

Cyngor Bwrdeistref Sirol



# Bridgend 2024 Air Quality Progress Report

In fulfilment of Part IV of the Environment Act 1995, as amended by the Environment Act 2021

Local Air Quality Management

Date: August 2024

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## Executive Summary: Air Quality in Our Area

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.

Poor air quality in Wales poses a 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 (PM<sub>10</sub> and PM<sub>2.5</sub>), and primary/ secondary derived nitrogen dioxide (NO<sub>2</sub>). Both pollutants primarily originate from motor vehicles.

The UK expert Committee on the Medical Effects of Air Pollution (COMEAP) estimated that air pollution is responsible for “an effect equivalent of between 28,000 and 36,000 deaths (at typical ages) each year” in the UK. In 2022, the UK Health Security Agency updated this estimate; the burden range is now reported as the equivalent of between 29,000 and 43,000 deaths per year<sup>1</sup>.

The burden range does not reflect ‘actual’ deaths from air pollution exposure but is an estimate of the ‘equivalent’ reduced life expectancy, when summed, which everyone experiences because of air pollution exposure (6-8 months on average but could range from days to years).

In Wales – based on modelled air pollution data pre-pandemic – Public Health Wales estimated the burden of long-term air pollution exposure to be around the equivalent of 1,000 to 1,400 deaths each year<sup>2</sup>. This estimate was calculated using a more accurate method that considers the combined effects of different pollutants, meaning that the overlapping effects of PM<sub>2.5</sub> and NO<sub>2</sub> are accounted for. Impact estimates are uncertain, however, which is why they should always be presented as a range of values, rather than a single, central estimate.

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<sup>1</sup> <https://airquality.gov.wales/about-air-quality/health-advice>

<sup>2</sup> <https://phw.nhs.wales/services-and-teams/environmental-public-health/air-quality/air-pollution-and-health-fact-sheet/>

Although estimating the burden of air pollution is difficult, there is clear and strong evidence that it does harm health. It is therefore important to take action to reduce air pollution and the harms that go with it.

## **Air Quality in Bridgend**

Local authorities have a statutory duty under Part IV of the Environment Act 1995 (as amended by the Environment Act 2021) & 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.

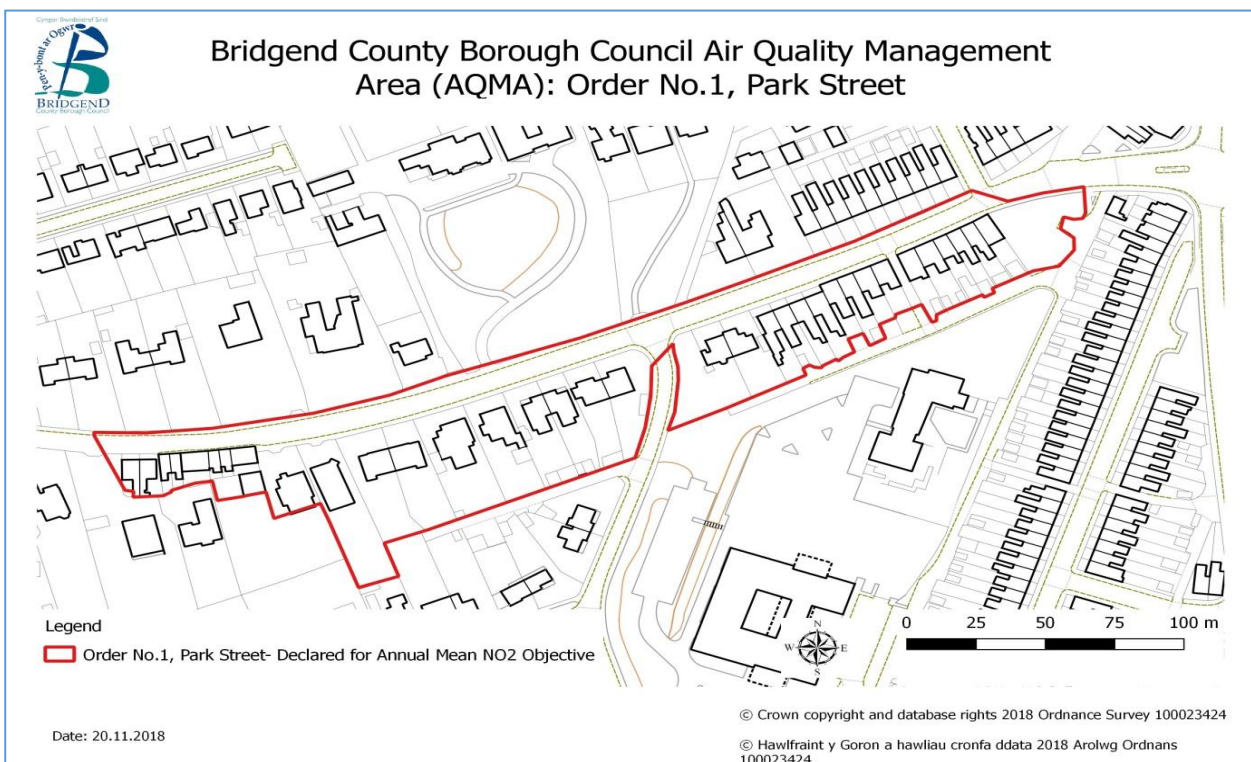
In line with the Local Authorities' statutory duties under Part IV of the Environment Act 1995, in 2023 Shared Regulatory Services (SRS) on behalf of BCBC undertook regular air quality monitoring at specifically allocated locations across Bridgend using automated and non-automated principles for ambient air nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>).

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. The designated monitoring locations are assigned based on relevant exposure and where the certain Air Quality Objective levels for a particular pollutant applies. It 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 Council's 2018 APR<sup>3</sup> 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 2018 for Bridgend. 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.

The designated AQMA 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 1 – Map of Park Street AQMA**

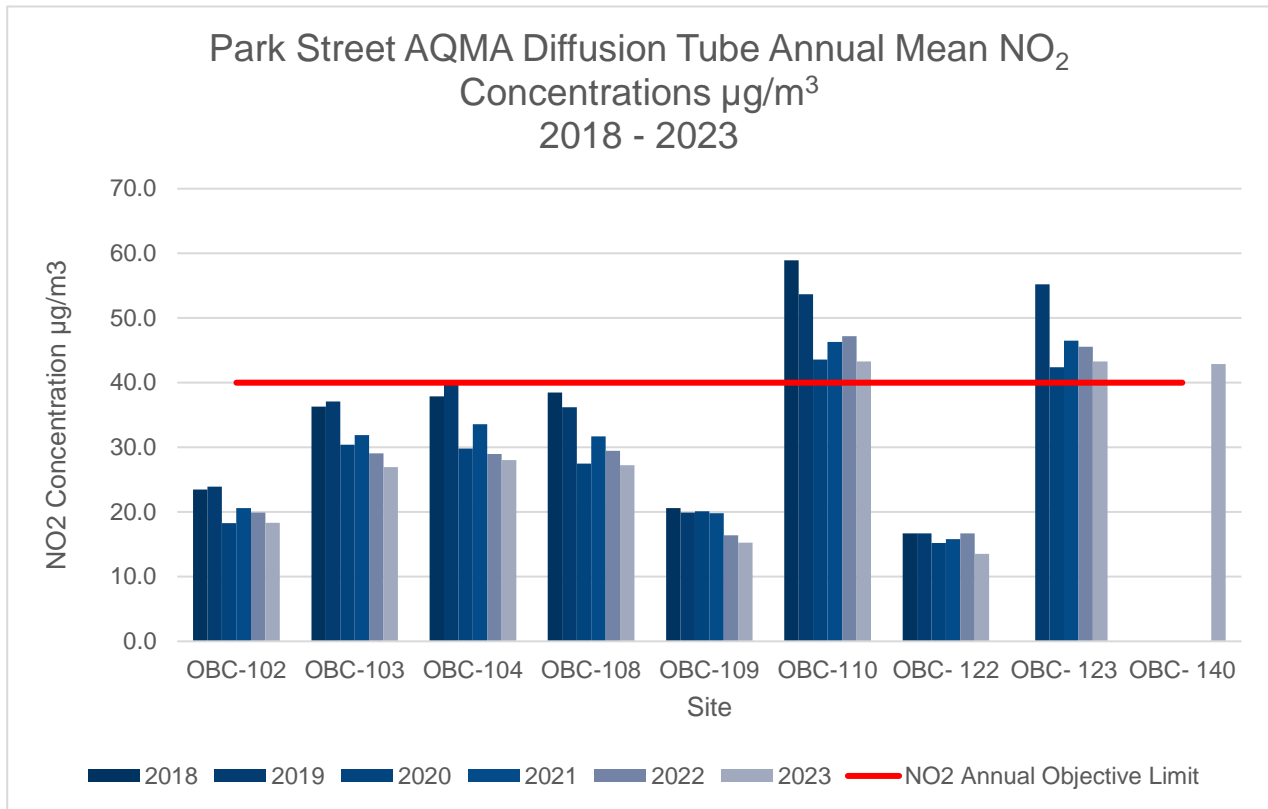


Within the Park Street AQMA, we have seen a downward trend in NO<sub>2</sub> concentrations since the Covid-19 pre-pandemic period. However, in 2023, three non-automatic monitoring

<sup>3</sup> <https://www.srs.wales/Documents/Air-Quality/Bridgend/7294-7279-Bridgend-Council-2018-Air-Quality-Progress-Report.pdf>

locations within the AQMA remain in exceedance of the annual air quality objective for nitrogen dioxide. All other monitoring locations within Bridgend county display compliance with all relevant air quality objectives.

**Figure 2 - Park Street AQMA Diffusion Tubes Annual Mean Concentration Trends**



It is noted that in 2023, monitoring undertaken at sites OBC-110, OBC-123 and OBC-140 located on Park Street residential facades, exceed the annual average air quality objective set at (40µg/m<sup>3</sup>) for NO<sub>2</sub>. OBC-110 & OBC-123 recorded annual average figures of 43.3µg/m<sup>3</sup>. OBC-140 recorded an annual average figure of 42.9 µg/m<sup>3</sup>. This represents a reduction in NO<sub>2</sub> concentrations of 19% and 22% at OBC-110 & OBC-123 since 2019.

**Figure 2 - Area in Exceedance of the NO<sub>2</sub> Annual Objective Limit**



**Figure 3 - Park Street AQMA Monitoring Sites Exceeding the NO<sub>2</sub> Annual Objective Limit**



Sites currently exceeding annual air quality objectives are isolated to one area of Park Street. This area of Park Street, between no.91 and no. 107, experience higher concentrations of pollutants due to the proximity of houses to a heavily trafficked primary route with congestion issues. These issues are compounded by gradients increasing engine load and poor dispersion caused by buildings.

All other monitoring locations within Park Street AQMA and across Bridgend currently demonstrate compliance with the applicable air quality objectives.

## **Actions to Improve Air Quality**

The Air Quality Action Plan (AQAP) for the Park Street AQMA was published in March 2024. Various options within the AQAP have been adopted following development of the AQAP and public consultations.

In the summer of 2022, work was carried out to upgrade the traffic signals located at the junction of Park Street and Angel Street, along the A473. The refurbishment of the existing traffic lights was needed as the traffic light system was over 25 years old and the upgrade was essential to safeguard pedestrians, as well as making sure that traffic is managed in the best way possible on what is one of the county borough's busiest routes. The works follow-on from previous work completed on traffic lights at the A473's junction with Broadlands.

A right turn holding lane at the Junction of Park Street with Heol y Nant was implemented in January 2022. This was to be introduced by the developer (Persimmon) of the former Ysgol Bryn Castell site (Llangewydd Road, Cefn Glas) under the requirement of Condition 27 of Planning consent P/18/1006/FUL.

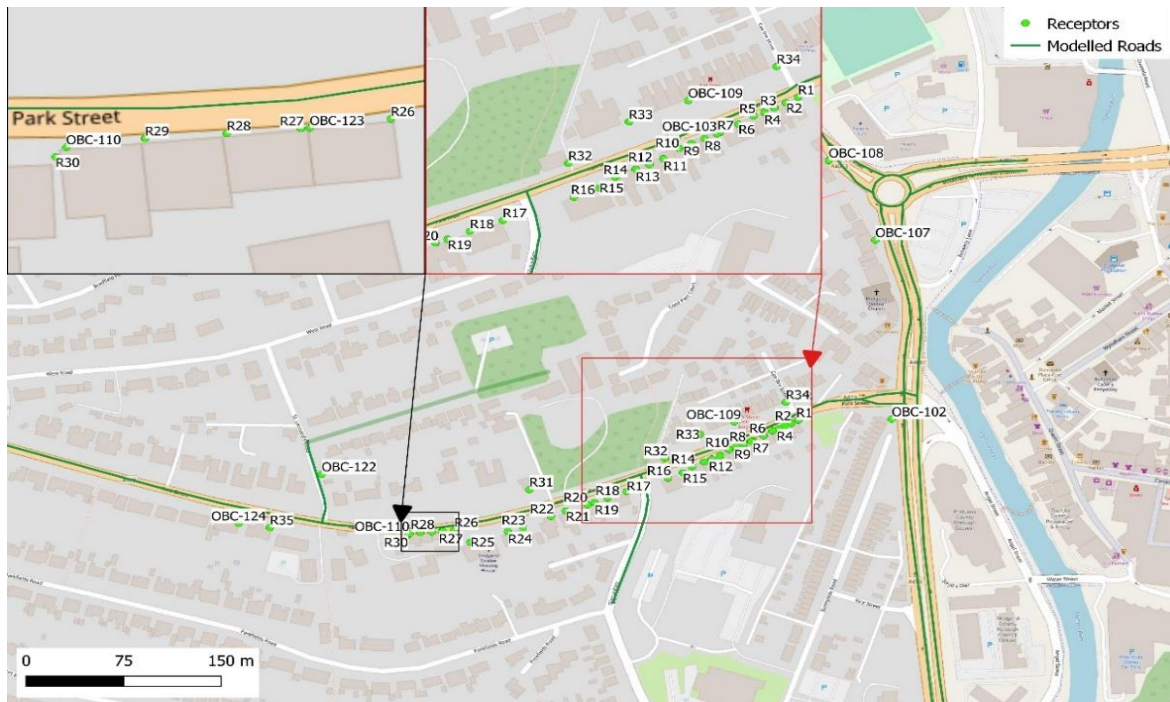
Both the Park Street/ Angel Street junction, and Heol y Nant right turn holding lane options were assessed by air quality modelling within the Park Street AQAP as part of the 'do something' scheme and were deemed to have a positive effect on traffic flows and air quality within Park Street.

Work has continued for the Park Street AQAP, with the assessment of various options that could improve air quality in the area. These options included investigating the benefits of bus electrification and HGV restrictions using Park Street. Modelling carried out in support of these options has found that the implementation of these measures will have little effect on receptors exceeding the NO<sub>2</sub> annual objective.

An assessment has also been undertaken to investigate when Park Street AQMA could see compliance with the NO<sub>2</sub> Annual Objective at all locations. The results of this compliance assessment suggest that without additional measures in place, the annual mean NO<sub>2</sub> concentrations will fall below the 40 µg/m<sup>3</sup> threshold in 2026 and that the local authority could start to make a case for revoking the AQMA at these locations from 2027 onwards.



**Figure 4 - Air Quality Dispersion Modelling Receptors**



**Table 1 - Annual averaged NO<sub>2</sub> concentrations (µg/m<sup>3</sup>) at each receptor from the 2025 – 2027 natural compliance models**

| Receptor ID | 2019 | 2023 | 2025 | 2026 | 2027 |
|-------------|------|------|------|------|------|
| R26         | 56.8 | 44.6 | 37.6 | 35.3 | 33.2 |
| R27         | 60.2 | 47.3 | 39.9 | 37.5 | 35.3 |
| R28         | 60.5 | 47.5 | 40.1 | 37.7 | 35.4 |
| R29         | 57.4 | 44.9 | 39.1 | 36.7 | 34.5 |
| OBC-123     | 56.4 | 44.3 | 37.4 | 35.2 | 33.1 |

At present, completion of the ‘do something’ scheme has the potential to bring forward compliance to 2025. However, this is unlikely due to the fact that the implementation of Measure 18, which is the final ‘do something’ scheme measure within the AQAP, denying all access onto St Leonards Road from Park Street, will require a consultation process due to the introduction of a traffic order. It is important to consider this in terms of timescale for implementation in comparison to the predicted year of natural compliance of 2026.

Any decision to move forward with this measure must take into consideration the benefits that further air quality improvements will bring, in balance with the costs and timescales to implement the measure. This measure will be retained and will be reconsidered dependent on ongoing NO<sub>2</sub> monitoring results in the Park Street AQMA.

In 2023, in addition to the existing NO<sub>2</sub> non-automatic diffusion tube sites in Bridgend, new monitoring locations were installed in Pencoed and within Park Street AQMA at a location identified within modelling assessments as a site of exceedance with regard to the Annual Objective Limit.

## **Local Priorities and Challenges**

The priority for the coming year is to continue to monitor and review air quality within and around the Park Street AQMA. Further action may be taken dependant on this monitoring data and the AQAP updated accordingly.

## **How to Get Involved**

BCBC welcomes any correspondence relating to air quality enquiries or concerns. Shared Regulatory Services (SRS) Specialist Services Team represents BCBC for local air quality management and therefore is contactable using the following email address [environment-srswales@valeofglamorgan.gov.uk](mailto:environment-srswales@valeofglamorgan.gov.uk)

Hourly and Monthly average automatic monitoring data for pollutants measured in Bridgend are available to view at <https://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 (PM<sub>10</sub>) 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 PM<sub>10</sub> revealed gaps in the data gathered and concluded that there was evidence to suggest non-compliance with the air quality objectives for PM<sub>10</sub> and NO<sub>2</sub> 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 31<sup>st</sup> December 2005.
- The mobile PM<sub>10</sub> and NO<sub>x</sub> 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 (PM<sub>10</sub>) was and concluded that the current air quality objectives for nitrogen dioxide and particles PM<sub>10</sub> 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 NO<sub>2</sub> 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 PM<sub>10</sub> and NO<sub>2</sub> will continue at Kenfig Hill adjacent to the opencast coal site operated by Celtic Energy Ltd.



- Monitoring of NO<sub>2</sub> and sulphur dioxide (SO<sub>2</sub>) 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 NO<sub>2</sub> 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 NO<sub>2</sub> 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 (NO<sub>2</sub>), 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 (NO<sub>2</sub>) 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.

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 (NO<sub>2</sub>) are not being met at the southwestern 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 southwestern 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 (NO<sub>2</sub>). 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 (NO<sub>2</sub>) has not been exceeded. However, results are very close to the objective and monitoring will continue at this location for another year.

No continuous PM<sub>10</sub> 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<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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 PM<sub>10</sub> will continue at the same sites as at the end of 2012.

The Automated Continuous NO<sub>x</sub> 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 PM<sub>10</sub> 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 NO<sub>2</sub> network with 10 new locations commissioned for 2017.

Quality and technical issues were outlined regarding the automatic monitoring at Ewenny Cross Roundabout, for both NO<sub>2</sub> and PM<sub>10</sub>. The inability to conform to the frequency of calibration checks and technical issues faced with the PM<sub>10</sub> Met One E Sampler were noted. Data capture was also an issue at the Rockwool Ltd site for SO<sub>2</sub> 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 (NO<sub>2</sub>) and outlined the requirement to proceed to implement and formalise an Air Quality Management Area (AQMA) Order for Park Street, Bridgend. On January 1<sup>st</sup>, 2019, an official AQMA Order was raised for Park Street, Bridgend, designated on the basis of exceeding annual average NO<sub>2</sub> 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 (NO<sub>2</sub>), 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 NO<sub>2</sub> 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.

