



Annual Progress Report (APR)



2024 Air Quality Annual Progress Report (APR) for Aberdeenshire Council

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

Local Air Quality Management

26 June 2024

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Executive Summary: Air Quality in Our Area

Aberdeenshire enjoys good air quality with no exceedances of the national air quality objectives. There are no air quality management areas (AQMAs) within Aberdeenshire.

Aberdeenshire is located on the north-east coast of Scotland and surrounds the Aberdeen City Council area. Aberdeenshire covers 6,339 square kilometres and is predominantly a rural area. It stretches from the Cairngorms in the west to the North Sea Coast in the east. Farming Fishing, Forestry and Food as well as work in the Energy Sector are its main industries. The western part of the Council area is dominated by the Grampian mountain range and includes large areas of forest and moorland. The northern, eastern and southern parts of the Council area are somewhat less mountainous with large expanses of agricultural land, coastal grassland and a greater density of small towns.

The population of Aberdeenshire is approximately 263,900 with the largest urban population residing in Peterhead, Fraserburgh, Inverurie, Stonehaven, Westhill and Ellon. A large proportion of the Aberdeenshire population is involved in the Energy Sector. Traditional industries such as farming, forestry, food and fishing also figure highly in Aberdeenshire with approximately one third of Scotland's agricultural produce originating in the region. The industrial and commercial areas are primarily located in the east of the Council area around Aberdeen, Stonehaven, Peterhead and Fraserburgh. A large section of the central region of Aberdeenshire is a commuter region for Aberdeen City with a significant proportion of the local population commuting to Aberdeen City on a regular basis. Aberdeenshire Council is part of NESTRANS – North East Scotland Transport Partnership. Their 2040 strategy follows six key priorities which set the tone and direction of the strategy. These are:

- Improved journey efficiencies to enhance connectivity
- Zero fatalities on the road network
- Air quality that is cleaner than the World Health Organisation standards for emissions from transport
- Significantly reduced carbon emissions from transport to support net-zero by 2045
- Accessibility for all
- A step change in public transport and active travel enabling a 50:50 mode split between car driver and sustainable modes.

Aberdeenshire Council was one of the first councils to set a carbon budget and continues to meet its yearly targets to produce a 75 percent reduction over the 2010/2011 figures by 2030. In 2023 the route map to 2030 and beyond was developed to further facilitate this.

Air Quality in Aberdeenshire Council

The Aberdeenshire Council area enjoys good air quality with no exceedances of the national air quality objectives and latest Nitrogen dioxide data shows the levels have slightly decreased from last year's results. The highest annual mean value obtained for Nitrogen Dioxide, 16.5 µg/m³, being less than half of the national air quality objective. Consequently, there is no requirement for Aberdeenshire Council to declare any air quality management areas (AQMAs).

Actions to Improve Air Quality

Aberdeenshire Council continues to work with internal and external partners to deliver the objectives of Cleaner Air for Scotland 2 – Towards a Better Place for Everyone (CAFS2). Although Aberdeenshire has good air quality we have the following initiatives in place to improve air quality further:-

- Aberdeenshire Council, as part of the North East Transport Partnership is carrying out ongoing work to improve the impact of transport on air quality. [Regional Transport Strategy | Nestrans](#)
- Aberdeenshire Council has a variety of initiatives relating to [Climate change and sustainability - Aberdeenshire Council](#)
- Aberdeenshire Council is committed to [Reducing Greenhouse Gases - Aberdeenshire Council](#)
- Aberdeenshire Council is committed to improving the digital connectivity throughout the area to enable people to work from home [Digital Connectivity - Aberdeenshire Council](#)
- Aberdeenshire Council is committed to promoting active and sustainable transport [Sustainable travel - Aberdeenshire Council](#)

- Aberdeenshire Council is committed to ensuring through its planning policies that air quality is protected. [Aberdeenshire Local development Plan - January 2023 - Introduction and Policies](#)
- Aberdeenshire Council is committed to improving [Energy efficiency - Aberdeenshire Council](#)

Local Priorities and Challenges

There are a large number of biomass installations within the Aberdeenshire area, including many in our rural communities in agricultural holdings. Aberdeenshire Council continues to work with the agricultural sector to identify biomass installations and provide advice and expertise, and to identify these biomass installations ensure the appropriate authorisations are obtained.

