



Llywodraeth Cymru  
Welsh Government

# Air Pollution in Wales 2018



Welsh Air Quality Forum  
Fforwm Ansawdd Awyr Cymru



Ricardo  
Energy & Environment





# Introduction

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This is the 16<sup>th</sup> annual report on air quality in Wales to be produced by Ricardo Energy & Environment under the auspices of the Welsh Air Quality Forum (WAQF) for the Welsh Government. It aims to provide Welsh citizens and the air quality community with a user-friendly summary of information on local air quality monitoring, and pollution levels and their impacts throughout Wales during 2018. It also details the WAQF's activities alongside major policy, technical and scientific developments.

More detailed information, analysis and data covering air quality in Wales can be found on the Welsh Governments website (<https://airquality.gov.wales>). All data used in this report are freely available through the website, which has been improved and developed this year. The website is used by 22 local authorities to submit monitoring data and by thousands more individuals to download data and learn about monitoring sites and measurements that take place. It contains comprehensive data, graphs and information on health effects from a continually increasing number of monitoring stations, together with local forecasts of air quality over the next 5 days. This provides people in Wales with access to reliable and accurate information on the quality of the air they breathe.

Openair data analysis tools provide a free and open-source tool to analyse, interpret and understand air pollution data. The user-friendly, interactive map interface allows users to access and analyse data at a glance. Improvements to the website include Local Air Quality Management pages and educational pages for both Primary and Secondary schools.

Chapter 2 presents the WAQF's activities in 2018. Chapter 3 summarises important policy developments that took place in 2018. Chapter 4 presents key air quality statistics from all monitoring networks in Wales and summarises the data from them. The networks include air quality monitoring stations run by Welsh local authorities; and the national monitoring networks run by the Department for Environment, Food and Rural Affairs (Defra) and the Welsh Government. Chapters 5 and 6 discuss long-term trends and the spatial distribution of air pollutants across the country. Chapter 7 reports on topics of special interest – this year it looks at 'Non exhaust emissions from vehicles'. Chapter 8 is an outline of Public Health Wales' plans for "Embedding public health in local air quality management".

Finally, for readers wanting to find out more, additional web-based and published sources of information are summarised in Chapter 9.



# The WAQF and its activities in 2018

The Welsh Air Quality Forum (WAQF) represents the 22 Unitary Councils of Wales and is made up of representatives from Local Authorities, the Welsh Government, Public Health Wales, Natural Resources Wales and several academic institutions. WAQF members direct the operation of the Welsh Air Quality Website and Database, the collection, quality assurance and quality control and dissemination of all data, and the provision of support and training to Local Authorities. The WAQF provides expertise and guidance to ensure that Local Air Quality Management (LAQM) statutory requirements are met and air quality in Wales is reported in an accurate, transparent and timely manner.

## WAQF highlights from 2018

- The updated Air Quality in Wales (<https://airquality.gov.wales>) website was launched in April 2018.
- New features of the website include Local Air Quality Management pages (<https://airquality.gov.wales/laqm>) and Educational material (<https://airquality.gov.wales/education>) aimed at both primary and secondary school age groups.
- Invited speakers continued to provide relevant additional dialogue and training for officers. The WAQF provides a useful platform for dialogue to enable a more consistent approach to implementing LAQM requirements across Wales.
- Use of the website Discussion Forum continues to enable debate and to promote best practice.

## WAQF meetings 2018

12<sup>th</sup> April: The monitoring network had 41 sites as two new sites have been added. Extremely cold weather (the 'Beast from the East') led to high PM data between 28<sup>th</sup> February and 3<sup>rd</sup> March, some of this PM was identified as coming from wood burning stoves. Andrew Carter and Jamie Thomas presented on Air Quality Plan and Clean Air Zone Framework updates.

12<sup>th</sup> July: The monitoring network remains at 39 sites, due to two sites closing. Discussions took place in relation to the WAQF Business Plan needing to be reviewed. Eco schools

provide funding for educational air quality monitoring excises for 115 schools across Wales. Arrangements for the 2018 Annual Seminar were also discussed.

29<sup>th</sup> November: The Forum received a presentation from Simon Fallon, Performance in Education (PIE) on 'Abbie Ayre and the Shed of Science'. The network total was still at 39 sites. Feedback from the Annual Air Quality Seminar was given to the forum.

The Annual Welsh Air Quality Forum Seminar took place on 4<sup>th</sup> October at the Caerphilly Council Chamber at Penallta House. There were 54 WAQF members and delegates attending the event, at which the 2017 Annual Report was circulated. The topics presented were;

- Cardiff Car free day.
- AQ and Noise screening tool.
- Caerphilly CAZ update.
- Air Pollution and domestic wood burning.
- Climate Change and Air Pollution.
- Air Quality Travel Planner for Welsh Cities.



# Welsh Government policy update

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## A Clean Air Plan for Wales

The Welsh Government is developing its Clean Air Plan for Wales. The plan will set out the impacts of key pollutants and will include measures to achieve compliance with legislative requirements. It will include measures to improve air quality across a number of sectors including:

- **Health and wellbeing**

A key ambition of the plan is to improve air quality to protect the health and wellbeing of current future generations. The plan will include measures to encourage behaviour change across a number of sectors including transport modal shift and domestic burning.

- **Biodiversity and natural environment**

Improving air quality plays an important role in protecting biodiversity and our natural environment. The plan will outline action on woodland creation and water and land management.