### **2021 Annual Progress Report**

The 2021 Annual Progress Report shown a reduction in NO<sub>2</sub> concentrations at all locations, although still slightly exceeding the annual air quality objective at two locations within Park Street. Monitoring continued at all locations within the Park Street AQMA with the addition of an automatic air quality monitoring station in December 2020.

**2022 Annual Progress Report**

Annual average datasets outline continued elevated and exceeding levels of NO<sub>2</sub> at two sensitive receptor locations situated on Park Street within the established AQMA Order boundary. It is noted that monitoring undertaken in 2021 at sites OBC-110 & OBC-123, located on Park Street at residential facades exceed the annual average air quality objective set at (40µg/m<sup>3</sup>) for NO<sub>2</sub>. All automated and non- automated datasets show compliance with the air quality objectives at every other monitored location.

**2023 Annual Progress Report**

Annual average datasets outline continued elevated and exceeding levels of NO<sub>2</sub> at sensitive receptor locations situated on Park Street within the established AQMA Order boundary. It is noted that monitoring undertaken in 2022 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/m<sup>3</sup>) for NO<sub>2</sub>. OBC-110 & OBC-123 recorded annual average figures in 2022 of 47.2µg/m<sup>3</sup> & 45.5µg/m<sup>3</sup> respectively. This represents a reduction in NO<sub>2</sub> concentrations of 12% and 17% at these receptors since 2019.

Automatic monitoring carried on Park Street demonstrates compliance with the annual air quality objective for NO<sub>2</sub>. This automatic monitor also showed no exceedances of the 1-hour NO<sub>2</sub> objective of 200 µg/m<sup>3</sup> not to be exceeded more than 18 times annually for both periods.

Compliance of air quality objectives at the automatic monitoring station confirms the varied impact of pollutant emissions on Park Street. Two non-automatic monitoring sites located approximately 17 metres from the monitoring station, OBC-110 & OBC-123, exceed the annual air quality objective for NO<sub>2</sub>. Air quality issues are exacerbated in the location of non-compliance by the proximity of terrace housing to the road and poor dispersion of pollutants.

Nitrogen dioxide concentrations at all other non-automatic locations were shown to be compliant the annual air quality objective for NO<sub>2</sub> of 40µg/m<sup>3</sup>.

## 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 an 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. AQMA(s) are seen by local authorities as the focal points to channel resources into the most pressing areas of pollution as a priority.

A summary of AQMAs declared by Bridgend County Borough Council can be found in Table 2. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at <https://www.bridgend.gov.uk/my-council/consultations/closed-consultations/park-street-air-quality-management-area/>

**Table 2 - Declared Air Quality Management Areas**

| AQMA        | Relevant Air Quality Objective(s) | Comments on Air Quality Trend   | Town     | Description   | Action Plan  |
|-------------|-----------------------------------|---|----------|---|--|
| Park Street | NO <sub>2</sub> annual mean       | This year's monitoring results indicate an improvement in air quality compared to the pre-Covid-19 period | Bridgend | <p>The designated AQMA borders the green space area prior to the rear entrance of properties located on Sunnyside Road.</p> <p>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</p> | <p><a href="#">AQAP BCBC Park Street final (srs.wales)</a></p> |



### 1.3 Implementation of Action Plans

BCBC has taken forward a number of measures during 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 3. More detail on these measures can be found in the Air Quality Action Plan relating to any designated AQMAs.

Air Quality Action Plans are continuously reviewed and updated whenever deemed necessary, but no less frequently than once every five years. Such updates are completed in close consultation with local communities.

Key measures completed in 2023 are:

- Additional modelling assessments to understand when compliance will be met within Park Street AQMA

One remaining measure within the Park Street AQAP 'do something scheme' (Measure 18) has yet to be implemented. Based on the modelling undertaken this measure would provide further improvements to air quality, although it may not necessarily bring forward the compliance date, based on timescales for consultation, appeals process, and implementation. Any decision to move forward with this measure must take into consideration the benefits that further air quality improvements will bring, in balance with the costs and timescales to implement the measure, and that it will not necessarily bring forward compliance. This measure will be retained and will be reconsidered dependent on ongoing NO<sub>2</sub> monitoring results in the Park Street AQMA.

**Table 3 - Progress on Measures to Improve Air Quality**

| Measure No. | Measure  | Category           | Classification                  | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved  | Funding Source  | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status      | Target Reduction in Pollutant / Emission from Measure | Key Performance Indicator   | Progress to Date     | Comments / Potential Barriers to Implementation |
|-------------|--|--------------------|---------------------------------|---|------------------------------------|---|---|------------------------|----------------|---------------------------|---------------------|---|---|----------------------|---|
| 1           | Public Health information campaign including additional automatic monitoring | Public Information | Via the Internet                | Unknown                                 | Unknown                            | . Local Authority Environmental Health, BCBC, Local Communities Forum | Proposed DEFRA AQ Grant Funding                       |                        | Unknown        | Unknown                   | Subject to approval | Unknown.  | The number of hits on website. Number of initiatives delivered. Delivery of a public education campaign. Cross reference obtained air quality results to the applicable air quality objectives. Improvements to those figures outlined in Bridgend LTP 2015 using data acquired by 2011 Census. | No progress to date. | Requires ongoing grant funding.                 |
| 2           | Support the creation of a local "Air Quality Action Group."                  | Public Information | Via the Internet/Leaflets/Other | 2023                                    | Unknown                            | Local Communities Forum   | Measure could be included in funding for measure one. |                        |                | As above                  | Subject to approval | Unknown.  | Number of associated members.   | No progress to date  |   |

| Measure No. | Measure  | Category                              | Classification   | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved  | Funding Source         | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status         | Target Reduction in Pollutant / Emission from Measure | Key Performance Indicator  | Progress to Date    | Comments / Potential Barriers to Implementation |
|-------------|--|---------------------------------------|------------------|---|------------------------------------|---|------------------------|------------------------|----------------|---------------------------|------------------------|---|--|---------------------|---|
| 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 | 2023                                    | 2027                               | . Local Authority Environmental Health, BCBC, Local Communities Forum | DEFRA AQ Grant Funding |                        |                | £10 - £50K                | Subject to approval by | Unknown.  | Cross reference obtained air quality results to the applicable air quality objectives. |                     |   |
| 4           | Electronic “pollutant signage” within AQMA and local area  | Public Information/Traffic management | Other            | Unknown                                 |                                    | . Local Authority Environmental Health, BCBC                          | Unknown                |                        |                | £50K - £250K              |                        | Not directly applicable – NOx reduction not estimated | Improved Public awareness/ Increase in the use of sustainable alternatives.            | No progress to date |   |
| 5           | Signs and banners for engine idling. Signage at key intersections, near junctions and on public transport / taxis encouraging people to switch off engines when traffic comes to a stop. | Public Information/Traffic management | Other            | Unknown                                 | Unknown                            | Local Communities Forum   | Unknown                |                        |                | £50K - £250K              |                        | Not directly applicable – NOx reduction not estimated | Improved Public awareness/ Increase in the use of sustainable alternatives.            | No progress to date |   |

| Measure No. | Measure   | Category                                | Classification                           | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved                       | Funding Source | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status | Target Reduction in Pollutant / Emission from Measure | Key Performance Indicator   | Progress to Date    | Comments / Potential Barriers to Implementation |
|-------------|---|---|--|---|------------------------------------|--|----------------|------------------------|----------------|---------------------------|----------------|---|---|---------------------|---|
| 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 | Unknown                                 | Unknown                            | . Local Authority Environmental Health, BCBC | Unknown        |                        |                | < £10k                    |                | Not directly applicable – NOx reduction not estimated | Production of an SPG.   | No progress to date |   |
| 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                                    | Unknown                                 |                                    | BCBC   | Unknown        |                        |                | < £10k                    |                | Not directly applicable – NOx reduction not estimated | 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. | No progress to date |   |
| 8           | Revise BCBC's Walking and Cycling Strategy; Revise the existing 2009 document   | Policy Guidance and Development Control | Promotion of cycling                     | Unknown                                 | Unknown                            | BCBC   | Unknown        |                        |                | < £10k                    |                | Not directly applicable – NOx reduction not estimated | Production of a revised document.   | No progress to date |   |

| Measure No. | Measure   | Category                                | Classification | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status | Target Reduction in Pollutant / Emission from Measure  | Key Performance Indicator                | Progress to Date    | Comments / Potential Barriers to Implementation |
|-------------|---|---|----------------|---|------------------------------------|------------------------|----------------|------------------------|----------------|---------------------------|----------------|--|--|---------------------|---|
| 9           | Endorse SP19, Biodiversity and Development. Further influence the use of green infrastructure for new developments.   | Policy Guidance and Development Control | Other          | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | < £10k                    |                | Not directly applicable – NOx reduction not estimated  | Number of trees planted.                 | No progress to date | .   |
| 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          | Unknown                                 |                                    | BCBC                   | Unknown        |                        |                | Cost unknown              |                | Not directly applicable – NOx reduction not estimated. . Not necessarily applicable to reduction of emissions on Park Street as source of problem is from vehicles. Unlikely to impact NO <sub>2</sub> exceedances at effected receptors | Number of nuisance complaints generated. | No progress to date |   |

| Measure No. | Measure  | Category                      | Classification                                      | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved  | Funding Source | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status | Target Reduction in Pollutant / Emission from Measure | Key Performance Indicator  | Progress to Date    | Comments / Potential Barriers to Implementation |
|-------------|--|-------------------------------|---|---|------------------------------------|---|----------------|------------------------|----------------|---------------------------|----------------|---|--|---------------------|---|
| 11          | School Active Travel Plans   | Promoting Travel Alternatives | Incentivise active travel campaign & infrastructure | Unknown                                 | Unknown                            | BCBC  | Unknown        |                        |                | < £10k                    |                | Not directly applicable – NOx reduction not estimated | BCBC/ SRS/ Living Streets “WOW” Scheme/ Sustrans/ WG Young Dragons Educational Package/ Global Action Plan | No progress to date |   |
| 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 home working.                | Unknown                                 | Unknown                            | BCBC  | Unknown        |                        |                | < £10k                    |                | Not directly applicable – NOx reduction not estimated | Produce Healthy Travel Charter.<br>Number of individuals enrolled on programme.                            | No progress to date |   |
| 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   | Unknown                                 |                                    | BCBC/ Cwm Taf Morgannwg University Health Board/ Public Health Wales. | Unknown        |                        |                | < £10k                    |                | Not directly applicable – NOx reduction not estimated | Produce Healthy Travel Charter.<br>Number of individuals enrolled on programme.                            | No progress to date |   |

| Measure No. | Measure   | Category                            | Classification           | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status | Target Reduction in Pollutant / Emission from Measure  | Key Performance Indicator   | Progress to Date    | Comments / Potential Barriers to Implementation |
|-------------|---|-------------------------------------|--------------------------|---|------------------------------------|------------------------|----------------|------------------------|----------------|---------------------------|----------------|--|---|---------------------|---|
| 14          | Park and Ride facilities to be implemented at strategic sites (Broadlands)/ Shuttle bus service linking 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. | Alternatives to private vehicle use | Bus Park and Ride scheme | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | £250k - £1m               |                | NOx reduction not estimated although a reduction in cars will mean benefits in air quality and congestion. | Bus patronage figures.  | No progress to date |   |
| 15          | Anti-idling implemented as TROs specific to sensitive areas such as outside schools, hospitals, care homes, as well as Park Street AQMA   | Traffic Management                  | Anti-idling enforcement  | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | <10k                      |                | Not directly applicable – NOx reduction not estimated  | Cross reference obtained air quality results on Park Street to the applicable air quality objectives. | No progress to date | .   |

| Measure No. | Measure  | Category           | Classification                | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status | Target Reduction in Pollutant / Emission from Measure  | Key Performance Indicator  | Progress to Date  | Comments / Potential Barriers to Implementation                                |
|-------------|--|--------------------|-------------------------------|---|------------------------------------|------------------------|----------------|------------------------|----------------|---------------------------|----------------|--|--|---|--|
| 16          | Introduce a pilot scheme "20mph speed limit" to Park Street. | Traffic Management | Anti-idling enforcement       | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | Cost unknown              |                | Unlikely to improve air quality on Park Street, as the air quality issue is caused by slow moving and queuing traffic.           | Evaluation of annual air quality datasets for NO <sub>2</sub> .<br>Reduction in vehicle speeds via traffic flow analysis<br>Any marked improvement in collision/incident rates.<br>Cross reference obtained air quality results on Park Street to the applicable air quality objectives. | Nationwide implementation of 20mph limit in residential September 2023. |  |
| 17          | Ghost right hand turn onto Heol-Y-Nant.                      | Traffic Management | Strategic highway improvement |   |                                    | BCBC                   |                |                        |                | <£10k                     |                | Exact reduction unknown. However, improvements in NO <sub>2</sub> reductions are evident since the implementation of the measure | Cross reference obtained air quality results on Park Street to the applicable air quality objectives.  | Measure completed in February 2022.                                     | Measure included in AQAP detailed assessment as part of 'do minimum' scenario. |



| Measure No. | Measure  | Category           | Classification                | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status | Target Reduction in Pollutant / Emission from Measure   | Key Performance Indicator   | Progress to Date                            | Comments / Potential Barriers to Implementation  |
|-------------|--|--------------------|-------------------------------|---|------------------------------------|------------------------|----------------|------------------------|----------------|---------------------------|----------------|---|---|---|--|
| 18          | Deny all access onto St Leonard's Road from Park Street for all traffic movements.                     | Traffic Management | Strategic highway improvement | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | £10k - £50k               |                | Modelling for 'do something' scenario predicts a decrease in NO2 emissions of up to 5.8µg/m3 when with addition of measure twenty.                      | Cross reference obtained air quality results on Park Street to the applicable air quality objectives. | Measure retained pending monitoring results | Measure included in AQAP detailed assessment as part of 'do something' scenario.                           |
| 19          | Deny a through route movement from Angel Street onto Park Street.                                      | Traffic Management | Strategic highway improvement | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | Cost unknown              |                | Unknown.  | Reduced capacity on Park Street captured via traffic flow analysis.                                   |   |  |
| 20          | Optimise the traffic signals at the Tondy Rd/ Park Street/ Angel Street Junction- Adopt a MOVA system. | Traffic Management | Strategic highway improvement |   |                                    | BCBC                   |                |                        |                | £10k - £50k               |                | Modelling for 'do something' scenario predicts a decrease in NO2 emissions of up to 5.8µg/m3 as part of a 'do something' scenario with measure eighteen | Cross reference obtained air quality results on Park Street to the applicable air quality objectives. | Measure completed in February 2022.         | Completed September 2022. Measure included in AQAP detailed assessment as part of 'do something' scenario. |

| Measure No. | Measure  | Category  | Classification  | Estimated Year Measure to be Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defra AQ Grant Funding | Funding Status | Estimated Cost of Measure | Measure Status | Target Reduction in Pollutant / Emission from Measure  | Key Performance Indicator   | Progress to Date                            | Comments / Potential Barriers to Implementation |
|-------------|--|---|---|---|------------------------------------|------------------------|----------------|------------------------|----------------|---------------------------|----------------|--|---|---|---|
| 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  | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | £50k - £250k              |                | Unknown.   | Customer satisfaction questionnaires from the bus operators.  | No progress to date                         |   |
| 23          | HGV restrictions for Park Street.  | Traffic Management / Promoting Low Emission Transport | UTC, Congestion management, traffic reduction                             | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | £10k - £50k               |                | Dispersion modelling indicates this option will have little effect on reducing NO2 concentrations at the worst effected receptors. | Cross reference obtained air quality results on Park Street to the applicable air quality objectives. Review data gathered via modelling assessment | Modelling has carried out to assess measure |   |
| 24          | Bus Electrification for buses using Park Street  | Promoting Low Emission Transport                      | Public Vehicle Procurement - Prioritising uptake of low emission vehicles | Unknown                                 | Unknown                            | BCBC                   | Unknown        |                        |                | £250k - £1m               |                | Dispersion modelling indicates this option will have little effect on reducing NO2 concentrations at the worst effected receptors. | Cross reference obtained air quality results on Park Street to the applicable air quality objectives. Review data gathered via modelling assessment | Modelling has carried out to assess measure |   |

## 2 Air Quality Monitoring Data and Comparison with Air Quality Objectives

### 2.1 Summary of Monitoring Undertaken in 2023

#### 2.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how results compare with the objectives.

SRS on behalf of BCBC undertook automatic (continuous) monitoring at one site during 2023. Table 4 presents the details of the sites. National monitoring results are available at <https://airquality.gov.wales/>.

Maps showing the location of the monitoring sites are provided in Figure 5. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

It should be noted that due to a production delay in Nitrogen Oxide (NO<sub>x</sub>) cylinders used to calibrate the automatic air quality monitoring station within Park Street AQMA, fortnightly calibrations were not undertaken to check NO<sub>x</sub> values between August 2023, and January 2024. The data for the monitoring station has been included in this report, however, it is unclear how this has affected the final results for the air quality monitoring station. In light of this issue, local bias adjustment factors from a co-location study carried out using the monitoring station have not been utilised to calculate the final bias adjusted figures for the diffusion tube network. Instead, diffusion tubes have been bias adjusted using the national bias adjustment figure.

#### 2.1.2 Non-Automating Monitoring Sites

SRS on behalf of BCBC undertook non- automatic (passive) monitoring of NO<sub>2</sub> at 35 sites during 2023. Table 5 presents the details of the sites.

A new site (OBC-140) was installed within Park Street AQMA to represent a modelled receptor included within air quality assessments for the Park Street AQAP. This will enable comparisons against predicted modelled NO<sub>2</sub> concentrations at this specific location.

