



Bridgend County Borough Council

2021 Air Quality Progress Report

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

September 2021

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Executive Summary: Air Quality in Our Area

Public Health

What has become distinctly apparent is that Air Pollution is a local and national problem. Long-term exposure reduces life expectancy by increasing mortality, as well as increasing morbidity risks from heart disease and strokes, respiratory diseases, lung cancer and other effects.

What we know is that poor air quality in Wales poses as a significant concern for Public Health and is regarded as the most significant environmental determinant of health. Its associated adverse risk to public health is particularly prevalent within urban areas and near major roads. The pollutants of primary concern for public health are particulate matter and primary/secondary derived nitrogen dioxide (NO₂). Both pollutants primarily originate from motor vehicles.

The UK expert Committee on the Medical Effects of Air Pollution (COMEAP) estimates that air pollution is responsible for “an effect equivalent of between 28,000 and 36,000 deaths (at typical ages) each year”. This does not mean there are ‘actual’ deaths from air pollution exposure; rather, that the reduced life expectancy which everyone experiences because of air pollution exposure (6-8 months on average but could range from days to years) is ‘equivalent’ to between 28,000 and 36,000 deaths when summed. In Wales, based on the latest data available (from 2017), Public Health Wales estimates the burden of long-term air pollution exposure to be the equivalent of 1,000 to 1,400 deaths (at typical ages) each year.

Despite the efforts made by national government and local authorities there is an apparent disconnect between air quality management and Public Health. The status of Air quality management in Wales focuses upon a hotspot approach and fails to reference other factors such as socioeconomic status or exposure to other environmental determinants of health.

Fundamentally, it is plausible that air pollution affects everyone to some extent. Whilst the legislative air quality limit values are based on epidemiological evidence and are ultimately intended to protect public health, there is also recognition that health effects may be experienced below

these thresholds for some of the key pollutants (e.g., PM_{2.5} and NO₂), particularly affecting most susceptible groups: young children, the elderly and those with pre-existing health conditions and comorbidities. Acknowledged as the triple jeopardy concept - air pollution combines with other aspects of the social and physical environment to create an inequitable disease burden on more deprived parts of society; populations of areas with low socioeconomic status are prone to exacerbated effects from exposure to air pollution, in part as they are more likely to suffer pre-existing health conditions as a result of their poorer living conditions and lifestyle, but also as they are more vulnerable, being more likely to be living in areas with higher levels of air pollution.

The Impact of Covid-19 on Air Quality Monitoring

The COVID-19 pandemic has impacted air quality at local, regional, and national scales and presented challenges to Local Authorities in undertaking statutory LAQM duties. This section outlines the impact of COVID 19 on air quality in the Bridgend during 2020. Further detail on air quality impacts at the national scale can be viewed through the Reports & Seminars section of www.airquality.gov.wales/reports-seminars/reports

Air Quality in Bridgend

Local authorities have a statutory duty under Part IV of the Environment Act 1995 & Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 to manage local air quality. Under Section 82 of the Environment Act 1995 the Local Air Quality Management (LAQM) process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether air quality objectives are likely to be achieved.

The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138) and Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298). Where the air quality reviews indicate that the air quality objectives may not be met the local authority is required to designate an Air Quality Management Area (AQMA). Action must then be taken at a local level and outlined in a specific Air Quality Action Plan (AQAP) to ensure that air quality in the identified area improves.

In line with Bridgend County Borough Council's (BCBC) statutory duties under Part IV of the Environment Act 1995, Shared Regulatory Services (SRS) on behalf of BCBC regularly undertake air quality monitoring at specifically allocated locations across Bridgend using automated and non-automated principles for ambient air nitrogen dioxide (NO₂) & sulphur dioxide (SO₂).

With regards to prioritising ambient air quality sampling locations, the Council adopts a risk-based approach to any allocation of monitoring sites, considering the requirements of The Department for Environment, Food and Rural Affairs' (Defra) Local Air Quality Management (LAQM) Technical Guidance 16 (TG16), February 2018. The designated monitoring locations are assigned based on relevant exposure and where the certain Air Quality Objective levels for a particular pollutant applies. TG16 states that annual mean objectives should apply at "All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc."

Bridgend County Borough Council's 2018 Annual Progress Report (APR) documented and made the recommendation to implement and raise an Order for an Air Quality Management Area (AQMA), designated to Park Street Bridgend. On 18th September 2018 BCBC's Cabinet approved the 2018 LAQM APR for Bridgend County Borough. The report examined datasets captured during 2017 and noted that Park Street, Bridgend was an area of particular concern and subsequently an Air Quality Management Area (AQMA) was required. It was reported that two nitrogen dioxide (NO₂) non-automated monitoring locations situated at residential facades on Park Street (as detailed in Table 1 & Figure 1), recorded elevated and exceeding annual average levels of NO₂ when compared to the annual mean NO₂ Air Quality Objective of 40µg/m³.

Table 1 - 2017 Annual Mean NO₂ Concentrations

Site ID	Annual Mean Concentration (µg/m ³) AQS = 40 µg/m ³ (2)
	2017
OBC- 102	23.7
OBC- 103	37.6
OBC- 104	41.5

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in bold.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

(1) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(2) Diffusion tube data has been "bias adjusted" in accordance with Box 7.11 in LAQM.TG16 and "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(3) Diffusion tube data has been corrected for distance to represent relevant exposure in accordance with Sections 7.77- 7.79 in LAQM.TG16 "Fall-off in NO₂ concentrations with Distance from the Road"

Figure 1 – 2017 Park Street NO₂ Monitoring Locations

Based on the 2017 NO₂ datasets, in accordance with Welsh Government's (WG) Policy Guidance and Section 83 of the Environment Act 1995, SRS/ BCBC was required to legally declare an Air Quality Management Area (AQMA) for Park Street, and in doing so raise an AQMA Order that defines the detail and locality of the AQMA.

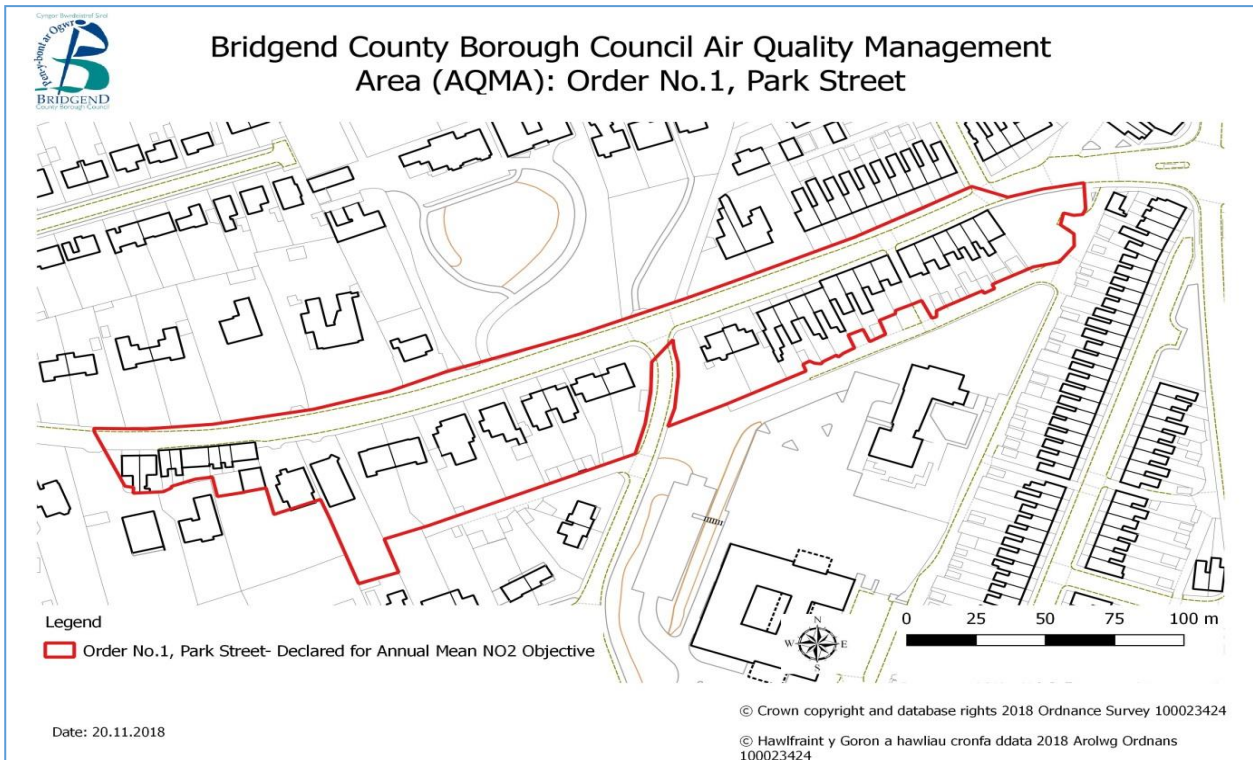
Park Street, Bridgend AQMA

The Park Street, Bridgend AQMA Order was officially implemented on the 1st January 2019. The area comprising the Bridgend County Borough Council Air Quality Management Area Order No. 1, Park Street is that contained within the boundary shown in Figure 2.

The designated area borders the green space area prior to the rear entrance of properties located on Sunnyside Road. The designated area incorporates all north facing properties, including their open space areas between 39 Park Street and 105 Park Street. The boundaries' northern side

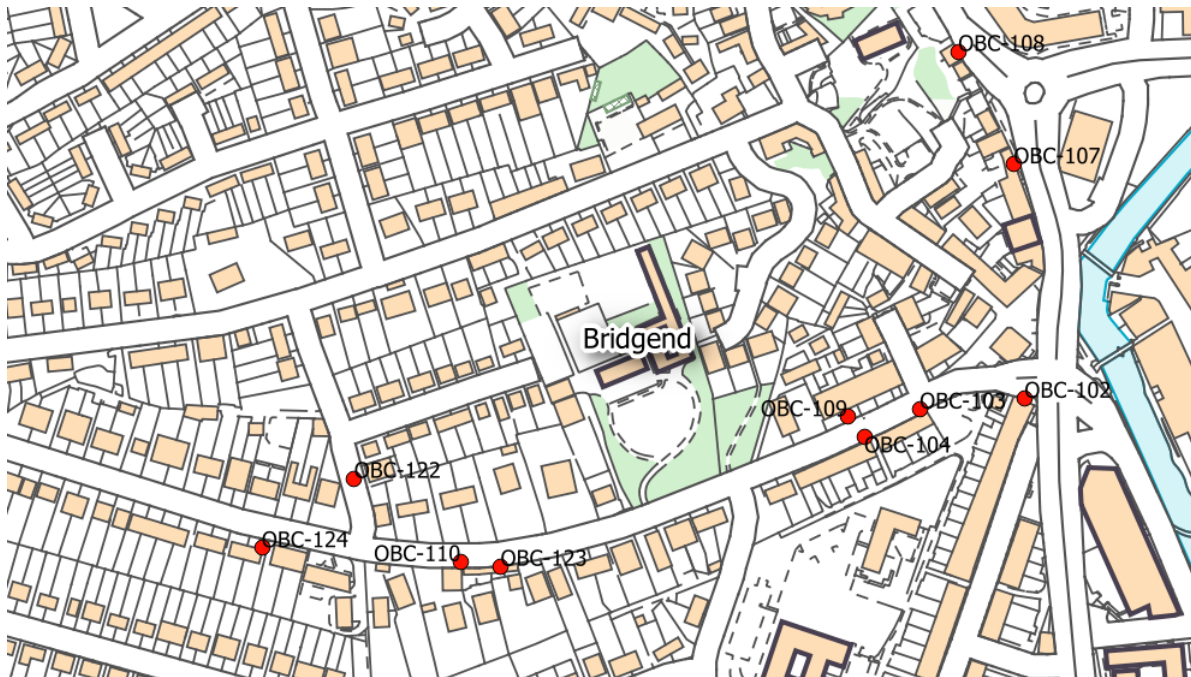
borders the open space areas that front the south facing properties encapsulating the public access pathway.

Figure 2 – Map of Park Street AQMA



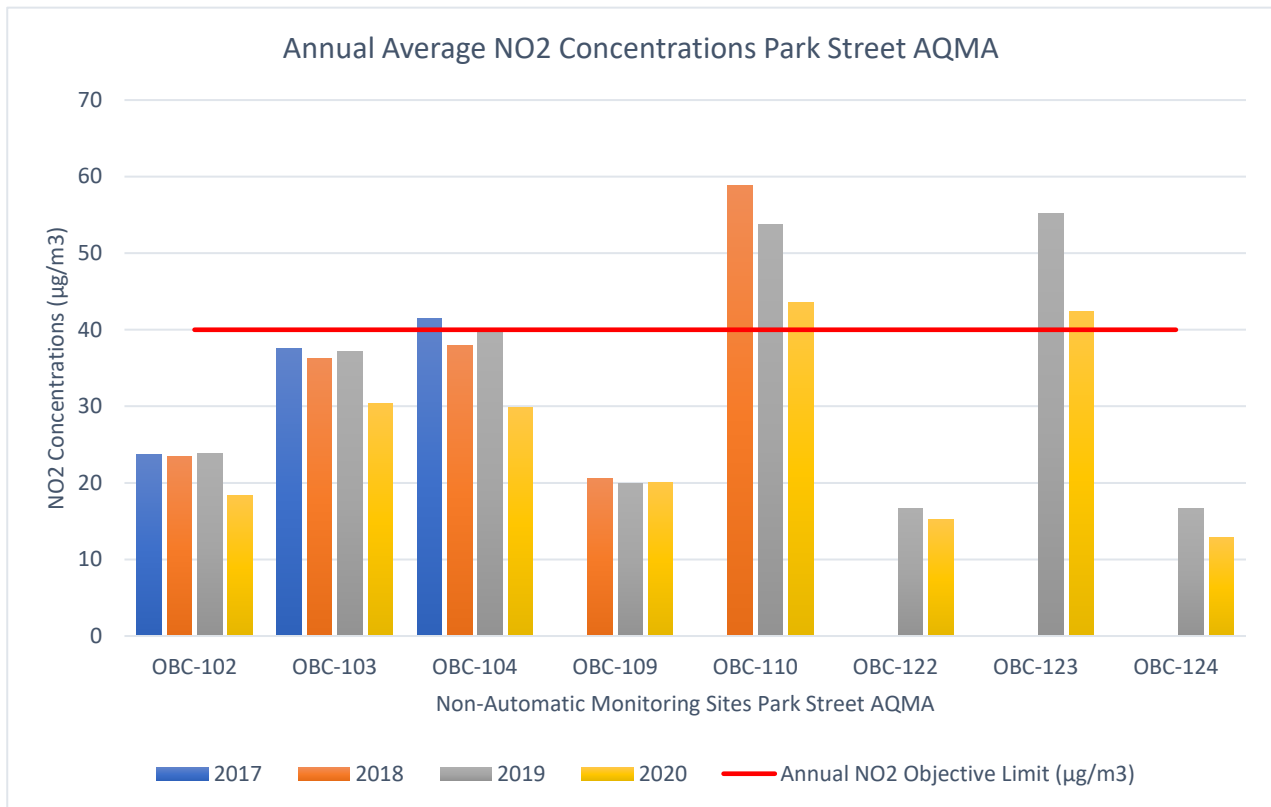
Since 2017, monitoring for NO₂ has been increased along Park Street and adjoining road networks. Figure 3 illustrates the network of monitoring for Park Street & Tondu Road.

Figure 3 - Park Street AQMA NO₂ Monitoring Locations Since 2019



This Annual Progress Report confirms that in 2020 air quality was a prevalent concern along Park Street, within the geographical boundary of the AQMA Order raised on the 1st January 2019.

Figure 4 - Park Street AQMA Annual Mean NO₂ Monitoring Results 2017 - 2020



In **Figure 4** It is noted that in 2020, monitoring undertaken at sites **OBC-110 & OBC-123**, located on Park Street residential facades, exceeds the annual average air quality objective set at (40µg/m³) for NO₂.

Despite the referenced sites of concern, all other monitoring locations across Bridgend demonstrate compliance with the applicable air quality objectives.

With particular focus on nitrogen dioxide (NO₂), as discussed earlier in this report, in December 2020, BCBC introduced an automated air quality monitoring system within the Park Street AQMA. The equipment allows air quality trends to be examined on a high temporal resolution basis and therefore will be able to assist with underpinning those short-term periods whereby raised levels of NO₂ and PM₁₀ are particularly prevalent. This data will be particularly useful in assigning traffic control measures for certain time periods.

SRS on behalf of BCBC examined potential locations along Park Street, within the AQMA boundary to implement the automated air quality monitoring equipment. Following preliminary site visits with air quality monitoring equipment suppliers and the local authority's Highways Team, it was evident that Park Street presented as a rather difficult area in which to implement an air quality monitor. This was due to narrow foot ways and the fact that Park Street is designated as traffic sensitive, only allowing highway works between restricted hours.

To overcome these concerns, it was noted that the Quaker's Meeting House (Bridgend Quaker Meeting, 87 Park St, Bridgend, CF31 4AZ) car park offered a preferable location and would be a representative location for data collection.

SRS & BCBC recognises that to tackle known pockets of poor air quality, a more suitable and constructive approach is required to target the whole of Bridgend, improving overall air quality. With the implementation of correct long-term measures, highlighted road networks and identified areas of concern, Bridgend should be able to benefit from improved air quality.

Welsh Government's guidance on local air quality management recommended two clear goals:

- (1) achieve compliance with the national air quality objectives in specific hotspots and
- (2) reduce exposure to pollution more widely, to achieve the greatest public health benefit.

Collective efforts should look beyond targeted action in localised air pollution hotspots and do this in parallel with universal action to reduce risks for everyone.

As stated by WG's policy guidance the following ways of working should be incorporated when devising any AQAP.

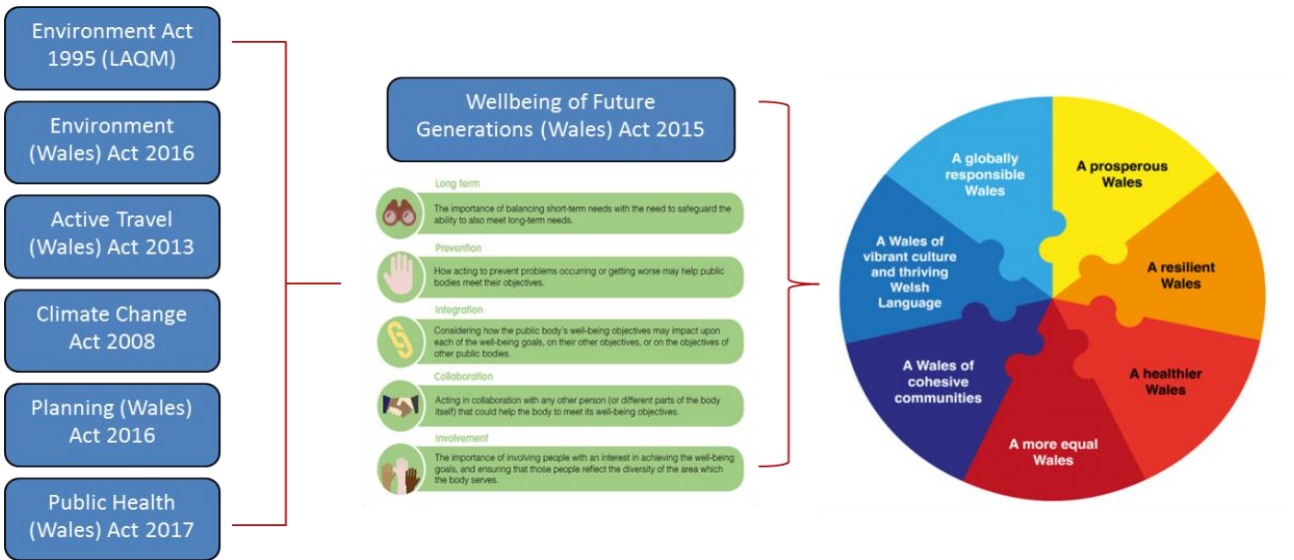
- Looking to the **long term** so we do not compromise the ability of future generations to meet their own needs.

- Taking an **integrated** approach.
- **Involving** a diversity of the population in the decisions affecting them.
- Working with others in a **collaborative** way to find shared sustainable solutions.
- Acting to **prevent** problems from occurring or getting worse.

In light of these aspirations SRS & BCBC adopts the principles of The Well-being of Future Generations (Wales) Act 2015. The Act is a significant enabler to improve air quality as it calls for sustainable cross-sector action based on the principles of long-term, prevention-focused integration, collaboration, and involvement. It intends to improve economic, social, environmental, and cultural well-being in Wales to ensure the needs of the present are met without compromising the ability of future generations to meet their own needs. The Act places responsibilities on public bodies in Wales to work in new ways (including via Public Services Boards) towards national Well-being goals. Progress is measured against a suite of well-being and Public Health Outcomes Framework indicators; there is one specifically concerned with air pollution.

As illustrated below, the act is the legislative vehicle for “Health in all Policies in Wales” and provides the underpinning principles for all policy and decision making, including economic development, in Wales. Reducing air pollution, health risks and inequalities can help contribute to most, if not all, of the well-being goals. As such, the Act presents excellent opportunities to change policy and practice to enhance air quality management arrangements across Bridgend (and wider).

Figure 5 - The Well-being of Future Generations (Wales) Act 2015



Welsh Government, Clean Air Plan for Wales, Healthy Air Healthy Wales

At the time of drafting this report WG has published its latest plan which underpins its commitment and long-term ambition to improve air quality in Wales. The plan sets out WG’s policy direction and proposed actions to reduce air pollution to support improvement in public health and the natural environment. Actions are proposed across four thematic themes, examined as People, Environment, Prosperity and Place.

The plan and its proposed actions are available at:

<https://gov.wales/sites/default/files/publications/2020-08/clean-air-plan-for-wales-healthy-air-healthy-wales.pdf>

SRS/BCBC support the aspirations of the plan and welcome the development of more stringent mitigation measures that will enable a cohesive approach to air quality management and protecting public health and the natural environment.

