

## CEREDIGION COUNTY COUNCIL

<b>Report to:</b>	Cabinet
<b>Date of meeting:</b>	6 <sup>th</sup> December 2022
<b>Title:</b>	A report on the findings of Ceredigion County Council's 2022 Air Quality Progress Report, In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management.
<b>Purpose of the report:</b>	That the Cabinet note the content of the report, and endorse that the report is published on the council website, and submitted to DEFRA, in line with statutory requirements.
<b>For:</b>	Information
<b>Cabinet Portfolio and Cabinet Member:</b>	Councillor Matthew Vaux, Cabinet Member for Partnerships, Housing, Legal and Governance and Public Protection

### **Introduction**

It is currently estimated that poor air quality contributes to a reduced life expectancy and death, tallying an equivalent of between 1,000 and 1,400 mortalities in Wales each year. The World Health Organisation (WHO) states air pollution as the single largest environmental health risk, globally.

Local authorities have a duty under **Part IV of the Environment Act 1995** to monitor the air quality standards of their area and to report on this annually. Where pollutants are found to exceed statutory limits stipulated in **The Air Quality Standards (Wales) Regulations 2010** the authority must designate a Local Air Quality Management Area (AQMA) in locations of concern. In these areas Air Quality Action Plans (AQAP) must then be introduced and these can include a range of measures extending from traffic management to public information initiatives until the area is brought back into compliance with legal standards.

In Wales, Nitrogen Dioxide (NO<sub>2</sub>) and Particulate Matter (PM<sub>10</sub>) are the main two pollutants of concern, with Local Authorities having declared more than 40 AQMAs to date, one for Particulate Matter, the rest associated with Nitrogen Dioxide from road traffic.

### **Air quality monitoring undertaken in Ceredigion**

#### **Statutory monitoring duties**

In terms of statutory monitoring duties placed on Ceredigion County Council, there is a requirement to report on both NO<sub>2</sub> and PM<sub>10</sub> annually. Other pollutants contained in the regulations (namely SO<sub>2</sub>, Benzene, 1,3-Butadiene, Carbon Monoxide and

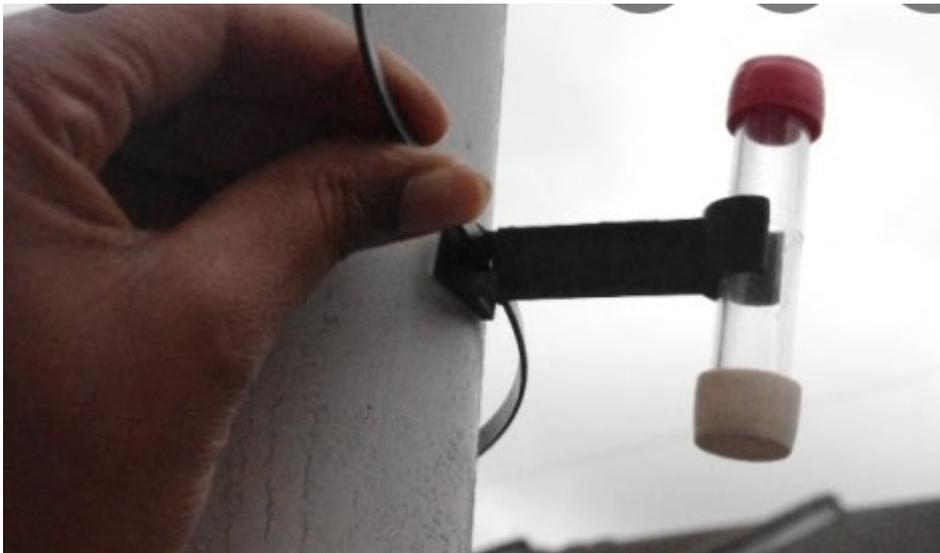
Lead) are exempt from mandatory reporting unless there is evidence of a local issue that needs to be addressed.

Given Ceredigion's rural location and lack of heavy industries, the authority is not subject to exceedances in relation to the pollutants exempt from mandatory reporting. The Department for Environment, Food and Rural Affairs (DEFRA) use data modelling to produce an Annual National Pollution Climate Map which is used to determine whether a pollutant is reaching legal limits. In the event of an exceedance being noted, this would then trigger the specific monitoring of an implicated pollutant by us as a local authority, however this was not the case in 2021 nor has it been in years prior.