As a neighbouring authority to Aberdeen City Council and with the high number of commuting, leisure and other essential journeys between the two authorities, officers from the Council actively engage with officers from the City Council through the participation in meetings and open dialogue through the North East Transport Partnership (NESTRANS). Aberdeenshire Council promotes active and sustainable transport.

Aberdeenshire continues to grow and is projected to have a 6 % increase in the number of households from 2018 to 2028 . [Aberdeenshire Council Area Profile \(nrscotland.gov.uk\)](#) This trend has been reflected in the number of planning applications for new housing developments in 2023. The local development plan considers air quality when assessing these developments.

Aberdeenshire Council will continue to review and assess local air quality in accordance with the statutory monitoring and reporting requirements. There are no specific priorities or challenges for the coming year.

How to Get Involved

For further information on Air Quality in Aberdeenshire, including information on how to obtain previous annual LAQM reports and a link to the Air Quality in Scotland website please visit the air quality section of our website, or follow our social media feeds:

[Air quality in Aberdeenshire - Aberdeenshire Council](#)

Facebook: @EHAberdeenshire

Twitter: @AbshireEnvHlth

You can also find out more about active travel, sustainable travel and advice on funding available to help you choose a low emission vehicle at

<https://www.aberdeenshire.gov.uk/roads-and-travel/transportation/>

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1 Local Air Quality Management

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

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Progress Report (APR) summarises the work being undertaken Aberdeenshire Council to improve air quality and any progress that has been made.

Table 1.1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective Concentration	Air Quality Objective Measured as	Date to be Achieved by
Nitrogen dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen dioxide (NO ₂)	40 µg/m ³	Annual mean	31.12.2005
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
Particulate Matter (PM ₁₀)	18 µg/m ³	Annual mean	31.12.2010
Particulate Matter (PM _{2.5})	10 µg/m ³	Annual mean	31.12.2021
Sulphur dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO ₂)	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO ₂)	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25 µg/m ³	Running annual mean	31.12.2010
1,3 Butadiene	2.25 µg/m ³	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mg/m ³	Running 8-Hour mean	31.12.2003

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMA) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare and publish an Air Quality Action Plan (AQAP) within the shortest possible time and no later than 12 months of the date of AQMA Designation Order. The AQAP must set out measures the local authority intends to put in place in pursuit of the objectives within the shortest possible time. Measures should be provided with milestones and a final date for completion. The action plan itself should have a timescale for completion and for revocation of the AQMA. Where measures to reduce air pollution may require a longer timescale an action plan shall be reviewed and republished within five years of initial publication and then five-yearly thereafter.

Aberdeenshire Council currently does not have any AQMAs and the available evidence suggests that Aberdeenshire benefits from generally good air quality in terms of those emissions currently considered under the LAQM regime 2.2 Cleaner Air for Scotland 2.

2.2 Cleaner Air for Scotland 2

[Cleaner Air for Scotland 2 – Towards a Better Place for Everyone \(CAFS2\)](#) is Scotland's second air quality strategy. CAFS2 sets out how the Scottish Government and its partner organisations propose to further reduce air pollution to protect human health and fulfil Scotland's legal responsibilities over the period 2021 – 2026. CAFS2 was published in July 2021 and replaces [Cleaner Air for Scotland – The Road to a Healthier Future \(CAFS\)](#), which was published in 2015. CAFS2 aims to achieve the ambitious vision for Scotland "to have the best air quality in Europe". A series of actions across a range of policy areas are outlined, a summary of which is available on the Scottish Government's website.

Progress by Aberdeenshire Council against relevant actions for which local authorities are the lead delivery bodies within this strategy is demonstrated below.