Actions to Improve Air Quality

Improved monitoring

To improve its monitoring capabilities, for 2020, as part of a yearly review SRS have amended and improved the network of diffusion tubes previously assigned in previous years used for the LAQM regime. The amendments include improved monitoring locations to represent the locality of monitoring objectives and implementation of additional sites to increase the network's geographical footprint.

Development of the Park Street, Bridgend AQMA Air Quality Action Plan (AQAP)

SRS/BCBC are working in accordance with WG's Policy Guidance to produce an Air Quality Action Plan (AQAP). As outlined by the guidance:

4.12 A draft action plan must be produced for review by the Welsh Government within 18 months of the coming-into-force date of the AQMA order, and the action plan must be formally adopted before two years have elapsed. A Local Authority failing to produce a draft action plan for review by the Welsh Government within two years of declaring or extending an AQMA will, in the absence of a compelling explanation, be issued with a direction from the Welsh Ministers under section 85(3) of the 1995 Act.

As highlighted and as part of the LAQM statutory duties, from the date of raising the AQMA Order (in this instance 1st January 2019) SRS and BCBC has 18 months in which to prepare a DRAFT Action Plan to improve air quality in the area, and once agreed, this plan must be formally adopted before two years has elapsed.

As a result of the unprecedented circumstances associated with the COVID-19 pandemic, there have been and there continue to be, delays in project delivery. Despite the existing consent issued by

Welsh Government to allow for an extension to deliver the FINAL version of the AQAP by 30th September 2021, SRS have notified Welsh Government of the continued difficulties faced by the project team to deliver the AQAP. As a result, permission is requested to further extend the AQAP deadline by an additional 6-month period, thereby amending the deadline submission date to 31st March 2022.

To recap, SRS/BCBC have appointed transport and air quality consultants to undertake detailed transportation and air quality modelling exercises which will examine the impacts of a proposed package of mitigation measures to improve air quality for the Park Street AQMA and surrounding area. The outcomes of these assessments will feature in the FINAL version of the AQAP. This commitment to appoint and finance this modelling work is a credit to BCBC who wish to pursue an AQAP that is robust providing members of the public with a sense of reassurance by demonstrating confidence in any mitigation measures appointed.

As a result of the impact of the COVID-19 pandemic, the appointed consultants have encountered numerous technical issues when aligning the transportation modelling aspect to the analysis which has led to significant delays. As a result, this area of work is still ongoing.

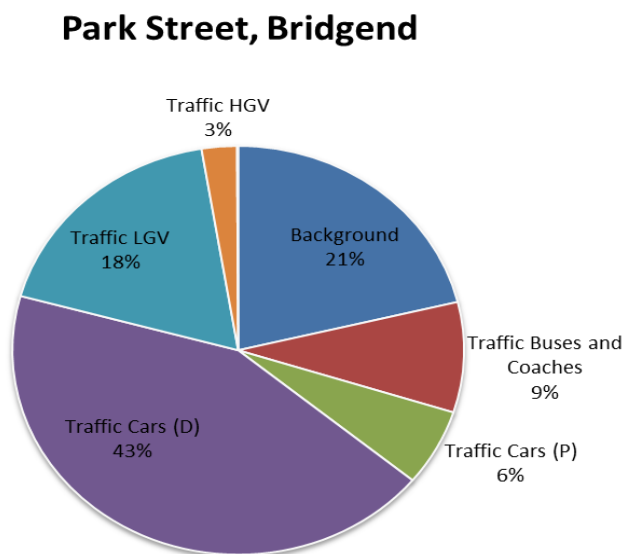
Following completion of the necessary detailed assessments, there are several additional statutory steps that SRS/BCBC must take when working towards the delivery of the FINAL AQAP. Here we must consider Cabinet involvement and internal process timeframes, public consultation periods and administering the FINAL version of the AQAP document. Although SRS is focused on achieving the delivery of the FINAL AQAP and conscious of the document's importance, working through the current pandemic has adversely impacted work capacity, and any available resources that could assist with the delivery of the AQAP has been prioritised in other service areas.

Source apportionment Analysis

Using available 2017 Department for Transport manual count data, and adopting the guidance outlined in Local Air Quality Management (LAQM) Technical Guidance 16, Box 7.5, the percentage proportion of various vehicle classifications contributing towards measured annual average NO₂ concentrations has been quantified.

The analysis confirms that a large percentage proportion of NO₂ levels experienced at sensitive receptor locations along Park Street is attributed to cars (predominantly diesel models), as well as Light Goods Vehicles (LGVs). This analysis is detailed in **Figure 6**.

Figure 6- Park Street, Bridgend NO₂ Source Apportionment Assessment



It can thus be concluded that diesel cars are overwhelmingly the main contributor to NO₂ concentrations; therefore, reducing the number of diesel cars (and queuing) on Park Street should be the focus of the action plan for the Park Street AQMA.

Work Steering Group and Public Engagement

A steering group comprising key players from Bridgend County Council and Public Service Board has been working to develop ideas and ensure an effective AQAP is put in place to consider all aspects of prioritising public health.

In addition to works and discussions held by the AQAP Work Steering Group, several informal 'drop-in' sessions were facilitated by SRS/ BCBC in December 2019 which provided opportunity for the public to find out more about air quality in the area, and suggest ideas for the AQAP.

Proposed Mitigation Measures

By collating the ideas and suggestions made to date, a list of proposed mitigation measures has been put together. Sub-section 1.3 displays Table 2 **Error! Reference source not found.** outlining proposed mitigation measures for the Park Street AQMA.

An indicative cost and benefit score has also been provided for each action in Table 2. The potential actions have been scored for cost benefit and the resulting rank to identify the most deliverable actions. Estimated costs (1 for high cost to 5 for low cost) were multiplied by a sum of the likely benefit from reducing pollution and people's exposure to the pollution (10 for high and 1 for low) to provide a score. The highest score shows the greatest cost benefit according to the opinions of the project team. The measures in table 2 are listed in order of their ranking score (most deliverable at the top).

It is acknowledged that some measures may score highly despite not affecting air pollution, because they instead may help reduce people's exposure to the pollution.

Agreed by the AQAP Working Steering Group and from the feedback received at the December 2019 public engagement sessions, the air quality levels on Park Street are due to the nature of the traffic flows using this highway. Queuing and inconsistent traffic flows would appear to be the principal

cause of the portrayed poor air quality levels. It is of concern, given the level of surrounding development scheduled, that there is a likelihood of increased pressure for the network and consequentially air quality levels along Park Street. Following the indicative Cost Benefit Analysis, a decision was made by the AQAP Work Steering Group to pursue those mitigation options that will manage and improve traffic flows through the Park Street AQMA and in doing so, deliver air quality improvements in the **shortest time possible**, and in line with the ambitions of Welsh Government and BCBC; reduce levels to as low as reasonably practicable.

Next Steps- Detailed Transportation and Air Quality Study

In order to proceed with the development of a successful and meaningful AQAP, BCBC/SRS has made the decision to appoint consultants to undertake detailed transport and air quality assessments to quantify and ensure that correct mitigation measures are implemented. With this viewpoint BCBC/SRS has taken the informed decision to agree and pursue the necessary works to examine the impacts expected of a preferred mitigation option package.

The preferred options include:

1. Deny all access onto St Leonards Road (Measure 18).
2. Implement a 4-phase junction (3 traffic, 1 pedestrian) at the Heol-y-Nant turning (Measure 21); and
3. Optimise the Park Street/ Angel Street/ Tondu Road Junction (Measure 20).

Consultants are undertaking transport and air quality modelling for the above options to illustrate any benefits for air quality levels. As the above measures work in conjunction with one another, any transport and air quality modelling undertaken would assess the options cumulatively as one preferred scenario. Works are now underway to progress with the assessments.

To be clear; any AQAP is an evolving document, therefore those measures contained within this document and produced to date can be added to or revised somewhat. SRS/BCBC encourages anyone to submit their opinions and suggestions to the dedicated email address (AirQuality-SRSWales@valeofglamorgan.gov.uk).

Local Priorities and Challenges

Due to the unprecedented circumstances of the COVID-19 pandemic, there has been an impact on the local air quality monitoring and the development of the action plan for the Park Street AQMA, in terms of its scheduling and delivery. Welsh Government have been made aware of delays to delivering the action plan and making an appropriate decision from data gathered during detailed transport and air quality modelling to support the action plan. In doing so Welsh Government recognise the need to allow for an extension period to facilitate the delivery of the DRAFT action plan. It has been confirmed that an extension for the DRAFT action plan has been accepted by Welsh Government's Minister, therefore the deadline for submission is the March 31st 2022. Despite the difficulties SRS do see the completion of the action plan as a necessity and are committed to producing the DRAFT action plan.

During the COVID-19 pandemic local air quality monitoring has continued in Bridgend, however some non-automated results for a few selected months in 2020 are not available due to 'lockdown' measures introduced in the month of March 2020. Local Authorities including SRS at the time of the 'lockdown' measures being imposed looked for official clarity to ascertain if the monitoring was classified as essential in view of quietened road networks which may lead to a favourable bias, as well as difficulties faced by analytical laboratories utilised by SRS which had to adapt their working practises which added to postage delays.

Air quality data collection has been deemed as an essential service by Welsh Government, whereby monitoring was resumed for May 2020. The results for 2020, have been corrected/ratified to account for the gaps in the annual datasets incurred as a result of the COVID-19 situation. The exclusion of this data will be further discussed, however at this moment in time, results gathered during the COVID-19 pandemic, where it is apparent that road traffic volumes have decreased significantly are perhaps not representative of a true 'business as usual' scenario which could generate a bias/underestimate of levels.

The main priorities for SRS and Bridgend County Borough Council in the coming year are to:

- Review air quality datasets and where necessary take appropriate action. This may include the revision of the Park Street, Bridgend AQMA Order; and
- Deliver a finalised Air Quality Action Plan (AQAP) for the Park Street, Bridgend AQMA. Where possible SRS/BCBC will need to ensure that proposed measures are actioned.

How to get involved

BCBC welcomes any correspondence relating to air quality enquiries or concerns. Shared Regulatory Services (SRS) Enterprise and Specialist Services Team represents BCBC for air quality and therefore is contactable via the webpage www.srs.wales/en/Home.aspx OR via their direct team email AirQuality-SRSWales@valeofglamorgan.gov.uk. Monthly average monitoring data for nitrogen dioxide (NO₂) is available at www.airquality.gov.wales

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1 Actions to Improve Air Quality

1.1 Previous Work in Relation to Air Quality

First Round of Review and Assessment

Between 1999 and 2001, Bridgend County Borough Council published reports corresponding to stages 1, 2 and 3 of the first round of review and assessment of air quality. Seven key pollutants were examined (carbon monoxide, benzene, 1,3-butadiene, lead, nitrogen dioxide, fine particles (PM₁₀) and sulphur dioxide). These assessments predicted no exceedances of any of the objectives. It concluded that to fulfil the requirements of the Environment Act 1995, air quality should be reviewed and assessed again in 2003.

Second Round of Review and Assessment

Following new technical and policy guidance issued by Defra, Bridgend County Borough Council published its first Updating and Screening Assessment (USA) in June 2003. Of the seven pollutants subjected to the updating and screening assessment process, it was concluded that the likelihood of the air quality objectives for carbon monoxide, benzene, 1,3-butadiene, lead, and sulphur dioxide being exceeded was negligible and that it was not necessary to carry out a detailed assessment of any of these pollutants. However, the updating and screening assessment for nitrogen dioxide and PM₁₀ revealed gaps in the data gathered and concluded that there was evidence to suggest non-compliance with the air quality objectives for PM₁₀ and NO₂ at three locations resulting from road traffic emissions. It was suggested that there was a requirement to continue to a Detailed Assessment for the following locations:

- A48 Ewenny Cross, Bridgend
- The western end of Cowbridge Road, Bridgend
- The western end of the Bridgend Cross Valley Link Road.

In addition, it was also recommended to carry out a co-location exercise to determine the bias correction for the passive nitrogen dioxide detector tubes provided and analysed by Severn Trent Laboratories.

In July 2005, Bridgend County Borough Council's Local Air Quality Management Progress Report recommended that:

- All currently held data should be, as far as possible, ratified.
- Data shall continue to be gathered from the three sites identified in the June 2003 USA to enable conclusions to be drawn on the current and future air quality at these locations. The results will be presented in a Detailed Assessment of Air Quality at these locations by 31st December 2005.
- The mobile PM₁₀ and NO_x monitoring station should be added to the Welsh Air Quality Forum Network of sites and receive appropriate Quality Assurance and Quality Control (QA/QC) to validate any data gathered.

In March 2006 a Detailed Assessment for Nitrogen Dioxide and Particles (PM₁₀) was produced in March 2006 and concluded that the current air quality objectives for nitrogen dioxide and particles PM₁₀ are being met and that the 2010 Air Quality Daughter Directive limit value for nitrogen dioxide will also be achieved at the three road junctions assessed. However, it also recommended that monitoring data from the three road junction sites identified in the June 2003 USA should continue to be gathered to enable assessment of future air quality at these locations.

Third Round of Review and Assessment

Bridgend County Council published its second USA in May 2006. The assessment concluded that there was no requirement to proceed to a detailed assessment for any pollutant in Bridgend County Borough.

The Council published Progress Reports in 2007 and 2008. Both reports coincided with one another, issuing similar conclusions and recommendations. They indicated that no air quality objectives prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002 will be breached at any relevant locations.

In terms of monitoring locations, the reports highlighted the following:

- Data on NO₂ concentrations will continue to be gathered at relevant locations adjacent to A48 Ewenny Cross, the western end of Cowbridge Road and at Tondu Road on the western end of the Bridgend Cross Valley Link Road.
- Monitoring of PM₁₀ and NO₂ will continue at Kenfig Hill adjacent to the opencast coal site operated by Celtic Energy Ltd.
- Monitoring of NO₂ and sulphur dioxide (SO₂) will take place at relevant locations adjacent to Rockwool Ltd, Wern Fawr, Pencoed when the new factory extension becomes operational.

Fourth Round of Review and Assessment

The Bridgend County Borough Council published its third USA in June 2009. There was no evidence of any significant breaches of the air quality objectives prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002, at any relevant locations. The report did however draw attention upon an ongoing trend for NO₂ concentrations at Ewenny Cross, Bridgend, and Tondu Road, Bridgend, at the façade of the nearest houses, to be at or close to the air quality objective for NO₂ for 2007. It was decided that monitoring would continue at the two highlighted sites as part of an ongoing Detailed Assessment to be produced later that year.

The 2010 Progress Report stated the following:

The conclusions for the new monitoring data in relation to Ewenny Cross and Tondu Rd show that Ewenny Cross has exceeded the annual mean National Air Quality Objective for nitrogen dioxide (NO₂) and this will be reported in depth in the Detailed Assessment to be produced later this year.

The results for nitrogen dioxide at Tondu Rd show that the annual mean National Air Quality Objective for nitrogen dioxide (NO₂) has not been exceeded. However, in view of the results which are very close to the objective, monitoring will continue at this location for at least another year.

There are no new local developments likely to give rise to a significant impact on air quality within the County Borough.

There are no other issues that give rise to concern in terms of impact on air quality within the County Borough.

The Detailed Assessment for Ewenny Cross is near completion and will be produced in May 2010. A further progress report will be produced early in 2011.

The 2010 Detailed Assessment for Ewenny Cross was subsequently submitted and stated:

This Detailed Assessment of Air Quality has shown that the current air quality objectives for nitrogen dioxide (NO₂) are not being met at the south western sector of Ewenny Cross, Bridgend but are being met at the Bridgend Cross Valley Link, Tondu Road, Bridgend.

In view of the above, the following recommendations have been made:

-Monitoring should continue at its present level at the Bridgend Cross Valley Link, Tondu Road and at Ewenny Cross, Bridgend.

-A continuous monitor, together with a meteorological station, should be installed at or as near to the south western sector of Ewenny roundabout as is practical.

Following discussions with Welsh Assembly Government and University of the West of England (UWE) it was decided that the Detailed Assessment should remain ongoing and that any decision to declare an AQMA for Ewenny Cross should be delayed until continuous monitoring data for 2010 has been collated and analysed.

The 2011 Progress report stated the following:

Following the Detailed Assessment submitted in June 2010 and the response from WAG, the Authority decided, in consultation with WAG and UWE to defer a decision to declare an AQMA for Ewenny Cross until a full calendar year of continuous monitoring data had been collated and analysed.

Due to equipment failure and contractual issues, continuous monitoring at Ewenny Cross has been significantly delayed. Continuous sampling commenced in March 2011 as did a diffusion tube co-location study.

The conclusions from annualised monitoring data obtained since the last report show that one sampling point at Ewenny Cross has exceeded the annual mean National Air Quality Objective for nitrogen dioxide (NO₂). The other nine around the Cross remain within the annual mean National Air Quality Objective.

The results for nitrogen dioxide diffusion tube monitoring at Tondu Rd show that the National Air Quality Objective's annual mean for nitrogen dioxide (NO₂) has not been exceeded. However, results are very close to the objective and monitoring will continue at this location for another year.

No continuous PM₁₀ data could be retrieved for South Cornelly or Kenfig Hill due to equipment failure.

The nitrogen dioxide diffusion tube sampling locations in Maesteg town centre which were set up in July 2010 following local concerns have shown to date, an exceedance at one sampling point. As

a result, more monitoring location points have been put in place and will be reported upon in the next USA report.

Fifth Round of Review and Assessment

Bridgend County Council published its fourth USA May 2012. In addition, a Detailed Assessment was submitted for Ewenny Cross. The reports identified:

- There were no indications of any significant breaches of the air quality objectives prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002.

-There was an exceedance of the objective for Nitrogen Dioxide at one location in Maesteg. However, this was marginal and the other sample points in the immediate vicinity were below the National Objectives for Nitrogen Dioxide. Monitoring continued at this site and extra sample sites, in addition to those already in place were set up where practicable. The data so far for this location, in view of the above, does not suggest that a Detailed Assessment is necessary at this time, although this will be subject to review as more data is collected and analysed.

-The positioning of an Automated Continuous NO_x Analyser and co-location study at Ewenny Cross has provided robust information as to the air quality situation and indicates that Nitrogen Dioxide levels do not exceed the National Air Quality Objectives. This Automated Continuous NO_x Analyser will be retained at this site to gather more data over the coming year.

-The Detailed Assessment 2012 completed in tandem with this Report concluded that it is not necessary at this point in time to proceed with declaring an Air Quality Management Area at Ewenny Cross. The situation will continue to be monitored by way of the co-location study utilising the Automated Continuous NO_x Analyser and the numerous Nitrogen Dioxide Diffusion Tube sites situated at Ewenny Cross.

The 2013 Progress report provided the following findings and recommendations:

- The Report has not identified a need to proceed to a Detailed Assessment for any pollutant.
- The Report has identified a need to continue monitoring for Nitrogen Dioxide in Maesteg Town Centre.
- Monitoring of Nitrogen Dioxide and PM₁₀ will continue at the same sites as at the end of 2012.

The Automated Continuous NO_x Analyser and co-location study will continue at Ewenny Cross Roundabout for this year to acquire more robust data. In the light of the acquired data, the positioning and possible relocation of the Automatic Monitoring Station will be decided at the end of 2013.

Bridgend County Borough Council will submit a Progress Report in May 2014.

The 2014 Progress report stated the following:

- the exception of Ewenny Cross Roundabout as highlighted above; the Progress Report has not identified a need to consider proceeding to a Detailed Assessment for any other pollutant.
- Monitoring of Nitrogen Dioxide and PM₁₀ will continue at the same sites as at the end of 2013.
- Bridgend County Borough Council will submit a progress report in May 2015.

Sixth Round of Review and Assessment

Bridgend County Council published its fourth USA September 2015. The assessment identified no need to proceed to a Detailed Assessment for any pollutant.

2016 Annual Progress Report highlighted no concerns, and no objectives were exceeded.

2017 Annual Progress Report

BCBC's 2017 Annual Progress Report highlighted that air quality within Bridgend County Borough continued to meet the relevant air quality objectives as prescribed in the Air Quality (Wales) Regulations 2000 and the Air Quality (Amendment) (Wales) Regulations 2002.

Reporting described the amendments to the non-automatic NO₂ network with 10 new locations commissioned for 2017.

Quality and technical issues were outlined regarding the automatic monitoring at Ewenny Cross Roundabout, for both NO₂ and PM₁₀. The inability to conform to the frequency of calibration checks and technical issues faced with the PM₁₀ Met One E Sampler were noted. Data capture was also an issue at the Rockwool Ltd site for SO₂ monitoring, recorded at 47.1%.

2018 Annual Progress Report

BCBC's 2018 Annual Progress Report highlighted elevated and exceeding annual average levels of nitrogen dioxide (NO₂) and outlined the requirement to proceed to implement and formalise an Air Quality Management Area (AQMA) Order for Park Street, Bridgend. On January 1st, 2019 an official AQMA Order was raised for Park Street, Bridgend, designated on the basis of exceeding annual average NO₂ air quality objectives/ limit values.

2019 Annual Progress Report

BCBC's 2019 Annual Progress Report highlighted general compliance for monitoring undertaken in 2018, however it did note the elevated and exceeding annual average levels of nitrogen dioxide (NO₂), especially within and close to the established Park Street AQMA boundary. The report outlined the works initiated to develop an effective Air Quality Action Plan (AQAP) to support the AQMA. In doing so the report highlighted the commitment of a designated work steering group to develop appropriate mitigation measures that would not only benefit the Park Street AQMA "hot spot" but would also generate wider air quality benefits to improve and protect the amenity of public health. The report specified commitments to gather public engagement on the AQAP's development via public drop-in sessions through the course of December 2019. It outlined how suggested mitigation measures would be assessed and indicated that detailed transportation and air quality modelling would be required to quantify the impacts derived by any preferred options. The report also noted the need for enhanced monitoring capabilities in the form of automated monitoring within the Park Street AQMA to improve understanding and provide a platform for public to access data.

2020 Annual Progress Report

BCBC'S 2020 Annual Progress Report showed continued elevated and exceeding levels of NO₂ at sensitive receptor locations situated on Park Street within the established AQMA Order boundary. Development of Air Quality Action Plan (AQAP) continued, and full approval was given to locate an automatic monitoring station within the Park Street, Bridgend AQMA. Despite the areas of concern within the Park Street AQMA, compliance with the air quality objectives was achieved at all other monitoring locations.

