



Moray Council
Annual Progress Report 2023

Bureau Veritas

May 2023

Move Forward with Confidence



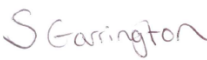

**BUREAU
VERITAS**

Document Control Sheet

| Identification | |
|-------------------------------|------------------------------|
| Client | Moray Council |
| Document Title | Annual Progress Report– 2023 |
| Bureau Veritas Ref No. | AIR16258549 |

| Contact Details | | |
|---------------------|--|--|
| Company Name | Bureau Veritas UK Limited | Moray Council |
| Contact Name | Hannah Pearson | Andrew Stewart |
| Position | Senior Consultant | Environmental Health Officer |
| Address | 2nd Floor, Atlantic House Atlas Business Park Simonsway Manchester M22 5PR | Moray Council High Street Elgin Moray IV30 1BX |

| Configuration | | | | |
|---------------|--------|--------------|-------------------------------------|--------|
| Version | Date | Author | Reason for Issue/Summary of Changes | Status |
| v1.0 | 4/5/23 | S Garrington | First Issue | Final |
| | | | | |

| | Name | Job Title | Signature |
|--------------------|--------------|-------------------|---|
| Prepared By | S Garrington | Consultant |  |
| Approved By | H Pearson | Senior Consultant |  |

Commercial In Confidence

© Bureau Veritas UK Limited

The copyright in this work is vested in Bureau Veritas UK Limited, and the information contained herein is confidential. This work, either in whole or in part, may not be reproduced or disclosed to others or used for any purpose, other than for internal client evaluation, without Bureau Veritas' prior written approval.

Bureau Veritas UK Limited, Registered in England & Wales, Company Number: 01758622
Registered Office: Suite 206 Fort Dunlop, Fort Parkway, Birmingham B24 9FD

Disclaimer

This Report was completed by Bureau Veritas on the basis of a defined programme of work and terms and conditions agreed with the Client. Bureau Veritas confirms that in preparing this Report it has exercised all reasonable skill and care taking into account the project objectives, the agreed scope of works, prevailing site conditions and the degree of manpower and resources allocated to the project. Bureau Veritas accepts no responsibility to any parties whatsoever, following the issue of the Report, for any matters arising outside the agreed scope of the works. This Report is issued in confidence to the Client and Bureau Veritas has no responsibility to any third parties to whom this Report may be circulated, in part or in full, and any such parties rely on the contents of the report solely at their own risk.

Unless specifically assigned or transferred within the terms of the agreement, the consultant asserts and retains all Copyright, and other Intellectual Property Rights, in and over the Report and its contents.

Any questions or matters arising from this Report should be addressed in the first instance to the Project Manager

Annual Progress Report (APR)



2023 Air Quality Annual Progress Report (APR) for Moray Council

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

Local Air Quality Management

May 2023

| Information | Moray Council Details |
|--------------------------------|--|
| Local Authority Officer | Andrew Stewart |
| Department | Economic Growth and Development |
| Address | Moray Council High Street Elgin Moray IV30 1BX |
| Telephone | 01343 563361 |
| E-mail | andrew.stewart@moray.gov.uk |
| Report Reference Number | AIR16258549 |
| Date | May 2023 |

Executive Summary: Air Quality in Our Area

The following Annual Progress Report (APR) was prepared and written by Bureau Veritas on behalf of Moray Council in accordance with Local Air Quality Management (LAQM) Technical Guidance (TG(22)), published by Defra on behalf of the devolved administrations.

Air Quality in Moray

There are no existing significant air quality issues identified within the Moray Council administrative area. The Council has examined the 2022 air quality monitoring results in its area and concludes that no new detailed assessments are required for any pollutant.

Air Quality in the Moray Council area is monitored via a network of passive diffusion tubes. The measured 2022 annual mean concentrations of NO₂ within the Moray Council area remain well below the Air Quality Standards (AQS) set by the Scottish Government. In summary, the following monitoring statistics are observed for 2022:

- A maximum measured annual mean NO₂ concentration of 16.0 µg/m³ was monitored at West Park Court (Elgin 1), well below the annual mean NO₂ Scottish Air Quality Standard of 40 µg/m³. This was a decrease of approximately 1.3 µg/m³ as compared to the 2021 monitoring results at the same site.
- Measured 2022 annual mean NO₂ concentrations show a decrease as compared to the 2021 results at 12 out of the 13 monitoring locations.

Actions to Improve Air Quality

Although there are currently no designated AQMAs within the Moray Council area and thus, no specific planned actions to implement air quality improvement measures, Moray Council is addressing air quality through local policies and plans and works to manage local air quality through a monitoring network within the Council area.

The Moray Council Active Travel Strategy (Ref-2) was updated and adopted on 15th November 2022. The new Moray Council Active Travel Strategy covers 2022-2027 and sets out how Moray Council will encourage more non-motorised travel within Moray through a series of programmes of direct measures and behaviour change programmes. Most

notably, the updated Active Travel Strategy aims to build on the increase in walking and cycling.

The Second Moray Local Transport Strategy (2011) applies to the Moray Council area and sets out a framework for taking forward transport policy and infrastructure. The strategy is split into two parts to firstly set out the seven key transport topics, and then the progress to date and policy guidance.

The Elgin Transport Strategy (Ref-3) was adopted in August 2017 and develops ways to help people become more active, walking and cycling more often, and promotes more use of public transport. The policy has developed for the Elgin area within Moray Council. The policy aims to achieve its transport goals over a 13-year period through improvements to the transport network, promotion of public transport and contribution to review of the Moray Local Development Plan (Ref-1).

Local Priorities and Challenges

Moray Council has no specific priorities for the coming year for the improvement of air quality in its area but will continue monitoring at the existing diffusion tube sites in the area to identify any future changes in pollution concentrations.

How to Get Involved

Members of the public can contribute to improving local air quality by taking alternative modes of transport where possible, becoming part of a cycle to work scheme, walking short distances instead of driving and when driving is unavoidable, taking part in car sharing schemes. Detailed information on local transport and links to major travel means can be found at:

www.moray.gov.uk/moray_standard/page_1677.html

The Local Transport Strategy promotes sustainable forms of travel through activities and initiatives including developing new walking and cycling infrastructure, promoting public transport, car sharing, efficient driving techniques and the use of electric vehicles. More information, including cycle routes and electric vehicle charging point locations within the Moray Council area, is available at:

www.moray.gov.uk/moray_standard/page_57100.html

If you have any concerns or require further information on air quality, please contact Environmental Health or visit the Moray Council website at www.moray.gov.uk and search for “air quality”.

The previous LAQM reporting, including the 2020/2021 APR, is available on the Moray Council website at: www.moray.gov.uk/moray_standard/page_1790.html.

Table of Contents

| | |
|--|----------|
| Executive Summary: Air Quality in Our Area | i |
| Air Quality in Moray | i |
| Actions to Improve Air Quality | i |
| Local Priorities and Challenges | ii |
| How to Get Involved | ii |
| 1. Local Air Quality Management..... | 1 |
| 2. Actions to Improve Air Quality | 2 |
| 2.1 Air Quality Management Areas | 2 |
| 2.2 Cleaner Air for Scotland 2..... | 2 |
| 2.2.1 Placemaking – Plans and Policies..... | 2 |
| 2.2.2 Transport – Low Emission Zones | 3 |
| 2.2.3 – Further Air Quality Actions..... | 3 |
| 3. Air Quality Monitoring Data and Comparison with Air Quality Objectives | 6 |
| 3.1 Summary of Monitoring Undertaken | 6 |
| 3.1.1 Automatic Monitoring Sites | 6 |
| 3.1.2 Non-Automatic Monitoring Sites | 6 |
| 3.1.3 Other Monitoring Activities..... | 6 |
| 3.2 Individual Pollutants..... | 6 |
| 3.2.1 Nitrogen Dioxide (NO ₂) | 6 |
| 3.2.2 Particulate Matter (PM ₁₀) | 8 |
| 3.2.3 Particulate Matter (PM _{2.5}) | 8 |
| 3.2.4 Sulphur Dioxide (SO ₂) | 8 |
| 3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene..... | 8 |
| 4. New Local Developments | 9 |
| 4.1 Road Traffic Sources..... | 9 |
| 4.2 Other Transport Sources | 9 |
| 4.3 Industrial Sources..... | 9 |
| 4.4 Commercial and Domestic Sources..... | 9 |

| | |
|---|-----------|
| 4.5 New Developments with Fugitive or Uncontrolled Sources | 9 |
| 5. Planning Applications | 10 |
| 6. Conclusions and Proposed Actions..... | 11 |
| 6.1 Conclusions from New Monitoring Data..... | 11 |
| 6.2 Conclusions relating to New Local Developments | 11 |
| 6.3 Proposed Actions | 11 |
| Appendix A: Monitoring Results | 12 |
| Appendix B: Full Monthly Diffusion Tube Results for 2022 | 16 |
| Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC | 17 |
| New or Changed Sources Identified Within Moray Council During 2022..... | 17 |
| Additional Air Quality Works Undertaken by Moray Council During 2022..... | 17 |
| QA/QC of Diffusion Tube Monitoring | 17 |
| Diffusion Tube Annualisation..... | 17 |
| Diffusion Tube Bias Adjustment Factors | 17 |
| NO ₂ Fall-off with Distance from the Road..... | 18 |
| Appendix D: Monitoring Locations Maps | 19 |
| Glossary of Terms | 23 |
| References | 24 |

List of Tables

| | |
|--|----|
| Table 1.1 – Summary of Air Quality Objectives in Scotland..... | 1 |
| Table 4.1 – New Commercial and Domestic Sources in the Moray Council Administrative Area in 2022 | 9 |
| Table A.1 – Details of Non-Automatic Monitoring Sites | 12 |
| Table A.2 – Annual Mean NO ₂ Monitoring Results (µg/m ³) | 14 |
| Table B.1 – NO ₂ 2022 Monthly Diffusion Tube Results (µg/m ³)..... | 16 |
| Table C.1 – Bias Adjustment Factor | 18 |

List of Figures

| | |
|--|----|
| Figure 1 Diffusion Tube Monitoring Locations (1) | 19 |
| Figure 2 Diffusion Tube Monitoring Locations (2) | 20 |
| Figure 3 Diffusion Tube Monitoring Locations (3) | 21 |
| Figure 4 Diffusion Tube Monitoring Locations (4) | 22 |

1 Local Air Quality Management

This report provides an overview of air quality in Moray Council during 2022. 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 by Moray 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 (AQMAs) 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.

Moray Council currently does not have any AQMAs.

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 Moray 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.

The Active Travel Strategy (Ref-2) aims to build on the increase in walking and cycling in Moray from 2022-2027. The plan embeds the ethos that Active Travel has many benefits to both communities and individuals and has a number of positive outcomes for public health, social inclusion, reducing the environmental impact of transport and for supporting local economic activity. Further detail on the Active Travel Strategy is found in section 2.3.3.

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.

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

Emissions from the council's vehicle fleet mainly come from diesel fuel, the replacement of which for our HGV and large bus fleet presents a challenge. At the start of 2022, 8% of the council's fleet has already been changed to electric, this and a programme to implement supporting infrastructure will continue.

2.2.3 – Further Air Quality Actions

Moray Local Development Plan

Moray Council adopted the Moray Local Development Plan 2015 in July 2015 (Ref-1). This plan provides a single forward planning document that presents a vision and spatial strategy for directing growth in Moray for the next 10-20 years and includes the following two policies that are relevant to air quality:

- Policy EP 8 'Pollution' aims to ensure that new developments do not create pollution which could adversely affect the environment or local amenity. It states that "*Planning applications for developments that may cause significant pollution in term of noise (including RAF aircraft noise), air, water and light emissions will be only approved where detailed assessments report on the levels, character and transmission of the potential pollution is provided by the applicant. The assessment should also demonstrate how the pollution can be appropriately mitigated.*"; and

- Policy EP 12 'Air Quality' aims to protect air quality and seeks to direct sensitive development away from areas of poor air quality and thereby protect human health and the natural environment. It states that "*Development proposals, which, individually or cumulatively, may adversely affect the air quality in an area to a level which could cause harm to human health and wellbeing, or the natural environment must be accompanied by appropriate provisions (deemed satisfactory to the Council and Scottish Environment Protection Agency as appropriate) which demonstrate how such impacts will be mitigated.*".

Moray Council Active Travel Strategy

Moray Council adopted the Moray Council Active Travel Strategy 2022-2027 (Ref- 2) in 2017. This strategy sets out how Moray Council will encourage more non-motorised travel within Moray through a series of programmes of direct measures and behaviour change programmes. Delivery will be through the Council's own programme of promoting sustainable and active travel and cross departmental work with other areas of the Council in addition to the ongoing partnership approach with external funders, the community and other interested parties. Active travel includes all forms of non-motorised travel i.e., travel that encourages physical activity and so is beneficial to both health and the environment.

The Active Travel Strategy objectives are:

1. Increase the number of active travel journeys made within Moray.
2. Increase the modal share of both walking and cycling journeys to work and school.
3. Contribute to a reduction in the number of motorised journeys made within Moray.
4. Create and maintain a comprehensive network of safe and user-friendly infrastructure for active travel that meets people's needs.
5. Implement a programme of activities designed to encourage more people to travel actively more often.
6. Raise awareness of the active travel network and the benefits of travelling actively.

It should be noted that it is likely that transport-related plans and strategies may be reviewed to take account of any guidance issued in respect of the Covid-19 pandemic.

Elgin Transport Strategy

Moray Council adopted the Elgin Transport Strategy (Ref-3) in August 2017. The strategy:

- Sets out proposals for improvements to the transport network across the city of the next 13 years including roads, junctions, crossings and cycle routes.
- Develops ways to help people become more active, walking and cycling more often and promotes more use of public transport; and
- Helps to shape the future development of Elgin by contributing to the next review of the Moray Local Development Plan (Ref-1).

Additionally, the Second Moray Local Transport Strategy (MLTS2) (Ref- 4) has been prepared in order to help plan for improved transport infrastructure and services within Moray. MLTS2 has been split into two parts. Part One provides information on the main strategy, outlines the key and secondary objectives together with action plans and information on committed schemes for each of the seven key topics covered including Active Travel, Public Transport, Ports and Harbours, Roads, Freight Transport, Travel Behaviour and Traffic Management. Part Two summarises the background information, achievements to date, key issues, linkages with other National, Regional and Local policies guidance and also the relationships with other key agencies.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how local concentrations of the main air pollutants compare with the objectives.

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

3.1.2 Non-Automatic Monitoring Sites

Moray Council undertook non- automatic (passive) monitoring of NO₂ at 19 sites during 2022. Table A.1 in Appendix A shows the details of the sites.

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

3.1.3 Other Monitoring Activities

No additional monitoring activities were undertaken by Moray Council in 2022.

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.2 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40 µg/m³.

For diffusion tubes, the full 2022 dataset of monthly mean values is provided in Appendix B.

No automatic monitoring has been undertaken within Moray Council's area of jurisdiction, and so it is not possible to directly compare the measured data to the 1-hour mean air quality objective. A proxy value of 60 $\mu\text{g}/\text{m}^3$ has been utilised to identify any potential exceedences of the 1-hour mean objective. Analysis of long-term monitoring data suggests that if a measured annual mean NO_2 concentration is less than 60 $\mu\text{g}/\text{m}^3$ then the 1-hour mean NO_2 objective is likely to be met in accordance with LAQM.TG(22) (Ref-5). There are no monitored NO_2 annual average concentrations of 60 $\mu\text{g}/\text{m}^3$ or greater within Moray Council within 2022.

Several monitoring periods in 2022 recorded values below the limit of detection (shown as 5 $\mu\text{g}/\text{m}^3$ in Table B.1 in Appendix B. These are likely to be a result of diffusion tubes performance at lower concentrations. Where concentrations have been measured as below the limit of detection, these have been assumed to be 5 $\mu\text{g}/\text{m}^3$ to adopt a conservative approach.

Measured NO_2 concentrations at all diffusion tube locations were well below the annual mean objective. The highest NO_2 annual average concentration during 2022 was 16.0 $\mu\text{g}/\text{m}^3$ at Elgin 1. As measured concentrations are well below 60 $\mu\text{g}/\text{m}^3$, it is considered that there were no exceedences of the 1-hour annual average NO_2 objective during 2022.

Measured annual average NO_2 concentrations across the Moray Council area were lower than 2021 at all locations, except Aberlour 1. The largest decreases was observed at Elgin 9 with a decrease in NO_2 concentrations of 2.7 $\mu\text{g}/\text{m}^3$.

During 2022, the LAQM calendar of suggested exposure was followed during all monitoring periods.

As all monitored NO_2 concentrations across the Moray Council area are well below the annual average objectives, it is not considered necessary to declare any new AQMAs within Moray Council.

3.2.2 Particulate Matter (PM₁₀)

Moray Council does not undertake any monitoring for PM₁₀ and does not expect PM₁₀ concentrations to exceed AQS(S) objectives.

3.2.3 Particulate Matter (PM_{2.5})

Moray Council did not undertake PM_{2.5} monitoring during 2020 or 2021 and has no current future plans to undertake such. It is not anticipated that PM_{2.5} concentrations within Moray Council exceed the relative air quality objective.

3.2.4 Sulphur Dioxide (SO₂)

Sulphur dioxide is not monitored within the Moray Council area. It is not expected that existing SO₂ emissions will cause SO₂ objectives to be exceeded.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

There is no monitoring of carbon monoxide, lead or 1,3-Butadiene within the Moray Council area. It is not expected that existing emissions of carbon monoxide, lead or 1,3-Butadiene will exceed the AQS(S) objectives.

4 New Local Developments

4.1 Road Traffic Sources

There have been no new planning applications for local developments of road traffic sources in 2022.

4.2 Other Transport Sources

There have been no planning applications for local developments of other transport sources in 2022.

4.3 Industrial Sources

There have been no planning applications for local developments of industrial sources in 2022.

4.4 Commercial and Domestic Sources

In 2022, an application for commercial and domestic sources was submitted in Moray Council. This application is still pending a decision. The information for this source is outlined in Table 4.1.

Table 4.1 – New Commercial and Domestic Sources in the Moray Council Administrative Area in 2022

| Year | Planning Reference | Proposal | Decision |
|------|--------------------|---|----------|
| 2022 | 22/01673/EIA | Erection of whisky maturation warehouses and associated works on Land West Of Glenrothes Distillery, Burnside Street Rothes, Moray | Pending |

4.5 New Developments with Fugitive or Uncontrolled Sources

There have been no planning applications for local developments of commercial and domestic sources in 2022.

5 Planning Applications

There were no known planning applications during 2022 for new developments which may affect air quality within the Moray Council administrative area.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

The results of the NO₂ monitoring across the Moray Council area during 2022 confirm that there are no exceedances of the annual average NO₂ objectives. Available monitoring data from 2018 to 2020 shows an overall stable, decreasing trend in NO₂ concentrations. During 2020, NO₂ concentrations decreased at all monitoring locations relative to the 2019 data. This decrease is larger than previous years which is likely due to the COVID-19 pandemic, which added restrictions from March 2020 and in response road transport across the area decreased. During 2022, the monitoring data shows an decrease in annual average NO₂ concentrations at 18 of 19 monitoring locations when compared to 2021. The 2022 NO₂ monitoring results were less than the concentrations monitored at all locations during 2019 which suggests that pollutant concentrations are still following a stable and decreasing trend.

6.2 Conclusions relating to New Local Developments

One pending new source application was identified during 2022 (a whiskey maturation warehouse). It is not considered likely that this new source would have potential to result in any exceedances of the air quality objectives within the Moray Council administrative area.

6.3 Proposed Actions

The monitoring data for 2022 does not identify any exceedances of the NO₂ objectives within the Moray administrative area. There are no other exceedances for other pollutants expected within the Moray administrative area within 2022.

Monitored concentrations of NO₂ within the Moray Council administrative area have generally decreased year on year since 2018. This indicates no additional requirements for additional air quality monitoring, or any further measures, plans or actions to manage air quality within the Moray Council administrative area.

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? Which AQMA? | Distance to Relevant Exposure (m) ⁽¹⁾ | Distance to kerb of nearest road (m) ⁽²⁾ | Inlet Height (m) |
|-------------|-------------|------------------|---------------|---------------|----------------------|----------------------|--|---|------------------|
| Elgin 1 | Elgin 1 | Kerbside | 321107 | 862668 | NO ₂ | NO | <5 | 1.0 | 3.0 |
| Elgin 2 | Elgin 2 | Kerbside | 322348 | 862745 | NO ₂ | NO | <2 | 1.0 | 3.0 |
| Elgin 3 | Elgin 3 | Roadside | 322328 | 861206 | NO ₂ | NO | <22 | 6.0 | 3.0 |
| Elgin 4 | Elgin 4 | Roadside | 322557 | 826356 | NO ₂ | NO | <18 | 3.0 | 3.0 |
| Elgin 5 | Elgin 5 | Kerbside | 322233 | 861869 | NO ₂ | NO | <5 | 1.0 | 3.0 |
| Elgin 6 | Elgin 6 | Kerbside | 322029 | 862832 | NO ₂ | NO | <5 | 1.0 | 3.0 |
| Elgin 7 | Elgin 7 | Roadside | 321615 | 862307 | NO ₂ | NO | <5 | 1.0 | 3.0 |
| Elgin 8 | Elgin 8 | Roadside | 322492 | 863309 | NO ₂ | NO | <5 | 2.0 | 3.0 |
| Elgin 9 | Elgin 9 | Kerbside | 321775 | 861115 | NO ₂ | NO | 5.0 | 2.0 | 3.0 |
| Elgin 10 | Elgin 10 | Kerbside | 320641 | 862291 | NO ₂ | NO | 5.0 | 1.0 | 3.0 |
| Elgin 11 | Elgin 11 | Roadside | 321463 | 863794 | NO ₂ | NO | <21 | 5.0 | 3.0 |
| Fochabers 1 | Fochabers 1 | Kerbside | 334634 | 858726 | NO ₂ | NO | <2 | 2.0 | 3.0 |
| Buckie 1 | Buckie 1 | Roadside | 342562 | 865535 | NO ₂ | NO | 0 | 5.0 | 3.0 |
| Forres | Forres | Urban Background | 303726 | 858931 | NO ₂ | NO | <2 | n/a | 3.0 |
| Keith 1 | Keith 1 | Roadside | 342592 | 850894 | NO ₂ | NO | 0 | 6.0 | 3.0 |

| Site ID | Site Name | Site Type | X OS Grid Ref | Y OS Grid Ref | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) ⁽¹⁾ | Distance to kerb of nearest road (m) ⁽²⁾ | Inlet Height (m) |
|------------|------------|-----------|---------------|---------------|----------------------|----------------------|--|---|------------------|
| Keith 2 | Keith 2 | Kerbside | 343329 | 850415 | NO ₂ | NO | <5 | 2.0 | 3.0 |
| Lossie 1 | Lossie 1 | Kerbside | 322463 | 870293 | NO ₂ | NO | <5 | 2.0 | 3.0 |
| Aberlour 1 | Aberlour 1 | Roadside | 326571 | 842899 | NO ₂ | NO | <3 | 4.0 | 3.0 |
| Roths 1 | Roths 1 | Kerbside | 327756 | 849658 | NO ₂ | NO | <5 | 2.0 | 3.0 |

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO₂ Monitoring Results (µg/m³)

| Site ID | Site Type | Monitoring Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2022 (%) ⁽²⁾ | 2018 | 2019 | 2020 | 2021 | 2022 |
|-------------|------------------|-----------------|---|--|------|------|------|------|------|
| Elgin 1 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 21.7 | 22.7 | 15.4 | 17.3 | 16.0 |
| Elgin 2 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 24.4 | 22.2 | 14.9 | 16.2 | 15.3 |
| Elgin 3 | Roadside | Diffusion Tube | 100.0 | 100.0 | n/a | 11.4 | 6.0 | 6.4 | 5.6 |
| Elgin 4 | Roadside | Diffusion Tube | 100.0 | 100.0 | n/a | 10.1 | 7.1 | 8.1 | 7.4 |
| Elgin 5 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 17.2 | 16.0 | 10.4 | 10.9 | 10.8 |
| Elgin 6 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 17.2 | 16.0 | 9.8 | 12.4 | 10.0 |
| Elgin 7 | Roadside | Diffusion Tube | 100.0 | 100.0 | 11.4 | 9.8 | 7.0 | 8.8 | 7.7 |
| Elgin 8 | Roadside | Diffusion Tube | 100.0 | 100.0 | 13.4 | 11.3 | 9.4 | 9.8 | 9.2 |
| Elgin 9 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 7.6 | 7.3 | 5.2 | 7.6 | 4.9 |
| Elgin 10 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 13.6 | 12.7 | 9.5 | 10.7 | 8.6 |
| Elgin 11 | Roadside | Diffusion Tube | 100.0 | 100.0 | n/a | 18.1 | 13.7 | 13.7 | 13.5 |
| Fochabers 1 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 11.0 | 8.5 | 6.1 | 6.7 | 6.3 |
| Buckie 1 | Roadside | Diffusion Tube | 100.0 | 100.0 | n/a | 9.5 | 7.4 | 8.0 | 7.1 |
| Forres | Urban Background | Diffusion Tube | 100.0 | 100.0 | 12.4 | 10.9 | 7.4 | 8.7 | 6.5 |
| Keith 1 | Roadside | Diffusion Tube | 100.0 | 100.0 | n/a | 18.7 | 12.7 | 14.6 | 12.4 |
| Keith 2 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 24.2 | 17.6 | 12.4 | 13.5 | 13.0 |
| Lossie 1 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 5.9 | 5.4 | 4.5 | 4.4 | 4.0 |
| Aberlour 1 | Roadside | Diffusion Tube | 100.0 | 100.0 | n/a | 13.1 | 8.1 | 9.1 | 9.2 |
| Rothies 1 | Kerbside | Diffusion Tube | 100.0 | 100.0 | 14.0 | 12.5 | 9.1 | 10.5 | 9.3 |

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.

(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%).

Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO₂ 2022 Monthly Diffusion Tube Results (µg/m³)

| Site ID | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Bias Adjusted ⁽¹⁾ |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|--------------------------|---|
| Elgin 1 | 21.0 | 21.0 | 25.0 | 21.0 | 15.0 | 13.0 | 14.0 | 20.0 | 20.0 | 26.0 | 32.0 | 24.0 | 21.0 | 16.0 |
| Elgin 2 | 18.0 | 18.0 | 28.0 | 23.0 | 15.0 | 13.0 | 18.0 | 20.0 | 18.0 | 20.0 | 29.0 | 22.0 | 20.2 | 15.3 |
| Elgin 3 | 7.0 | 8.0 | 9.0 | 8.0 | 5.0 | 5.0 | 6.0 | 7.0 | 6.0 | 7.0 | 12.0 | 8.0 | 7.3 | 5.6 |
| Elgin 4 | 9.0 | 10.0 | 11.0 | 10.0 | 7.0 | 5.0 | 7.0 | 9.0 | 8.0 | 13.0 | 16.0 | 12.0 | 9.8 | 7.4 |
| Elgin 5 | 11.0 | 16.0 | 18.0 | 15.0 | 10.0 | 6.0 | 10.0 | 12.0 | 11.0 | 18.0 | 25.0 | 19.0 | 14.3 | 10.8 |
| Elgin 6 | 11.0 | 13.0 | 16.0 | 14.0 | 9.0 | 5.0 | 9.0 | 12.0 | 12.0 | 17.0 | 23.0 | 17.0 | 13.2 | 10.0 |
| Elgin 7 | 8.0 | 11.0 | 14.0 | 11.0 | 6.0 | 5.0 | 7.0 | 10.0 | 7.0 | 12.0 | 17.0 | 13.0 | 10.1 | 7.7 |
| Elgin 8 | 11.0 | 15.0 | 14.0 | 10.0 | 7.0 | 6.0 | 7.0 | 9.0 | 12.0 | 16.0 | 22.0 | 17.0 | 12.2 | 9.2 |
| Elgin 9 | 5.0 | 7.0 | 7.0 | 5.0 | 5.0 | 5.0 | 5.0 | 6.0 | 5.0 | 9.0 | 11.0 | 7.0 | 6.4 | 4.9 |
| Elgin 10 | 10.0 | 11.0 | 10.0 | 8.0 | 5.0 | 9.0 | 9.0 | 12.0 | 13.0 | 18.0 | 11.0 | 19.0 | 11.3 | 8.6 |
| Elgin 11 | 15.0 | 20.0 | 17.0 | 17.0 | 12.0 | 11.0 | 12.0 | 15.0 | 16.0 | 25.0 | 29.0 | 24.0 | 17.8 | 13.5 |
| Fochabers 1 | 6.0 | 10.0 | 10.0 | 10.0 | 6.0 | 6.0 | 7.0 | 9.0 | 6.0 | 9.0 | 12.0 | 9.0 | 8.3 | 6.3 |
| Buckie 1 | 8.0 | 11.0 | 11.0 | 10.0 | 8.0 | 6.0 | 8.0 | 8.0 | 8.0 | 11.0 | 13.0 | 10.0 | 9.3 | 7.1 |
| Forres | 8.0 | 11.0 | 10.0 | 9.0 | 6.0 | 5.0 | 6.0 | 8.0 | 8.0 | 13.0 | 5.0 | 14.0 | 8.6 | 6.5 |
| Keith 1 | 10.0 | 19.0 | 20.0 | 18.0 | 14.0 | 9.0 | 14.0 | 17.0 | 14.0 | 18.0 | 25.0 | 17.0 | 16.3 | 12.4 |
| Keith 2 | 13.0 | 17.0 | 21.0 | 19.0 | 14.0 | 11.0 | 14.0 | 17.0 | 15.0 | 20.0 | 25.0 | 20.0 | 17.2 | 13.0 |
| Lossie 1 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 6.0 | 7.0 | 5.0 | 5.3 | 4.0 |
| Aberlour 1 | 12.0 | 15.0 | 14.0 | 10.0 | 9.0 | 7.0 | 9.0 | 11.0 | 12.0 | 13.0 | 18.0 | 16.0 | 12.2 | 9.2 |
| Rothies 1 | 15.0 | 14.0 | 15.0 | 12.0 | 9.0 | 6.0 | 9.0 | 12.0 | 12.0 | 13.0 | 17.0 | 13.0 | 12.3 | 9.3 |

Notes:

(1) See Appendix C for details on bias adjustment

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

New or Changed Sources Identified Within Moray Council During 2022

Moray Council has not identified any new sources relating to air quality within the reporting year 2022.

Additional Air Quality Works Undertaken by Moray Council During 2022

Moray Council has not identified any new sources relating to air quality within the reporting year 2022.

QA/QC of Diffusion Tube Monitoring

The NO₂ diffusion tubes used by Moray Council in 2022 were prepared and analysed by the Aberdeen Scientific Services Laboratory (ASSL), 20% TEA in water method. The laboratory is United Kingdom Accreditation Service (UKAS) accredited and has good performance in both the LGC Standards Proficiency Testing Scheme (AIR NO₂ PT) and National Physical Laboratory (NPL) QA schemes.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Moray Council recorded data capture of over 75%, therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

Moray Council have applied a national bias adjustment factor of 0.76 to the 2022 monitoring data. A summary of bias adjustment factors used by Moray 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 |
|-------------|--------------------------|---|--------------------------|
| 2022 | National | 03/23 | 0.76 |
| 2021 | National | 09/22 | 0.77 |
| 2020 | National | 09/22 | 0.78 |
| 2019 | National | 03/20 | 0.81 |
| 2018 | National | 03/19 | 0.81 |

NO₂ Fall-off with Distance from the Road

No diffusion tube NO₂ monitoring locations within Moray Council required distance correction during 2022.

Appendix D: Monitoring Locations Maps

Figure 1 Diffusion Tube Monitoring Locations (1)

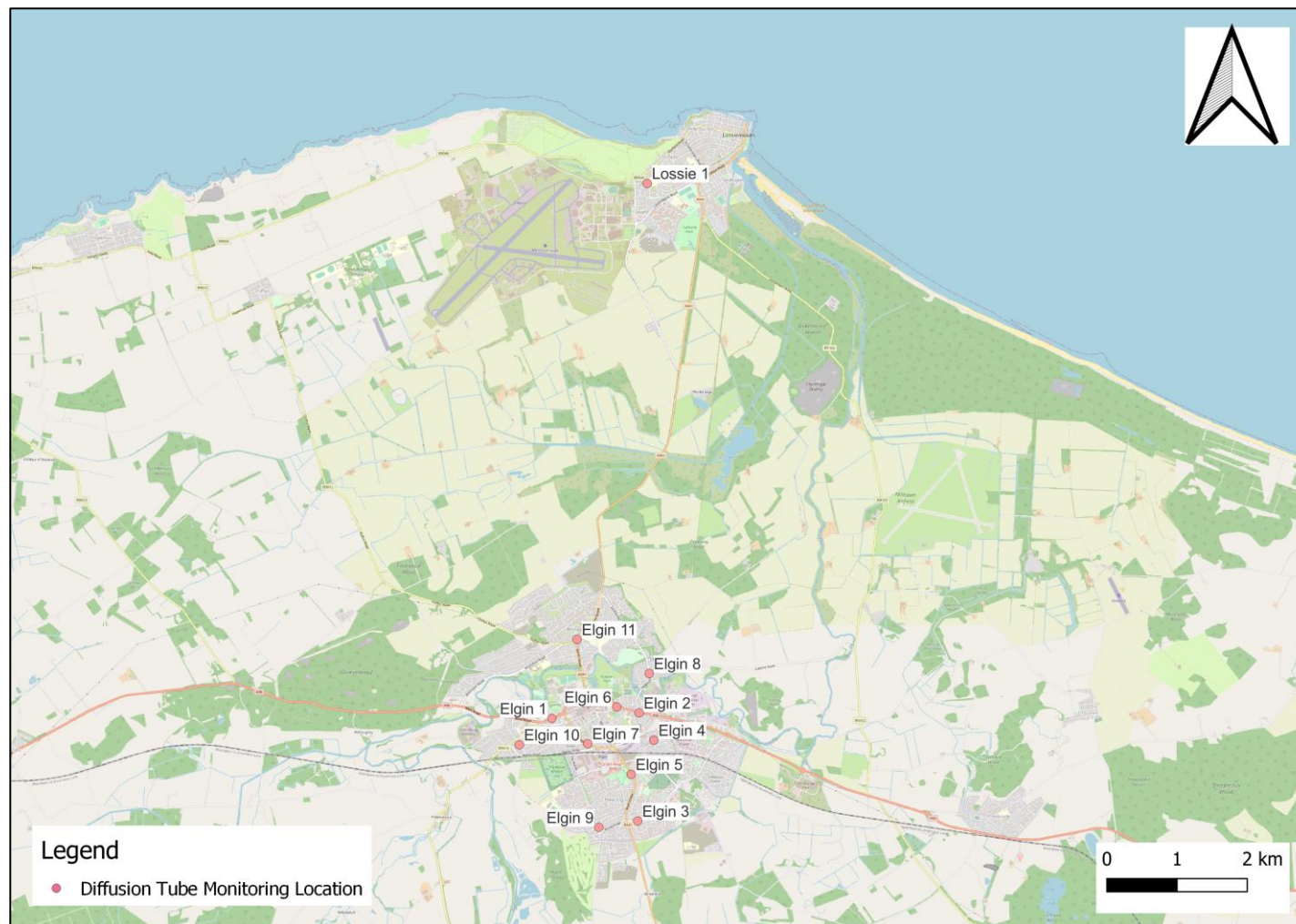


Figure 2 Diffusion Tube Monitoring Locations (2)

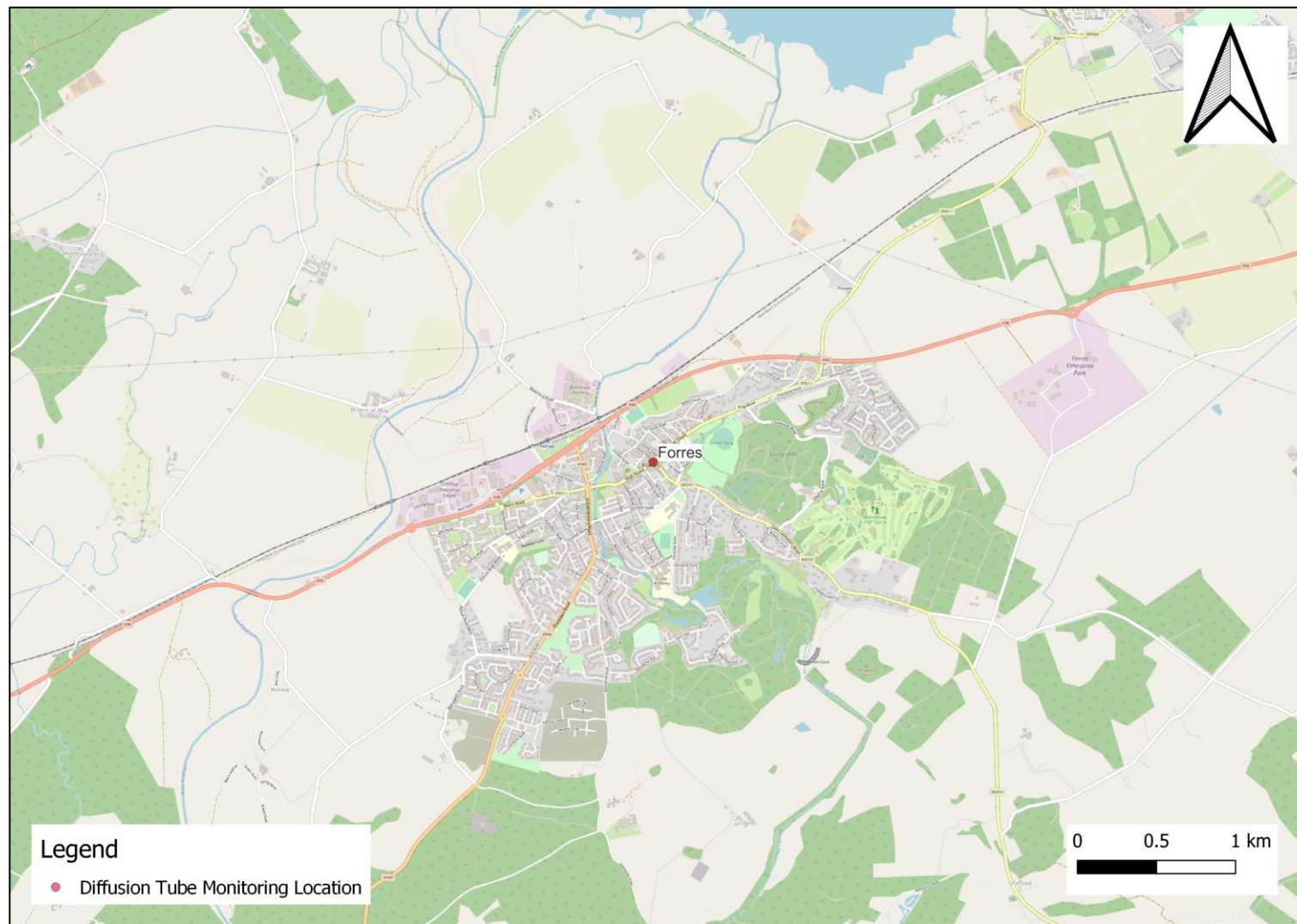


Figure 3 Diffusion Tube Monitoring Locations (3)



Figure 4 Diffusion Tube Monitoring Locations (4)



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 |
| AQS(S) | Air Quality Strategy Objective (Scotland) |
| 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 |

References

1. Moray Council (2015) Moray Local Development Plan. Available at: http://www.moray.gov.uk/moray_standard/page_51210.html
2. Moray Council (2022) Active Travel Strategy 2022 -2027. Available at: http://www.moray.gov.uk/moray_standard/page_139797.html
3. Moray Council (2017) Elgin Transport Strategy. Available at: http://www.moray.gov.uk/moray_standard/page_109352.html
4. Moray Council (2011) Second Moray Transport Strategy. Available at: http://www.moray.gov.uk/moray_standard/page_75724.html
5. Defra, August 2022, Local Air Quality Management Technical Guidance 2022 (TG.22). Available at: <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>