2.2.1 Placemaking – Plans and Policies

Local authorities with support from the Scottish Government will assess how effectively air quality is embedded in plans, policies, City Deals and other initiatives, and more generally

in cross departmental working, identifying and addressing evidence, skills, awareness and operational gaps.

Aberdeenshire Council has adopted the Local Development Plan (LDP) 2023. Great care has been taken that the LDP 2023 does not have unavoidable environmental impacts. Protecting and improving assets and resources is one of the six purposes of the LDP 2023. A Strategic Environmental Assessment and the Environment Report conducted by the Council in support of the plan assesses whether there is a potential impact on air quality from each development allocation. In no cases has a site been allocated where a significant adverse impact on air quality was predicted. LDP 2023 contains a specific policy PR1 Protecting Important Resources (see paragraph PR1.2 Air Quality) that identifies that an Air Quality Assessment may be required to demonstrate that any development has no significant adverse impacts on air quality, and that appropriate mitigation to minimise any adverse effects can be provided and implemented. Air quality is also a specific issue identified for both Hazardous and potentially Polluting Developments and Contaminated Land (Policy P4) and Biomass energy generation (within Policy C2 Renewable Energy).

The Aberdeenshire Local Development Plan 2023 is available at
<https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2023/>

The National Planning Framework NP4 came into effect in 2023 and focuses on sustainable places, where we reduce emissions, restore and better connect biodiversity; liveable places, where we can all live better, healthier lives; and productive places, where we have a greener, fairer and more inclusive wellbeing economy.

2.2.2 Transport – Low Emission Zones

Local authorities working with Transport Scotland and SEPA will look at opportunities to promote zero-carbon city centres within the existing LEZs structure.

Aberdeenshire Council has no Low Emission Zones established within the Local Authority area.

2.3 Implementation of Air Quality Action Plan(s) and/or measures to address air quality

Aberdeenshire Council does not have an Air Quality Action Plan but does have various initiatives in place to reduce the impact on air quality.

- Aberdeenshire Council, as part of the North East Transport Partnership is carrying out ongoing work to improve the impact of transport on air quality. One of its key 6 point strategy is to have Air quality that is cleaner than the World Health Organisation Standards for emissions from transport. [Regional Transport Strategy | Nestrans](#)
- Aberdeenshire Council has a variety of initiatives relating to [Climate change and sustainability - Aberdeenshire Council](#)
- Aberdeenshire Council is committed to [Reducing Greenhouse Gases - Aberdeenshire Council](#)
- Aberdeenshire Council is committed to improving the digital connectivity throughout the area to enable people to work from home [Digital Connectivity - Aberdeenshire Council](#)
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- Aberdeenshire Council is committed to improving [Energy efficiency - Aberdeenshire Council](#)

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Aberdeenshire Council does not undertake any automatic (continuous) monitoring within the authority's area.

3.1.2 Non-Automatic Monitoring Sites

Aberdeenshire Council undertook non-automatic (passive) monitoring of NO₂ at 11 sites during 2023. Appendix A shows the details of the sites.

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

3.1.3 Other Monitoring Activities

A trial was carried out in 2023 using low cost air quality sensors in 15 locations throughout Aberdeenshire. However the accuracy and precision of measurements were found to be inconsistent and subsequently the trial has been discontinued.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.4 in Appendix A compares the adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40 µg/m³ at non automatic monitoring sites. The trend shows that the decrease in NO₂ values since 2020 is

being maintained and that the 2023 results are slightly lower than 2022 results. The highest result, 16.5 µg/m³, being less than half the national air quality objective.

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B.

3.2.2 Particulate Matter (PM₁₀)

Aberdeenshire Council does not carry out any monitoring in respect of PM₁₀ and has no plans to do so.

3.2.3 Particulate Matter (PM_{2.5})

Aberdeenshire Council does not carry out any monitoring in respect of PM_{2.5} and has no plans to do so.

3.2.4 Sulphur Dioxide (SO₂)

Aberdeenshire Council does not carry out any monitoring in respect of Sulphur Dioxide and has no plans to do so.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

Aberdeenshire Council does not carry out any monitoring in respect of Carbon Monoxide, Lead and 1,3-Butadiene and has no plans to do so.

