Annual Progress Report (APR)

Aberdeenshire COUNCIL

2022 Air Quality Annual Progress Report (APR) for Aberdeenshire Council

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

September 2022

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Executive Summary: Air Quality in Our Area

Air Quality in Aberdeenshire Council

Aberdeenshire Council is located on the north-east coast of Scotland and surrounds the Aberdeen City Council area. The Council area is split into two distinct geographical types: 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 the Aberdeenshire Council area is approximately 240,000 with the largest urban populations residing in Peterhead, Fraserburgh, Inverurie, Stonehaven, Westhill and Ellon. A large proportion of the Aberdeenshire population is involved in the off-shore oil and gas industry. A significant proportion of the population are also involved in the traditional industries of farming, forestry and fishing 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.

The Aberdeenshire Council area enjoys good air quality with no exceedances of the national air quality objectives. 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 – The Road to a Healthier Future (CAFS).

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. . This is with a view to assisting and enabling development of a low emission zone, in line with the objectives of CAFS.

Aberdeenshire Council will continue to review and assess local air quality in accordance with the statutory monitoring and reporting requirements.

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 Scottish air pollution forecast please visit the air quality section of our website, or follow our social media feeds:

https://www.aberdeenshire.gov.uk/environment/environmental-protection/atmospheric-pollution/

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/

Table of Contents

List of Tables

1 Local Air Quality Management

This report provides an overview of air quality in Aberdeenshire Council during 2021. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 by 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	31.12.2020
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 (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12 months, setting out measures it intends to put in place in pursuit of the objectives.

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

Cleaner Air for Scotland – The Road to a Healthier Future (CAFS) is a national cross-government strategy that sets out how the Scottish Government and its partner organisations propose to reduce air pollution further to protect human health and fulfil Scotland's legal responsibilities as soon as possible. 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 within this strategy is demonstrated in the following sections.

Aberdeenshire Council are represented (one of two local authority participants) on the Cleaner Air for Scotland 2 Domestic Emissions Working Group.

2.2.1 Transport – Avoiding Travel – T1

Corporate Actions

At a corporate level, Aberdeenshire Council has fully embraced the use of digital technology to improve collaborative working and reduce the need for employees to travel extensively across the council area. Adoption of Office 365 technology has reduced the need for face to face meetings and the use of modern virtual meeting spaces is encouraged where possible. The arrival of the covid-19 pandemic has meant a vast increase in the number of colleagues working from home, holding virtual meetings, etc and

of course has accelerated other projects exploring the delivery of other services using online and virtual technologies.

Prior to the covid-19 pandemic, the low emission car club model for employees carrying out business mileage had been extended to locations in Peterhead, Fraserburgh, Banff/Macduff, Turriff, Strichen, Ellon and Maud.

Additionally, for council staff electric bikes are located at specific offices for free loans up to one week, to provide an opportunity to try cycling to or for work and encourage journeys to be taken in a more sustainable and healthy way. Around a third of staff surveyed use the staff electric bikes in place of a private vehicle, and three quarters report that they are more likely to purchase their own bike after using the scheme.

In addition to the installation of telematics in over 800 of our fleet vehicles, Aberdeenshire Council is trialling hydrogen fuel cell cars in our corporate vehicle fleet in partnership with neighbouring local authority Aberdeen City Council.

Education

The Transportation team education resource pack, called Embedding Active and Sustainable Travel into Education (Eastie), is still evolving in response to relevant educational topics for schools. An air quality lesson plan has been redesigned with more information suitable for rural schools with the ability for schools to carry out their own air quality study using either an air quality monitoring kit, on hire from the transportation team, or by studying different natural materials they would find in their area. An electric vehicle workshop has also been created with electric vehicle building kits with decisions based around alternative fuels.

As part of the government's commitment to providing bikes to all children in Scotland, Aberdeenshire has been 1 of 3 areas trialling loaning bikes to children who do not have bikes. This is run through a project called Access to Bikes and is being initiated by Sustrans and is running in Ellon Academy and Kellands Primary School. The project is coming close to the end of its first year with evaluation to follow but early data shows all 20 bike at each school have been successfully on loan to pupils who have used the bikes to get to school and other journeys. The school also have been given bikes to use within school time as part of bike skill sessions. Building bike maintenance into the curriculum through SQA bike mechanic sessions are in the process of getting off the ground at Ellon Academy. The plan to roll out to another school in the shire is ongoing.