- **Improving air quality to support sustainable places**

Clean air is a vital component of sustainable places. Transport, planning and green infrastructure are all key tools that the plan will explore to improve air quality across Wales.

- **Improving air quality to support a prosperous Wales**

The plan will include measures to improve air quality across a range of sectors including industrial pollution, energy, waste and agriculture.

- **Air quality evidence and innovation**

We will enhance monitoring, evidence and evaluation through the development of the Air Quality Monitoring and Assessment Centre for Wales. The Centre will focus on improving air quality around sensitive receptors as a priority.

The Welsh Government is taking a collaborative approach in developing the plan and is engaging with stakeholders throughout the process. The intention is to consult on the plan in autumn 2019.







## Clean Air Day 2019

Clean air day took place on 20<sup>th</sup> June this year and the Welsh Government partnered with Global Action Plan to develop Clean Air Day Wales. The Clean Air Day initiative aims to raise awareness of the causes and effects of air pollution and promote actions people can take to reduce their emissions and exposure. A Clean Air Day Wales website was developed with free, bilingual resources detailing action people can take to reduce their emissions and exposure to pollution. The resources were tailored to different sectors including health, education, businesses and communities. The Welsh Government and Global Action Plan engaged with these sectors to encourage participation and increase awareness of air pollution across Wales. Evaluation of Clean Air Day 2019 is underway and will inform future participation.

## Welsh Government supplemental plan to the UK plan for tackling roadside nitrogen dioxide concentrations 2017

On 30<sup>th</sup> November 2018, the Welsh Government published its supplemental plan to the UK plan for tackling roadside nitrogen dioxide concentrations 2017. The plan sets out action the Welsh Government is taking and has taken to address nitrogen dioxide

exceedances on stretches of road within two Welsh local authority areas and on stretches of road within five sites on the Welsh Government Managed Networks. The plan describes the Measures which the Welsh Government intend to implement at each of the five locations, including the continuation of the 50mph speed limits which were initially implemented on a temporary basis in June 2018.

On 5<sup>th</sup> February 2018 the former Minister for Environment Hannah Blythyn AM signed Directions requiring Caerphilly County Borough Council and Cardiff Council to undertake feasibility studies and produce final plans to deliver compliance with legal limits for nitrogen dioxide in their areas, in the shortest possible time. On 28<sup>th</sup> June 2019, both local authorities submitted their final plans and work will now begin on Castle Street, Cardiff and Hafodyrynys, Crumlin to implement measures to achieve the statutory nitrogen dioxide limit values in their area within the shortest possible time.

The Welsh Government has allocated £20 million for a Clean Air Fund through to 2021 to help accelerate compliance with nitrogen dioxide limits and improve air quality in Wales.

# Monitoring networks and data highlights

The Welsh Government and the Welsh Air Quality Forum (WAFQ) work closely with air quality experts and the Department for Environment, Food and Rural Affairs (Defra) to monitor and reduce air pollution in Wales. Figure 4.1 illustrates the long-term trends for nitrogen dioxide (NO<sub>2</sub>), fine particles (PM<sub>10</sub>) and ozone (O<sub>3</sub>) concentrations in Wales. Apart from ozone, this shows a steady improvement in pollutant concentrations since the 1990s. As ozone is a regional pollutant that is transboundary in nature, it is outside the direct control of the Welsh Government and local authorities.

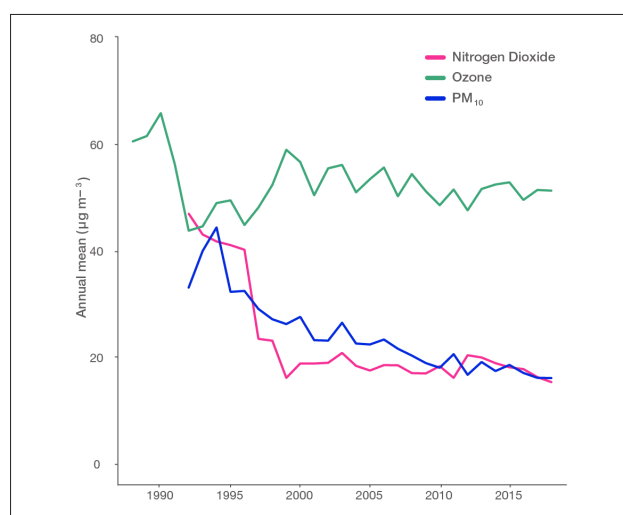


Figure 4.1

Ambient pollutant trends in Wales 1990-2018

## Local authority monitoring

Air quality monitoring in Wales is undertaken by local authorities and through national networks managed by the Welsh Government. There are two main types of air pollution monitoring – automatic monitoring and passive sampling. Automatic monitoring uses continuous analysis techniques to measure and record ambient concentrations of a range of air pollutants. Passive samplers (such as diffusion tubes) contain a chemical reagent that adsorbs the pollutant from the air. Samplers are exposed for a period of time and analysed in a laboratory. At the start of 2018, there were a total of 41 automatic monitoring sites distributed

across Wales that were operated by local authorities, by the end of 2018 this fell to 39 sites. These sites contain equipment that automatically measures carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), PM<sub>10</sub> and PM<sub>2.5</sub> particulate matter. In addition to these, there were several hundred diffusion tubes measuring monthly mean NO<sub>2</sub> levels. Overall, data capture for the automatic instruments operated by local authorities during the year was 87%, this reflects the fact that 2 new sites were added part way through the year and have therefore lowered the overall average data capture.

In 2018, ambient concentrations of PM<sub>10</sub> were 'moderate' on 35 days, 'high' on 5 days, there were no 'very high' days (as defined by the Daily Air Quality Index bandings). For NO<sub>2</sub>, there were 23 days with 'moderate' concentrations, 1 day with 'high' levels and no days recorded as 'very high'. For SO<sub>2</sub>, there were no 'moderate', 'high' or 'very high' levels recorded. For O<sub>3</sub>, there were 55 days with 'moderate' levels and no days recorded as 'high' or 'very high' – as measured by the monitoring sites operated by local authorities. Overall, pollution levels in Wales were low for 263 days, moderate for 96 days, high for 6 days, there were no very high days. So, for 72% of the time, pollution levels were low across the whole of Wales. Details of the Daily Air Quality Index banding system used to describe pollution levels for the public during 2018 can be found at <https://airquality.gov.wales/about-air-quality/daily-air-quality-index>

## Summary of exceedances

Exceedance statistics generated from the Air Quality in Wales website show that no monitoring sites in Wales exceeded any Air Quality Strategy (AQS) Objectives (or corresponding EU limit values) for CO, SO<sub>2</sub>, benzene (C<sub>6</sub>H<sub>6</sub>) or lead (Pb) during 2018.

Four Welsh monitoring sites (Rhondda Mountain Ash, Caerphilly Hafodyrnys, Newport M4 Junction 25, and Swansea Station Court High Street) exceeded the annual mean objective of 40 µg m<sup>-3</sup> for NO<sub>2</sub>. Caerphilly Hafodyrnys also exceeded the AQS Objective for hourly mean nitrogen dioxide concentration on more than the permitted 18 occasions in 2018.

Eight sites in Wales exceeded the AQS Objective for  $O_3$  ( $100\mu g\ m^{-3}$  as a maximum daily 8-hour mean) on more than the permitted 10 occasions. These were Astonn Hill, Cardiff Centre, Cwmbran, Narbeth, Port Talbot Margam, Swansea Cwm Level Park, Swansea Morriston Roadside, Swansea St. Thomas DOAS. These exceedances are most likely due to the prolonged hot weather in the summer of 2018. Marchlyn Mawr which has had ozone exceedances in past years was off line and didn't report any data during summer 2018 due to technical issues.

### The National Air Quality Monitoring Networks Operating in Wales

There are several national air quality monitoring networks operating across Wales. These report air pollution levels in Wales that can be assessed against regulatory requirements and to provide information for air quality researchers, the medical community and members of the public.

#### Automatic Urban and Rural Network

There are 11 air quality monitoring sites in Wales that are part of the UK Automatic Urban and Rural Network (AURN). The techniques used for monitoring the gaseous pollutants in the AURN are the reference methods of measurement defined in the relevant EU directives. For particulate matter, the AURN uses methods that have demonstrated equivalence to the reference method, but which (unlike the reference method) allow continuous monitoring and provision of this information in 'real time'.

#### Heavy Metals Network

There are six monitoring site in Wales for heavy metals and they belongs to the UK Heavy Metals Network. Airborne particulate matter is sampled and analysed for metals concentrations in  $PM_{10}$ . The metal concentration data are then combined with the local meteorological data (such as rainfall) to calculate values for wet deposition (from precipitation), dry deposition (such as dust settling) and cloud deposition (condensation of cloud droplets).

### PAH Monitoring Network

Wales has four polycyclic aromatic hydrocarbon (PAH) network sites. These monitor compliance with Directive 2005/107/EC (the 4<sup>th</sup> daughter directive), which includes a target value of  $1ng\ m^{-3}$  for the annual mean concentration of benzo[a]pyrene ( $C_{20}H_{12}$ ) as a representative PAH, not to be exceeded after 31<sup>st</sup> December 2012. This network uses the  $PM_{10}$  'Digitel™' sampler. Ambient air is sampled through glass fibre filters and polyurethane foam pads, which capture the PAH compounds for later analysis in a laboratory.

### Black Carbon Network

Black carbon is fine, dark carbonaceous particulate matter produced from the incomplete combustion of materials containing carbon (for example coal, oil and biomass (such as wood). It is of concern due to possible health impacts and as a suspected contributor to climate change. There is one monitoring site in Wales that measures this parameter. The site, in Cardiff, is part of the Black Carbon Network. This uses an automatic instrument called an aethalometer that measures black carbon directly using a real-time optical transmission technique.

### UK Eutrophying and Acidifying Pollutants Network

The UK Eutrophying and Acidifying Atmospheric Pollutants (UKEAP) network provides information on the deposition of eutrophying and acidifying compounds in the UK and assesses their potential impacts on ecosystems. Other measurements – including  $SO_2$ ,  $NO_2$  and particulate sulphate – have also been made within the programme, to provide a more complete understanding of precipitation chemistry in the UK.



# Air quality trends

The number of automatic monitoring sites in Wales has increased greatly in recent years. While this helps to improve our understanding of air quality across the country, it potentially complicates the investigation of how air quality has changed over time. If such investigations are based on all available data, discontinuities and false trends may be introduced because of changes in the composition of the network. Therefore, in this report, investigation of changes has been based on subsets of long-running sites rather than on every site in the network. This should lead to a more robust assessment.

## Nitrogen Dioxide

In Wales (and the rest of the UK), the most widely exceeded limit value is the annual mean nitrogen dioxide ( $\text{NO}_2$ ) concentration ( $40\mu\text{g m}^{-3}$ ). Figure 5.1 shows how annual mean  $\text{NO}_2$  concentrations have varied with time.

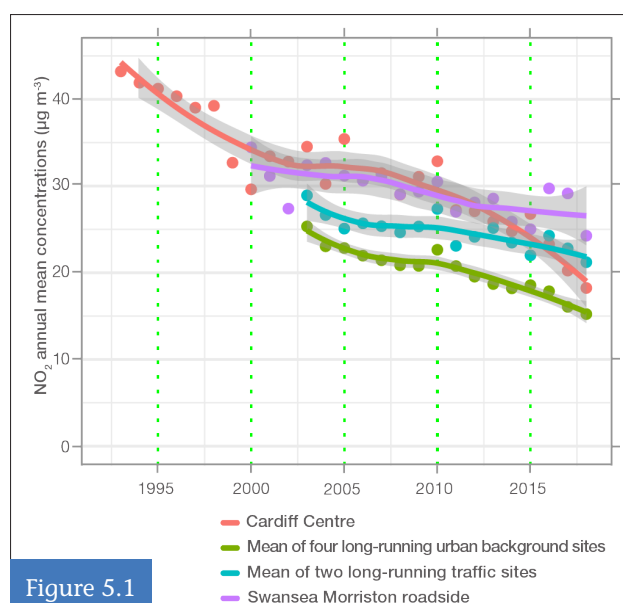


Figure 5.1

Annual mean nitrogen dioxide concentration at long-running sites in Wales

Urban background sites are represented by the longest running site of this type (Cardiff Centre (since 1992)), and a subset of four long-running sites that have all been in operation since 2003, with annual data capture of at least 50% – Cardiff Centre, Cwmbran, Newport St Julians and

Port Talbot (replaced by the nearby Port Talbot Margam site in 2007 – the two Port Talbot sites are treated as one for the purpose of the graph). Cardiff Centre shows a clear decrease from 1992 to 2018. The mean for the long-running urban background sites shows a decrease from 2003 to 2018, although 2010 was a higher year.

Urban traffic sites (those within 10m of a major road) are represented by the longest-running roadside site (Swansea Morriston (since from 2001)), and a subset of two long-running sites that have been in operation since 2002 – Swansea Morriston and Wrexham. The urban traffic locations show a less substantial but noticeable decrease in  $\text{NO}_2$  concentration in recent years, in particular 2018 looks to be a low year.

## Particulate Matter

Figure 5.2 shows how annual mean concentrations of fine particles ( $\text{PM}_{10}$ ) have generally decreased in recent years at both urban background and urban traffic sites. In this case it is the trend at urban traffic locations which is more strongly downwards than at background.

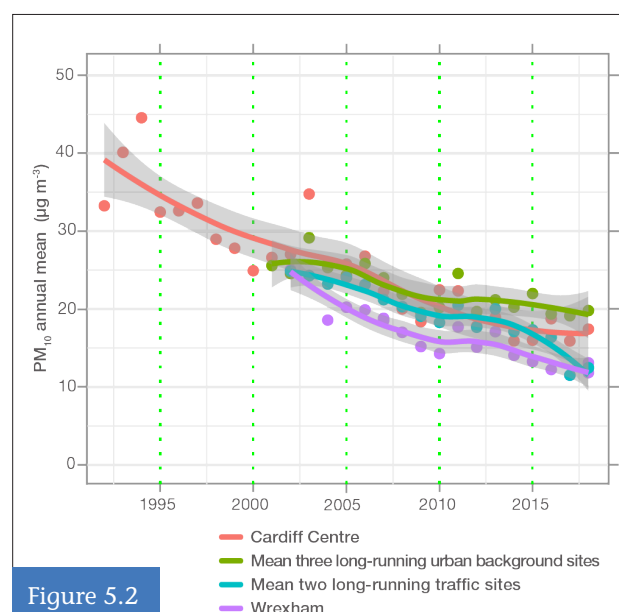


Figure 5.2

Annual mean  $\text{PM}_{10}$  concentrations at long-running sites in Wales

This is due to the diverse range of sources contributing to  $PM_{10}$ , of which vehicle emissions have been most substantially reduced in recent years.

Urban non-roadsite sites are represented by the mean of three long-running sites from 2001 (Cardiff Centre, Cwmbran and Port Talbot/Port Talbot Margam – again, the latter two are treated as one site for this purpose). Please note that Port Talbot/Port Talbot Margam is classified as urban industrial rather than urban background as it is located in the vicinity of a large steelworks. It has been included because there are few long-running urban non-roadsite sites.

Cardiff Centre (which has operated for longer than any other site) is also shown individually. All sites have at least 70% annual data capture except for Cardiff Centre in 2010.

Urban traffic sites are represented by the mean of two long-running sites from 2002 – Rhondda-Cynon-Taf Nantgarw and Wrexham. Wrexham (the longest-running traffic site) is also shown individually.

## Ozone

Ozone ( $O_3$ ) concentrations tend to be highest at rural locations. Figure 5.3 shows how annual mean rural  $O_3$  concentration has changed over time. This is based on the mean concentration measured by three long-running sites in Wales (shown by the grey line) – Aston Hill, Marchlyn Mawr and Narbeth. All have been in operation since 2003 with data capture of at least 70%. Also shown is Aston Hill alone – this site has been monitoring ozone since the late 1980s. Although there are no clear trends, concentrations vary considerably from year to year because of the variation in meteorological factors.