### Monitoring of NO<sub>2</sub>

Nitrogen dioxide, or NO<sub>2</sub>, is a gaseous air pollutant composed of nitrogen and oxygen and is one of a group of related gases called nitrogen oxides, or NO<sub>x</sub>. NO<sub>2</sub> forms when fossil fuels such as coal, oil, gas or diesel are burned at high temperatures. It is a pollutant heavily associated with vehicle emissions, particularly from diesel engines. NO<sub>2</sub> has been associated with adverse effects on hospital admissions for various diagnoses, and is known to cause increases in respiratory symptoms, asthma prevalence, cancer incidence, adverse birth outcomes and mortality.

Nitrogen Dioxide concentrations in Ceredigion is monitored by way of Diffusion Tubes which are usually fixed to a lamppost by the roadside. These tubes are collected monthly and sent to an approved laboratory for analysis. After 12 months' worth of data is collected, an average value is established for comparison against statutory limits.



Our current monitoring areas are based in the following locations:

Terrace Road, Aberystwyth  
Thespian Street, Aberystwyth  
Railway Station, Aberystwyth  
Morrisons Roundabout, Aberystwyth

Mill Street, Aberystwyth  
High Street, Lampeter  
High Street, Cardigan  
Quay Street, Cardigan  
Pendarn  
Talybont (New location 2021)  
Great Darkgate Street, Aberystwyth (New location 2021)

With the exception of Pendarn (which is used as a rural background site for wider reference), these locations were mostly selected on the basis of being “worst case scenario” locations i.e. streets and roads which are subject to highest amounts of traffic congestion. However, locations such as Great Darkgate, along with the two Cardigan locations were selected, in part to observe what potential impact, factors such as one-way systems and seasonally pedestrianised areas would have on localised NO<sub>2</sub> concentrations. Talybont and Great Darkgate Street, Aberystwyth were both sites newly established in 2021.

### Monitoring of PM<sub>10</sub>

Airborne particulate matter (PM) is not a single pollutant, but rather is a mixture of many chemical species. It is a complex mixture of solids and aerosols composed of small droplets of liquid, dry solid fragments, and solid cores with liquid coatings. Particles vary widely in size, shape and chemical composition, and may contain inorganic ions, metallic compounds, elemental carbon, organic compounds, and compounds from the earth’s crust. Particles are defined by their diameter for air quality regulatory purposes. Those with a diameter of 10 microns or less (PM<sub>10</sub>) are inhalable into the lungs and can induce adverse health effects.

Particulate matter can be sourced both naturally and by human activity and occur both indoor and outdoor depending on the source. Sources of PM include the following:

Natural PM biological sources  
Burning of fuel in motorized vehicle engines  
Industrial processes  
Power generators  
Burning wood, candles and incense  
Stoves, heaters, fireplaces and chimneys  
Tobacco smoke

Data from DEFRA is used to monitor PM<sub>10</sub> concentrations in Ceredigion and this is what is used for the purposes of the Annual Progress report. Similarly, to non-reported pollutants, should this data indicate that the pollutant exceeded statutory limits, this would trigger specific monitoring by Ceredigion at various “worst case scenario” locations.

### **Ceredigion County Council 2022 Air Quality Progress Report**

Ceredigion’s Air Quality Progress Report relates to data gathered in the previous year. Therefore the 2022 report relates to air monitoring data collected in 2021.

## NO<sub>2</sub> Data 2021

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.78) and Annualised <sup>(1)</sup>
CERE/21A/NA9S9 (Terrace Road, Aberystwyth)							16.1	11.2	25.9	23.5	23.4	27.1	21.2	20.4
CERE/21A/NA9S6 (Thespian Street, Aberystwyth)							16.8	18.1	24.8	21.8	20.8	23.9	21.0	20.3
CERE/21A/NA9S10 (Railway Station, Aberystwyth)							18.4	19.9	23.1	19.6	22.4	25.7	21.5	20.7
CERE/21A/NA9S8 (Morrison, Aberystwyth)							18.6	15.8	20.1	16.7	18.7	13.5	17.2	16.6
CERE/21A/NA9S3 (Mill Street, Aberystwyth)							22.0	20.5	24.8	22.8	22.1	25.7	23.0	22.2
CERE/21A/NA9S5 (High Street, Lampeter)							13.2	15.0	16.9	16.6	19.1	20.0	16.8	16.2
CERE/21A/NA9S15 (High Street, Cardigan)							15.3	13.4		16.4	15.9	18.8	16.0	16.6
CERE/21A/NA9S12 (Quay Street, New Quay)							6.5	7.1	9.6	8.1	7.7	12.1	8.5	8.2
CERE/21A/NA9S11 (Pendarn)							2.2	1.8	3.5	2.6	1.3	3.5	2.5	2.4
CERE/21A/NA9S7 (Talybont)							24.5	22.2	28.0	25.1	27.5	25.3	25.4	24.5
CERE/21A/NA9S14 (Great Darkgate Street, Aberystwyth)							10.5	11.1	13.9	15.0	14.0	14.6	13.2	12.7

The statutory limit for NO<sub>2</sub> is an **annual mean of 40µg/m<sup>3</sup>**. The NO<sub>2</sub> concentrations noted at all locations of Ceredigion were well below this limit during all months when data was collected. The “Bias Adjusted and Annualised” column outlines Ceredigion’s annual average for each location and confirms our legal compliance.

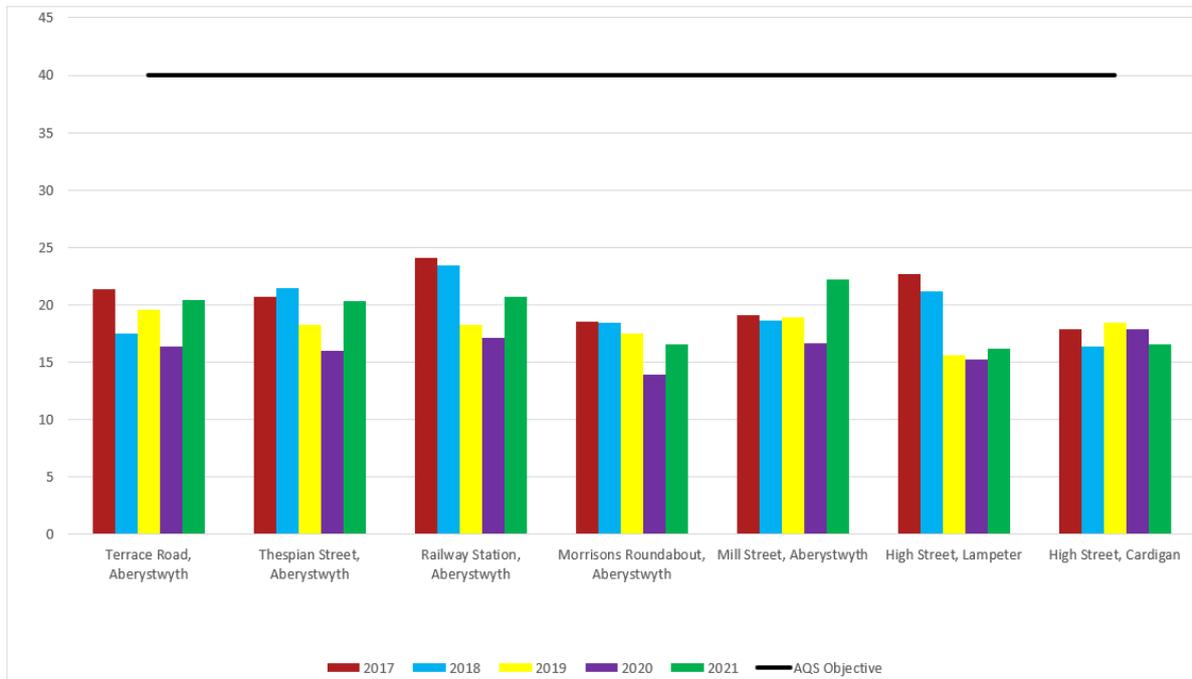
It should be taken into account that only 6 months’ worth of data could be collected in 2021 due to lockdown restrictions. This meant an annualization procedure had to be implemented in order to produce average annual values to compare with the legal limit. Annualisation is a process whereby hourly data from the 2 closest national air monitoring stations is inputted into the calculation in order to produce a valid estimate of the true average value for each of our monitoring sites. Data from Narbeth, Pembrokeshire and Aston Hill, Shropshire monitoring sites was used for our data in 2021. Given the need for annualization during 2021, it is possible that the true annual average NO<sub>2</sub> levels in Ceredigion may slightly differ from what is reported above, however any difference is likely to be negligible, and the true values from each monitoring site would certainly remain within the legal limit.

The new monitoring location of Talybont was found to have the highest annual mean concentration of NO<sub>2</sub> at **24µg/m<sup>3</sup>**. This is likely due to the busy Trunk Road going through the town that is often subject to commuters to Aberystwyth, HGVs traveling through the county and tourists visiting the county in summer months. This concentration is currently still well within the statutory limit however the site will be monitored closely in future.

Due to a lack of monthly data from the first 6 months of 2021 there is insufficient data to make valid conclusions regarding the impact of temporary street pedestrianisation and newly formed one-way streets in our towns. It will be the aim

of the 2023 Air Progress report to look what impact these changes in localised traffic systems have in locations such as Great Darkgate Street, Aberystwyth along with the two Cardigan monitoring sites.

