963	0.9200	0.8506	0.9890	25.2	24.9
ADDC-113	0.8960	1.0329	1.3462	1.0917	9.0	9.8
ADDC-091	1.0330	1.1038	0.9986	1.0451	23.9	25.0
ADDC-123	0.9696	1.1117	1.0255	1.0356	22.9	23.7

Diffusion Tube Bias Adjustment Factors - National

The national bias adjustment factor for Socotec Didcot was derived from the National Diffusion Tube Bias Adjustment Factor Spreadsheet v03/24. In 2023, 28 studies were used to inform the Socotec bias adjustment factor as presented in Table C.5.

Table C.5 – Bias Adjustment Factor - National

Local authority	Laboratory	Method	2023 Bias adjustment factor	Number of studies
IACC	Socotec Didcot	50% TEA in acetone	0.77	28
DCC	Socotec Didcot	50% TEA in acetone	0.77	28
GC	Socotec Didcot	50% TEA in acetone	0.77	28
WCBC	Socotec Didcot	50% TEA in acetone	0.77	28
CCBC	Socotec Didcot	50% TEA in acetone	0.77	28
FCC	Socotec Didcot	50% TEA in acetone	0.77	28

Diffusion Tube Bias Adjustment Factors - Local

WCBC co-located three diffusion tubes alongside the Victoria Road AURN automatic monitor during 2023. The calculation steps and resulting local bias adjustment factor (0.8) for **WCBC** is presented in Table C.6.

FCC has collocated three diffusion tubes, these are ADDC-008, ADDC-083 and ADDC-101. These diffusion tubes have been co-located with the Aston Hill automatic monitor on the A55 in Deeside. The resulting local bias adjustment factor (0.59) for **FCC** is presented in Table C.7**.**

Table C.6 – WCBC Local Bias Adjustment Calculations

	Local Bias Adjustment Input 1
Periods used to calculate bias	10
Bias Factor A	0.8 (0.73 - 0.9)
Bias Factor B	25% (12% - 38%)
Diffusion Tube Mean (µg/m^3)	16.6
Mean CV (Precision)	4.8%
Automatic Mean (µg/m^3)	13.3

	Local Bias Adjustment Input 1
Data Capture	95%
Adjusted Tube Mean (µg/m^3)	13 (12 - 15)

Table C.7 – FCC Local Bias Adjustment Calculations

	Local Bias Adjustment Input 1
Periods used to calculate bias	10
Bias Factor A	0.59 (0.55 - 0.62)
Bias Factor B	71% (61% - 81%)
Diffusion Tube Mean (µg/m^3)	32.9
Mean CV (Precision)	5.2%
Automatic Mean (µg/m^3)	19.2
Data Capture	100%
Adjusted Tube Mean (µg/m^3)	19 (18 - 20)

For **WCBC** a comparison of the two datasets utilising the national BAF of 0.77 versus the local BAF of 0.80 is shown in Table C.8. Using a local factor has resulted in an average 0.56 µgm³ increase in the annual mean average concentrations.

Table C.8 – Comparison of Local and National WCBC Bias Adjustment Factors

Site ID	Simple Annual Mean (µg/m^3)		
	Raw Data	Bias Adjusted	
		National Factor (0.77)	Local Factor (0.8)
1	28.4	21.9	22.7
34	12.6	9.7	10.1
45	22.9	17.6	18.3
36	19.2	14.8	15.4
10	15.3	11.7	12.2
49	10.5	8.0	8.4
42	21.7	16.7	17.4
50	19.0	14.6	15.2
51	19.3	14.9	15.5
52	22.0	16.9	17.6
53	21.2	16.3	16.9
22	19.6	15.1	15.7
32	22.9	17.6	18.3

30	34.3	26.4	27.4
31	29.8	23.0	23.9
33	22.1	17.0	17.6
37	14.6	11.3	11.7
38	16.5	12.7	13.2
44	21.8	16.8	17.5
40	8.6	6.6	6.9
41	13.9	10.7	11.1
43	20.6	15.9	16.5
46	22.5	17.4	18.0
48	17.8	13.7	14.3
54	22.1	17.0	17.7
55	14.9	11.5	11.9
56	18.1	13.9	14.5
57	12.9	10.0	10.3
58	14.7	11.3	11.8
59	12.0	9.3	9.6
60	7.5	5.8	6.0
61	19.5	15.0	15.6

A comparison of the two **FCC** datasets utilising the national BAF of 0.77 versus the local BAF of 0.59 has resulted in an average 3.53 µgm³ reduction in the annual mean average, as shown in Table C.9.

Table C.9 – Comparison of Local and National FCC Bias Adjustment Factors

Diffusion Tube ID	Simple Annual Mean (µg/m^3)		
	Raw Data	Bias Adjusted and Annualised	
		National Factor (0.77)	Local Factor (0.59)
ADDC-008	32.9	25.3	19.4
ADDC-009	18.2	14.0	10.8
ADDC-085	23.8	18.3	14.0
ADDC-111	15.5	11.9	9.1
ADDC-105	15.4	11.9	9.1
ADDC-013	11.0	8.5	6.5

Diffusion Tube ID	Simple Annual Mean (µg/m^3)		
	Raw Data	Bias Adjusted and Annualised	
		National Factor (0.77)	Local Factor (0.59)
ADDC-014	14.9	11.5	8.8
ADDC-015	13.3	10.2	7.8
ADDC-106	12.5	9.6	7.4
ADDC-107	10.5	8.1	6.2
ADDC-084	30.0	23.1	17.7
ADDC-064	31.2	24.1	18.4
ADDC-098	32.1	24.7	19.0
ADDC-117	14.3	11.0	8.4
ADDC-099	28.0	21.6	16.5
ADDC-023	25.8	19.8	15.2
ADDC-024	23.7	19.1	14.6
ADDC-118	14.2	11.6	8.9
ADDC-080	18.6	14.3	11.0
ADDC-066	23.3	17.9	13.7
ADDC-116	19.8	15.2	11.7
ADDC-029	17.9	13.8	10.6
ADDC-030	18.2	14.0	10.7
ADDC-083	33.5	25.8	19.8
ADDC-032	16.6	13.3	10.2
ADDC-033	13.1	10.1	7.7
ADDC-034	16.7	12.9	9.8
ADDC-120	19.3	14.8	11.4
ADDC-036	16.2	12.5	9.6
ADDC-037	19.6	14.5	11.1
ADDC-093	22.3	17.2	13.2
ADDC-044	18.1	14.0	10.7
ADDC-067	21.9	16.8	12.9
ADDC-068	23.2	17.9	13.7
ADDC-069	20.8	16.0	12.3

Diffusion Tube ID	Simple Annual Mean (µg/m^3)		
	Raw Data	Bias Adjusted and Annualised	
		National Factor (0.77)	Local Factor (0.59)
ADDC-070	21.5	16.6	12.7
ADDC-081	25.2	19.9	15.2
ADDC-119	11.5	8.9	6.8
ADDC-114	18.1	14.0	10.7
ADDC-052	12.7	9.8	7.5
ADDC-115	7.7	5.9	4.5
ADDC-112	12.0	9.2	7.1
ADDC-113	9.0	7.8	6.0
ADDC-091	23.9	18.7	14.3
ADDC-108	9.2	7.1	5.4
ADDC-110	17.6	13.6	10.4
ADDC-100	29.1	22.4	17.1
ADDC-060	17.1	13.2	10.1
ADDC-061	16.5	12.7	9.7
ADDC-121	16.7	12.8	9.8
ADDC-101	32.2	24.8	19.0
ADDC-109	11.8	9.1	6.9
ADDC-075	22.9	17.7	13.5
ADDC-102	10.7	8.2	6.3
ADDC-103	10.2	7.8	6.0
ADDC-104	20.9	16.1	12.3
ADDC-089	39.5	30.4	23.3
ADDC-122	26.0	20.0	15.3
ADDC-123	22.9	17.6	13.5

All the sites have remained well below the objective level for NO_2. Box 7.13 of LAQM.TG(22) leaves the decision of which BAF to use up to the local authority providing helpful reasons to favour one over the other. There are aspects within the favourable reasons reported in Box 7.13 of the LAQM.TG(22) document for both the locally obtained and national BAF's which describe Wrexham's circumstances, namely:

For a local BAF*: "Co-location sites with "good" precision for the diffusion tubes and with high quality chemiluminescence results, i.e. to national AURN standards.*

For national BAF*: "Where the survey consists of tubes exposed over a range of settings, which differ from the co-location site."*

WCBC has historically used the nationally derived BAF and for this report has continued to do so. This provides consistency across the monitoring period discussed in this report, allowing for reasonable comparisons and conclusions to be made on the local air quality during recent years.

The diffusion tubes placed across Wrexham can differ in settings compared to the open nature of the co-location study area contrasting with monitoring location, e.g. building facades.

Similarly, **FCC** has historically used the nationally derived BAF, and as a continuation of this approach, the national bias adjustment factor has been applied to monitoring results reported within **FCC** during 2023.

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within any local authority required distance correction during 2023.

QA/QC of Automatic Monitoring

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

WCBC

The particulate monitoring undertaken at Victoria Rd AURN site is with a FIDAS analyser which is a light scattering type analyser. As this is an AURN site and therefore owned by DEFRA and Welsh Government, WCBC has no control over the analysers. Data is available from the https://www.airquality.gov.wales/ website.

The particulate monitors used at both the sites in Chirk are also light scattering analysers. They are classed as MCERTs indicative. Hence, they will measure within +/- 5% of the EU Equivalent monitors. These were seen as giving sufficiently robust monitoring versus costs, ease of use and availability of the monitoring data for public access. They can also easily be redeployed where monitoring is required at short notice, such as in the event of a fire for example.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within North Wales Combined Authorities required distance correction during 2023.

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA 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
AQO	Air Quality Objective
APR	Air quality Annual Progress Report
ATNM	Active Travel Network Map
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
BAF	Bias Adjustment Factor
CCBC	Conwy County Borough Council
CRF	Community Redevelopment Fund
DCC	Denbighshire County Council
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FCC	Flintshire Count Council
FDMS	Filter Dynamics Measurement System
GC	Gwynedd Council
IACC	Isle of Anglesey County Council
LAQM	Local Air Quality Management
LTP	Local Transport Plan
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SDP	Strategic Development Plan
SO_2	Sulphur Dioxide

UKAS	United Kingdom Accreditation Service
WCBC	Wrexham County Borough Council