Caerphilly 2021 Air Quality Progress Report

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: February 2022

Mae'r ddogfen hon ar gael yn Gymraeg, ac mewn ieithoedd a fformatau eraill ar gais.
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Information	CCBC Details
Local Authority Officer	Kristian Jennings & Maria Godfrey
Department	Environmental Health
Address	Penallta House, Tredomen Park, Ystrad Mynach, CF82 7PG
Telephone	01443 811350 / 01443 811349
E-mail	jennik@caerphilly.gov.uk godfrm@caerphilly.gov.uk
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Executive Summary: Air Quality in Our Area

1.1 Air Quality in Caerphilly

Caerphilly County Borough Council (CCBC) currently monitors Local Air Quality via passive diffusion tubes and continuous analysers. Nitrogen Dioxide (NO_2) is the main pollutant of concern and is monitored via an extensive diffusion tube network and five continuous analysers. Particulate Matter (PM) is currently the only other observed pollutant and is monitored via four continuous analysers.

The diffusion tube network consisted of monitoring at 71 core locations throughout the year and eight locations where monitoring was undertaken for part of the year. Due to consistent compliance with the national objective, monitoring ceased at six locations, whilst measurements were also collected from two new locations.

Review of measurements collected during 2020 found that annual average concentrations of NO_2 had reduced at most locations relative to measurements collected the previous year. Simple statistical analysis on the set of measurements found that, as an average, concentrations dropped by 7 $\mu g/m^3$ with a standard deviation of 4 $\mu g/m^3$ from this mean. The reduction in concentration equates to a drop of approximately 25% relative to the previous year.

CCBC also operate four continuous analysers measuring concentrations of particulate matter (PM). Three of these analysers measure the concentration of particles with sizes up to 10 micrometres in length (PM_{10}) at Blackwood High Street (BLW) , Caerphilly White Street (CWS) and Fochriw (FCR), whilst the fourth is also located at Fochriw and provides additional insight of the number of smaller sized particles (those with a size diameter of 2.5 micrometres or less ($PM_{2.5}$)), which are able to impact a greater number of human organs via the respiratory system and are likely to be significantly generated by activities undertaken by the nearby open cast mine.

Review of the data captured by the monitors measuring concentrations of PM_{10} found that the annual averaged concentrations had slightly reduced at BLW and CWS compared to the previous year (a relative change of 3% and 4%) whilst measurements captured at FCR showed an increase in concentration by 9%. The changes in concentration meant that

annual average concentrations at BLW and CWS had reduced for the fifth year in succession whilst the increase at FCR meant that the very slight trend in decreased concentration found in previous years was broken but the measurement had not surpassed the value given in 2016. The annual averaged measurement given for all three locations was well below the National Air Quality objective value of 40 μg/m^3 and are therefore compliant. These measurements also meet the AQS objective for measurements not to exceed a daily mean of 50 μg/m^3 more than 35 times a year, with only CWS exceeding the daily mean value on one occasion only. With respect to this, all three sites continued the trend seen in previous years.

The $PM_{2.5}$ measurements recorded at FCR showed a reduction in concentration with comparison to previous years representing a break from a slight upward trajectory seen from 2017 when measurements had averaged an increase of 0.2 μg/m^3.

CCBC currently have two declared Air Quality Management Areas, Caerphilly Town Centre and Hafodyrynys Road (https://airquality.gov.wales/laqm/air-quality-management-areas).

The Caerphilly Town Centre AQMA has been declared as measurements showed that concentrations of NO_2 had exceeded the objective values for short and long-term periods set out in the national air quality strategy. An air quality action plan (2014) has been implemented with measurements showing a decline in annual mean concentration values, with the most recent measurements from all monitoring points (2019, 2020) within the AQMA recording an annual mean below the national air quality strategy objective. Prior to the pandemic CCBC had been working on a series of new actions to improve air quality further including working with Stagecoach and CCBC Passenger Transport Unit on the successful Ultra-Low Emission Bus (ULEB) bid to replace 16 diesel buses for electric alternatives. Due to the pandemic, limited progress on further action had been made during 2020. CBCC intends to conduct a review of the AQAP during 2022.

Hafodyrynys Road AQMA was also declared due to measurements showing an exceedance of the national air quality strategy objective values for short and long-term NO_2 concentrations. An action plan was devised and approved by Welsh Government (WG) and Cabinet, with a formal direction for the council being made by Welsh Ministers, to assess solutions for the AQMA. CCBC have undertaken an extensive feasibility study to assess measures which are likely to bring about compliance at Hafodyrynys AQMA with the EU Ambient Air Quality Directive in the shortest possible time. CCBC submitted

their plan Final Plan to Welsh Government (WG) on the 30 June 2019. The Final Plan concluded that demolition of the houses on the southern side of the A472 and realignment of the footway was the measure that would deliver compliance in the shortest possible time. Given the time delay in submitting this report, all houses have now been successfully demolished and geotechnical surveys have been undertaken at the site in preparation for the final design of the newly realigned footway. The Minister has granted a year extension to the project timeline and all works are on track to be completed by 31 December 2022.

Actions to Improve Air Quality

1.2 Local Priorities and Challenges

The monitoring data recorded by the continuous analysers and passive samplers have indicated that actions undertaken by CCBC and its partner organisations have reduced NO_2 concentrations in areas which had previously measured above the objective values set in the national air quality strategy. Furthermore, action already undertaken to reduce NO_2 concentrations in the Hafodyrynys Road AQMA where measurements continued to exceed the annual average limit value at two locations during 2020, are expected to reduce NO_2 concentrations in the coming years. The priorities for CCBC are therefore, to progress the current demolition and footway realignment scheme for Hafodyrynys Road and monitor concentration levels to assess the effectiveness of the scheme; and to progress with the review of the Caerphilly Town Centre Air Quality Action Plan whilst also seeking to develop new feasible actions to continue to improve air quality elsewhere within the borough. CCBC also recognise that the pandemic has also provided an opportunity for residents and commercial enterprises to adapt to a more localised form of living, which might remain in the medium to long term. CCBC therefore will take opportunities to further understand how its residents adapt to a '*new normal'* way of life and how future policies and resources are best utilised to support actions to continue to improve health and well-being.

1.3 How to Get Involved

Information on our local air quality network can be accessed via https://airquality.gov.wales/. Should you wish to speak with an officer, contact Environmental Health on 01443 811328 or ehadmin@caerphilly.gov.uk.

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1 Actions to Improve Air Quality

1.1 Previous Work in Relation to Air Quality

Caerphilly County Borough Council (CBCC) continues to meet its legal requirement to monitor levels of, and where feasible, reduce public exposure to, ambient air pollutants, as stipulated in Part IV of the Environment Act (1995) using the process described in the Local Air Quality Management Technical Guidance 2016 (TG16) (updated 2021) document[1].

Following the LAQM process, CBCC used passive sampling techniques to identify locations where the concentration of air pollutants are likely to exceed objective values set out in the *national air quality strategy*. Passive sampling undertaken on White Street during 2004 and 2005 suggested an exceedance of the threshold value given for the annual average concentration of Nitrogen Dioxide (NO_2) (40 µg/m^3).

Following this discovery, CCBC undertook a further detailed assessment study during 2006. The study concluded that it was likely that that threshold for annual average NO_2 concentrations were being exceed in the area on White Street between Van Road and Bartlett Street. It was further predicted that the national hourly objective for NO_2 in 2005 was not being exceeded at any relevant receptors in the study area.

The Detailed Assessment recommended that CCBC declare an Air Quality Management Area (AQMA) in Caerphilly Town Centre. The 2006 Updating and Screening Assessment (USA) identified exceedances of NO_2 in central Caerphilly. Subsequent progress reports in 2007 and 2008 corroborated this finding.

The 2007 Progress Report advised of another area of the County Borough that continued to remain close to the national annual objective for NO_2, namely Blackwood High Street. However, due to the construction of a bypass road and the redevelopment of the bus station, it was agreed by the Welsh Government (WG) that CCBC would be afforded a time period until the aforementioned works were completed, to assess the impact they had upon the levels of NO_2 within the High Street. Since the completion of the bypass there

[1] LAQM TG16 document is available from https://laqm.defra.gov.uk/documents/LAQM-TG16-April-21-v1.pdf

have been no exceedances of the national annual or hourly objectives for NO_2 at Blackwood High Street.

In 2008, CCBC declared an AQMA for NO_2 encompassing a number of properties along Clifton Street, White Street and Bartlett Street in Caerphilly. The 2009 USA concluded several areas within Caerphilly Town Centre were exceeding the national annual objective for NO_2; however, the majority of the locations were already contained within the AQMA and were the focus of a Further Assessment. Two areas outside of the AQMA, namely Ton-Y-Felin Road and Nantgarw Road were also included within the further assessment study, as any proposed actions for the AQMA would have a 'knock on' effect on these areas due to the road network. In conclusion, CCBC was not required to proceed to a Detailed Assessment for any areas within the County Borough.

In 2010, AEA consultants were commissioned by CCBC to undertake a Further Assessment of the air quality in Caerphilly Town Centre AQMA and the surrounding road network.

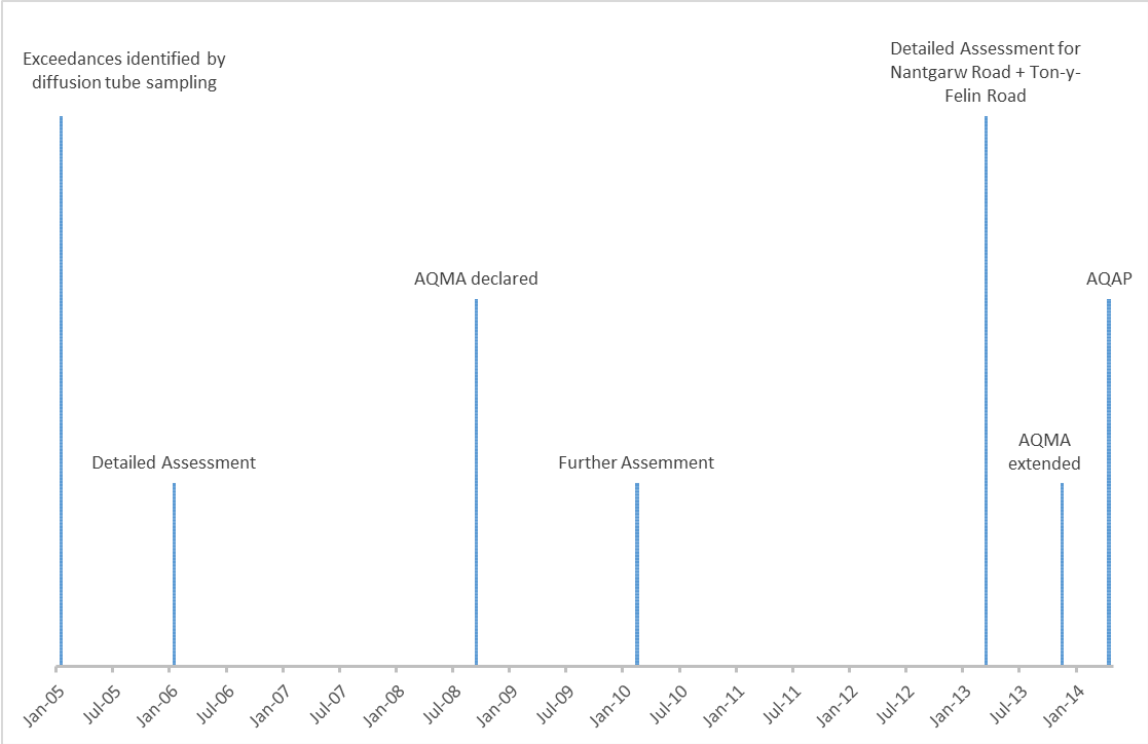
The modelling study undertaken as part of the Further Assessment, along with current monitoring and meteorological data for the area, confirmed that the current AQMA was sufficient to cover the exceedances of the national annual objective for NO_2, for White Street and Bartlett Street. However, the study also suggested that CCBC consider declaring a further AQMA (or extend the current AQMA) to encompass another small exceedance area identified to the north of the gyratory system, namely Ton-Y-Felin Road.

The modelling study for the Further Assessment used 2009 monitoring data. At the time, monitoring data relating to the Ton-y-Felin Road area of Caerphilly was not exceeding the national annual objective for NO_2. CCBC sought permission from WG to monitor in this area for a further year to confirm whether there was general improvement in this area or whether it was a 'one off' result. Monitoring data for 2010 confirmed that it was in fact a 'one off' result and that there was no requirement for CCBC to extend the existing AQMA within Caerphilly to encompass this area.

In addition to the exceedance at Ton-y-Felin Road, diffusion tube monitoring locations at Nantgarw Road Caerphilly, were also showing exceedances of the national annual objective for NO_2. The 2012 USA discussed how CCBC had deployed a new continuous monitoring station for the Nantgarw Road area, to inform the Detailed Assessment that was required. CCBC undertook a Detailed Assessment for the Nantgarw Road area using 6 months' of continuous data and the results of the modelling exercise were very close to the national annual objective for NO_2.

However, the report concluded that there were no exceedances of the national annual objective for NO_2 at receptor locations along Nantgarw Road and there was no requirement for CCBC to extend the current Caerphilly Town Centre AQMA. The report was submitted to WG and the conclusions of the report were rejected. CCBC then rerun the air quality model for this area using 12 months of data rather than the previously used 6 months. This altered the conclusions of the report. The recommendations of the updated Detailed Assessment for Nantgarw Road, was to extend the Caerphilly Town Centre AQMA to include the affected areas along Nantgarw Road and Ton-y-Felin Road. CCBC extended the Caerphilly Town Centre AQMA in November 2013 to include the areas recommended within the Detailed Assessment.

Figure 1-1 - Chart for Caerphilly Town Centre AQMA



As well as the Caerphilly area, the 2012 USA also discussed one other area that was exceeding the air quality objective for NO_2, namely Woodside Terrace, Hafodyrynys. CCBC commenced a Detailed Assessment for this area; the conclusions of which recommended that CCBC proceed to designating the area as an AQMA.

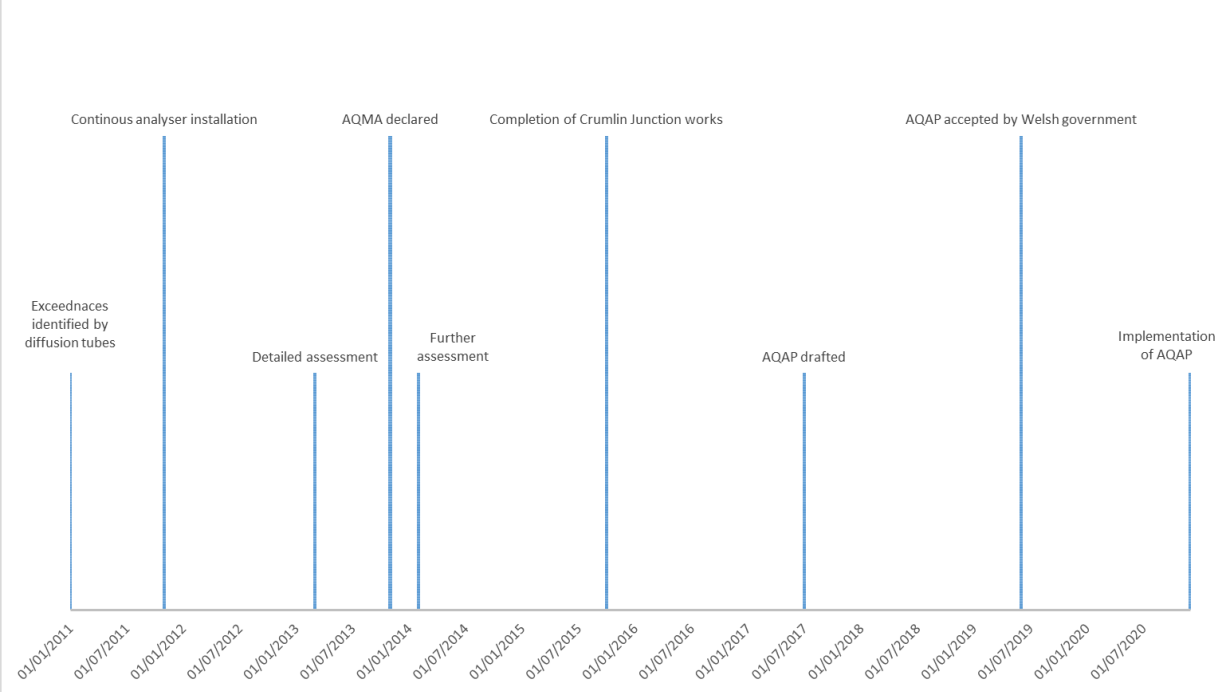
CCBC designated the Hafodyrynys Road AQMA in November 2013 (Figure 1.2) and proceeded to a Further Assessment of air quality in 2014.

Further to this, in 2015 highway improvement works were undertaken at Crumlin Junction. The aim of the works was to improve the efficiency of the junction and minimise the congestion of traffic at Hafodyrynys Road by the introduction of the following:

- Installation of MOVA System.
- Additional right turn lane for North Bound (N/B) A467 vehicles turning East into A472
- Additional lane provided for A467 South Bound (S/B) vehicles passing straight on at traffic signals with A472.
- Extended left turn filter lane on the A472 for vehicles joining the A467 S/B.
- Additional right filter lane provided for vehicles leaving the A472 going N/B onto the A467.
- Additional merge lane provided on the A472 for vehicles heading East from N/B A467.
- Left turn filter lane extended on S/B A467 for vehicles joining into A472.

These works were completed in October 2015 and although measurements had shown some reductions in the concentrations of NO_2 within the area, more needs to be done. CCBC received direction from the Welsh Government during March 2018 to bring concentrations of NO_2 to below the nitrogen dioxide limit value in the shortest time possible. Welsh Government also made a commitment to fund any studies and subsequent actions to bring about compliance with the limit value. Hafodyrynys Road AQMA featured in the National NO_2 Plan for Wales (tackling-roadside-nitrogen-dioxide-concentrations-in-wales.pdf (gov.wales)). CCBC undertook a substantial feasibility study, including public consultation which looked at a series of options which would bring about compliance with the nitrogen dioxide limit value in the shortest possible time. The action which delivered compliance in the shortest possible time was demolition of residential dwellings along the southern side of Woodside Terrace and realignment of the public footway. CCBC submitted their plan Final Plan to Welsh Government on the 30 June 2019 with works to be undertaken during 2020 with an expected completion date of 31 December 2021.

Figure 1-2 - Chart for Hafodyrynys AQMA



This report will assess all monitoring data and any respective action taken for 2020. It will also discuss any other areas that are exceeding the National Air Quality Objectives.

1.2 Air Quality Management Areas

An AQMA is a tool described in the LAQM TG guidance which is used to highlight the geographical area where exceedances of the national concentration threshold values for relevant exposure to the named air pollutants are exceeded. Local authorities must declare an AQMA once sufficient level of investigation has confirmed the initial indication of an exceedance of the national limits. The LAQM framework also requires the local authority to prepare an Air Quality Action Plan (AQAP) within 18 months of the AQMA being declared. The plan must include measures to reduce the concentration of the pollutant to below the objective threshold value set out in the national objectives. 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 CCBC can be found in Table 1.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=393.

Table 1.1 – Declared Air Quality Management Areas

AQMA	Relevant Air Quality Objective(s)	Comments on Air Quality Trend	City / Town	Description	Action Plan
Caerphilly Town Centre (MAP)	NO_2 annual mean PM_{10} 24-hour mean	Gradual reductions in NO_2 & PM_{10} levels from both continuous analysers and BAM over a five year period	Caerphilly	Residential properties along main route through Caerphilly Town Centre – White Street and Bartlett Street, which was extended to include Nantgarw Road and Ton-y-felin Road	Caerphilly Town Centre Air Quality Action Plan
Hafodyrynys Road (MAP)	NO_2 annual mean	No discernible difference in levels of NO_2 over a five year period	Crumlin	Residential properties surrounding the A472 – a main trunk road connecting Pontypool and the A467.	Hafod-yr-ynys Air Quality Action Plan & Plan to Tackle Roadside Nitrogen Dioxide Concentrations in Hafodyrynys, Caerphilly

1.3 Implementation of Action Plans

CCBC has taken forward a number of measures in recent years in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 1.2. More detail on these measures can be found in the Air Quality Action Plan relating to the 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. Due to the pandemic, CBCC were not able to progress with planned actions during 2020.

CCBC expects the following measures to be completed over the course of the next reporting year:

- Working with colleagues in the Strategic Planning section on the production of a newly revised Local Development Plan which has a clear message on air quality and sustainability. Pollution Control will also have an opportunity to assess the candidate sites proposed and provide comments to our planning colleagues on their suitability.
- Delivery of the proposed demolition scheme along the southern side of the A472 at Woodside Terrace, Hafod-yr-ynys. Demolition of the houses by December 2021 with the realignment of the footway rolling into 2022.

Table 1.2 – Progress on Measures to Improve Air Quality

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
1	Reduce emissions from buses in Caerphilly Town Centre	Reducing vehicle emissions by working with commercial bus operators and seeking grants to assist with the purchase of 'green' buses (biodiesel / hybrid / alternative fuels)	CCBC Passenger Transport & Bus Operators	April-17	Bid for ULEB funding for 21 electric buses and associated infrastructure submitted to WG	Reduction in local air quality levels captured by diffusion tubes and continuous analysers within Caerphilly Basin	Unknown reductions on AQMA, however, bus fleet emissions modelled to be reduced by 36.9% for NO_x and 39.4% for PM_{10}.	Bid granted for 16 electric buses.	Bid granted.	Completed	By removing 21 buses and replacing them with a ULEB fleet, reductions in fleet emissions have been modelled as 36.9% for NO_x and 39.4% for PM_{10}. Modelling hasn't been carried out for 16 buses.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
2	Investigate the potential for the use of electric vehicles in the Council's fleet	Reducing vehicle emissions	Policy / Fleet Management	Sep-15	Mar-16	Outcome of Investigation	Not quantifiable	Electric vehicle trial completed and charging points installed at Penallta House. Assessments being made on viability of electric fleet. Small amount of changes of existing fleet to greener alternatives, including the CCBC Mayor's car.	Funding secured from Welsh Government for a Gwent regional fleet review process. Work undertaken for a fleet review officer to undertake a departmental review of CCBC fleet.	Ongoing	CCBC are assessing the viability of EV pool cars and fleet changes; the vehicles will be used in place of our own diesel/petrol vehicles, thus reducing work related emissions.
3	Encourage travel plans for businesses, schools and CCBC	Reducing the number of vehicles travelling on the roads	CCBC Planning / Transport Strategy & Development Control / Transport Strategy Group	Ongoing	Ongoing	No. of schools holding travel plans. No. of travel plans agreed through development control process.	Not quantifiable	There are 67 active school travel plans. CCBC Transport Strategy & Development Control also conditions certain planning applications to produce sustainable travel plans.	Delivery of cycle storage at 5 schools across the Borough Delivery of National Standards Cycle Training, 113 pupils were trained at 7 schools. Delivery of kerb craft training to 936 key stage 1 pupils. Delivery of a new crossing facility at INMC 47 in Fleur de Lis	Ongoing	Active travel plans are encouraged to be developed by businesses and schools to facilitate cleaner travel alternatives and are required through the development control process. Schools also have access to a series of workshops throughout the year to encourage pupils to be more active to and from school.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
4	Improve CCBC vehicle fleet - lead by example	Upgrade vehicles to EURO VI standard to reduce emissions	Passenger Transport / Fleet Management	2014	2015	No. of vehicles in Council fleet which are EURO VI standard.	Not quantifiable	The Council has 449 vehicles in total, 324 of which are Euro VI.	Two reports are due to be submitted to Cabinet requesting funding on reducing council grey fleet mileage and associated charging infrastructure.	Ongoing	The Council renews it fleet on a rolling programme, ensuring the oldest vehicles are usually replaced with cleaner alternatives.
5	Development of CCBC Electric Vehicle Strategy and Action Plan	Leading by example with internal electric vehicle infrastructure and fleet use. Encourage private industry and development to invest in electric vehicle infrastructure and use.	CCBC, Policy	2017	2018	Number of electric vehicles owned by CCBC and the number of Electric charging points throughout the County Borough.	Not Quantifiable	Completed	Finalised and agreed by CCBC Cabinet, September-18	Completed	Strategy outlines actions that look to increase modal shift to cleaner vehicle alternatives (electric/hybrid)
6	Promote school walking buses	Reduce emissions by promoting walking	CCBC Transport Strategy	2005	2005	No. of schools participating in the scheme.	Not quantifiable	20 schools signed up to participate in the walking bus initiative.	6200 pupils participated in walk-to-school week/month.	Ongoing	This is aimed to reduce the emissions generated by pupil travel in the County Borough.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
7	Improve walking routes in Caerphilly Basin	Reduce emissions by promoting walking	CCBC Highway Operations Group / Transportation Engineering Group	2014/15	Jan - 2015	No. of schemes delivered	Not quantifiable	Will progress as part of the Active Travel Duties / Safe Routes in Communities (SRIC) initiative	New signalised crossing facility installed at INMC 47 in Fleur de lis	Ongoing	Modal Shift
8	Air Quality Awareness - working with partners to incorporate AQ in to Eco schools and Healthy Schools	Curriculum education to encourage alternative forms of transport to reduce emissions	Env Health / Policy / Healthy Schools	Oct-14	Ongoing	No. of schools visited	Not quantifiable	25 schools presented to	25 schools presented to	Ongoing	By educating the children around the County Borough, the hope is that they encourage and develop cleaner travel habits. Active monitoring is designed as an education tool, but also as indicative levels of emissions around school playgrounds.
9	Air Quality awareness exercise in CCBC schools	Monitoring air quality levels around school playground, as well as encouraging pupil participation and education through Healthy Schools/Eco-school's curriculum	CCBC Environmental Health, Education, Healthy Schools & Eco-Schools	Nov-17	Jan-18	Number of Schools participating	Not Quantifiable	Pilot Study of 7 schools completed	Pilot Study completed.	Completed	Pilot Study has been completed. A decision will be made regarding the continuation of another round of schools, dependant on staff resource.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
10	Increase and publicise the availability of cycling facilities	Reduce emissions by promoting alternative forms of transport	CCBC Transport Strategy/ Road Safety/ Passenger Transport/ Sustainable Development	Ongoing	Ongoing	Difficult to quantify	Not quantifiable	Initiatives completed include the travel hub in Caerphilly Town Centre that promotes Personalised Travel Planning, passenger transport and the existing travel routes within the Caerphilly Basin and the County Borough.	Cycle storage facilities installed at 5 schools across the borough.	Ongoing	By increasing and publicising the availability of cycling facilities/routes, cleaner travel alternatives are encouraged, reducing overall vehicle emissions.
11	Introduce cycling proficiency / National Standards in schools	Reduce emissions by promoting safe use of alternative forms of transport	CCBC Sustainable Development & Transport Strategy	2010	Ongoing	No. of pupils trained	Not quantifiable	3561 pupils trained in total	256 pupils trained in 2019	Ongoing	Currently being delivered in schools on a rolling programme.
12	Quarterly Newsline article highlighting Caerphilly CBC air quality issues and resolutions	Education and connection of County Borough residents with air quality work.	CCBC Environmental Health / Communications	Nov - 17	Dec - 17	Number of articles published	Not quantifiable	Two articles advocating anti-idling of vehicles and the current schools air quality project	Ongoing	Ongoing	To provide education to the public on air quality news and information, as well as updating on the air quality work in the Environmental Health field.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
13	CCBC adoption of parking enforcement from Gwent Police	To reduce instances of illegal parking	CCBC Traffic Management / Civil Parking Enforcement	2018	April - 19	Number of Fixed Penalty notices served	Not quantifiable	Civil Parking enforcement adopted on April 19	5888 Penalty Charge Notices (PCNs) served in 2020	Ongoing	Congestion and subsequent emissions caused by illegally parked vehicles are reduced by restrictions that are now enforced.
14	Increase the provision of EV charging points in the Local Authority Area to encourage modal shift to EVs.	To gain funding for EV charging points for CCBC and residential use.	CCBC Policy / Transport / Traffic Management	2015	2018	Number of charging points available in the Local Authority Area	Not Quantifiable	EV Charging points installed at CCBC buildings and the local authority area.	Progress stalled due to Covid	Ongoing	By making more EV charging point available across the Local Authority Area, residents and CCBC workforce are able to use EV in place of diesel/petrol alternatives, thus reducing vehicle emissions.
15	Purchase of an electric pool bike for staff work commutes	To provide an electric bike for employee commutes, which is easier to ride the local topography	CCBC Policy / Transport	2018	2018	Number of staff trips	Not Quantifiable	Bike purchased and offered to staff for work commutes	CCBC promotion of National Bike Week, promoting cycling and the salary sacrifice schemes available	Completed	By providing a pool bike, staff can use it to commute to work, reducing vehicle emissions. An electric bike is better for the majority of staff due to topographic and fitness issues, and is likely to be used more.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
16	To improve the private fleet of CCBC employees	To encourage and provide cleaner vehicle alternatives for CCBC staff in their private vehicle ownership	Policy	2018	2018		Not quantifiable	CCBC has a car sacrifice and a cycle to work scheme in place. CCBC employees are able to use their wages to purchase cars for private ownership and bicycles to travel to work	Progress stalled due to pandemic	Ongoing	The aim is on reducing the emissions attributed to CCBC employees private vehicles.

2 Air Quality Monitoring Data and Comparison with Air Quality Objectives

2.1 Summary of Monitoring Undertaken in 2020

2.1.1 Automatic Monitoring Sites

CCBC currently has six automatic monitoring sites in the County Borough. Five of the sites monitor real-time NO_2 levels using Teledyne Chemiluminescent continuous analysers. These analysers are strategically located on Blackwood Highstreet, Nantgarw Road, Caerphilly White Street, Hafodyrynys Road and Islwyn Road.

Additionally, Caerphilly also monitors Particulate Matter using Met One Beta Attenuation Monitors (BAM) 1020, at Blackwood Highstreet, Caerphilly White Street and Fochriw. Each of these locations monitors particles with a size fraction less than 10 micrometres with Fochriw also containing a second monitor to monitor a smaller sized particles less than 2.5 micrometres. The additional monitor has been installed due to the likeliness of a high number of smaller particles being present from activities from the nearby open cast mine. The equipment meets the equivalence criteria for monitoring, provided the results are corrected for slope.

A description of each monitor is provided under the following subheadings.

Blackwood (BLW) Continuous Monitoring Site

Blackwood air quality enclosure is a Kerbside monitoring site, located as a “worst case” scenario for NO_2 and particulate matter emissions along Blackwood High Street. The enclosure was originally sited to assess the exceedances in NO_2 levels along the High Street.

Hafodyrynys (HAF) Continuous Monitoring Site

Hafodyrynys air quality enclosure is a Kerbside monitoring site measuring NO_2 emissions from traffic along Hafodyrynys Road. The enclosure was sited to assess the exceedances of NO_2 at Woodside Terrace.

Caerphilly White Street (CWS) Continuous Monitoring Site

Caerphilly White Street air quality enclosure is a Roadside monitoring site, installed to assess NO_2 and particulate matter exceedances along White Street. The enclosure was

sited to assess the exceedances of NO_2 and to inform the Detailed Assessment as to whether a formal AQMA needed to be declared.

Caerphilly Nantgarw (CNG) Continuous Monitoring Site

Caerphilly Nantgarw air quality enclosure is a Roadside monitoring site, located to assess NO_2 exceedances along Nantgarw Road. The enclosure was sited to assess whether Caerphilly AQMA required extending.

Fochriw (FCR) Continuous Monitoring Site

Fochriw air quality enclosure is a Roadside monitoring site, located to assess particulate matter within the area. The enclosure was sited after concerns were raised by residents about the air pollution from Ffos-y-Fran opencast mine.

Islwyn Road, Wattsville Continuous Monitoring Site

Islwyn Road, Wattsville air quality enclosure is a Roadside monitoring site, located to assess NO_2 exceedances along Islwyn Road. The enclosure was sited to assess the elevated level of NO2 at a pinch point along Islwyn Road

2.1.2 Non-Automating Monitoring Sites

CCBC undertook non-automatic (passive) monitoring of NO_2 at 79 sites during 2020. Table 2.2 presents the details of the sites.

Maps showing the location of the monitoring sites are provided in Figure 2.2. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Table 2.1 – 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) [(1)]	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
BLW	Blackwood	Kerbside	No	317456	197109	PM_{10}	BAM	1.8	0	1	**1**
						NO_2	M200A Chemiluminescent analyser				
CWS	Caerphilly White Street	Roadside	Caerphilly Town Centre	315682	186825	PM_{10}	BAM	1.8	7	5	2
						NO_2	M200A Chemiluminescent analyser				
CNG	Caerphilly Nantgarw	Roadside	Caerphilly Town Centre	314744	186997	NO_2	M200A Chemiluminescent analyser	1.8	0	2	2
FCR	Fochriw	Roadside	No	310452	205422	PM_{10}	BAM	1.8	0	2	2
						$PM_{2.5}$	BAM				
HAF	Hafodyrynys	Kerbside	Hafodyrynys AQMA	321727	198588	NO_2	M200A Chemiluminescent analysers	1.65	2.5	3	0.5
IRW	Islwyn Road Wattsville	Roadside	No	320663	191427	NO_2	T200 NOx Chemiluminescent analysers	1.5	1	1	2

Notes:

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

Figure 2-1 – Map(s) of Automatic Monitoring Sites

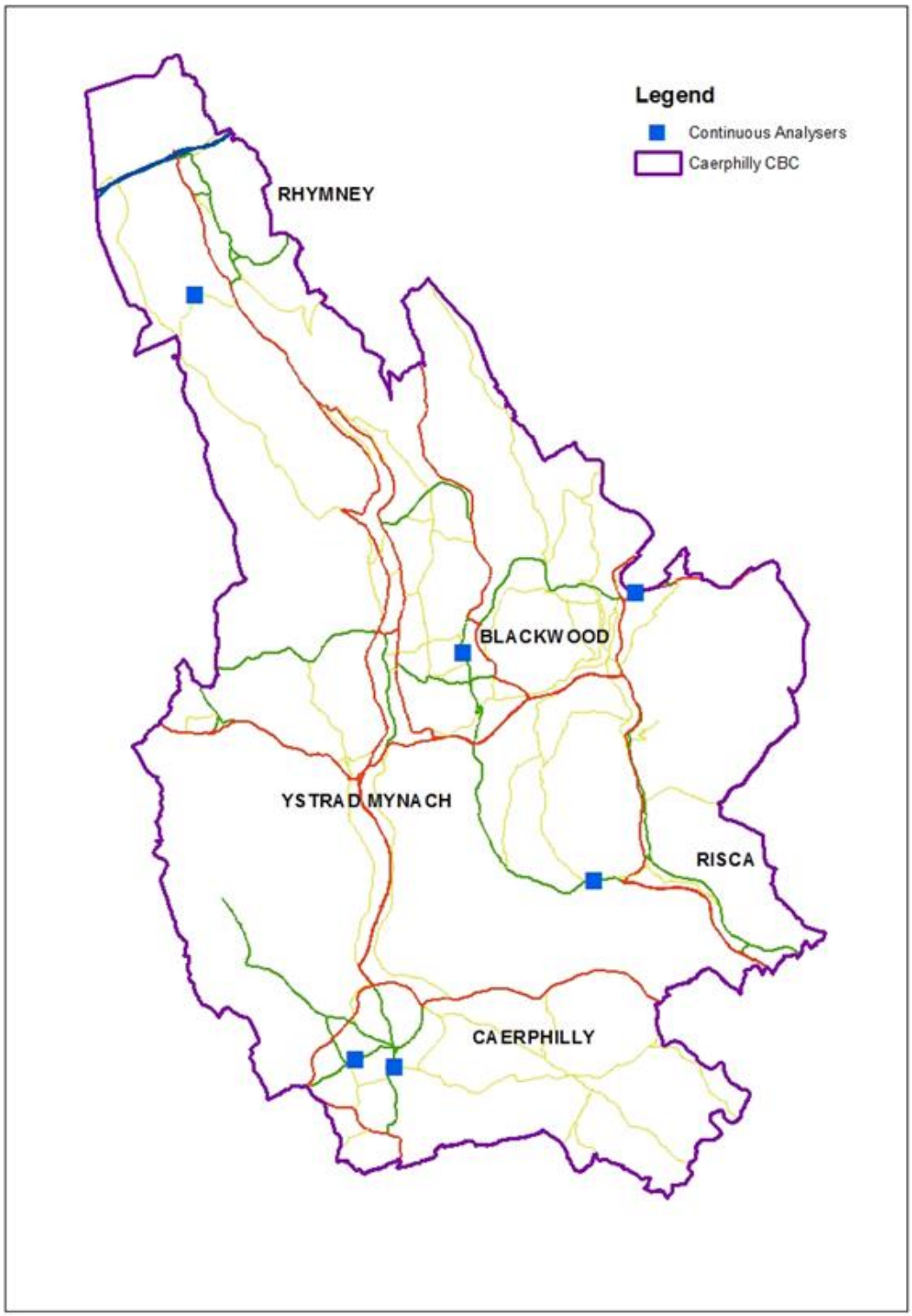


Table 2.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	Associated with Named AQMA?	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
CCBC1	Blackwood Post Office	Kerbside	N	317497	196911	3	N	0	<1	<1
CCBC6	Ton-y-felin Road, Caerphilly	Roadside	Y	315709	187325	2	N	0	2.5	2.5
CCBC7	Cardiff Road, Caerphilly	Roadside	N	315552	186674	3	N	0	2	2
CCBC8	Blackwood High Street	Kerbside	N	317419	192211	2	N	0	2	1.5
CCBC17	Bedwas Road, Caerphilly	Roadside	N	315907	187320	3	N	0	3	3
CCBC18	Pontygwindy Road, Caerphilly	Roadside	N	315670	187481	2	N	0	3	3
CCBC19	White Street, Caerphilly	Roadside	Y	315718	186723	2	N	0	2	2
CCBC20	Newport Road, Trethomas	Roadside	N	318179	188764	2	N	0	4	4
CCBC21	Maesycwmmer Shop	Roadside	N	315533	194725	2	N	0	12	12
CCBC22	Gellideg Heights, Maesycwmmer	Kerbside	N	316102	194790	2.5	N	2	3	<1
CCBC27	Penrhiw Franc Farm	Urban background	N	319196	195196	2	N	24.5	25	<1
CCBC29	Maen Llwyd, Rudry	Urban background	N	319274	186558	2	N	0	<1	<1
CCBC30, CCBC31, CCBC32	AQE – Caerphilly*	Roadside	Y	315705	186839	2	Y	7	5	2
CCBC33	Lower left White street	Roadside	Y	315720	186761	2	N	0	2	2
CCBC34	Corner of Windsor and White Street	Roadside	Y	315708	186808	2	N	0	7	7
CCBC35	Top Right of White Street	Roadside	Y	315714	186668	2.5	N	0	2	2
CCBC36	44/46 Bartlett Street	Roadside	Y	315738	186654	2	N	0	3	3

Site ID	Site Name	Site Type	Associated with Named AQMA?	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
CCBC37	19 Station Terrace	Roadside	Y	315727	186617	2	N	0	2	2
CCBC38	32 Bartlett Street	Roadside	Y	315700	186660	2	N	0	3	3
CCBC39	18 Bartlett Street	Roadside	Y	315652	186663	2	N	0	3	3
CCBC40	7 Bartlett Street	Roadside	Y	315621	186665	2.5	N	0	2	2
CCBC44	244 Nantgarw Road, Caerphilly	Roadside	N	314712	186999	2	N	0	2	2
CCBC45	38 Bedwas Road, Caerphilly	Roadside	N	315954	187377	3	N	0	3	3
CCBC46	8 Windsor Street	Roadside	Y	315669	186804	2	N	0	2	2
CCBC48	1 Woodside Shops, Hafodyrynys	Roadside	Y	321652	198557	2	N	0	2	2
CCBC49	Pontygwindy Road, Caerphilly	Roadside	N	315470	188101	2	N	0	3	3
CCBC50	Past Woodside Terrace, Hafodyrynys	Kerbside	Y	321851	198619	2	N	47	47	<1
CCBC51, CCBC52, CCBC53	AQE – Blackwood*	Kerbside	N	317419	197103	2	Y	0	1	1
CCBC54	Clive Street, Caerphilly	Roadside	N	315518	186646	2.5	N	0	2	2
CCBC55	6 Ton-y-Felin Road, Caerphilly	Roadside	Y	315742	187316	2	N	0	3	3
CCBC56	3 Nantgarw Road, Caerphilly	Roadside	Y	315579	187305	2	N	0	2	2
CCBC57	14 Mill Road, Caerphilly	Roadside	N	315629	187375	3	N	0	2	2
CCBC59	30 Ton-y-Felin Road, Caerphilly	Roadside	Y	315793	187305	2.5	N	0	3	3

Site ID	Site Name	Site Type	Associated with Named AQMA?	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
CCBC60	3 New Houses, Hafodyrynys	Roadside	Y	321681	198584	5	N	0	3.5	3.5
CCBC61	258 Nantgarw Road, Caerphilly	Roadside	N	314680	186988	2	N	0	1.5	1.5
CCBC67	84 Nantgarw Road, Caerphilly	Roadside	Y	315242	187223	2	N	0	2	2
CCBC68	Premier Stores, Cwmfelinfach	Roadside	N	318467	191788	2	N	0	1.5	1.5
CCBC69	80 Islwyn Road, Wattsville	Roadside	N	320647	191427	2	N	0	1.5	1.5
CCBC70	153 Islwyn Road, Wattsville	Roadside	N	320499	191427	2	N	0	2	2
CCBC71	128 Islwyn Road, Wattsville	Roadside	N	320507	191405	2	N	0	2	2
CCBC72	109 Islwyn Road, Wattsville	Roadside	N	320629	191442	2	N	0	2	2
CCBC73	21 Islwyn Road, Wattsville	Roadside	N	320886	191474	2	N	0	2	2
CCBC74	2 Islwyn Road, Wattsville	Roadside	N	320883	191451	2	N	0	2	2
CCBC78	86 Islwyn Road, Wattsville	Roadside	N	320634	191424	2	N	0	3	3
CCBC79	20 Woodside Terrace, Hafodyrynys	Roadside	Y	321812	198610	2	N	0	1.5	1.5
CCBC80	15 Commercial Street, Aberbargoed	Roadside	N	315430	200258	2	N	0	1.5	1.5
CCBC81	29 Commercial Street, Aberbargoed	Roadside	N	315454	200227	2	N	0	1.5	1.5

Site ID	Site Name	Site Type	Associated with Named AQMA?	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
CCBC82	60 Commercial Street, Aberbargoed	Roadside	N	315489	200116	2	N	0	1.5	1.5
CCBC83	10 Woodside Terrace, Hafodyrynys	Roadside	Y	321730	198583	2	N	0	2.5	2.5
CCBC84	La Loma, Hafodyrynys	Roadside	Y	321653	198583	5	N	0	3	3
CCBC86	Telegraph pole outside 16 Woodside Terrace	Kerbside	Y	321780	198603	2	N	1.5	2	<1
CCBC87	16 Woodside Terrace, Hafodyrynys	Roadside	Y	321773	198560	2	N	0	2.5	2.5
CCBC88	13 Woodside Terrace, Hafodyrynys	Roadside	Y	321748	198591	2	N	0	3	3
CCBC89	AQE – Hafodyrynys 1 *	Kerbside	Y	321727	198588	2	Y	2	2.5	<1
CCBC90	AQE – Hafodyrynys 2 *	Kerbside	Y	321727	198588	2	Y	2	2.5	<1
CCBC91	AQE – Hafodyrynys 3 *	Kerbside	Y	321727	198588	2	Y	2	2.5	<1
CCBC92	7 Woodside Terrace, Hafodyrynys	Roadside	Y	321397	198579	2	N	0	2.5	2.5
CCBC93	3 Woodside Terrace, Hafodyrynys	Roadside	Y	321667	198568	2	N	0	2	2
CCBC94	Bus Stop outside 1 Woodside Terrace	Kerbside	Y	321645	198560	2	N	2	2.5	<1
CCBC95	1 Woodside Terrace, Hafodyrynys	Roadside	Y	321647	198558	2	N	0	2.5	2.5
CCBC96	4 Chapel View, Cwmfelinfach	Urban Industrial	N	318751	191476	2	N	0	40	40

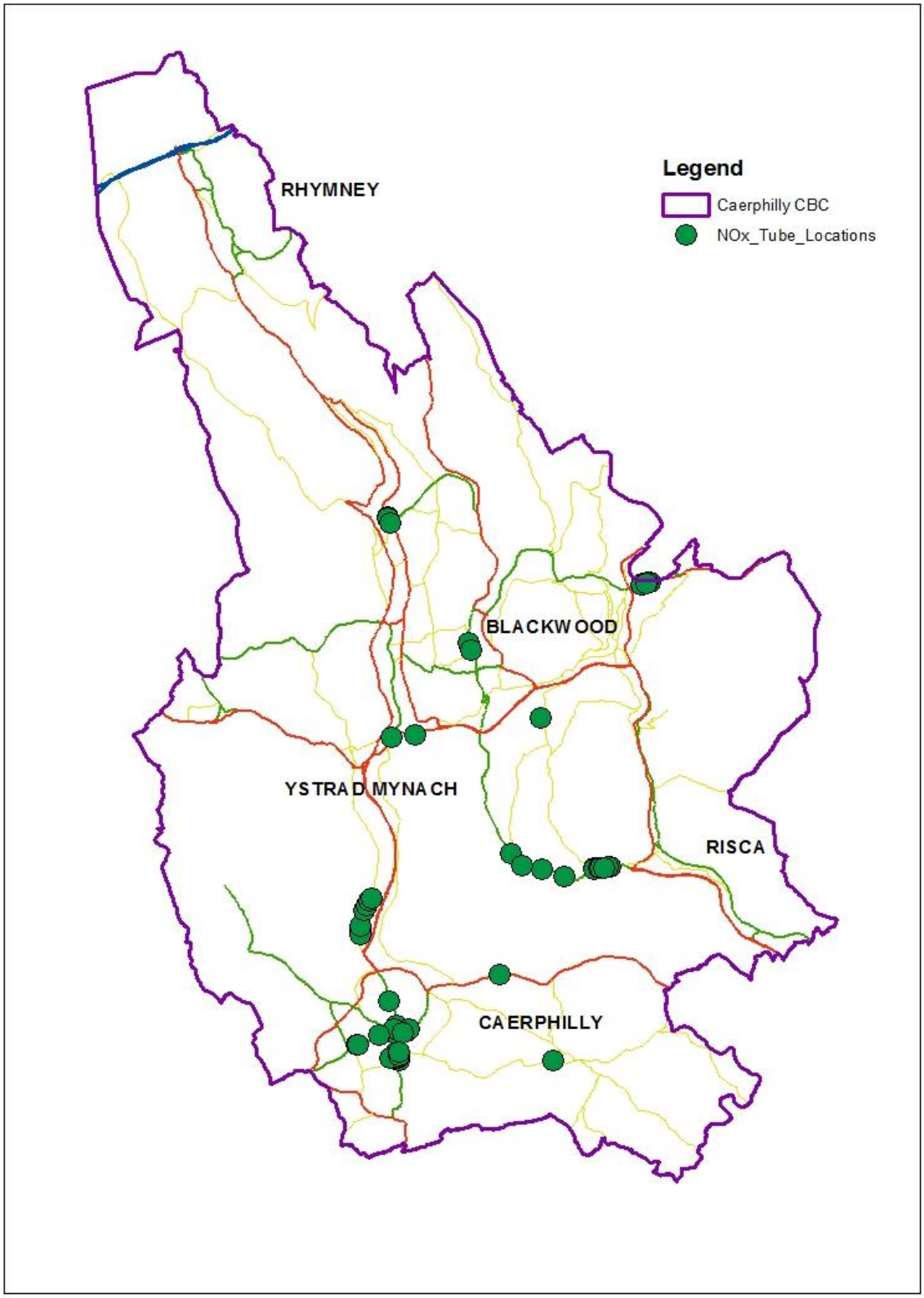
Site ID	Site Name	Site Type	Associated with Named AQMA?	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Collocated with a Continuous Analyser?	Distance from monitor to nearest relevant exposure (m) (1)	Distance from Kerb to Nearest Relevant Exposure (m)	Distance from Kerb to Monitor (m)
CCBC97	3 Morrisville, Cwmfelinfach	Urban Industrial	N	319759	191243	2	N	0	12	12
CCBC98	43 Islwyn Road, Wattsville	Roadside	N	320819	191465	2	N	0	2	2
CCBC99	22 Islwyn Road, Wattsville	Roadside	N	320835	191442	2	N	0	2	2
CCBC100	56 Islwyn Road, Wattsville	Roadside	N	320739	191432	2	N	0	2	2
CCBC101	Nine Mile Point Industrial Estate	Urban Industrial	N	319218	191389	2	N	457	456	<1
CCBC102	49 Coed-y-Brain Road	Roadside	N	314757	189767	2	N	0	1.5	1.5
CCBC103	11/13 Coed-y-Brain Road	Roadside	N	314760	189869	2	N	0	2	2
CCBC104	53 De Winton Road	Roadside	N	314786	189981	2	N	0	3	3
CCBC105	Lampost outside 52 High Street	Roadside	N	314862	190368	2	N	2.5	3.5	1
CCBC106	16/17 Ffrwd Terrace	Roadside	N	314927	190504	2	N	0	2	2
CCBC107	19 Rees Terrace	Roadside	N	314956	190575	2	N	0	3.5	3.5
CCBC108	13 Glenview Terrace	Roadside	N	315035	190630	1.5	N	0	3.5	3.5

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

Note 2: CCBC20 has in previous ASR's been named incorrectly as O/S 38 Bedwas Road, the site name has now been updated to accurate reflect its location on Newport Road.

Note 3: CCBC45 has in previous ASR's been named incorrectly as 38 Bedwas Road, the site name has now been updated to accurate reflect its location on Newport Road.

Figure 2-2 – Map(s) of Non-Automatic Monitoring Sites



2.2 2020 Air Quality Monitoring Results

Table 2.3 – Annual Mean NO_2 Monitoring Results ($\mu g/m^3$)

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
BLW	Kerbside	Automatic	100	100	28.5	32.4	25.3	24.7	18.4
CNG	Roadside	Automatic	100	100	29.2	27.2	25.2	24.9	18.2
CWS	Roadside	Automatic	95	95	34.4	29.4	25.5	27.4	18.8
HAF	Kerbside	Automatic	99	99	**69.4**	**70.1**	**62.4**	**64.0**	**46.9**
IRW	Roadside	Automatic	100	100	N/A	26.1	22.5	24.6	17.6
CCBC1	Kerbside	Diffusion Tube	100	100	30.0	30.0	26.0	26.0	17.5
CCBC6	Roadside	Diffusion Tube	92	92	37.0	33.0	27.0	28.0	20.0
CCBC7	Roadside	Diffusion Tube	92	92	30.0	27.0	23.0	22.0	14.6
CCBC8	Kerbside	Diffusion Tube	92	92	30.0	27.0	22.0	26.0	16.4
CCBC17	Roadside	Diffusion Tube	100	100	25.0	26.0	23.0	23.0	16.2
CCBC18	Roadside	Diffusion Tube	100	100	27.0	24.0	22.0	21.0	15.0
CCBC19	Roadside	Diffusion Tube	100	100	52.0	**44.0**	**40.0**	38.0	25.9
CCBC20	Roadside	Diffusion Tube	92	92	27.0	25.0	25.0	23.0	17.0
CCBC21	Roadside	Diffusion Tube	33	80	29.0	27.0	24.0	24.0	17.2
CCBC22	Kerbside	Diffusion Tube	33	80	30.0	29.0	25.0	24.0	14.8
CCBC27	Urban background	Diffusion Tube	58	58	8.0	7.0	7.0	6.0	7.7
CCBC29	Urban background	Diffusion Tube	92	92	14.0	12.0	11.0	11.0	6.8
CCBC30, CCBC31, CCBC32	Roadside	Diffusion Tube	100	100	34.0	33.0	28.0	27.0	18.5
CCBC33	Roadside	Diffusion Tube	100	100	**42.0**	39.0	36.0	33.0	22.7
CCBC34	Roadside	Diffusion Tube	100	100	26.0	21.0	20.0	19.0	12.8
CCBC35	Roadside	Diffusion Tube	92	92	30.0	29.0	25.0	23.0	16.3
CCBC36	Roadside	Diffusion Tube	100	100	23.0	23.0	17.0	17.0	12.1
CCBC37	Roadside	Diffusion Tube	92	92	22.0	21.0	17.0	17.0	11.8
CCBC38	Roadside	Diffusion Tube	100	100	37.0	38.0	32.0	30.0	21.9
CCBC39	Roadside	Diffusion Tube	100	100	31.0	30.0	25.0	25.0	17.7
CCBC40	Roadside	Diffusion Tube	100	100	28.0	25.0	22.0	21.0	14.9
CCBC44	Roadside	Diffusion Tube	100	100	37.0	37.0	33.0	29.0	20.0
CCBC45	Roadside	Diffusion Tube	42	100	27.0	24.0	20.0	20.0	14.1
CCBC46	Roadside	Diffusion Tube	100	100	19.0	17.0	16.0	15.0	10.5
CCBC48	Roadside	Diffusion Tube	100	100	**41.0**	**42.0**	36.0	35.0	25.9
CCBC49	Roadside	Diffusion Tube	100	100	26.0	24.0	23.0	24.0	16.0
CCBC50	Kerbside	Diffusion Tube	100	100	**48.0**	**49.0**	**45.0**	39.0	31.7

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
CCBC51, CCBC52, CCBC53	Kerbside	Diffusion Tube	100	100	28.0	29.0	24.0	23.0	18.0
CCBC54	Roadside	Diffusion Tube	100	100	24.0	21.0	19.0	18.0	12.3
CCBC55	Roadside	Diffusion Tube	100	100	36.0	31.0	28.0	28.0	20.5
CCBC56	Roadside	Diffusion Tube	83	83	32.0	27.0	27.0	26.0	19.7
CCBC57	Roadside	Diffusion Tube	100	100	25.0	22.0	21.0	19.0	14.2
CCBC59	Roadside	Diffusion Tube	100	100	35.0	33.0	26.0	27.0	18.3
CCBC60	Roadside	Diffusion Tube	100	100	37.0	35.0	31.0	31.0	23.0
CCBC61	Roadside	Diffusion Tube	100	100	35.0	32.0	28.0	27.0	19.1
CCBC67	Roadside	Diffusion Tube	100	100	33.0	32.0	27.0	26.0	18.3
CCBC68	Roadside	Diffusion Tube	92	92	28.0	25.0	24.0	23.0	16.9
CCBC69	Roadside	Diffusion Tube	92	92	**40.0**	38.0	32.0	29.0	22.4
CCBC70	Roadside	Diffusion Tube	100	100	16.0	15.0	15.0	15.0	10.0
CCBC71	Roadside	Diffusion Tube	100	100	23.0	23.0	19.0	20.0	13.8
CCBC72	Roadside	Diffusion Tube	100	100	23.0	21.0	18.0	18.0	12.8
CCBC73	Roadside	Diffusion Tube	100	100	22.0	20.0	18.0	17.0	12.9
CCBC74	Roadside	Diffusion Tube	92	92	27.0	27.0	23.0	22.0	16.6
CCBC78	Roadside	Diffusion Tube	92	92	26*	24.0	21.0	22.0	15.8
CCBC79	Roadside	Diffusion Tube	100	100	**53***	**59.0**	**53.0**	**51.0**	38.2
CCBC80	Roadside	Diffusion Tube	42	100	N/A	30.0	28.0	27.0	19.1
CCBC81	Roadside	Diffusion Tube	42	100	N/A	21.0	19.0	19.0	13.9
CCBC82	Roadside	Diffusion Tube	25	60	N/A	33.0	25.0	27.0	15.3
CCBC83	Roadside	Diffusion Tube	100	100	N/A	**59.0**	**49.0**	**48.0**	37.1
CCBC84	Roadside	Diffusion Tube	92	92	N/A	39.0	35.0	33.0	24.8
CCBC86	Kerbside	Diffusion Tube	92	92	N/A	N/A	**58.0**	**61.0**	**44.2**
CCBC87	Roadside	Diffusion Tube	100	100	N/A	N/A	**55.0**	**56.0**	39.6
CCBC88	Roadside	Diffusion Tube	100	100	N/A	N/A	**45.0**	**47.0**	35.4
CCBC89, CCBC90, CCBC91	Kerbside	Diffusion Tube	100	100	N/A	N/A	**62.0**	**62.0**	**47.7**
CCBC92	Roadside	Diffusion Tube	100	100	N/A	N/A	**46.0**	**47.0**	32.8
CCBC93	Roadside	Diffusion Tube	100	100	N/A	N/A	**49.0**	**49.0**	35.2
CCBC94	Kerbside	Diffusion Tube	100	100	N/A	N/A	**51.0**	**50.0**	34.7
CCBC95	Roadside	Diffusion Tube	100	100	N/A	N/A	37.0	35.0	27.1
CCBC96	Urban Industrial	Diffusion Tube	92	92	N/A	N/A	7.0	8.0	5.5
CCBC97	Urban Industrial	Diffusion Tube	100	100	N/A	N/A	10.0	10.0	7.0
CCBC98	Roadside	Diffusion Tube	100	100	N/A	N/A	16.0	16.0	12.1
CCBC99	Roadside	Diffusion Tube	100	100	N/A	N/A	24.0	28.0	20.0
CCBC100	Roadside	Diffusion Tube	83	83	N/A	N/A	24.0	23.0	17.5
CCBC101	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	11.0	8.4
CCBC102	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	17.0	16.0
CCBC103	Roadside	Diffusion Tube	83	83	N/A	N/A	N/A	17.0	18.0
CCBC104	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	14.0	14.7

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2020 (%) [2]	2016	2017	2018	2019	2020
CCBC105	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	14.0	13.6
CCBC106	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	13.0	12.8
CCBC107	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	12.0	11.4
CCBC108	Roadside	Diffusion Tube	100	100	N/A	N/A	N/A	11.0	10.9
CCBC109	Roadside	Diffusion Tube	50	100	N/A	N/A	N/A	N/A	19.2
CCBC110	Roadside	Diffusion Tube	50	100	N/A	N/A	N/A	N/A	21.9

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

Some values may slightly differ from those reported in previous years due to the requirement to change values to one decimal place.

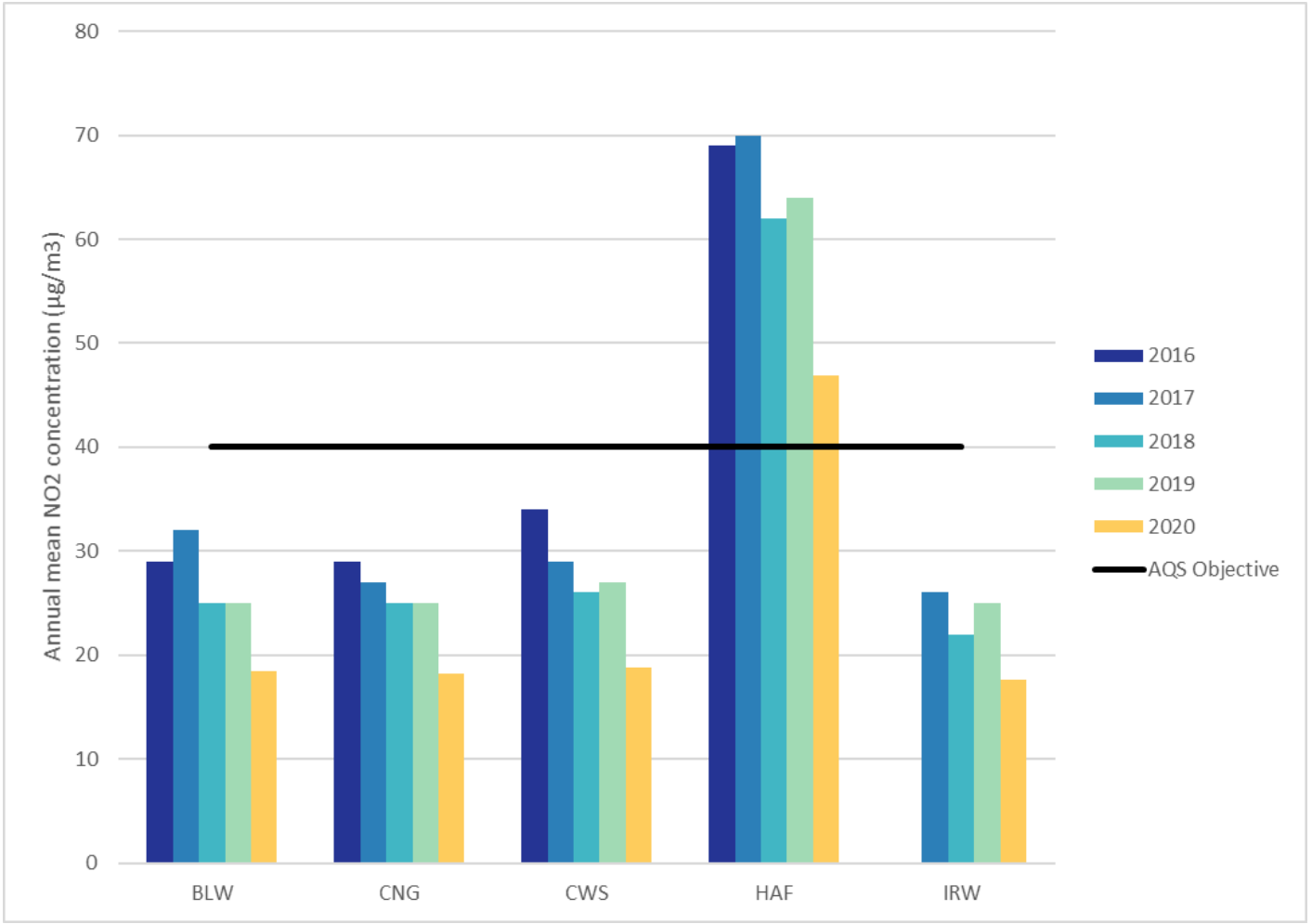
Triplicate sites have been grouped as shown in the diffusion tube bias adjustment tool.

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG16 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 2-3 – Trends in Annual Mean NO_2 Concentrations



Note 4: AQS object is 40 µg/m^3 as an annual hourly averaged value

Table 2.4 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
BLW	Kerbside	Automatic	100	100	0	4	4	0	0
CNG	Roadside	Automatic	100	100	0	0	0	0	0
CWS	Roadside	Automatic	95	95	2	0	0	0	0
HAF	Kerbside	Automatic	99	99	**126**	**132**	**54**	**33**	7
IRW	Roadside	Automatic	100	100	N/A	0	0	0	0

Notes:

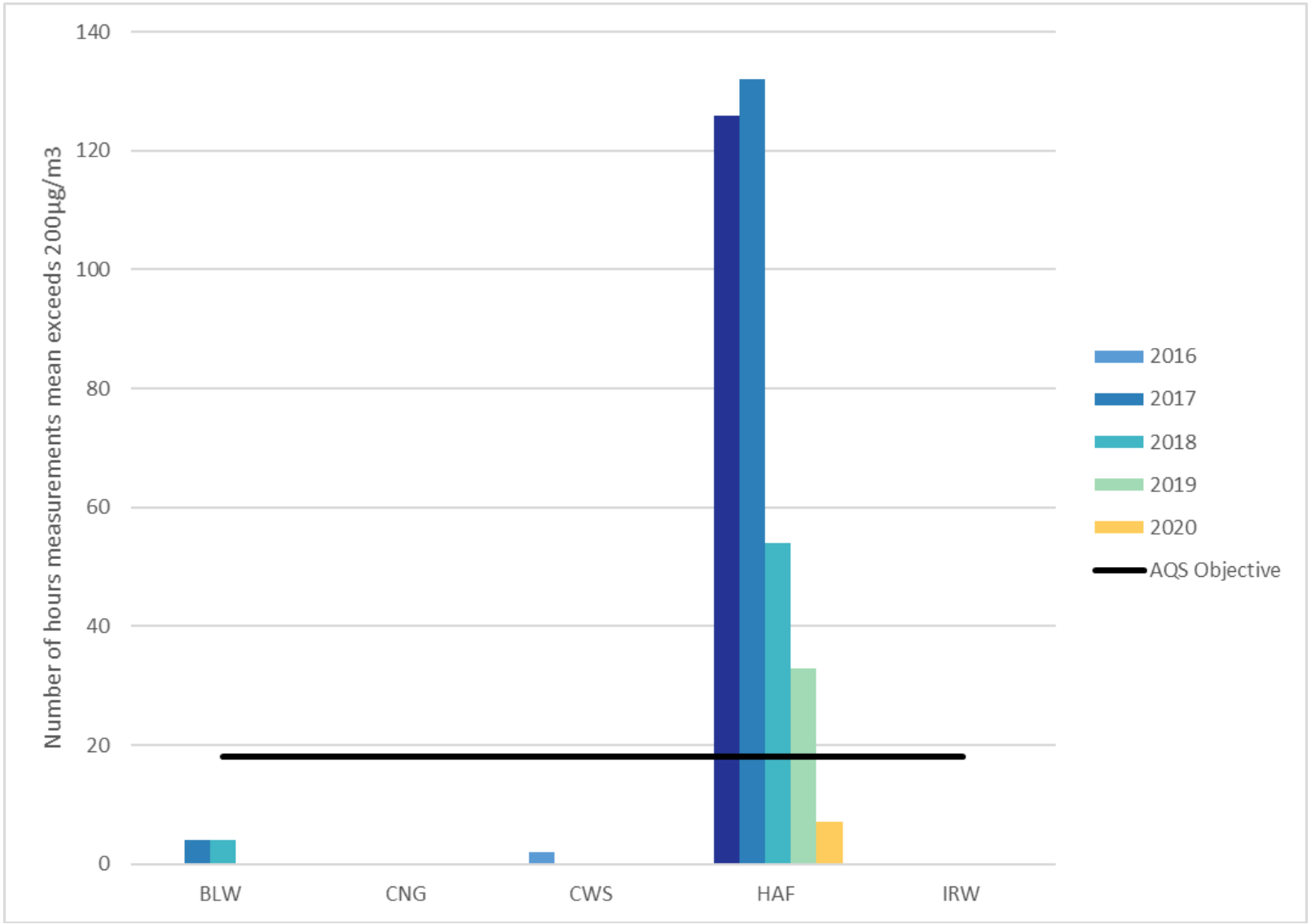
Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

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%).

Figure 2-4 – Trends in Number of NO_2 1-Hour Means > 200µg/m^3



Note 5: AQS objective is for hourly NO_2 concentrations to not exceed 200 µg/m^3 more than 18 hours per year

Table 2.5 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
BLW	Roadside	90	90	19.1	15.8	15.6	14.2	13.8
CWS	Roadside	94	94	19.1	17.9	17.0	16.5	15.9
FCR	Roadside	91	91	12.2	11.0	11.0	10.4	11.3

Notes:

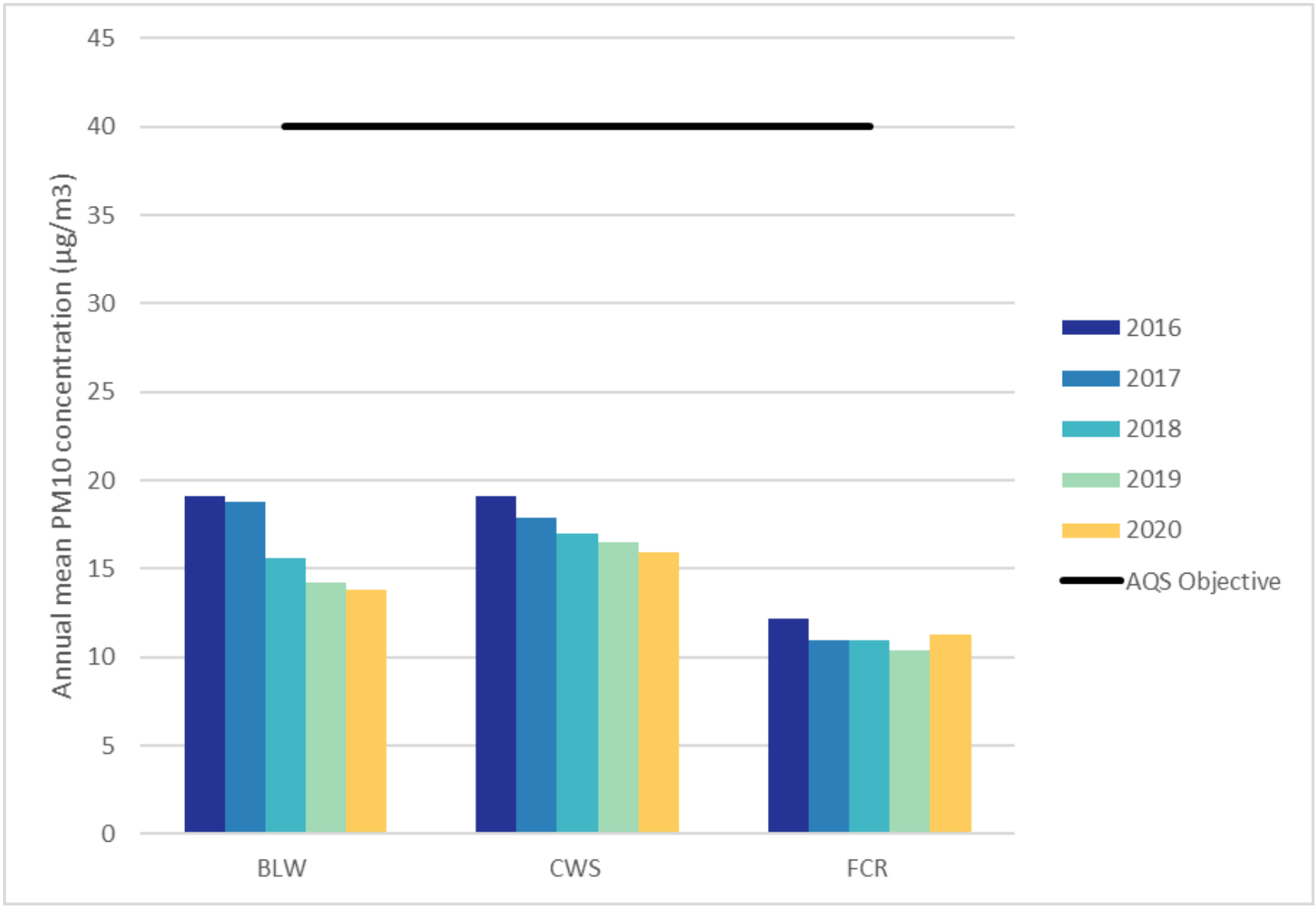
Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold**.

All means have been "annualised" as per LAQM.TG16 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 2-5 – Trends in Annual Mean PM_{10} Concentrations



Note 6: AQS objective is for annual hourly averaged PM_{10} concentrations to be below 40µg/m^3

Table 2.6 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
BLW	Roadside	90	90	0	0	0	0	0
CWS	Roadside	94	94	1	2	0	1	1
FCR	Roadside	91	91	0	0	0	0	0

Notes:

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th 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 2-6 - Trends in Number of 24 Hour Mean PM10 results > 50 µg/m^3

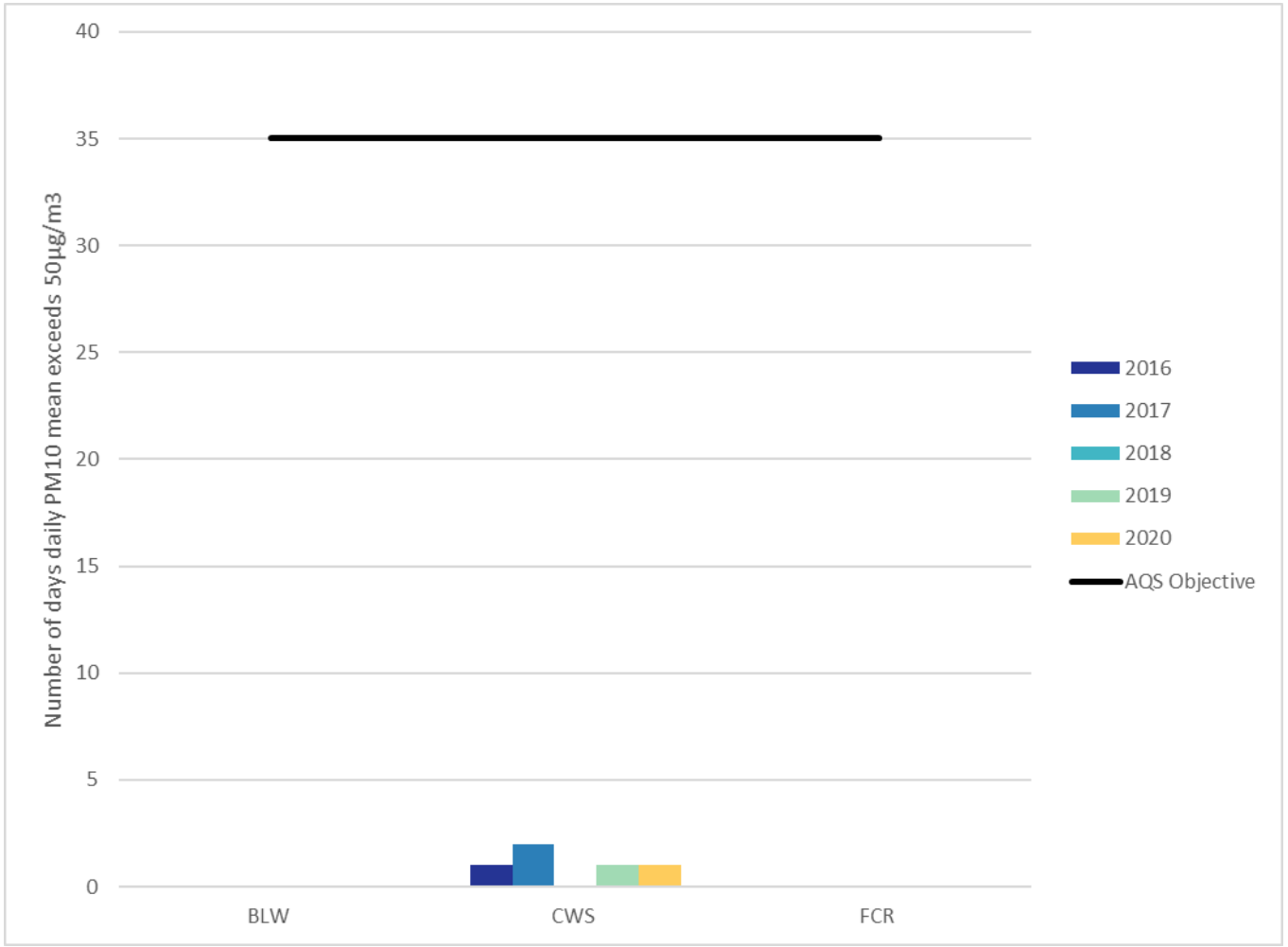


Table 2.7 – $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2020 (%) (2)	2016	2017	2018	2019	2020
FCR	Roadside	96	96	8.1	6.3	6.5	6.7	6.0

Notes:

All means have been "annualised" as per LAQM.TG16 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%).

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

2.3.1 Nitrogen Dioxide (NO_2)

CCBC undertook automatic (continuous) monitoring at five sites during 2020. Table 2.1 presents the details of these monitors with Table 2.3 and **Table 2.4** displaying a summary of the measurements with comparison to the national objectives. National monitoring results are also available at https://airquality.gov.wales/

Maps showing the location of the monitoring sites are provided in Figure 2-1. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix B. The Boundary Maps for the Air Quality Management Areas are included in Appendix C.

Table 2.3 shows good data capture at each of the five automatic monitoring stations (averaging 98.8%) with each monitoring location recorded a reduction in NO_2 concentrations, as an annual hourly mean. The reduction shows that an average absolute reduction of 9 µg/m^3 or an average relative change of 28% from the figure given for the previous year.

For the automatic measurements, the table shows that the biggest change in NO_2 pollutant concentrations was measured by the Hafodyrynys roadside monitor, which experienced an absolute reduction of 17 µg/m^3 and a relative change of 27% from the figure given the previous year. The annual average value given for this location (47 µg/m^3) exceeds the national objective value of 40 µg/m^3 . The table also shows that measurements made at the remaining four stations averaged at 18 µg/m^3 and is well below the current value set in the national objective.

The table also shows relatively large changes in measurements collected by the diffusion tube network; which averaged a reduction of 25 µg/m3 from the annual mean given for 2019. Data coverage from the diffusion tube network is good with data collection averaging around 97% for each period and 92% for the calendar year.

The sampling shows that one location (CCBC 86) measured above the 40 µg/m^3 objective value despite a reduction in the measurement compared to the previous year. A further seven locations (CCBC 79, 83, 86, 87, 88, 89, 90, 91, 92, 93, 94) which were shown to exceed in the limit value in 2019 are shown to have fallen below the objective limit value.

It should be noted the annual mean did increase at three locations (CCBC 27, 103, 104) where measurements increased, on average, by 13%, or an absolute change of 1 µg/m^3 at each of the locations.

With regards to the 1-hr national objective set for NO_2 (200µg/m^3 not to be exceeded more than 18 times/year), **Table 2.4** shows that four of the sites measured below the 200 µg/m^3 for at least the 2nd year in succession. Measurements recorded by the Hafodyrynys roadside monitor is again the exception to this trend as it recorded eight hours where measurements exceeded 200 µg/m^3. The table shows that this an improvement on previous years as the frequency of the high concentrations has reduced by a relative change of 24% and an absolute change of 25 µg/m^3 from the value given for 2019. The value means that that concentrations of NO_2 pollutant are compliant with the national objective set for 1-hr measurements.

2.3.2 Particulate Matter (PM_{10})

Table 2.5 shows that CCBC operates three automatic monitors which collect measurements of ambient particles with a diameter size of 10 micrometres or less. The table shows that data capture was strong at each of the three sites with an average data capture of 92%.

The results given in the table show that the annual averaged concentrations had slightly reduced at BLW and CWS compared to the previous year (a relative change of 3% and 4%) whilst measurements captured at FCR showed an increase in concentration by approximately 9%. The changes in concentration meant that annual average concentrations at BLW and CWS had reduced for the fifth year in succession whilst the increase at FCR meant that the very slight trend in decreased concentration found in previous years was broken but the measurement had not surpassed the value given in 2016.

The annual averaged measurement given for all three locations was well below the National Air Quality Strategy (AQS) objective value of 40 µg/m^3 and therefore meets the objective. These measurements also meet the AQS objective for measurements not to exceed a daily mean of 50 µg/m^3 more than 35 times a year, with only CWS exceeding the daily mean value on one occasion only. With respect to this, all three sites continued the trend seen in previous years.

2.3.3 Particulate Matter ($PM_{2.5}$)

The monitoring station at Fochriw measures $PM_{2.5}$ in addition to PM_{10} as part of a strategy to monitor the any potential effects of the nearby open cast mine on the health of residents living nearby.

Table 2.7 shows that the annual hourly mean fell at this location by 0.7 µg/m^3 at this location from measurements which captured 96% of the periods data. The reduction in pollutant concentration represents a break from an very slight upward trajectory seen from 2017 when measurements had an average increase of 0.2 µg/m^3.

2.4 Summary of Compliance with AQS Objectives as of 2020

CCBC has examined the results from monitoring in the borough. Concentrations within the Caerphilly Town Centre and Hafodyrnyns Road AQMAs still exceed the annual mean objective set for NO_2. Therefore, these AQMAs should remain.

3 New Local Developments

CCBC have not approved any proposals, or published any of its own plans for new developments during 2020 which meets the criteria for an air quality assessment to take place.

3.1 Road Traffic Sources (and Other Transport)

CCBC have made one amendment to the public road network during 2020 which is predicted to improve air quality within its vicinity:

- A new 20 mph zone set around the Maesycwmmer Primary school, the zone encompasses the following locations:
    - Tabor Road / Vale View from a point approximately 10 metres north of its junction with Jenkin Street to a point approximately 15 metres north-east of its southern junction with The Crescent fronting property number 10 Vale View
    - Jenkin Street and Erasmus Terrace
    - Chave Terrace from its junction with Jenkin Street for a distance of approximately 12 metres
    - Gelli-Deg Street from its junction with Jenkin Street for a distance of approximately 7 metres
    - The Crescent from its northern junction with Vale View for a distance of approximately 15 metres
- Additionally 70 mm high speed cushions will be installed in the following locations:
    - Fronting Mount Pleasant English Baptist Church
    - To the front of property number 2 Vale View
    - At the common boundary of property numbers 5 and 6 Vale View

Further, CCBC have installed 22kw fast charging units for electric vehicles during 2020 across the Gwent locality.

3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

There were no changes to the number of Environmental Permits authorised under The Environmental Permitting (England and Wales) Regulations (2016) during 2020.

3.3 Other Sources

CCBC confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

4 Policies and Strategies Affecting Airborne Pollution

Caerphilly Council does not have a specific air quality planning policy guidance note, but relies upon national planning policy and associated guidance.

We will look to work with strategic planning on the review of the LDP to ensure that air quality policy features heavily in the new revision. This will then lay out the Council's expectations to developers and provide a steer of what is expected going forward.

There is also a possibility to draft a supplementary planning guidance (SPG) document to provide further advice and guidance to developers to support the AQ policy steer within development control.

The production of this guidance would be as a reference document for Developers and their advisers, who may be involved in the assessment of air quality associated with developments. It will detail the type of information required by the Local Planning Authority (LPA) in order for them to assess an application for planning permission that may cause an impact on air quality.

The guidance will deal principally with the following;

- Those pollutants regulated under the Local Air Quality Management (LAQM) Regime.
- The impact of traffic emissions.
- The impact of emissions from biomass boilers/industrial emissions.
- The assessment and control of dust impacts during construction which contribute to airborne particulate emissions.

4.1 Local / Regional Air Quality Strategy

CCBC has a Local Transport Plan[2] (South East Wales Valleys Local Transport Plan, January 2015), which aims to strengthen the local economy through strategies to seek investment whilst reducing economic inactivity, tackle poverty and encourage safer, healthier and sustainable travel.

[2] The LTP is available from http://www.caerphilly.gov.uk/Services/Transport-and-parking/Local-Transport-Plan

There are a number of strategy policies within the Council's LDP which aim to bring about improvements in transport connections and infrastructure.

Strategy Policy 19 (SP19) in the LDP seeks to implement improvements to the existing transport infrastructure that;

- Address social exclusion by increasing accessibility to employment, services and facilities throughout the County Borough
- Assist in regenerating the Heads of the Valley Regeneration Area through creating and improving transport links to the settlements in the Northern and Southern Connections Corridors, and / or
- Reinforce the role and function of settlements, and/or
- Reduce the level of traffic movements and / or congestion, within any identified air quality management area, and/or
- Promote the most efficient use of the transport network.

There are a number of identified infrastructure improvement schemes under the various strategy policies. A few examples for the Caerphilly area are listed below, however all schemes are dependent upon funding availability.

TR6.3 Pwllypant Roundabout

The A468 / A469 Caerphilly Northern Bypass is the main artery linking Caerphilly and settlements in the north of the County Borough to the trunk road network (A470, M4) and Cardiff. The A468 / A469 Caerphilly Northern Bypass is already heavily overloaded at peak periods and all junctions are at, or in excess of, capacity at peak times. Improvements to this key six-arm junction at Pwllypant, which connects the A468 and A469 and forms part of the strategic network of roads in South East Wales, are required to improve efficiency of the network and reduce congestion, which is evident for periods throughout the day. These works commenced on 9th October 2017 and have now concluded.

TR6.4 Crumlin Junction

The implementation of the Crumlin junction works commenced 5 January 2015 and concluded in October 2015. The aim of the works was to minimise the congestion of traffic at the base of Hafodyrynys Hill by the introduction of the following:

- Installation of MOVA System.

- Additional right turn lane for North Bound (N/B) A467 vehicles turning East into A472
- Additional lane provided for A467 South Bound (S/B) vehicles passing straight on at traffic signals with A472.
- Extended left turn filter lane on the A472 for vehicles joining the A467 S/B.
- Additional right filter lane provided for vehicles leaving the A472 going N/B onto the A467.
- Additional merge lane provided on the A472 for vehicles heading East from N/B A467.
- Left turn filter lane extended on S/B A467 for vehicles joining into A472.

The schemes below are yet to be implemented:

TR6.4 Bedwas Bridge Roundabout

Bedwas Bridge Roundabout is a key junction on the northern route around Caerphilly town centre. It links the communities of Bedwas and Trethomas to the northern bypass and contributes to efficient distribution of traffic within the Caerphilly Basin. The junction also provides access to the park and ride facility at Caerphilly Station via the Lansbury Park ring road. The roundabout currently operates efficiently for much of the day, however congestion is evident during peak hours and further development in the Caerphilly Basin will put increased pressure on this key junction. A major constraint in improving operation of the roundabout is Bedwas Bridge and therefore improvements will require the provision of a second crossing. Highway improvements to A468 Bedwas Bridge will require a Flood Consequences Assessment to be submitted as part of any future planning application.

TR6.5 Piccadilly Gyratory

Piccadilly Gyratory is a key junction in managing and distributing traffic travelling within and through Caerphilly town centre. Traffic growth in the town centre has resulted in additional capacity being required at the junction. The scheme will upgrade and improve the existing traffic signals, improving network efficiency and providing additional capacity at the junction to relieve congestion and related environmental problems in the town centre.

TR6.6 Penrhos to Pwllypant

The current A468 / A469 varies in standard between dual carriageway and single carriageway. The single-carriageway section between Pwllypant and Penrhos has traffic levels far exceeding design capacity, which results in problems of congestion and queuing vehicles along the route during peak periods. This leads to traffic diverting through

Caerphilly town centre, which increases traffic congestion / environmental problems and reduces the attractiveness of the town centre. The scheme will upgrade the existing A468/A469 single-carriageway road between Pwllypant and Penrhos roundabouts to dual carriageway standard, which will link into the existing duelled sections leading northwards from Pwllypant (along the A469) and westwards from Penrhos to the A470 (along the A468). The scheme aims to provide a high quality route along the length of the A468 / A469, to maximise the efficiency of the strategic highway network, reduce congestion/pollution, remove through traffic from Caerphilly town centre and improve access to the north of the County Borough to encourage economic regeneration.

TR6.7 Pwllypant to Bedwas

The section of the A468 between Pwllypant and Bedwas Bridge is important in managing traffic and congestion in Caerphilly town centre. The road completes the northern route around the town and currently operates efficiently for much of the day. However congestion is evident during the peak hours when commuter traffic is at its highest and further development in Caerphilly Basin will put increased pressure on the route. Network efficiency improvements will be required to maintain its attraction as a route for through traffic and prevent traffic diverting through the town centre.

4.2 Air Quality Planning Policies

No updates have been made to the CCBC air quality planning policy during 2020.

4.3 Local Transport Plans and Strategies

No updates have been made to the CCBC local transport plan and strategy during 2020.

4.4 Active Travel Plans and Strategies

No updates have been made to the CCBC active travel plan and associated strategies during 2020.

4.5 Local Authorities Well-being Objectives

CCBC have outlined five Well-being objectives for 2017/18 in accordance with The Well-being of Future Generations (Wales) Act 2015. Objective four relates to CCBC's "Carbon

Management", to take steps to reduce the Council's carbon footprint and inform and assist others within the borough to do the same.

CCBC currently have an annual carbon emission in excess of 26,000 tonnes and the objective to reduce emissions is a long-term action in accordance with Sustainable Development Principles and WG's own objective (number six) – To Support the transition to a low carbon and climate resilient society.

The actions to put into effect the objective include raising awareness and understanding of carbon management, greater control of own facilities (property energy consumption + technology use etc.) and a feasibility study and piloting of electric/hybrid vehicle fleet.

4.6 Green Infrastructure Plans and Strategies

No updates have been made to the CCBC infrastructure plans and strategies during 2020.

4.7 Climate Change Strategies

The Climate Change Strategy for CCBC was produced by the Living Environment Partnership, one of the four partnerships of the Community Strategy. This group was predominantly made up of environmental organisations but on climate change issues it linked to a number of partners including Anuran Bevan Local Health Board, Caerphilly Community Safety Partnership, Health Challenge Caerphilly, National Farmers Union, Sus trans, CADW, Groundwork Caerphilly and Welsh Government, to name but a few.

The aims of the Strategy is to:-

- To bring together organisations from all sectors and coordinate a joined up response to the challenge of climate change, using the expertise and experience of partners and sharing good practice.
- To establish baseline information about the contribution that CCBC makes to global climate change, in terms of greenhouse gas emissions from all sectors:
    - To promote ownership of the responsibility for greenhouse gas mitigation within the County Borough, amongst all sectors.
    - To encourage and facilitate greenhouse gas mitigation through providing advice and guidance to all sectors.
    - To anticipate the possible effects that global climate change may have on Caerphilly County Borough and to begin planning the adaptation measures

required to minimise the potentially harmful consequences of climate change on our residents and the local environment.

- To fully appreciate both the potential risks but also the potentially beneficial effects of climate change and to identify a range of opportunities that could arise from the environmental changes presented.

The Community Strategy has since been replaced by the Caerphilly Public Services Board Well-being Plan, with environmental issues within the Well-being Plan sit predominately within Action Area 5 Protect and enhances the Local Natural Environment. Work on this is reported to the Caerphilly Public Services Board.

Within CCBC, strategies and actions have been put in place for us to play our part in combating climate change. This includes:

Carbon Reduction Strategy

CCBC, working with the Carbon Trust, developed a long-term carbon reduction strategy in 2009. The ambitious but achievable target of a 45% reduction in CO_2 emissions by 2019 was agreed. It is anticipated that this target will be met by a mixture of:

- good housekeeping (10%)
- invest to save energy efficiency projects (20%)
- good design and asset management (10%)
- renewable energy (5%)

Housing

Housing accounts for 27% of the UK's carbon emissions. The rising cost of energy has resulted in an increase in Caerphilly residents being driven in to fuel poverty. Work is ongoing with Housing Services, housing associations and residents to address energy issues.

CCBC's Housing Services have an ongoing programme involving improving the energy efficiency of homes, including innovative measures such as external wall insulation and renewable technologies such as solar panels and heat pumps. They also have a programme replacing old boilers with new condensing boilers.

CCBC Adaptation Plan

CCBC is preparing a Climate Adaptation Plan for the County Borough, and has been engaging with all Council Service areas. This is following the methodology set out in the guidance accompanying the Climate Change Act 2008. A Local Climate Impact Profile

(LCLIP) has been completed and approved by CCBC's Corporate Management Team in July 2015. The LCLIP identified 128 impacts, of which 32 were rated as high priority

5 Conclusion and Proposed Actions

5.1 Conclusions from New Monitoring Data

The 2020 monitoring data shows a general reduction in NO_2 concentration as an annual average at nearly all monitoring locations compared to measurements made at the same locations in previous years. As a result, measurements collected at six locations which registered above the annual hourly average 40 μg/m^3 limited value during 2019 fell below the threshold during 2020. The data also showed that the one location which exceeded the 1-hour limited value for NO_2 during 2019 (measured by the Hafodyrynys automatic station) also fell into compliance, however the site continued to exceed the annual average limit value.

The monitoring data also showed that, as an annual average, measurements of PM_{10} decreased at two of the three monitoring locations. These decreases at BLW and CWS were small in both terms of absolute concentrations changes (0.4 μg/m^3, 0.6 μg/m^3) and relative change (3%, 4%). This shows that measurements, as an annual mean, continue the five-year trend of concentrations in PM_{10} decreasing at these locations.

The data also showed an increase in concentrations at FCR where the annual average concentration, rose by 0.9 μg/m^3, a relative change of 9% from the previous year. This represents a break in the trend seen in previous years at this location, where measurements had showed a slight decrease. The latest figure does not exceed the 12.2 μg/m^3 recorded in 2012 and therefore measurements continue to be around a mean of 11.2 μg/m^3 (+/- 0.6 μg/m^3).

Overall, the measurements suggest that air quality is improving across CCBC. It should be noted that due to the pandemic, local residents have had to adapt to national restrictions (such as only undertaken essential travel only) which will have influenced measurements, and therefore comparison of measurements to previous years, and the suggested trajectory of future concentrations should be read with caution. Some of the lifestyle changes influenced by the pandemic, such as travelling locally (lessen the need for motorised vehicles and may become more normal in the long-term and therefore some of the reductions seen in the NO_2 measurements might be seen again in future years.

5.2 Conclusions relating to New Local Developments

CCBC have not published any plans for, or approved, developments which might influence local air quality.

5.3 Other Conclusions

CCBC have no further considerations during the time of this report.

5.4 Proposed Actions

CCBC plan to review the Caerphilly Town Centre AQAP in 2021.

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Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix D: AQMA Boundary Maps

Appendix E: Impact of COVID-19 upon LAQM

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

Table A.1 – Full Monthly Diffusion Tube Results for 2020 (µg/m^3)

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.66) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CCBC1	46.0	26.0	24.0	15.0	16.0	22.0	17.0	23.0	27.0	30.0	38.0	37.0	26.8	17.5	-
CCBC6	47.0	27.0	missing	28.0	25.0	22.0	17.0	29.0	29.0	30.0	44.0	38.0	30.5	20.0	-
CCBC7	44.0	25.0	19.0	15.0	13.0	15.0	11.0	21.0	22.0	25.0	36.0	missing	22.4	14.6	-
CCBC8	missing	24.0	26.0	25.0	21.0	22.0	14.0	28.0	28.0	28.0	36.0	24.0	25.1	16.4	-
CCBC17	41.0	28.0	23.0	19.0	17.0	19.0	15.0	23.0	23.0	26.0	34.0	29.0	24.8	16.2	-
CCBC18	38.0	19.0	21.0	18.0	15.0	15.0	13.0	23.0	22.0	22.0	34.0	34.0	22.8	15.0	-
CCBC19	66.0	30.0	40.0	37.0	28.0	33.0	19.0	43.0	39.0	38.0	54.0	47.0	39.5	25.9	-
CCBC20	45.0	26.0	23.0	18.0	18.0	20.0	20.0		20.0	27.0	35.0	33.0	25.9	17.0	-
CCBC21	43.0	25.0	missing	21.0	21.0	-	-	-	-	-	-	-	27.5	17.2	-
CCBC22	36.0	21.0	24.0	missing	18.0	-	-	-	-	-	-	-	24.8	14.8	-
CCBC27	missing	missing	missing	6.0	4.0	5.0	5.0	missing	6.0	missing	11.0	40.0	11.0	7.7	-
CCBC29	18.0		9.0	9.0	7.0	9.0	6.0	9.0	10.0	9.0	15.0	13.0	10.4	6.8	-
CCBC30	48.0	27.0	25.0	19.0	19.0	20.0	17.0	29.0	32.0	31.0	45.0	43.0	-	-	-
CCBC31	51.0	25.0	24.0	18.0	17.0	20.0	20.0	28.0	31.0	23.0	42.0	40.0	-	-	-
CCBC32	49.0	24.0	24.0	19.0	17.0	20.0	18.0	22.0	28.0	29.0	38.0	35.0	28.3	18.5	-
CCBC33	53.0	25.0	36.0	34.0	28.0	28.0	15.0	36.0	35.0	35.0	48.0	42.0	34.6	22.7	-
CCBC34	34.0	15.0	17.0	16.0	14.0	13.0	10.0	19.0	18.0	21.0	31.0	27.0	19.6	12.8	-
CCBC35	46.0	missing	22.0	15.0	14.0	16.0	17.0	23.0	26.0	27.0	37.0	31.0	24.9	16.3	-
CCBC36	36.0	21.0	19.0	11.0	11.0	12.0	13.0	14.0	19.0	18.0	27.0	20.0	18.4	12.1	-
CCBC37	33.0	18.0	13.0	13.0	10.0	11.0	11.0	15.0	19.0	missing	28.0	28.0	18.1	11.8	-
CCBC38	58.0	39.0	34.0	21.0	21.0	27.0	27.0	25.0	32.0	36.0	43.0	38.0	33.4	21.9	-
CCBC39	47.0	26.0	25.0	20.0	18.0	22.0	17.0	26.0	27.0	25.0	38.0	34.0	27.1	17.7	-
CCBC40	38.0	22.0	25.0	21.0	16.0	15.0	12.0	21.0	22.0	22.0	29.0	30.0	22.8	14.9	-
CCBC44	51.0	25.0	33.0	22.0	28.0	22.0	24.0	29.0	28.0	27.0	41.0	36.0	30.5	20.0	-
CCBC45	38.0	21.0	22.0	16.0	16.0	-	-	-	-	-	-	-	22.6	14.1	-
CCBC46	29.0	15.0	14.0	14.0	11.0	11.0	8.0	14.0	15.0	14.0	25.0	22.0	16.0	10.5	-
CCBC48	58.0	40.0	35.0	34.0	33.0	36.0	31.0	37.0	37.0	38.0	44.0	51.0	39.5	25.9	-
CCBC49	41.0	23.0	30.0	23.0	20.0	18.0	14.0	23.0	23.0	24.0	29.0	25.0	24.4	16.0	-
CCBC50	77.0	50.0	51.0	34.0	38.0	47.0	39.0	44.0	43.0	47.0	60.0	51.0	48.4	31.7	-
CCBC51	48.0	31.0	23.0	16.0	16.0	23.0	18.0	24.0	27.0	30.0	39.0	37.0	-	-	-
CCBC52	44.0	31.0	22.0	17.0	16.0	21.0	17.0	24.0	28.0	27.0	38.0	35.0	-	-	-
CCBC53	45.0	26.0	19.0	16.0	16.0	21.0	17.0	24.0	28.0	30.0	40.0	55.0	27.5	18.0	-

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.66) and Annualised [1]	Distance Corrected to Nearest Exposure [2]
CCBC54	32.0	17.0	19.0	16.0	12.0	12.0	10.0	17.0	18.0	20.0	29.0	24.0	18.8	12.3	-
CCBC55	49.0	30.0	32.0	28.0	22.0	23.0	20.0	28.0	32.0	31.0	41.0	39.0	31.3	20.5	-
CCBC56	41.0	missing	26.0	24.0	20.0	20.0	20.0	28.0	missing	52.0	36.0	34.0	30.1	19.7	-
CCBC57	35.0	17.0	21.0	21.0	15.0	15.0	12.0	20.0	21.0	22.0	31.0	31.0	21.8	14.2	-
CCBC59	44.0	20.0	28.0	22.0	19.0	23.0	18.0	26.0	30.0	31.0	38.0	37.0	28.0	18.3	-
CCBC60	45.0	30.0	34.0	34.0	31.0	34.0	29.0	33.0	37.0	36.0	38.0	40.0	35.1	23.0	-
CCBC61	46.0	28.0	32.0	24.0	21.0	21.0	19.0	29.0	29.0	29.0	37.0	34.0	29.1	19.1	-
CCBC67	47.0	25.0	23.0	19.0	20.0	19.0	20.0	25.0	31.0	32.0	39.0	36.0	28.0	18.3	-
CCBC68	42.0	missing	22.0	21.0	18.0	23.0	19.0	24.0	24.0	25.0	32.0	33.0	25.7	16.9	-
CCBC69	55.0	37.0	31.0	25.0	25.0	32.0	29.0	missing	35.0	33.0	43.0	31.0	34.2	22.4	-
CCBC70	30.0	19.0	16.0	14.0	11.0	14.0	11.0	13.0	15.0	1.0	21.0	19.0	15.3	10.0	-
CCBC71	35.0	20.0	18.0	16.0	16.0	19.0	16.0	19.0	19.0	21.0	29.0	25.0	21.1	13.8	-
CCBC72	35.0	20.0	19.0	15.0	11.0	15.0	19.0	22.0	25.0	20.0	25.0	9.0	19.6	12.8	-
CCBC73	31.0	18.0	17.0	16.0	15.0	19.0	13.0	15.0	20.0	20.0	29.0	23.0	19.7	12.9	-
CCBC74	45.0	missing	26.0	16.0	15.0	21.0	22.0	21.0	24.0	26.0	33.0	29.0	25.3	16.6	-
CCBC78	40.0	26.0	17.0	16.0	19.0	22.0	missing	17.0	21.0	25.0	33.0	29.0	24.1	15.8	-
CCBC79	82.0	65.0	58.0	45.0	49.0	60.0	50.0	54.0	53.0	51.0	70.0	63.0	58.3	38.2	-
CCBC80	47.0	23.0	25.0	32.0	26.0	-	-	-	-	-	-	-	30.6	19.1	-
CCBC81	32.0	15.0	21.0	24.0	19.0	-	-	-	-	-	-	-	22.2	13.9	-
CCBC82	missing	missing	18.0	21.0	20.0	-	-	-	-	-	-	-	19.7	15.3	-
CCBC83	83.0	60.0	55.0	44.0	42.0	60.0	52.0	43.0	55.0	55.0	67.0	63.0	56.6	37.1	-
CCBC84	50.0	missing	37.0	34.0	30.0	37.0	30.0	31.0	39.0	37.0	44.0	48.0	37.9	24.8	-
CCBC86	95.0	70.0	65.0	56.0	57.0	70.0	61.0	65.0	66.0	65.0	73.0		67.5	44.2	37.7
CCBC87	84.0	64.0	58.0	51.0	51.0	61.0	51.0	58.0	58.0	56.0	66.0	67.0	60.4	39.6	-
CCBC88	81.0	57.0	48.0	44.0	43.0	53.0	47.0	50.0	51.0	56.0	62.0	57.0	54.1	35.4	-
CCBC89	94.0	66.0	78.0	57.0	56.0	72.0	65.0	71.0	71.0	89.0	93.0	78.0	-	-	-
CCBC90	107.0	68.0	65.0	64.0	60.0	77.0	64.0	65.0	71.0	70.0	83.0	78.0	-	-	-
CCBC91	107.0	79.0	70.0	54.0	56.0	77.0	57.0	65.0	71.0	67.0	77.0	78.0	72.8	47.7	36.6
CCBC92	69.0	52.0	49.0	44.0	43.0	53.0	45.0	47.0	51.0	51.0	52.0	44.0	50.0	32.8	-
CCBC93	76.0	54.0	47.0	44.0	47.0	54.0	45.0	51.0	56.0	56.0	50.0	64.0	53.7	35.2	-
CCBC94	74.0	53.0	45.0	45.0	41.0	51.0	44.0	51.0	54.0	53.0	61.0	64.0	53.0	34.7	-
CCBC95	60.0	42.0	40.0	37.0	34.0	39.0	30.0	38.0	39.0	39.0	46.0	52.0	41.3	27.1	-
CCBC96	missing	7.0	9.0	8.0	7.0	7.0	5.0	9.0	8.0	8.0	12.0	13.0	8.5	5.5	-
CCBC97	17.0	7.0	10.0	10.0	8.0	9.0	7.0	10.0	12.0	11.0	15.0	12.0	10.7	7.0	-
CCBC98	32.0	21.0	17.0	13.0	12.0	14.0	12.0	15.0	18.0	18.0	26.0	24.0	18.5	12.1	-
CCBC99	48.0	32.0	27.0	21.0	22.0	28.0	28.0	29.0	31.0	31.0	38.0	32.0	30.6	20.0	-
CCBC100	42.0	27.0	25.0	18.0	19.0	24.0	20.0	missing	missing	26.0	36.0	30.0	26.7	17.5	-
CCBC101	22.0	12.0	12.0	9.0	10.0	9.0	8.0	10.0	13.0	14.0	19.0	16.0	12.8	8.4	-
CCBC102	39.0	23.0	25.0	22.0	17.0	19.0	14.0	19.0	27.0	26.0	35.0	28.0	24.5	16.0	-
CCBC103	42.0	missing	26.0	24.0	missing	20.0	17.0	22.0	26.0	26.0	39.0	33.0	27.5	18.0	-
CCBC104	35.0	20.0	20.0	24.0	17.0	16.0	13.0	19.0	22.0	24.0	31.0	28.0	22.4	14.7	-
CCBC105	36.0	19.0	19.0	16.0	14.0	14.0	11.0	17.0	20.0	21.0	31.0	32.0	20.8	13.6	-

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.66) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
CCBC106	34.0	19.0	18.0	17.0	15.0	13.0	10.0	15.0	19.0	19.0	28.0	27.0	19.5	12.8	-
CCBC107	29.0	15.0	17.0	15.0	12.0	12.0	10.0	14.0	18.0	19.0	25.0	23.0	17.4	11.4	-
CCBC108	29.0	14.0	17.0	16.0	13.0	12.0	10.0	13.0	17.0	18.0	19.0	22.0	16.7	10.9	-
CCBC109	-	-	-	-	-	-	23.0	29.0	31.0	30.0	41.0	27.0	30.2	19.2	-
CCBC110	-	-	-	-	-	-	22.0	29.0	37.0	35.0	42.0	41.0	34.3	21.9	-

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

Dashed line (-) represents months when no sampling was undertaken at the location, with the exception of the distance corrected column where it represents no further correction.

'Missing' – represents periods when the sampling diffusion tube was not recovered from the sampling location.

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

(2) Distance corrected to the nearest relevant public exposure

Appendix B: A Summary of Local Air Quality Management

Purpose of an Annual Progress Report

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

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

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 B.1.

The table shows the objectives in units of micrograms per cubic metre µg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

Table B.1 – Air Quality Objectives Included in Regulations for the Purpose of LAQM in Wales

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as	Date to be achieved by
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	40µg/m^3	Annual mean	31.12.2010
Sulphur dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	16.25µg/m^3	Running annual mean	31.12.2003
Benzene	5µg/m^3	Annual mean	31 12 2010
1,3 Butadiene	2.25µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0mg/m^3	Maximum Daily Running 8-Hour mean	31.12.2003
Lead	0.25µg/m^3	Annual Mean	31.12.2008

Appendix C: Air Quality Monitoring Data QA/QC

QA/QC of Diffusion Tube Monitoring

The Nitrogen Dioxide diffusion tubes are currently supplied and analysed by Socotec Ltd. Socotec Ltd operate a UKAS accredited laboratory which has been rated 'satisfactory' in the AIR PT intercomparison scheme. The supplier also follows procedures set out in the Technical Guidance LAQM.TG16.

The testing scheme is in place to evaluate the performance of the laboratory and the diffusion tubes in distribution. This performance should be married up with other variables such as the skills of the laboratory, their measurement standards, their customer care etc. The latest data[3] published by Defra shows that the laboratory performed 'good' precision results on all 24 of the samples analysed that were prepared using the 50% TEA in Acetone method in 2020.

Diffusion Tube Annualisation

Data collected from nine locations required to be annualised due to data capture being lower than 75%. The diffusion tube processing tool was used to adjust the raw sample data mean using data collected from the nearest continuous monitor stations measuring background NO_2 concentrations with sufficient data capture (Cardiff centre and Newport).

Diffusion Tube Bias Adjustment Factors

CCBC have applied a local bias adjustment factor of 0.66 to the 2020 monitoring data collected. A summary of bias adjustment factors used by CCBC over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	Local	-	0.66

[3] Data available from https://laqm.defra.gov.uk/air-quality/air-quality-assessment/precision-and-accuracy/

2019	Local	-	0.67
2018	Local	-	0.70
2017	Local	-	0.76
2016	Local	-	0.78

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within CCBC required distance correction during 2020.

QA/QC of Automatic Monitoring

The Environmental Health, Pollution Control officers undertake routine calibration checks of the chemiluminescent continuous analysers fortnightly. The validation and ratification of the data is undertaken by Ricardo on behalf of CCBC. The analysers at Blackwood High Street and White Street Caerphilly form part of the Welsh Air Quality contract for QA/QC, so as well as regular service and maintenance checks, further audits are undertaken by Ricardo as part of the contract. In addition, the air quality station at Hafodyrynys forms part of the AURN (Automatic Urban and Rural Network) which is run by DEFRA and is also subject to additional regular audit checks by independent consultants.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

The type of PM_{10}/$PM_{2.5}$ monitor(s) utilised within CCBC do not required the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within CCBC 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_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within CCBC required distance correction during 2020.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor (Cardiff Centre)	Annualisation Factor (Newport)	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
CCBC 21	0.9524	0.9608	0.9566	27.5	26.3
CCBC 22	0.8793	0.9439	0.9116	24.8	22.6
CCBC 27	1.1068	1.0392	1.0730	11.0	11.8
CCBC 45	0.9569	0.9538	0.9553	22.6	21.6
CCBC 80	0.9569	0.9538	0.9553	30.6	29.2
CCBC 81	0.9569	0.9538	0.9553	22.2	21.2
CCBC 82	1.3069	1.0754	1.1911	19.7	23.4
CCBC 109	0.9522	0.9935	0.9729	30.2	29.3
CCBC 110	0.9522	0.9935	0.9729	34.3	33.4

Table C.3 – Local Bias Adjustment Calculations

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3
Periods used to calculate bias	11	12	12
Bias Factor A	0.67 (0.63 - 0.72)	0.65 (0.6 - 0.71)	0.64 (0.61 - 0.67)
Bias Factor B	49% (39% - 59%)	53% (40% - 66%)	56% (49% - 63%)
Diffusion Tube Mean (µg/m^3)	49	53	56
Mean CV (Precision)	26.1	28.3	72.8
Automatic Mean (µg/m^3)	4.3%	7.0%	6.7%
Data Capture	100	100	100
Adjusted Tube Mean (µg/m^3)	17.5	18.5	46.7

Notes: a single local bias adjustment factor has been used to bias adjust the 2020 diffusion tube results.

Appendix D: AQMA Boundary Maps

Figure D.1 – Map of Hafodyrynys Road AQMA

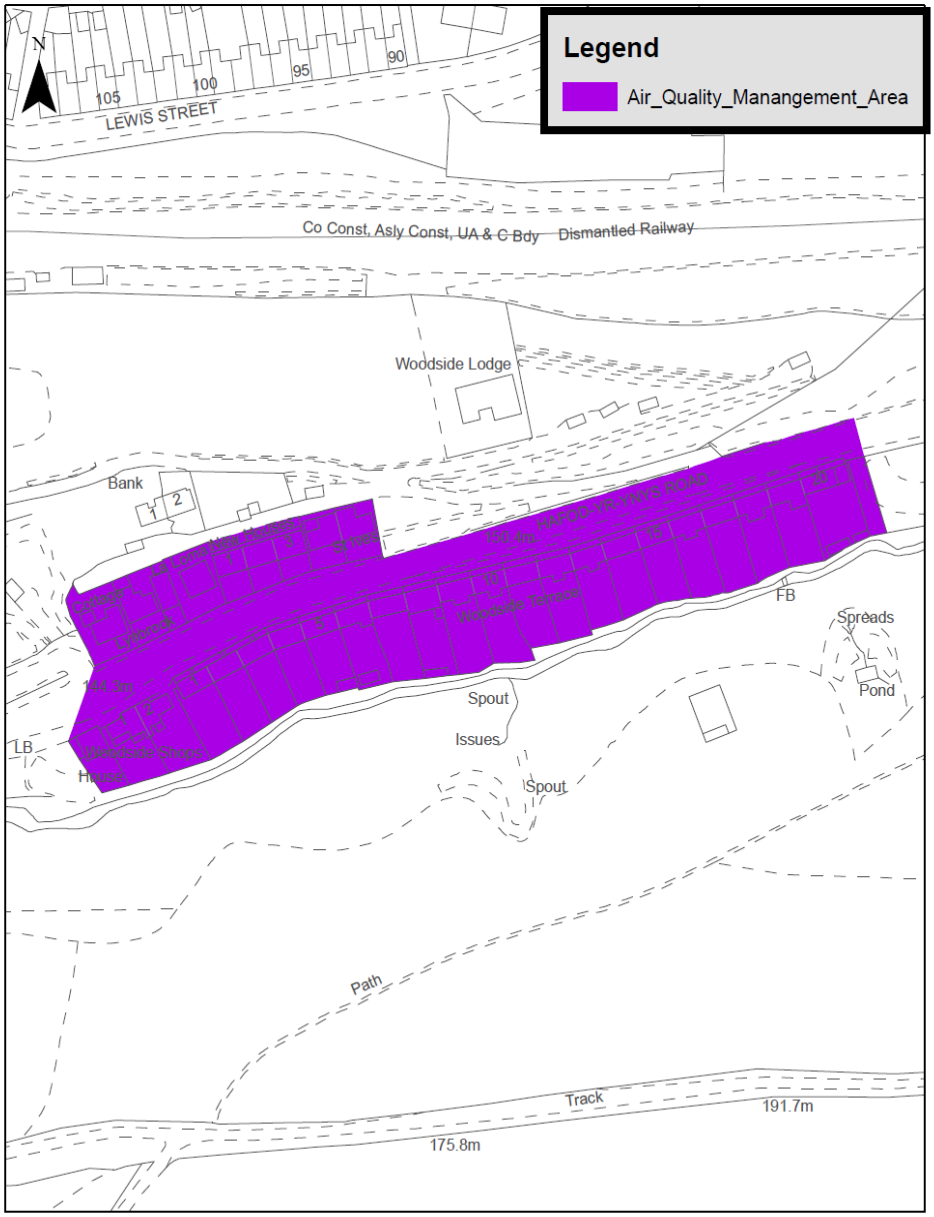
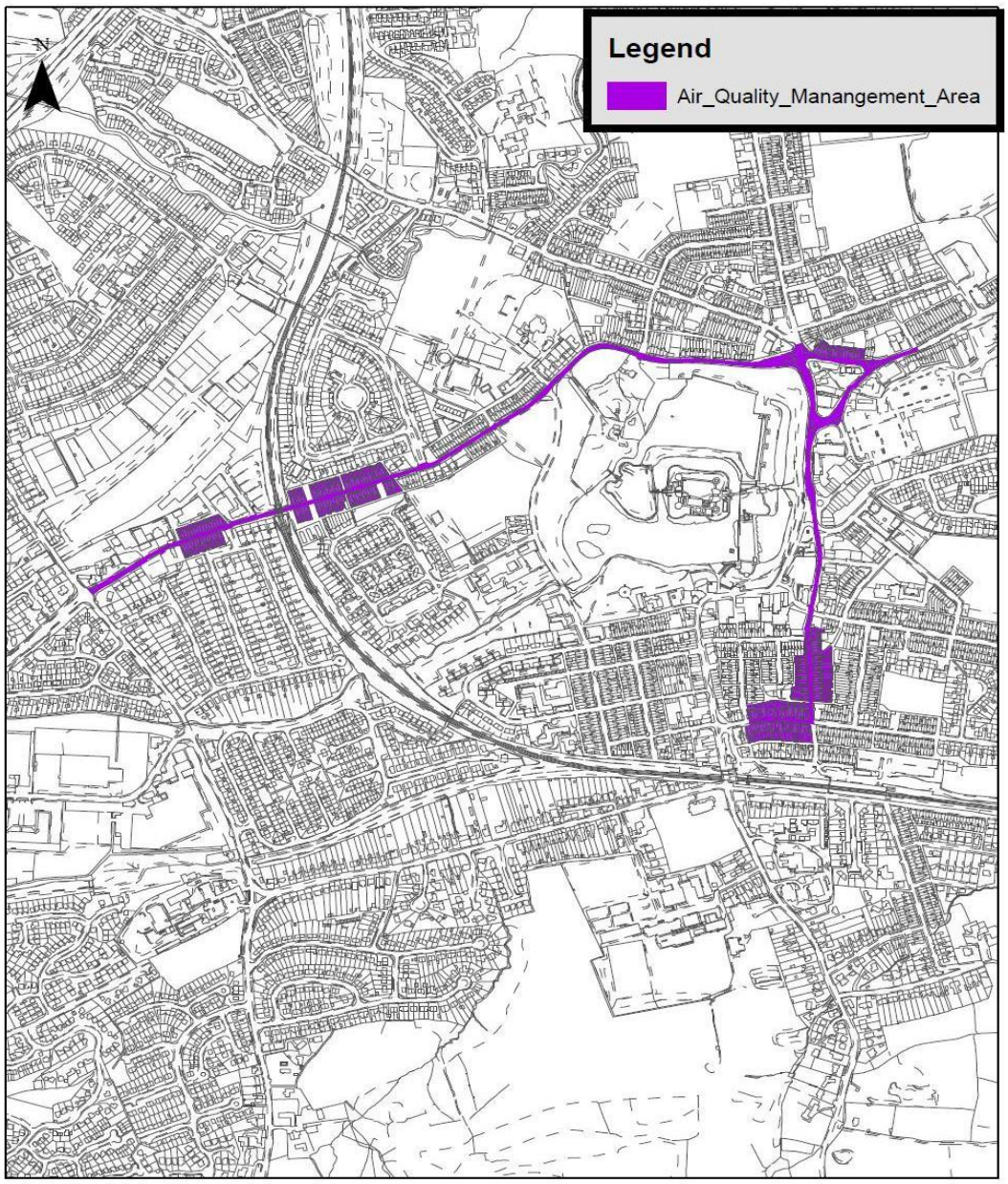


Figure D-2 – Map of Caerphilly Town Centre AQMA



Appendix E: Impact of COVID-19 upon LAQM

The COVID-19 pandemic has impacted air quality at local, regional and national scales and presented challenges to Local Authorities in undertaking statutory LAQM duties. This section outlines the impact of COVID 19 on air quality in CCBC during 2020.

Further detail on air quality impacts at the national scale can be viewed through the Reports & Seminars section of airquality.gov.wales.

Impacts of COVID-19 on Air Quality within CCBC

The results from monitoring undertaken by continuous and passive sampling suggest that the pandemic has had a significant impact on NO_2 concentrations within CCBC as concentrations, as an annual average, changed by 7 μg/m^3 (25%) relative to the previous year.

Review of how the composition of the average figure breaks down by site type found:

- 30% reduction at urban industrial monitoring locations (2 locations)
- 28% reduction at kerbside monitoring locations (10 locations)
- 25% reduction at roadside monitoring locations (62 locations)
- 5% reduction at urban background monitoring locations (2 locations)

Additionally, the review found that concentrations reduced by 12 μg/m^3 (26%) relative to the previous year, on average, at sampling locations located in the Hafodrynys AQMA.

An interpretation of this findings is that it is likely that new national measures brought in to reduce the spread of the corona virus is likely to have caused a reduction in the generation of NO_2 pollutant and its precursor constituents by industrial and transport related sources.

The sampling measurements also showed that concentrations of PM_{10} reduced at two locations as an annual average. The level of change can be considered to be small at both locations (a reduction of 3%, 4%) and continues a similar trend of reduction that has been seen during the previous 5 years. The remaining PM_{10} sampling location did increase by approximately 9% but remained below the most recent peak annual concentration recorded in 2016. As a whole, it is likely that the pandemic has had a negligible impact on levels of PM_{10} within CCBC. A similar conclusion can be made in regards to $PM_{2.5}$ where the annual mean concentration at the single sampling location measured a small reduction value compared to concentration values recorded in the last five years.

Opportunities Presented by COVID-19 upon LAQM within CCBC

No LAQM related opportunities have arisen as a consequence of COVID-19 within CCBC.

Challenges and Constraints Imposed by COVID-19 upon LAQM within CCBC

No challenges or constraints relating to LAQM have arisen during 2020 as a consequence of COVID-19 within CCBC.

Table E.1 – Impact Matrix

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide