# North Devon Council's Air Quality Strategy

**November 2025**

# North Devon Council Air Quality Strategy

## Foreword

Cllr Clayton and Cllr Knight

As of April 2025, air quality in North Devon, including Barnstaple, is generally good, with no active Air Quality Management Areas (AQMAs) in place.

## Historical Trends

North Devon Council monitors air quality across several sites in Barnstaple, Braunton, Ilfracombe, and South Molton. Notably, the AQMA in Braunton, previously declared due to elevated nitrogen dioxide ($NO_2$) levels, was revoked in June 2024. This decision followed five consecutive years of $NO_2$ concentrations more than 10% below the threshold, attributed to improvements in vehicle emissions technology and increased adoption of electric and hybrid vehicles.

## Monitoring and Reporting

The council conducts regular air quality assessments and submits annual status reports to the Department for Environment, Food & Rural Affairs (DEFRA). These reports are publicly available and provide detailed information on pollutant levels and trends.

## Outlook

With continued improvements in vehicle emissions and ongoing monitoring efforts, air quality in North Devon is expected to remain favourable. Residents and visitors can enjoy the area's natural beauty without significant concerns about air pollution.

Cllr David Clayton, Leader of the Council

Cllr Ricky Knight, Lead Member for Environment

## 1.0 Introduction

Air pollution has been identified as a significant factor in the development of various chronic health conditions, including cancer, asthma, cardiovascular diseases, obesity, and neurodegenerative changes associated with dementia. Furthermore, air pollution disproportionately impacts vulnerable populations such as children and the elderly. Socio-economic disparities often exacerbate the issue, as areas experiencing poor air quality frequently overlap with less affluent communities, highlighting a strong correlation between environmental and social inequalities.

The Council's statutory duties regarding air quality are outlined under Part IV of the Environment Act 1995. This legislation mandates that all local authorities systematically review and evaluate air quality within their jurisdiction to ascertain whether national air quality objectives are being met. As part of this process, councils are required to prepare

and submit an Annual Status Report (ASR) to the Department for Environment, Food and Rural Affairs (DEFRA). The ASR serves as a comprehensive yearly document detailing the following:

- Results of air quality monitoring.
- Measures implemented to enhance air quality.
- Identification of emerging air quality concerns.
- Progress achieved in addressing air quality challenges.

North Devon Council revoked its Air Quality Management Area (AQMA) in June 2024, reflecting improvements in local air quality that meet national objectives. Following this revocation, the Council is now focused on producing a comprehensive Air Quality Strategy. This strategy aims to sustain these achievements and address any potential future challenges, ensuring continued improvement in air quality.

This Air Quality Strategy complements the initiatives outlined in the ASR by providing a structured framework for addressing air quality concerns across the district. It sets forth targeted approaches and actionable measures aimed at improving air quality and reducing its adverse effects on public health and the environment.

Air pollution also has a negative impact on the natural environment. The Council, as a 'competent authority' has a statutory duty to help protect, conserve and restore European sites, both within the local planning authority area of North Devon as well as adjoining local planning authority areas where land use activities in North Devon are having a negative impact. This duty has been highlighted by Exmoor National Park Authority, due to the findings of their Strategic Environmental Assessment and Habitats Regulation Assessment, prepared to inform the preparation of the draft Exmoor National Park Partnership Plan 2025 – 2030, meaning that North Devon Council should be proactively seeking options for restoring the affected sites. This Air Quality Strategy provides the details of how NDC is addressing this issue.

Exceedances are known.

## Air Quality Strategy Purpose

The Air Quality Strategy has been developed as a result of the revocation of AQMA. The purpose of this strategy is to provide information on the national position with a view identifying what NDC will implement / monitor with our partners through our EE Programme Vision

## The Council's Vision

*"North Devon will be a sustainable, inclusive community; fostering prosperity and well-being for all."*

We have an overarching Corporate Plan and this strategy supports the delivery of the priorities in our Corporate Plan.

## Overall environment objective

To protect and enhance our natural environment and to promote sustainable practices, reduce carbon emissions, tackle climate change and protect biodiversity within the council's jurisdiction.

Our Air Quality Strategy should align with the following key strategies and priorities to ensure it effectively addresses the air quality needs of the community.

Table One: NDC Strategies

| Strategy | How the Strategies support each other |
|---|---|
| Local Plan | The current North Devon and Torridge Local Plan 2011 – 2031 includes policies relating to air quality and these should be taken into consideration when determining a planning application. Further detailed information on how these policies are applied is included in the Air quality - Supplementary Planning Document (SPD).<br><br>Our Air Quality Strategy will help to shape the new local plan which we have committed to prepared by mid-2028. This is important as the council's Local Plan ensures that air quality impacts are considered through the development process. |
| Air Quality Supplementary Planning Document | The supplementary planning document (SPD) sets out how North Devon and Torridge District Councils will consider the potential for new developments to affect air quality adversely, which types and scales of planning applications require an air quality impact assessment, and if so what an air quality impact assessment should include. The SPD provides additional detail to relevant policies contained in the North Devon and Torridge Local Plan 2011-2031 |
| Economic Strategy | Does not explicitly mention air quality, it acknowledges that impacts of growth will be managed through the local plan. |
| Climate, Environment & Biodiversity Strategy | This sets out the Council's environmental plan. Actions we take to improve air quality will support our environmental commitments. |
| Community Engagement Strategy | Engaging with local communities to understand their needs and concerns will help shape this air quality strategy to better serve the residents of North Devon. |
| Neighbourhood Plans | These, where adopted, could assist with the delivery of objectives in this strategy, if this is an area the qualifying body (town or parish council), wish to pursue. |
| Commercialisation Strategy | Ensuring the Council is maximising opportunities that are revenue positive and looking for social value proposals that bring collective benefit to a community. |
| Asset Management Strategy | We will continually review our assets to ensure we are obtaining best value from land and buildings that we own together with any potential new assets we may acquire, driving energy efficiency and being leader in this field |
| Procurement Strategy and contract management. | We will use selection and assessment tools available to us, managing contracts to meet air quality requirements, for example dust management within the construction environment. |

Table Two: Partner Strategies

| | |
|---|---|
| DEFRA Air Quality Strategy | How our strategy is underpinned by DEFRA's overarching Air Quality Strategy |
| DEFRA Clean Air Strategy | Our Strategy fulfils the requirements Defra set for Local Authorities to deliver cleaner air for communities and nature. |
| Devon Carbon Plan | As a signatory of the Devon Carbon Plan, this ensures that action to address air quality also takes account of the UK's legally binding target to be net zero carbon by 2050. |
| Partnerships & Collaboration | Working with strategic partner agencies such as DEFRA, Devon County Council (DCC), Environment Agency (EA) and other stakeholders |
| Local Cycling & Walking Infrastructure plans | Measures to increase active travel will reduce vehicle journeys, particularly in urban areas, and reduce transport emissions. |
| Devon EV charging Strategy | Delivery of more EV charge points will support more to low carbon transport, delivering improvements in local air quality. |
| Devon Local Transport Plan | Devon County Council's Local Transport Plan 4 is a high level strategy which supports our wish to reduce air quality impacts from transport emissions in the area. |
| Emerging Local Nature Recovery Strategy | We will consider how ammonia emissions in North Devon impact on biodiversity, and how this could be reduced. |

By aligning with these strategies, an air quality strategy can positively contribute to the entire suite and work towards the wellbeing of the district.

These elements provide a combined message that North Devon Council wishes to ensure we deliver excellent services. We will work with our partners who share our ambition and values and continue to put the best interests of North Devon residents' at the heart of everything we do.

## Our Principle Actions from our Corporate Plan

The overall Climate & Environment objective from our Corporate Plan is set out above. Relevant actions to deliver this objective and improve air quality in North Devon are:

- Promote clean energy infrastructure and maximise the economic and environmental benefits that arise from this.
- Work with partners to improve and promote active travel and sustainable transport and to implement the local cycling and Walking Infrastructure Plan.
- Work with partners to promote more sustainable methods of land management.
- Promote schemes that will improve the fuel efficiency of homes within the area.

## Health Effects

Recent research commissioned by Public Health England has revealed that the cumulative health and social care costs of air pollution, specifically particulate matter ($PM_{2.5}$) and nitrogen dioxide ($NO_2$), in England could reach £5.3 billion by 2035. These costs are attributed to diseases strongly associated with air pollution, including coronary heart disease, stroke, lung cancer, and childhood asthma. This is not a problem in our area. See Appendix A for further Health Data

# Strategic Context

## *Source DEFRA:*

## About the Air Quality Strategy

*This document sets out a framework to enable local authorities to deliver for their communities and contribute to our long-term air quality goals, including our ambitious new targets for fine particulate matter ($PM_{2.5}$).*

*It fulfils the statutory requirement of the Environment Act 1995 as amended by the Environment Act 2021 to publish an Air Quality Strategy setting out air quality standards, objectives, and measures for improving ambient air quality every 5 years.*

*It does not replicate or replace our other air quality guidance documents relevant to local authorities.*

## Who the Air Quality Strategy is for

*All local authorities in England, including upper tier authorities (where they exist) and those in London, must have regard to this document. This reflects the fact that where there are two tier authorities, county councils are expected to contribute to district council air quality plans and strategies. In particular, we expect this strategy to be relevant where local authorities are preparing Air Quality Action Plans to address local exceedances. Last year, we expanded this duty to have regard to this strategy to National Highways.*

## Air quality standards and objectives

*The UK has a longstanding framework to improve air quality, consisting of 2 main pillars – emissions and concentrations.*

*Emissions are a measure of how much pollution is released into the air, and concentrations are the levels at which pollution is present in the air. While the two are closely linked, concentrations are also affected by emissions from neighbouring countries, natural sources, and weather patterns. It is therefore important that we have a legislative framework incorporating both.*

*Concentration limits apply both nationally, where they are the responsibility of national government, and locally, where they are the responsibility of the relevant local authority. In areas with two tiers of local government (districts and counties), the air quality duties sit at the lower tier. In unitary areas, the single authority holds responsibility. In two-tier areas, county councils have a duty to contribute improvements to air quality where relevant.*

**This air quality strategy is built on the foundation of 6 themes**

**Domestic Burning**

**Industrial Emissions**

**Transport**

**Agriculture**

**Indoor Air Quality**

**Communicating air quality information**

# Theme 1: Domestic Burning

Domestic burning refers to the use of solid fuels (including wood, coal, and manufactured solid fuels) in households for space heating, water heating, or cooking, typically through open fires or stoves.

## What we have done so far

NDC opted to participate in government Energy Company Obligation (ECO) flex schemes in order to make available grant funding for home energy efficiency to a wider audience of homeowners, tenants and landlords in addition to those households on qualifying benefits Energy efficiency grants and loans are available on the North Devon Council website.
ECO and the Great British Insulation Scheme focusses on retrofitting properties with renewable energy and insulation measures that reduce reliance on fossil fuels and reduce carbon emissions.
NDC may also support installations of domestic renewables via the Better Care Fund where there are grant funding shortfalls for vulnerable households to reduce numbers of excluded applicants (eligibility and financial cap apply).
NDC participates in Devon wide funding schemes for targeted retrofit projects in hard to reach or otherwise excluded groups.
NDC works in partnership with local energy groups to provide small energy saving measures/behaviour changes to reduce emissions in households at risk of fuel poverty across the district.
NDC is a stakeholder in Energy Savings Devon partnership as part of the Devon Climate Emergency Response to eliminate carbon emissions associated with the built environment and offers retrofit advice to homeowners and landlords.

## What more can we do: Future Action

Office for National Statistics records estimate 17 – 20% of households are privately rented. The private rented sector is expected to undergo radical reform which may include a requirement for all privately rented properties to have a minimum energy efficiency standard (MEES) of Energy Performance Certificate C (or equivalent following reform of the Energy Performance of Buildings).
NDC will have increased powers to enforce breaches of the Renters Rights Act and failures to comply with the new MEES in the private rented sector.
NDC will make available advice and guidance to tenants and landlords to address regulatory change and compliance alongside anticipated Local Authority powers to

enforce.  A decent home standard in the private rented sector may significantly impact reduced emissions and reduced reliance on fossil fuels.
In recent years, higher energy efficiency standards for residential buildings have been introduced through changes to Building Regulations. These changes are intended to deliver a reduction in carbon emissions, and further changes are expected to be introduced in through 'The Future Homes and Buildings Standards in 2025' (which is expected to require new homes to produce 75-80% less carbon emissions than homes delivered under the old regulations).  We will consider through the preparation of the new joint Local Plan if it is justifiable to go above these high standards.

### Recommendations from Devon Carbon Plan:

Take opportunities to enhance and raise awareness about financial support available for people and organisations to retrofit their properties.
Work with Government to ensure effective minimum energy efficiency standards and that resources are available to enforce non-compliance.
Look to allocate locations for renewable and low-carbon energy initiatives in Local Plans and Neighbourhood Plans, ensuring community involvement.
Provide support for communities wishing to develop their own energy infrastructure
Local Plan updates will look to include policies that give positive weight to renewable and low-carbon energy initiatives which have clear evidence of local community involvement and leadership.

> **NDC Response**:  A measured response to elimination of domestic burning, **where reason alternative are available.**

**Recommendation:** We will work to meet our responsibilities as part of The Renters Rights Bill

## Theme 2: Industrial Emissions

Refers to emissions of pollutants to air that originate from industrial sources. These sources include manufacturing, power generation, and waste management processes, among others.

### What we have done so far

Local Authority Pollution Prevention and Control (LAPPC). North Devon Council regulates 31 industrial processes that have the potential to release emissions to air. These are all inspected through a risk based procedure.
North Devon Council are also statutory consultees on major sources of air pollution that would be regulated by the Environment Agency or Devon County Council. We monitor applications and potential local impacts.

## What more can we do: Future Action

**Recommendation:** Continue to regulate all industrial processes under LAPPC. Maintain a positive engagement in the consultation process.

**NDC Response:** Ensure we have resource to continue to meet our obligation under the duty.

# Theme 3 : Transport

Refers to the movement of people or goods by various modes, including road, rail, air, and water

## What we have done so far

As a consultee we have worked alongside Devon County Council, to participate in the development of a Local Cycling and Walking Infrastructure Plan for Barnstaple with Bideford and Northam. It identifies and prioritises active travel improvements in northern Devon. These include high-quality links between the North Devon District Hospital, Barnstaple town centre and the railway station across the historic Longbridge. The area also benefits from the Tarka Trail, providing a flagship traffic-free multi-use trail that connects communities along the Taw and Torridge Estuaries.
We are also investing in electric vehicles ourselves and have developed EV charging points across the District.

## Devon Local Transport Plan 4

This is a high level strategy for the Devon and Torbay, which includes a commitment to work with the rail industry to enhance the North Devon Line to address overcrowding and improved connectivity between northern Devon and Exeter, as well as the delivery of the Local Cycling and Walking Infrastructure Plan. The Local Transport Plan commits to delivering the missing sections to complete the route to Ilfracombe and support improvements to increase use of the Tarka Trail.

## What more can we do: Future Action

**Recommendation:**
We commit to continually investigate how, as part of the Local Plan, we can improve air quality and enhance the uptake and continued use of active and sustainable modes of travel, including incorporating the outcomes of the LCWIPs (if necessary). The new joint local plan will need to ensure that sustainable development principles are applied to the spatial strategy, looking at innovate ways to address sustainability both in urban and rural areas.
**Recommendation:** We will install EV charging points on our land, in line with our EV charging position statement.

**NDC Response:** We will review the position statement periodically.

**Recommendation:** We consider the use of electric vehicles within our fleet, when replacement is due.

**NDC Response:** A member decision is required where EV's are recommended.

# Theme 4 : Agriculture

A sector that encompasses a wide range of land-based activities involved in the cultivation of crops and the rearing of animals for food, fibre, fuel, and other products

## What we have done so far

The agricultural sector is shown to be responsible for a significant proportion of ammonia emissions. These emissions have an adverse effect on air quality, harmful both to the natural environment and human health. The current North Devon and Torridge Local Plan includes policies relating to air quality which should be taken into consideration when determining a planning application. More detailed information on how these policies are applied is included in the Air Quality Supplementary Planning Document (SPD). This identifies the potential adverse impacts on air quality are most likely to arise from: a) an agricultural building to house livestock (primarily beef and dairy cattle, pigs or poultry); and/or b) any new or expanded pit, tank or lagoon for storing slurry; and/or c) any anaerobic digester with combustion plant; and/or d) any anaerobic digester without combustion plant. It advises that depending on the scale and proposed proximity to either a European Protected Site or a Site of Special Scientific Interest, a planning application for the above may need to be accompanied by an Air Quality Impact Assessment (AQIA) and a Simple Calculation of Atmospheric Impact Limits (SCAIL) assessment

In addition to the formal planning documents, NDC has worked with National Farmers Union, local Farmers and North Devon plus to prepare informal guidance called 'Planning advice for farmers'. This includes information on agriculture and air quality.

## What more can we do: Future Action

There are two strands of work which we are committed to doing to help address the air quality issues caused by agricultural practices

Firstly, North Devon Council and Torridge District Council have agreed to prepare a new joint local plan. The Local Development Scheme (March 2025) shows the formal stages of this work starting in October 2025, with adoption of the new Plan in July 2028. This provides NDC with the opportunity to work with the National Park, and other partners to prepare any necessary planning policies to address the issues raised by ENPA in relation to agricultural practices impacting designated European Sites.

Secondly, following the publication of the Planning advice for farmers' guidance in January 2024, the planning department are now working on an updated version, with both the farming community and additional specialist input from Natural England and the Environment Agency. This work provides an opportunity to highlight the issues raised by Exmoor National Park Authority and the indirect role farmers can play in the restoration of affected sites, which are not necessarily on their land.

**Recommendation:** We will work proactively with Exmoor National Park Authority and key stakeholders from the farming community to seek practical solutions to improving air quality. We will consider, if appropriate, the issues and potential options for improving the situation through the new Local Plan.

**NDC Response:** This will be led by the planning process

**Recommendation:** To refer to the Defra Agriculture emissions report (defra.gov.uk)

**NDC Response:** In addition to national monitoring of Ammonia we have commenced a local programme of passive monitoring to determine levels across the district and to track the progress in improving the levels and the effectiveness of any actions. These will be reported in future Annual Status Reports.

# Theme 5 : Indoor

Indoor Air Quality (IAQ) refers to the quality of air within and around buildings and structures, particularly as it relates to the health and comfort of building occupants.

## What we have done so far

Damp and mould are key contributors to poor indoor air quality, significantly impacting respiratory health, particularly among vulnerable groups such as children, the elderly, and those with pre-existing conditions. Damp occurs when unwanted moisture enters or remains within a building, often from leaks, condensation, or inadequate ventilation. Mould growth results from sustained damp conditions and releases spores and volatile organic compounds into the indoor environment, exacerbating health risks.
North Devon Council's private sector housing team investigates incidents of damp and mould reported, using the Housing Health and Rating System to determine if action is necessary.

## What more can we do: Future Action

At present, North Devon Council's evidence base relating to the prevalence and impact of damp and mould is limited. As a starting point, the Council will analyse existing complaint data, utilise Housing Health and Safety Rating System (HHSRS) inspections, and explore partnership opportunities with local health services to better understand the local burden of ill health related to indoor air conditions.

**Recommendation:** Annual Review / monitoring / compliance

> **NDC Response:** Given current resource constraints, the Council will focus on public education campaigns promoting effective ventilation, heating, and moisture management. Enforcement activity will prioritise identified Category 1 hazards. In the medium term, feasibility work will be undertaken to assess the introduction of a targeted Selective Licensing scheme within areas most affected by poor private rental housing conditions, subject to evidence, consultation, and available funding. Routes: Enforcement of Private Sector Licencing; Awaabs Law; Renter Rights Bill.

# Theme 6 : Communicating air quality information

## What we have done so far

- Publish the Annual Status Report on the Council's website.

## What more can we do: Future Action

**Recommendation:** Annual Review / monitoring / compliance

> **NDC Response:** Better ways to communicate air quality and the steps we are taking

# Appendix A – Health Data

To enhance public understanding of short-term air pollution levels and their associated health effects, the Daily Air Quality Index (DAQI) was established based on guidance from the Committee on the Medical Effects of Air Pollutants (COMEAP). The DAQI simplifies complex pollutant data into a numbered scale ranging from 1 to 10 and categorises these values into four bands: Low, Moderate, High, and Very High. Each band corresponds to

specific health impact advice, providing a user-friendly tool similar to sun or pollen indices used in weather forecasts.
Measured pollutant concentrations are contextualised within the DAQI framework to convey their health risks effectively, acknowledging that the health and environmental impacts of various pollutants differ significantly.

## Table 1: Recommended Actions and Health Advice

| Air Pollution Banding | Value | Health Messages for At-Risk Individuals | Health Messages for the General Population |
|---|---|---|---|
| Low | 1-3 | Enjoy your usual outdoor activities. | Enjoy your usual outdoor activities. |
| Moderate | 4-6 | Adults and children with lung problems, and adults with heart problems who experience symptoms, should consider reducing strenuous physical activity, particularly outdoors. | Enjoy your usual outdoor activities. |
| High | 7-9 | Adults and children with lung problems, and adults with heart problems, should reduce strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also reduce physical exertion. | Anyone experiencing discomfort such as sore eyes, cough, or sore throat should consider reducing activity, particularly outdoors. |
| Very High | 10 | Adults and children with lung problems, adults with heart problems, and older people, should avoid strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often. | Reduce physical exertion, particularly outdoors, especially if you experience symptoms such as cough or sore throat. |

## Sources of Air Pollution

Air pollution in the UK originates from multiple sources, primarily traffic emissions, the burning of fossil fuels, industrial activities, and agricultural practices. Each source contributes varying levels and types of pollutants, which adversely affect human health and the environment.

- Road transport: The predominant source of nitrogen oxides (NOx) in the UK, particularly near roadsides, also emits particulate matter (PM), volatile organic compounds (VOCs), and sulphur dioxide ($SO_2$). Traffic emissions remain the most significant contributor to urban air pollution.
- Industrial sources: Industries are major emitters of PM, NOx, VOCs, and $SO_2$, with manufacturing processes, energy generation, and chemical processing being primary contributors.
- Shipping and other transport: Marine and aviation transport contribute to elevated NOx levels, particularly in coastal and airport regions.
- Agriculture: The leading source of ammonia pollution, agricultural activities include livestock waste and fertilizer application, which release nitrogen compounds into the air.
- Non-road mobile machinery: Equipment such as construction machinery significantly contributes to NOx, PM, and VOC emissions.

Understanding these diverse sources is critical in designing targeted policies and interventions to reduce emissions, improve air quality, and minimise the associated health and environmental impacts.

## Appendix B – Agriculture Context

Ammonia (NH3) is a potent air pollutant that has significant environmental and human health impacts. In rural districts, where agriculture is a dominant economic activity, ammonia emissions are a primary contributor to poor air quality. Addressing ammonia concentration is essential to meet air quality objectives under the Environment Act 1995 and align with the Clean Air Strategy 2019 In addition to this, North Devon Council has a duty to help protect, conserve and restore European sites (insert footnote for the definition). This duty also extends to where a third party asks North Devon Council to use our powers to protect a site and this has been done so by Exmoor National Park Authority due to a Habitat Regulation Assessment for their Partnership Plan Review 2025 – 2030 showing the need for restorative measures to be undertaken in the wider North Devon Council area to improve the air quality within the National Park.

This section explores the importance of managing ammonia emissions, provides practical guidance for farmers, and highlights the benefits of emission reduction for rural communities and the environment. The last National background concentrations at Braunton Burrows for 2024 are as below table.

## Available Data for 2024 for gaseous ammonia (passive)

| | Start Date | End Date | Measurement | Units | Status |
|---|---|---|---|---|---|
| **$NH_3$(g)** | 05/12/2023 | 06/01/2024 | 0.190 | µg/m$^3$ | Verified |
| **$NH_3$(g)** | 11/01/2024 | 08/02/2024 | 0.540 | µg/m$^3$ | Preliminary Verified |
| **$NH_3$(g)** | 08/02/2024 | 06/03/2024 | 0.210 | µg/m$^3$ | Preliminary Verified |
| **$NH_3$(g)** | 06/03/2024 | 03/04/2024 | 0.730 | µg/m$^3$ | Preliminary Verified |
| **$NH_3$(g)** | 03/04/2024 | 26/04/2024 | 0.740 | µg/m$^3$ | Preliminary Verified |
| **$NH_3$(g)** | 26/04/2024 | 02/06/2024 | 1.320 | µg/m$^3$ | Preliminary Verified |
| **$NH_3$(g)** | 02/06/2024 | 02/07/2024 | 0.380 | µg/m$^3$ | Preliminary Verified |
| **$NH_3$(g)** | 02/07/2024 | 01/08/2024 | 0.420 | µg/m$^3$ | Preliminary Verified |
| **$NH_3$(g)** | 01/08/2024 | 03/09/2024 | 0.460 | µg/m$^3$ | Preliminary Verified |
| **$NH_3$(g)** | 03/09/2024 | 04/10/2024 | 0.650 | µg/m$^3$ | Preliminary Verified |

## Understanding Ammonia Emissions and Their Impacts

Ammonia is primarily emitted from agricultural activities, including the storage, handling, and application of livestock manures and the use of synthetic fertilisers. Upon release into the atmosphere, ammonia reacts with nitrogen oxides ($NO_x$) and sulphur dioxide ($SO_2$) to form secondary particulate matter ($PM_{2.5}$), a major component of air pollution that adversely affects human health. Excess ammonia deposition can also lead to soil acidification, water eutrophication, and loss of biodiversity, particularly in sensitive habitats such as heathlands and wetlands.

The UK Air Quality Standards Regulations 2010 set ammonia concentration limits in ambient air at 3 µg/m$^3$ (micrograms per cubic metre) to protect ecosystems. For nitrogen-sensitive habitats, the critical load for ammonia is often as low as 1 µg/m$^3$, necessitating stringent local management practices.

Agricultural Practices to Reduce Ammonia Emissions

Farmers play a critical role in reducing ammonia emissions by adopting best management practices. Key strategies include the following:

1. Improved Livestock Housing Design

Installing ventilation systems to reduce humidity and promote drying of manure.

Using impermeable flooring or slatted systems to separate urine and faeces, reducing ammonia volatilisation. Implementing manure belt systems for regular removal of faeces from poultry housing.

2. Optimised Manure Storage

Covering slurry and manure stores with impermeable sheeting or using floating covers to minimise ammonia release.

Storing solid manure in compact heaps under roofs or using impermeable covers.

Constructing leak-proof slurry storage tanks to prevent ammonia seepage into the environment.

3. Application Techniques for Manures and Fertilisers

Replacing broadcast spreading with precision techniques such as trailing hose, trailing shoe, or shallow injection, which deposit manure close to the soil.

Timing applications to coincide with favourable weather conditions, such as cooler temperatures and reduced wind speeds.

Incorporating manure into the soil within 24 hours of application to minimise ammonia volatilisation.

4. Reducing Crude Protein in Animal Diets

Adjusting livestock diets to lower protein levels and matching nutrient supply with production needs to reduce excess nitrogen excretion.

Incorporating feed additives, such as tannins or probiotics, to improve nitrogen utilisation efficiency.

5. Use of Low-Ammonia Emitting Fertilisers

Substituting urea-based fertilisers with ammonium nitrate, which has a lower potential for ammonia volatilisation.

Applying urease inhibitors to urea-based fertilisers to slow down the conversion of urea to ammonia.

6. Nitrogen Management Plans

Implementing nutrient management plans to optimise fertiliser application rates and timings, thus minimising surplus nitrogen in soils.

7. Adopting Controlled Release and Precision Agriculture Technologies

Employing controlled-release fertilisers to provide nutrients synchronously with crop uptake.

Using GPS-guided spreaders and sensors to apply nutrients site-specifically, reducing overall ammonia emissions.

Benefits of Ammonia Reduction

Reducing ammonia emissions yields significant environmental, economic, and social benefits. These include:

1. Improved Air Quality and Public Health

Lower ammonia emissions decrease the formation of fine particulate matter (PM2.5), improving air quality and reducing respiratory and cardiovascular diseases.

Communities benefit from cleaner, healthier environments, enhancing the quality of life and reducing healthcare costs.

2. Enhanced Ecosystem Health

Reduced ammonia deposition helps mitigate soil acidification and nutrient imbalance, preserving biodiversity in sensitive habitats.

Watercourses are less prone to eutrophication, supporting aquatic ecosystems and benefiting recreational and commercial fisheries.

3. Climate Change Mitigation

Reductions in ammonia emissions indirectly lower greenhouse gas (GHG) emissions associated with nitrogen cycling, such as nitrous oxide (N2O), a potent GHG.

Sustainable practices align with broader climate goals, enhancing the council's reputation as a leader in environmental stewardship.

4. Economic Benefits for Farmers

Efficient nitrogen use reduces input costs for fertilisers, feeds, and waste management, improving farm profitability.

Access to subsidies and funding through schemes such as the Sustainable Farming Incentive (SFI) and Countryside Stewardship Programmes provides additional financial support for implementing ammonia-reduction practices.

5. Compliance with Regulatory Standards

Meeting air quality targets prevents potential fines or penalties, ensuring alignment with legal obligations under the Environmental Protection Act 1990 and related regulations.

Council's Role in Facilitating Ammonia Reduction

Local authorities have a responsibility to support the agricultural community in implementing ammonia mitigation measures. Strategies include:

1. Guidance and Training

Providing farmers with clear guidance on ammonia-reduction techniques and their benefits.

Offering workshops and training sessions to improve understanding and adoption of best practices.

2. Monitoring and Enforcement

Conducting regular air quality monitoring to identify high-risk areas and track progress towards ammonia reduction targets.

Collaborating with regulatory bodies such as the Environment Agency to enforce compliance with air quality standards.

3. Incentives and Financial Support

Administering grants and subsidies to offset the cost of implementing ammonia-reduction technologies.

Promoting access to national funding schemes such as Defra's Farming Investment Fund.

4. Research and Collaboration

Partnering with academic institutions and agricultural organisations to develop innovative solutions for ammonia management.

Facilitating knowledge-sharing networks for local farmers to exchange experiences and success stories.

Case Study: Successful Implementation of Ammonia-Reduction Measures

An example from the Netherlands illustrates the potential of ammonia mitigation strategies. Dutch farmers achieved significant reductions in ammonia emissions through:

• Nationwide regulations mandating low-emission manure application techniques.

• Subsidies for covered slurry stores and low-ammonia housing systems.

• Educational initiatives promoting dietary adjustments for livestock.

UK councils can replicate similar models by tailoring interventions to local agricultural practices and environmental conditions.

Conclusion

Addressing ammonia emissions is a critical component of the air quality strategy for rural districts. Through the adoption of proven agricultural practices, supported by clear guidance and financial incentives, farmers can play a pivotal role in reducing ammonia concentrations. These efforts will safeguard public health, enhance ecosystem integrity, and ensure compliance with UK and international air quality standards. A coordinated

approach involving stakeholders across sectors will amplify the benefits, positioning the district as a leader in sustainable rural development.

# Appendix C – Detailed Definitions

## Agriculture

Although the UK Air Quality Strategy does not provide a statutory definition of “agriculture,” it treats the term as encompassing:

- Livestock farming, particularly cattle, sheep, pig, and poultry operations.
- Slurry and manure management, including storage and spreading.
- Use of nitrogen-based fertilisers, such as urea and ammonium nitrate.
- Tillage and soil disturbance.
- Crop residue burning (although this is now generally prohibited).
- Intensive agricultural practices, including controlled housing for animals.
- These activities are significant contributors to ammonia emissions, which are a precursor to the formation of fine particulate matter ($PM_{2.5}$), a key concern for human health.

## Domestic Burning

Domestic burning emits air pollutants such as particulate matter (PM2.5 and PM10), carbon monoxide (CO), volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAHs).

- Legislative and Regulatory Framework
- Clean Air Act 1993 (as amended)
- Empowers local authorities to establish Smoke Control Areas (SCAs).
- In SCAs, only authorised fuels may be burned unless an exempt appliance is used.
- Domestic burning of unauthorised fuels on non-exempt appliances within a SCA is an offence under section 20.

## Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020

Prohibits the sale of traditional house coal and unseasoned wood for domestic combustion.
Mandates that wood sold in volumes under 2m³ must be Ready to Burn certified (i.e., moisture content ≤20%). Introduces standards for manufactured solid fuels, ensuring lower emissions of sulphur and smoke.

## Clean Air Strategy 2019 (Defra)

Identifies domestic burning as the largest single source of PM2.5 emissions in the UK. Recognises increasing use of wood fuel, even in properties with alternative heating options.

- Introduces commitments to reduce emissions from domestic burning through:
- Tighter standards on fuels and appliances.
- Enhanced public awareness campaigns.
- Enforcement mechanisms for fuel sales.

## Indoor

This encompasses a wide range of pollutants, including but not limited to:

- Volatile Organic Compounds (VOCs)
- Particulate Matter (PM2.5 and PM10)
- Nitrogen Dioxide ($NO_2$)
- Carbon Monoxide (CO)
- Radon
- Mould spores and biological contaminants

## Industrial Emissions

Industrial emissions are typically understood to include emissions of regulated pollutants from activities that require an Environmental Permit under the Environmental Permitting Regulations (EPR).

These emissions include particulate matter ($PM_{10}$ and $PM_{2.5}$), nitrogen oxides (NOx), sulphur dioxide ($SO_2$), volatile organic compounds (VOCs), ammonia ($NH_3$) and various heavy metals and organic pollutants, depending on the industrial process. Industrial emissions may be point-source, such as stacks or chimneys, or fugitive, such as emissions from storage or handling of materials.

## Transport

Transport is specifically identified as a major contributor to the following pollutants under the Strategy:

- Nitrogen dioxide ($NO_2$)
- Particulate matter ($PM_{10}$ and $PM_{2.5}$)
- Carbon monoxide (CO)
- Volatile organic compounds (VOCs)
- Ozone precursors