Maps showing the location of the monitoring sites are provided in Figure 6 to Figure 14 - Map of Non-Automatic Monitoring Site Porthcawl. Further details on Quality

Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Table 4 - Details of Automatic Monitoring Sites

| Site ID | Site Name                 | Site Type | Associated with (Named) AQMA? | X OS Grid Reference | Y OS Grid Reference | Pollutants Monitored | Monitoring Technique  | Inlet Height (m) | Distance from monitor to nearest relevant exposure (m) <sup>(1)</sup> | Distance from Kerb to Nearest Relevant Exposure (m) | Distance from Kerb to Monitor (m) |
|---------|---------------------------|-----------|-------------------------------|---------------------|---------------------|----------------------|---|------------------|---|---|-----------------------------------|
| AQMA1   | Bridgend Park Street AQMA | Roadside  | Y                             | 290040              | 179704              | NO2, PM10            | Chemiluminescence/<br>Beta Attenuation Monitor with Gravimetric Equivalence | 1.5              | 4   | 5.5   | 1.5                               |

**Notes:**

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

Figure 5 - Map of Automatic Monitoring Site Park Street AQMA

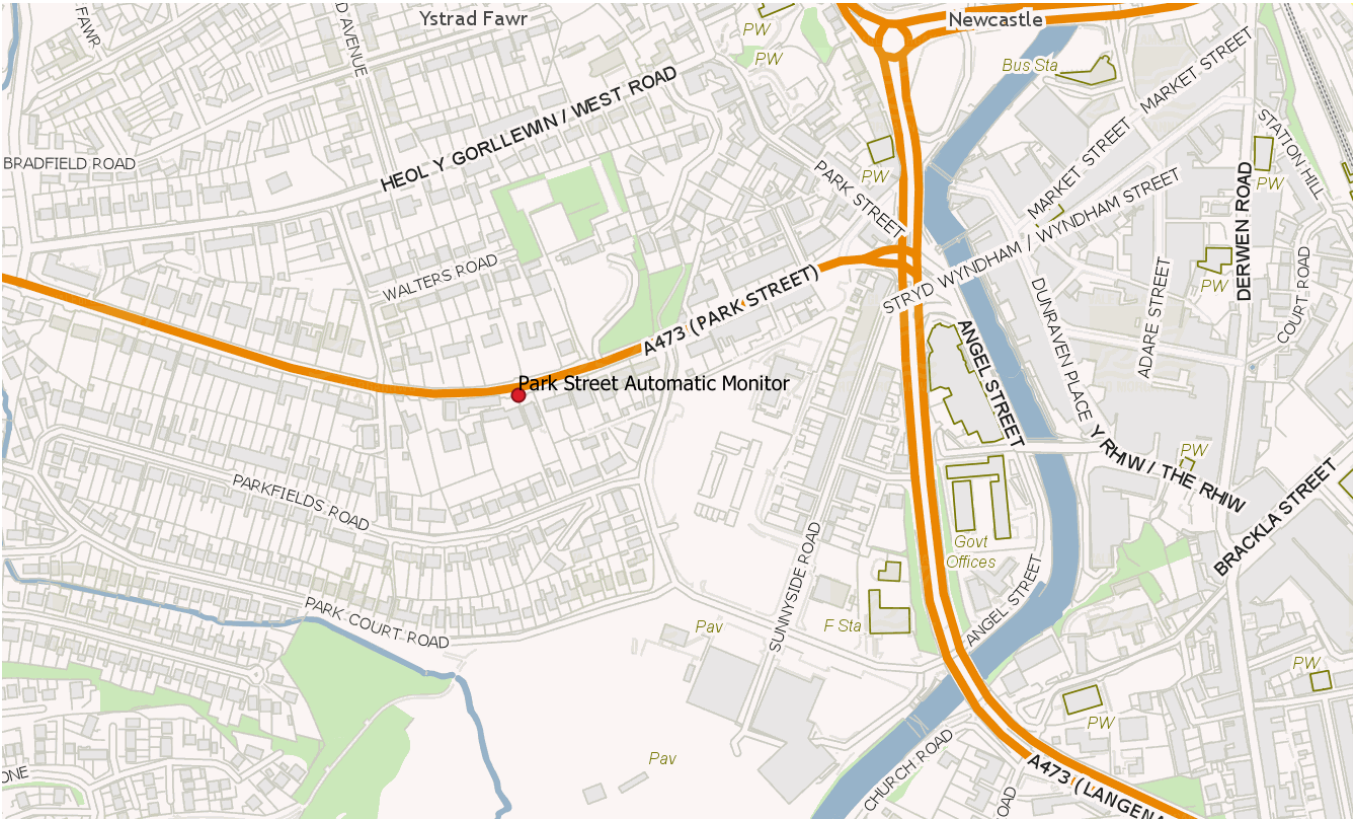


Table 5 - Details of Non-Automatic Monitoring Sites

| Diffusion Tube ID | Site Name               | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) | Distance to Kerb of Nearest Road (m) | Tube Co-located with a Continuous Analyser | Height (m) |
|-------------------|-------------------------|-----------|-------------------------|--------------------------|----------------------|----------------------|-----------------------------------|--------------------------------------|--|------------|
| OBC-113           | 127 Priory Avenue       | Roadside  | 290616                  | 178394                   | NO2                  |                      | 0.0                               | 10.0                                 |  | 1.5        |
| OBC-115           | 105 Ewenny Rd           | Roadside  | 290667                  | 178529                   | NO2                  |                      | 0.0                               | 12.0                                 |  | 1.5        |
| OBC- 121          | 29 Heol Tre Dwr         | Roadside  | 291540                  | 178734                   | NO2                  |                      | 0.0                               | 5.0                                  |  | 1.5        |
| OBC- 122          | St Leonards Road        | Kerbside  | 289919                  | 179755                   | NO2                  |                      | 0.0                               | 0.9                                  |  | 1.5        |
| OBC - 131         | Park Street co-location | Roadside  | 290040                  | 179704                   | NO2                  | Park Street AQMA     | 0.0                               | 1.0                                  | Yes  | 1.5        |
| OBC- 123          | 93 Park St              | Roadside  | 290014                  | 179698                   | NO2                  | Park Street AQMA     | 0.0                               | 0.5                                  |  | 1.5        |
| OBC-133           | Coychurch Road, Pencoed | Kerbside  | 295899                  | 181363                   | NO2                  |                      | 4.0                               | 1.0                                  |  | 1.5        |
| OBC-112           | 33 Cowbridge Road       | Roadside  | 290798                  | 179244                   | NO2                  |                      | 0.0                               | 1.0                                  |  | 1.5        |
| OBC- 105          | 65 Cowbridge Rd         | Roadside  | 290899                  | 179185                   | NO2                  |                      | 0.0                               | 4.1                                  |  | 1.5        |
| OBC-111           | 01 Cowbridge Rd         | Roadside  | 290700                  | 179305                   | NO2                  |                      | 0.0                               | 5.0                                  |  | 1.5        |
| OBC- 106          | 38/40 Cowbridge Rd      | Kerbside  | 290826                  | 179210                   | NO2                  |                      | 0.0                               | 1.0                                  |  | 1.5        |
| OBC-102           | 4 Sunnyside             | Roadside  | 290354                  | 179807                   | NO2                  | Park Street AQMA     | 0.0                               | 3.0                                  |  | 1.5        |

| Diffusion Tube ID | Site Name                 | Site Type    | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) | Distance to Kerb of Nearest Road (m) | Tube Co-located with a Continuous Analyser | Height (m) |
|-------------------|---------------------------|--------------|-------------------------|--------------------------|----------------------|----------------------|-----------------------------------|--------------------------------------|--|------------|
| OBC-103           | 39 Park St                | Roadside     | 290250                  | 179782                   | NO2                  | Park Street AQMA     | 0.0                               | 1.2                                  |  | 1.5        |
| OBC-104           | 51 Park St                | Roadside     | 290286                  | 179800                   | NO2                  | Park Street AQMA     | 0.0                               | 1.1                                  |  | 1.5        |
| OBC-110           | 101/103 Park St           | Roadside     | 289988                  | 179701                   | NO2                  | Park Street AQMA     | 0.0                               | 0.9                                  |  | 1.5        |
| OBC-109           | 32 Park St                | Roadside     | 290239                  | 179795                   | NO2                  | Park Street AQMA     | 0.0                               | 7.5                                  |  | 1.5        |
| OBC-107           | 17 Tondu Rd               | Roadside     | 290347                  | 179959                   | NO2                  |                      | 0.0                               | 2.0                                  |  | 1.5        |
| OBC-108           | 43 Tondu Road             | Roadside     | 290311                  | 180032                   | NO2                  |                      | 0.0                               | 0.9                                  |  | 1.5        |
| OBC-101           | Bridgend Town Centre      | Urban Centre | 290469                  | 179837                   | NO2                  |                      | 0.0                               | 1.0                                  |  | 1.5        |
| OBC-130           | A4061 Opposite Mason Arms | Roadside     | 291386                  | 184168                   | NO2                  |                      | 0.0                               | 1.5                                  |  | 1.5        |
| OBC-097           | 22 Coity Rd               | Roadside     | 290687                  | 180185                   | NO2                  |                      | 0.0                               | 5.0                                  |  | 1.5        |
| OBC- 135          | 33 Maesteg Rd, Tondu      | Roadside     | 289402                  | 184461                   | NO2                  |                      | 0.0                               | 2.0                                  |  | 1.5        |
| OBC-132           | Meadow View Blackmill     | Roadside     | 293418                  | 186662                   | NO2                  |                      | 0.5                               | 2.0                                  |  | 1.5        |
| OBC- 124          | 133 Park St               | Roadside     | 289859                  | 179710                   | NO2                  |                      | 0.0                               | 7.0                                  |  | 1.5        |
| OBC- 125          | Commercial Road Maesteg   | Roadside     | 285299                  | 191136                   | NO2                  |                      | 0.0                               | 2.0                                  |  | 1.5        |



| Diffusion Tube ID | Site Name   | Site Type  | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) | Distance to Kerb of Nearest Road (m) | Tube Co-located with a Continuous Analyser | Height (m) |
|-------------------|---|------------|-------------------------|--------------------------|----------------------|----------------------|-----------------------------------|--------------------------------------|--|------------|
| OBC-120           | 105 New Rd, Porthcawl                                   | Roadside   | 282264                  | 177237                   | NO2                  |                      | 0.0                               | 2.0                                  |  | 1.5        |
| OBC-129           | Wern Fawr, Pencoed                                      | Industrial | 296439                  | 184111                   | NO2                  |                      | 0.0                               | N/A                                  |  | 1.5        |
| OBC-116           | 20 Henre Rd, Pencoed                                    | Roadside   | 295886                  | 181642                   | NO2                  |                      | 0.0                               | 1.0                                  |  | 1.5        |
| OBC-139           | Britannia Pub lamp post near level crossing Hendre Road | Roadside   | 295967                  | 181623                   | NO2                  |                      | 0.0                               | 1.5                                  |  | 1.5        |
| OBC-126           | Tremains Rd   | Kerbside   | 291125                  | 179517                   | NO2                  |                      | 0.0                               | 8.0                                  |  | 1.5        |
| OBC-127           | Longacre Brackla  | Roadside   | 292236                  | 179473                   | NO2                  |                      | 2.0                               | 2.0                                  |  | 1.5        |
| OBC-140           | 97 Park Street  | Roadside   | 290002                  | 179702                   | NO2                  | Park Street AQMA     | 0.0                               | 0.5                                  |  | 1.5        |
| OBC-136           | 30 Maerdy Park, Pencoed                                 | Roadside   | 295588                  | 180916                   | NO2                  |                      | 0.0                               | 5.0                                  |  | 1.5        |
| OBC-144           | 3 Moriah Place Kenfig Hill                              | Roadside   | 283730                  | 182922                   | NO2                  |                      | 0.0                               | 7.0                                  |  | 1.5        |
| OBC-137           | Main Road, Coychurch                                    | Roadside   | 294309                  | 179872                   | NO2                  |                      | 4.0                               | 2.0                                  |  | 1.5        |
| OBC-138           | A473 Coychurch Rd                                       | Kerbside   | 294218                  | 179795                   | NO2                  |                      | 4.0                               | 1.5                                  |  | 1.5        |

**Notes:**

(1) 0m indicates that the sited monitor represents exposure and as such no distance calculation is required.

(2) N/A if not applicable.

Figure 6 – Map of Non-Automatic Monitoring Sites Park Street AQMA

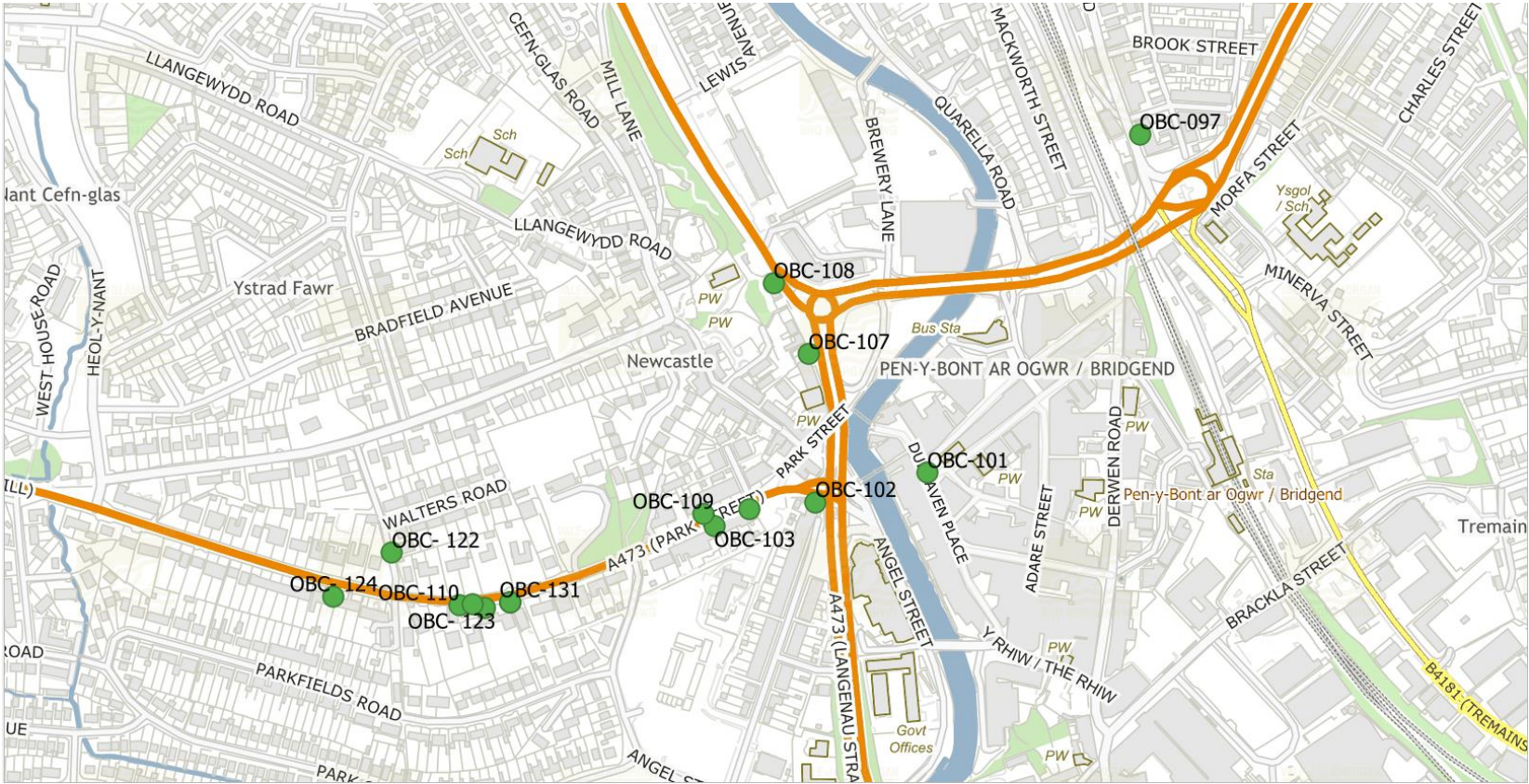


Figure 7 - Map of Non-Automatic Monitoring Sites Bridgend

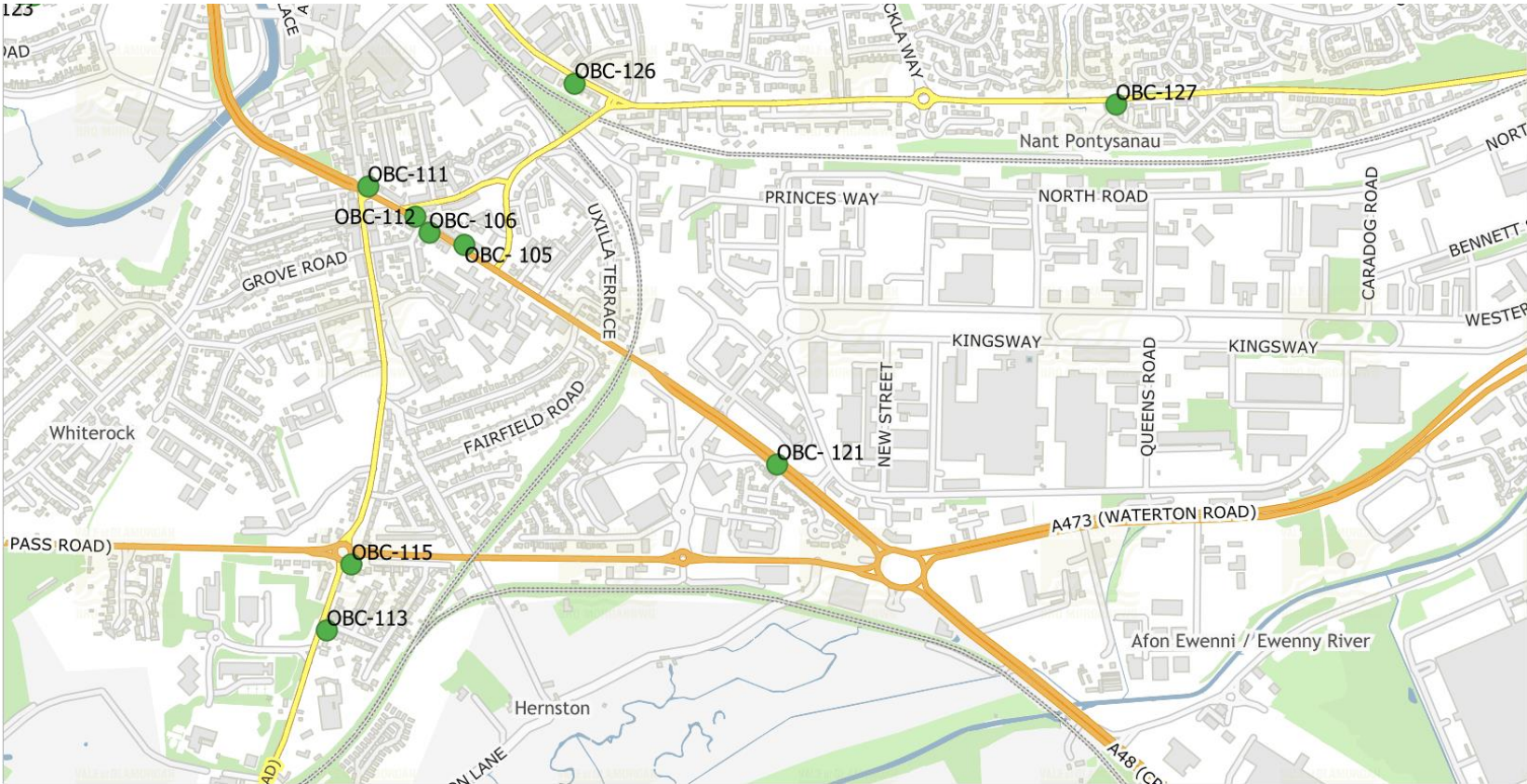


Figure 8 - Map of Non-Automatic Monitoring Sites Coychurch

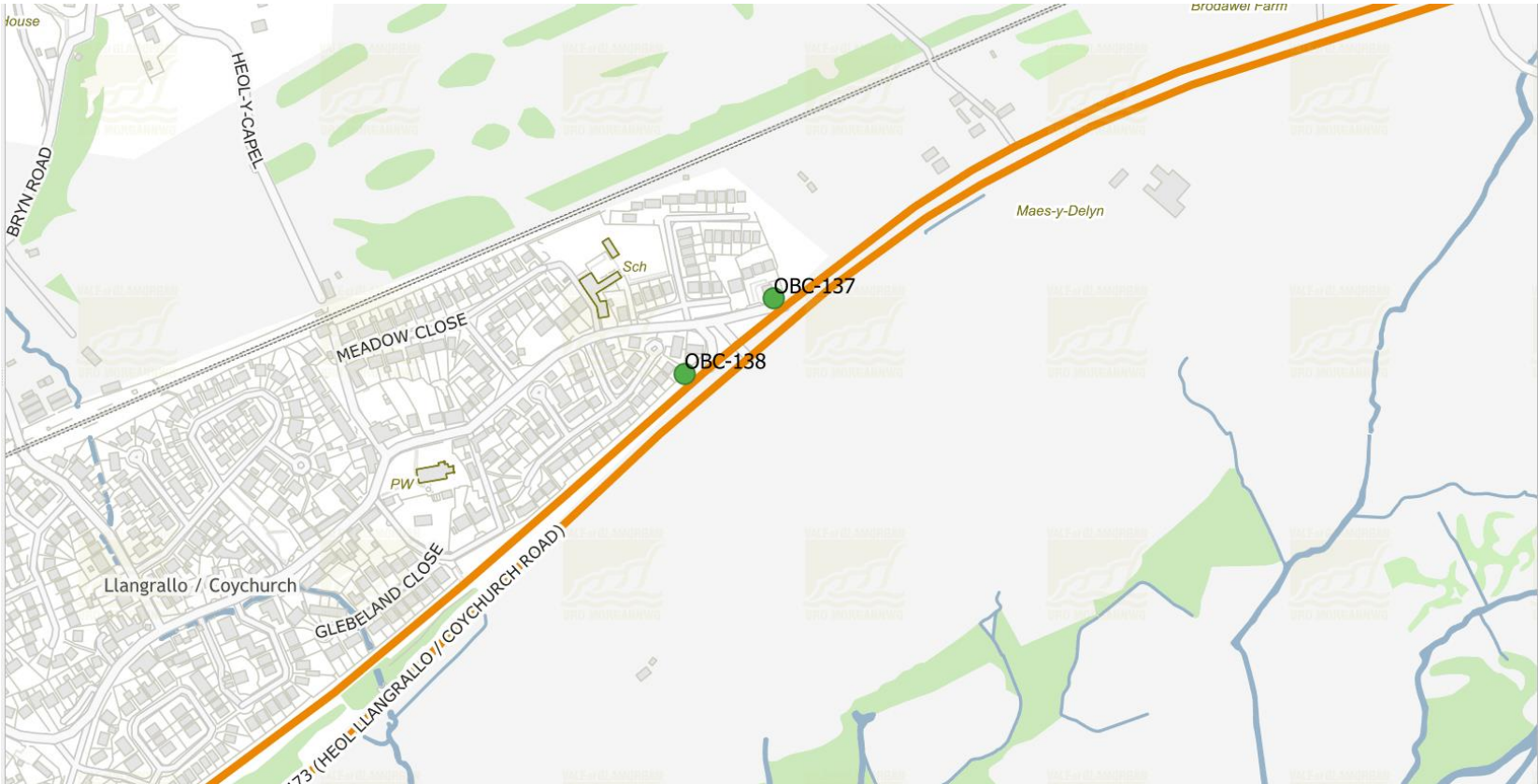


Figure 9 - Map of Non-Automatic Monitoring Sites Pencoed

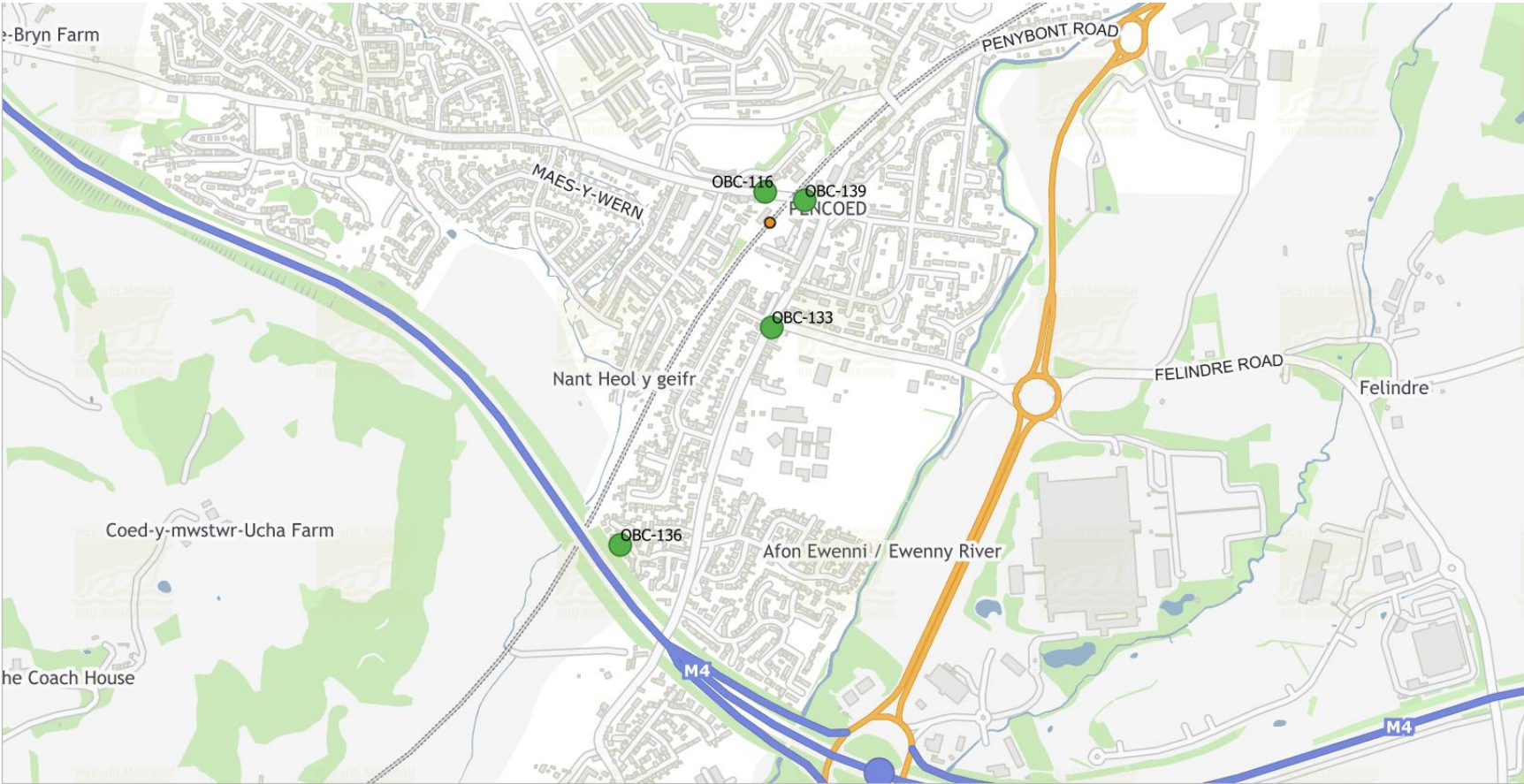


Figure 10 - Map of Non-Automatic Monitoring Sites Wern Fawr, Pencoed

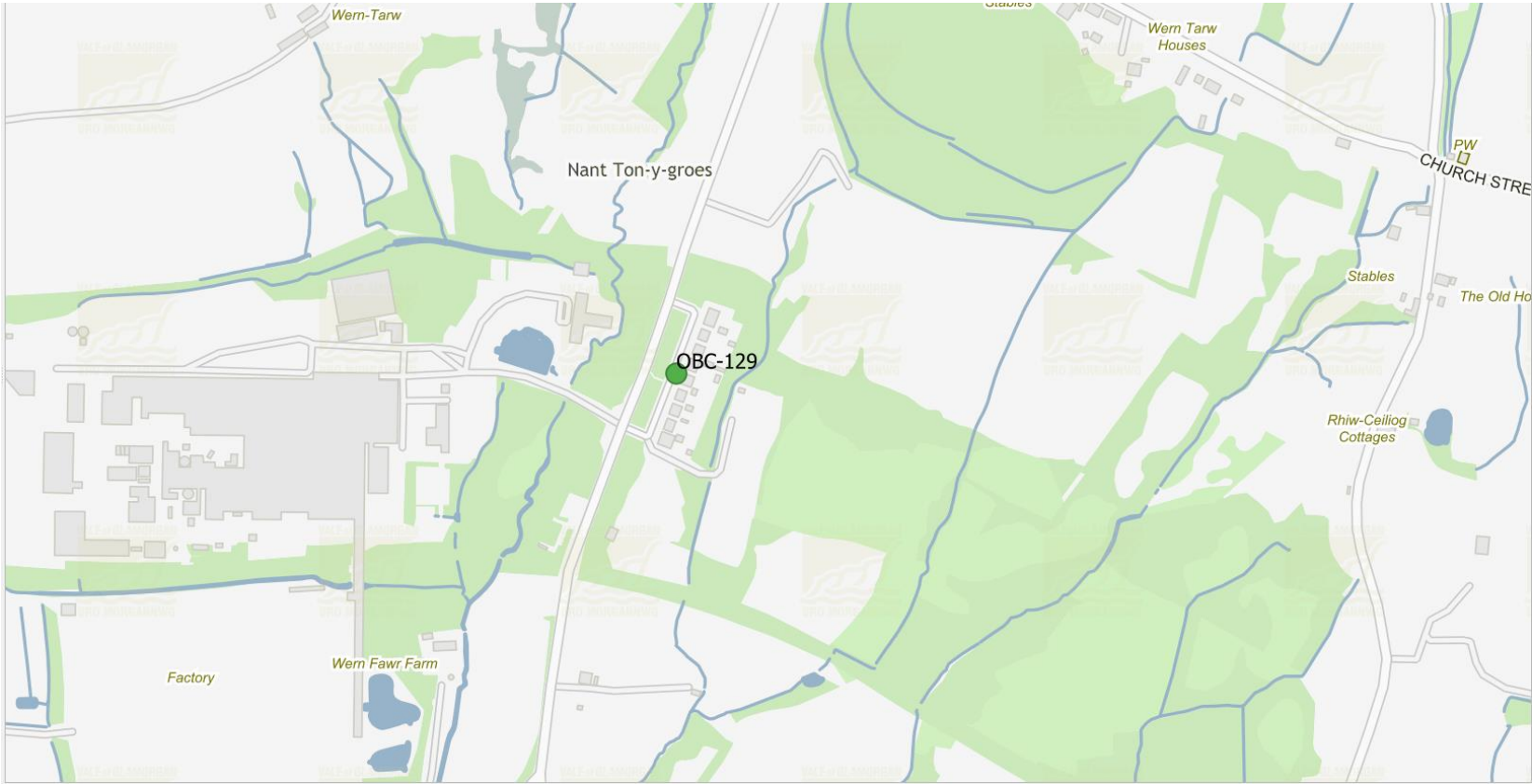


Figure 11 - Map of Non-Automatic Monitoring Sites Tondu, Brynmenyn, Blackmill

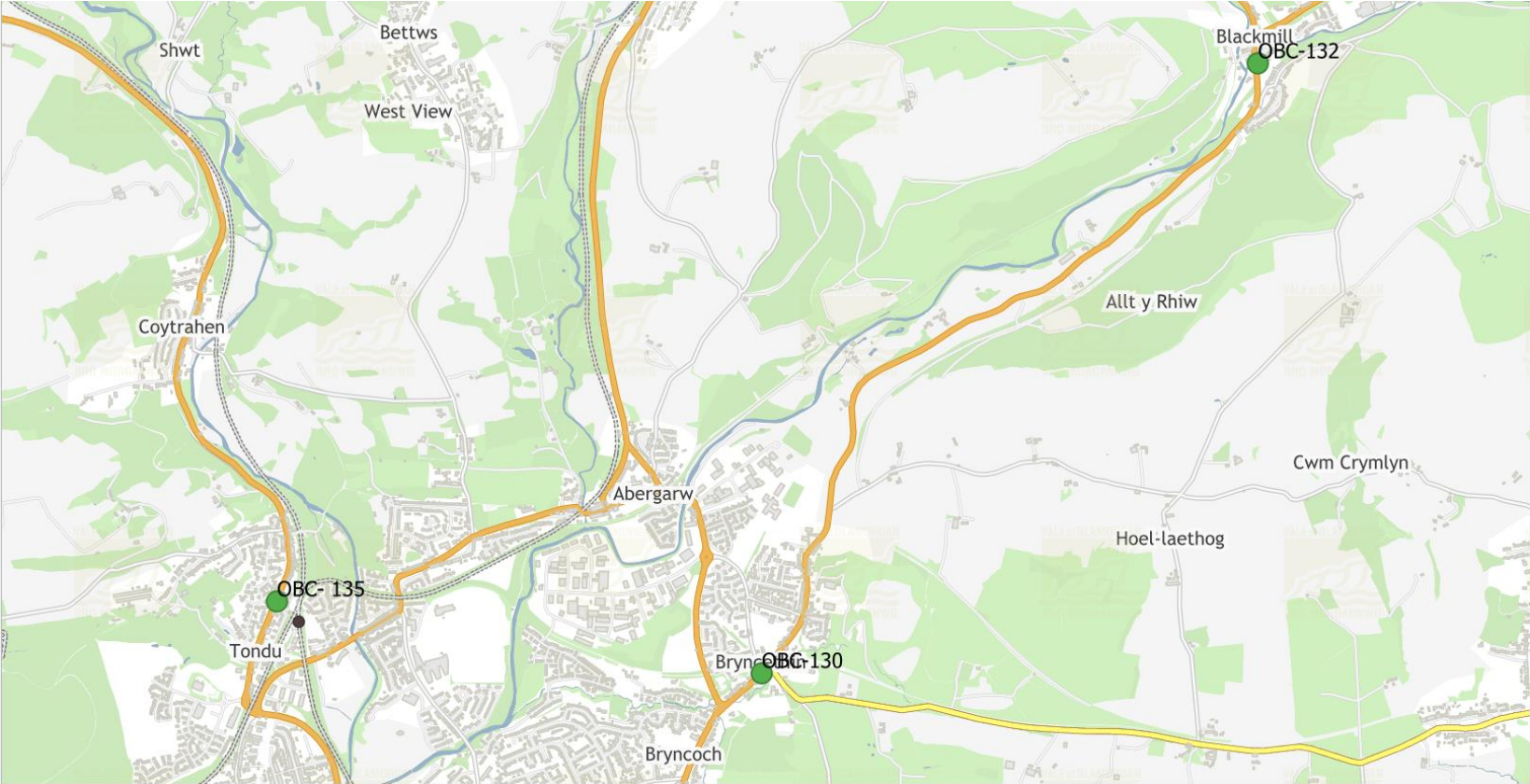


Figure 12 - Map of Non-Automatic Monitoring Site Maesteg

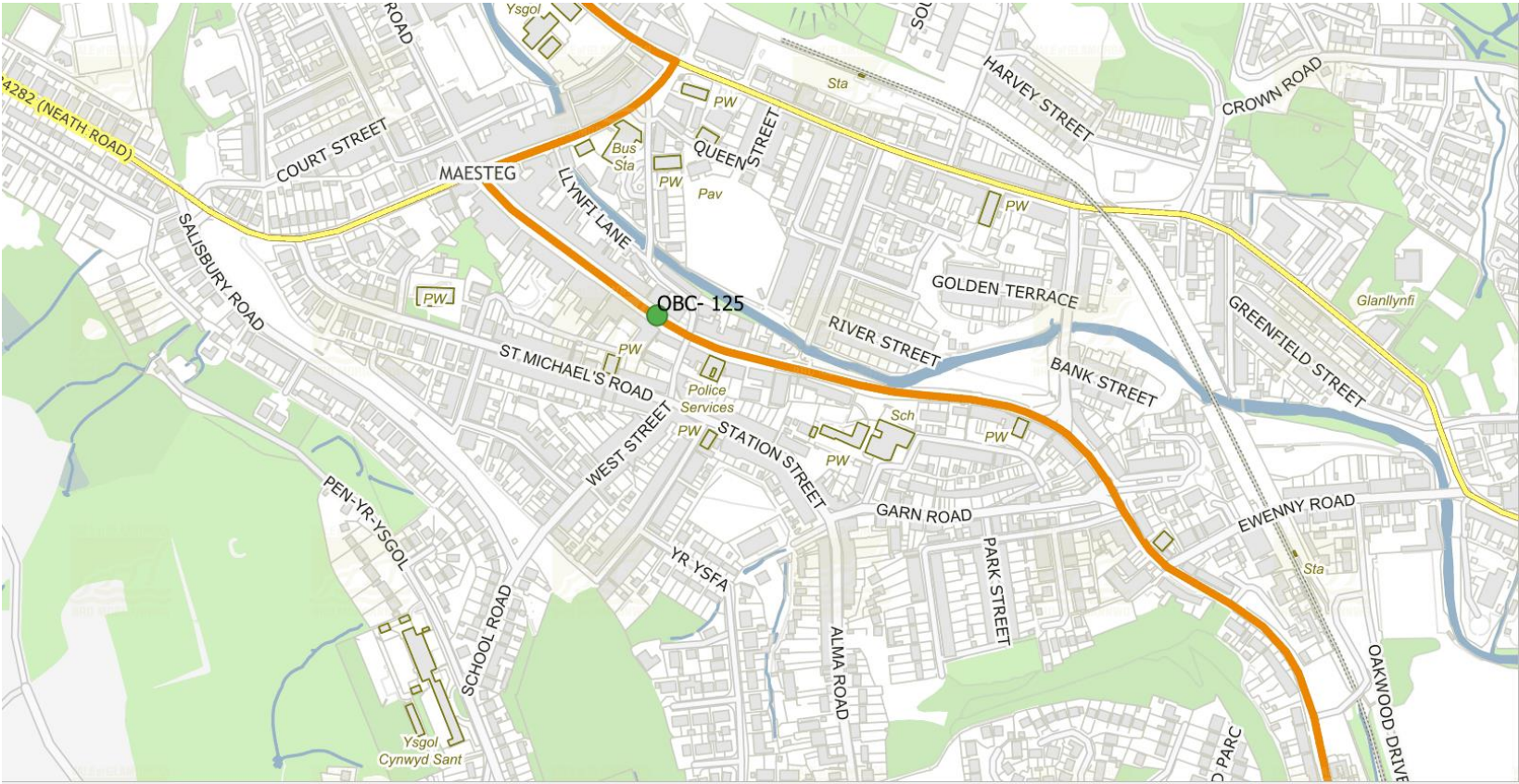




Figure 13 - Map of Non-Automatic Monitoring Site Kenfig Hill

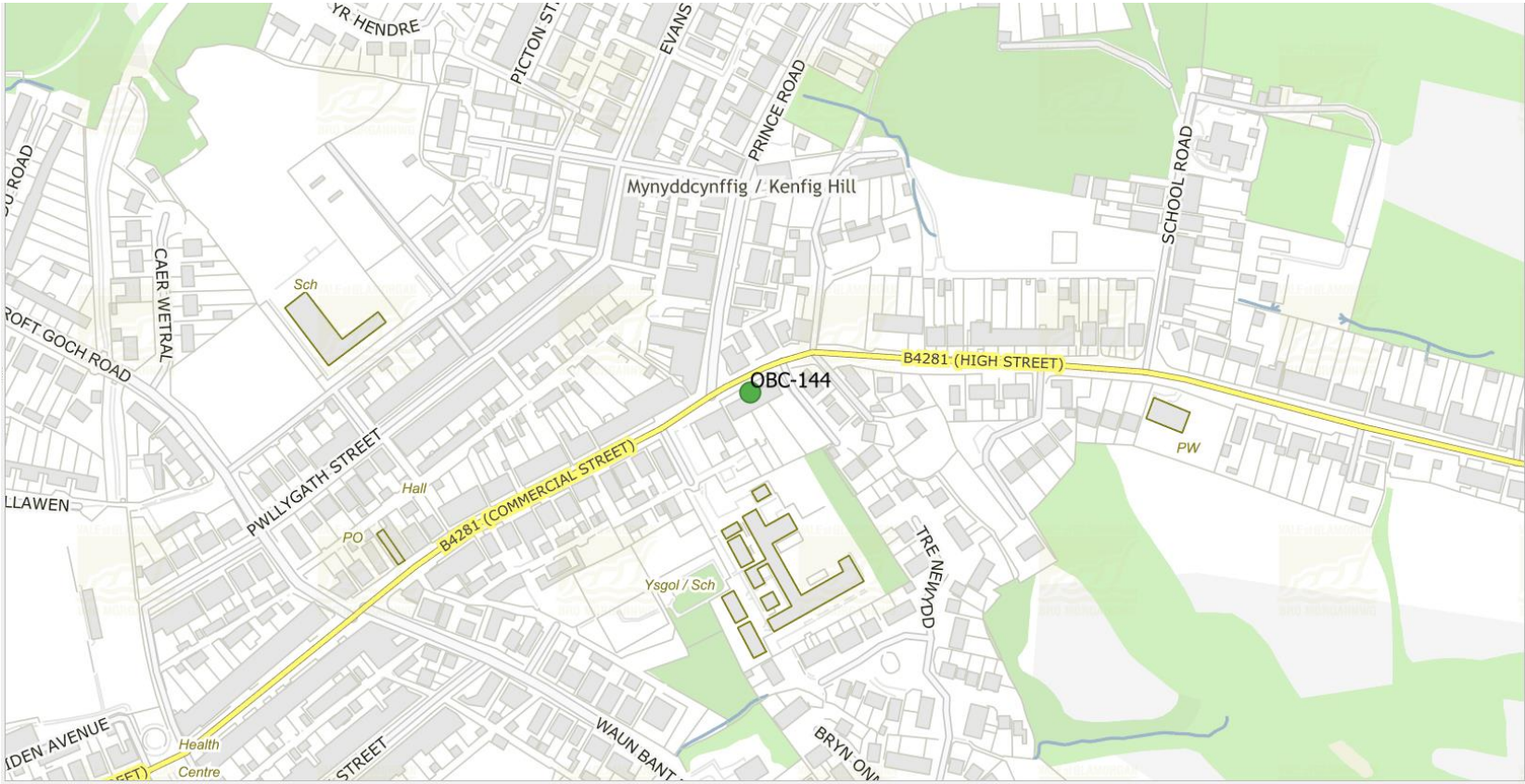
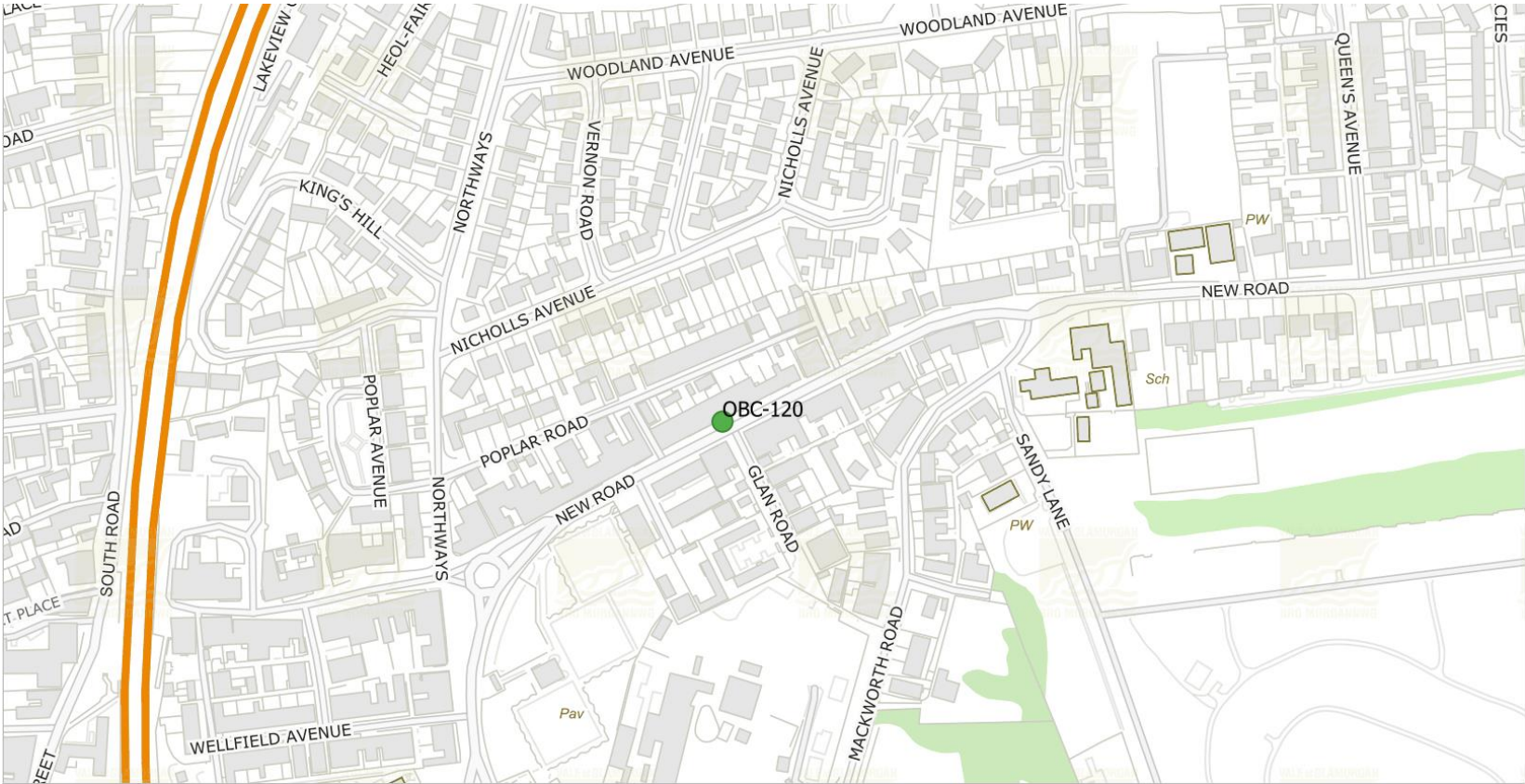


Figure 14 - Map of Non-Automatic Monitoring Site Porthcawl



## 2.2 2023 Air Quality Monitoring Results

Table 6 - Annual Mean NO<sub>2</sub> Monitoring Results: Automatic Monitoring (µg/m<sup>3</sup>)

| Site ID | Site Location                      | Site Type | Within AQMA? | Valid Data Capture 2023 % | Annual Mean Concentration (µg/m <sup>3</sup> ) |      |      |
|---------|------------------------------------|-----------|--------------|---------------------------|--|------|------|
|         |                                    |           |              |                           | 2021   | 2022 | 2023 |
| AQMA 1  | Park Street AQMA Automatic Monitor | Roadside  | Y            | 92                        | 27   | 28   | 27   |

### Notes:

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(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%).

Table 7 - Annual Mean NO<sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m<sup>3</sup>)

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) | Valid Data Capture 2023 (%) | NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) |             |             |             |             |
|-------------------|-------------------------|--------------------------|-----------|--|-----------------------------|--|-------------|-------------|-------------|-------------|
|                   |                         |                          |           |  |                             | 2019   | 2020        | 2021        | 2022        | 2023        |
| OBC-113           | 290616                  | 178394                   | Roadside  | 100.0  | 100.0                       | 14.7   | 12.2        | 13.8        | 13.3        | 11.6        |
| OBC-115           | 290667                  | 178529                   | Roadside  | 100.0  | 100.0                       | 20.9   | 16.3        | 18.5        | 17.0        | 14.0        |
| OBC- 121          | 291540                  | 178734                   | Roadside  | 100.0  | 100.0                       | 18.5   | 14.9        | 15.8        | 14.9        | 12.4        |
| OBC- 122          | 289919                  | 179755                   | Kerbside  | 90.4   | 90.4                        | 16.7   | 15.2        | 15.8        | 16.7        | 13.7        |
| OBC- 131          | 290040                  | 179704                   | Roadside  | 100.0  | 100.0                       |  |             | 28.3        | 27.3        | 25          |
| OBC- 123          | 290014                  | 179698                   | Roadside  | 90.7   | 90.7                        | <b>55.2</b>  | <b>42.4</b> | <b>46.5</b> | <b>45.5</b> | <b>43.9</b> |
| OBC-133           | 295899                  | 181363                   | Kerbside  | 90.4   | 90.4                        |  |             | 17.8        | 18.8        | 17.0        |
| OBC-112           | 290798                  | 179244                   | Roadside  | 84.4   | 84.4                        | 36.2   | 23.7        | 29.2        | 26.7        | 25.3        |
| OBC- 105          | 290899                  | 179185                   | Roadside  | 100.0  | 100.0                       | 21.2   | 16.1        | 19.2        | 18.1        | 15.9        |
| OBC-111           | 290700                  | 179305                   | Roadside  | 100.0  | 100.0                       | 25.8   | 19.7        | 22.4        | 20.9        | 19.8        |
| OBC- 106          | 290826                  | 179210                   | Kerbside  | 90.4   | 90.4                        | 24.0   | 25.8        | 26.1        | 22.7        | 20.2        |
| OBC-102           | 290354                  | 179807                   | Roadside  | 94.0   | 94.0                        | 23.9   | 18.3        | 20.6        | 19.9        | 18.5        |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type    | Valid Data Capture for Monitoring Period (%) | Valid Data Capture 2023 (%) | NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) |             |             |             |             |
|-------------------|-------------------------|--------------------------|--------------|--|-----------------------------|--|-------------|-------------|-------------|-------------|
|                   |                         |                          |              |  |                             | 2019   | 2020        | 2021        | 2022        | 2023        |
| OBC-103           | 290250                  | 179782                   | Roadside     | 100.0  | 100.0                       | 37.1   | 30.4        | 31.9        | 29.1        | 27.3        |
| OBC-104           | 290286                  | 179800                   | Roadside     | 100.0  | 100.0                       | 39.8   | 29.8        | 33.6        | 29.0        | 28.4        |
| OBC-110           | 289988                  | 179701                   | Roadside     | 100.0  | 100.0                       | <b>53.7</b>  | <b>43.6</b> | <b>43.6</b> | <b>47.2</b> | <b>43.8</b> |
| OBC-109           | 290239                  | 179795                   | Roadside     | 100.0  | 100.0                       | 19.9   | 20.1        | 19.8        | 16.4        | 15.4        |
| OBC-107           | 290347                  | 179959                   | Roadside     | 100.0  | 100.0                       | 32.0   | 24.3        | 27.7        | 26.1        | 25.2        |
| OBC-108           | 290311                  | 180032                   | Roadside     | 94.0   | 94.0                        | 36.2   | 27.5        | 31.7        | 29.4        | 27.6        |
| OBC-101           | 290469                  | 179837                   | Urban Centre | 100.0  | 100.0                       | 18.6   | 13.6        | 15.3        | 13.9        | 12.2        |
| OBC-130           | 291386                  | 184168                   | Roadside     | 59.8   | 59.8                        |  |             | 31.1        | 29.0        | 25.7        |
| OBC-097           | 290687                  | 180185                   | Roadside     | 100.0  | 100.0                       | 24.8   | 19.5        | 21.4        | 20.7        | 18.3        |
| OBC- 135          | 289402                  | 184461                   | Roadside     | 90.7   | 90.7                        |  |             | 17.8        | 21.5        | 21.7        |
| OBC-132           | 293418                  | 186662                   | Roadside     | 100.0  | 100.0                       |  |             | 25.1        | 21.6        | 21.1        |
| OBC- 124          | 289859                  | 179710                   | Roadside     | 100.0  | 100.0                       | 16.6   | 12.9        | 14.1        | 12.7        | 12.1        |
| OBC- 125          | 285299                  | 191136                   | Roadside     | 74.0   | 74.0                        | 18.8   | 19.3        | 9.8         | 14.5        | 20.8        |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type  | Valid Data Capture for Monitoring Period (%) | Valid Data Capture 2023 (%) | NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) |      |      |      |             |
|-------------------|-------------------------|--------------------------|------------|--|-----------------------------|--|------|------|------|-------------|
|                   |                         |                          |            |  |                             | 2019   | 2020 | 2021 | 2022 | 2023        |
| OBC-120           | 282264                  | 177237                   | Roadside   | 100.0  | 100.0                       | 16.0   | 10.9 | 12.6 | 11.9 | 11.4        |
| OBC-129           | 296439                  | 184111                   | Industrial | 100.0  | 100.0                       |  |      | 9.1  | 7.7  | 6.7         |
| OBC-116           | 295886                  | 181642                   | Roadside   | 76.5   | 76.5                        | 20.8   | 15.8 | 18.5 | 17.9 | 17.4        |
| OBC-139           | 295967                  | 181623                   | Roadside   | 81.1   | 81.1                        |  |      |      |      | 22.6        |
| OBC-126           | 291125                  | 179517                   | Kerbside   | 100.0  | 100.0                       | 17.2   | 18.5 | 18.7 | 17.6 | 16.4        |
| OBC-127           | 292236                  | 179473                   | Roadside   | 100.0  | 100.0                       | 15.1   | 13.7 | 15.6 | 16.1 | 15.1        |
| OBC-140           | 290002                  | 179702                   | Roadside   | 100.0  | 100.0                       |  |      |      |      | <b>43.5</b> |
| OBC-136           | 295588                  | 180916                   | Roadside   | 83.9   | 83.9                        |  |      |      | 15.5 | 14.5        |
| OBC-144           | 283730                  | 182922                   | Roadside   | 100.0  | 100.0                       |  |      |      | 11.7 | 11.1        |
| OBC-137           | 294309                  | 179872                   | Roadside   | 90.7   | 90.7                        |  |      |      | 16.5 | 17.0        |
| OBC-138           | 294218                  | 179795                   | Kerbside   | 100.0  | 100.0                       |  |      |      | 23.8 | 19.6        |

**Notes:**

The annual mean concentrations are presented as  $\mu\text{g}/\text{m}^3$ .

Exceedances of the  $\text{NO}_2$  annual mean objective of  $40\mu\text{g}/\text{m}^3$  are shown in **bold**.

$\text{NO}_2$  annual means exceeding  $60\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the  $\text{NO}_2$  1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(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%).

Figure 15 – Trends in Automatic Annual Mean NO<sub>2</sub> Concentrations

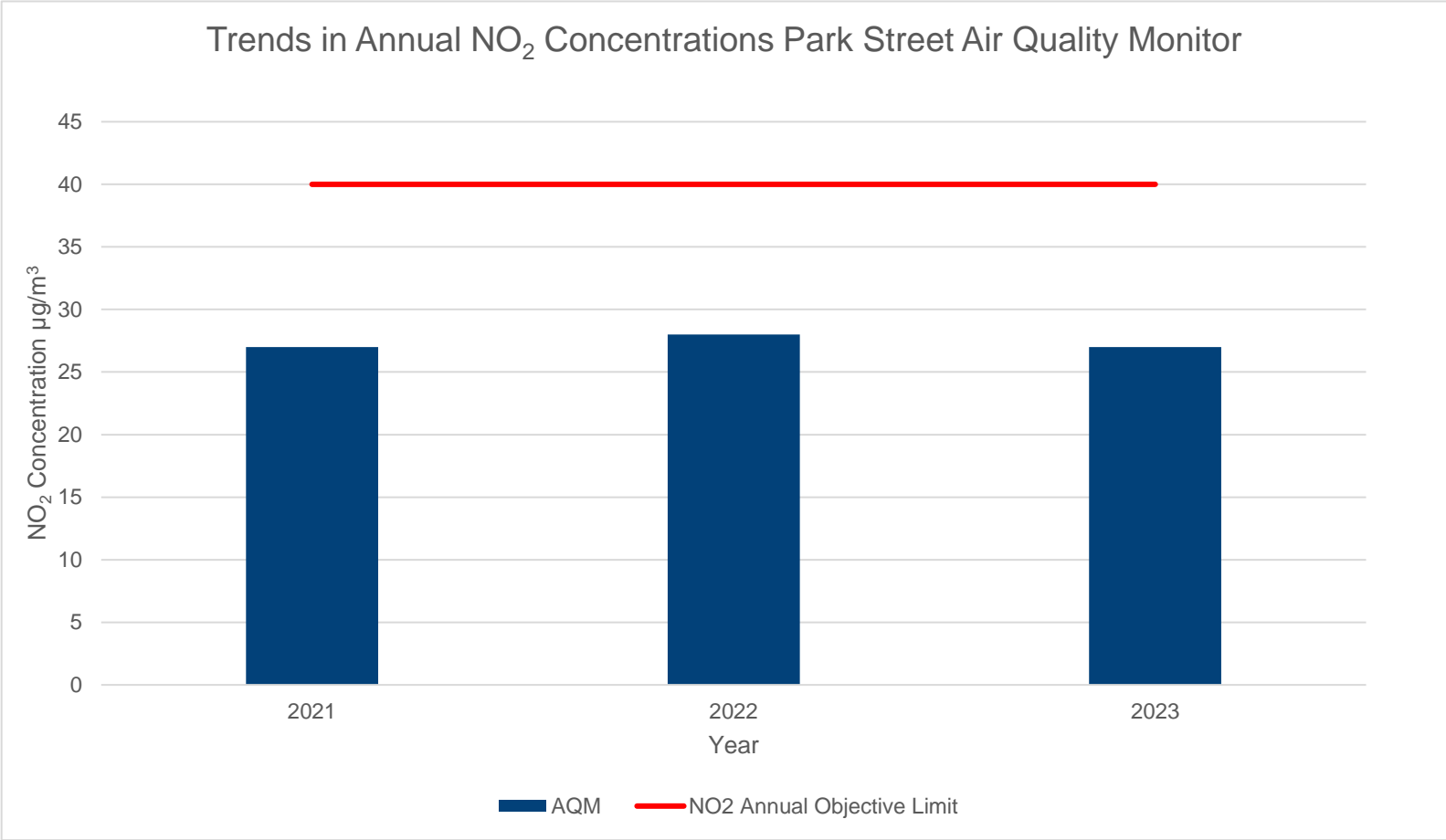


Figure 15 displays a steady trend in measured NO<sub>2</sub> concentrations at Park Street automatic monitor, below the Annual Objective Limit.



Figure 16 – Trends in Park Street AQMA Diffusion Tube Annual Mean NO<sub>2</sub> Concentrations µg/m<sup>3</sup>

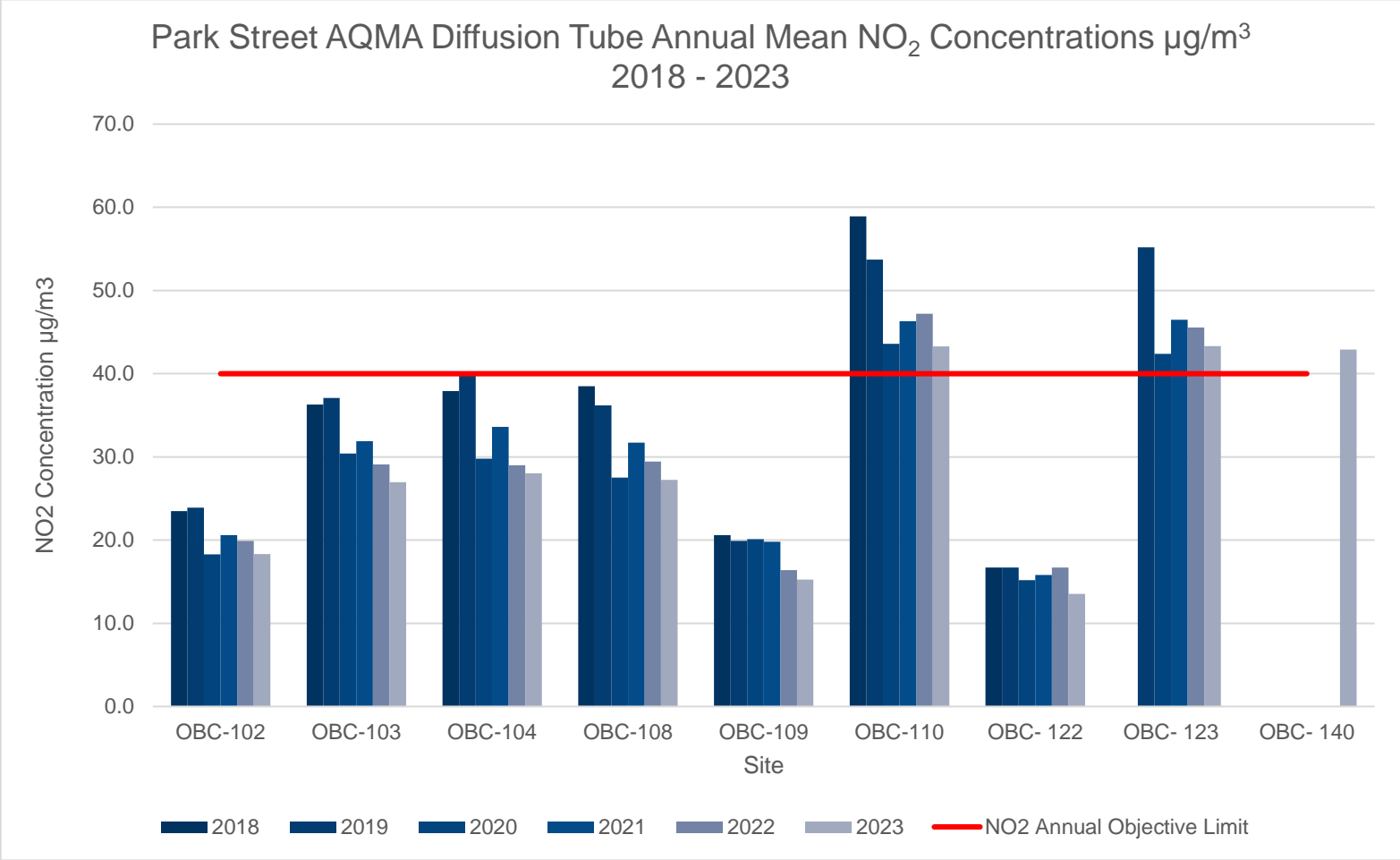


Figure 16 shows that sites OBC-110, OBC-123 and OBC-140 located on Park Street residential facades, exceed the annual average air quality objective set at (40µg/m<sup>3</sup>) for NO<sub>2</sub>. OBC-110 & OBC-123 recorded annual average figures of 43.3µg/m<sup>3</sup>. OBC-140 recorded an annual average figure of 42.9 µg/m<sup>3</sup>. This represents a reduction in NO<sub>2</sub> concentrations of 19% and 22% at OBC-110 & OBC-123 since 2019. All other locations are within the Annual Air Quality Objective.

Figure 17 - Trends in Annual Mean NO<sub>2</sub> Concentrations Bridgend

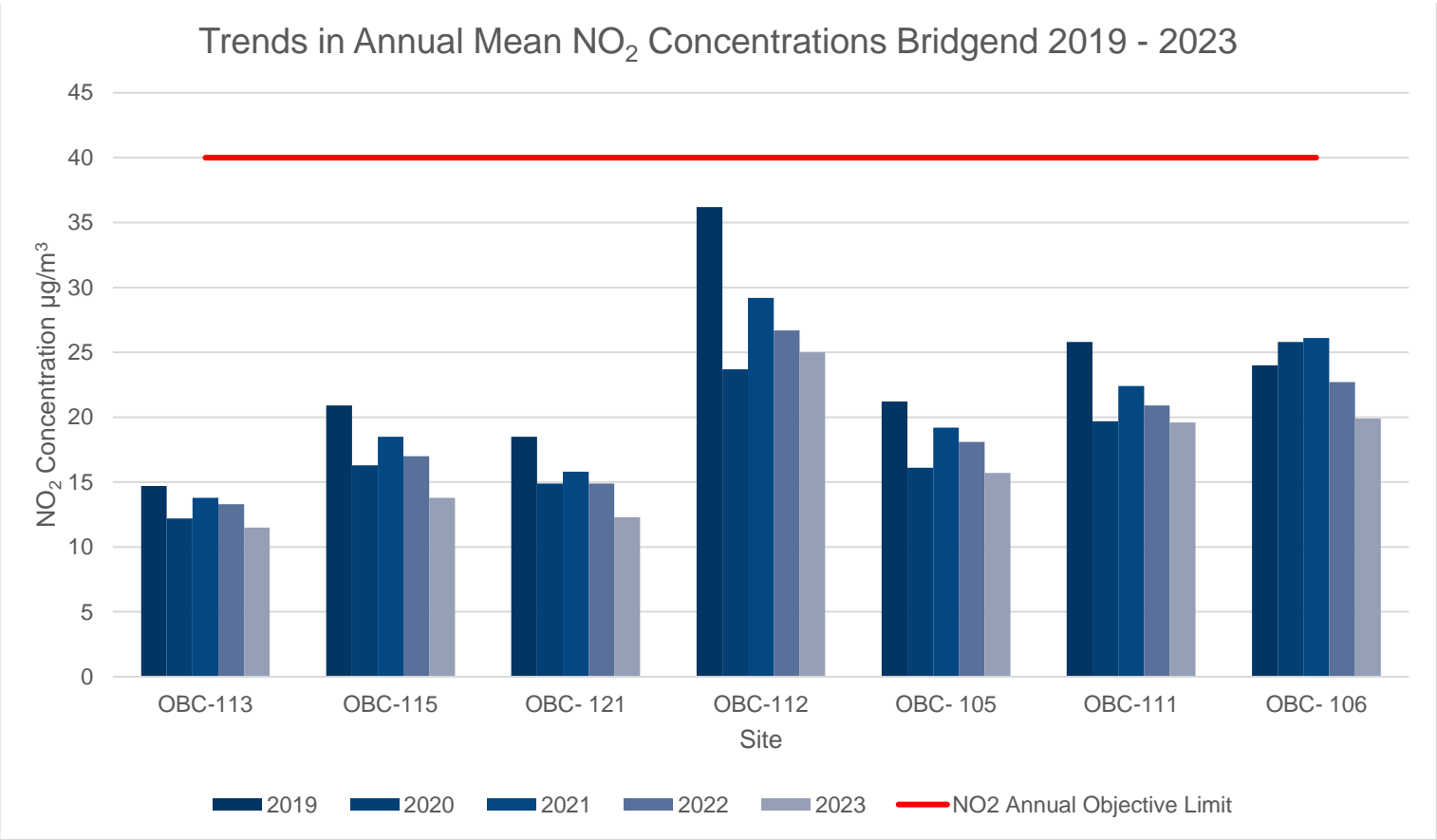


Figure 17 displays annual trends in NO<sub>2</sub> concentrations at sites within Bridgend. All sites are within the Annual Air Quality Objective.

Figure 18 - Trends in Annual Mean NO<sub>2</sub> Concentrations Bridgend

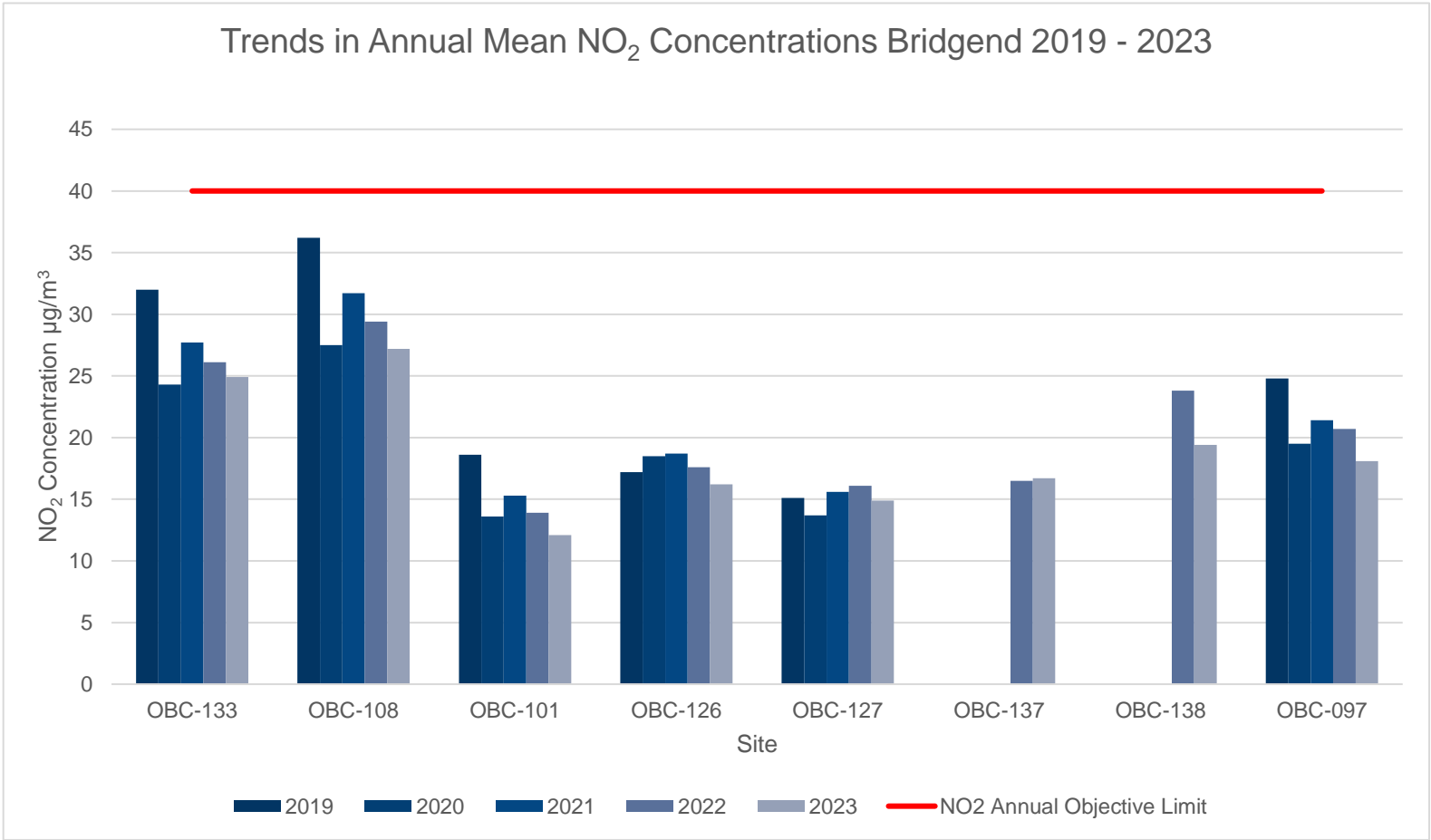


Figure 18 displays annual trends in NO<sub>2</sub> concentrations at sites within Bridgend. All sites are within the Annual Air Quality Objective.

Figure 19 - Trends in Annual NO<sub>2</sub> Concentrations, Bryncethin, Blackmill, Pencoed, Kenfig Hill, Porthcawl

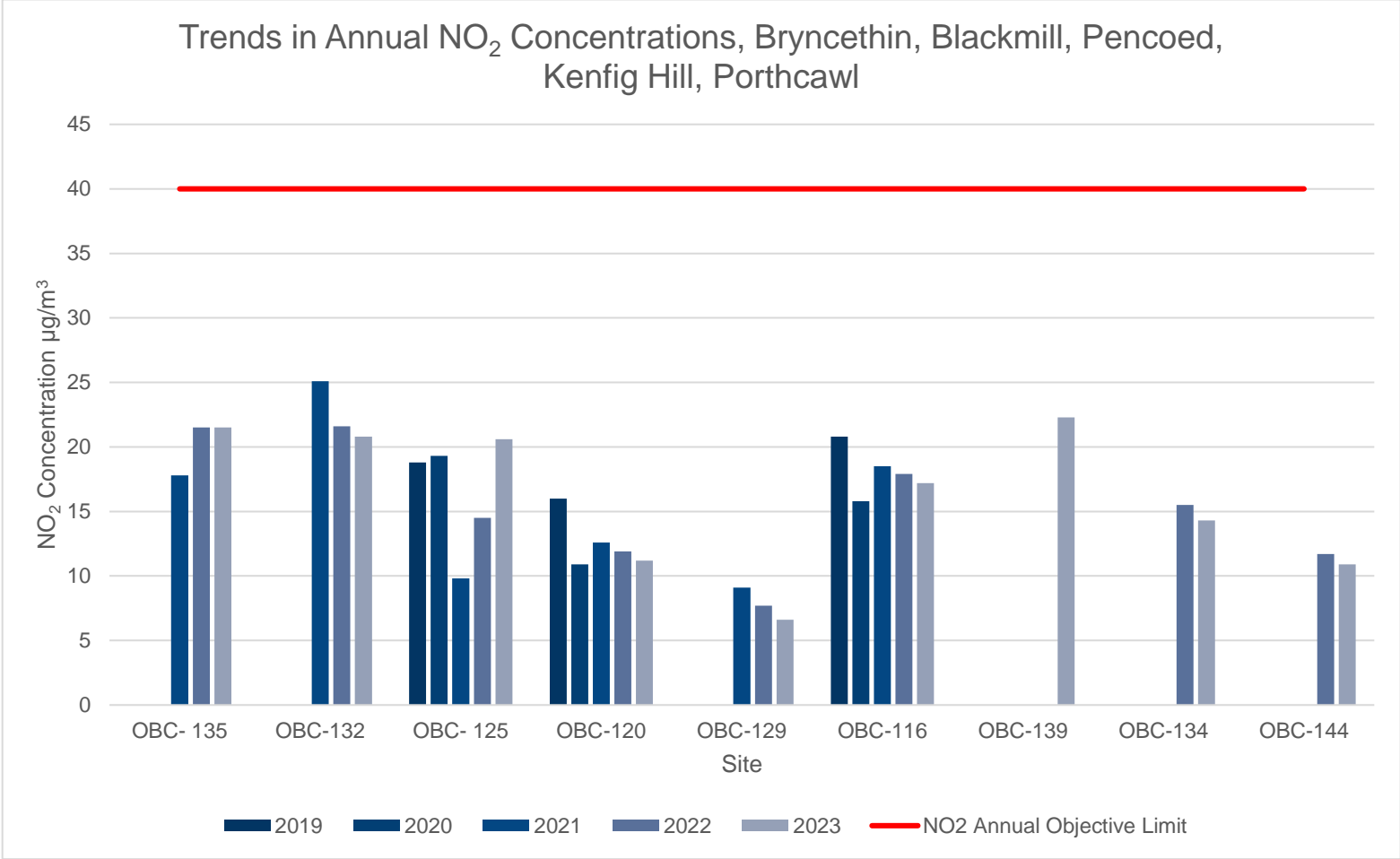


Figure 19 displays the Trends in Annual NO<sub>2</sub> Concentrations, Bryncethin, Blackmill, Pencoed, Kenfig Hill and Porthcawl. All sites are within the Annual Air Quality Objective.

**Table 8 - 1-Hour Mean NO<sub>2</sub> Monitoring Results, Number of 1-Hour Means > 200µg/m<sup>3</sup>**

| Site Name        | Site Type | Monitoring Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2023 (%) <sup>(2)</sup> | 2021 | 2022 | 2023 |
|------------------|-----------|-----------------|---|--|------|------|------|
| Park Street AQMA | Roadside  | Automatic       | 92  | 92   | 0    | 0    | 0    |

**Notes:**

Exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(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%).

**Table 9 - Annual Mean PM<sub>10</sub> Monitoring Results (µg/m<sup>3</sup>)**

| Site ID          | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2023 (%) <sup>(2)</sup> | 2021 | 2022 | 2023 |
|------------------|-----------|---|--|------|------|------|
| Park Street AQMA | Roadside  | 94  | 94   | 17   | 18   | 18   |

**Notes:**

Exceedances of the PM<sub>10</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(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%).

Figure 20 – Trends in Annual Mean PM<sub>10</sub> Concentrations

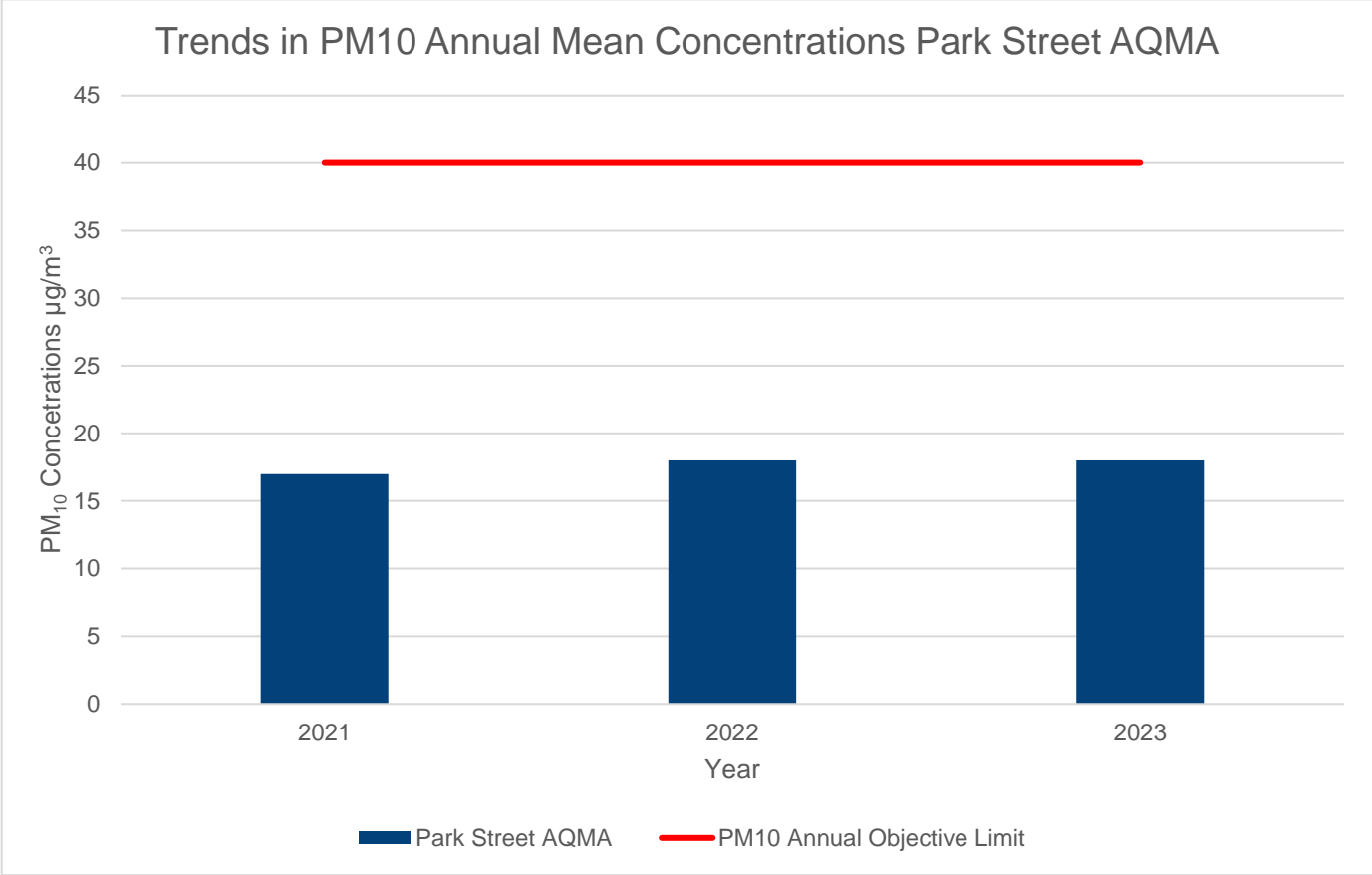


Figure 20 displays a steady trend in PM<sub>10</sub> concentrations at the Park Street AQMA Automatic Monitor.

**Table 10 - 24-Hour Mean PM<sub>10</sub> Monitoring Results, Number of PM<sub>10</sub> 24-Hour Means > 50µg/m<sup>3</sup>**

| Site ID          | Site Type | Valid Data Capture for Monitoring Period (%) <sup>(1)</sup> | Valid Data Capture 2023 (%) <sup>(2)</sup> | 2021 | 2022 | 2023 |
|------------------|-----------|---|--|------|------|------|
| Park Street AQMA | Roadside  | 94  | 94   | 0    | 0    | 2    |

**Notes:**

Exceedances of the PM<sub>10</sub> 24-hour mean objective (50µg/m<sup>3</sup> not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4<sup>th</sup> percentile of 24-hour means is provided in brackets.

(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%).



Figure 21 – Trends in Number of 24-Hour Mean PM<sub>10</sub> Results > 50µg/m<sup>3</sup>

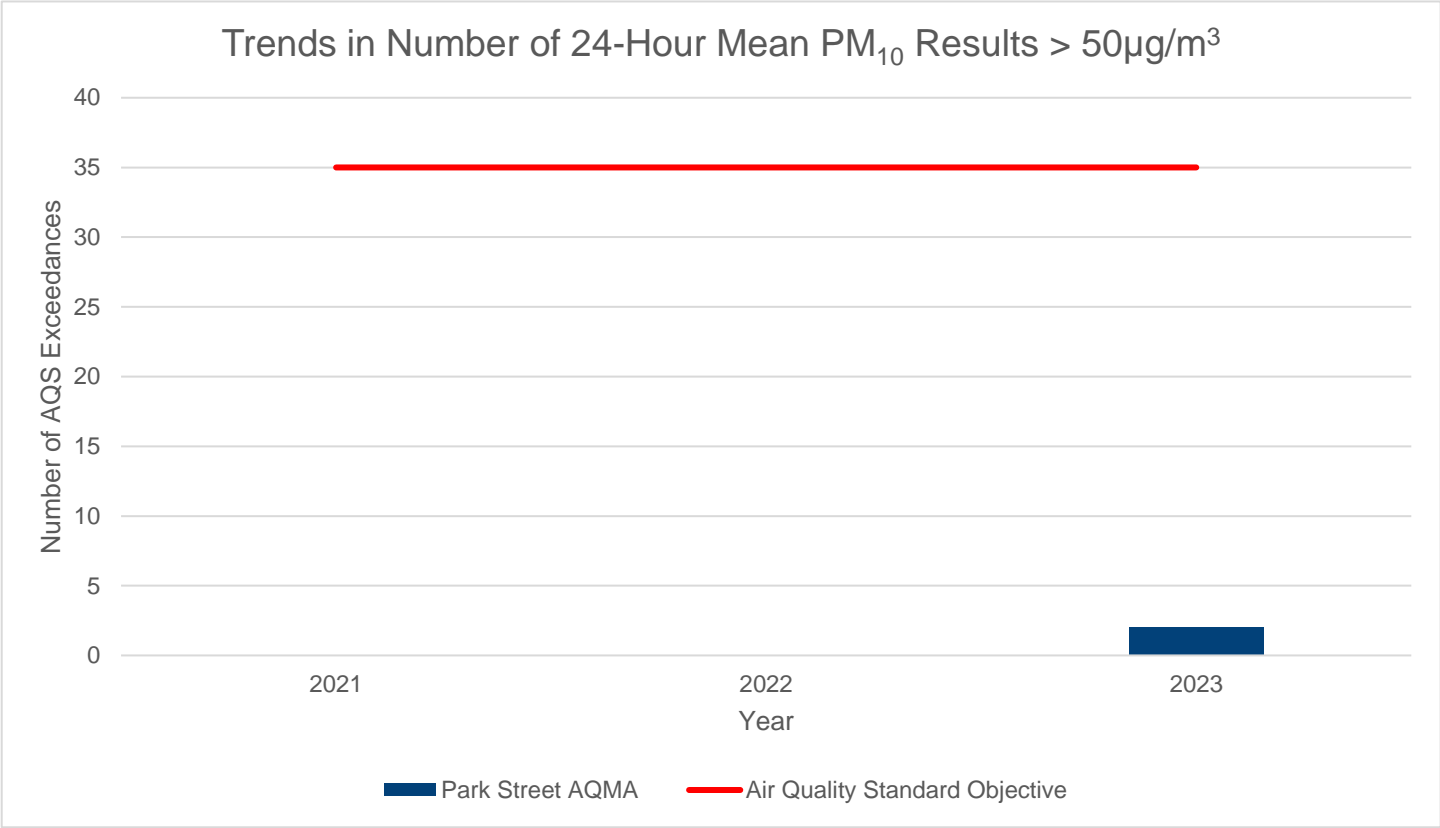


Figure 21 displays trends in the short-term Objective for PM10. In previously years there were no exceedances in the 24-hour mean. In 2023, there were two exceedances in the 24-hour mean. This remains well within the 24-hour mean objective limit of 35 exceedances in a single year.

## 2.3 Comparison of 2023 Monitoring Results with Previous Years and the Air Quality Objectives

### 2.3.1 Nitrogen Dioxide (NO<sub>2</sub>)

Nitrogen dioxide was measured during 2023 by a network of 35 passive diffusion tubes. To ratify the 2023 diffusion tube dataset, a national bias adjustment factor of 0.78 was applied to the annual average readings.

It is noted that in 2023, monitoring undertaken at sites OBC-110, OBC-123 and OBC-140 located on Park Street residential facades, exceed the annual average air quality objective set at (40µg/m<sup>3</sup>) for NO<sub>2</sub>. OBC-110 & OBC-123 recorded annual average figures of 43.3µg/m<sup>3</sup>. OBC-140 recorded an annual average figure of 42.9 µg/m<sup>3</sup>. This represents a reduction in NO<sub>2</sub> concentrations of 19% and 22% at OBC-110 & OBC-123 since 2019.

Sites currently exceeding annual air quality objectives are isolated to one area of Park Street. This area of Park Street, between no.91 – 107, experience higher concentrations of pollutants due to the proximity of houses to a heavily trafficked primary route with congestion issues. These issues are compounded by gradients increasing engine load and poor dispersion caused by buildings. All other monitoring locations within Park Street AQMA and across Bridgend currently demonstrate compliance with the applicable air quality objectives.

Automatic monitoring carried on Park Street demonstrates compliance with the annual air quality objective for NO<sub>2</sub>. This automatic monitor also showed no exceedances of the 1-hour NO<sub>2</sub> objective of 200 µg/m<sup>3</sup> not to be exceeded more than 18 times annually for both periods.

Compliance of air quality objectives at the automatic monitoring station confirms the varied impact of pollutant emissions on Park Street. Two non-automatic monitoring sites located approximately 17 metres from the monitoring station, OBC-110 & OBC-123, exceed the annual air quality objective for NO<sub>2</sub>. Air quality issues are exacerbated in the location of non-compliance by the proximity of terrace housing to the road and poor dispersion of pollutants.

Nitrogen dioxide concentrations at all other non-automatic locations were shown to be compliant the annual air quality objective for NO<sub>2</sub> of 40µg/m<sup>3</sup>.

### **2.3.2 Particulate Matter (PM<sub>10</sub>)**

Particulate matter (PM<sub>10</sub>) monitoring was carried out by the automatic monitoring station located in Park Street AQMA. The annual average figure shown at this site in 2022 was 18µg/m<sup>3</sup>, which is compliant with the PM<sub>10</sub> annual average objective of 40 µg/m<sup>3</sup>. There were two exceedances of the 24-hour PM<sub>10</sub> objective of 50 µg/m<sup>3</sup>. However, this meets the air quality objective limit for this objective which is to not be exceeded more than 35 times annually.

## **2.4 Summary of Compliance with AQS Objectives as of 2023**

Concentrations within Park Street AQMA still exceed the annual objective for NO<sub>2</sub>. Therefore, this AQMA should remain.

### 3 New Local Developments

Before the approval of any new development, the impact of both demolition, construction, and operational air quality is considered. If certain criteria are met, such as a substantial increase in vehicle generation, combustion processes, or the introduction of new receptors to areas of potential air quality concerns, then Air Quality Assessments (AQA's) are submitted to the local authority. This criterion is set within the Institute of Air Quality Management and Environmental Protection UK "Land-Use Planning & Development Control: Planning For Air Quality"<sup>4</sup>. AQA's use dispersion modelling to predict air quality impacts, and mitigation measures or conditions can be set as a result of these assessments.

#### Replacement Local Development Plan

Proposed development projects currently listed in the Local Development Plan (LDP) will require up to date air quality impact assessment in support of the planning application. Further details for the LDP can be found at <https://www.bridgend.gov.uk/residents/planning-and-building-control/development-planning/>.

#### 3.1 Road Traffic Sources (and Other Transport)

No new road traffic sources have been identified which require consideration in this report.

#### 3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

No new Industrial / Fugitive or Uncontrolled Sources / Commercial Sources have been identified which require consideration in this report.

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<sup>4</sup> <https://laqm.defra.gov.uk/assets/airqualityplanningguidance.pdf>

### **3.3 Other Sources**

There are no other sources have been identified which require consideration in this report.

### **3.4 Domestic Wood Burners**

It should be noted that the Council receives a number of 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 with regard to 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, are recommended to seek out an appliance certified for use in a smoke control area.

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

## 4 Policies and Strategies Affecting Airborne Pollution

### 4.1 Air Quality Planning Policies

The Local Development Plan (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 regarding the new plan's development.

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

### 4.2 Local Transport Plans and Strategies

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>

### 4.3 Active Travel Plans and Strategies

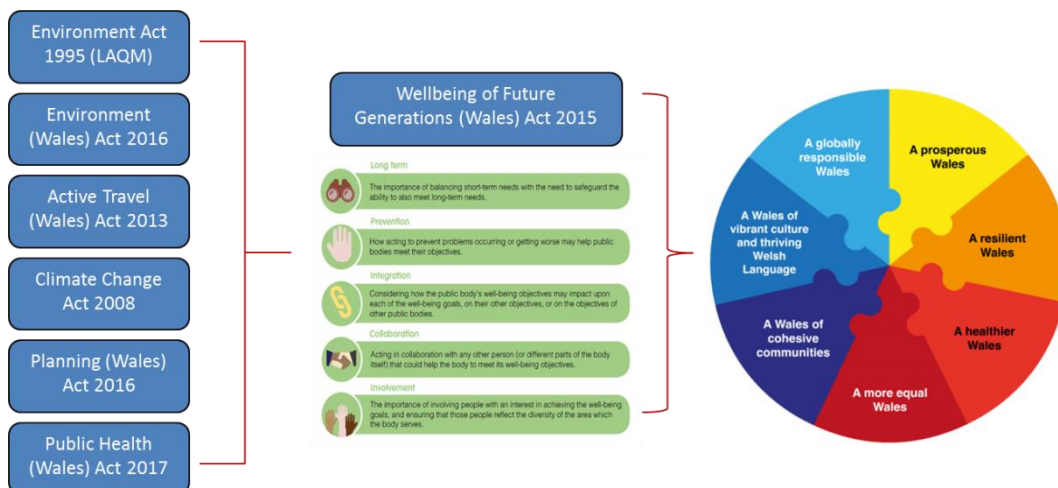
In September 2014, the Welsh Government introduced the Active Travel (Wales) Act. This measure legally requires Welsh local authorities to map and plan suitable routes for Active Travel within certain areas, as designated by the Welsh Government.

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/>

### 4.4 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.

**Figure 22 - Well-being of Future Generations (Wales) Act**



As highlighted in Figure 22, there are seven national well-being goals that form the basis of the Act and five ways of working which support the goals.

Public bodies 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 23 - Bridgend 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 NO<sub>2</sub> levels will be examined. The Bridgend PSB wellbeing plan is available at <https://www.bridgend.gov.uk/media/3657/bridgend-wellbeing-bps-plan-e-0518.pdf>



## 4.5 Green Infrastructure Plans and Strategies

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.

**Figure 24 - Green Infrastructure**



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.

## 4.6 Climate Change Strategies

Bridgend County Borough Council declared its own climate emergency in June 2020 and set up a Climate Emergency Response programme to commit to the Net Zero 2030 target as an organisation.

**Figure 25 - Bridgend Net Zero**



### Climate Change Commitment within the LDP

Prior to the development of the 2030 Strategy the LDP, made reference to Climate Change in Policy PLA4. This stated 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.

## 5 Conclusion and Proposed Actions

### 5.1 Conclusions from New Monitoring Data

Annual average datasets outline continued elevated and exceeding levels of NO<sub>2</sub> at sensitive receptor locations situated on Park Street within the established AQMA Order boundary. It is noted that monitoring undertaken in 2023 at sites OBC-110, OBC-123 and OBC-140 located on Park Street at residential facades exceed the annual average air quality objective set at (40µg/m<sup>3</sup>) for NO<sub>2</sub>. All automated and non- automated datasets show compliance with the air quality objectives at every other monitored location.

### 5.2 Conclusions relating to New Local Developments

No new local developments have been identified which are expected to have significant impacts on air quality within Bridgend County Borough.

### 5.3 Proposed Actions

Monitoring data from Park Street AQMA will be reviewed to ensure that compliance will be met in the shortest time possible. If trends in air quality data indicate that compliance will not be met by 2025/2026, then further traffic management measures, such as measure 18 within the AQAP may be implemented.

At present, the 'do something' scheme has the potential to bring forward compliance to 2025. However, this is unlikely due to the fact that the implementation of Measure 18 within the AQAP, denying all access onto St Leonards Road from Park Street, will require a consultation process due to the introduction of a traffic order. It is important to consider this in terms of timescale for implementation in comparison to the predicted year of natural compliance of 2026. This measure will be retained and will be reconsidered dependent on ongoing NO<sub>2</sub> monitoring results in the Park Street AQMA.

## References

1. Department for Environment, Food and Rural Affairs, 2003. *Part IV of the Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III Local Air Quality Management, Technical Guidance LAQM.TG(22)*. London: DEFRA (as updated August 2022).  
<https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>
2. Welsh Government, *Local Air Quality Management in Wales, Policy Guidance*, 2017 [local-air-quality-management-in-wales.pdf \(gov.wales\)](https://gov.wales/local-air-quality-management-in-wales.pdf)
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4. Public Health Wales, *Air Pollution and Health Fact Sheet*,  
<https://phw.nhs.wales/services-and-teams/environmental-public-health/air-quality/air-pollution-and-health-fact-sheet/>
5. Institute of Air Quality Management, Environmental Protection UK, *Land-Use Planning & Development Control: Planning For Air Quality*  
<https://laqm.defra.gov.uk/assets/airqualityplanningguidance.pdf>
6. Bridgend Council Annual Air Quality Progress Reports

## **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 A: Quality Assurance / Quality Control (QA/QC) Data

Table 11 - Full Monthly Diffusion Tube Results for 2023 (µg/m<sup>3</sup>)

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | NO <sub>2</sub> Mean Concentrations (µg/m <sup>3</sup> ) |      |      |      |      |      |      |      |      |      |      |      | Time Weighted Annual Mean (µg/m <sup>3</sup> ) |                                     |  | Comment   |
|-------------------|-------------------------|--------------------------|--|------|------|------|------|------|------|------|------|------|------|------|--|-------------------------------------|--|---|
|                   |                         |                          | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Raw Data                                       | Bias Adjusted (0.78) and Annualised | Distance Corrected to Nearest Exposure |   |
|                   |                         |                          |  |      |      |      |      |      |      |      |      |      |      |      |  |                                     |  |   |
| OBC-113           | 290616                  | 178394                   | 23.7   | 21.3 | 14.0 | 14.5 | 14.3 | 12.4 | 11.3 | 13.1 | 15.1 | 17.0 | 12.1 | 11.9 | 14.9   | 11.6                                | -                                      |   |
| OBC-115           | 290667                  | 178529                   | 29.6   | 24.4 | 14.9 | 20.9 | 20.6 | 14.1 | 12.2 | 12.4 | 24.3 | 24.4 | 6.6  | 15.6 | 18.0   | 14.0                                | -                                      |   |
| OBC- 121          | 291540                  | 178734                   | 18.0   | 21.0 | 17.1 | 17.3 | 14.7 | 10.5 | 8.1  | 12.4 | 15.3 | 19.7 | 23.4 | 12.2 | 15.9   | 12.4                                | -                                      |   |
| OBC- 122          | 289919                  | 179755                   | 24.5   | 22.7 | 21.2 | 20.0 | 18.3 | 12.5 | 10.0 | 10.8 | 18.7 | 22.5 |      | 12.6 | 17.6   | 13.7                                | -                                      |   |
| OBC-131           | 290040                  | 179704                   | 40.6   | 45.4 | 33.2 | 36.8 | 26.9 | 23.2 | 26.5 | 26.9 | 29.7 | 24.3 | 36.7 | 28.5 | -  | -                                   | -                                      | Triplicate Site with OBC-131, OBC-131 and OBC-131 - Annual data provided for OBC-131 only |
| OBC-131           | 290040                  | 179704                   | 40.6   | 45.4 | 33.2 | 36.8 | 26.9 | 23.2 | 26.5 | 26.9 | 29.7 | 24.3 | 36.7 | 28.5 | -  | -                                   | -                                      | Triplicate Site with OBC-131, OBC-131 and OBC-131 - Annual data provided for OBC-131 only |
| OBC-131           | 290040                  | 179704                   | 40.6   | 45.4 | 33.2 | 36.8 | 26.9 | 23.2 | 26.5 | 26.9 | 29.7 | 24.3 | 36.7 | 28.5 | -  | 24.6                                | -                                      | Triplicate Site with OBC-131, OBC-131 and OBC-131 - Annual data provided for OBC-131 only |
| OBC- 123          | 290014                  | 179698                   | 63.7   | 62.8 | 54.9 | 61.6 | 58.8 | 53.5 | 44.1 |      | 57.9 | 47.9 | 59.4 | 51.7 | 56.2   | <b>43.9</b>                         | -                                      |   |
| OBC-133           | 295899                  | 181363                   | 30.6   | 28.5 | 25.8 | 23.9 | 19.4 | 12.7 | 12.5 | 16.3 | 25.0 | 25.0 |      | 20.2 | 21.8   | 17.0                                | -                                      |   |
| OBC-112           | 290798                  | 179244                   | 46.7   | 41.7 | 39.0 | 36.1 |      | 20.7 | 17.9 | 28.3 | 32.7 | 35.0 |      | 26.4 | 32.4   | 25.3                                | -                                      |   |
| OBC- 105          | 290899                  | 179185                   | 31.4   | 27.9 | 12.0 | 22.1 | 21.0 | 13.3 | 11.3 | 16.8 | 21.4 | 24.3 | 30.2 | 13.4 | 20.4   | 15.9                                | -                                      |   |
| OBC-111           | 290700                  | 179305                   | 41.0   | 34.4 | 28.5 | 27.4 | 24.7 | 17.8 | 13.1 | 16.9 | 21.5 | 24.5 | 32.1 | 23.3 | 25.4   | 19.8                                | -                                      |   |
| OBC- 106          | 290826                  | 179210                   | 38.5   | 27.6 | 25.5 | 25.9 | 26.9 |      | 16.3 | 17.7 | 29.1 | 30.9 | 26.5 | 20.7 | 25.9   | 20.2                                | -                                      |   |
| OBC-102           | 290354                  | 179807                   | 30.5   | 31.1 | 24.9 | 35.5 |      | 17.6 | 14.9 | 16.9 | 23.5 | 23.8 | 21.2 | 20.4 | 23.8   | 18.5                                | -                                      |   |
| OBC-103           | 290250                  | 179782                   | 44.7   | 44.8 | 39.2 | 38.8 | 33.4 | 31.9 | 30.3 | 24.9 | 36.0 | 34.4 | 30.6 | 32.0 | 35.0   | 27.3                                | -                                      |   |
| OBC-104           | 290286                  | 179800                   | 43.2   | 43.8 | 40.2 | 41.3 | 38.6 | 35.8 | 28.8 | 31.4 | 38.7 | 36.0 | 28.2 | 31.4 | 36.4   | 28.4                                | -                                      |   |
| OBC-110           | 289988                  | 179701                   | 58.7   | 67.7 | 59.5 | 65.5 | 50.4 | 55.2 | 40.4 | 55.4 | 62.4 | 60.9 | 49.3 | 43.9 | 56.2   | <b>43.8</b>                         | -                                      |   |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | NO <sub>2</sub> Mean Concentrations (µg/m <sup>3</sup> ) |      |      |      |      |      |      |      |      |      |      |      | Time Weighted Annual Mean (µg/m <sup>3</sup> ) |                                     |  | Comment |
|-------------------|-------------------------|--------------------------|--|------|------|------|------|------|------|------|------|------|------|------|--|-------------------------------------|--|---------|
|                   |                         |                          | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Raw Data                                       | Bias Adjusted (0.78) and Annualised | Distance Corrected to Nearest Exposure |         |
|                   |                         |                          |  |      |      |      |      |      |      |      |      |      |      |      |  |                                     |  |         |
| OBC-109           | 290239                  | 179795                   | 28.0   | 26.0 | 22.1 | 20.4 | 19.5 | 14.1 | 12.2 | 15.1 | 20.4 | 18.9 | 24.9 | 15.8 | 19.8   | 15.4                                | -                                      |         |
| OBC-107           | 290347                  | 179959                   | 38.0   | 41.3 | 37.1 | 33.4 | 29.7 | 29.1 | 24.9 | 24.2 | 34.3 | 31.1 | 34.7 | 29.4 | 32.3   | 25.2                                | -                                      |         |
| OBC-108           | 290311                  | 180032                   | 33.4   | 44.9 | 37.6 | 37.4 |      | 30.9 | 30.2 | 27.6 | 37.8 | 37.2 | 37.3 | 34.7 | 35.4   | 27.6                                | -                                      |         |
| OBC-101           | 290469                  | 179837                   | 18.7   | 22.8 | 15.2 | 16.4 | 16.4 | 10.1 | 8.7  | 12.2 | 11.6 | 19.8 | 21.2 | 15.3 | 15.7   | 12.2                                | -                                      |         |
| OBC-130           | 291386                  | 184168                   | 46.1   | 45.8 | 37.5 |      |      | 29.1 |      |      | 34.6 | 36.0 | 35.1 |      | 37.3   | 25.7                                | -                                      |         |
| OBC-097           | 290687                  | 180185                   | 32.0   | 29.9 | 23.7 | 25.3 | 28.9 | 19.4 | 16.1 | 17.3 | 19.3 | 27.5 | 27.4 | 16.9 | 23.5   | 18.3                                | -                                      |         |
| OBC-135           | 289402                  | 184461                   | 36.4   | 34.7 | 21.9 | 25.3 | 24.5 | 23.4 | 23.9 |      | 28.2 | 31.6 | 33.1 | 24.6 | 27.9   | 21.7                                | -                                      |         |
| OBC-132           | 293418                  | 186662                   | 8.9  | 37.0 | 29.5 | 32.8 | 31.0 | 25.4 | 24.9 | 23.9 | 30.1 | 33.7 | 23.2 | 22.8 | 27.0   | 21.1                                | -                                      |         |
| OBC-124           | 289859                  | 179710                   | 21.8   | 20.9 | 16.8 | 16.2 | 13.4 | 9.9  | 9.2  | 10.8 | 14.8 | 20.1 | 18.9 | 13.0 | 15.5   | 12.1                                | -                                      |         |
| OBC-125           | 285299                  | 191136                   | 36.4   | 34.7 | 21.9 | 25.3 | 24.5 |      | 11.3 | 37.5 |      | 21.0 | 25.2 |      | 26.7   | 20.8                                | -                                      |         |
| OBC-120           | 282264                  | 177237                   | 19.4   | 21.6 | 14.6 | 15.1 | 16.3 | 11.7 | 10.1 | 13.8 | 13.8 | 8.5  | 17.5 | 12.6 | 14.6   | 11.4                                | -                                      |         |
| OBC-129           | 296439                  | 184111                   | 10.9   | 12.6 | 9.2  | 8.2  | 6.9  | 7.2  | 8.1  | 5.7  | 8.7  | 11.7 | 6.7  | 7.6  | 8.5  | 6.7                                 | -                                      |         |
| OBC-116           | 295886                  | 181642                   | 25.8   | 30.0 | 24.9 | 22.9 |      | 18.6 | 13.4 | 17.2 | 23.3 | 25.3 |      |      | 22.4   | 17.4                                | -                                      |         |
| OBC-139           | 295967                  | 181623                   | 31.8   | 33.6 |      | 29.7 | 28.2 |      | 22.6 | 25.0 | 31.5 | 33.0 | 30.7 | 22.4 | 28.9   | 22.6                                | -                                      |         |
| OBC-126           | 291125                  | 179517                   | 22.3   | 29.1 | 21.7 | 22.2 | 21.3 | 16.7 | 14.5 | 15.9 | 22.8 | 24.5 | 23.1 | 19.0 | 21.1   | 16.4                                | -                                      |         |
| OBC-127           | 292236                  | 179473                   | 28.0   | 26.7 | 19.6 | 19.0 | 18.3 | 12.4 | 11.6 | 14.5 | 17.8 | 23.4 | 27.1 | 13.8 | 19.3   | 15.1                                | -                                      |         |
| OBC-140           | 290002                  | 179702                   | 58.8   | 67.1 | 67.4 | 62.8 | 59.0 | 52.3 | 44.2 | 46.9 | 55.7 | 59.4 | 47.1 | 47.7 | 55.7   | <b>43.5</b>                         | -                                      |         |
| OBC-134           | 295588                  | 180916                   | 24.0   | 23.9 | 16.6 | 17.5 | 18.4 | 14.8 |      |      | 20.1 | 19.0 | 19.5 | 13.4 | 18.6   | 14.5                                | -                                      |         |
| OBC-144           | 283730                  | 182922                   | 18.9   | 17.2 | 16.5 | 16.1 | 12.0 | 12.1 | 9.8  | 10.8 | 14.0 | 12.4 | 15.2 | 14.1 | 14.2   | 11.1                                | -                                      |         |
| OBC-137           | 294309                  | 179872                   | 29.6   | 28.2 |      | 23.9 | 22.4 | 17.6 | 10.5 | 16.5 | 24.8 | 25.6 | 25.3 | 14.2 | 21.7   | 17.0                                | -                                      |         |



| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | NO <sub>2</sub> Mean Concentrations (µg/m <sup>3</sup> ) |      |      |      |      |      |      |      |      |      |      |      | Time Weighted Annual Mean (µg/m <sup>3</sup> ) |                                     |  | Comment |
|-------------------|-------------------------|--------------------------|--|------|------|------|------|------|------|------|------|------|------|------|--|-------------------------------------|--|---------|
|                   |                         |                          | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sep  | Oct  | Nov  | Dec  | Raw Data                                       | Bias Adjusted (0.78) and Annualised | Distance Corrected to Nearest Exposure |         |
|                   |                         |                          |  |      |      |      |      |      |      |      |      |      |      |      |  |                                     |  |         |
| OBC-138           | 294218                  | 179795                   | 24.2   | 27.3 | 24.9 | 27.5 | 28.4 | 21.9 | 18.0 | 21.7 | 30.6 | 29.3 | 29.3 | 18.3 | 25.2   | 19.6                                | -                                      |         |

**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

## **Appendix B: A Summary of Local Air Quality Management**

### **5.4 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, as amended by the Environment Act 2021, 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 must then be reviewed and updated no later than every five years; or if a local authority considers there is a need for further or different measures to be taken in order to achieve air quality standards; or if significant changes to sources occur within your local area.

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.

### **5.5 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 12.

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

**Table 12 - Air Quality Objectives Included in Regulations for the Purpose of LAQM in Wales**

| <b>Pollutant</b>                            | <b>Air Quality Objective: Concentration</b>                         | <b>Air Quality Objective: Measured as</b> | <b>Date to be achieved by</b> |
|---|---|---|-------------------------------|
| <b>Nitrogen Dioxide (NO<sub>2</sub>)</b>    | 200µg/m <sup>3</sup> not to be exceeded more than 18 times a year   | 1-hour mean                               | 31.12.2005                    |
| <b>Nitrogen Dioxide (NO<sub>2</sub>)</b>    | 40µg/m <sup>3</sup>   | Annual mean                               | 31.12.2005                    |
| <b>Particulate Matter (PM<sub>10</sub>)</b> | 50µg/m <sup>3</sup> , not to be exceeded more than 35 times a year  | 24-hour mean                              | 31.12.2010                    |
| <b>Particulate Matter (PM<sub>10</sub>)</b> | 40µg/m <sup>3</sup>   | Annual mean                               | 31.12.2010                    |
| <b>Sulphur dioxide (SO<sub>2</sub>)</b>     | 350µg/m <sup>3</sup> , not to be exceeded more than 24 times a year | 1-hour mean                               | 31.12.2004                    |
| <b>Sulphur dioxide (SO<sub>2</sub>)</b>     | 125µg/m <sup>3</sup> , not to be exceeded more than 3 times a year  | 24-hour mean                              | 31.12.2004                    |
| <b>Sulphur dioxide (SO<sub>2</sub>)</b>     | 266µg/m <sup>3</sup> , not to be exceeded more than 35 times a year | 15-minute mean                            | 31.12.2005                    |
| <b>Benzene</b>                              | 16.25µg/m <sup>3</sup>  | Running annual mean                       | 31.12.2003                    |
| <b>Benzene</b>                              | 5µg/m <sup>3</sup>  | Annual mean                               | 31 12 2010                    |
| <b>1,3 Butadiene</b>                        | 2.25µg/m <sup>3</sup>   | Running annual mean                       | 31.12.2003                    |
| <b>Carbon Monoxide</b>                      | 10.0mg/m <sup>3</sup>   | Maximum Daily Running 8-Hour mean         | 31.12.2003                    |
| <b>Lead</b>                                 | 0.25µg/m <sup>3</sup>   | Annual Mean                               | 31.12.2008                    |

## Appendix C: Air Quality Monitoring Data QA/QC

### 5.6 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/ga-qc-framework.html>

#### Diffusion Tube Annualisation

Two diffusion tube sites required annualisation in 2022. Details for these sites are provided in Table 14. Annualisation is required for any site with data capture less than 75% but greater than 25%.

#### Diffusion Tube Bias Adjustment Factors

SRS on behalf of BCBC have applied a national bias adjustment factor of 0.77 to the 2023 monitoring data. A summary of bias adjustment factors used by BCBC over the past five years is presented in Table 13.

It should be noted that due to a production delay in Nitrogen Oxide (NO<sub>x</sub>) cylinders used to calibrate the automatic air quality monitoring station within Park Street AQMA, fortnightly calibrations were not undertaken to check NO<sub>x</sub> values between August 2023, and January 2024. The data for the monitoring station have been included in this report, however, it is unclear how this has affected the final results for the air quality monitoring station. In light of this issue, local bias adjustment factors from a co-location study carried out using the monitoring station have not been utilised to calculate the final bias adjusted figures for the

diffusion tube network. Instead, diffusion tubes have been bias adjusted using the national bias adjustment figure.

**Table 13 - Bias Adjustment Factor**

| Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
|------|-------------------|--|-------------------|
| 2023 | National          | 09/24  | 0.78              |
| 2022 | Local             | -  | 0.73              |
| 2021 | National          | 03/22  | 0.78              |
| 2020 | National          | 06/21  | 0.76              |
| 2019 | National          | 09/20  | 0.75              |

### **NO<sub>2</sub> Fall-off with Distance from the Road**

No diffusion tube NO<sub>2</sub> monitoring locations within Bridgend required distance correction during 2023.

## **5.7 QA/QC of Automatic Monitoring**

Local Site Operator duties are performed by officers within the SRS Environment Team. The Park Street AQMA Automatic Monitor is part of the Welsh Automatic Urban pollution Monitoring Network. The monitor is owned and managed by Bridgend Council and is calibrated fortnightly by an officer from the Shared Regulatory Services Environment Team.

Automatic monitoring data presented in this APR from the above monitors is ratified by Ricardo. Live and historical data is available at <https://airquality.gov.wales/>.

### **PM<sub>10</sub> and PM<sub>2.5</sub> Monitoring Adjustment**

The type of PM<sub>10</sub> monitor utilised within Bridgend does not required the application of a correction factor.

### **Automatic Monitoring Annualisation**

All automatic monitoring locations within Bridgend recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

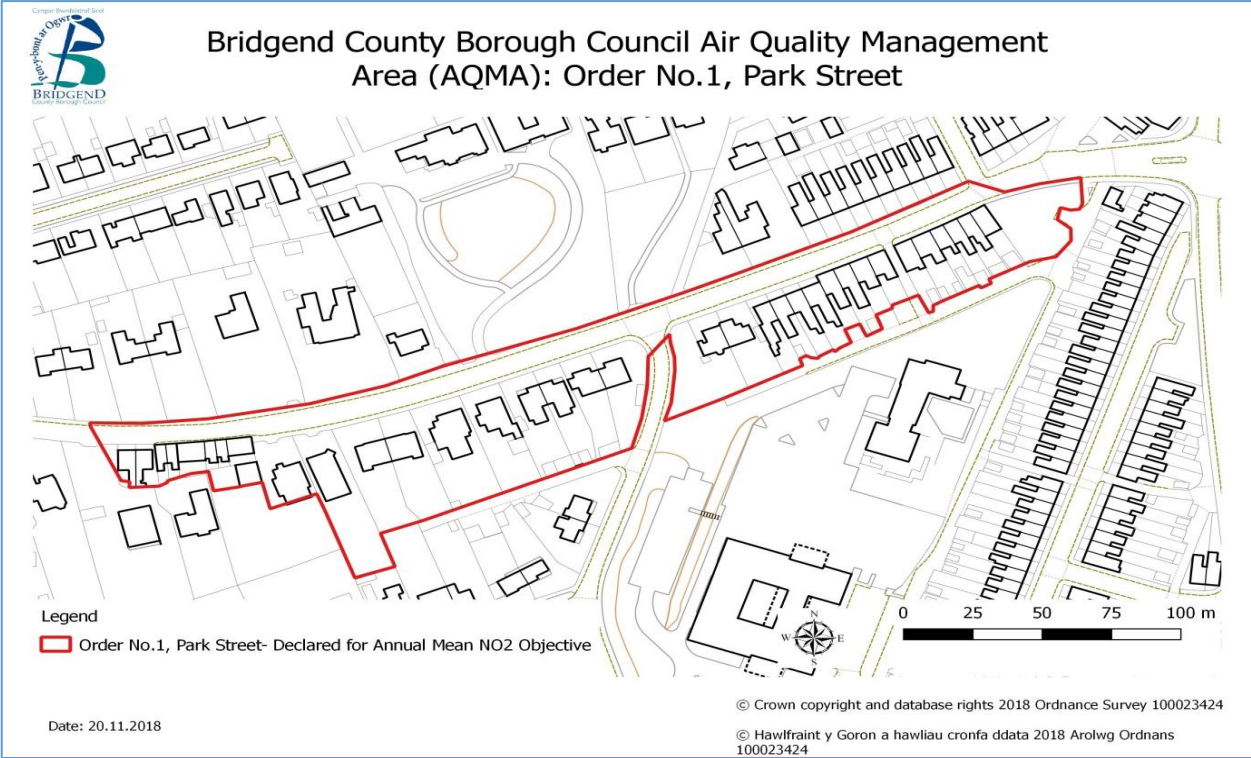
### **NO<sub>2</sub> Fall-off with Distance from the Road**

No automatic NO<sub>2</sub> monitoring locations within Bridgend required distance correction during 2023.

**Table 14 - Annualisation Summary (concentrations presented in  $\mu\text{g}/\text{m}^3$ )**

| Diffusion Tube ID | Annualisation Factor Cardiff City Centre | Annualisation Factor St Julians Comprehensive, Newport. | Annualisation Factor Site 3 Name | Annualisation Factor Site 4 Name | Average Annualisation Factor | Raw Data Time Weighted Annual Mean ( $\mu\text{g}/\text{m}^3$ ) | Annualised Data Time Weighted Annual Mean ( $\mu\text{g}/\text{m}^3$ ) |
|-------------------|--|---|----------------------------------|----------------------------------|------------------------------|---|--|
| OBC-130           | 0.8814                                   | 0.8816  |                                  |                                  | 0.8815                       | 37.3  | 32.9   |
| OBC-125           | 0.9514                                   | 0.9411  |                                  |                                  | 0.9462                       | 26.7  | 20.8   |

# Appendix D: AQMA Boundary Maps





## 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 <sub>2</sub>   | Nitrogen Dioxide  |
| NO <sub>x</sub>   | Nitrogen Oxides   |
| PM <sub>10</sub>  | Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less   |
| PM <sub>2.5</sub> | Airborne particulate matter with an aerodynamic diameter of 2.5µm or less   |
| QA/QC             | Quality Assurance and Quality Control   |
| SO <sub>2</sub>   | Sulphur Dioxide   |