4 New Local Developments

4.1 Road Traffic Sources

Aberdeenshire Council confirms there are no newly identified air pollutant sources attributable to the transport sources listed below:

- Narrow congested streets with residential properties close to the kerb
- Busy streets where people may spend one hour or more close to traffic
- Roads with a high flow of buses and/or HGVs
- Junctions
- New roads constructed or proposed
- Roads with significantly changed traffic flows
- Bus or coach stations

4.2 Other Transport Sources

Aberdeenshire Council confirms there are no newly identified air pollutant sources attributable to the sources listed below:

- Airports.
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.
- Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.
- Ports for shipping.

4.2 Industrial Sources

Planning permission was approved for two new poultry farms in Aberdeenshire. One at a site in Gight and the other at Beattock. Planning approval was given for a petrol station to be demolished. New licences granted by SEPA during 2023 are listed below.

Authorisation Activity	Authorisation Date	Site
PPC(B) - Combustion of Fuels	23/03/2023	Fordoun Sawmill, Fordoun, Laurencekirk, AB30 1JR
PPC(B) - Combustion of Fuels	30/06/2023	MCP, Castle Street, Castlepark Industrial Estate, Ellon, AB41 9RF
PPC(B) - Combustion of Fuels	17/07/2023	Ardmore Distillery MCP, Kennethmont, Huntly, AB52 4NH
PPC(B) - Combustion of Fuels	11/08/2023	MCP, Macduff Distillery, Macduff, Banff, AB45 3JT
PPC(B) - Combustion of Fuels	21/09/2023	MCP Glen Garioch Distillery, Distillery Road, Oldmeldrum, Inverurie, AB51 0ES
PPC(B) - Combustion of Fuels	19/12/2023	MCP, Machphie Limited, Glenbervie, Stonehaven, AB39 3YG
Waste - Other Waste Storage and Treatment Sites	03/10/2023	Arthurseat Farm, Hatton Farm Road, Hatton, Aberdeenshire, AB42 0QN
Waste - Other Waste Storage and Treatment Sites	27/10/2023	Birchwood Decommissioning & Recycling Facility, Birchwood Yard, Kinellar, AB21 0SH

4.4 Commercial and Domestic Sources

There were 8 new or proposed biomass installations, one CHP installation and a kiln identified in 2023 through the planning system. Where sufficient information is available, screening assessments and/or dispersion modelling has been carried out. Work also continues to map those installations that are known, across Aberdeenshire with a view to identifying the spatial distribution of these installations and thus any areas which may require additional assessment in terms of cumulative impacts. Although there are a vast

number of biomass installations throughout Aberdeenshire, most of these relate to on-farm biomass (for agricultural purposes) where there is generally low population density.

4.5 New Developments with Fugitive or Uncontrolled Sources

An extension to an existing quarry at Howe of Byth was approved in 2023 and a change of use for a quarry to become a storage area was also approved.

Planning consents for new or extended quarrying developments generally contain a requirement, through planning conditions, for dust suppression measures to be in place.

5 Planning Applications

Planning applications relating to new biomass and CHP installations and new quarrying or extraction operations are discussed in Chapter 4.

Planning applications for various sizes of residential, commercial mixed use developments were received in 2023. Although these developments, in isolation, are not considered to have significant detrimental impact on local air quality they are recorded here should any potential cumulative impacts require consideration in future.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

Aberdeenshire Council carried out diffusion tube monitoring at 11 sites across the local authority area. The diffusion tube monitoring data presented in this report demonstrates that concentrations of NO₂ in Aberdeenshire continue to remain well below the national air quality objectives. The highest annual mean result, 16.5 µg/m³, being less than half the national air quality objective. The level of NO₂ has reduced slightly compared to the 2022 results even with an increase in the number of people going back to their workplace.

No AQMAs have been declared in the Aberdeenshire Council area and no requirement for detailed assessment has been identified.