1.2 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when air quality is close to or above an acceptable level of pollution (known as the air quality objective (Please see Appendix A)). After declaring an AQMA the authority must prepare a DRAFT Air Quality Action Plan (AQAP) within 18 months setting out measures it intends to put in place to improve air quality to at least the air quality objectives, if not even better. The AQAP must be formally adopted prior to 24 months having elapsed. AQMA(s) are seen by local authorities as the focal points to channel resources into the most pressing areas of pollution as a priority.

Based on monitoring results and further detailed analysis, there is currently one Air Quality Management Area (AQMA) declared in Bridgend County Borough (Park Street, Bridgend), declared due to exceedances of the annual mean NO₂ Air Quality Objective (40ug/m³), known to be derived from road transport generated NO₂.

The Park Street, Bridgend AQMA Order was officially implemented on the 1st January 2019. The area comprising the Bridgend County Borough Council Air Quality Management Area Order No. 1, Park Street is that contained within figure 2.

The designated area borders the green space area prior to the rear entrance of properties located on Sunnyside Road. The designated area incorporates all north facing properties, including their open space areas between 39 Park Street and 105 Park Street. The boundaries' northern side borders the open space areas that front the south facing properties encapsulating the public access pathway.

1.3 Implementation of Action Plans

As highlighted, due to the unprecedented circumstances of Covid-19, this has had an impact on the local air quality monitoring and the development of the action plan for the Park Street AQMA, in terms of its scheduling and delivery. Welsh Government have been made aware of delays to delivering the action plan and making an appropriate decision to undertake any detailed transport LAQM Annual Progress Report 2021

and air quality modelling to support the action plan. In doing so Welsh Government recognise the need to allow for an extension period to facilitate the delivery of the DRAFT action plan. It has been confirmed that an extension for the DRAFT action plan has been accepted by Welsh Government's Minister, therefore the deadline for submission is the March 31st, 2022. Despite the difficulties, SRS do see the completion of the action plan as a necessity and are committed to producing the DRAFT action plan.

Table 2 - Proposed AQAP Measures for Park Street, Bridgend AQMA

No.	Measure	EU Category	EU Classification	Responsibility/ Lead Authority	Key Performance Indicator	Target Annual Emission Reduction in the AQMA	Associated Improvements	Timescale
1	Public health information campaign (highlight most vulnerable groups and people with certain health concerns; asthmatics, Chronic Obstructive Pulmonary Disease etc.). Increase public education messages which promote healthier choices for short journeys (<2 miles).	Public Information	Via the internet/ leaflets/ other	Cwm Taf Morgannwg University Health Board/ Public Health Wales/ BCBC/ SRS/ Charity organisations; Global Action Plan; Living Streets/ TFW	<p>The number of hits on website.</p> <p>Number of initiatives delivered.</p> <p>Delivery of a public education campaign.</p> <p>Cross reference obtained air quality results to the applicable air quality objectives.</p> <p>Improvements to those figures outlined in Bridgend LTP 2015 using data acquired by 2011 Census. The 2011 census total, 59,235 of Bridgend residents travelled to work with 82.5% travelling by car, or 83% including taxis. About 75% of car users were classified as the driver which meant that they travelled alone; 5.5% used public transport; 9% walked or cycled with cycling contributing less than 1% (0.8%); other transport modes including motorcycle constituted 1.1%</p>	No reduction in concentration in Nitrogen Dioxide, however there would be an exposure reduction for residents.	Improved capacity on road network/ reduced congestion/ improved journey times. Improved public awareness. Related health improvements.	Unknown
2	Support the creation of a local "Air Quality Action Group".	Public Information	Via the internet/ leaflets/ other	BCBC/ SRS/ Local Communities Forum/ local Cllrs	Number of associated members.	Negligible	Improved awareness of the issues locally	Unknown

No.	Measure	EU Category	EU Classification	Responsibility/ Lead Authority	Key Performance Indicator	Target Annual Emission Reduction in the AQMA	Associated Improvements	Timescale
3	Increase the monitoring capabilities of the Council with investment in more air quality monitoring techniques. Creation of an online platform linked to the Air Quality Index.	Public Information	Via the internet	BCBC/ SRS; possibility to link with Public Health Wales and an appointed approach in Cardiff.	Cross reference obtained air quality results to the applicable air quality objectives.	N/A	Improved Public awareness. Improved understanding for air quality trends with the production of diurnal datasets. Increased understanding for other associated pollutants; PM10/ PM2.5.	Ongoing
4	Electronic "pollutant signage" within AQMA and local area; Signage encourages drivers to switch off their engines in standing traffic queues, linked to signalling. Example; "Do you need to drive today?"	Public Information/ Traffic Management	Other	BCBC/ SRS	Cross reference obtained air quality results to the applicable air quality objectives.	Unknown	Improved Public awareness/ Increase in the use of sustainable alternatives.	Unknown.
5	Signs and banners for engine idling; Signage at key intersections, near junctions and on public transport / taxis encouraging people to switch off	Public Information/ Traffic Management	Other	BCBC/ SRS	Cross reference obtained air quality results to the applicable air quality objectives.	Unknown	Improved Public awareness.	Unknown.

No.	Measure	EU Category	EU Classification	Responsibility/ Lead Authority	Key Performance Indicator	Target Annual Emission Reduction in the AQMA	Associated Improvements	Timescale
6	Develop Supplementary Planning Guidance (SPG) to provide a specific guidance for air quality in accordance with new developments.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	BCBC/ SRS	Production of an SPG.	N/A.	Improved Street Scene. Improvements for other environmental factors such as noise and odour. Optimise the planning process. Reduced congestion.	Ongoing
7	Planning guidance for the provision of Electric Vehicle Charging Points. To note; EV points are now compulsory in England	Policy Guidance and Development Control	Other	BCBC	Number of properties where a power spur for an electric vehicle charge point is installed. Number of planning applications approved with a vehicle charge point as an advisory or required condition.	Unknown	% reduction in NOx emissions compared to a diesel/ petrol. Reduction in PM10 and PM2.5, although some studies do suggest increases associated with EV, therefore enhanced monitoring capabilities particularly for PM is crucial.	Unknown

No.	Measure	EU Category	EU Classification	Responsibility/ Lead Authority	Key Performance Indicator	Target Annual Emission Reduction in the AQMA	Associated Improvements	Timescale
8	Revise BCBC's Walking and Cycling Strategy; Revise the existing 2009 document	Policy Guidance and Development Control/ Promoting Travel Alternatives	Promotion of cycling	BCBC/ SRS	Production of a revised document.	N/A	Related Health improvements. % reduction in NOx emissions compared to a diesel/ petrol. Reduction in PM10 and PM2.5.	Unknown
9	Endorse SP19; Biodiversity and Development. Further influence the use of green infrastructure for new developments.	Policy Guidance and Development Control	Other	BCBC/ SRS	Number of trees planted.	Unknown. Provision of a barrier to protect residents and visitors.	Improved street scene. Absorption of Greenhouse gas emissions.	Ongoing
10	Implement 'smoke control zone' for Bridgend. Wood burners installations would need authorisation to operate and receive permissions in accordance with the Clean Air Act.	Policy Guidance and Development Control	Other policy	BCBC/ SRS	Number of nuisance complaints generated.	Unknown	% reduction in NOx emissions. Reduction in PM10 and PM2.5.	Unknown
11	School Active Travel Plans	Promoting Travel Alternatives	Incentivise active travel campaign & infrastructure	BCBC/ SRS/ Living Streets "WOW" Scheme/ Sustrans/ WG Young Dragons Educational Package/ Global Action Plan	Number of participating schools.	N/A	Related Health improvements. Improved public awareness. Reduced Congestion.	Ongoing

No.	Measure	EU Category	EU Classification	Responsibility/ Lead Authority	Key Performance Indicator	Target Annual Emission Reduction in the AQMA	Associated Improvements	Timescale
12	Encourage/ Facilitate homeworking. BCBC/ SRS is one of the largest employers in Bridgend and therefore could look to adopt more flexible/ agile working patterns	Promoting Travel Alternatives	Encourage / Facilitate homeworking.	BCBC/ SRS	Produce Healthy Travel Charter. Number of individuals enrolled on programme.	Unknown	Quality of life improvements. Saved costs on office space. Eliminate time lost travelling to office meaning shorter working days. Reduced congestion during peak times.	
13	Work with local businesses to develop active travel to work programmes. Cardiff Staff Travel Charter currently being rolled out but only for public sector establishments.	Promoting Travel Alternatives	Other	BCBC/ Cwm Taf Morgannwg University Health Board/ Public Health Wales.	Produce Healthy Travel Charter. Number of individuals enrolled on programme.	Unknown	Quality of life improvements. Saved costs on office space. Eliminate time lost travelling to office meaning shorter working days. Reduced congestion during peak times.	
14	Park and Ride facilities to be implemented at strategic sites (Broadlands)/ Shuttle bus service linking	Alternatives to private vehicle use	Bus Park and Ride scheme	BCBC/ Bus operators/ Tfw	Bus patronage figures.	Unknown	Reduced congestion during peak times. Bus services profit.	

No.	Measure	EU Category	EU Classification	Responsibility/ Lead Authority	Key Performance Indicator	Target Annual Emission Reduction in the AQMA	Associated Improvements	Timescale
	Bridgend train station to strategic points (Broadlands/ Hospital/ Coity/ McArthur Glen). There is also the potential to look at shared shuttle service for persons accessing proposed Health Centres.							
15	<p>Anti-idling implemented as TROs specific to sensitive areas such as outside schools, hospitals, care homes, as well as Park Street AQMA.</p> <p>Under Road Traffic (Vehicle Emissions) (Fixed Penalty) Regulations 2003, regulation 6 (3) BCBC has the power to implement “no vehicle idling” areas. BCBC will need to assess the feasibility and likely benefits.</p> <p>Run this as a pilot study.</p>	Traffic Management	Anti-idling enforcement	BCBC	Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	Anti-idling implemented as a TRO specific to Park Street AQMA.	<p>Related Health improvements.</p> <p>Improved public awareness.</p>	

No.	Measure	EU Category	EU Classification	Responsibility/ Lead Authority	Key Performance Indicator	Target Annual Emission Reduction in the AQMA	Associated Improvements	Timescale
16	Introduce a pilot scheme "20mph speed limit" to Park Street.	Traffic Management	Reduction of speed limits	BCBC	Evaluation of annual air quality datasets for NO₂ . Reduction in vehicle speeds via traffic flow analysis Any marked improvement in collision/ incident rates. Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	Unknown	Improved road safety.	
17	Ghost right hand turn onto Heol-Y-Nant.	Traffic Management	Strategic highway improvement	BCBC	Reduction in capacity captured via traffic flow analysis.	Unknown	Reduced congestion.	
18	Deny all access onto St Leonard's Road for all traffic movements.	Traffic Management	Strategic highway improvement	BCBC	Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	Unknown	Reduced congestion. Improved Road Safety.	
19	Deny a through route movement from Angel Street onto Park Street.	Traffic Management	Strategic highway improvement	BCBC	Reduced capacity on Park Street captured via traffic flow analysis.	Unknown	Reduced Congestion on Park Street.	
20	Optimise the traffic signals at the Tondur Rd/ Park Street/ Angel	Traffic Management	Strategic highway improvement	BCBC/SRS/ Externally Appointed Consultant	Reduced capacity on Park Street captured via traffic flow analysis.	Unknown	Improved road junction efficiency.	

No.	Measure	EU Category	EU Classification	Responsibility/ Lead Authority	Key Performance Indicator	Target Annual Emission Reduction in the AQMA	Associated Improvements	Timescale
	Street Junction- Adopt a MOVA system. Utilise external consultancy expertise to undertake a feasibility study.				Cross reference obtained air quality results on Park Street to the applicable air quality objectives.		Reduced Congestion	
21	Implement a 4-phase junction (3 traffic, 1 pedestrian) at the Heol-y-Nant turning	Traffic Management	Strategic highway improvement	BCBC/SRS/ Externally Appointed Consultant	Reduced capacity on Park Street captured via traffic flow analysis. Cross reference obtained air quality results on Park Street to the applicable air quality objectives.	Unknown	Improved road junction efficiency. Reduced Congestion	
22	Bus Programme- Strategic Bus Network. Buses not to use St Leonard's Road due to the experienced access constraints onto and off Park Street.	Transport Planning and Infrastructure	Bus Route Improvements	BCBC/ Bus Operators	Customer satisfaction questionnaires from the bus operators.	Unknown	Improved Road safety at the Park Street/ St Leonard's Junction. Reduced congestion on Park Street.	

Table 3 - Cost Benefit Analysis for Measure Proposed for Park Street, Bridgend AQMA

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	Cost 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	Air pollution reduction 10 = greatest air quality gain 1 = least air quality gain	Exposure reduction 10 = greatest exposure reduction 1 = least exposure reduction	Score = cost x benefit	Rank 1 = most cost benefit effective
20	Optimise the traffic signals at the Tondu Rd/ Park Street/ Angel Street Junction.	4	6	2	32	1
1	Public health information campaign.	5	2	4	30	2
15	Anti-idling implemented as TROs specific to sensitive areas such as outside schools, hospitals, care homes, as well as Park Street AQMA.	5	4	2	30	2
18	Deny all access onto St Leonard's Road for all traffic movements.	4	5	2	28	3
6	Develop Supplementary Planning Guidance (SPG).	5	3	2	25	4

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	Cost 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	Air pollution reduction 10 = greatest air quality gain 1 = least air quality gain	Exposure reduction 10 = greatest exposure reduction 1 = least exposure reduction	Score = cost x benefit	Rank 1 = most cost benefit effective
16	Introduce a pilot scheme "20mph speed limit" to Park Street.	5	3	2	25	4
21	Implement a 4 phase junction (3 traffic, 1 pedestrian) at the Heol-y-Nant turning	3	6	2	24	5
7	Planning guidance for the provision of Electric Vehicle Charging Points.	5	3	1	20	6
2	Support the creation of a local "Air Quality Action Group".	5	2	1	15	7

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	Cost 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	Air pollution reduction 10 = greatest air quality gain 1 = least air quality gain	Exposure reduction 10 = greatest exposure reduction 1 = least exposure reduction	Score = cost x benefit	Rank 1 = most cost benefit effective
10	Implement 'smoke control zone' for Bridgend.	5	2	1	15	7
12	Encourage/ Facilitate homeworking.	5	2	1	15	7
17	Ghost right hand turn onto Heol-Y-Nant.	5	2	1	15	7
14	Park and Ride facilities to be implemented at strategic sites.	2	4	3	14	8
4	Electronic "pollutant signage" within AQMA and local area.	3	2	2	12	9

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	Cost 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	Air pollution reduction 10 = greatest air quality gain 1 = least air quality gain	Exposure reduction 10 = greatest exposure reduction 1 = least exposure reduction	Score = cost x benefit	Rank 1 = most cost benefit effective
5	Signs and banners for engine idling	3	2	2	12	9
11	School Active Travel Plans	4	2	1	12	9
22	Bus Programme- Strategic Bus Network.	3	2	2	12	9
3	Increase the monitoring capabilities of the Council.	4	1	2	12	9
19	Deny a through route movement from Angel Street onto Park Street.	4	2	1	12	9

Measure No.	Cost benefit (cost x [pollution reduction + exposure reduction] = score)					
	Measure	Cost 1 = >£1m 2 = £250k-1m 3 = £50k - 250k 4 = £10k - £50k 5 = <£10k	Air pollution reduction 10 = greatest air quality gain 1 = least air quality gain	Exposure reduction 10 = greatest exposure reduction 1 = least exposure reduction	Score = cost x benefit	Rank 1 = most cost benefit effective
8	Revise BCBC's Walking and Cycling Strategy.	5	1	1	10	10
9	Endorse SP19; Biodiversity and Development. Further influence the use of green infrastructure for new developments.	5	1	1	10	10
13	Work with local businesses to develop active travel to work programmes.	5	1	1	10	10

2 Air Quality Monitoring Data and Comparison with Air Quality Objectives

2.1 Summary of Monitoring Undertaken in 2020

2.1.1 Automatic Monitoring Sites

Sine 2017 an automatic monitoring location site has been in place at Soar Chapel, Rhiwceilog.

The Rhiwceilog monitoring site is managed and maintained by Rockwool Ltd. Within the monitoring unit is an API AMX monitor capable of giving continuous fifteen-minute averages of Sulphur Dioxide (SO₂) concentrations. Rockwool Environmental Officers have operated the continuous ambient SO₂ monitor since 2008/9. The equipment is calibrated by an Environment Officer at Rockwool on a fortnightly basis and serviced and maintained by Enviro Technology on a six-monthly basis. Data obtained is checked for validation and ratified by Rockwool's Environment Officer. In addition to this, the Rockwool environmental team manage 10 SO₂ diffusion tubes placed at 10 locations in the vicinity of the Rockwool Ltd site.

The location of the SO₂ automated monitor is shown in Figure 7 and details of the site are contained in Table 4. Due to continued compliance with the SO₂ air quality objectives appointed officers from Rockwool Ltd, BCBC and Natural Resources Wales (NRW) decided upon a new preferred location for the SO₂ automated monitoring station. On the 3rd October 2017 the monitoring was assigned to its new location in the vestry of Soar Chapel, Rhiwceilog. Rockwool Ltd continues to operate the SO₂ diffusion tube locations, which satisfies the improvement programme requirement IP5V.

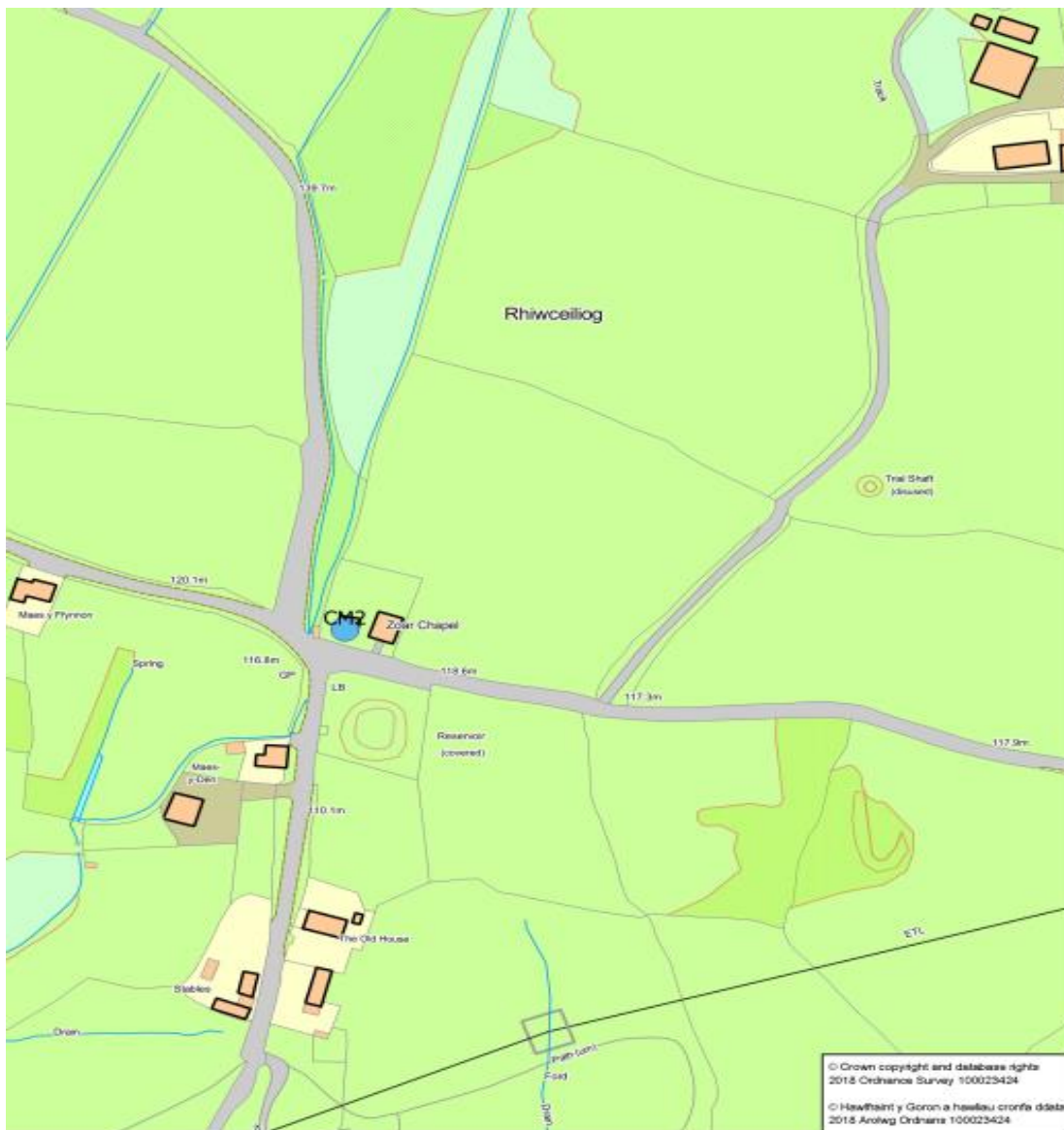
Bridgend County Borough Council

In December 2020, a new Automatic Monitoring Site was installed and commissioned at Quakers site, situated in the Park Street AQMA. The monitoring site measures on a 24/7 basis recording levels of nitrogen dioxide and PM₁₀, and forms part of the Welsh Air Quality Network. The results of this air quality monitoring can be viewed online at <http://www.welshairquality.co.uk>.

Table 4 - Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
CM2	Rockwool	Industrial	297232	184331	4.0	SO ₂	N	Automated continuous SO ₂ Analyser	1200m	7.5m	Y

Figure 7 - Map of Rockwool Automatic Monitoring Station (Vestry of Soar Chapel, Rhiwceiliog)



2.1.2 Non-Automatic Monitoring Sites

In 2020 there were 34 specifically allocated non automatic monitoring sites across Bridgend which monitored levels of nitrogen dioxide (NO₂). These sites are supported and maintained by SRS on behalf of the BCBC. The non-automatic sites do not provide live data; instead, they consist of diffusion tubes which are placed at each of the sites, collected and replaced on a rolling monthly basis. The results derived from the tube sampling are then averaged over the year to enable a comparison of the results against the annual average (40µg/m³) and 1-hour (200µg/m³ not to be exceeded > 18 times per year) air quality objectives for NO₂.

