Ricardo
Spotlight on Local Air Quality

29th April 2026

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Spotlight on Air Quality: An Introduction

RICARDO
Member of WSP

Co-Hosts

Jack McDonald

Georgina Howson

Presenters

Elizabeth Bates

Thomas Adams

Dr Louisa Kramer

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AGENDA

- Introduction
- WSP
- From Pollution to Possibility: Bradford's Clean Air Zone Journey
- Smoke Control Areas, Domestic Burning and PM2.5
- The Future of PM2.5 Monitoring in the UK
- Q&A's
- Air Quality Annual Status Reports (ASRs)
- EMAQ Live!

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Spotlight on Air Quality: The Polls

Access via the QR code with your smart phones

……Or join us at menti.com

and use joining code

2772 6080

Let the voting begin!

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Which Local Authority do you represent?

74 / 74

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Ricardo Joins WSP

Jamie Clayton – Ricardo

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From Pollution to Possibility: Bradford's Clean Air Zone Journey

Elizabeth Bates – City of Bradford Metropolitan District Council

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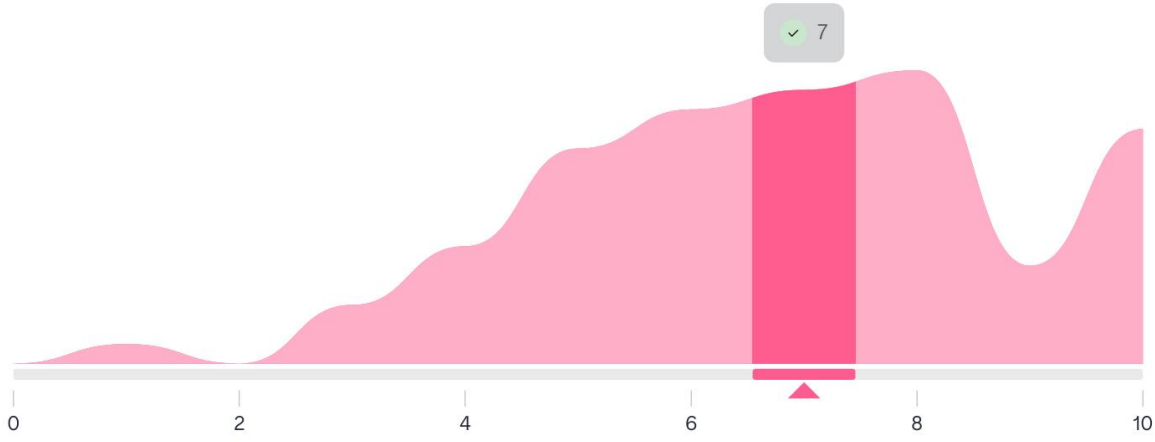
How Many cities in the UK have Clean Air Zones?



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From Pollution to Possibility:

Bradford's Clean Air Zone Journey

City of BRADFORD METROPOLITAN DISTRICT COUNCIL

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Motivators

- In 2018 Bradford was exceeding the legal limits for air pollution, affecting **health, productivity and economic potential**.
- 1 in 5 children in the District had a **diagnosed breathing issue**
- Increased risk of **low birth-weight** babies with reduced lung capacity
- Increased risk of **chromosomal effects** and **reduced cognitive ability**
- **Air pollution** was a factor for 35% of GP patients with breathing issues and 49% of those visiting A&E
- **Health Inequalities** – 10 miles apart, 10 years difference in average life expectancy
- The need for Air Quality Improvement was already high on the agenda

2020 Bradford mandated
CAZ C+ only viable option
FUNDING

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Planning the route

01

Improve health

02

Respond to Climate Emergency

03

Platform for inward investment in clean growth

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Travel Companions

Bradford Community
- Consultation and co-creation
- Local exemption schemes
- Clear brand identity
- Events, campaigns and education

Evaluators
- Additional air quality monitoring and data analytics support
- Health and economic evaluation in collaboration with NHS & Universities

The 'tour guide' and 'driver'
- JAQU / Defra and their independent evaluation team

CAZ Operations
- Camera installation
- Camera monitoring
- Grant allocations
- Payment processing
- Issuing and recovery of FPNs

Fellow passengers
- Data shared with other CAZ cities – replication and shared learning

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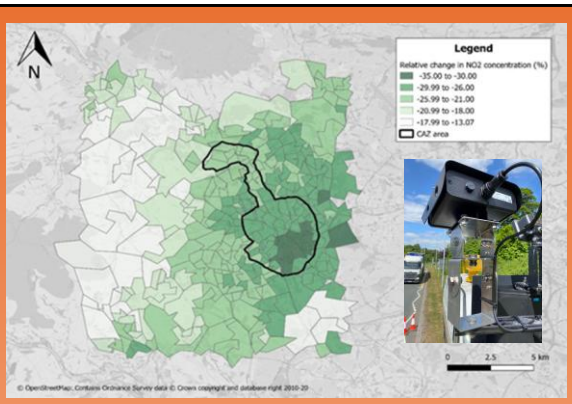
Setting out

- Largest road user charging scheme in UK outside London, 24 km2
- 16km digital ducting, 360 cameras, 3,700 signs
- Large expansion of air quality monitoring network
- Regional comms campaign
- Delivered and operated in-house
- On time and within budget.
- Lowest cost in UK to implement (£2.5m)

Live on 26th September 2022



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Treading new paths

Clean Air Schools Programme

Electric truck trial

Smoke control campaign

Data dashboard

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Exploring new areas

Climate Action Plan 2025

Anaerobic Digestion, running RCVs on domestic food waste

Bradford Low Carbon Hydrogen, 24MW green Hydrogen, in 2027

District Heat Network £75m, connecting Council buildings

E-bike scheme, launched 10th March 2026

Bradford Manufacturing Futures – industrial decarbonisaton

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The benefits

£32m
support programme, more than 50% of the funding awarded to IMD1 (most deprived 10th in UK)

Lowest levels of NO2 ever recorded in summer 2025,
↓ **40%**

£180m
in Societal benefits within first 22 months

99.75% **compliant**
cleanest taxi fleet in UK. Hybrid fleet with 800 EV taxi. Additional £8m for EV buses in 2025

150,000 **tonnes**
reduction in greenhouse gases over lifetime of the **CAZ**

25% + 24%
reductions in primary care in **Bradford for lung and heart health** following **CAZ launch**

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The future

Inner City Transformation,removed through traffic

Walkable Liveable City

Clean growth

Inner City Sustainable Living

Healthy, happy skilled workforce

Makes it easier to move, spend and stay

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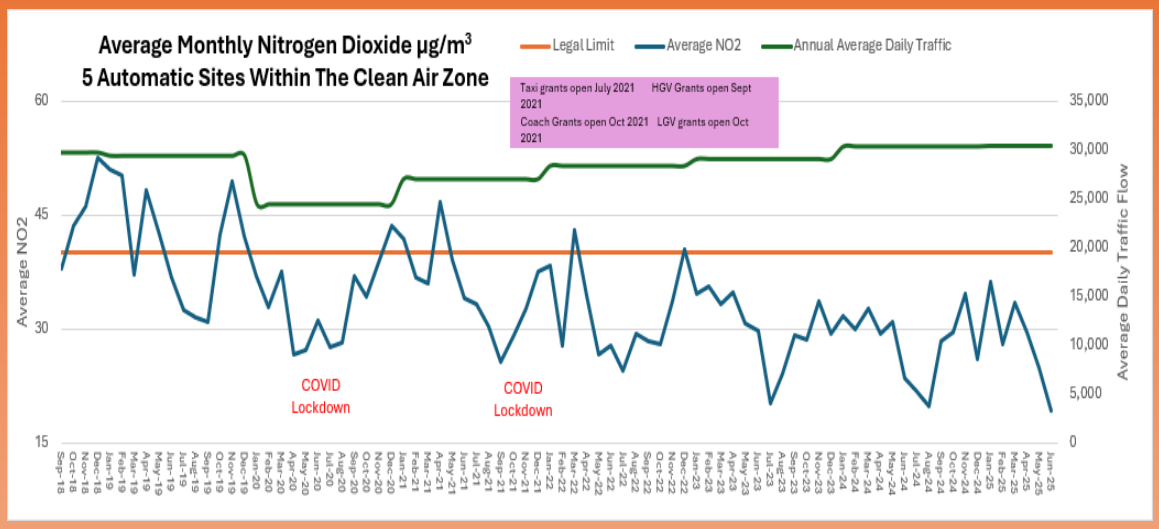

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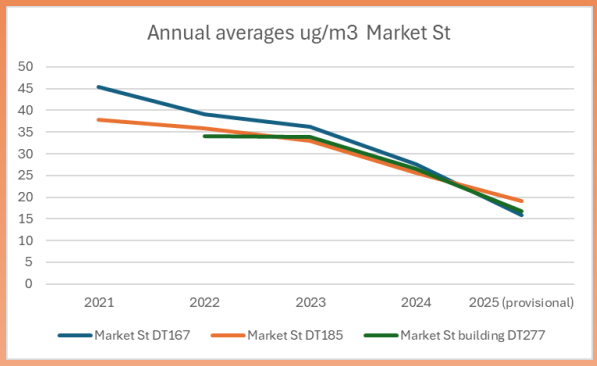
Hope you enjoyed the journey

https://www.bradford.gov.uk/clean-air-zone/clean-air-zone/

https://www.bradford.gov.uk/clean-air-zone/resources/air-quality/



Any Questions?

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Smoke Control Areas, Domestic Burning and PM2.5

Thomas Adams – Ricardo

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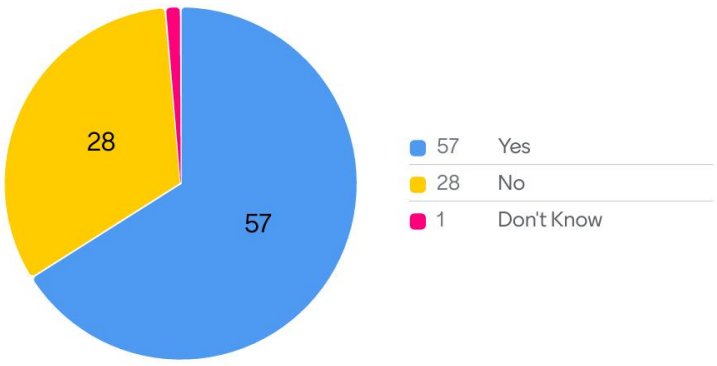
Does your local authority have a smoke control area(s)?



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Smoke Control Areas, Domestic Burning and $PM_{2.5}$

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29th April 2026

Tom Adams, Principal Consultant, Ricardo

Spotlight on Air Quality Webinar

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01
Particulate matter

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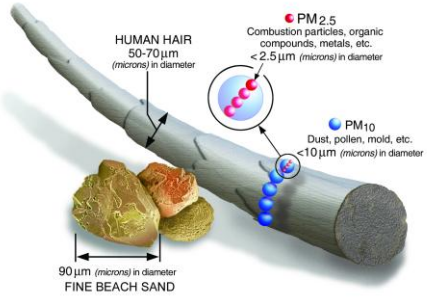
What is particulate matter (PM)?

- Particulate matter is a mixture of tiny solid particles and liquid droplets suspended in the air, some of which can be toxic
- Due to the small size, some of these toxins can get into our lungs and pass into our bloodstream
- There are three main size fractions that we use to categorise PM:
  - PM_{10} – particles with a diameter less than 10 microns
  - $PM_{2.5}$ – particles less than 2.5 microns in diameter
  - Ultra fine particles (UFP) – the smallest fraction, < 0.1 microns in diameter

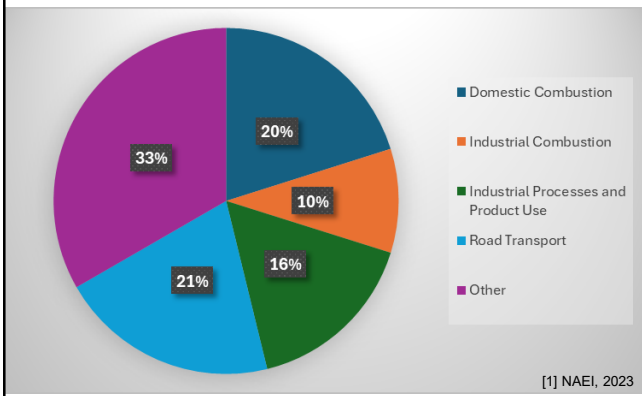


Source: US EPA

- **$PM_{2.5}$** is generally the key focus
  - Associated with the greatest proportion of adverse health effects related to air pollution
  - Especially in vulnerable groups of people such as the young, elderly, and those with respiratory problems
  - Up to **36,000 premature deaths** annually can be linked to long-term $PM_{2.5}$ exposure

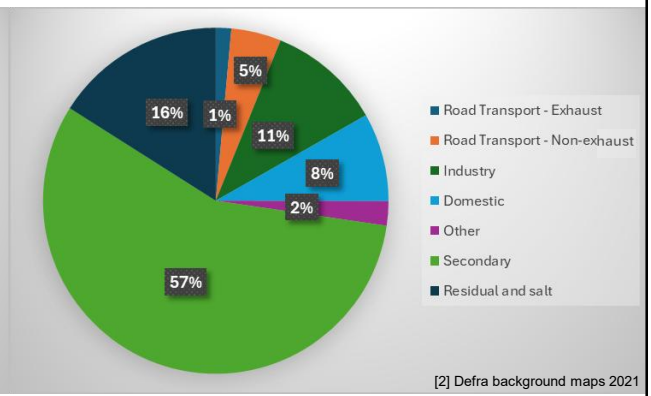
What are the key sources of $PM_{2.5}$?

Primary $PM_{2.5}$ emission sources in UK 2023 [1]



[1] NAEI, 2023

Average concentration by source in London 2021 [2]



[2] Defra background maps 2021

- Key primary (direct) emission sources – industry, transport and domestic burning, the target for local action
- Secondary sources contributing concentrations – 65% or more of emissions, hard to tackle with local action

02
Domestic burning

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Domestic burning

- **What is domestic burning?**
  - The use of solid fuels, such as wood, coal, and manufactured solid fuels, for heating and cooking in residential settings. This includes open fireplaces, wood-burning stoves, and solid fuel boilers.
- **Why is it important?**
  - Domestic burning is one of the largest sources of fine particulate matter ($PM_{2.5}$) in the UK, around the same proportion as transport and industry.
- **Key sources:**
  - Wood-burning stoves (both traditional and modern)
  - Open fires (often used for aesthetic or secondary heating)
  - Solid fuel boilers (less common but still in use, especially in rural areas)

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Domestic burning

- **Environmental and health impacts:**
  - Releases **$PM_{2.5}$**, PM_{10}, CO, and other harmful pollutants
  - Contributes to poor outdoor air quality, especially in urban areas
  - Can significantly degrade **indoor air quality**, particularly in poorly ventilated homes
- **Trends and challenges:**
  - Use of wood as a **fuel** has increased, especially during energy price spikes
  - Many households are unaware of the pollution caused by burning "seasoned" or **wet wood**
  - **Emissions are highly variable** depending on fuel type, appliance efficiency, and user behaviour

03
Domestic burning mitigation

Domestic burning mitigation: policy and regulation

- The **UK Clean Air Strategy** targets reductions in $PM_{2.5}$ from domestic sources
- Regulations now **restrict the sale of wet wood and coal** for domestic use
- Local authorities can designate **Smoke Control Areas** with stricter rules
- **Eco-design stoves** are now mandatory for all new installations

Domestic burning mitigation: Smoke Control Areas

- **What is a Smoke Control Area?**
  - Smoke Control Areas (SCAs) are designated zones in the UK where **emissions from chimneys are strictly regulated** to reduce air pollution. These rules apply to both residential and commercial properties.
  - Key Restrictions in SCAs:
    - **No Smoke from Chimneys**: You must not release smoke from a chimney unless you are using:
    - An **authorised fuel** (for example, anthracite or low volatile steam coal), or
    - An **exempt appliance** (also called a Defra-approved appliance).

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Domestic burning mitigation: Smoke Control Areas

Schedule 12 of the Environment Act 2021 amended Part III of the CAA to enable quicker, simpler and more proportionate enforcement of SCAs:

- **Enabled LAs to issue financial penalties** to those emitting smoke from their chimney in an SCA, **replacing the criminal offence with a civil penalty regime**. This removed the statutory defences (using an exempt appliance and authorised fuel) that previously hindered enforcement;
- **Extended the system of statutory nuisance** to include smoke from private dwellings in SCAs, which had previously been excluded;
- **Required solid fuel retailers to notify customers of the law** (i.e. that it is illegal to buy unauthorised fuels for use in an SCA unless burning in an exempt appliance) and **removed the limit on the fine** for the offence of selling unauthorised solid fuels for delivery;
- **Enabled LAs to bring moored inland waterways vessels (e.g. canal boats) into scope of SCAs** (subject to local consultation).

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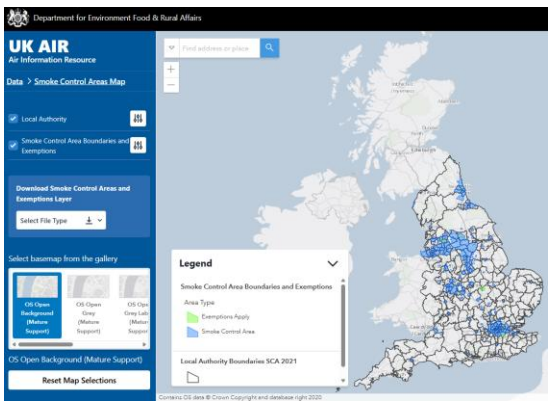
Expectations for LAs with Smoke Control Areas

- LAs must **keep Smoke Control Areas under review**, especially if development has taken place
- LAs should use nuisance powers where there are persistent smoke issues
- LAs with SCAs should enforce the solid fuels regulations by ensuring that fuel being sold for domestic purposes has the “Ready to Burn” logo
- LAs with SCAs should ensure that no retailers are selling coal for indoor domestic burning
- LAs may vary an existing order, for example extend its boundaries, exclude/include certain buildings – e.g. moored vessels, historic properties, fixed boilers, industrial plants:
  - You **must consult** on your proposals with those affected by the change

READY TO BURN



https://uk-air.defra.gov.uk/data/sca/

04
Case study: Quantifying impacts

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Case study: Health Impacts from Domestic Burning in the UK (Global Action Plan and Hertfordshire County Council, 2025)

Pollutants: fine particulate matter ($PM_{2.5}$) & nitrogen oxides/nitrogen dioxide (NOx/NO_2)

Resolution: 1 km across the UK

2023 Baseline: Emissions and concentrations arising from domestic combustion in the UK, for the year 2023

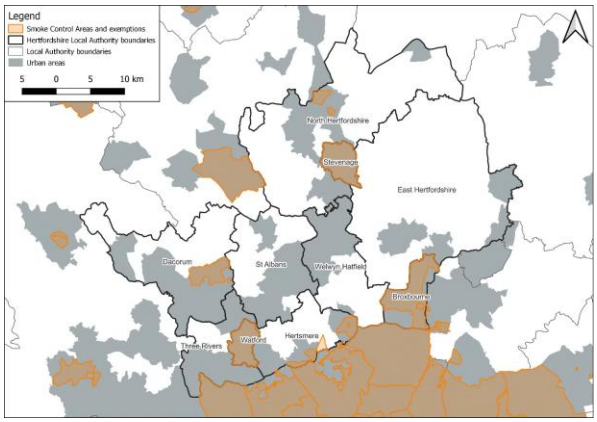
- The main input is the UK National Atmospheric Emissions Inventory (NAEI) emissions as maps, which are available at a 1 km resolution
- Updated to reflect revised domestic burning estimates based on recent Ricardo work for Defra.

Scenario 1: Smoke control areas (SCAs) applied in all urban areas across the UK

- The scenario assumes partial population compliance with SCA rules based on available compliance data
- We recalculated $PM_{2.5}$ emissions from wood and solid fuel burning for every urban area where a new SCA is modelled

Scenario 2: Stop all secondary burning (i.e., burning not as a primary heat source)

- Removed emissions where domestic wood and solid fuel burning is secondary
- Different assumptions for urban and rural areas



https://www.actionforcleanair.org.uk/files/health_impacts_from_domestic_burning_in_the_uk.pdf

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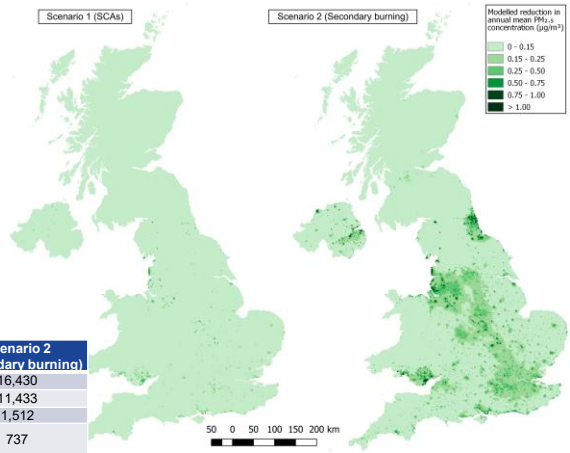
Air Quality Modelling Results: UK

- **Scenario 1: Smoke control areas (SCAs) applied in all urban areas across the UK**
- **Scenario 2: Stop all secondary burning (i.e., burning not as a primary heat source)**

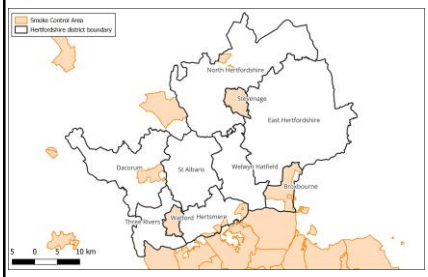
Pollutant	Total emissions savings					
	Tonnes/yr		% of domestic combustion emissions		% of total UK annual emissions	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
$PM_{2.5}$	-1,591	-7,985	-14.6%	-73.1%	-2.4%	-12.3%
NOx	-576	-2,966	-2.5%	-12.7%	-0.1%	-0.4%

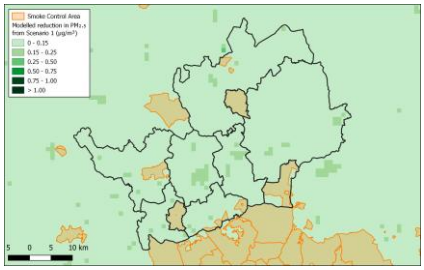
UK Impact	Indicators and units (average annual figures)	Scenario 1 (SCAs)	Scenario 2 (Secondary burning)
Quality-Adjusted Life Years gained	LYs gained from deaths avoided	3,491	16,430
	QALY gained from morbidity avoided	2,427	11,433
Deaths avoided (mortality)	Statistical deaths avoided	321	1,512
Healthcare activity reduced	Respiratory and/or cardiovascular hospital admissions prevented	156	737
UK Monetised Savings	Non-market disease burden (GBP 2025)	£ 411,057,000	£ 1,935,541,100
	Healthcare costs (NHS) (GBP 2025)	£ 11,554,950	£ 54,427,030
	Productivity impacts (GBP 2025)	£ 34,850,800	£ 164,034,900

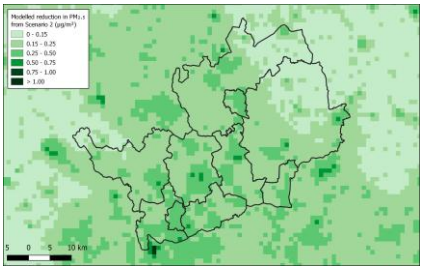


Air Quality Modelling Results: $PM_{2.5}$ Hertfordshire

Scenario / Region	Difference from baseline (tonnes/yr)		Difference from baseline (%)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Broxbourne	-0.14	-6.20	-1.7%	-78.6%
Dacorum	-4.16	-16.35	-19.2%	-75.4%
East Hertfordshire	-7.03	-24.03	-21.4%	-73.1%
Hertsmere	-2.47	-12.98	-14.3%	-75.2%
North Hertfordshire	-5.40	-19.86	-20.3%	-74.7%
St Albans	-7.56	-18.62	-30.9%	-76.1%
Stevenage	0.00	-5.02	0.0%	-79.5%
Three Rivers	-3.80	-15.30	-19.2%	-77.4%
Watford	0.00	-6.64	0.0%	-78.9%
Welwyn Hatfield	-5.66	-14.22	-30.5%	-76.4%







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Local authority actions

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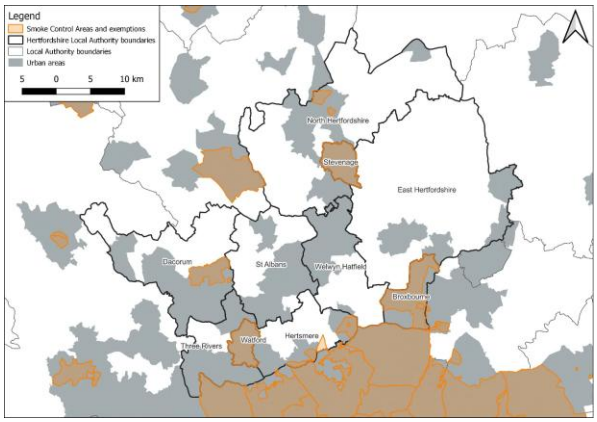
Review of existing and future SCA coverage

- **Task 1: Review of existing and future SCA coverage**
  - Review and validate existing SCAs before undertaking further investigation to determine the best way forward for future SCA implementation
    - Existing documentation, GIS mapping, online resources
  - Most efficient method is often revocation of all historic smoke control orders and reissue of a single borough-wide smoke control order
- **Task 2: Investigate what potential future SCA coverage could entail**. This will include consideration of:
  - Recent residential developments in areas not currently designated as SCAs
  - Future residential developments e.g. part of a local plan, to future proof the allocation
  - Additional sources (i.e., moored houseboats)



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Preparation of relevant documentation

Procedural documentation

- **Notice of proposal to revoke existing Smoke Control Order(s)** – this should set out the proposal to revoke the existing Smoke Control Order(s) and declare one new Smoke Control Order
- **Revocation Order** – this should demonstrate which order(s) are being revoked, including information on those orders (where possible, e.g., their coverage) and the timeframe for revocation
- **New Smoke Control Order** – this should set out the specifics of the new SCA, including coverage, any exemptions, and the timeline for implementation

SCA enforcement and fees policy

- Provide clear information on how the council will enforce the SCA going forward
- Set out the financial penalties that apply if SCA rules are broken
- Local authority to develop and document its own policy on how much to charge those responsible for smoke emissions in SCAs

Engagement options

Defra advises the following principles regarding communication of information around air pollution to the public:

Explain what air pollution is
- Use information about what particulate matter, and other air pollutants are made of and where they can go to get air pollution onto the local agenda – not statistics about health consequences

Help people understand how they can protect themselves
- Don't raise public concern about air pollution unless you can at the same time satisfy people's desire to do something to reduce their exposure

Explain the health impacts
- Focus on what is known for certain about the health consequences of air pollution

Make it local
- Talk about air pollution as a problem linked to specific places – and not as a general problem of the atmosphere

Explain how individuals can make a difference
- Keep the focus on practical improvements – not long-term solutions

Demonstrate leadership and empower communities
- Instead of simply expecting individuals to change their behaviour

Engagement options

- **Online consultation survey**
  - Capture feedback on resident's opinions and experiences related to SCA measures and their impact
- **Short video**
  - To be shared on the council website and social media
- **Live webinar**
  - Provide direct contact to ask questions of experts
- **In-person consultation events**
  - Reaching those who aren't aware of the online content

Summary

- **Domestic burning** is a key source of **$PM_{2.5}$** and important for indoor air quality
- **Smoke Control Areas** are the main legislative method to restrict domestic burning
- SCAs are not the only solution to reducing domestic burning:
  - **Communication**
  - **Education**
  - **Stakeholder consultation**
- Suggestions for **New Burdens funding**:
  - Review existing and future SCA coverage
  - Support preparing documentation
  - Online consultation survey including a short video, live webinar and/or in-person consultation events
  - Quantification of impacts including modelling studies

Any Questions?

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The Future of PM2.5 Monitoring in the UK

Dr Louisa Kramer – Ricardo

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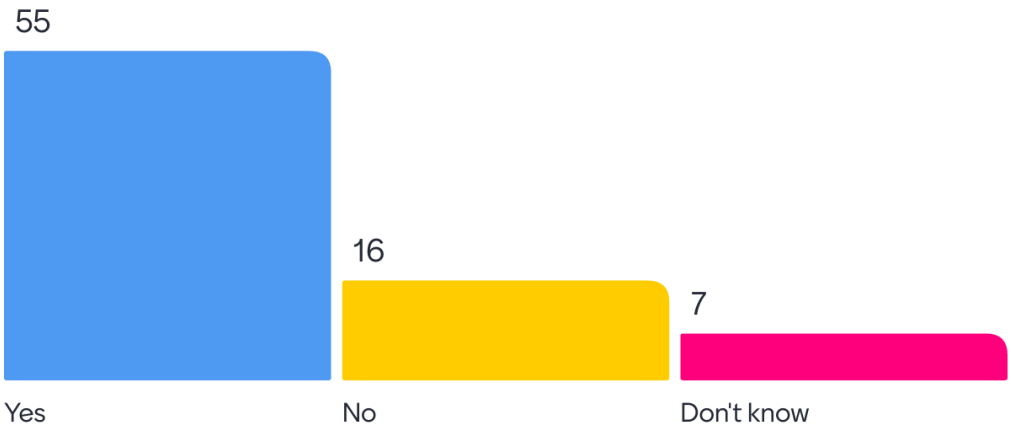
Does your local authority measure PM2.5?



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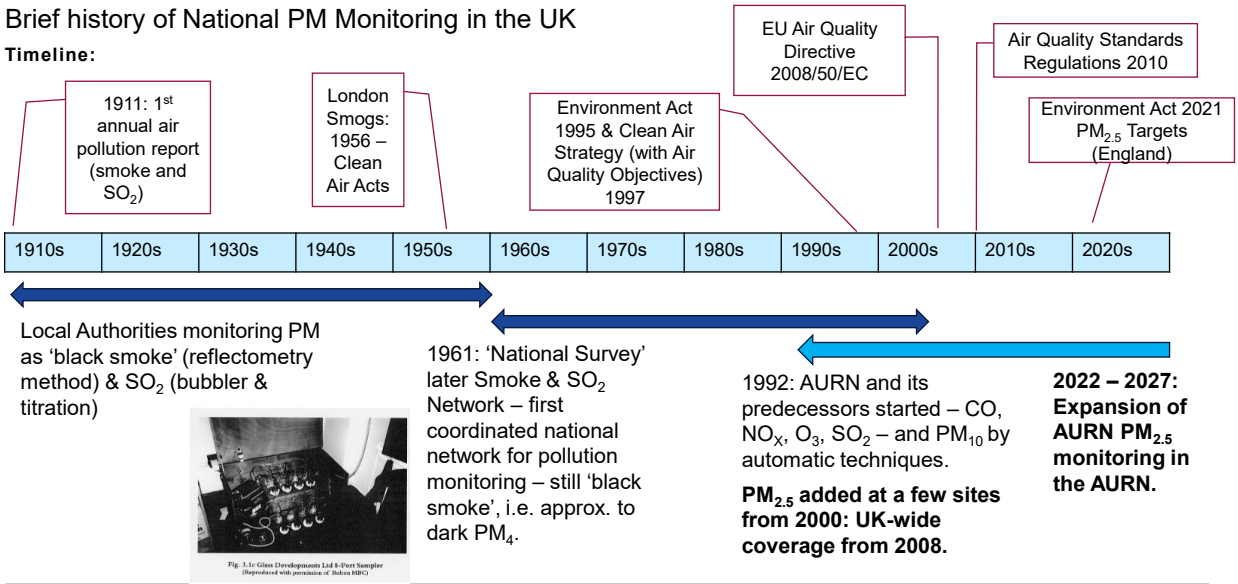
Brief history of National PM Monitoring in the UK

Timeline:



Local Authorities monitoring PM as 'black smoke' (reflectometry method) & SO_2 (bubbler & titration)

Fig. 3.1c Glass Developments Ltd 8-Port Sampler (Reproduced with permission of Bolton MBC)

1961: 'National Survey' later Smoke & SO_2 Network – first coordinated national network for pollution monitoring – still 'black smoke', i.e. approx. to dark PM_4.

1992: AURN and its predecessors started – CO, NO_X, O_3, SO_2 – and PM_{10} by automatic techniques.

$PM_{2.5}$ added at a few sites from 2000: UK-wide coverage from 2008.

2022 – 2027: Expansion of AURN $PM_{2.5}$ monitoring in the AURN.

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Current $PM_{2.5}$ Monitoring in the UK

- $PM_{2.5}$ measured at **162 national compliance monitoring stations** (AURN) – and expanding (**green** markers – also Lerwick in Shetland, not shown)
- **$PM_{2.5}$ also measured at 166 (at least) non-AURN sites** operated by Local Authorities for Local Air Quality Management purposes and/or as part of regional or local networks (**turquoise** markers)
- Monitoring carried out using near-real time, automatic monitoring techniques (AURN uses optical Fidas 200™, Beta Attenuation Monitors), plus a very small number of gravimetric samplers.

Current $PM_{2.5}$ Monitoring in the UK

The reference method for $PM_{2.5}$ (and PM_{10}) is gravimetric, i.e. sampling for 24 hours onto a pre-weighed filter and using the sampled volume and mass of particulate collected to calculate the ambient concentration.

However, this requires lab pre- and post- conditioning and weighing of filters so can't provide real-time measurement.

UK compliance monitoring (the AURN) and Local Air Quality Management (LAQM) use automatic monitoring methods that have **demonstrated equivalence** to the reference method and are therefore MCERTS certified.

AURN uses:

- Fidas200™ optical method
- Beta Attenuation Monitor (BAM)
- A small number of gravimetric samplers for specific purposes and ongoing equivalence demonstration.

LAQM uses:

- Fidas200™ optical method
- Beta Attenuation Monitor (BAM)
- FDMS-TEOM
- Osiris™ (indicative)
- Legacy conventional TEOM (indicative)
- Lower Cost Sensors (indicative)

Current UK Legislation, Targets and Guidelines

	PM_{10} (µg m^{-3})	$PM_{2.5}$ (µg m^{-3})
Air Quality Standards Regulations 2010:	Annual mean: **40** 24-hour mean: **50** (not to be exceeded more than 35x per year)	Annual mean: **25** No 24-hour limit value
UK Air Quality Strategy Objectives (all UK)	Annual mean: **40** 24-hour mean: **50** (max. exceedances 35x per year)	Annual mean: **20** No 24-hour limit value
UK Air Quality Strategy Objectives (**Scotland only**)	Annual mean: **18** 50 (max. exceedances 7x per year)	Annual mean: **10** No 24-hour limit value
Environment Act 2021 $PM_{2.5}$ Targets (currently England only) And Environment Improvement Plan (EIP) interim targets *Continued over …*	-	*Annual Mean Concentration Target (AMCT):* **10** µg m^{-3} not to be exceeded at any relevant monitoring station by 31st Dec 2040 EIP Interim Target of **10** µg m^{-3} not to be exceeded at any relevant monitoring station by Dec 2030. (Update on previous interim target of 12 µg m^{-3} by 2028) *Population Exposure Reduction Target (PERT):* **35%** reduction compared with baseline years (2016 – 18), by 31st Dec 2040 EIP Interim PERT of **30%** by Dec 2030. (Update on previous interim target of 22% by 2028)

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WHO 2021 Guidelines – not legally binding but may inform future legislation

	PM_{10} (µg m^{-3})	$PM_{2.5}$ (µg m^{-3})
WHO Air Quality Guidelines Interim Target 4	Annual mean: **20** 24-hour mean: **50** (99th percentile i.e. 3-4 exceedance days/year)	Annual mean: **10** 24-hour mean: **25** (99th percentile i.e. 3-4 exceedance days/year)
WHO Air Quality Guidelines 2021	Annual mean: **15** 24-hour mean: **45** (99th percentile i.e. 3-4 exceedance days/year)	Annual mean: **5** 24-hour mean: **15** (99th percentile i.e. 3-4 exceedance days/year)

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Wales:

Environment (Air Quality & Soundscapes) (Wales) Act 2024:

- Provides a national air quality target-setting framework for Wales
- Includes a duty to set targets for $PM_{2.5}$
- $PM_{2.5}$ acknowledged as currently the pollutant of most concern regarding public health
- A consultation on draft $PM_{2.5}$ target regulations has recently taken place (17th Nov 2025 – 16th Feb 2026)
- Expected to be an AMCT (Annual Mean Concentration Target) and PERT (Population Exposure Reduction Target)
- Final drafting and laying of legislation for $PM_{2.5}$ targets expected in latter months of 2026.

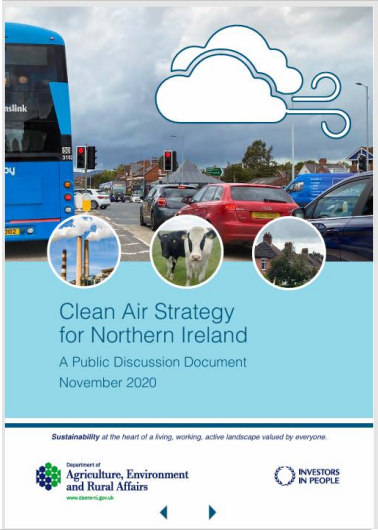
Northern Ireland:

Clean Air Strategy for Northern Ireland

- Legislative requirement - currently met by the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007.
- DAERA carried out a public consultation in November 2020. A Discussion Document (right) was published which presented evidence and research on a range of ambient air pollutants. A synopsis of responses was published in June 2022.
- The draft Strategy was amended in the light of changes Defra made to its strategy.
- Following consultation officials will analyse the responses and finalise the document which will require approval by the NI Executive ahead of publication.

Climate Action Plan for Northern Ireland

- Through NI's Climate Action Plan DAERA are also considering bringing into operation tighter annual average limits/targets/objectives for $PM_{2.5}$ and PM_{10}, in line with **interim target 4** of the World Health Organisation Air Quality Guidelines 2021.



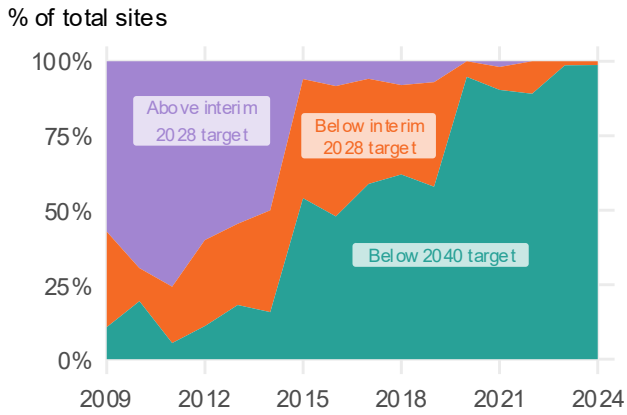
Current UK Legislation, Targets and Guidelines for $PM_{2.5}$ – Are we compliant?

	$PM_{2.5}$ (µg m^{-3})
Air Quality Standards Regulations 2010:	✓ Yes – all AURN sites annual mean < 20 µg m^{-3} in 2023, 2024 & 2025*
UK Air Quality Strategy Objectives (all UK):	✓ Yes – all AURN sites annual mean < 20 µg m^{-3} in 2023, 2024 & 2025* ✓ All Local Authority sites on UK-AIR in 2023, 2024 & 2025
UK Air Quality Strategy Objectives (Scotland only)	✓ Yes – all Scottish (SAQD) sites annual mean < 10 µg m^{-3} in 2023, 2024 & 2025
Environment Act 2021 $PM_{2.5}$ Targets (currently England only)	✓ AMCT Interim target of 12 µg m^{-3} met at all England AURN sites in 2023, 2024 & 2025 X AMCT 2040 target (and new EIP 2030 interim target) of 10 µg m^{-3} met at all England AURN sites in 2023, 2024 and 2025 except London Marylebone Road (2023 – 25), Camden Kerbside (2025*) and Stanford le Hope 2025* - but we have until 2040 to achieve this. ✓ On track to meet PERT
WHO Air Quality Guidelines 2021 Not legally binding	✓ Most AURN sites meet WHO Interim Target 4 (annual mean 10 µg m^{-3}) X but few meet 2021 WHO guideline (annual mean 5 µg m^{-3}) yet.

* 2025 data may still be provisional in some cases.

Progress Towards Meeting the Annual Mean Concentration Target (England)

AMCT for $PM_{2.5}$: progress from 2009 to 2024, sites by status (%of total sites)



(Source: Defra, in 'Air Pollution in the UK 2024', https://uk-air.defra.gov.uk/library/annualreport/index)

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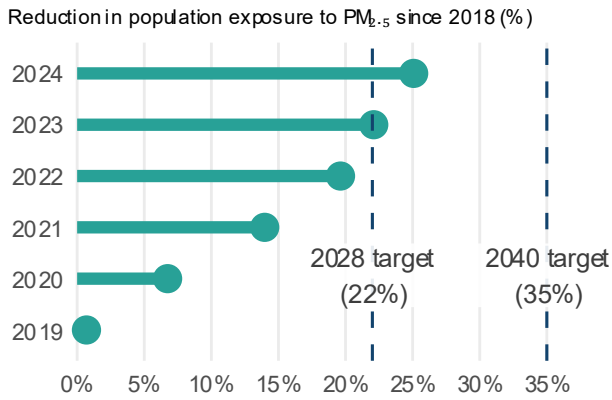
Progress Towards the Population Exposure Reduction Target (PERT) in England

PERT for $PM_{2.5}$: progress, % reduction in population exposure to $PM_{2.5}$ from 2018 to 2024



(Source: Defra, in 'Air Pollution in the UK 2024', https://uk-air.defra.gov.uk/library/annualreport/index)

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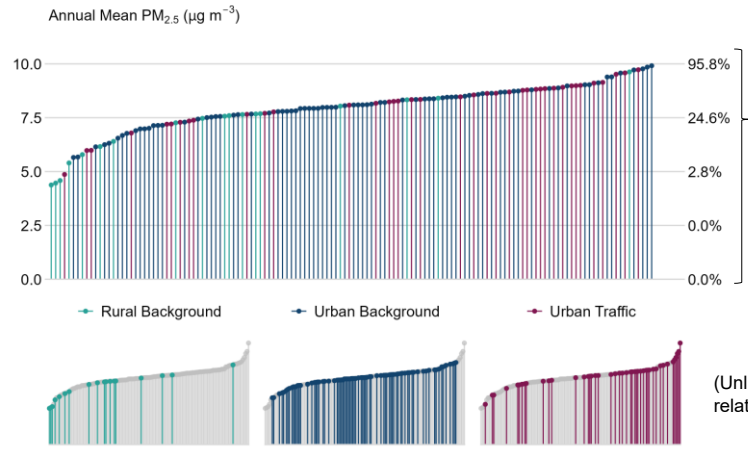
And what about the WHO Guideline?

Distribution of Annual Mean $PM_{2.5}$ in 2025 (some data still provisional)



Percentage of AURN sites under this concentration.

Nearly all AURN sites currently under the WHO Interim Target 4 & England AMCT of 10 µg m^{-3}

Almost no AURN sites are under the WHO 2021 guideline of 5 µg m^{-3}

(Unlike NO_2, $PM_{2.5}$ shows a much weaker relationship with site type.)

Expansion of $PM_{2.5}$ Monitoring in the AURN (England only)

- Monitoring of $PM_{2.5}$ in the Automatic Urban and Rural Network is being expanded in order to meet the monitoring requirements of the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023
- Expected over 100 new $PM_{2.5}$ monitoring sites (England only) compared to 2022 starting point
- Combination of:
  - Adding $PM_{2.5}$ monitoring instruments to existing sites which didn't previously monitor it (total 40 sites enhanced in this way – complete)
  - Starting up approximately 80 completely new monitoring sites, for $PM_{2.5}$ (in some cases with PM_{10} and O_3). Most 'new builds', but approximately 7 will be affiliations of LA sites.
  - Progress to date: 40 new $PM_{2.5}$ instruments installed into existing sites and 37 new monitoring sites added.




Expansion of AURN $PM_{2.5}$ Monitoring in England (by 1st Jan 2028) – source: Defra
(For illustrative purposes only – numbers and locations of sites shown may change!)

Original Network (Dec 2021)

New Network for illustration purposes- orange (planned to start up by 1st Jan 2028)

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Challenges in Further Reducing Exposure

Future efforts to reduce population exposure to $PM_{2.5}$ may need to look at:

Ammonia Emissions	Solid fuel emissions	Sources & Composition	Other metrics
• Ammonia is a precursor to secondary $PM_{2.5}$ formation • Focus on Agriculture	• Domestic solid fuel/ wood combustion • Wood-burning stoves	• Improve understanding of the PM sources • Further our knowledge on components of PM most harmful to health	• Black Carbon • Polycyclic aromatic hydrocarbons (PAHs) • Particle Number

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Any Questions?

Louisa Kramer louisa.kramer@wsp.com

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Annual Status Reports

Jekabs Jursins – Ricardo

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Annual Reporting – overview & key aspects

Statutory reporting requirements	Reporting opportunities
Overview of air quality priorities	Championing achievements over the past year
Details on Air Quality Management Areas (if any)	Declaring any intent to revoke/amend AQMA
Progress and impact of air quality measures	Progress review on any adopted Air Quality Action Plans / Strategies
Summary of monitoring undertaken in previous year	**[NEW]** – opportunity to report on low-cost sensor monitoring in latest year
Trends in air quality over the past five years	
Monitoring and management of $PM_{2.5}$	Assessing achievability of $PM_{2.5}$ targets by 2030 (England)

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Annual Reporting – new content: low-cost sensors

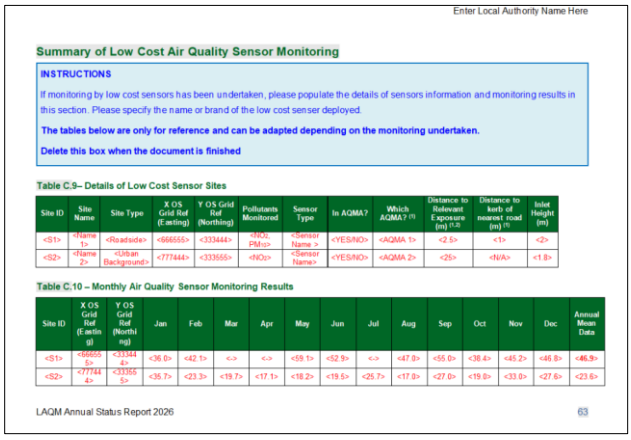
Table C.9:

- Site name of the sensor
- The type of sensor
- Where the sensors are located (coordinates, proximity to roads & relevant exposure, AQMA)

Table C.10:

- Monthly concentrations of pollutant
- Annual mean of pollutant

These are for guidance only, further details can be added at the local authority's leisure



Enter Local Authority Name Here

Summary of Low Cost Air Quality Sensor Monitoring

INSTRUCTIONS

If monitoring by low cost sensors has been undertaken, please populate the details of sensors information and monitoring results in this section. Please specify the name or brand of the low cost senser deployed.

The tables below are only for reference and can be adapted depending on the monitoring undertaken.

Delete this box when the document is finished

Table C.9– Details of Low Cost Sensor Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	Sensor Type	In AQMA?	Which AQMA? [1]	Distance to Relevant Exposure (m) [1,2]	Distance to kerb of nearest road (m) [1]	Inlet Height (m)
<S1>	<Name 1>	<Roadside>	<666555>	<333444>	<NO2; PMx>	<Sensor Name >	<YES/NO>	<AQMA 1>	<2.5>	<1>	<2>
<S2>	<Name 2>	<Urban Background>	<777444>	<333555>	<NOx>	<Sensor Name>	<YES/NO>	<AQMA 2>	<25>	<N/A>	<1.8>

Table C.10 – Monthly Air Quality Sensor Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean Data
<S1>	<666555>	<333444>	<36.0>	<42.1>	<->	<->	<59.1>	<52.9>	<->	<47.0>	<55.0>	<38.4>	<45.2>	<46.8>	**<46.9>**
<S2>	<777444>	<333555>	<35.7>	<23.3>	<19.7>	<17.1>	<18.2>	<19.5>	<25.7>	<17.0>	<27.0>	<19.6>	<33.0>	<27.6>	<23.6>

LAQM Annual Status Report 2026 63

Source: England (exc. London) Annual Status Report Templates | LAQM

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Annual Reporting – what needs to be submitted and by when?

Region	Reporting deadline	Annual reporting – what's it called?	NO_2 Diffusion Tube Monitoring Data	Automatic Monitoring Data	Top three air quality measures	Local Authority contact details
London	30 May 2026	Annual status report	Y	Y	Y	Y
England	30 June 2026	Annual status report	Y	Y	Y	Y
Scotland	30 June 2026	Annual progress report	Y	n/a*	Y	Y
Wales	30 September 2026	Annual progress report	Y	Y	Y	Y
Northern Ireland	30 June 2026	Progress Report	Recommended*	n/a*	Recommended*	Y

*required in Annual Report itself

Source: LAQM_Submission_Guidance_V2.0.pdf

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Annual Reporting – where can I find further information?

Resources available via Defra's LAQM Annual Reporting webpage:

- Reporting templates
- Best practice from previous Annual Reports
- Non-automatic monitoring data processing & QA/QC tools
- Automatic monitoring data processing & QA/QC tools
- FAQs

Get in touch if you have any queries!

Jekabs Jursins

Jekabs.Jursins@wsp.com

EMAQ+ Live!

Location: Volunteers Welcomed! Please email jo.solan@ricardo.com or thomas.adams@ricardo.com

September 2026 Event

- Local authority staff involved in improving air quality, representatives from environmental health, planning, transport, public health and climate teams
- Expert speakers, round table discussions on challenges and opportunities for improving UK air quality, and developments in local air quality management
- **Free** for EMAQ+ subscribers, or a small fee for local authorities that do not hold an EMAQ+ subscription
- Email info@emaq.uk to secure your place (up to 3 places per local authority)
- New website launched here! **https://www.emaq.uk/**

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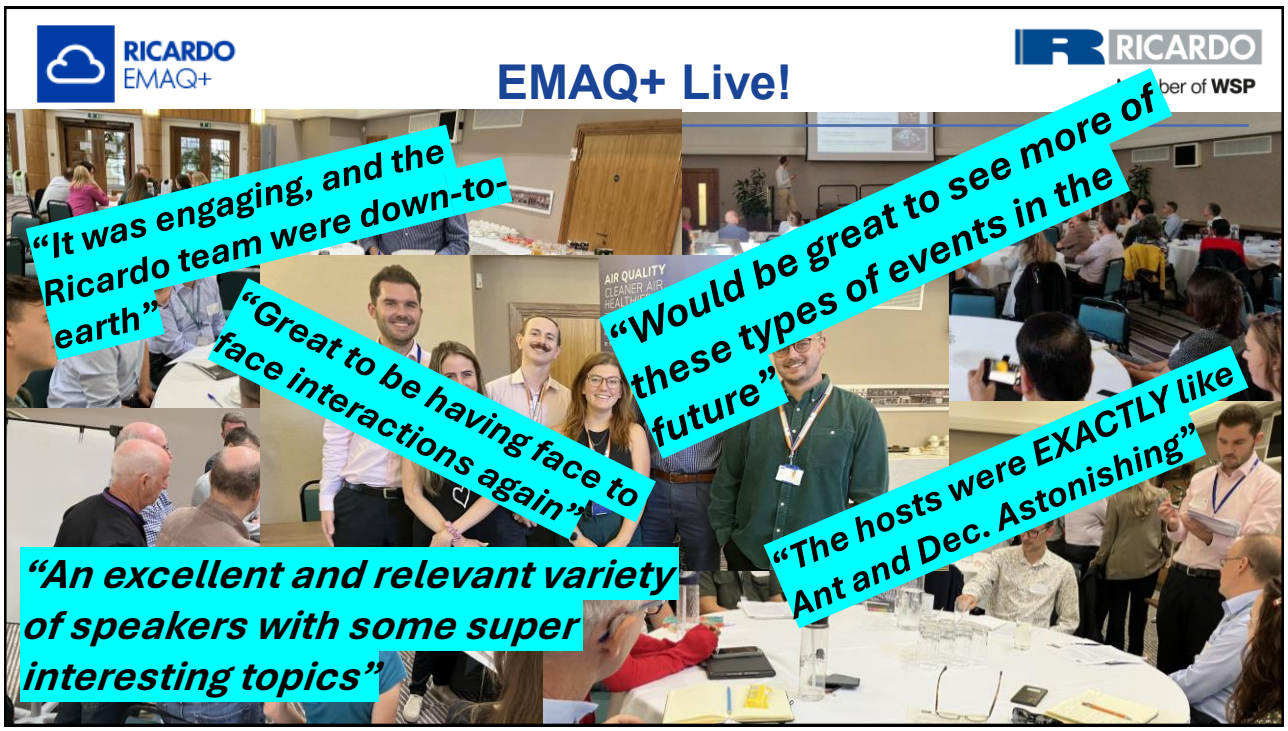

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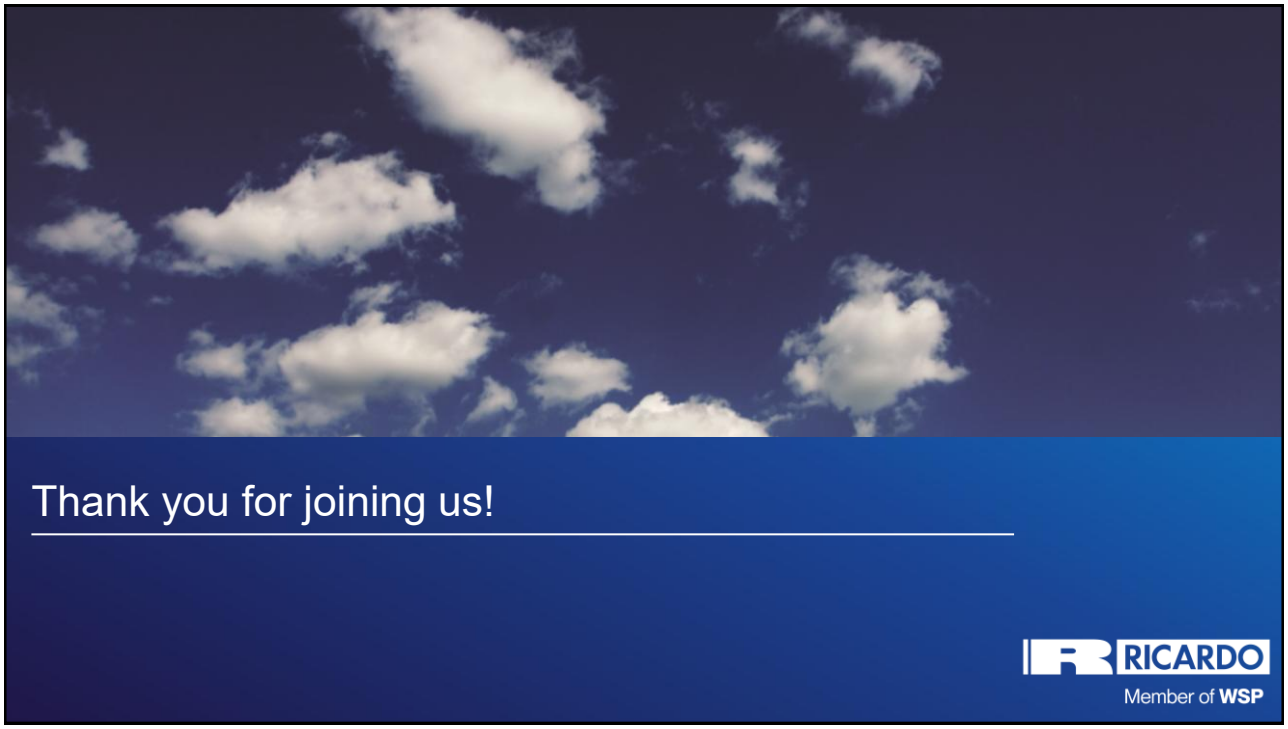

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