6.2 Conclusions relating to New Local Developments

Transport Sources

There are no significant changes in transport sources since the previous Annual Report in 2022. There are no current or projected exceedances of relevant national air quality objectives.

Industrial Sources

No industrial sources have been identified that are likely to have significant impact on national air quality objectives.

Commercial and Domestic Sources

A large number of new biomass installations have been identified. Additional information is required to complete screening assessments for some of these new biomass installations. Work is ongoing to map the location of all known biomass plant in Aberdeenshire such that cumulative impacts can be better considered.

Fugitive or Uncontrolled Sources

Potential fugitive or uncontrolled sources of emissions are unlikely to be significant in respect of the national air quality objectives.

6.3 Proposed Actions

Diffusion Tube Monitoring

A new site is required for our background monitoring tube. Trial sites will be set up in 2024 to find a comparable site.

Commercial and Domestic Sources

Work is ongoing to map all of the Biomass installations in Aberdeenshire so that cumulative impacts can be better considered.

Appendix A: Monitoring Results

Table A.1 – Details of Non Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube co-located with a Continuous Analyser?
I/HS	Inverurie 1	Roadside	377408	821583	NO ₂	No	1.8	1.5	No
I/GH	Inverurie 2	Urban Background	376622	821476	NO ₂	No	46.0	53.0	No
I/MC	Inverurie MC	Roadside	377624	821295	NO ₂	No	0.0	1.5	No
I/BR	Inverurie BR	Roadside	376382	821574	NO ₂	No	2.0	2.0	No
I/TH	Inverurie TH	Roadside	377512	821584	NO ₂	No	4.0	2.0	No
W/AM	Westhill AM	Roadside	383526	806645	NO ₂	No	149.0	3.0	No
W/SR	Westhill 2	Roadside	381837	806691	NO ₂	No	10.0	2.4	No
E/SM	Ellon SM	Kerbside	395750	830115	NO ₂	No	4.7	0.5	No
PH/BH	Peterhead BH	Roadside	413379	845906	NO ₂	No	10.0	2.0	No
PH/MS	Peterhead MS	Kerbside	413420	845918	NO ₂	No	0.0	0.8	No
FB/SS	Fraserburgh SS	Roadside	399870	867168	NO ₂	No	0.3	3.0	No

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

Table A.2 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
I/HS	377408	821583	Roadside	100.0	100.0	26.0	14.1	15.0	19.2	15.1
I/GH	376622	821476	Urban Background	100.0	100.0	9.0	4.0	4.0	5.4	5.2
I/MC	377624	821295	Roadside	100.0	100.0	24.0	13.6	17.0	15.2	14.9
I/BR	376382	821574	Roadside	100.0	100.0		11.9	12.0	11.9	11.5
I/TH	377512	821584	Roadside	90.4	90.4		10.7	13.0	13.6	12.1
W/AM	383526	806645	Roadside	81.0	81.0		11.3	14.0	13.7	12.7
W/SR	381837	806691	Roadside	100.0	100.0	18.0	9.4	11.0	9.3	9.0
E/SM	395750	830115	Kerbside	94.2	94.2	18.0	10.4	14.0	11.1	12.1
PH/BH	413379	845906	Roadside	94.2	94.2	20.0	14.1	17.0	16.6	16.5
PH/MS	413420	845918	Kerbside	94.2	94.2	17.0	11.9	15.0	15.0	14.8
FB/SS	399870	867168	Roadside	94.2	94.2		12.3	15.0	13.6	14.2

☒ 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:

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

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

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG(22) 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.

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%).Appendix B: Full Monthly Diffusion Tube Results for 2023

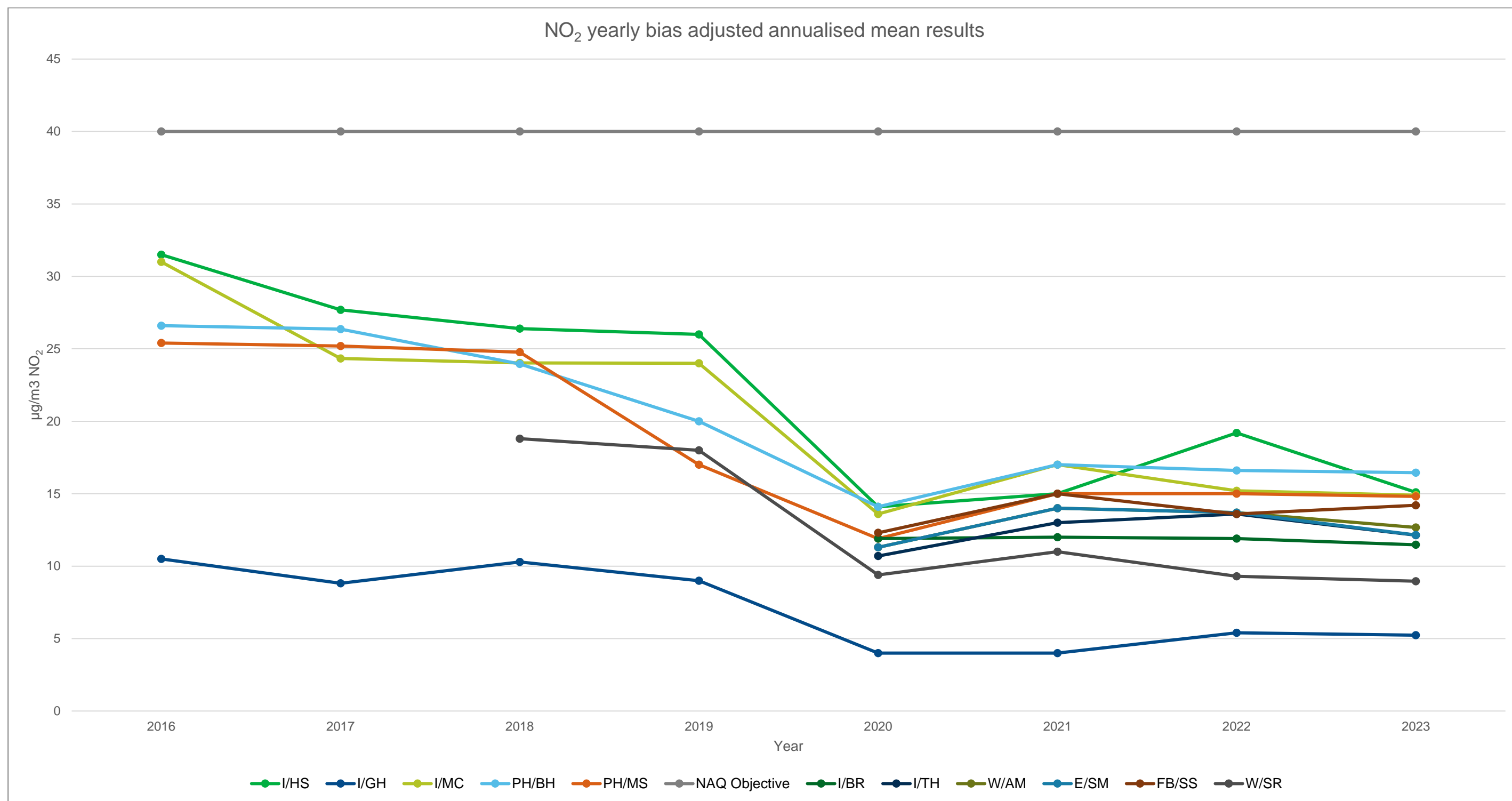
Figure 1 Chart showing yearly bias adjusted annual mean results for NO₂ from 2016

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

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.73)
I/HS	377408	821583	26.0	26.0	23.0	15.0	16.0	17.0	13.0	16.0	19.0	19.0	35.0	22.0	20.7	15.1
I/GH	376622	821476	9.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	14.0	12.0	7.2	5.2
I/MC	377624	821295	21.0	23.0	28.0	19.0	21.0	18.0	13.0	16.0	15.0	17.0	27.0	24.0	20.4	14.9
I/BR	376382	821574	19.0	19.0	19.0	12.0	13.0	11.0	9.0	12.0	12.0	15.0	26.0	20.0	15.7	11.5
I/TH	377512	821584	19.0	19.0	19.0	13.0	16.0	15.0	11.0		14.0	15.0	21.0	19.0	16.6	12.1
W/AM	383526	806645	17.0	16.0	18.0	17.0	17.0	19.0	13.0		15.0	19.0	21.0		17.4	12.7
W/SR	381837	806691	13.0	12.0	14.0	12.0	12.0	10.0	9.0	9.0	8.0	12.0	18.0	17.0	12.3	9.0
E/SM	395750	830115	19.0	22.0	20.0		16.0	17.0	12.0	14.0	14.0	14.0	21.0	14.0	16.6	12.1
PH/BH	413379	845906	23.0	19.0	22.0		17.0	24.0	24.0	23.0	28.0	19.0	25.0	25.0	22.6	16.5
PH/MS	413420	845918	24.0	19.0	21.0		16.0	20.0	21.0	21.0	26.0	17.0	21.0	19.0	20.3	14.8
FB/SS	399870	867168	13.0	18.0	20.0		20.0	33.0	19.0	16.0	18.0	15.0	18.0	20.0	19.5	14.2

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

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

☒ National bias adjustment factor used .

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

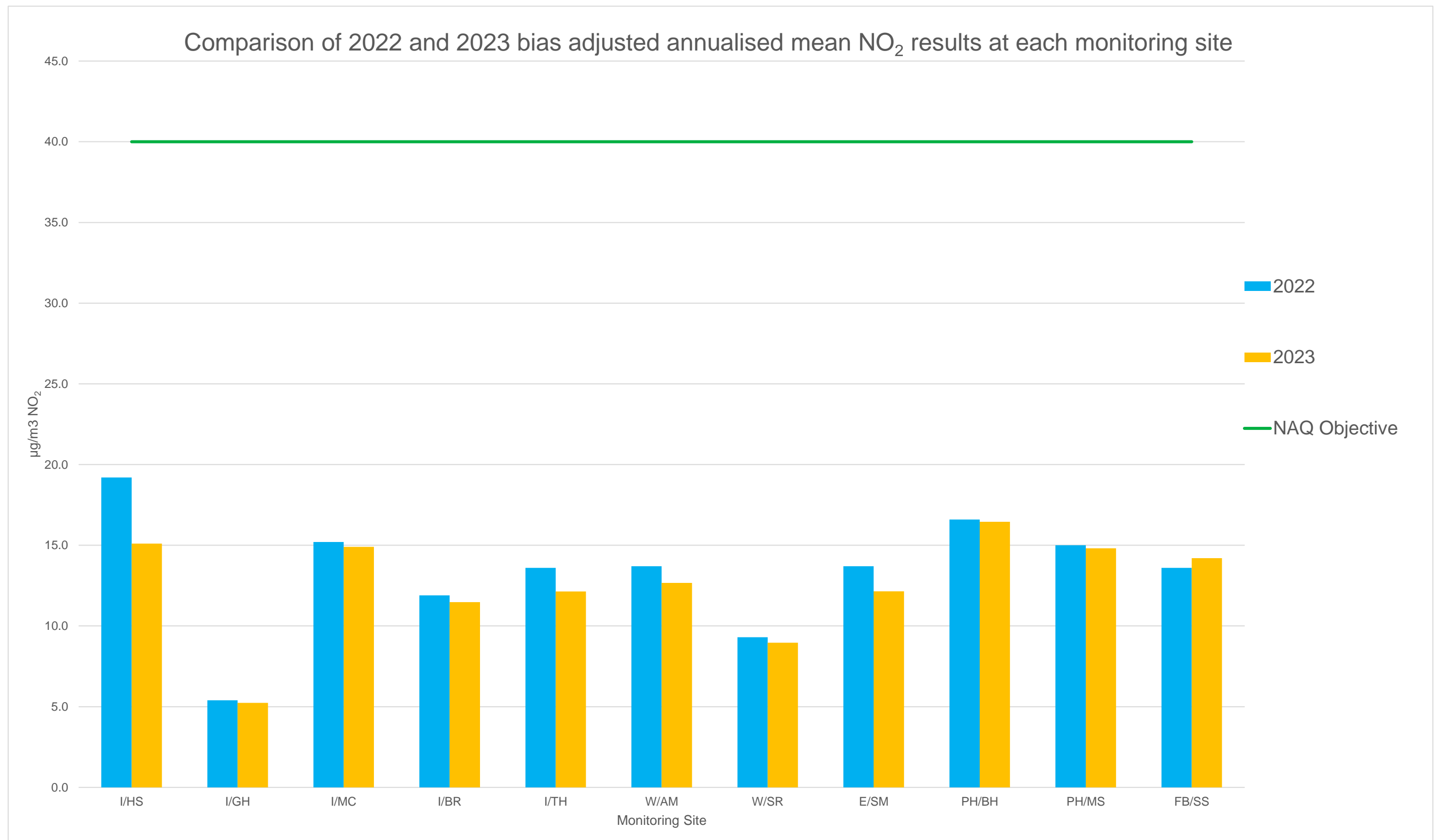
☒ Aberdeenshire Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Figure 2 Chart comparing 2022 and 2023 bias adjusted annualised mean results for NO₂

Appendix B: Map of NO₂ Monitoring Sites



- KEY**
- NO₂ Monitoring Sites ●
- 1 site at Fraserburgh
 - 2 sites at Peterhead
 - 1 site at Ellon
 - 5 sites at Inverurie
 - 2 sites at Westhill

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

New or Changed Sources Identified Within Aberdeenshire Council During 2023.

Aberdeenshire Council has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Aberdeenshire Council During 2023.

Aberdeenshire Council has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

Aberdeenshire Council diffusion tubes are analysed by Aberdeen Scientific Services within Aberdeen City Council. They use the 20% TEA in water preparation method.

Analysis of nitrogen dioxide tubes is part of the laboratories fixed scope of accreditation to ISO17025:2017 with UKAS.

The laboratory participates in the Laboratory of the Government Chemist (LGC) AIR PT scheme. During 2023 the Laboratory participated in all available rounds and all results submitted were satisfactory (z-score < ± 2).

The laboratory also participates in the nitrogen dioxide "inter comparison" exercise, managed by the National Physical Laboratory. During 2023, the Laboratory participated in all available rounds. The annual summary (produced by AEA Energy & Environment) has not yet been released for 2023, however the previous report indicated that all results were classified as "Good" throughout 2022.

Apart from two slight changes in date at the start of the year and in April the monitoring of NO₂ was completed in adherence with the Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Aberdeenshire Council recorded data capture of 75% and above therefore it was not required to annualise any monitoring data.

Diffusion Tube Bias Adjustment Factors

Aberdeenshire Council have applied a national bias adjustment factor of 0.73 to the 2023 monitoring data. The national bias adjustment factor is used rather than a local bias adjustment factor as there are no co-located automatic NO₂ monitoring sites which would allow the local bias factor to be calculated.

Diffusion Tube Bias Adjustment Factors 03/24 Issue of the Spreadsheet				
Laboratory	Method	Year	New (03/24) Factor	
			No. of Studies	Factor
Aberdeen Scientific Services	20% TEA in water	2023	7	0.73

[Database Diffusion Tube Bias Factors v03 24-FINAL.xlsx \(live.com\)](#)

A summary of bias adjustment factors used by Aberdeenshire Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.73
2022	National	03/23	0.76
2021	National	06/22	0.77
2020	National	03/21	0.77
2019	National	03/20	0.81

NO₂ Fall-off with Distance from the Road

No diffusion tube NO₂ monitoring locations within Aberdeenshire Council 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
APR	Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
DT	Diffusion Tube
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (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
SO ₂	Sulphur Dioxide