

CALDERDALE M B C

WARDS AFFECTED: GREETLAND & STAINLAND

CABINET

6th JUNE 2022

Petition - Make West Vale an Air Quality Management Area (AQMA)

Report of the Director, Public Services

1. PURPOSE OF REPORT

- 1.1 To provide Cabinet with appropriate information so that a considered decision can be made as to whether West Vale should be declared an Air Quality Management Area (AQMA) as recommended by the Place Scrutiny Board.

2. NEED FOR A DECISION

- 2.1 Cabinet needs to consider whether this course of action should be pursued.

3. RECOMMENDATION

- 3.1 In line with the information presented in this report, Cabinet is recommended to resolve that:
 - a) there is no need to declare an AQMA in West Vale as annual mean NO₂ concentrations have remained below the air quality standard of 40 µg/m³ over the past five-year period.
 - b) AQMA's in themselves do not necessarily improve air quality and so it is important that the Council continues to develop appropriate interventions, including those set out in this report.
 - c) air quality conditions in West Vale will continue to be monitored, and the Council's Air Quality Strategic Group will keep all monitoring arrangements in the Borough under review.

4. BACKGROUND

- 4.1 A Petition entitled “Make West Vale an Air Quality Management Area” was received earlier this year.
- 4.2 The Council’s Petition Scheme requires that validated petitions with more than 500 but fewer than 2000 signatures should be presented to the relevant Scrutiny Board.
- 4.3 Accordingly, the petition seeking to make West Vale an AQMA was considered by Place Scrutiny Board on 3rd March 2022 and the Board agreed that:
- (a) the petitioners be thanked for attending the meeting and presenting the petition;*
 - (b) the Assistant Director, Neighbourhoods, be requested to provide the following information to Members of the Board:*
 - i. why the monitors were switched off for 3 months in 2018;*
 - ii. why a national reduction factor was applied to data in 2018; and*
 - iii. why the number of air quality monitors had been reduced from 5 to 2; and*
 - (c) it be recommended to Cabinet that West Vale be declared an Air Quality Management Area.*

5. REPORT

- 5.1 In response to the three specific questions raised by the Board:
- a) Nothing was switched off. The Diffusion Tubes (2 in number) which were deployed to WV in 2017 have been in constant use since and have not been moved from their original position between the two junctions. There is a 3rd tube which often gets referred to as a West Vale tube, but this is in fact in Salterhebble, and it was this that was switched off in 2018/2019 for the duration of the major roadworks in the area. The two monitors in West Vale are the ones from which data is collected for the Annual Status Report and so the switching off of the Salterhebble monitor had no impact on what was reported in West Vale.
 - b) Diffusion Tubes (DTs) are recognised as not being totally accurate so either a local derived factor (which needs to be justified to DEFRA) or a Government determined regional factor needs to be used to adjust the raw figure. As the nearest Real Time (RT) monitor at Salterhebble was switched off as mentioned above, Officers were left with a choice between using data from the Hebden Bridge RT Monitoring equipment (as the other nearest RT monitoring equipment in SB was also offline for a short period of time during 2018) or to use the regional correction factor produced by the Government that year for ratification purposes. The decision was to use the Government/regional correction factor as this what would happen in local authorities where there is no real-time monitoring equipment. This is in line with national guidance and the returns from Calderdale have never been questioned by DEFRA.

- c) In 2004 DTs were deployed to the area because of concerns regarding potential 'rat running' due to a major A629 capital project. This was a proactive in-service decision based on officers perceiving a possible air quality problem in that area - it was not at the request of the public or in response to any other demand. Initially, 5 DTs were deployed but then reduced (as initial concerns were not realised through the data) and eventually removed in 2006 as there was no evidence to support further deployment. In 2017 wider air quality concerns arose due to findings from tubes deployed elsewhere across the Borough, and so officers decided to install 2 tubes on Stainland Road, between the two junctions, and these have remained in situ since.
- 5.2 The remainder of this report provides information to help Cabinet decide whether West Vale should be declared an Air Quality Management Area (AQMA) in line with the petitioners' request and the recommendation of the Place Scrutiny Board.
- 5.3 It will explain the legal obligations placed on councils with respect to Local Air Quality Management ('LAQM'), the reasons why West Vale has not been declared an AQMA in the past, and a data driven evaluation as to whether West Vale should be declared an AQMA in the context of Part IV of the Environment Act.

Local Air Quality Management

The Environment Act 2021

- 5.4 The Environment Act 2021, which has recently superseded the Environment Act 1992, places a requirement on Local Authorities to regularly review and assess air quality to determine whether air quality limit and objective values set in the Air Quality Standards Regulations are being achieved.
- 5.5 Local Authorities are required to document the review of local air quality in an Annual Status Report (ASR) which is submitted to Defra annually. Where air quality standards are not met or an exceedance is considered likely, Local Authorities must designate an Air Quality Management Area (AQMA) and draft an Air Quality Action Plan to secure improvements in air quality and show how it intends to work towards achieving air quality objectives in the future.

Local Air Quality Management

- 5.6 The Local Air Quality Management Technical Guidance (TG16) ('LAQM.TG16'), lays out processes which Local Authorities must follow to monitor, assess, and improve air quality. This includes processes for monitoring air quality which includes the correction of monitoring data for bias. This is described in paragraph 7.190 of LAQM.TG16 as '*the overall tendency of the diffusion tubes to under or over-read relative to a chemiluminescence analyser*'. Local Authorities are therefore required to correct all raw diffusion tubes for bias prior to submitting the ASR to Defra for approval.

Air Quality Management Area Declarations

- 5.7 Numerical evidence from monitoring or modelling data is used to identify the risk of exceeding the air quality objectives and subsequently the declaration of an AQMA. Diffusion tube monitors are used by Local Authorities to quantify local air quality and identify potential air quality hotspots. The Council uses diffusion tubes to monitor air quality, specifically nitrogen dioxide (NO₂) in West Vale at two sites. The monitors are located on Stainland Road outside Edkins & Holmes Estate Agents (ID WV-SR1) and Café Thai Restaurant and Bar (ID WV-SR2).
- 5.8 Whilst passive samplers are good indicators of the relative change and spatial distribution of pollution, they are known to over or underestimate concentrations by up to 30%. To mitigate these potential errors, 'bias correction' is the process of adjusting the raw annual mean NO₂ concentrations as described in paragraph 7.191 of LAQM.TG16. The adjustment requires the application of a 'bias adjustment factor' which is the ratio of the difference between diffusion tube and automatic monitoring results from a specific 'co-location' study. Where representative, this ratio is applied to all monitored results in the Local Authority area to effectively ground truth the monitoring data.
- 5.9 Diffusion tube measurements are usually bias corrected using local or national co-location studies with automatic monitors. Alternatively, a bias factor can be provided from the national database of diffusion tube co-location surveys for the relevant laboratory and preparation method, as individual laboratory processes may affect tube performance.
- 5.10 A summary of bias adjustment factors used by Calderdale Council in each ASR over the past five years is presented in **Table 1**.

Table 1 - Bias Adjustment Factor

Year	Local or National	Adjustment Factor
2020	Local	0.87
2019	Local	0.87
2018	National	0.80
2017	National	0.78
2016	Local	0.80

- 5.11 The Council runs a co-location study at Huddersfield Road (AQS2), where the diffusion tubes (AQC1, AQC2 and AQC3) are co-located. Within the 2019 ASR the overall data capture of both the continuous monitoring station and the diffusion tubes was good (>75%). Usually this would allow for a local factor to be used, specific to the data found from local monitoring and the conditions in the local area.
- 5.12 **Table 1** shows the use of a national adjustment factor in the results reported in the 2018 (0.80) and 2019 (0.87) ASR. As described above, the reason for the

use of the national factor was traffic disruption caused by phase 1A of a highway improvement project on the A629 (June 2017-August 2018). This led to the monitoring station being turned off for three months in 2018 and the suspension of the co-location study. Therefore, the Council utilised the national bias adjustment factor when processing diffusion tube measurements for the 2019 ASR, as per the LAQM Guidance. The national factor of 0.80 was based on 24 studies and derived from the national bias adjustment calculator spreadsheet version 03/198. In West Vale, the 2019 monitored results for sites WV-SR1 and WV-SR2 were 38µg/m³ and 28µg/m³ respectively with the application of the local adjustment factor of 0.87. With the same local factor applied to the 2020 raw data, the results were 33µg/m³ and 26µg/m³ respectively which is further below the 40 µg/m³ objective.

Air Quality in West Vale

- 5.13 Concentrations of NO₂ measured in West Vale by the Council are provided below.

Table 2 - Calderdale Council Air Quality Monitoring Data for West Vale

		Annual Mean NO ₂ Concentration (µg/m ³)			
Site Name	Site Type	2017	2018	2019	2020
WV-SR1	Roadside	39	38	38	33
WV-SR2	Roadside	29	31	28	26

- 5.14 The monitoring locations within West Vale show a decrease in NO₂ concentrations over the period 2017 to 2020. Diffusion tube WV-SR1 shows that measured concentrations fall in 2018, remaining consistent at 38 µg/m³ in 2019, before further decreasing to 33 µg/m³ in 2020. WV-SR2 shows increased NO₂ concentrations in 2018, rising from 29 µg/m³ to 31 µg/m³. However, this temporary rise is followed by a decreasing trend over the period 2018 – 2020, with the most recent annual mean concentration recorded at 26 µg/m³. **Annual mean NO₂ concentrations have remained below the air quality standard of 40µg/m³ over the past five-year period.**
- 5.15 Whilst it is important to acknowledge the limitations associated with data recorded during the 2020 restrictions imposed during the COVID-19 pandemic, there is also new evidence to suggest that individual car trips are falling in Calderdale, likely in part due to flexible/home working, increased part-time or self-employment, and a reduction in shopping trips due to changes in consumer behaviour following the restrictions.
- 5.16 The Council has correctly completed bias correction following the LAQM.TG16 guidance in its latest ASR9 submission to Defra. As the monitored results were under 40 ug/m³, there is no basis for the declaration of an AQMA evident in the numerical evidence collected in West Vale.

Local Plan Modelling

- 5.17 When considering the declaration of an AQMA, LAQM.TG16 provides two options if it is deemed that there is a risk of exceeding an air quality objective.
- 5.18 The first option is to fast track the declaration based on the numerical evidence. The Council has not followed this option as there is no evidence to suggest that an exceedance is likely in West Vale in future.
- 5.19 The second option is to collate additional technical information such as detailed dispersion modelling or additional monitoring. Though not specifically completed for the purpose of determining the need for an AQMA declaration, the detailed modelling for the Local Plan indicates that there will not be an exceedance of the annual mean NO₂ objective at any point during the Plan build out period. It should be noted that the main driver for the reduction in NO₂ concentrations over time is the reduction in vehicle emissions related to fleet renewal and the uptake of electric vehicles, which is greater than any increases caused by traffic growth in West Vale.

6. CONCLUSION

- 6.1 This report provides an overview of the existing LAQM policies and guidance together with the existing evidence base to determine whether local air quality conditions in West Vale meet the criteria for the declaration of an AQMA.
- 6.2 Calderdale Council has declared eight AQMAs within its administrative boundary and conducts routine monitoring and reporting in line with the appropriate LAQM policies and guidance. The LAQM Guidance states that it is unlikely that most local authorities who have already declared AQMAs would need to declare new areas due to the identification of hotspots through the monitoring already undertaken by authorities. However, in some cases, an AQMA declaration may be necessary when new sources of emissions are introduced to an area where none were found previously. Furthermore, an exceedance or risk of exceedance of the standard identified by local monitoring or a dispersion modelling study would indicate that an AQMA is required.
- 6.3 The Council has conducted NO₂ diffusion tube monitoring in West Vale for the last five years and this is on-going. The Council has followed the appropriate guidance methodology to process the monitoring data, which shows consistent compliance with the air quality standard of 40 µg/m³ set out in the Air Quality Standards Regulations. Air quality monitoring results within the West Vale area fall below the objective with improvement shown to occur between 2017 and 2020.
- 6.4 As such, there is currently no evidence to suggest that local air quality is non-compliant with the NO₂ objective in West Vale, and, consequently, there is no justification for declaration of an AQMA in this area at this time.
- 6.5 Furthermore, an air dispersion modelling study was conducted within the Calderdale Local Plan Air Quality Assessment Report to determine the impact of new sources of traffic emissions associated with the Local Plan. Outcomes of the dispersion modelling study showed compliance with the 40 µg/m³

standard in all modelled scenarios, using a model verification factor specific to West Vale, throughout the Local Plan build out period.

- 6.6 Whilst it is important to acknowledge the limitations of air dispersion modelling and many other predictive tools and processes, a key point to note is that local air quality conditions in West Vale will continue to be monitored and reported as part of the Council's LAQM commitments. This process is in place to ensure that local air quality does not deteriorate in the area, and to ensure that appropriate action is taken in the event of an observed increasing trend in NO₂ concentrations.
- 6.7 It is of course understandable that communities will feel anxious about the atmosphere surrounding them, given the well documented link between poor air quality and the risk to public health, as long-term exposure to air pollution can cause chronic conditions such as cardiovascular and respiratory diseases as well as lung cancer, leading to reduced life expectancy.
- 6.8 Therefore, the Council will continue to strive to reduce airborne pollution through its Air Quality Improvement Strategy, with interventions such as:
- Continuing promotion of active travel through infrastructure improvements and educational campaigns, so that people understand the benefits of walking and cycling and can choose to do so safely.
 - Leading by example, with 30 new electric vehicles now on the council's fleet, including the Mayoral car, and an ongoing replacement policy of 'electric by default' (where operationally viable) which will shortly see 4 mini sweepers replaced by 4 brand new electric vehicles.
 - Developing a wider electric vehicle charging infrastructure, with facilities now in several council car parks and neighbourhood locations.
 - Ice cream operators at Manor Heath and Centre Vale Parks are now required to use an on-site electricity supply to power their equipment, not the diesel engine.
 - Extensive tree planting schemes at Shibden Park and various other sites throughout the Borough, often involving volunteers and young people to further promote the air quality message.
 - Action by Community Safety Wardens to prevent cars/taxis idling in town centres and around schools.
 - Promoting 'school streets' to take cars away from schools and encourage parents and children to walk as much as possible.
- 6.9 In terms of West Vale specifically, the A629 project aims to increase the number of people travelling by sustainable travel modes, bringing associated economic benefits and improved air quality as more people increase their use of these modes relative to private vehicles. There are also plans to investigate the use of 'Green Screens' – usually ivy – that are typically attached to fencing outside a school to form a 'wall' or barrier that helps to absorb dangerous air pollutants from nearby road vehicles.
- 6.10 Though there are no immediate plans to move or increase the current DTs in West Vale, officers will continue to review monitoring arrangements both in the

immediate area, and more widely across the Borough, to ensure they are appropriate and can help to achieve the Council's objective of clean air for all.

For further information on this report contact:

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Documents used in preparation of this report:

CC157 – Technical Note – Response to the request to declare an AQMA in West Vale, WSP UK Ltd, April 2022

Place Scrutiny Board 3rd March – report and minutes.

ASRs – www.calderdale.gov.uk

Documents are available for inspection at:

Princess Buildings, Halifax