The NO₂ non-automatic monitoring network utilised in Bridgend almost mirrors that of the existing 2019 non-automated network, however new NO₂ monitoring points were commissioned at the following locations

- Coychurch Road, Brackla.
- Wern Fawr, close to the Rockwool complex.
- Mill Street, Maesteg.

With regards to prioritising ambient air quality sampling locations, the Council adopts a risk-based approach to any allocation of monitoring sites, considering the requirements of Local Air Quality Management Technical Guidance 16, February 2018. The designated monitoring locations have been assigned based on relevant exposure and where the certain Air Quality Objectives for a particular pollutant applies. The document states that annual mean objectives should apply at “All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc.”

NO₂ Diffusion Tube Locations

The location of the 11 areas where NO₂ monitoring took place in 2020 are:

- a. Tondu Road Roundabout at the Western End of the Bridgend Cross Valley Link Road (Figure 8- Area A).
- b. Ewenny Cross Roundabout (Figure 10- Area B),
- c. A473 Cowbridge Road (Figure 10 and 11- Area C).
- d. Bridgend town Centre (Figure 8- Area D).
- e. Park Street (Figure 8- Area E),
- f. Coity Road (Figure 8- Area F),
- g. Maesteg (Figure 12- Area G).
- h. Porthcawl (Figure 15- Area H),
- i. Pencoed (Figure 16- Area I); and
- j. Tremains Road (Figure 10- Area J)
- k. Coychurch Road, Brackla (Figure 11 – Area K)

Laboratory Methods and Analysis of Diffusion Tubes

Analysis of the exposed tubes is carried out by Socotec UK Ltd Didcot operating procedure ANU/SOP/1015. The tubes are prepared by spiking acetone:triethanolamine (50:50) on the grids prior to the tubes being assembled. The tubes are desorbed with distilled water and the extract analysed using a segmented flow auto analyser with ultraviolet detection. As set out in the practical guidance the results were initially calculated assuming an ambient temperature of 11°C and then adjusted to 20°C to allow direct comparison with EU limits. The national bias correction factor for this laboratory was utilised. Adopting best practice guidance and adopting a conservative approach a bias correction factor of 0.75 was obtained and applied using the Defra website which is available using the following link; <https://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>

Where valid data capture for the year is less than 75% (9 months), where necessary the continuous and NO₂ diffusion tube monitoring data have been “annualised” following the methods as described in Defra’s LAQM (TG16), Boxes 7.9 & 7.10.

Where an exceedance is measured at a monitoring site not representative of public exposure, NO₂ concentration at the nearest relevant exposure has been estimated based on the “NO₂ fall-off with distance” calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/NO2-falloff.html>). The procedure is described in LAQM (TG16), Section 7.77-7.

Table 5 - Details of Non-Automatic Monitoring Sites in Bridgend

Site ID	Area	Site Name	Site Type	X OS Grid Ref.	Y OS Grid Ref.	Site Height (m)	Pollutants Monitored	In AQMA	Co-located with a Continuous Analyser (Y/N)	Relevant Exposure? ¹ (Y/N with (m) to relevant exposure)	Distance to kerb of nearest road in metres	Worst- case Location?
TONDU ROAD ROUNDABOUT												
OBC-107	A	Tondu Road	Roadside	290347	179959	2.0	NO ₂	N	N	(Y) 0.00	2.00	Y
OBC-108	A	Tondu Road	Kerbside	290311	180032	2.0	NO ₂	N	N	(Y) 0.00	0.90	Y
EWENNY CROSS ROUNDABOUT												

OBC-088	B	A48 Bypass, Bridgend- Co-Location Study 1	Roadside	290566	178566	2.0	NO ₂	N	Y	(Y) 0.00	2.20	Y
OBC-089	B	A48 Bypass, Bridgend- Co-Location Study 2	Roadside	290566	178566	2.0	NO ₂	N	Y	(Y) 0.00	2.20	Y
OBC-090	B	A48 Bypass, Bridgend- Co-Location Study 3	Roadside	290566	178566	2.0	NO ₂	N	Y	(Y) 0.00	2.20	Y
OBC-113	B	Priory Avenue	Roadside	290616	178394	2.0	NO ₂	N	N	(Y) 0.00	10.00	Y
OBC-114	B	Ewenny Road	Roadside	290699	178596	2.0	NO ₂	N	N	(Y) 0.00	23.00	Y
OBC-115	B	Ewenny Road	Roadside	290667	178529	2.0	NO ₂	N	N	(Y) 0.00	12.00	Y
NOLTON STREET/ EWENNY CROSS LINK/ A473 COWBRIDGE ROAD												

OBC-105	C	Cowbridge Road	Roadside	290899	179185	2.0	NO ₂	N	N	(Y) 0.00	4.10	Y
OBC-106	C	Cowbridge Road	Kerbside	290826	179210	2.0	NO ₂	N	N	(N) 3.30	0.90	N
OBC-111	C	Cowbridge Road	Roadside	290700	179305	2.0	NO ₂	N	N	(Y) 0.00	4.95	Y
OBC-112	C	Cowbridge Road	Kerbside	290798	179244	2.0	NO ₂	N	N	(Y) 0.00	0.90	Y
OBC-121	C	Cowbridge Road	Roadside	291540	178734	2.0	NO ₂	N	N	(Y) 0.00	5.00	Y
BRIDGEND TOWN CENTRE												
OBC-101	D	Bridgend town Centre	Urban Centre	290469	179837	2.0	NO ₂	N	N	(Y) 0.00	1.0	Y
PARK STREET												
OBC-102	E	Sunnyside Street	Roadside	290354	179807	2.0	NO ₂	N	N	(Y) 0.00	2.95	Y

OBC-103	E	Park Street	Roadside	290250	179782	2.0	NO ₂	Y	N	(Y) 0.00	1.20	Y
OBC-104	E	Park Street	Roadside	290286	179800	2.0	NO ₂	Y	N	(Y) 0.00	1.05	Y
OBC-109	E	Park Street	Roadside	290239	179795	2.0	NO ₂	Y	N	(Y) 0.00	7.50	Y
OBC-110	E	Park Street	Kerbside	289988	179701	2.0	NO ₂	Y	N	(Y) 0.00	0.90	Y
OBC- 122	E	St Leonards Road	Kerbside	289919	179755	2.0	NO ₂	N	N	(N) 4.00	1.0	N
OBC- 123	E	Park Street	Roadside	290014	179698	2.0	NO ₂	Y	N	(Y) 0.00	0.9	Y
OBC- 124	E	Park Street	Roadside	289859	179710	2.0	NO ₂	N	N	(Y) 0.00	7.0	Y
COITY ROAD												
OBC-097	F	Coity Road, Bridgend	Roadside	290687	180185	2.0	NO ₂	N	N	(Y) 0.00	5.30	Y
OBC-098	F	Coity Road, Bridgend	Roadside	290681	180198	2.0	NO ₂	N	N	(Y) 0.00	4.20	Y
OBC-099	F	Coity Road, Bridgend	Roadside	290663	180251	2.0	NO ₂	N	N	(Y) 0.00	5.60	Y

OBC-100	F	Coity Road, Bridgend	Roadside	290623	180374	2.0	NO ₂	N	N	(Y) 0.00	4.10	Y
MAESTEG TOWN CENTRE												
OBC-125	G	Commercial Street, Maesteg	Roadside	285299	191136	2.0	NO ₂	N	N	(Y) 0.00	2.00	Y
OBC-128	G	Mill Street, Maesteg	Roadside	286218	189805	2.0	NO ₂	N	N	(Y) 0.00	2.00	Y
PORTHCAWL												
OBC-120	H	New Road. Porthcawl	Kerbside	282264	177237	2.0	NO ₂	N	N	(Y) 0.00	0.90	Y
PENCOED												
OBC-116	I	Hendre Road, Pencoed	Kerbside	295886	181642	2.0	NO ₂	N	N	(Y) 0.00	0.90	Y
OBC-117	I	Hendre Road, Pencoed	Roadside	295641	181687	2.0	NO ₂	N	N	(Y) 0.00	8.40	Y

OBC-129	I	Wern Fawr (Near Rockwool)	Urban Background	296439	184111	50	NO ₂	N	N	(Y) 0.00	N/A	Y
TREMAINS ROAD												
OBC-126	J	Tremains Road	Roadside	291125	179517	2.0	NO ₂	N	N	(Y) 0.00	8.20	Y
COYCHURCH ROAD, BRACKLA												
OBC-127	K	Coychurch Road	Roadside	292236	179473	2.0	NO ₂	N	N	(Y) 0.00	2.0	Y

Figure 8 - Map of NO₂ Monitoring Locations in Park Street AQMA / Tondu Road / Bridgend Town Centre and Coity Road

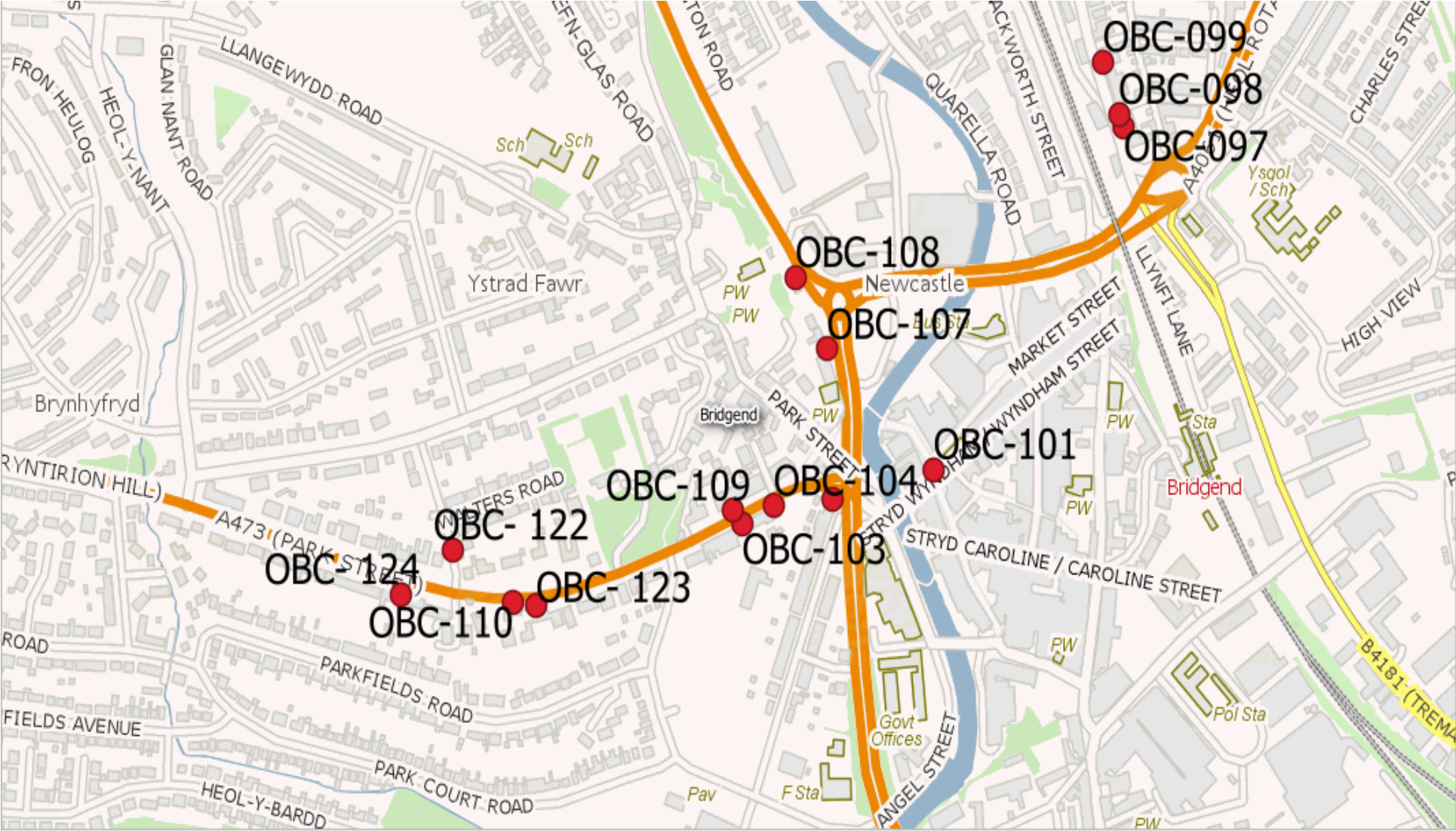


Figure 9 - Map of NO₂ Monitoring Locations Ewenny Cross Roundabout / Cowbridge Road



Figure 10 - Map of NO₂ Monitoring Locations Cowbridge Road / Tremains Road



Figure 11 - Map of NO₂ Monitoring Location Coychurch Road, Brackla

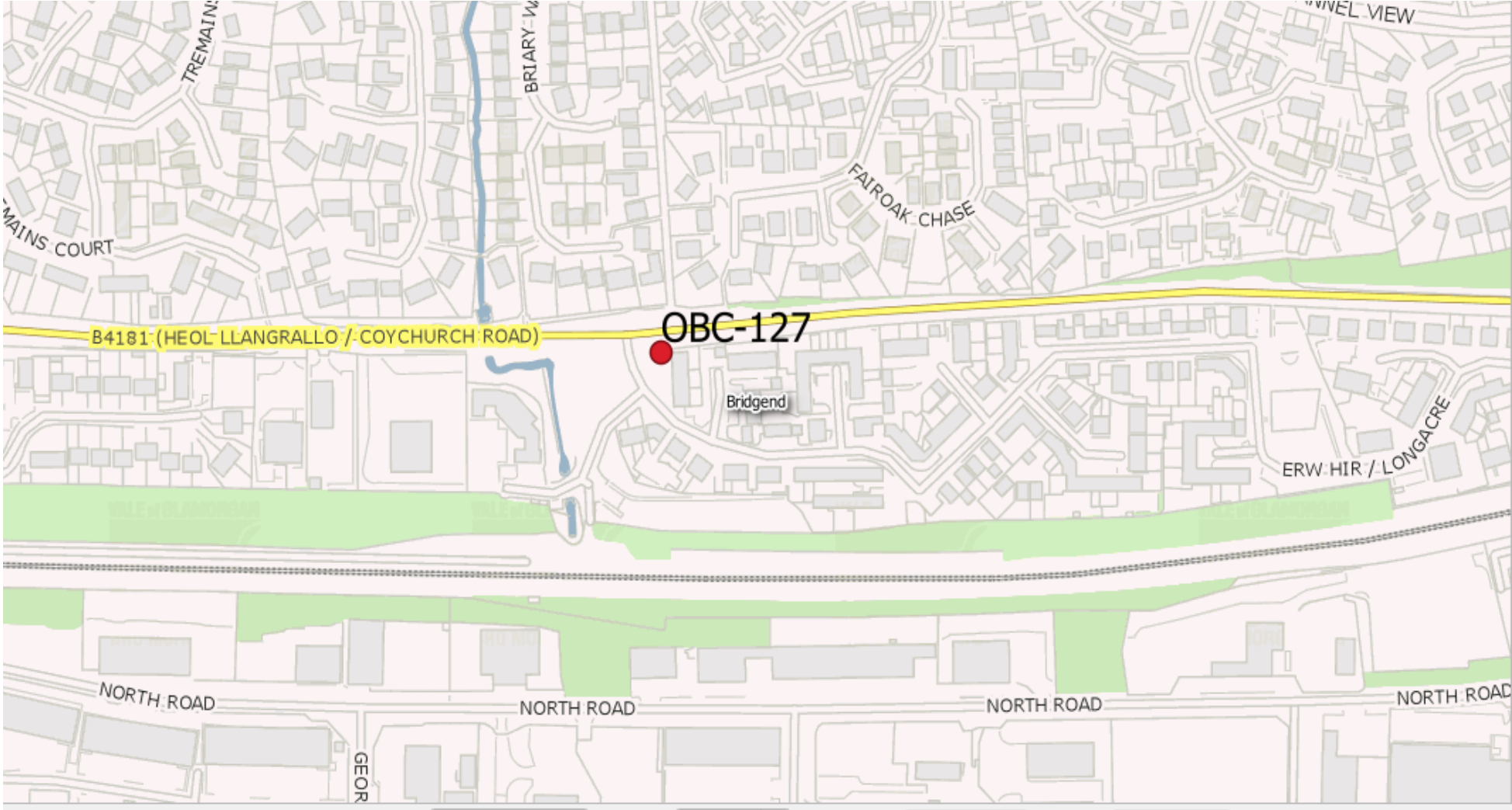


Figure 12 - Map of NO₂ Monitoring Locations Commercial Street, Maesteg



Figure 13 - Map of NO₂ Monitoring Location Mill Street, Maesteg



Figure 14 - Map of NO₂ Monitoring location New Road, Porthcawl



Figure 15 - Map of NO₂ Monitoring Locations Hendre Road, Pencoed

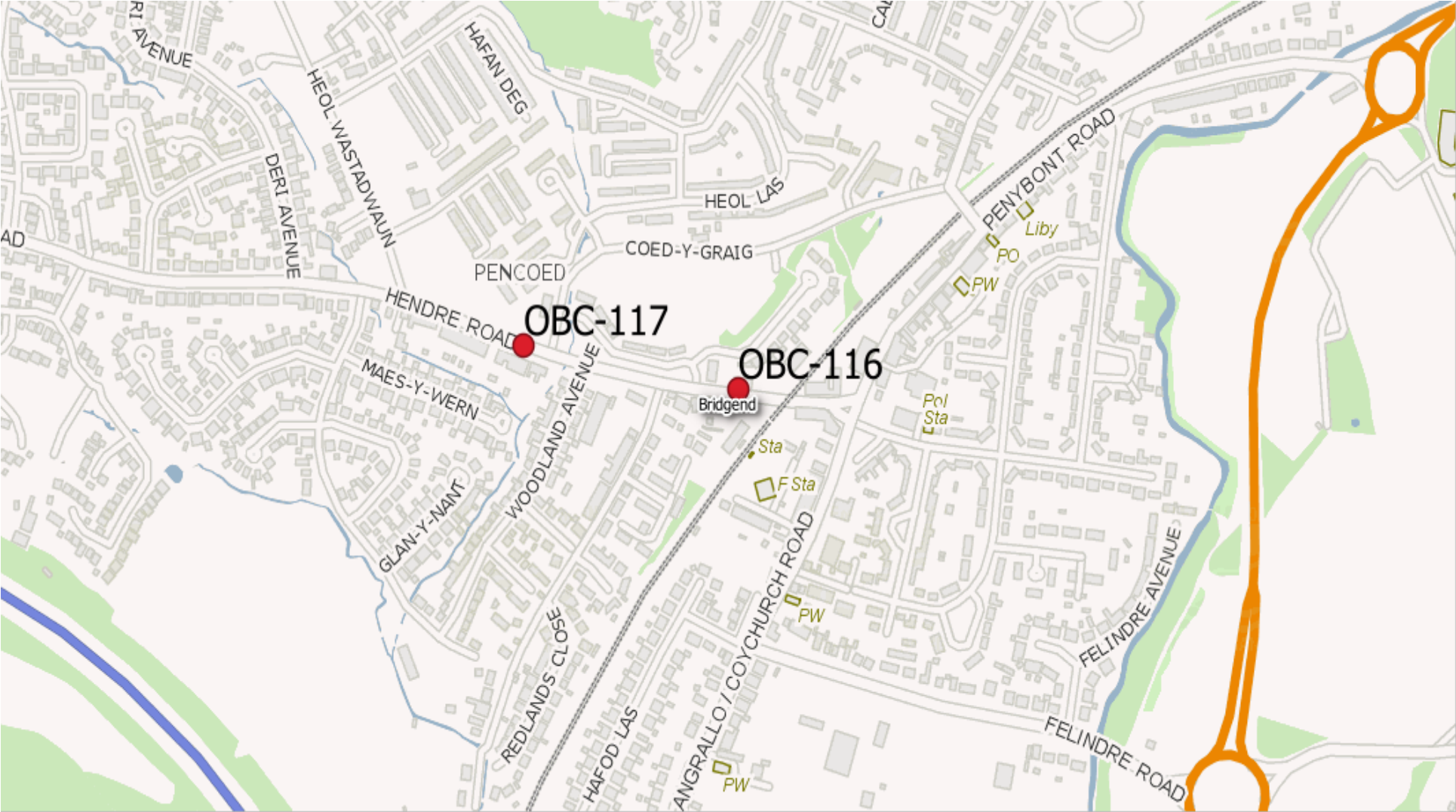


Figure 16 - Map of NO₂ Monitoring Locations Wern Fawr



2.2 2020 Air Quality Monitoring Results

Table 6 - Annual Mean NO₂ Monitoring Concentrations A473 Cowbridge Road

Site ID	Site Type	Monitoring Type	Valid Data Capture 2020 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
A473 COWBRIDGE ROAD										
OBC-105	Roadside	Diffusion Tube	83	N	-	-	24.6	22.6	21.2	16.1
OBC-106	Kerbside	Diffusion Tube	75	N	-	-	30.4/ 25.2 ^(2 & 3)	26.7 ^(2 & 3)	24 ⁽³⁾	25.8
OBC-111	Roadside	Diffusion Tube	83	N	-	-	-	26.2	25.8	19.7
OBC-112	Kerbside	Diffusion Tube	67	N	-	-	-	32.1 ⁽²⁾	36.2 ⁽²⁾	23.7 ⁽²⁾
OBC-121	Roadside	Diffusion Tube	83	N	-	-	-	-	18.5	14.9

Table 7 - Annual Mean NO₂ Concentrations Ewenny Cross Roundabout

Site ID	Site Type	Monitoring Type	Valid Data Capture 2020 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
EWENNY CROSS ROUNDABOUT										
OBC-088	Roadside	Diffusion Tube	83	N	21	21	20.3	21.5	19.6	14.5
OBC-089	Roadside	Diffusion Tube	75	N	21	23	21.8	21	20.3	14.8
OBC-090	Roadside	Diffusion Tube	83	N	23	21	19.5	20.9	20.3	15.1
OBC-113	Roadside	Diffusion Tube	83	N	-	-	-	15.9	14.7	12.2
OBC-114	Roadside	Diffusion Tube	33	N	-	-	-	18	20	20.3 ⁽²⁾
OBC-115	Roadside	Diffusion Tube	83	N	-	-	-	22.3	20.9	16.3

Table 8 - Annual Mean NO₂ Concentrations Bridgend Town Centre

Site ID	Site Type	Monitoring Type	Valid Data Capture 2020 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
BRIDGEND TOWN CENTRE										
OBC-101	Urban Centre	Diffusion Tube	50	N	-	-	18.1 ⁽²⁾	17.9	18.6	13.6 ⁽²⁾

Table 9 - Annual Mean NO₂ Concentrations Park Street / Tondu Road Roundabout

Site ID	Site Type	Monitoring Type	Valid Data Capture 2020 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
PARK STREET										
OBC-102	Roadside	Diffusion Tube	75	N	-	-	23.7	23.5	23.9	18.3
OBC-103	Roadside	Diffusion Tube	75	Y	-	-	37.6	36.3 ⁽²⁾	37.1	30.4
OBC-104	Roadside	Diffusion Tube	67	Y	-	-	41.5	37.9 ⁽²⁾	39.8	29.8 ⁽²⁾
OBC-109	Roadside	Diffusion Tube	50	Y	-	-	-	20.6	19.9	20.1 ⁽²⁾
OBC-110	Kerbside	Diffusion Tube	83	Y	-	-	-	58.9 ⁽²⁾	53.7	43.6
OBC-122	Kerbside	Diffusion Tube	75	N	-	-	-	-	16.7	15.2
OBC-123	Roadside	Diffusion Tube	75	Y	-	-	-	-	55.2	42.4
OBC-124	Roadside	Diffusion Tube	83	N	-	-	-	-	16.6	12.9
TONDU ROAD ROUNDABOUT										
OBC-107	Roadside	Diffusion Tube	92	N	-	-	-	31.7	32	24.3
OBC-108	Kerbside	Diffusion Tube	100	N	-	-	-	38.5	36.2	27.5

Table 10 - Annual Mean NO₂ Concentrations Coity Road

Site ID	Site Type	Monitoring Type	Valid Data Capture 2020 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
COITY ROAD										
OBC-097	Roadside	Diffusion Tube	83	N	-	-	26.3	24.6	24.8	19.5
OBC-098	Roadside	Diffusion Tube	58	N	-	-	24	17	23.2	18.3 ⁽²⁾
OBC-099	Roadside	Diffusion Tube	83	N	-	-	23.8	15.1	22.2	17.9
OBC-100	Roadside	Diffusion Tube	83	N	-	-	24.1	17.8	22.8	17.5

Table 11 - Annual Mean NO₂ Concentrations Maesteg

Site ID	Site Type	Monitoring Type	Valid Data Capture 2020 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
MAESTEG										
OBC-125	Roadside	Diffusion Tube	67	N	-	-	-	-	18.8	19.3 ⁽²⁾
OBC-128	Roadside	Diffusion Tube	67	N	-	-	-	-	-	11 ⁽²⁾

Table 12 - Annual Mean NO₂ Concentrations Porthcawl

Site ID	Site Type	Monitoring Type	Valid Data Capture 2020 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
PORTHCAWL										
OBC-120	Kerbside	Diffusion Tube	58	N	-	-	-	15.1	16	10.9 ⁽²⁾

Table 13 - Annual Mean NO₂ Concentrations Pencoed / Wern Fawr

Site ID	Site Type	Monitoring Type	Valid Data Capture 2019 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
PENCOED										
OBC-116	Kerbside	Diffusion Tube	83	N	-	-	-	22.1	20.8	15.8
OBC-117	Roadside	Diffusion Tube	83	N	-	-	-	16.7	16.9	12.8
OBC-129	Urban Background	Diffusion Tube	83	N	-	-	-	-	-	9.1

Table 14 - Annual Mean NO₂ Concentrations Tremains Road / Coychurch Road Brackla

Site ID	Site Type	Monitoring Type	Valid Data Capture 2020 (%) ⁽¹⁾	Within AQMA?	Annual Mean Concentration (µg/m ³) ⁽²⁾					
					2015 (Bias Adjustment Factor = 0.81)	2016 (Bias Adjustment Factor = 0.78)	2017 (Bias Adjustment Factor = 0.77)	2018 (Bias Adjustment Factor = 0.76)	2019 (Bias Adjustment Factor = 0.75)	2020 (Bias Adjustment Factor = 0.76)
TREMAINS ROAD										
OBC-126	Roadside	Diffusion Tube	83	N	-	-	-	-	19.7	17.2
COYCHURCH ROAD BRACKLA										
OBC-127	Roadside	Diffusion Tube	83	N	-	-	-	-	-	15.1

Notes:

(1) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(2) Diffusion tube data has been “bias adjusted” in accordance with Box 7.11 in LAQM.TG16 and “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details

(3) Diffusion tube data has been corrected for distance to represent relevant exposure in accordance with Sections 7.77- 7.79 in LAQM.TG16 “Fall-off in NO₂ concentrations with Distance from the Road.

Figure 17 - Trends in Annual Mean NO₂ Concentrations Park Street AQMA

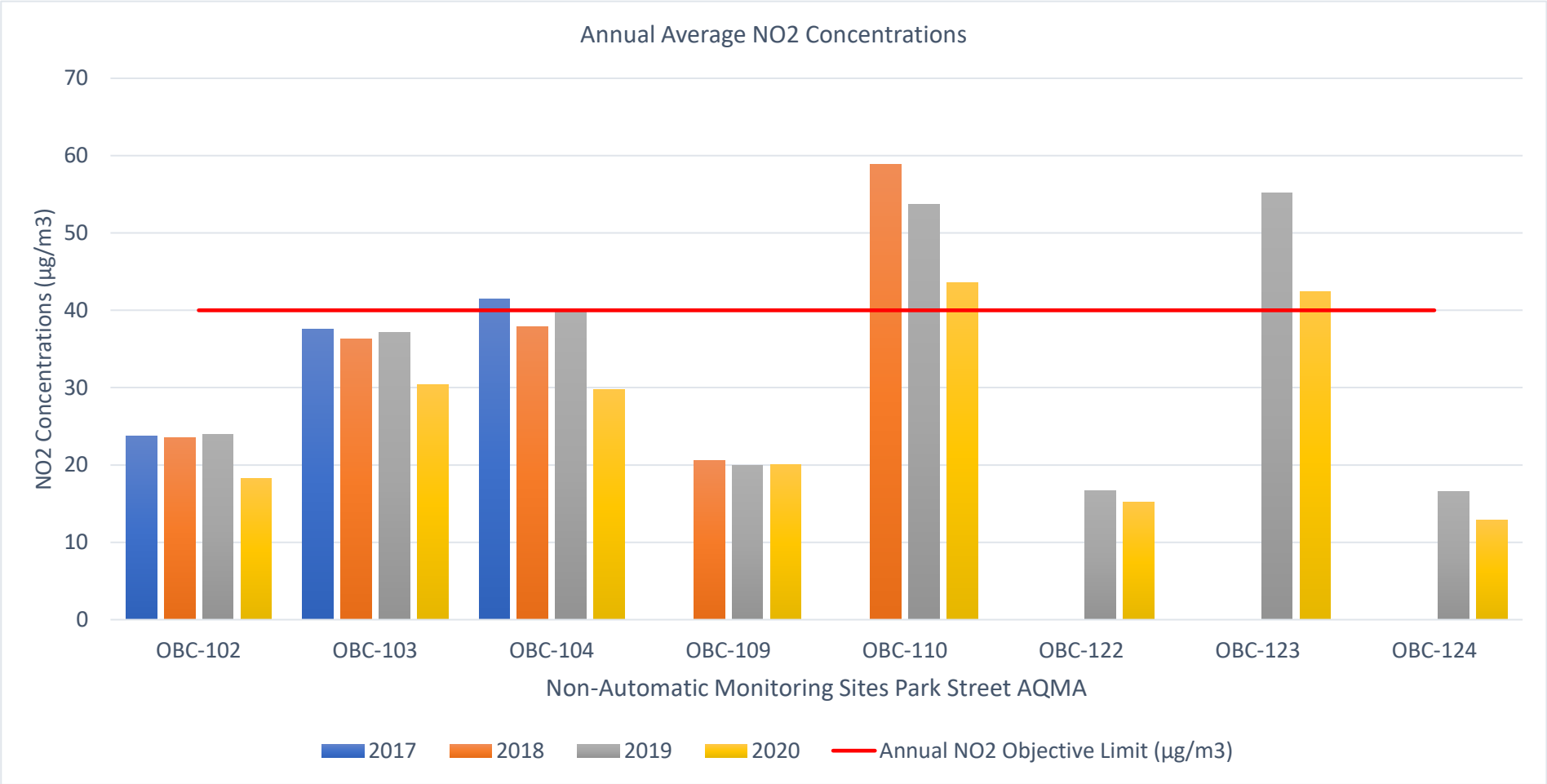


Figure 17 shows exceedances of the Annual NO₂ Objective of 40µg/m³ at 3 sites in Park Street since 2017

Figure 18 - Trends in Annual NO₂ Concentrations Tondu Road Roundabout

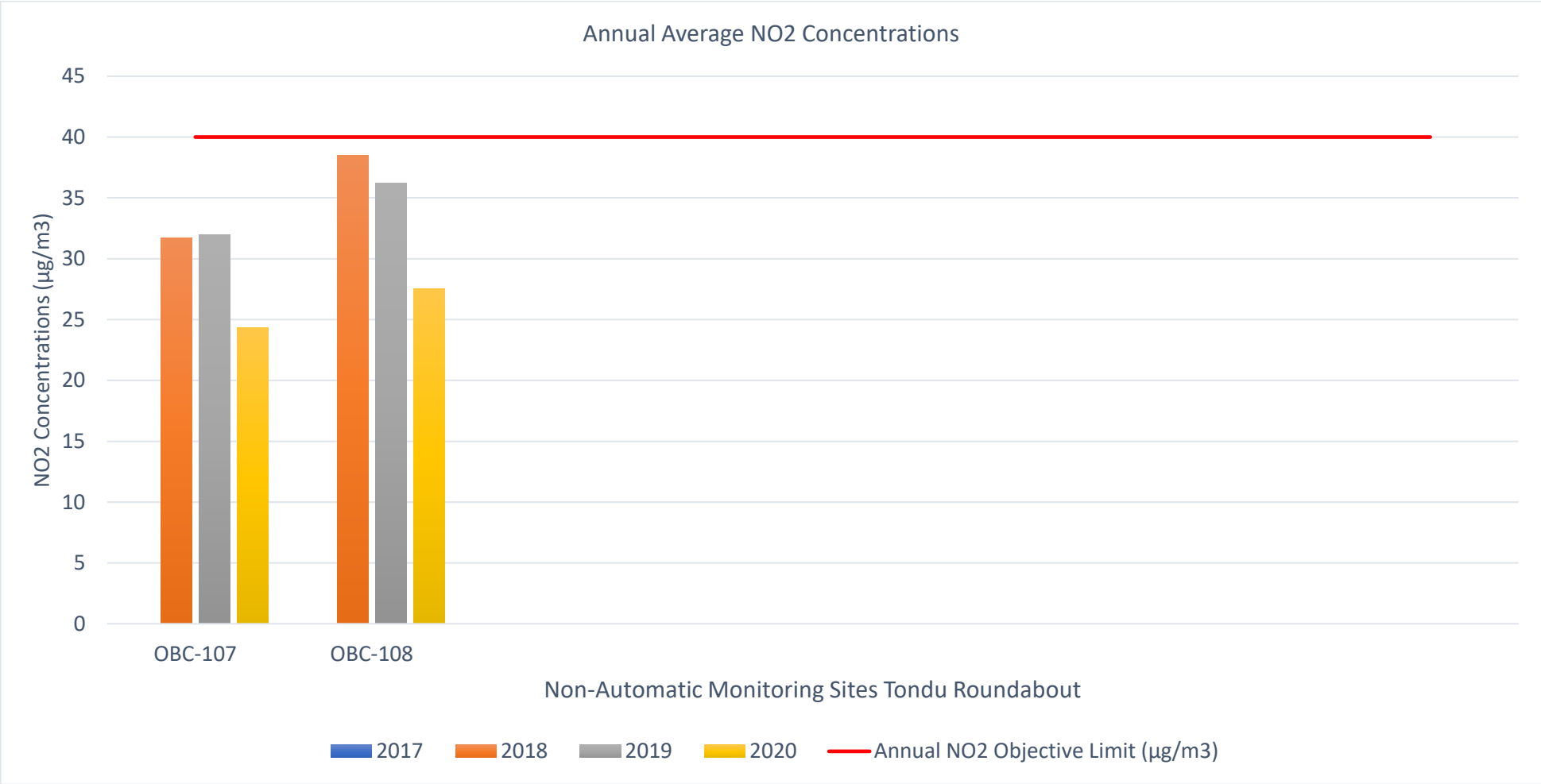


Figure 18 shows compliance to the Annual NO₂ Objective of 40µg/m³ at all sites in Tondu Road Roundabout since 2018

Figure 19 - Trends in Annual NO₂ Concentrations A473 Cowbridge Road

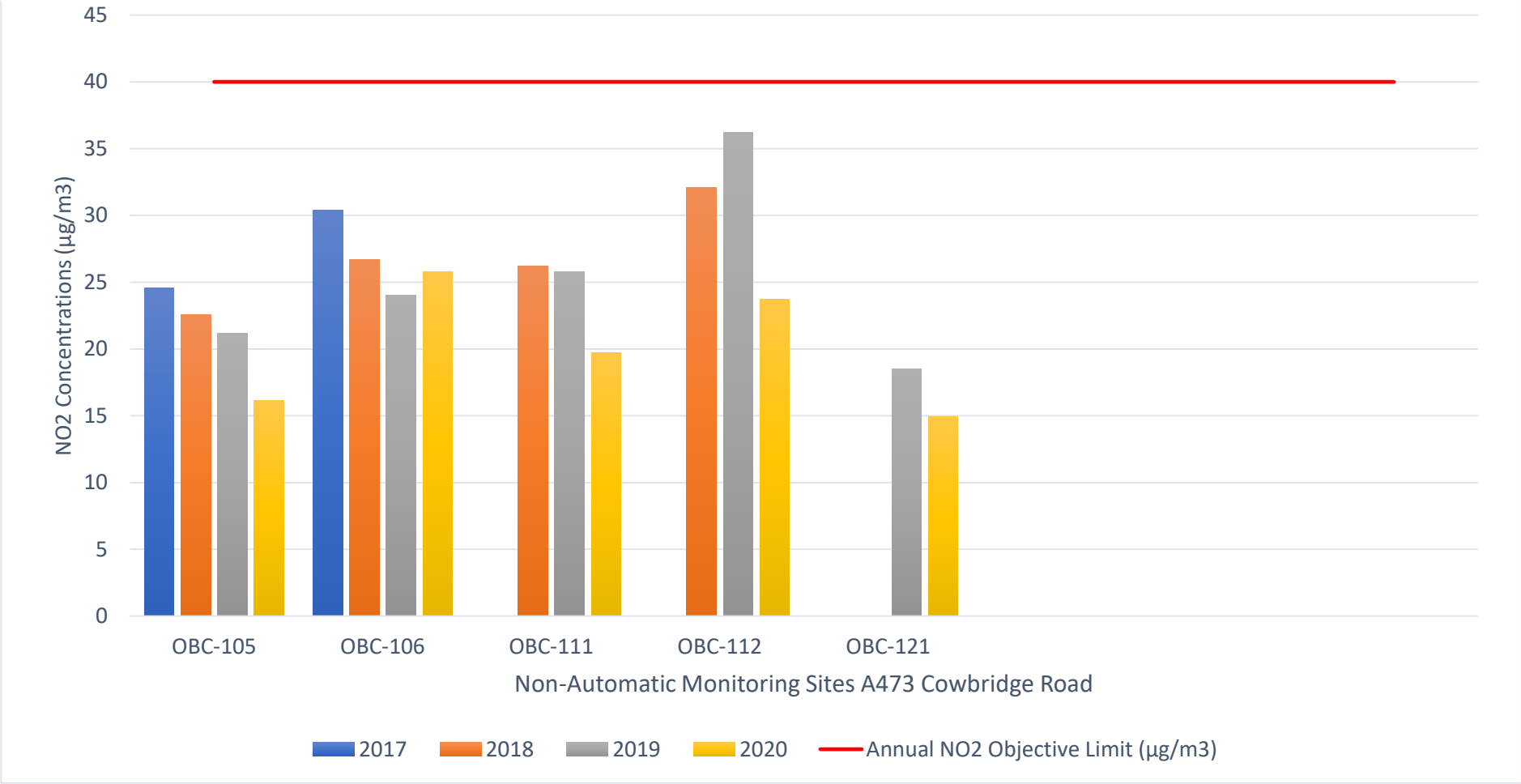


Figure 19 shows compliance to the Annual NO₂ Objective of 40µg/m³ at all sites in A473 Cowbridge Road since 2017

Figure 20 - Trends in Annual NO₂ Concentrations Ewenny Cross Roundabout

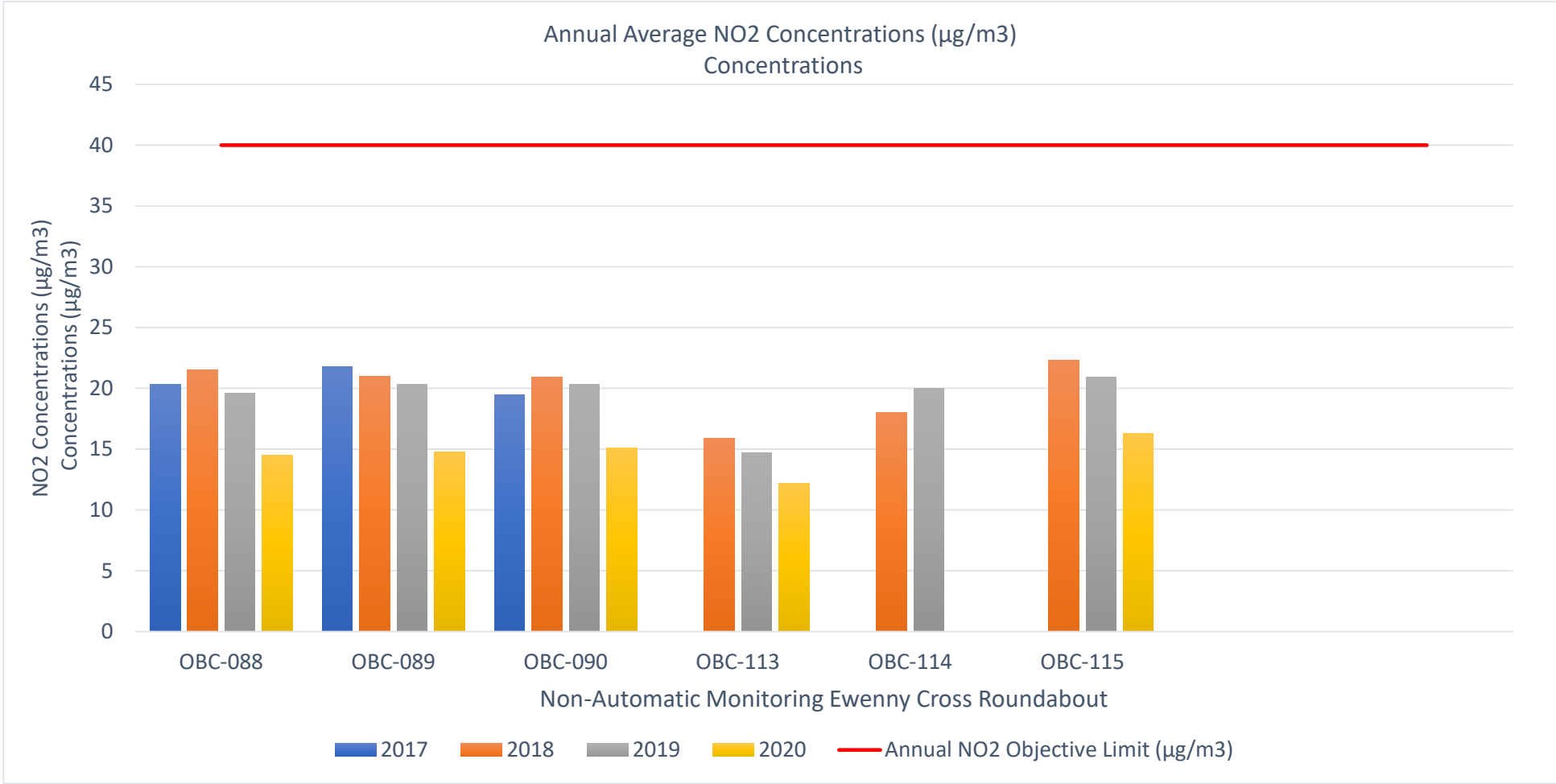


Figure 20 shows compliance to the Annual NO₂ Objective of 40µg/m³ at all sites in Ewenny Cross Roundabout since 2017

Figure 21 - Trend in Annual Mean NO₂ Concentrations at Bridgend City Centre/ Coity Road / Tremains Road / Coychurch Road