Trends in Annual Mean NO<sub>2</sub> Concentrations during the last 5 years of monitoring

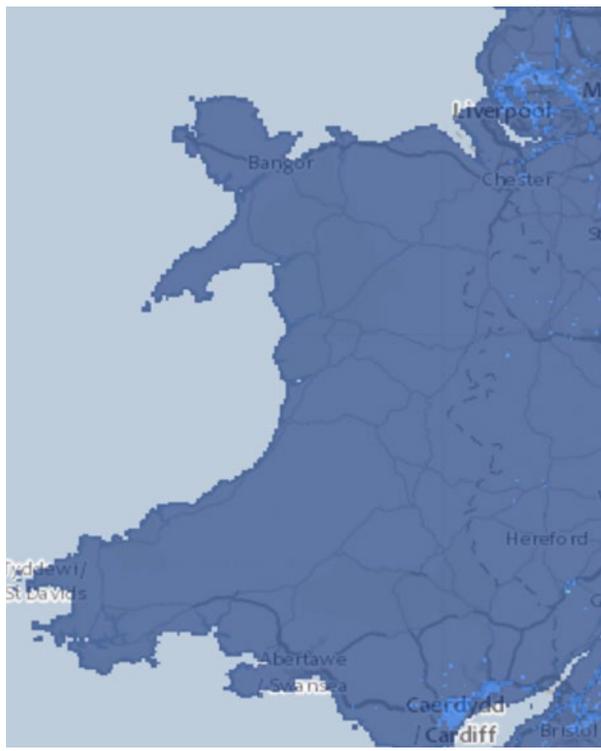


As can be observed in the above graph, annual NO<sub>2</sub> concentrations at most monitoring locations were slightly higher in 2021 than in 2020. The most likely explanation for this is the easing of COVID-19 lockdown restrictions in 2021 leading to increased vehicle emissions on our roads. However, NO<sub>2</sub> concentrations at all locations were still well below an annual mean of **40µg/m<sup>3</sup>**. The monitoring conducted in 2022 will continue to monitor this annual trend.

PM<sub>10</sub> Data 2021

The Statutory limit for PM<sub>10</sub> is an annual mean of 40µg/m<sup>3</sup>.

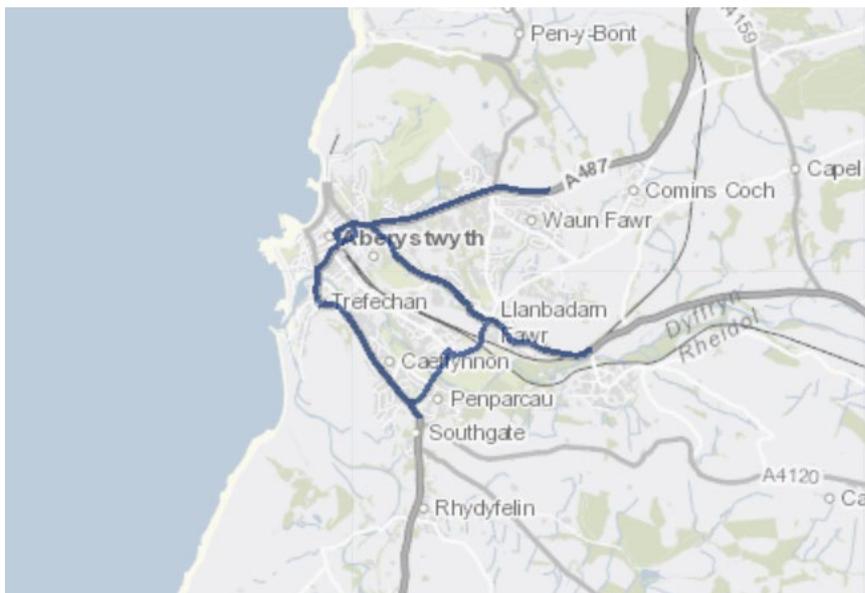
As can be seen in the below data mapped by DEFRA, similarly to the whole of rural Wales, Ceredigion’s air was subjected to less than 13µg/m<sup>3</sup> as an annual mean of PM<sup>10</sup> in 2021 which is less than a third of the statutory limit. This included our busiest town namely, Aberystwyth. Of note is the fact that concentrations only exceeded this average in more built-up industrial areas such as South Wales and Merseyside.



**Legend**

PM10 annual mean

- µg m<sup>-3</sup>
- 13 AND BELOW
  - 14 - 17
  - 18 - 20
  - 21 - 25
  - 26 - 30
  - 31 - 35
  - 36 - 40
  - ABOVE 40



**Conclusion**

Although NO<sub>2</sub> concentrations were found to be marginally higher in 2021 than in 2020, Ceredigion continues to experience some of the best air quality standards in Wales with all monitoring locations being highly compliant with legal standards. Any increase in NO<sub>2</sub> noted in 2021 comparative to 2020 may be attributed the lifting of lockdown restrictions. It will be the aim of next year’s Air Quality Progress report to continue to monitor statutory pollutant levels in the county to ensure continued compliance with legal standards.

<b>Wellbeing of Future Generations:</b>	<b>Has an Integrated Impact Assessment been completed? If not, please state why</b> <b>Summary:</b> <b>Long term:</b>	No, there are no proposed changes to current policy or arrangements as a result of the report.  Public Protection, Air Quality compliance is a statutory duty of the authority and contributes towards the Well-being goals within the Well-being of Future Generations Act (Wales) 2015.
	<b>Collaboration:</b>	Public Protection collaborate with partner agencies including DEFRA and Welsh Government when it comes to Air Quality.
	<b>Involvement:</b>	Public Protection publishes an annual Air Quality Progress Report available to the public.
	<b>Prevention:</b>	Public Protection Air Quality monitoring ensures any exceedances of statutory limits can be quickly identified and addressed
	<b>Integration:</b>	Public Protection activity is in line with the objectives of health partners and makes a contribution to a number of the Wellbeing goals within the Well-being of Future Generation (Wales) Act 2015.
<b>Recommendation(s):</b>	That the Cabinet note the content of the report, and endorse that the report is published on the council website, and submitted to DEFRA, in line with statutory requirements.	
<b>Reasons for decision:</b>	To meet the legal obligations of the authority to monitor air quality, and to publish its findings.	
<b>Overview and Scrutiny:</b>	Members of the Healthier Communities Overview and Scrutiny Committee considered the report on the 27 <sup>th</sup> October 2022 and are submitting comment to Council.	
<b>Policy Framework:</b>	Corporate Strategy 2017-2022	
<b>Corporate Priorities:</b>	<ul style="list-style-type: none"> <li>• Investing in People’s Future</li> <li>• Promoting Environmental and Community Resilience</li> </ul>	
<b>Finance and Procurement Implications:</b>	None	

<b>Legal Implications:</b>	Legal obligation to submit progress report on the air quality of the County
<b>Staffing implications:</b>	None
<b>Property / asset implications:</b>	None
<b>Risk(s):</b>	Reputational damage, and failure to meet legal obligations.
<b>Statutory Powers:</b>	Environment Act 1995 (and regulations made therein)
<b>Background Papers:</b>	Ceredigion County Council - 2022 Air Quality Progress Report
<b>Appendices:</b>	N/A
<b>Corporate Lead Officer:</b>	Alun Williams, Corporate Lead Officer: Policy, Performance and Public Protection
<b>Reporting Officer:</b>	Heddwyn Evans & Elis Gwyn
<b>Date:</b>	7 <sup>th</sup> November 2022

## Ceredigion County Council

<b>Report to:</b>	<b>Cabinet</b>
<b>Date of meeting:</b>	<b>6 December 2022</b>
<b>Title:</b>	<b>Feedback from the Healthier Communities Overview and Scrutiny Committee in relation to the 2022 Air Quality Progress Report for Ceredigion (in fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management)</b>
<b>Purpose of the report:</b>	<b>To consider feedback from the Committee in relation to its meeting held on the 27.10.2022</b>

The Healthier Communities Overview and Scrutiny Committee considered a progress report for 2022 Air Quality for Ceredigion.

Members received a comprehensive report outlining Ceredigion's current situation. Members were extremely pleased to receive confirmation that the Air Quality Strategy Progress Report for Ceredigion 2022 confirms that all current statutory air quality standards and objectives have been complied with, by specified dates, at all locations (including roadsides) in Ceredigion. Longer term, and indicative, standards are also complied with for the air pollutants contained in Regulations.

Following discussion, Committee Members were asked to consider the following recommendation:

### **RECOMMENDATION:**

**That the scrutiny Committee note the content of the report, and recommend to Cabinet that the report is published on the Council website, and submitted to DEFRA, in line with statutory requirements.**

Following its consideration, Committee Members agreed to recommend that Cabinet accept the recommendation as outlined above, subject to consideration of the following suggestion:

1. that a 'Good News' Press Release is published advertising the fact that Ceredigion ranks with the best in Wales for Air Quality.

Members congratulated and thanked the Officers on providing such a detailed report.

**Councillor Caryl Roberts**  
Chairman of the Healthier Communities Overview and Scrutiny Committee