An Active Travel Academies trial project will see 2 schools building a cycle programme for pupils with the aim of led rides and cycle training as well as provision of tools and skills for bike maintenance workshops. These schools are being supported by sustrans to get cycling skills established Eleven schools will also see increased cycle parking provision over the next year through a bike shelter grant that is offered to schools.

Transport Strategy

Work on a new up to date Local Transport Strategy has started. This will set the vision for how Aberdeenshire Council deliver transportation solutions to the transport network.

In terms of wider transport strategy across the Aberdeenshire Council area, the Transport Strategy Team are currently working on various health improvement and emission reduction projects and we are also part of the Getabout partnership with Aberdeen City Council, local universities and colleges and the NHS, promoting active and sustainable travel across the Aberdeen City and Shire region (https://www.getabout.org.uk/).

The Transportation Strategy Development Team have been working alongside colleagues in Economic Development on a project to introduce an electric bike hire scheme at four towns along the Formartine & Buchan Way – one in Ellon, Peterhead and Fraserburgh, and two in Mintlaw. The project aims to encourage active travel and foster healthy and sustainable attitudes towards travel, and also aligns well with aspirations to grow tourism in the region. The project was due to launch in May 2020 with twenty e-bikes but was delayed due to Covid-19 restrictions. The project is progressing with software testing and booking testing taking place currently and is due to be launched Autumn 2022.

Work continues on the Integrated Travel Town (ITT) projects for Fraserburgh, Huntly, Ellon, Inverurie and Portlethen. Full details can be found at https://www.aberdeenshire.gov.uk/roads-and-travel/transportation/integrated-travel-towns/ Some longer distance routes, such as between settlements in Aberdeenshire or cross-boundary between Aberdeenshire and Aberdeen City, are of particular importance due to their high level of use and their linking of key destinations.

Ongoing work to improve these routes is taking place with Aberdeenshire Officers liaise regularly with colleagues in Aberdeen City

Aberdeenshire Council supports employers and employees to minimise the impact of commuting on health and the environment with a range of guidance and practical support tools; https://www.aberdeenshire.gov.uk/roads-and-travel/transportation/commuting/

We have also developed a Low Emission Vehicle Delivery Plan, published October 2018, to support the growth in electric vehicles within Aberdeenshire; https://www.aberdeenshire.gov.uk/roads-and-travel/transportation/electric-vehicles/. Integral to the plan is the expansion of the electric vehicle charging point network, which will play a pivotal role in the reduction of greenhouse gas emissions associated with the transportation sector. Progress has been made in 2022 with charge points now completed in 57 locations. Plans for 22/23, the strategy unit are working with estates to install electric vehicle charging points in many of Aberdeenshire's Leisure facilities and community campuses.

Charge point usage for the period August 2021 to August 2022 was 1,108,032 kWh with 31,505 charges delivered. Compared with the previous year where there was 239,426kWh with 17,653 charges delivered. There has been a 4-fold increase in the amount of kWh used between August 2021 and August 2022 while the number of charges have almost doubled.

The delivery plan supports the national approach on Low Emission Vehicles, cementing Aberdeenshire's place as a proactive authority in support of Carbon reduction, air quality improvements and technological innovation.

Community and stakeholder engagement has started on a new trial project 'Share Space - Rural Walking and Cycling Routes in Aberdeenshire' to promote walking and cycling on rural roads. This project's scope is to transform rural minor country roads into more attractive pathways for all types of users. As this pilot scheme is going on for over 1 year, a survey is now being prepared to evaluate population's opinions about this kind of measures, and the pertinence of expanding the project for further locations.

2.2.2 Climate Change – Effective co-ordination of climate change and air quality policies to deliver co-benefits – CC2

A 'Route Map to 2030 and Beyond' has been developed and is going through Governance procedure at Aberdeenshire Council. The Route Map has determined the types of projects and investment required for the Council to reach its own targets of a 75% reduction in its

emissions by 2030 and Net Zero by 2045 (from a 2010/11 baseline) as set out in the Council's Climate Change Declaration. Reducing the Council's operational emissions will impact air quality positively. Additional work required moving forward is the development of a plan for the Council's residual emissions. This will look to nature based solutions for insetting CO2e emissions that the Council cannot reduce completely. This work will further improve air quality across Aberdeenshire.

Aberdeenshire Council submits an annual report each year in respect of actions that the Council is taking to mitigate and reduce the impacts of climate change. The full reports can be found at https://sustainablescotlandnetwork.org/reports/aberdeenshire-council.

Full details of the ongoing climate change work within Aberdeenshire can be found at https://www.aberdeenshire.gov.uk/environment/environmental-policy/

2.3 Placemaking – Air Quality and the Local Development Plan

Aberdeenshire Local Development Plan 2017 currently provides a framework for land use planning in the Aberdeenshire Council area but will be replaced by the Aberdeenshire Local Development Plan (LDP) 2022 later this year. Within this context, and in the light of the decision by Aberdeenshire Council that they would adopt the LDP 2022 on 21 October 2022, where Scottish Ministers are content with this action, then relevant planning policies for the next reporting period will be the LDP 2022.

Great care has been taken that the LDP 2022 does not have unavoidable environmental impacts. Protecting and improving assets and resources is one of the six purposes of the LDP 2022. 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 202? 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 2017 is available at https://www.aberdeenshire.gov.uk/planning/plans-and-policies/aberdeenshire-local-development-plan-2017/

The LDP 2022 can be viewed at https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2022/.

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 operate any automatic analysers or monitors in respect of the identified LAQM pollutants.

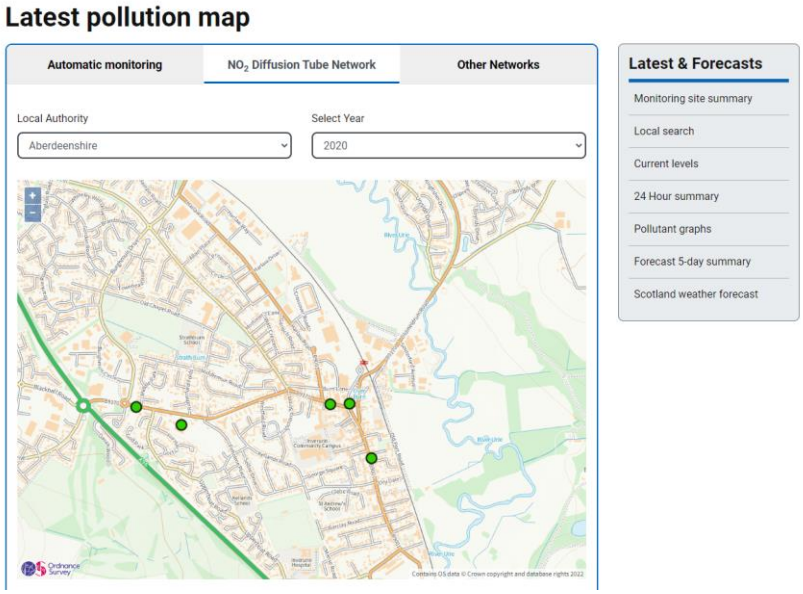
3.1.2 Non-Automatic Monitoring Sites

Aberdeenshire Council undertook non- automatic (passive) monitoring of NO_2 at 11 sites during 2021.

3.2 Individual Pollutants

3.2.1 Nitrogen Dioxide (NO_2)

An interactive map showing the location of Aberdeenshire Council's diffusion tube monitoring network is available at [Latest pollution map (scottishairquality.scot)] by selecting "Aberdeenshire Council" from the Local Authority drop down menu, as show in the image below.



Raw and bias adjusted diffusion tube monitoring results are presented in the Appendices. Further details on adjustments are provided in Appendix C.

As there are no exceedances of the air quality objectives it has not been considered necessary to apply distance correction to obtain concentrations at nearby relevant receptors for any diffusion tube site.

Analysis of the presented data reveals an overall downward trend across Aberdeenshire.

3.2.2 Particulate Matter (PM_{10})

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

3.2.3 Particulate Matter ($PM_{2.5}$)

Aberdeenshire Council does not carry out any monitoring in respect of PM2.5 and there are no current plans to do so.

3.2.4 Sulphur Dioxide (SO_2)

Aberdeenshire Council does not carry out any monitoring in respect of Sulphur Dioxide and has no current 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 current 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 that the following transport sources within the local authority boundary do not meet the criteria specified in the Local Air Quality Management, Technical Guidance (TG16) that would trigger the requirement for a more detailed assessment:

- 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.

4.3 Industrial Sources

All significant industrial processes in Scotland are regulated by the Scottish Environment Protection Agency (SEPA). SEPA have not made Aberdeenshire Council aware of any significant new industrial sources since the previous Annual Progress Report in June 2021.

4.4 Commercial and Domestic Sources

There were 19 new or proposed biomass installations and 1 CHP installation identified in 2021 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

There are various quarrying, extraction, landfill and waste management sites located throughout Aberdeenshire which have the potential to give rise to fugitive dust emissions. Where it has been appropriate and possible to do so, conditions have been placed on planning consents relating to such sites in order to minimise the dust emissions from these sites. Additionally, some such sites are regulated by SEPA in regard to emissions to air.

5 Planning Applications

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

There were no other planning applications where significant effects on air quality were identified.

6 Impact of COVID-19 upon LAQM

During 2021, the ongoing Covid-19 pandemic presented no difficulties from a data collection point of view, with 100% data coverage across all sites.

From the trend analysis (of longer term sites) in Appendix D, NO_2 concentrations observed at diffusion tube monitoring sites generally decreased in recent years with a marked fall observed during 2020 when there were a number of lockdown periods as part of the pandemic restrictions. With the reopening of some activities and increased movement of people during 2021, there is a slight rise in NO_2 concentrations from those very low levels observed during 2020. This slight increase is not unexpected as traffic and transport increased following this easing of local and national pandemic restrictions. Levels remain significantly below the national objectives.

7 Conclusions and Proposed Actions

7.1 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 NO_2 in Aberdeenshire continue to remain below the national air quality objectives; indeed, (although an uptick in concentrations has been observed following the removal of lock down restrictions in 2020), the general historic trend in NO_2 concentrations across the sites continues to be downward.

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

7.2 Conclusions relating to New Local Developments

Transport Sources

There are no significant changes in transport sources since the previous Annual Report in 2021.

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.

7.3 Proposed Actions

Diffusion Tube Monitoring Data

With the Covid-19 pandemic bringing changes to the movement of people and road vehicles around Aberdeenshire it is prudent to continue monitoring at all 11 locations throughout 2022 to establish what the longer term concentrations are at each of these locations. Furthermore, there is continuing uncertainty over the concentrations of NO_2 at monitoring locations in Peterhead and Fraserburgh due to potential impacts of Brexit on the movement of HGVs transporting fish/fish products from these major fishing ports.

All diffusion tube monitoring sites will be reviewed again once the 2022 monitoring calendar is complete and bias adjusted data is available.

Commercial and Domestic Sources

Information will be sought in respect of biomass installations where sufficient information has not yet been provided. Screening assessments will be completed in due course following receipt of the required information.

Work on mapping all known biomass installations in Aberdeenshire will continue.

An update on biomass installations in Aberdeenshire will be provided in the next Annual Report in 2023.

Other Monitoring Data

Aberdeenshire Council is taking part in an Internet of Things Trial Project examining the value of using low cost air quality sensors at locations across the local authority area. At the time of writing, all 15 trial sensors have been installed and are undergoing data quality checks. Further details on our experience of using these sensors will be provided in the next Annual Report in 2023.

Concluding Action

Aberdeenshire Council intends to submit an Annual Progress Report in 2023.