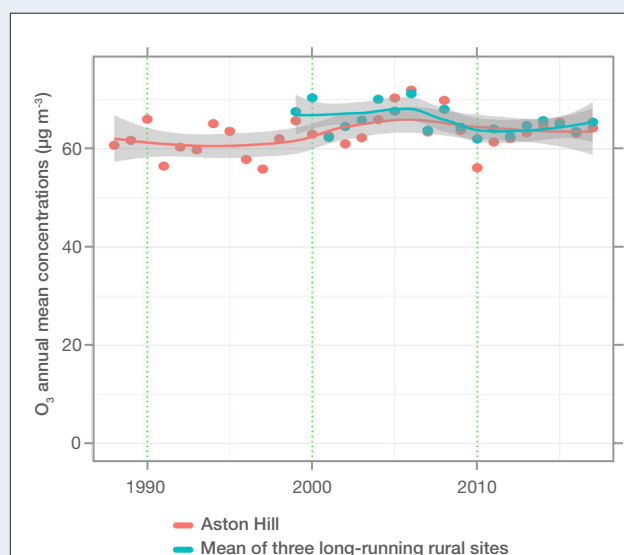
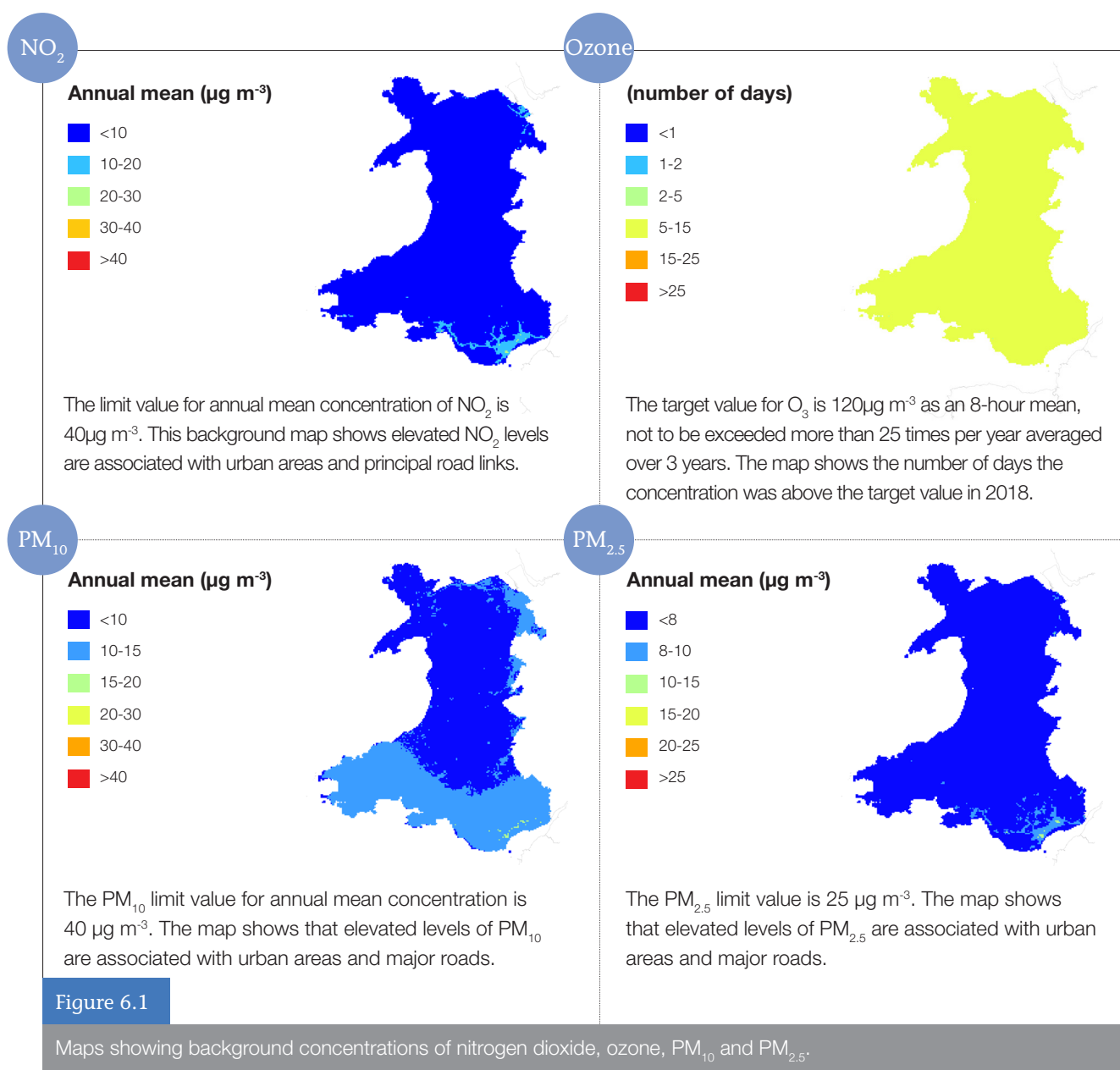


Figure 5.3

Annual mean ozone concentrations at long-running sites in Wales

# Maps of air quality

The maps in Figure 6.1 present 2018 background concentrations for nitrogen dioxide ( $\text{NO}_2$ ), ozone ( $\text{O}_3$ ),  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  particulate matter. These modelled maps of ambient concentrations were calculated from National Atmospheric Emissions Inventory (NAEI) data using a dispersion modelling approach. The model output was calibrated using monitored data from the national monitoring networks. These modelled maps were then verified against the local authority monitoring data. A more detailed report comparing the Welsh air quality monitoring data to modelled concentrations will be published in due course. In these maps, the modelled ambient concentrations are compared with EU limit values.





## Non-Exhaust Emissions of Particulate Matter – An increasing challenge

It is well recognised that road traffic is a major source of air pollution with emissions from gaseous pollutants such as carbon monoxide, oxides of nitrogen and volatile organic compounds as well as particulate matter. For both gaseous and particulate pollutants exhaust emissions have been until recently the dominant source of transport emissions. Non-exhaust emissions (NEE) from road traffic are particles released into the air from brake wear, tyre wear, road surface wear and resuspension of road dust during on-road vehicle usage. These emissions arise regardless of the type of vehicle and its mode of power, and contribute to the total ambient particulate matter (PM) burden associated with human ill-health and premature mortality (see Figure 7.1).

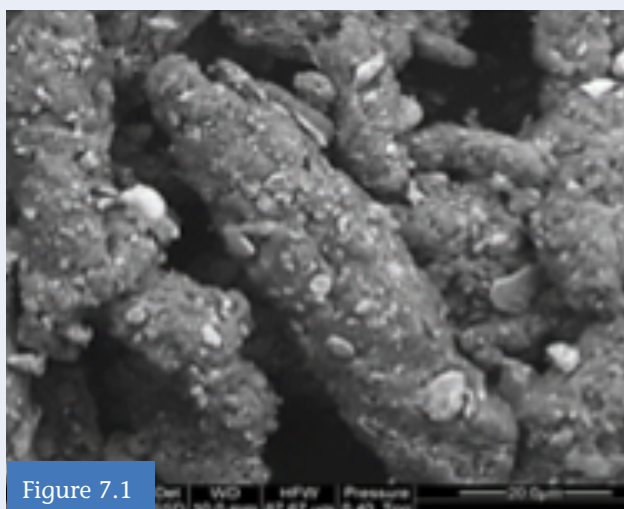


Figure 7.1

Scanning electron microscope photo of tyre and road wear particles with characteristic morphology of tread rubber and mineral incrustations from pavement.

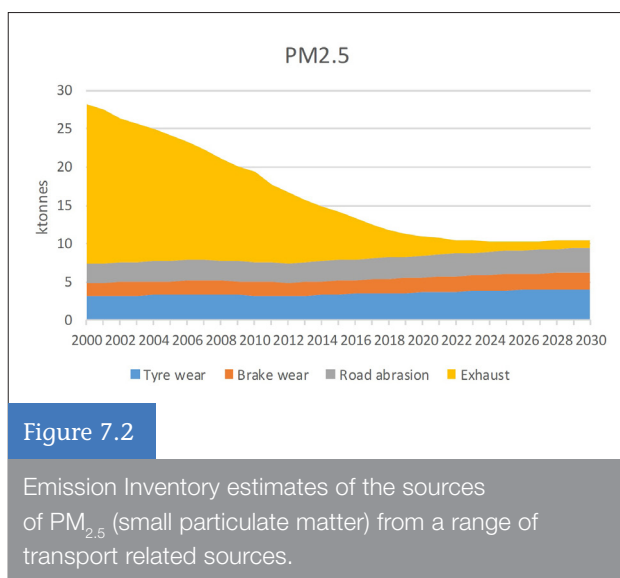
Recently, the Air Quality Expert Group (AQEG) has explored the evidence base as to sources and characteristics, measurements, modelling and abatement of non-exhaust emissions ([https://uk-air.defra.gov.uk/library/reports.php?report\\_id=992](https://uk-air.defra.gov.uk/library/reports.php?report_id=992)). AQEG is an expert committee of the Department of Environment, Food and Rural Affairs with the Devolved Administrations including the Welsh Government.

Why are non-exhaust emissions important in the future?

There is a clear policy push in the road to zero<sup>1</sup> to decarbonise road transport moving away from fossil fuel as a power train source. It is clear in the air pollution context that non-exhaust emissions will remain even in a mainly electrical vehicle fleet (see Figure 7.2).

No legislation is currently in place to specifically limit or reduce non-exhaust emission particles. For example, data from the UK National Atmospheric Emissions Inventory (NAEI) indicates that particles from brake wear, tyre wear and road surface wear currently constitute 60% and 73% (by mass), respectively, of primary PM<sub>2.5</sub> and PM<sub>10</sub> emissions from road transport, and will become more dominant in the future (see Figure 7.2). To put this in context, NEE currently contributes 7.4% and 8.5% of all primary PM<sub>2.5</sub> and PM<sub>10</sub> emissions. The report makes clear that to achieve further gains in PM<sub>2.5</sub> and PM<sub>10</sub> air quality in relation to road transport sources there is going to be a need to reduce non-exhaust emissions and not solely focus on lowering exhaust emissions. There are significant challenges; the magnitude of non-exhaust emissions do remain highly uncertain particularly when compared to data on exhaust emissions. NEE can vary widely according to brake, tyre and road surface material and with driving style. Further, the report makes it clear that much of our knowledge is based upon data that comes from the 1990's and has not kept up to with changes with vehicle designs and fleet composition. These changes will be a particular challenge with moves to electrical vehicles.

<sup>1</sup><https://www.gov.uk/government/publications/reducing-emissions-from-road-transport-road-to-zero-strategy>



One particular challenge with respect to NEE is the importance in the urban environment. The National Inventory indicates that half of the NEE occur on urban roads owing to the greater braking per kilometre than on non-urban roads. Emissions may also be higher in areas such as trunk road exits. Tyre wear emissions are estimated to be the greatest on high-traffic trunk roads and motorways (both urban and rural).

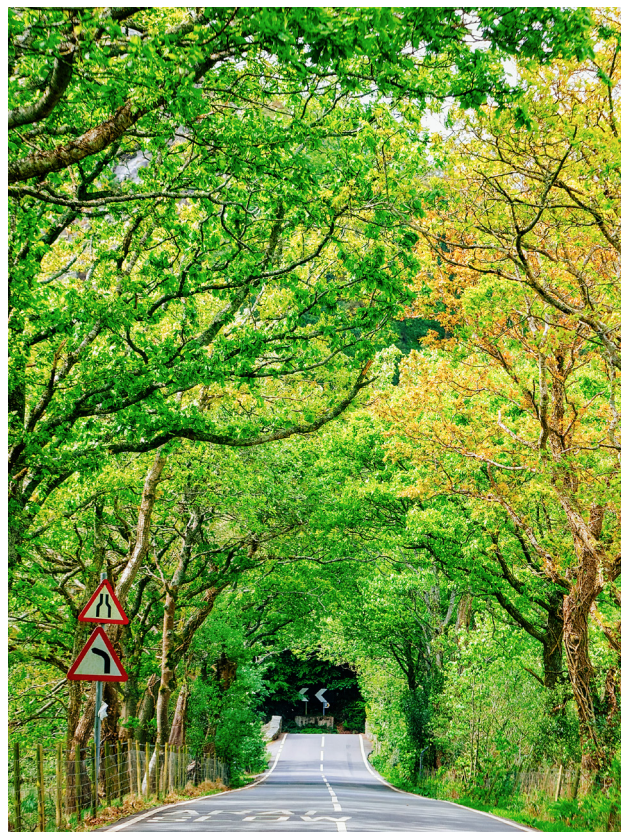
**Mitigation** - The most effective mitigation strategies for NEE are to reduce the overall volume of traffic, lower the speed where traffic is free flowing and promote driving behaviour that reduces braking and higher-speed cornering. Resuspension of particles from the road surface can be lowered by reducing the material that is tracked onto public road surfaces by vehicle movements in and out of the construction, waste management and similar sites and potentially by road sweeping, street washing and the application of dust suppressants to street surfaces, although the impact on airborne PM from trials has so far proven inconsistent and any benefits have been short-lived.

Regenerative braking does not rely on friction of wear of brake materials and vehicles using regenerative braking totally or partially, for example electric vehicles, should have lower brake wear emissions. However, tyre and road wear

emissions increase with vehicle mass, which has implications for any vehicle with a power train that is heavier, for example, owing to additional battery and hardware mass, than the equivalent internal combustion engine vehicle. The net balance between reductions in brake wear emissions and potential increases in tyre and road wear emissions and resuspension of vehicles with regenerative braking remains unquantified and will depend upon road type and driving mode as both influence the balance between the different sources of emissions.

It is clear that an immediate priority is that non-exhaust emissions are recognised as a source of ambient concentrations of airborne PM, even for vehicles with zero exhaust emissions. There is a clear mandate for further studies to quantify the technical solutions to any reductions and particularly to understand the gains from the regenerative braking versus potential increase in tyre and road wear owing to additional mass of vehicles incorporating such braking.

*Prof. Paul S. Monks - Chair of the Air Quality Expert Group.*



# Embedding public health in local air quality management



Effective air quality management requires joined-up thinking and action.

Nationally, high-level policy, legislation and standard-setting can help drive air quality improvements. Locally and regionally, the approach is more practical with actions focused on monitoring pollution, assessing risks and implementing targeted evidence-based interventions.

Focusing on local-level change, Public Health Wales has been exploring how the Local Air Quality Management (LAQM) regime can be enhanced to ensure public health is a core underpinning principle. This aligns with findings of research carried out in Wales previously, which has shown that it is a mistake and missed opportunity to consider air pollution problems and solutions in isolation.

Recognising this, Public Health Wales has suggested a new approach to LAQM risk assessment, where:

1. Universal action (e.g. general risk communication, policy development, active travel promotion, advocacy, leadership) can help reduce air pollution risks for everyone; and
2. Enhanced targeted intervention (e.g. risk communication, behaviour change, Clean Air Zone) – complementing universal action – can help address problems in areas with the poorest air pollution and/or poorest health

This approach would strengthen the integration of air quality with policy and practice in the health sector and beyond (e.g. transport, planning, environmental sustainability). It would

also help move away from less-effective action in isolated air pollution ‘hotspots’ where there is little public health gain from very small-scale air quality improvement.

To test this idea, Public Health Wales recently led a collaborative project in Cwm Taf to trial a new public health-driven approach to LAQM. Based on a tool called Health and Air Pollution - Risk Assessment/Area Prioritisation (HAP-RAP), this project involved the local Health Board, Merthyr and Rhondda Cynon Taf Councils and Natural Resources Wales. HAP-RAP works by combining local area level air quality, health and deprivation data to generate new evidence on air pollution and health-related priority action areas.

The project found that HAP-RAP is a new, consistent, reliable and repeatable way to assess local air pollution and health risks. It complements, and builds on existing ‘narrow’ LAQM processes. Project partners felt that it improves ‘big picture’ understanding among a broader audience and could support better communication and action to tackle wider air pollution problems. Importantly, the approach is pragmatic, and not onerous, easy to follow and meaningful.

Ultimately, using HAP-RAP integrates public health and other relevant sectors into the LAQM process. This has the benefit of increased efficiency, by avoiding tackling linked problems in isolation, and greater impacts through more effective action and improved shared knowledge.

Public Health Wales is now starting work to make HAP-RAP available across Wales and aims to do this by the summer of 2020.



## More information

### The Air Quality in Wales website

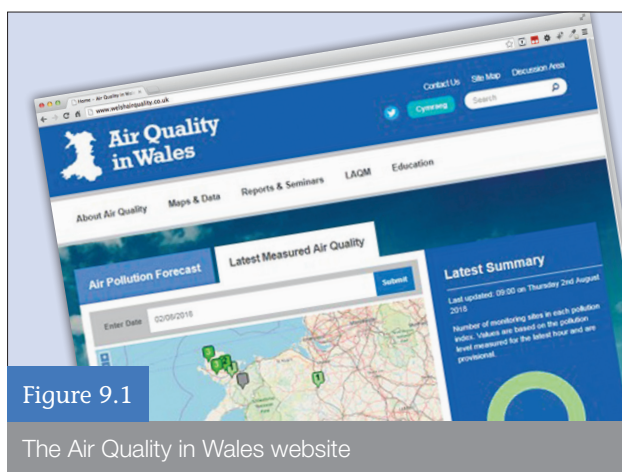


Figure 9.1

The Air Quality in Wales website

The Air Quality in Wales website (<https://airquality.gov.wales/>) is available in English and Welsh. It provides information on all aspects of air pollution in Wales. The site is one of a family of air quality websites produced by Ricardo Energy & Environment, which includes air quality websites for the UK, Northern Ireland, Scotland and England.

The website has been designed to be a user-friendly and interactive resource containing comprehensive information on all aspects of air pollution:

- A colour-coded OpenStreetMap™ showing the overall pollution situation at sites across Wales.
- Latest data from all automatic monitoring sites in Wales, accessible from this map.
- Air pollution forecasts for the whole of Wales.
- Information on the latest, developments and publications.
- Detailed information on automatic monitoring sites.
- A wide range of background information on air pollution sources, health impacts, monitoring techniques, standards and policy issues.
- Access to air quality data and statistics – for automatic and sampler sites – going back to 1986.
- Provision to submit data via innovative web forms to the archive.

- Headline air quality indicators, trends and modelled future scenarios.
- Links to national and global information resources on air quality.
- A password-protected area for members of the Welsh Air Quality Forum (WAQF).
- Overview of the data ratification and verification procedures.

To access data used in this Annual Report, follow these simple steps:

- From the home page, select 'Maps & Data' from the main menu.
- Click on 'Measurements'.
- Click 'Download/Submit Data'.
- Click 'Download Data'.
- Select 'Parameter Group' (type of data required).
- Select 'Pollutant Species'.
- Select 'Local Authority Region'.
- Select 'Statistic Type' (for example, daily mean).
- Select 'Date Range'.
- Select 'Specific Monitoring Site(s)'.

Then, provide your email address and the data will be emailed to you with a few seconds.

### Current and forecast air quality (national and local)

In addition to the Air Quality in Wales website, current and forecast air quality is rapidly available in a user-friendly form from:

- The Air Pollution Information Service on freephone 0800 556677.
- The UK Air Information Resource (<https://uk-air.defra.gov.uk/>).

## Health effects of air pollution

- Information on the health effects of air pollution and the UK pollution banding system can be found on the Department for Environment, Food and Rural Affairs (Defra) website (<https://airquality.gov.wales/about-air-quality/daily-air-quality-index>).

## General information on air quality

- The Welsh Government Environment and Countryside links (<https://wales.gov.uk/topics/environmentcountryside/?lang=en>).
- The UK Air Information Resource (<http://uk-air.defra.gov.uk>).
- The National Atmospheric Emissions Inventory (<http://naei.beis.gov.uk/>).
- The Defra Air Quality Information Web Resource (<https://uk-air.defra.gov.uk>).
- The Northern Ireland Air Quality website (<https://www.airqualityni.co.uk/>).
- The Scottish Air Quality website (<http://www.scottishairquality.scot/>).
- The Air Quality England website at ([www.airqualityengland.co.uk](http://www.airqualityengland.co.uk)).
- The Pollutant Release and Transfer Register (<https://www.gov.uk/guidance/uk-pollutant-release-and-transfer-register-prtr-data-sets>).
- The Environment Agency (<https://www.gov.uk/government/organisations/environment-agency>).
- Natural Resources Wales ([www.naturalresourceswales.gov.uk](http://www.naturalresourceswales.gov.uk)).

## Local air quality issues

For further information on air quality issues in your area, please contact the environmental health department at your local district council office. Further information on local air quality management may also be found on:

- The Defra website at (<http://aqma.defra.gov.uk>).
- The local authority support site (<http://laqm.defra.gov.uk>).