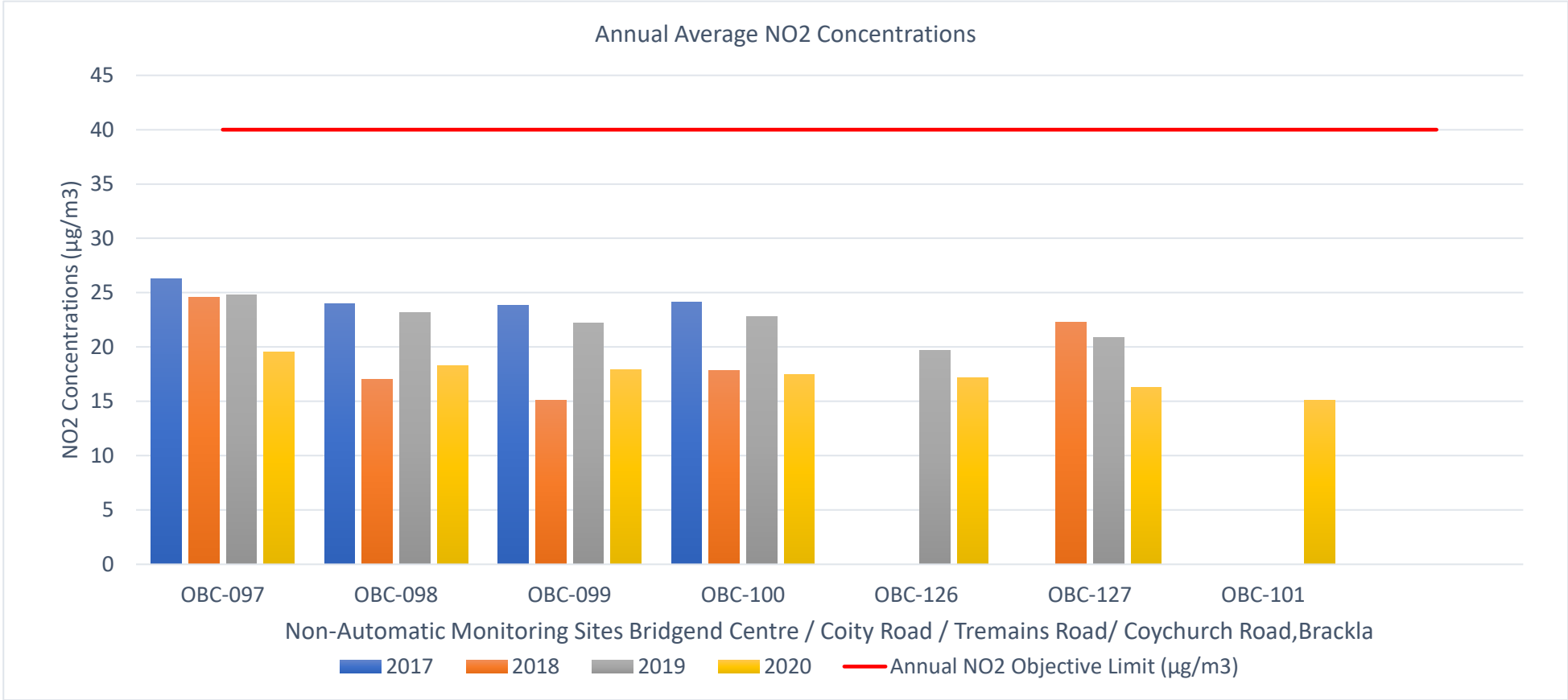


Figure 21 shows compliance to the Annual NO₂ Objective of 40µg/m³ at all sites in Bridgend Centre / Coity Road / Tremains Road and Coychurch Road, Brackla since 2017

Figure 22 - Trends in Annual NO₂ Concentrations Pencoed / Wern Fawr

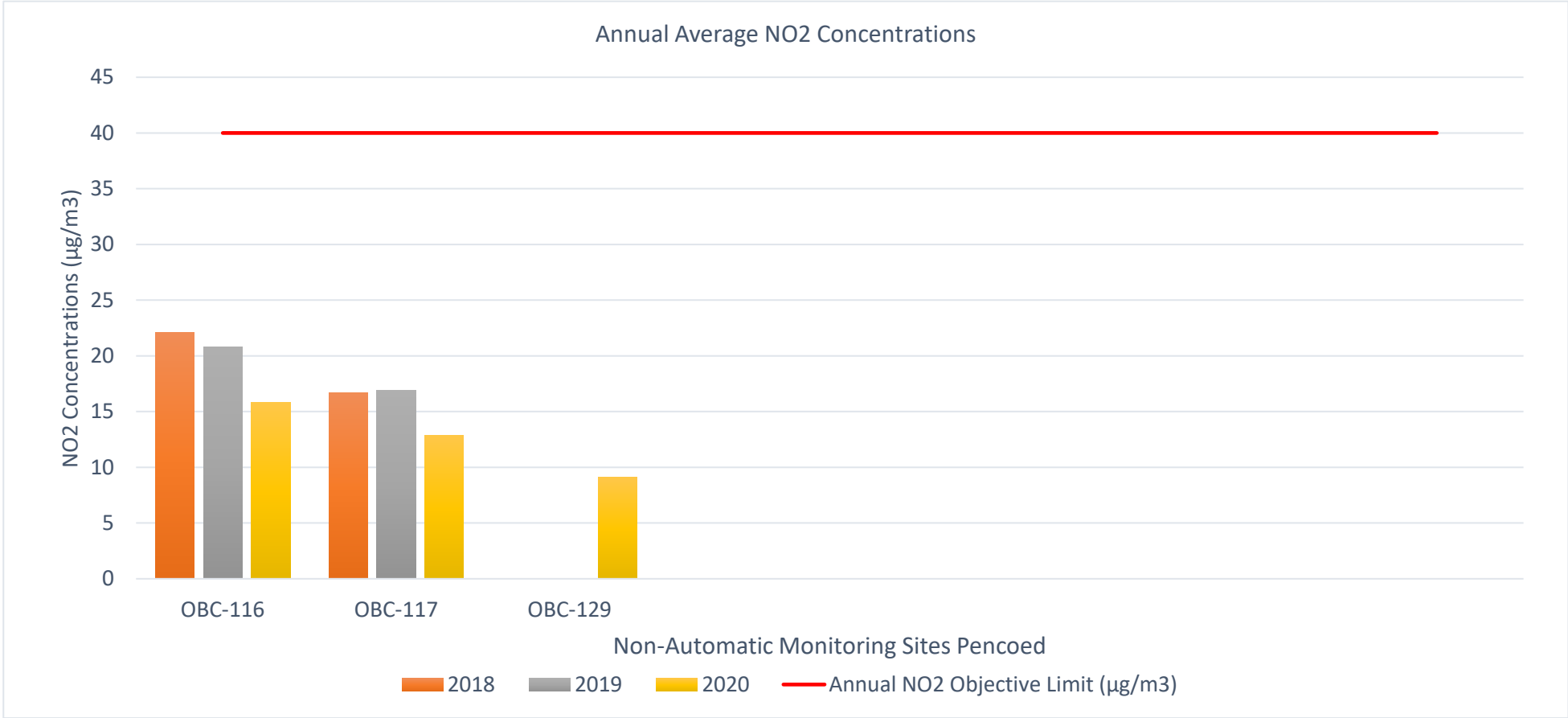


Figure 22 shows compliance to the Annual NO₂ Objective of 40µg/m³ at all sites in Pencoed since 2018

Figure 23 - Trend in Annual NO₂ Concentrations Maesteg

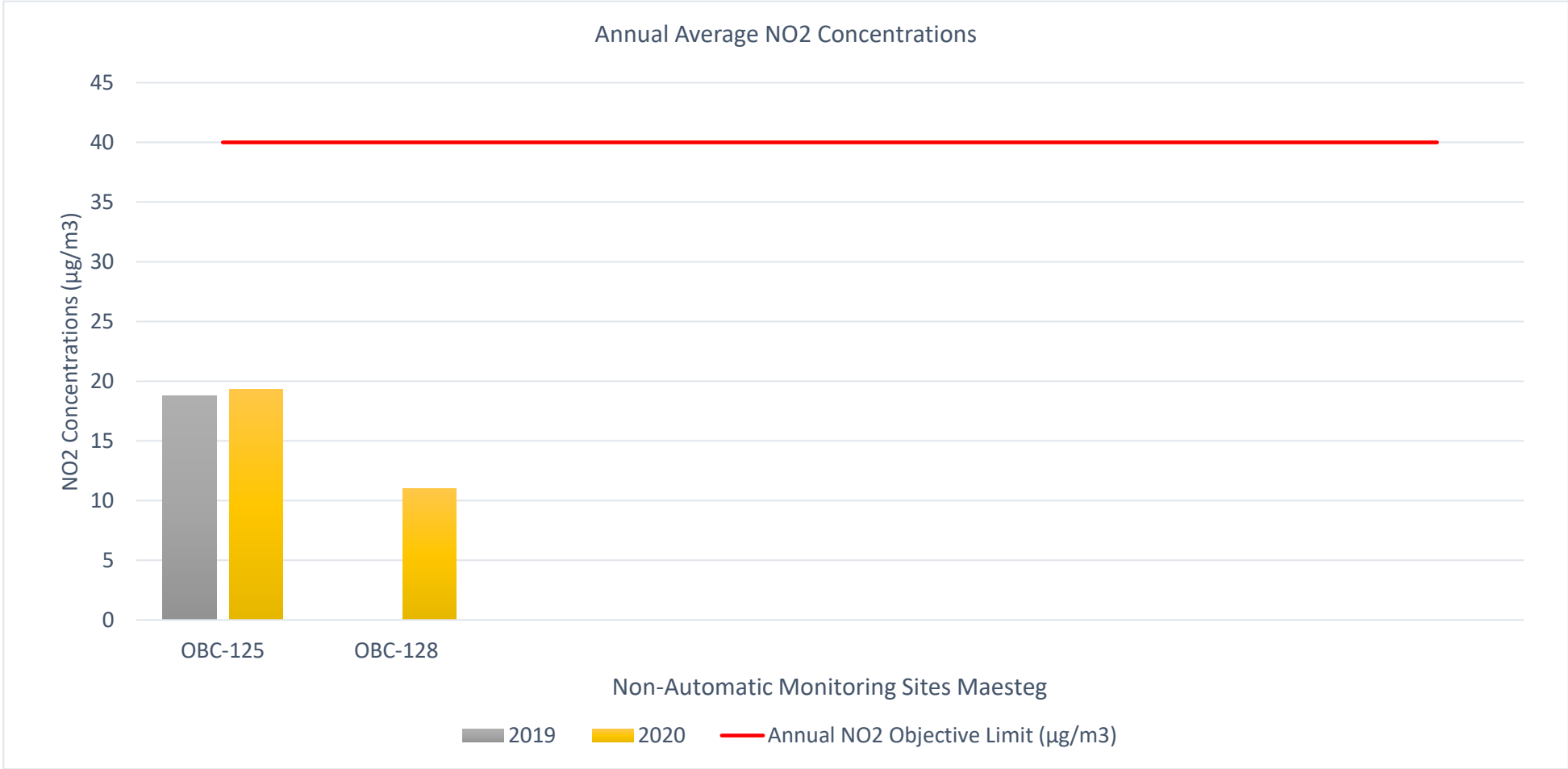


Figure 23 shows compliance to the annual NO₂ Objective of 40µg/m³ at all sites in Maesteg since 2019

Figure 24 - Trends in Annual NO₂ Concentrations Porthcawl

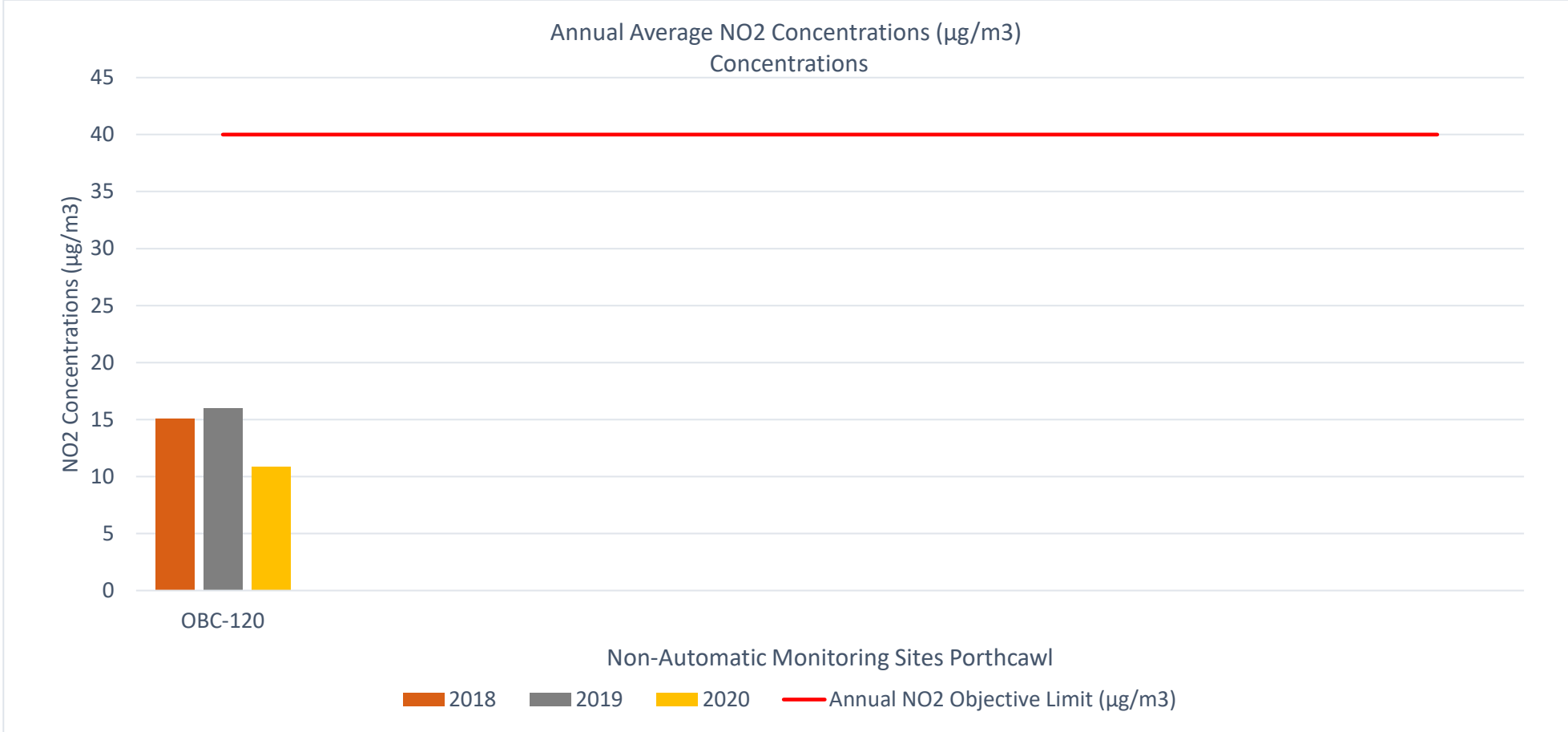


Figure 24 shows compliance to the Annual NO₂ Objective of 40µg/m³ at all sites in Porthcawl since 2018

Table 15 - Annual SO₂ Exceedances from Rockwool Automatic Monitoring Station

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2020 (%) ⁽²⁾	Number of Exceedances (percentile in bracket µg/m ³)		
					15-minute Objective (266 µg/m ³)	1-hour Objective (350 µg/m ³)	24-hour Objective (125 µg/m ³)
CM2	Industrial	N	100	83.4	NR ⁽³⁾	4	0

Notes:

Exceedances of the SO₂ mean objectives are shown in bold.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) NR given due to the fact a 15 min recording interval download could not be obtained

(4) In accordance with LAQM.TG16, due to the fact data capture is <85% it is a requirement to report the 99.7th percentile for 1 hour SO₂

(5) In accordance with LAQM.TG16, due to the fact data capture is <85% it is a requirement to report the 99.2nd percentile for 24 hour SO₂

2.3 Comparison of 2020 Monitoring Results with Previous Years and the Air Quality Objectives

During 2020 monitoring was carried out for nitrogen dioxide (NO₂) and sulphur dioxide (SO₂).

2.3.1 Nitrogen Dioxide (NO₂)

Nitrogen dioxide was measured during 2020 by a network of 34 passive diffusion tubes.

In order to ratify the 2020 diffusion tube dataset, a bias adjustment factor of 0.76 was applied to the annual average readings. The factor was derived from the Defra website which gave the average correction factor from 42 co-location studies across the UK, whereby the analytical laboratory and method used was the same as BCBC, in this instance Socotec UK Ltd, Didcot.

Non- automated Monitoring Data

Annual average datasets outline continued elevated and exceeding levels of NO₂ at sensitive receptor locations situated on Park Street within the established AQMA Order boundary. It is noted that monitoring undertaken in 2020 at sites OBC-110 & OBC-123, located on Park Street, demonstrates annual average levels in exceedance of the annual average air quality objective set at (40µg/m³) for NO₂. The annual average figure examined at sites OBC-110 & OBC-123 are calculated at **43.6µg/m³ & 42.4µg/m³**.

It is essential that these monitoring levels are closely examined, and suitable action is taken where necessary. Such action may involve amendments to the AQMA Order including revisions of the geographical boundary to encapsulate a wider area and reasoning for declaration.

2.3.2 Sulphur Dioxide (SO₂)

Monitoring of SO₂ has continued to be carried out by Rockwool Ltd in the Rhiwceilog area of Bridgend. Monitoring has been carried out using an API AMX monitor capable of giving continuous fifteen-minute averages of SO₂ concentrations. The equipment is calibrated by an Environment Officer at Rockwool and serviced and maintained by an approved contractor on a six-monthly basis. Data obtained is checked for validation and ratified by Rockwool's Environment Officer.

The total data capture for 2020 was 83.4%. There were 4 exceedances of the 1-hour objective (350µg/m³, not to be exceeded more than 24 times a year), and none for the 24-hour objective during this time period. With regards to the 15-minute SO₂ objective a NR result is provided due to the fact a 15 minute interval download was not available upon the request for datasets.

2.4 Summary of Compliance with AQS Objectives as of 2020

SRS have reviewed the results from the monitoring undertaken across Bridgend in 2020.

Despite the examined non-compliant annual average NO₂ levels recorded within the Park Street, Bridgend AQMA (OBC-110 & OBC-123), all automated and non-automated datasets show compliance with the air quality objectives at **every other monitored location**.

3 New Local Developments

3.1.1 Road Traffic Sources (and Other Transport)

SRS on behalf of BCBC can confirm that there are no new significant developments since the Progress Report in 2019.

3.1.2 Narrow Congested Streets with Residential Properties Close to the Kerb

SRS on behalf of the BCBC has considered road traffic sources extensively in both this and earlier reports; the monitoring network is very largely focused on measuring concentrations of nitrogen dioxide close to many of them. These have been discussed either in previous reports or earlier in this report.

There are no newly identified road traffic sources which need to be considered.

For 2020 SRS on behalf of the BCBC confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.1.3 Busy Streets Where People May Spend 1-hour or closer to Traffic

SRS on behalf of the BCBC confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.1.4 Roads with a High Flow of Buses and/or HGVs.

SRS on behalf of the BCBC confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.1.5 Junctions

Junctions have been fully considered in previous annual reviews and assessments. SRS on behalf of the BCBC can confirm that there are no new/newly identified busy junctions/busy roads where exceedances of either the NO₂ or PM₁₀ objectives are likely.

3.1.6 Roads with Significantly Changed Traffic Flows

The criteria for assessing roads with significantly changed traffic flows are set out in Table 7.1, row/point 6 of Defra's LAQM TG (16), 2018. Predictions of increased traffic do not approach 25% on roads with more than 10,000 vpd.

SRS on behalf of the BCBC confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.1.7 Bus and Coach Stations

SRS on behalf of the BCBC confirms that there are no relevant bus stations in the Local Authority area.

3.1.8 Airports

SRS on behalf of BCBC confirms that there are no airports in the Local Authority area. However, a small quantity of air traffic now traverses the south eastern part of the County Borough prior to its

final approach to Cardiff International airport, Rhose. It is unlikely that the emissions from the aircraft, in view of this small number, will have a significant effect on air quality in Bridgend.

3.1.9 Stationary Trains

SRS on behalf of BCBC confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

3.1.10 Moving Trains

LAQM TG(09) introduced a new requirement to assess the potential for exceedance of nitrogen dioxide objectives. The assessment criteria are in relation to large numbers of diesel locomotive movements where there is relevant exposure within 30metres of the track in areas where the background annual mean concentration of nitrogen dioxide is above $25\mu\text{m}^3$.

SRS on behalf of the BCBC confirms that there are no locations with many movements of diesel locomotives, and potential long-term relevant exposure within 30m.

3.1.11 Ports (Shipping)

SRS on behalf of the BCBC confirms that there are no ports or shipping that meets the specified criteria within the Local Authority area.

3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

3.2.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

SRS on behalf of BCBC has assessed new/proposed industrial installations and concluded that no further air quality analysis via a detailed air quality assessment is necessary.

3.2.2 Existing Installations where Emissions have Increased Substantially, or New Relevant Exposure has been introduced

SRS on behalf of the BCBC can confirm there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

3.2.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

There are no new or significantly changed industrial installations for which previous air quality assessments have not been carried out and which could give rise to potentially significant emissions of regulated pollutants either within Bridgend or within neighbouring local authorities.

SRS on behalf of the BCBC can confirm that there are new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

3.2.4 Major Fuel (Petrol) Storage Depots

SRS on behalf of the BCBC can confirm that there are major fuel (petrol) storage depots within the Local Authority area, but these have been considered in previous reports.

3.2.5 Petrol Stations

There are no new petrol stations in the Bridgend with throughputs greater than 2000m³ per annum with a busy road nearby where there is relevant exposure within 10m of the pumps.

SRS on behalf of the BCBC can confirm that there are no petrol stations meeting the specified criteria.

3.2.6 Poultry Farms

The criteria for assessing poultry farms are set out in Table 7.3, point 4 of TG (16) (Defra, 2016). No farms exceeding the relevant criteria (turkey units with greater than 100,000 birds, naturally ventilated units with greater than 200,000 birds or mechanically ventilated units with greater than 400,000) have been identified.

SRS on behalf of the BCBC can confirm that there are no poultry farms meeting the specified criteria.

3.3 Commercial and Domestic Sources

3.3.1 Biomass Combustion – Individual Installations

As previously identified in the 2011 Progress Report, planning consent had been granted for the installation of a Bio-Gas Plant with gas pipeline and in vessel composting facility. It has however been established that the proposed development will not have a significant impact on air quality.

The 2016 Progress Report highlighted that planning consent has been granted for the installation of a biomass plant within the Llynfi Valley. However, the plant has not yet been installed. In 2019 an application was received by BCBC planning to change the intended fuel used for the facility (P/19/275/RLX). Air quality comments were made in respect to this request, whereby additional information was sought in the form of a supporting Environmental Impact Assessment (EIA). Following further discussions, in January 2020 the decision was made and agreed in the form of a screening direction with an applicable representative for the Welsh Minister of Housing and Local Government, outlining that the development does constitute as an “EIA Development” in the context of the Town and Country Planning (Wales) Regulations, 2017.

3.3.2 Biomass Combustion – Combined Impacts

Previous reports have confirmed that there are no known areas in Bridgend where coal or solid fuel burning provides a significant level or primary household heating. Nothing has changed in this regard since the 2020 APR, despite the potential for increasing popularity of solid fuel heating with increased fossil-fuel prices, and there is no need to consider this further at this time.

3.4 Other Sources

3.4.1 Domestic Solid-Fuel Burning

Previous reports have confirmed that there are no known areas in Bridgend where coal or solid fuel burning provides a significant level or primary household heating. Nothing has changed in this regard since the 2020 APR, despite the potential for increasing popularity of solid fuel heating with increased fossil-fuel prices, and there is no need to consider this further at this time.

It should be noted that the Council receives several enquiries each year from residents in respect of national or local requirements were they to wish to install log-burners or similar appliances in their homes. There are no smoke control areas in Bridgend and hence no legal requirements regarding appliances that may be installed. However, residents are always reminded of the legislation in

respect of statutory smoke nuisance and, where they can't be persuaded otherwise for reasons of air quality and health, recommended to seek out an appliance certified for use in a smoke control area.

SRS on behalf of the BCBC can confirm that there are no areas of significant domestic fuel use in the Local Authority area.

4 Planning Applications

P/19/18FUL

A planning application was received in January 2020 with the proposed development of a single dwelling at the rear of a residential premises in Park Street, in Bridgend

The proposed development lies close to an Air Quality Management Area (AQMA) declared by Bridgend County Borough Council for exceedances of the annual mean nitrogen dioxide (NO₂) objective. The new residential property will be subject to the impacts of road traffic emissions from the adjacent road network. As the proposed development is a single dwelling, the impact of traffic generated by the development has been screened out of the assessment

It has been concluded through the assessment that the overall operational air quality effects are judged to be 'not significant', and the future residents of the development will experience acceptable air quality, with pollutant concentrations well below the objectives.

P/20/263FUL

The air quality impacts associated with the proposed residential development at St John's School, Porthcawl, Bridgend have been assessed. Locally measured nitrogen dioxide concentrations are well below the annual mean objective, and new residential properties within the proposed development will be set back from local roads. Future residents of the proposed development are therefore likely to experience acceptable air quality. The proposed development will generate additional traffic on

the local road network; however, the assessment has shown that there will be no significant effects at any existing sensitive receptor.

During the construction works, a range of best practice mitigation measures will be implemented to reduce dust emissions and the overall effect will be 'not significant'; appropriate measures have been set out in this report, to be included in the Dust Management Plan for the works.

Overall, the construction and operational air quality effects of the development are judged to be 'not significant'

P/18/1006/FUL

In 2019 a planning application was received to review and inform a decision regarding the development of 127 residential properties and supporting infrastructure on the former Ysgol Bryn Castell Site, which is earmarked for residential development, under policy COM2 (7) of Bridgend County Borough Council Local Development Plan.

The following comments were made in accordance with its submitted air quality assessment.

In accordance with planning application P/18/1006/FUL an Air Quality Assessment (AQA) has been undertaken to ascertain the likely air quality impacts associated with the proposed development through its construction and operational phases.

These comments support the re-submission of the proposal's air quality assessment (AQA) following an initial review undertaken by Shared Regulatory Services (SRS). Following the initial review of the originally submitted AQA it was deemed necessary for the applicant to amend the AQA and submit an emissions mitigation statement (EMS) which would include a damage cost calculation. This damage cost calculation is used to develop an appropriate level of mitigation which should broadly equate to the calculated value. The assessment undertaken follows Defra's Air Quality Damage Cost guidance, January 2019.

For the construction phase of the proposed development a high risk has been identified with respect to dust as a result of construction phase activities (Earthworks, Construction & Trackout). Persimmon Homes West Wales has produced a Dust Emission Control Plan which outlines key

measures to control any dust generating activity associated with the proposal. Having reviewed this documentation, SRS on behalf of BCBC are satisfied that the suggested mitigation measures will look to offset and suppress the high-risk concerns expected with the proposal. It is therefore essential that this Dust Emission Control Plan is utilised as a control document during the construction of the proposal to alleviate concerns associated with dust.

For the operational phase of the development, the report utilises detailed dispersion modelling (ADMS- Roads) to depict whether existing and future residents will be made susceptible to any adverse changes in air quality levels, particularly focusing upon transport derived nitrogen dioxide (NO₂) and particulate matter (PM₁₀ & PM_{2.5}).

For operational purposes, in order to determine potential impacts to air quality as a result of increased traffic movements associated with the development, the air quality modelling considers an understanding for a baseline scenario (2019) and a projected year of opening scenario (2023). The modelling adopts best practise guidance and considers a conservative approach to provide expected outcomes.

A number of existing sensitive receptor locations and future sensitive receptors have been examined, quantifying the level of impact predicted at their locations. In total there is 1 identified sensitive receptor (R5) subjected to a moderate adverse impact for annual mean NO₂ levels, for a proposed year of opening 2023. R5 is confirmed as a residential property. The potential impact for annual mean air quality levels (NO₂, PM₁₀ & PM_{2.5}) at all other receptors for the proposed year of opening is classified as negligible.

Drawing reference to Receptor R5, the modelling outlines a moderate adverse impact for annual mean NO₂ for a 2023 scenario, rising from 49.1 µg/m³ 'Without Scheme' to 49.5 µg/m³ 'With Scheme'. Although the report's modelling ensures a conservative approach, highlights an expectant decrease from a 2019 baseline scenario of 7.8 µg/m³ and documents the already existent air quality concern (annual average NO₂) for Park Street, an adverse impact to air quality is still prevalent and documented by the report.

Bridgend's Park Street Air Quality Management Area (AQMA) was established due to elevated and exceeding levels of annual mean NO₂. Receptor R5 lies within the boundary of the AQMA, and it is

apparent from the modelling undertaken that annual mean NO₂ levels are forecasted to worsen with the proposed development in place. It must be acknowledged that there is no safe level as such when it comes to potential impacts of pollutants. Shared Regulatory Services (SRS) on behalf of Bridgend County Borough Council (BCBC) do not consider these levels as low as reasonably practicable. Note that Welsh Government's Local Air Quality Management Policy Guidance, June 2017, paragraph 2.7 states:-

2.7 Any public body or group of public bodies developing or implementing a local or regional long-term plan or strategy with potential implications for air quality should as a minimum ensure it does not contribute to future breaches of the national air quality objectives. However, the national air quality objectives are not 'safe' levels of air pollution. Rather they represent a pragmatic threshold above which government considers the health risks associated with air pollution are unacceptable. Air just barely compliant with the objectives is not 'clean' and still carries long-term health risks. Nitrogen dioxide and particulate matter currently have no safe threshold defined, and the lower the concentration of those pollutants, the lower the risks of adverse health effects in the exposed population. Therefore, while compliance with the national air quality objectives is essential, it is desirable to keep levels of pollution as low as reasonably practicable.

Welsh Government's Planning Policy Wales, December 2018, paragraph 6.7.2 replicates the above statement.

The report suggests potential long-term health risks for local residents as they will be made susceptible to the quantified concerning air quality levels. Without the guarantee of sufficient mitigation measures local residents occupying the Park Street AQMA will be made susceptible to worsened air quality.

Furthermore, for obvious reasons 2019 annual average datasets were not available when devising the scope of works for the supporting AQA, however there are significant concerns from an SRS/BCBC perspective whereby NO₂ datasets examined along Park Street are significantly elevated. Based on preliminary datasets gathered in 2019, existing and newly implemented NO₂ sites along Park Street suggested worsened air quality. The experienced levels do not only exceed the NO₂ annual average air quality objective set at 40µg/m³ but in 2019 were close to breaching the 1- hour objective set as 200 µg/m³ not to be exceeded more than 18 times per year.

In order to alleviate the operational impacts associated with the proposal the applicant has appointed Defra's Air Quality Damage Cost guidance, January 2019 which can be used to support the appropriateness of any developed mitigation package. As depicted by paragraph 6.28.

The total emissions 'damage' cost value for the proposed development, based on the latest Defra guidance, has been calculated as £70,545.

The report outlines several proposed mitigation measures which the applicant is committed to implementing:

- The provision of a ghost island on Park Street onto Heol Y Nant to reduce congestion and hence pollution.

- The inclusion of the link to the active travel network including a 3 metre wide cycle/pedestrian route (encouraging a modal shift away from cars);

- A travel plan including details of public transport, active travel routes and potentially any car sharing opportunities in the area; and

- The provision of green infrastructure through a detailed landscaping scheme with the inclusion of tree, hedgerow and shrub planting.

To facilitate the above listed mitigation package I would like to see a suggested timetable for implementation of the suggested measures. To provide a positive impact, the measures will need to be implemented prior to the proposed year of opening.

Suggested Condition: Implementation & Quantify a Scheme of Mitigation Measures

Prior to any above ground development works associated with the proposal, the applicant is required to develop a scheme of mitigation measures associated with the proposal. The applicant is required to provide evidence how the devised mitigation scheme will provide positive benefits to air quality at identified sensitive receptors projected to be in exceedance of the annual average NO₂

air quality objective within the Park Street AQMA boundary. The proposal of mitigation schemes will need to be submitted and approved by the Local Planning Authority. As part of the condition; once agreed the applicant is required to implement the mitigation proposals outlined.

If appropriate mitigation measures to protect existing residents and future occupiers of the development cannot be implemented to ensure compliance with existing national air quality objectives then the development must not proceed.

Reason: To safeguard the amenity of existing and future residents.

Following on from the comments made in respect to the submitted air quality assessment, the development has been granted planning consent subject to the satisfaction and discharge of accompanying planning conditions.

From an air quality perspective the following conditions have been imposed as part of planning committee's decision notice:

Condition 25. Prior to the commencement of development, full details and timescales of the mitigation measures as recommended and set out in the Air Quality Assessment, June 2019, shall be submitted to and agreed in writing by the Local Planning Authority. The development shall be implemented in accordance with the agreed details and timescales.

Reason: In the interests of safeguarding residential amenities and air quality.

Condition 27. No development shall commence until a scheme for the provision of a right hand holding turning lane on the A473/Park Street – Heol y Nant Junction has been submitted to and approved in writing by the Local Planning Authority. The approved holding/turning lane shall be safety audited to stage 2/3, constructed and implemented in permanent materials prior to the first occupation of any dwellings on site and retained thereafter in perpetuity.

Reason: In the interests of highway safety and to safeguard air quality.

Conditional consent has been granted to this application.

5 Policies and Strategies Affecting Airborne Pollution

5.1 Air Quality Planning Policies

Local Development Plan (LDP) 2006- 2021. The document provides a framework for sustainable development within the County Borough of Bridgend, outlining strategies and policies for future land use and development.

One of the main strategic LDP objectives is highlighted in Strategic Policy 4 (SP4) which promotes the conservation and enhancement of the natural environment. SP4 illustrates that development proposals will not be permitted where they have an adverse impact upon the quality of natural resources, including water air and soil.

Also highlighted within the LDP document is Policy ENV 7 (Natural Resource Protection and Public Health).

“Development proposals will only be permitted where it can be demonstrated that they would not cause a new, or exacerbate an existing, unacceptable risk of harm to health, biodiversity and/or local amenity due to air pollution”

Where proposed developments indicate negative impacts, measures and mitigation methods must be detailed to enable impacts to be minimised to an acceptable level. For example, in terms of air quality, measures can include the production of an Air Quality Assessment and the implementation of conditions.

The LDP documentation for Bridgend County Council is available at http://www1.bridgend.gov.uk/media/174812/ldp_text.pdf

The LDP document has been under review since 2018. SRS are feeding into this document where necessary to outline air quality as an influential consideration and ensure its importance within the decision-making process. Refer to the following link for useful questions and answers in regard to the new plan’s development.

<https://www.bridgend.gov.uk/news/the-replacement-local-development-plan-explained/>

5.2 Local Transport Plans and Strategies

The Local Transport Plan (LTP) 2015- 2030

The Local Transport Plan (LTP) 2015- 2030. The Welsh Government now requires local authorities in Wales to prepare and adopt Local Transport Plan (LTPs) as the framework for identifying local transport schemes for improvements. LTPs therefore replace Regional Transport Plans.

Under guidance from the Welsh Government, local authorities have the choice to develop and adopt either joint LTPs with neighbouring local authorities or a stand-alone LTP for their own geographical area.

Bridgend County Borough Council has opted for the latter approach in view of the uncertainty of the future of local authority boundaries and structures amid discussions of reorganisation of local government.

The LTP looks to tackle growing traffic levels (and hence air quality impacts) by providing strategies which focus upon providing efficient and effective transport networks.

“The Council is mindful of the broader negative impact of transport related emissions on health and the natural environment”

“To reduce the environmental impact of transport, the LTP includes measures and interventions that will increase opportunities for active travel, encourage the use of public transport and promote modal integration.”

The LTP policy recognises the Council’s objective to achieving sustainable travel (alternatives to using cars) and reducing negative impacts on the environment. The policy suggests that through improved transport infrastructure and transport services this can be achieved.

The LTP policy is available at <http://www1.bridgend.gov.uk/media/352797/bridgend-ltp-wg-approved-version-may-2015.pdf>

5.3 Active Travel Plans and Strategies

In September 2014, the Welsh Government introduced the Active Travel (Wales) Act. This measure legally requires Welsh local authorities to map and plan suitable routes for Active Travel within certain areas, as designated by the Welsh Government.

Following formal public consultation and review by Welsh Government, BCBC has produced Integrated Network Maps (INM) that show highlighted routes dedicated to pedestrians and cyclists.

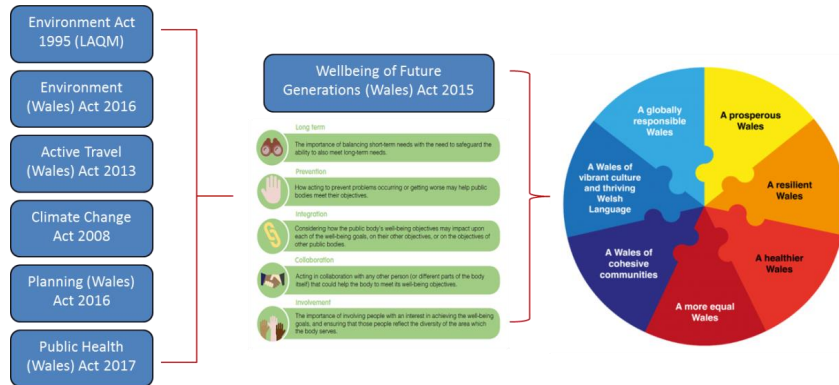
The maps are available to download from;

<https://www.bridgend.gov.uk/residents/roads-transport-and-parking/active-travel-routes/>

5.4 Local Authorities Well-being Objectives

In 2015 Welsh Government made a new law called the Well-being of Future Generations (Wales) Act. The new law has the sustainable development principle at its heart. This means that we need to work in a way that improves wellbeing for people today without doing anything that could make things worse for future generations.

As highlighted in the earlier Figure 5 there are seven national well-being goals that form the basis of the Act and five ways of working which support the goals.



Public, third and business sectors have come together in Bridgend to form a Public Services Board (PSB). Bridgend PSB is committed to working together to improve wellbeing in Bridgend County Borough now and in the future. Bridgend PSB has used the sustainable development principle and the new five ways of working to develop a Well-Being Plan (2018-2023).

The plan outlines the things that Bridgend PSB will work together on, over the next five years, well-being objectives and steps, and provide a vision for how Bridgend will look in 10 years' time. The plan is seen as a mechanism that provides the best possible means of working to help understand the underlying causes of problems and prevent those problems getting worse or happening in the future.

Contributing to the seven national well-being goals and long-term vision for Bridgend, Bridgend PSB has developed four main objectives.

Figure 25- Bridgend PSB Four Well-being Objectives



In accordance with air quality, as part of the objective for “Healthy Choices in a Healthy Environment” Bridgend PSB outlines that resources are best utilised and collaborative working ensures that the built, cultural and natural environment remains resilient in future. The priority areas to endorse and encourage the success of the objective will include working together to maximise benefit from cultural, built and natural assets. It will also look at promoting a more resource and energy efficient way of living and working. In order to measure the success of promoting a more resource and energy way of living air quality, particularly NO₂ levels will be examined.

Bridgend PSB Well-being Plan is available at.

<https://www.bridgend.gov.uk/media/3657/bridgend-wellbeing-bps-plan-e-0518.pdf>

5.5 Green Infrastructure Plans and Strategies

Outlined in Bridgend’s Local Development Plan (LDP) 2006- 2021, Policy ENV5 focuses upon Green infrastructure.

Policy ENV5

Green Infrastructure

Green infrastructure will be provided through the protection and enhancement of existing natural assets and the creation of new multi-functional areas of green space. Green infrastructure corridors will connect locations of natural heritage, green space, biodiversity or other environmental interest. They will be safeguarded through:

- 1) Not permitting development that compromises their integrity and therefore that of the overall green infrastructure framework;
- 2) Using developer contributions to facilitate improvements to their quality and robustness;
- 3) Investing in appropriate management, enhancement and restoration, and the creation of new resources.

A Supplementary Planning Guidance (SPG) concerning Green Infrastructure was produced in 2014 by BCBC to provide a detailed understanding to the elements raised in the LDP.



-The document highlights how the Council expect habitats to be considered as part of development proposals within the County Borough of Bridgend. It also introduces the concept of adopting a *Green Infrastructure Approach* to development.

In addition to the above, outlined within the Bridgend PSB Well-being Plan, as part of the objective “Healthy Choices in a Healthy Environment” and priority area to include working together to maximise benefit from cultural, built and natural assets, the steps involved will:

- identify opportunities to improve the green asset base by implementing the Bridgend Nature Recovery Plan.
- improve the public estate and green spaces in urban areas by encouraging award of green flag status.

5.6 Climate Change Strategies

All development proposals will be required to make a positive contribution towards tackling the causes of, and adapting to the impacts of Climate Change and Peak Oil issues. Means of achieving this may include:

- Having lower carbon energy requirements by reducing energy demand, and promoting energy efficiency;
- Utilising local materials and supplies wherever feasible;
- Encouraging the development of renewable energy generation;
- Having a location and layout which reflects sustainable transport and access principles, thereby reducing the overall need to travel;
- Having a design, layout and landscaping which:
 - (i) helps wildlife and habitats to adapt to the changing climate;
 - (ii) assists cooling of the urban environment, including the use of passive building techniques where appropriate;
- Using resources more efficiently and minimising wastewater use and pollution;
Avoiding or minimising the risk from flooding and/ or adapting to the increased risk of flooding, coastal erosion and warmer annual mean temperatures; and
- Promoting sustainable building methods and drainage systems where appropriate.

6 Conclusion and Proposed Actions

6.1 Conclusions from New Monitoring Data

Annual average datasets outline continued elevated and exceeding levels of NO₂ at sensitive receptor locations situated on Park Street within the established AQMA Order boundary. It is noted that monitoring undertaken in 2020 at sites OBC-110 & OBC-123, located on Park Street at residential facades exceed the annual average air quality objective set at (40µg/m³) for NO₂. All automated and non- automated datasets show compliance with the air quality objectives at **every other monitored location**.

6.2 Conclusions relating to New Local Developments

Section 3.5 details a number of local developments seeking planning consent recently or for which a planning application has been received.

These applications have been handled accordingly where Air Quality Assessments have been produced and appropriate planning conditions applied.

6.3 Other Conclusions

There are no other conclusions to be drawn from the information provided herein.

6.4 Proposed Actions

SRS/ BCBC are working in accordance with WG's Policy Guidance to produce an Air Quality Action Plan (AQAP).

Work Steering Group and Public Engagement

In order to develop ideas and ensure an effective AQAP which considers all aspects, prioritising public health, an AQAP Work Steering Group has been put together consisting of representatives from Bridgend's various departments, as well as persons from the local PSBs.

Proposed Mitigation Measures

Collaborating the ideas and suggestions made to date a list of proposed mitigation measures has been put together. Sub-section 1.3 displays Table 2 outlining proposed mitigation measures for the Park Street AQMA.

An indicative cost and benefit score has also been provided for each action in Table 3. The potential actions have been scored for cost benefit and the resulting rank in order to identify the most deliverable actions. Estimated costs (1 for high cost to 5 for low cost) were multiplied by a sum of the likely benefit from reducing pollution and people's exposure to the pollution (10 for high and 1 for low) to provide a score. The highest score shows the greatest cost benefit according to the opinions of the project team. The measures in Table 3 are listed in order of their ranking score (most deliverable at the top).

Following the indicative Cost Benefit Analysis, it is agreed by the AQAP Work Steering Group to pursue mitigations options that will manage and improve traffic flows through the Park Street AQMA. Queuing and inconsistent traffic flows would appear to be the principal cause of the portrayed poor air quality levels. It is also concerning given the level of surrounding development scheduled, there is the likelihood of increased pressure for the network and consequentially air quality levels along Park Street. It is necessary that to proceed with the development of a successful and meaningful AQAP the Council would need to make the decision whether to undertake detailed transport and air quality assessments to quantify and ensure that correct mitigation measures are implemented. A decision is yet to be made about progressing with the detailed modelling following the receipt of a few proposals from external consultants.