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	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)
I/HS	Inverurie 1	Roadside	377408	821583	NO_2	1.8	1.5
I/GH	Inverurie 2	Background	376622	821476	NO_2	46.0	53.0
I/MC	Inverurie MC	Roadside	377624	821295	NO_2	0.0	1.5
I/BR	Inverurie BR	Roadside	376382	821574	NO_2	2.0	2.0
I/TH	Inverurie TH	Roadside	377512	821584	NO_2	4.0	2.0
W/AM	Westhill AM	Roadside	383526	806645	NO_2	149.0	3.0
W/SR	Westhill 2	Roadside	381837	806691	NO_2	10.0	2.4
E/SM	Ellon SM	Kerbside	395750	830115	NO_2	4.7	0.5
PH/BH	Peterhead BH	Roadside	413379	845906	NO_2	10.0	2.0
PH/MS	Peterhead MS	Kerbside	413420	845918	NO_2	0.0	0.8
FB/SS	Fraserburgh SS	Roadside	399870	867168	NO_2	0.3	3.0

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).

(2) N/A if not applicable.

Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Monthly Diffusion Tube Results (µg/m^3)

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Bias Adjusted (1)
I/HS	26	<5	14	12	16	15	17	17	22	24	34	30	19	15
I/GH	15	9	5	6	<5	<5	<5	<5	6	7	9	12	6	4
I/MC	33	20	18	20	21	16	18	20	22	19	23	28	22	17
I/BR	28	17	16	16	14	11	?	14	14	16	20	25	16	12
I/TH	27	17	12	13	18	12	12	13	20	18	21	26	17	13
W/AM	23	28	12	17	20	13	16	16	20	17	16	24	19	14
W/SR	25	14	11	16	16	9	13	13	13	11	15	13	14	11
E/SM	17	17	14	17	19	15	16	16	21	23	18	22	18	14
PH/BH	19	28	19	14	15	21	20	20	36	25	19	23	22	17
PH/MS	19	23	17	11	12	17	17	14	34	25	19	23	19	15
FB/SS	21	26	16	16	25	16	19	16	22	14	14	21	19	15

Notes:

(1) See Appendix C for details on bias adjustment

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

QA/QC of Diffusion Tube Monitoring

Aberdeenshire Council diffusion tubes are analysed by Aberdeen Scientific Services within Aberdeen City Council.

The National Diffusion Tube Bias Adjustment Spreadsheet, version 06/22 presents Tube Precision for Aberdeen Scientific Services as **GOOD**.

Aberdeen Scientific Services (ASSL) participates in the AIR NO2 PT scheme. ASSL has a 100% SATISFACTORY score for all AIR-PT rounds in 2021 (AR042, AR043, AR045, AR046).

(performance statistics available at WASP – Annual Performance Criteria for NO2 Diffusion Tubes (defra.gov.uk))

Diffusion Tube Annualisation

Data capture at all long term sites was excellent (100% data capture) although there were some departures from the suggested exposure periods in the diffusion tube monitoring calendar at Ellon, Peterhead and Fraserburgh sites, where tubes were exposed for one extra week in Period 4 and consequently one less week in Period 5. Additionally, for these same sites Period 12 was extended by 4 days due to seasonal leave. As diffusion tubes were continually exposed, data has not been annualised. It is acknowledged that the extended length of exposure may have affected these results. Notwithstanding, it is not anticipated that the overall results from diffusion tube monitoring at any site within Aberdeenshire Council would have changed significantly by these anomalous exposure times. It is expected that nitrogen dioxide concentrations at all monitoring locations remain well below the national objectives.

Diffusion Tube Bias Adjustment Factors

Aberdeenshire Council does not operate, or have within the local authority boundary, any continuous monitoring sites for NO_2. Aberdeenshire Council diffusion tubes are analysed

by Aberdeen Scientific Services with Aberdeen City Council. For this reason Aberdeenshire Council have applied the relevant national bias adjustment factor (for ASSL) of 0.77 to the 2021 monitoring data. 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

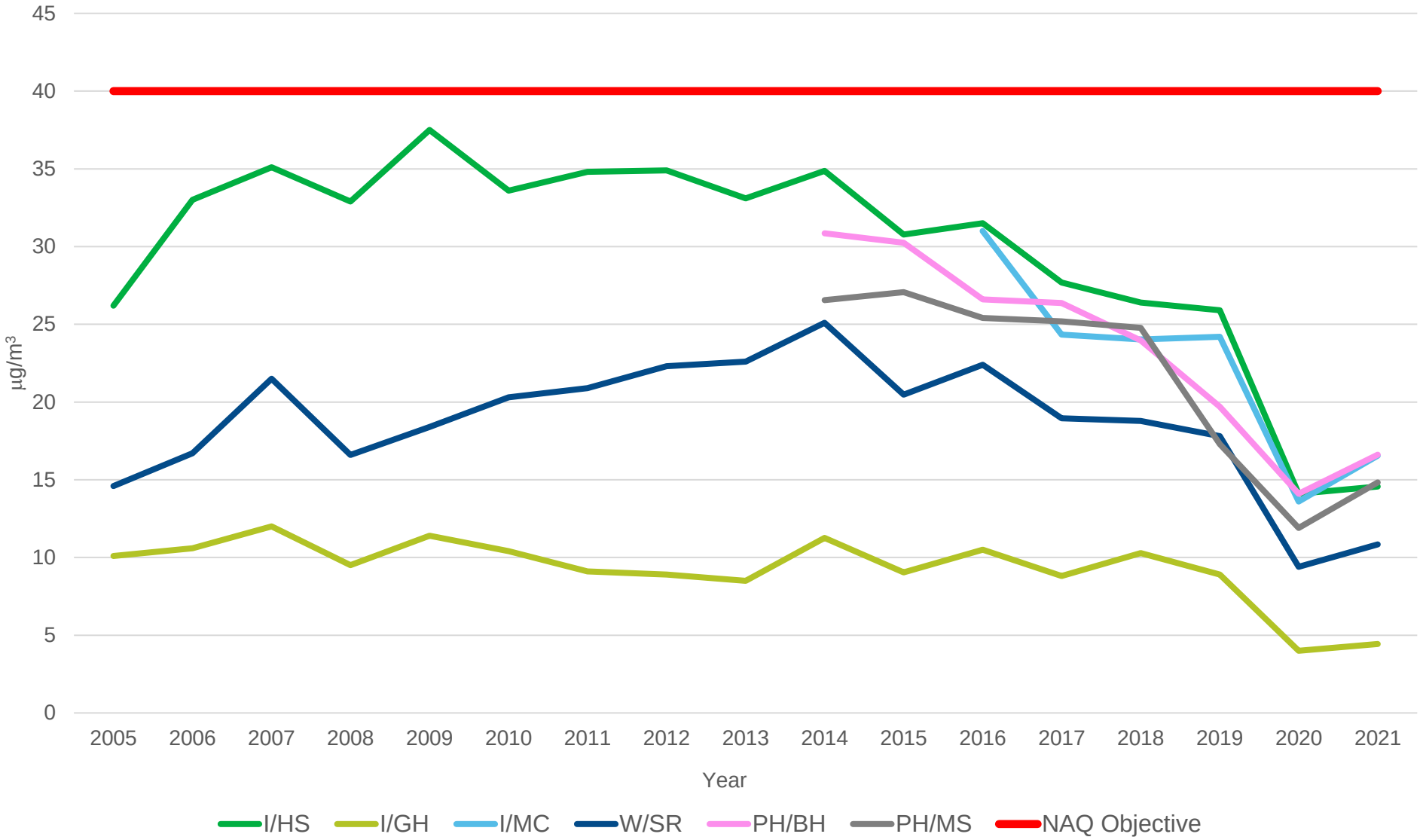
Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	06/22	0.77
2020	National	03/21	0.77
2019	National	03/20	0.81
2018	National	03/19	0.81
2017	National	03/18v03	0.78

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within Aberdeenshire Council required distance correction during 2021.

Appendix D: Diffusion Tube Trends

Figure D.1 Aberdeenshire Diffusion Tube Trends at Long Term Sites 2005-2021



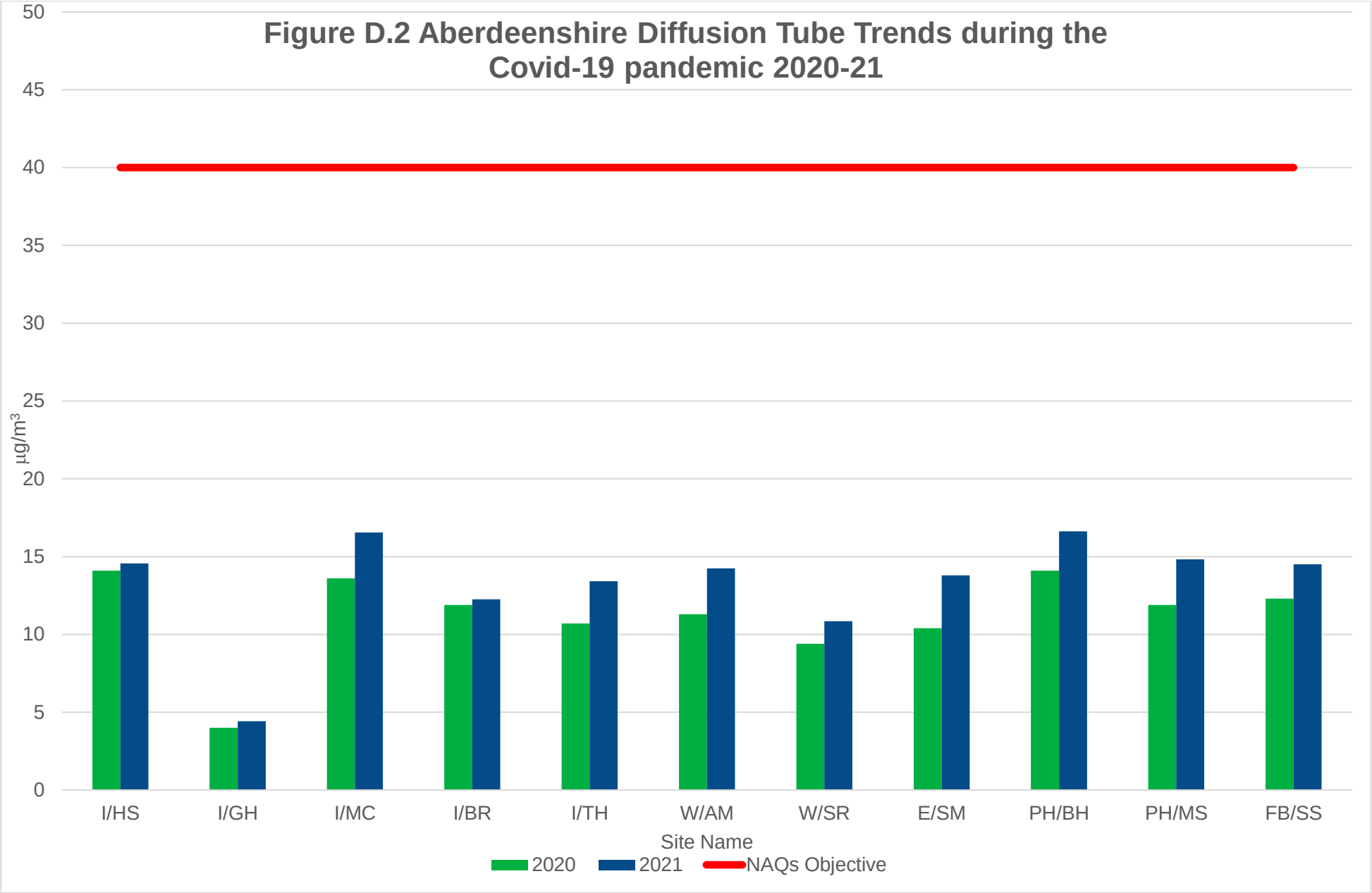


Figure D.2 Aberdeenshire Diffusion Tube Trends during the Covid-19 pandemic 2020-21
50
45
40
35
30
25
20
15
10
5
0
µg/m3
I/HS
I/GH
I/MC
I/BR
I/TH
W/AM
W/SR
E/SM
PH/BH
PH/MS
FB/SS
Site Name
2020
2021
NAQs Objective

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	Air quality 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
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