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BRIDGEND COUNTY BOROUGH COUNCIL LAQM REPORTS

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- Updating and Screening Assessment of Air Quality in Bridgend County Borough, July 2003

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- Detailed Assessment of Nitrogen Dioxide and Particles (PM₁₀), March 2006
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- Local Air Quality Management Progress Report, August 2018
- Local Air Quality Management Progress Report, August 2019

Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix D: AQMA Boundary Maps

Appendix E: Impact of COVID-19 upon LAQM

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Table 16 - Full Monthly Diffusion Tube Results for 2020 ($\mu\text{g}/\text{m}^3$)

Site No	Nitrogen Dioxide Sites, Bridgend CBC	Grid Ref	Class	Distance of measurement from Kerb (m)	Distance from Kerb to Receptor	Relevant Exposure in m	07/05/2020 - 06/06/2020	06/07/2020 - 05/08/2020	05/09/2020 - 04/10/2020	04/11/2020 - 03/12/2020	03/01/2021 - 02/02/2021	02/03/2021 - 01/04/2021	01/05/2021 - 01/06/2021	01/07/2021 - 01/08/2021	01/09/2021 - 01/10/2021	01/11/2021 - 01/12/2021	AVERAGE SINCE JAN 20	Bias Corrected & Annualised (Correction Factor 0.76)
OBC-107	17 Tondur Road, Bridgend	SS 2903047 179655	Roadside	2.00	2.00	0.00	51.20	38.6	21.8	22.8	20.8	29.6	35.2	25.5	40.9	41.2	32.8	24.9
OBC-108	43 Tondur Road, Bridgend	SS 2904147 179836	Kerbside	0.90	0.93	0.00	60.4	49.7	26.9	31.6	29.7	33.0	41.1	36.8	45.2	44.2	39.9	30.3
OBC-102	4 Sunnyside	SS 2903654 179807	Roadside	2.95	2.95	0.00	30.8	23.9	17.4	14.3	12.2	24.7	26.5	33.9	33.1	24.0	18.3	
OBC-103	39 Park Street	SS 290250 179782	Roadside	1.20	1.20	0.00	60.2	38.4	26.8	27.6	34.9	34.5	40.7	50.0	47.6	40.0	30.4	
OBC-104	51 Park Street	SS 290286 179800	Kerbside	1.05	1.05	0.00	38.4	31.8	25.2	27.6	38.1	40.8	42.9	45.2	47.9	38.9	29.8	
OBC-109	32 Park Street	SS 290239 179795	Roadside	7.5	7.5	0.00	29.7	21.9	14.9	14.8	9.4	18.3	21.3	30.0	29.0	19.9	15.2	
OBC-122	Plot on St Leonards Road	SS 289919 179756	Kerbside	1.0	5.0	4.00	24.5	17.9	41.6	47.0	37.5	53.5	59.3	54.4	66.6	55.7	42.4	
OBC-123	93 Park Street Bridgend	SS 289954 179705	Roadside	0.9	0.9	0.00	87.8	53.9	11.2	11.9	10.5	12.2	16.0	14.9	25.1	24.5	17.0	12.9
OBC-124	133 Park Street	SS 289859 179710	Roadside	7.0	7.0	0.00	26.5	16.8	41.2	43.4	31.0	49.8	58.6	52.6	85.0	69.2	57.4	43.6
OBC-110	102/103 Park Street	SS 289988 179701	Kerbside	0.9	0.9	0.00	63.3	59.3	11.5	9.1	12.8	18.5	28.9	16.5	13.6			
OBC-101	Bridgend City Centre	SS 290499 179837	Urban Centre	85.0	77.7		18.1	20.3	20.3	18.2	13.3	17.0	26.2	26.8	36.1	37.5	25.9	19.7
OBC-111	01 Cowbridge Road	SS 290700 179305	Roadside	4.25	4.95	0.70	39.1	24.3	14.9	13.6	12.4	18.0	21.9	25.2	33.4	33.6	22.8	17.3
OBC-105	65 Cowbridge Road	SS 290899 179185	Roadside	4.10	4.10	0.00	33.6	21.5	19.3	20.0	18.7	31.9	40.6	39.7	53.4	54.7	34.0	25.8
OBC-106	3840 Cowbridge Road	SS 290826 179210	Kerbside	0.90	4.20	3.30	27.7	14.0	14.0	11.5	9.2	15.5	17.7	19.5	29.7	28.5	19.6	14.8
OBC-121	29 Heol Tre Darr	SS 291510 178734	Roadside	5.00	5.00	0.00	31.2	19.2	26.2	16.3	14.4	24.3	26.6	29.5	42.5	31.2	23.7	
OBC-112	33 Cowbridge Road	SS 300294 180788	Kerbside	0.90	0.90	0.00	54.6	31.5	14.9	15.6	7.5	16.7	17.5	28.5	27.2	19.1	14.5	
OBC-988	Co-location -Tube 1	SS 290566 178566	Roadside	2.20	2.20	0.00	29.6	16.7	15.1	17.7	7.1	17.7	17.5	31.1	26.5	19.4	14.6	
OBC-989	Co-location -Tube 2	SS 290566 178566	Roadside	2.20	2.20	0.00	29.8	12.4	16.5	15.3	7.4	18.2	19.7	28.8	28.9	19.9	15.1	
OBC-990	Co-location -Tube 3	SS 290566 178566	Roadside	2.20	2.20	0.00	29.2	16.9	10.1	10.7	10.0	12.3	15.9	15.3	21.8	24.3	16.1	12.2
OBC-113	127 Priory Avenue	SS 290616 178394	Roadside	5.00	10.00	5.00	25.5	14.8	12.9	12.9					69.3	31.9	20.3	
OBC-114	97 Evenny Road	SS 290699 178596	Roadside	23.00	23.00	0.00	31.9	13.5	16.4	15.2	11.6	17.9	22.3	22.4	26.6	30.2	21.4	16.3
OBC-115	105 Evenny Road	SS 290667 178529	Roadside	12.00	12.00	0.00	30.7	21.1	9.1	8.1	15.6	13.3	20.7	17.7	15.3	11.0		
OBC-128	Mil Street Maesteg	89805 SS 86218	Roadside	1	1		23.0	14.6	14.6	25.2	14.5	18.8	25.5	26.1	29.9	22.4	19.3	
OBC-125	60 Commercial Street, Maesteg	SS 285299 191136	Roadside	2.0	2.0	0.00	25	25	18.1	18.0	12.8	22.3	28.4	26.10	34.30	34.60	25.7	19.5
OBC-097	22 Coly Road, Bridgend	SS 290687 180185	Roadside	5.30	5.30	0.00	38.2	24.3	15.3	16.0		18.1	22.7	25.40	33.90	24.3	18.3	
OBC-098	26 Coly Road, Bridgend	SS 290681 180188	Roadside	4.20	4.20	0.00	38.8	20.4	16.6	16.2	11.3	17.0	21.8	24.10	30.10	32.60	23.6	17.9
OBC-099	42 Coly Road, Bridgend	SS 290663 180251	Roadside	5.60	5.60	0.00	45.7	20.4	15.1	17.9	14.2	20.6	24.3	24.30	30.00	19.80	23.0	17.5
OBC-100	11 Coly Road, Bridgend	SS 290623 180374	Roadside	4.10	4.10	0.00	37.9	25.4	15.0	17.3	12.3	18.1	23.5	23.20	29.40	29.60	21.8	16.6
OBC-116	20 Hendre Road, Pencoed	SS 295886 181642	Kerbside	0.90	0.90	0.00	32.4	17.6	10.8	13.4	10.2	13.5	17.0	18.80	26.20	25.10	18.0	13.6
OBC-117	47 Hendre Road, Pencoed	SS 295641 181687	Roadside	8.40	8.40	0.00	27.1	17.4	8.9	10.2	8.4	7.8	11.5	10.7	15.5	10.4	12.0	9.1
OBC-129	Wern Fawr (Near Rockwell)	SS 98439 84111	Urban Background				24	12.9	9.9	11.1		18.3	17.70	22.10	15.2	10.9		
OBC-120	105 New Road, Porthcawl	SS 282264 177237	Roadside	0.90	0.90	0.00	16	11.2	15.6	16.9	10.0	17	23	21.8	32.7	31.8	22.6	17.2
OBC-126	Tremains Road, Bridgend	SS 91117 79520	Roadside	3	3	0	34.6	22.6	15.9	15.7	11.2	11	20	20.7	31.4	25.5	19.9	15.1
OBC-127	Coychurch Road, Brackla	SS 92236 79473	Kerbside	2	5	0	29.4	18.3	15.9	15.7	11.2	11	20	20.7	31.4	25.5	19.9	15.1

Notes:

Exceedances of the NO₂ annual mean objective of 40 $\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding 60 $\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to the nearest relevant public exposure

Appendix B: A Summary of Local Air Quality Management

6.5 Purpose of an Annual Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment Act 1995 and associated government guidance. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas and to determine whether or not the air quality objectives are being achieved. Where exceedances occur, or are likely to occur, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) within 18 months of declaration setting out the measures it intends to put in place in pursuit of the objectives. Action plans should then be reviewed and updated where necessary at least every five years.

For Local Authorities in Wales, an Annual Progress Report replaces all other formal reporting requirements and have a very clear purpose of updating the general public on air quality, including what ongoing actions are being taken locally to improve it if necessary.

6.6 Air Quality Objectives

The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table 21.

The table shows the objectives in units of microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table 17 - Air Quality Objectives Included in Regulations for the Purpose of LAQM in Wales

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as	Date to be achieved by
Nitrogen Dioxide (NO₂)	200µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen Dioxide (NO₂)	40µg/m ³	Annual mean	31.12.2005
Particulate Matter (PM₁₀)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2010
Particulate Matter (PM₁₀)	40µg/m ³	Annual mean	31.12.2010
Sulphur dioxide (SO₂)	350µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO₂)	125µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO₂)	266µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	16.25µg/m ³	Running annual mean	31.12.2003
Benzene	5µg/m ³	Annual mean	31 12 2010
1,3 Butadiene	2.25µg/m ³	Running annual mean	31.12.2003
Carbon Monoxide	10.0mg/m ³	Maximum Daily Running 8-Hour mean	31.12.2003
Lead	0.25µg/m ³	Annual Mean	31.12.2008

Appendix C: Air Quality Monitoring Data QA/QC

Diffusion Tube Bias Adjustment Factors

A database of bias adjustment factors determined from Local Authority co-location studies throughout the UK has been collated by the LAQM Helpdesk. The National Diffusion Tube Bias Adjustment Factor Spreadsheet (Version 06/21) was used to obtain an overall adjustment factor of 0.76 from the input data shown in the following screenshot. This overall factor is based on 42 co-location studies where the tube preparation method and analysis laboratory used were the same as those used by SRS.

Figure 26 - National Diffusion Tube Bias Adjustment Factor Spreadsheet

National Diffusion Tube Bias Adjustment Factor Spreadsheet							Spreadsheet Version Number: 06/21			
Follow the steps below in the correct order to show the results of relevant co-location studies							This spreadsheet will be updated at the end of Sept 2021			
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods							LAQM Helpdesk, Helpdesk			
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet										
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.										
The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.							Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.			
Step 1:	Step 2:	Step 3:	Step 4:							
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ³ shown in blue at the foot of the final column.							
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data ⁴	If you have your own co-location study then see footnote ⁵ . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953							
Analysed By ¹	Method	Year ²	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ⁶	Bias Adjustment Factor (A) (Cm/Dm)
SOCOTEC Didcot	50% TEA in acetone	2020	R	East Suffolk Council	12	30	25	19.6%	G	0.84
SOCOTEC Didcot	50% TEA in acetone	2020	UB	Canterbury City Council	10	13	10	28.1%	G	0.78
SOCOTEC Didcot	50% TEA in acetone	2020	R	Canterbury City Council	9	26	20	29.6%	G	0.77
SOCOTEC Didcot	50% TEA in acetone	2020	UB	Kingston upon Hull City Council	12	24	18	34.8%	G	0.74
SOCOTEC Didcot	50% TEA in acetone	2020	R	Ipswich Borough Council	12	27	21	28.5%	G	0.78
SOCOTEC Didcot	50% TEA in acetone	2020	R	Ipswich Borough Council	12	36	26	36.3%	G	0.73
SOCOTEC Didcot	50% TEA in acetone	2020	R	Thanet District Council	9	20	17	21.2%	G	0.83
SOCOTEC Didcot	50% TEA in acetone	2020	R	Medway Council	12	26	18	41.7%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2020	B	Medway Council	11	20	10	96.3%	G	0.51
SOCOTEC Didcot	50% TEA in acetone	2020	B	Gravesham Borough Council	12	23	22	5.6%	G	0.95
SOCOTEC Didcot	50% TEA in acetone	2020	B	Gravesham Borough Council	12	27	24	16.1%	G	0.86
SOCOTEC Didcot	50% TEA in acetone	2020	R	Monmouthshire County Council	10	32	24	35.3%	G	0.74
SOCOTEC Didcot	50% TEA in acetone	2020	Ul	North Lincolnshire Council	13	18	14	26.6%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2020	R	City of York Council	12	24	19	29.0%	G	0.78
SOCOTEC Didcot	50% TEA in acetone	2020	R	City of York Council	11	22	17	34.3%	G	0.74
SOCOTEC Didcot	50% TEA in acetone	2020	R	City of York Council	12	33	23	40.4%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2020	R	Cambridge City Council	10	30	20	47.6%	G	0.68
SOCOTEC Didcot	50% TEA in acetone	2020	R	Wrexham County Borough Council	9	17	13	26.6%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2020	KS	Marylebone Road Intercomparison	11	59	43	38.0%	G	0.72
Socotec Didcot	50% TEA in acetone	2020	R	Horsham District Council	10	23	23	2.2%	G	0.98
Socotec Didcot	50% TEA in acetone	2020	R	Horsham District Council	12	22	19	18.6%	G	0.84
Socotec Didcot	50% TEA in acetone	2020	R	Horsham District Council	9	25	18	42.0%	G	0.70
Socotec Didcot	50% TEA in acetone	2020	R	Dacorum Borough Council	10	24	19	25.2%	G	0.80
Socotec Didcot	50% TEA in acetone	2020	R	Huntingdonshire District Council	12	36	25	47.1%	G	0.68
SOCOTEC Didcot	50% TEA in acetone	2020		Overall Factor³ (24 studies)					Use	0.76

Discussion of Choice of Factor to use

The bias adjustment factor applied to all 2020 data is 0.76. The applied bias adjustment factor has been calculated using the national diffusion tube bias adjustment factor spreadsheet version 06/21.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes are supplied and analysed by Socotec UK Ltd Didcot, using the 50% triethanolamine (TEA) in water method. Socotec UK Ltd Didcot participates in the Annual Field Inter-Comparison Exercise and Workplace Analysis Scheme for Proficiency (WASP) inter-comparison scheme for nitrogen dioxide diffusion tube analysis. From April 2014 the WASP Scheme was combined with the STACKS scheme to form the new AIR scheme, which Socotec UK Ltd Didcot participates in. The AIR scheme is an independent analytical proficiency testing scheme operated by LGC Standards and supported by the Health and Safety Laboratory (HSL).

The laboratory Socotec UK Ltd Didcot is regarded ranked as the highest rank of satisfactory in relation to the WASP intercomparison scheme for spiked nitrogen dioxide diffusion tubes. Information regarding tube precision can be obtained via <http://laqm.defra.gov.uk/diffusion-tubes/precision.html> Information regarding WASP results can be obtained via <http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>

Table 18 - Bias Adjustment Factor

Year	Local or National	National Reference	Adjustment Factor
2020	National	06/21	0.76
2019	National	09/20	0.75
2018	National	06/19	0.77

NO₂ Fall-off with Distance from the Road

No diffusion tube NO₂ monitoring locations within Bridgend required distance correction during 2020

NO₂ Fall-off with Distance from the Road

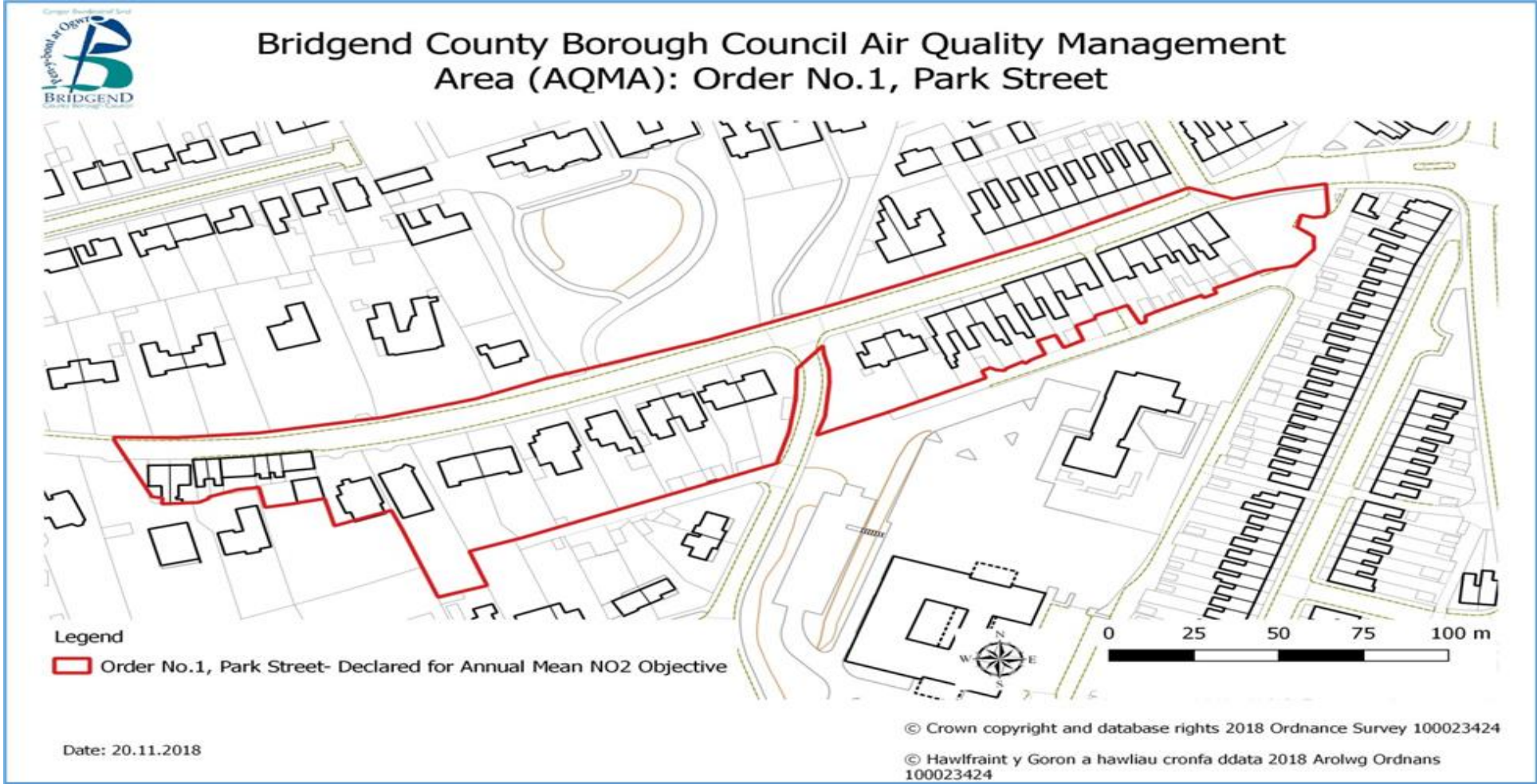
No automatic NO₂ monitoring locations within Bridgend required distance correction during 2020.

Table 19 - Annualisation Table (concentrations presented in $\mu\text{g}/\text{m}^3$)

Site ID	Annualisation Factor St Julian's Newport	Annualisation Factor Bristol St Paul's	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
OBC-104	1.0100	1.0055	1.0078	29.6	29.8	
OBC-109	0.8397	0.7560	0.7978	25.6	20.4	
OBC-101	1.0715	1.0986	1.0850	12.5	13.6	
OBC-112	1.0063	0.9929	0.9996	23.7	23.7	
OBC-114	0.8681	0.8099	0.8390	24.2	20.3	
OBC-128	0.9623	0.9278	0.9450	11.6	11	
OBC-125	1.0997	1.1614	1.1305	17.1	19.3	
OBC-098	1.0036	0.9825	0.9930	18.5	19.5	
OBC-120	0.9606	0.9316	0.9461	11.5	10.9	

Appendix D: AQMA Boundary Maps

Figure 27 - Boundary Map of Park Street, Bridgend AQMA



Appendix E: Impact of COVID-19 upon LAQM

The COVID-19 pandemic has impacted air quality at local, regional and national scales and presented challenges to Local Authorities in undertaking statutory LAQM duties. This section outlines the impact of COVID 19 on air quality within Bridgend during 2020. Further detail on air quality impacts at the national scale can be viewed through the reports and seminar section of www.airquality.gov.wales/reports-seminars/reports

6.7 Impacts of COVID-19 on Air Quality within Bridgend

In 2020 an average reduction of 22% in NO₂ annual mean concentration was experienced at roadside diffusion tube monitoring sites across the County Borough relative to 2019.

Although still exceeding the NO₂ annual objective of 40µg/m³, sites OBC-010 and OBC-123 which are located in the Park Street AQMA, saw a reduction in NO₂ annual mean concentration of 21.2% and 24.1% respectively, relative to 2019.

Analysis was undertaken by air quality consultants Ricardo, on behalf of Welsh Government, to assess the impact of lockdown on air quality during the period of the 16th of March to 31st of May. This analysis showed decreases in nitrogen oxides during this period due to reduced emissions with less traffic on our roads.

Analysis of a limited sample of traffic data shows a significant drop in vehicle flows at the time of the lockdown, mostly in the Car/Light Van and Bus categories as expected. The fall-off in vehicle counts for the heavier goods vehicles is less significant.

6.8 Opportunities Presented by COVID-19 upon LAQM within Bridgend

No LAQM related opportunities have arisen as a consequence of COVID-19 within the Bridgend County Borough.

6.9 Challenges and Constraints Imposed by COVID-19 upon LAQM within Bridgend

During 2020, access to several diffusion tube monitoring sites was restricted due to their locations on residential buildings. Therefore, it was not possible to maintain diffusion tube exposure periods for April to June in line with the national monitoring calendar for several sites. This has affected data capture within 2020, resulting in a 9 non-automatic monitoring sites having to be annualised. **This has been assessed as having a Medium impact relating to Table 20.**

As a result of the unprecedented circumstances associated with the COVID-19 pandemic, there have been and there continue to be, delays in project delivery for the Park Street AQAP. Despite the existing consent issued by Welsh Government to allow for an extension to deliver the FINAL version of the AQAP by 30th September 2021, SRS have notified Welsh Government of the continued difficulties faced by the project team to deliver the AQAP. As a result, permission is requested to further extend the AQAP deadline by an additional 6-month period, thereby amending the deadline submission date to 31st March 2022.

This has been assessed as having a Medium impact relating to Table 20.

The impacts as presented above are aligned with the criteria as defined in Table 20, with professional judgement considered as part of their application.

Table 20 - Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: High
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide