



Cyngor Bwrdeistref Sirol
MERTHYR TUDFUL
MERTHYR TYDFIL
County Borough Council

Merthyr Tydfil County Borough Council 2024 Air Quality Progress Report

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

Local Air Quality Management

Date: September 2024

LAQM Annual Progress Report 2024



Mae'r ddogfen hon hefyd ar gael yn Gymraeg.

This document is also available in Welsh.

[https://www.merthyr.gov.uk/
media/10763/adroddiad-cynnydd-ar-
ansawdd-yr-aer-2024.pdf](https://www.merthyr.gov.uk/media/10763/adroddiad-cynnydd-ar-ansawdd-yr-aer-2024.pdf)

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Executive Summary: Air Quality in Our Area

Air Quality in Merthyr Tydfil County Borough Council

The main source of air pollution within Merthyr Tydfil County Borough Council (MTCBC) is from road traffic. Nitrogen oxides ($\text{NO}_x = \text{NO} + \text{NO}_2$) are formed during the combustion of fossil fuels. It is estimated that, on average in 2022, 65 per cent of the NO_x concentrations at the roadside originate as NO_x emissions from road transport¹ (Defra, 2024). As such, MTCBC is concerned about roadside NO_2 concentrations. A passive air quality monitoring network is implemented throughout the district.

The NO_2 concentrations experienced in average a 24% drop throughout the district in 2020, due to the impact of COVID-19 and associated lock down measure, in comparison to the previous year (2019). After 2020, the concentrations had slightly increased but remain below the pre pandemic concentrations. All sites observed concentrations more than 10% below the annual mean air quality objective up to 2020. At one site, located within the Council Air Quality Monitoring Area (AQMA), the observed concentration ($38.2 \mu\text{g}/\text{m}^3$) in 2019 was within 10% of the annual mean air quality objective ($36 \mu\text{g}/\text{m}^3$). This site is within the council AQMA.

Since 2017 there has been an AQMA in place along Twynyrodyn Road. The AQMA was declared as exceedances of the annual mean air quality objective ($40 \mu\text{g}/\text{m}^3$) were observed. The observed concentrations were associated with traffic, in particular uphill traffic along Twynyrodyn Road. The AQMA extends from the western end of Twynyrodyn Road to 147 Gilfach Cynon. More information and a map of the AQMA are available in the [Twynyrodyn Road AQMA webpage](#). Following public consultation and Council approval, the Welsh Government (WG) approved the action plan to reverse the traffic flow along Pontmorlais High Street and Church Street as an initial action to address concentrations of NO_2 within the AQMA.

On 28th May 2019 traffic flow was reversed along Pontmorlais High Street and Church Street. This provided alternative routes away from Tesco and the Town Centre area other than Twynyrodyn Road. Traffic build-up appears to have shifted away from the AQMA with fewer queues developing on Twynyrodyn Road.

Since 2020, all the monitoring sites within the AQMA remained below 10% of the annual mean air quality objective. From 2021 the concentrations within the AQMA are decreasing. If the trend continues and concentrations in 2024 remain below 10% of the annual mean

air quality objective, the AQMA would have been compliant for 5 years and will be in a position to be revoked.

MTCBC also considers the impact on air quality of new developments and where necessary, planning conditions are used to mitigate any negative effects. The Local Transport Plan supports active travel and use of public transport to reduce reliance on cars.

Actions to Improve Air Quality

With regard to the Twynyrodyn AQMA, in 2018 a 12 week public consultation took place. The public were consulted on 3 options to reduce traffic use of Twynyrodyn Road. Most respondents (94%) expressed a preference for the option of reversing traffic flow along Pontmorlais High Street and Church Street. The Council approved an action plan to this effect being submitted to Welsh Government who subsequently approved it.

In November 2018 the Highways and Engineering Departments issued Traffic Regulation Orders. On 28th May 2019 traffic flow was reversed in accordance with the approved action plan. Traffic counts are available which quantified observations made by Environmental Health Officers that there was less traffic build-up in the Twynyrodyn Road AQMA. The traffic survey carried out prior to and after the reversal of flow along Pontmorlais High Street, showed a reduction in the volume of traffic travelling along Twynyrodyn Road AQMA by an average of 428 vehicles on a Friday when traffic volumes were at their highest. Some traffic build-up around Avenue De Clichy and Pontmorlais High Street was observed during peak times which has also been evidenced by the traffic survey, with an average weekday increase of 677 vehicle movements along the Avenue De Clichy. This is not considered likely to pose a public health risk as residential properties are set back from the road and there are no areas along it where people are likely to spend more than one hour. On the west side of Avenue De Clichy is the River Taff, so there are no possible street canyons. The early observations suggested the traffic reversal made improvements in air quality within the AQMA and this has continued to be the case to date.

MTCBC is working with different schools within the district to generate awareness about air pollution.

Local Priorities and Challenges

The priority for 2019 was to monitor the effectiveness of the implemented action plan. To that end, additional diffusion tubes were installed along the traffic reversal route and surrounding streets. Since its implementation, the traffic reversal doesn't appear to have significantly increased concentrations of NO₂ along Pontmorlais High Street or any other diversion route.

NO₂ concentrations for 2020 following implementation of the national lockdown due to the coronavirus pandemic were significantly lower due to the associated decrease in vehicle movements. As such, the majority of the data for 2020 was not a true representation of concentrations for the area in terms of typical circumstances. As such, the priority for 2020 was to maintain the monitoring network and delay the intended revocation of the AQMA in 2021. Continued monitoring and demonstration that concentrations remain more than 10% below the annual mean air quality objective would allow the AQMA to be revoked in 2025.

Should concentrations increase to within 10% or exceed the annual mean air quality objective, additional works will be considered in updated action plans.

MTCBC continues to study the measured concentrations across the current monitoring network alongside with traffic patterns. If new heavy traffic areas that might affect air quality are identified, new monitoring locations can be added to the network. This was the case in 2022 when two new monitoring locations were added.

How to Get Involved

Further information on air pollution including access to previous air quality reports is available from www.merthyr.gov.uk. Specific questions can be addressed by emailing PublicHealth@merthyr.gov.uk or by telephoning 01685 725000.

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1 Actions to Improve Air Quality

1.1 Previous Work in Relation to Air Quality

Merthyr Tydfil County Borough Council has previously undertaken the following review and assessment reports as required by Local Air Quality Management (LAQM).

Report Title	Year	Outcomes
First stage review and assessment	1998	Negligible risk of Air Quality Strategy (AQS) objective for benzene, 1,3-butadiene, CO and lead being exceeded in the area. Possible risk of objectives for PM ₁₀ , SO ₂ and NO ₂ being exceeded.
Second stage review and assessment	2000	Negligible risk of AQS objectives for PM ₁₀ , SO ₂ and NO ₂ being exceeded in area. Unnecessary to proceed further with review and assessment process or declare AQMAs.
Updating and screening assessment and progress reports	2003-2005	AQS objectives for 7 pollutants likely to be met at all locations with relevant public exposure. Unnecessary to carry out detailed assessment or declare any AQMAs. Progress reports 2004 & 2005 found no significant changes in air quality and no developments that might affect air quality within the borough.
Updating and screening assessment and progress reports	2006-2008	AQS objectives for the 7 pollutants detailed in regulations likely to be met at all locations with relevant public exposure. Unnecessary to carry out a detailed risk assessment or declare any AQMAs. Progress report 2007 found NO ₂ levels had increased but within AQS objective of 40µg/m ³ at all locations.

Report Title	Year	Outcomes
		<p>Level at 55 Twynyrodyn Road was within 10% of the limit and monitoring network expanded in this area.</p> <p>Progress report 2008 found levels increased and at 55 Twynyrodyn Road, a marginal exceedance identified.</p> <p>Considered necessary to proceed to detailed assessment.</p>
Detailed assessment	2009	<p>Reviewed data for monitoring sites on Twynyrodyn Road and modelled NO₂ levels for length of the road.</p> <p>Recommended siting of additional diffusion tubes at various points on road and declaring AQMA.</p>
Updating and screening assessment and progress reports	2009-2011	<p>NO₂ reduced, AQS objectives met at all locations with relevant public exposure.</p> <p>2010 progress report determined based on reduction no longer necessary to carry out further detailed assessment or declare AQMA.</p> <p>Detailed assessments necessary for 2 new permitted processes and 1 substantially changed installation.</p> <p>Progress report 2011 found NO₂ levels had increased throughout the borough, with marked exceedance at 55 Twynyrodyn Road.</p> <p>Considered necessary to increase number of monitoring sites on Twynyrodyn Road prior to declaring AQMA in relation to this site.</p>
Detailed assessment	2011	<p>Reviewed emissions data from Prince Charles Hospital combustion plant.</p> <p>Concluded emissions will not result in any exceedances of objectives unless on-site emergency generators used for extended periods.</p>

Report Title	Year	Outcomes
Updating and screening assessment and progress reports	2012-2014	<p>No new developments or proposed developments that could be considered to adversely affect air quality.</p> <p>1 exceedance of NO₂ at 55 Twynyrodyn Road.</p> <p>Progress report 2013 found action to reduce NO₂ levels at 55 Twynyrodyn Road, has reduced it to below AQS objective.</p> <p>Additional monitoring found further location on same road link where NO₂ levels exceeded AQS objective.</p> <p>Progress report 2014 identified new bus station development proposed may adversely affect NO₂. Environmental Health department liaised with Regeneration Group to ensure air quality considered in planning process.</p> <p>NO₂ levels on Twynyrodyn Road had increased to exceed AQS objective. Unclear if temporary and related to ongoing changes to traffic flow. Further monitoring proposed.</p> <p>Detailed assessment and declaration of AQMA on Twynyrodyn Road necessary.</p>
Detailed assessment	2015	<p>Elevated NO₂ on Twynyrodyn Road associated with traffic. Wind speed and direction, and 2 storey terraced housing without front gardens resulted in NO₂ accumulating around 55 Twynyrodyn Road.</p> <p>Predominantly associated with uphill traffic during early evening.</p> <p>Considered necessary to declare AQMA from Western End of Twynyrodyn Road to 147 Gylfach Cynon.</p> <p>MTCBC declared AQMA on 30th Jan 2017.</p>

Report Title	Year	Outcomes
Updating and screening assessment and progress reports	2015-2017	<p>Proposed bus station could adversely affect air quality. Modelling indicates likely to comply with AQS objectives, to be monitored with diffusion tubes prior to bus station opening as modelling based on limited data.</p> <p>NO₂ exceedances were contained within AQMA on Twynyrodyn Road.</p> <p>Action plan under development for public consultation, on options to improve traffic flow and reduce traffic numbers.</p> <p>Additional monitoring in Swansea Road in anticipation of Trago Mills opening, attracting additional traffic to Swansea Road area.</p>
Annual report	2018	<p>NO₂ exceedances were contained within AQMA on Twynyrodyn Road.</p> <p>Action plan to reverse traffic flow along Pontmorlais High Street and Church Street approved by Welsh Government following public consultation and Council approval.</p> <p>Impact of Trago Mills on Swansea Rd has not resulted in annual mean within 10% of AQS objectives.</p> <p>Monitoring network reviewed and as of Jan 2019 network will be extended to include traffic reversal area, Troedyrhiw and areas identified in Welsh Government Noise and Soundscape survey.</p>
Annual report	2019	<p>Action plan implemented to reverse traffic flow along Pontmorlais High Street and Church Street on 28th May 2019.</p> <p>Additional monitoring locations added to the network used to assess any changes in vehicle routes around the</p>

Report Title	Year	Outcomes
		<p>town centre and along Pontmorlais High Street and the impact it might have on air quality.</p> <p>A decrease in levels of NO₂ on Swansea Road around the Trago Mills site has been observed.</p> <p>All sites within the AQMA are now below the annual air quality objective however one site remains within 10% of the AQS objective.</p>
Annual report	2020	<p>Continued monitoring of network to assess effectiveness of the traffic reversal and changes around the town centre and along Pontmorlais High Street.</p> <p>Proposal to revoke the AQMA in 2021 if levels were shown to have continued to remain outside 10% of the AQS objective.</p>
Annual report	2021	<p>Continued monitoring of network to assess the effectiveness of the traffic reversal and changes around the town centre and along Pontmorlais High Street.</p> <p>Proposal to delay revocation of the AQMA to 2025. Continued demonstration of concentrations below 10% of the AQS objective means the data would be robust enough to confidently revoke the AQMA.</p>
Annual report	2022	<p>Continued monitoring of network to assess the effectiveness of the traffic reversal and changes around the town centre and along Pontmorlais High Street.</p> <p>On course to revoke AQMA in 2025 as concentrations at all monitoring sites remain more than 10% below the AQS objective.</p>

Report Title	Year	Outcomes
Annual report	2023	<p>Continued monitoring of network to assess the effectiveness of the traffic reversal and changes around the town centre and along Pontmorlais High Street.</p> <p>On course to revoke AQMA in 2025 as concentrations at all monitoring sites remain well below 10% of the AQS objective.</p>

NO₂ continued to exceed the AQS objective in 2017 along Twynyrodyn Road (stretch near 55 Twynyrodyn Road within AQMA). This was in line with results in previous years.

MTCBC currently has one AQMA, Twynyrodyn Road. Following a detailed assessment in 2015 it was declared in Jan 2017 due to elevated NO₂ concentrations caused by road traffic. A draft action plan identified 3 possible changes to traffic flow anticipated to improve traffic flow around the town centre and consequently reduce NO₂ in the AQMA. A 12 week public consultation was carried out from 16th March 2018 to 8th June 2018. The majority (94%) of consultation responses were in favour or reversing the traffic flow along Pontmorlais High Street and Church Street. Following the public consultation, on 27th June 2018 the Council approved the action plan for reversing traffic flow along Pontmorlais High Street for submission to Welsh Government. Welsh Government approved the action plan on 17th July 2018. The Highways and engineering departments issued the relevant traffic management orders and following these on 28th May 2019 reversed the traffic flow along Pontmorlais High Street & Church Street.

During some months in 2018 there was an elevated NO₂ concentration at Ladysmith Place, Troedyrhiw. This required further investigation. Observations found traffic was building up at the junction of Phyllis Street & Cardiff Road, where cars were accessing and egressing a small car park to the rear of Troedyrhiw Community School. As a semi-rural area a large proportion of children attending the school travel by car. To determine the effect of the car park, in December 2018 a one way system was implemented for 4 weeks, continuing into early January 2019. Most sites across the district had higher NO₂ concentrations in period 12 than period 11, but at 6/7 Ladysmith Place the concentration remained the same. This indicates either lower traffic numbers or better traffic flow had counteracted the normal cold weather deterioration in air quality. As the annual mean NO₂ concentration was below 36µg/m³ (more than 10% below the objective) in 2018 no further

action was planned at that time. Monitoring was extended during 2019 further along Cardiff Road, Troedyrhiw to monitor if the section of road was likely to breach the AQS objective. Both 6/7 Ladysmith Place & 37 Brookfield Terrace were more than 10% below the AQS at $33.2\mu\text{g}/\text{m}^3$ and $27.8\mu\text{g}/\text{m}^3$ respectively for that year.

Data for 2020, which was atypical for 75% of the year showed that 6/7 Ladysmith Place and 37 Brookfield Terrace measured annual mean concentrations of $25.6\mu\text{g}/\text{m}^3$ and $20.9\mu\text{g}/\text{m}^3$ respectively, a notable decrease from 2019 data. Comparison of periods 1, 2 and 3 of 2019 and 2020, where data for that period of 2020 was more typical, when averaged show a reduction of NO_2 concentrations at both sites. The unadjusted average for 6/7 Ladysmith Place was $50.8\mu\text{g}/\text{m}^3$ in 2019 and $42.3\mu\text{g}/\text{m}^3$ in 2020. Similarly, the unadjusted average for 37 Brookfield Terrace was $44.7\mu\text{g}/\text{m}^3$ in 2019 and $32.8\mu\text{g}/\text{m}^3$ in 2020. Although the UK was not subject to a mandatory lockdown for periods 1, 2 and 3, it is possible that there was a voluntary reduction in travel for all purposes as media coverage and public fear increased over the beginning of the year, which could have contributed toward the reduction in NO_2 concentrations.

The anomalous data for 2020 presented an issue in terms of data continuity for longer-term demonstration of the effects of the traffic reversal on NO_2 concentrations within the AQMA in addition to ongoing focus on Cardiff Road. Notwithstanding, data for 2021 was encouraging at both 6/7 Ladysmith Place and 37 Brookfield Terrace, with the mean concentrations of NO_2 at each site being $28.8\mu\text{g}/\text{m}^3$ and $23.6\mu\text{g}/\text{m}^3$ respectively. Data for 2022 and 2023 showed concentrations of NO_2 at $26.3\mu\text{g}/\text{m}^3$ and $24.3\mu\text{g}/\text{m}^3$ respectively for 6/7 Ladysmith Place and $22.9\mu\text{g}/\text{m}^3$ and $19.6\mu\text{g}/\text{m}^3$ at 37 Brookfield Terrace respectively. As such there is no anticipation at present that further focus is necessary along Cardiff Road.

Data for 2023 for all monitoring locations remains more than 10% below the AQS with the greatest concentration $28.7\mu\text{g}/\text{m}^3$ recorded within the current AQMA at 51 Twynyrodyn Road. This concentration is still well below 10% of the AQS objective ($36\mu\text{g}/\text{m}^3$).

1.2 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when air quality is close to or above an acceptable level of pollution (known as the air quality objective (Please see Appendix A)). After declaring an AQMA the authority must prepare an Air Quality Action Plan (AQAP) within 18 months setting out measures it intends to put in place to improve air quality to at least the air quality objectives, if not even better. AQMA(s) are seen by local

authorities as the focal points to channel resources into the most pressing areas of pollution as a priority.

A summary of the AQMA declared by Merthyr Tydfil County Borough Council can be found in Table 1.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at [Twynyrolyn Road AQMA webpage](#).

Table 1.1 – Declared Air Quality Management Areas

AQMA	Relevant Air Quality Objective	Comments on Air Quality Trend	City	Description	Action Plan
Twynyrodyn Road	NO ₂ annual mean	Data post Period 6 of 2019 shows an improvement in air quality in the AQMA since the reversal of the traffic on Pontmorlais High Street was implemented on May 28 th , 2019. Further monitoring has shown marginal increase from 2020 however, concentrations remain well within concentration limits.	Merthyr Tydfil	The AQMA extends from the Western End of Twynyrodyn Road (Tesco Roundabout) to Gilfach Cynon.	Air Quality Action Plan 2018 https://www.merthyr.gov.uk/resident/pests-pollution-food-hygiene/air-pollution/

AQMA boundary maps within MTCBC can be viewed at [this webpage](#) and are included in Appendix D.

1.3 Implementation of Action Plans

Merthyr Tydfil County Borough Council has taken forward a number of measures during 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 1.2. More detail on these measures can be found in the Air Quality Action Plan (AQAP) relating to the designated AQMA.

AQAPs 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.

Figure 1.1 shows a timeline of events for the Twynyrodyn Road AQMA from 2015 until the expected revocation in 2025 if concentrations remain below 10% of the AQS objective within the AQMA.

Following public consultation and Council approval, the action plan was submitted to and approved by Welsh Government. The agreed measure to reduce NO₂ concentrations within the AQMA was to implement a one-way traffic reversal on Pontmorlais High Street and Church Street. The measure was reached via consultation and engagement with local residents, Public Health Wales, Cwm Taff Health Board, neighbouring local authorities, Traffic Wales, Natural Resources Wales and AM Dawn Bowden and MP Gerald Jones. The plan was implemented in May 2019 and effective from June of that year.

In 2017, the average NO₂ concentration in the AQMA was 33.0µg/m³. In 2023, the average NO₂ concentration in the AQMA was 20.7µg/m³. This shows an overall average reduction of 12.3µg/m³, demonstrating that the traffic reversal has been effective. Further changes were proposed in 2020 after the Regeneration section of MTCBC secured funding from the Covid 19 Sustainable Transport Fund. To improve active travel to the town from the southern end of the borough, by improving the pedestrian experience at the Caedraw roundabout. Environmental Health were consulted with regard to the nearby AQMA and the potential impacts it may have to increased traffic queues that may form as a result of a proposed zebra crossing at Lower High Street. Although there were some concerns it may cause congestion, traffic count data carried out by Redstart indicated the effects to be negligible. Ultimately, a zebra crossing was not installed, although improvements were made to the pavements to aid safe pedestrian crossing. Since the implementation of the changes, which were completed during 2023 and data at the closest DT monitoring site (DT17) measured concentrations of 1.5µg/m³ lower than data for 2022.

As such, it appears that the improvements to the Caedraw roundabout have not negatively impacted concentrations within the AQMA.

Figure 1.1 - Timeline of events for the Twynyrodyn Road AQMA

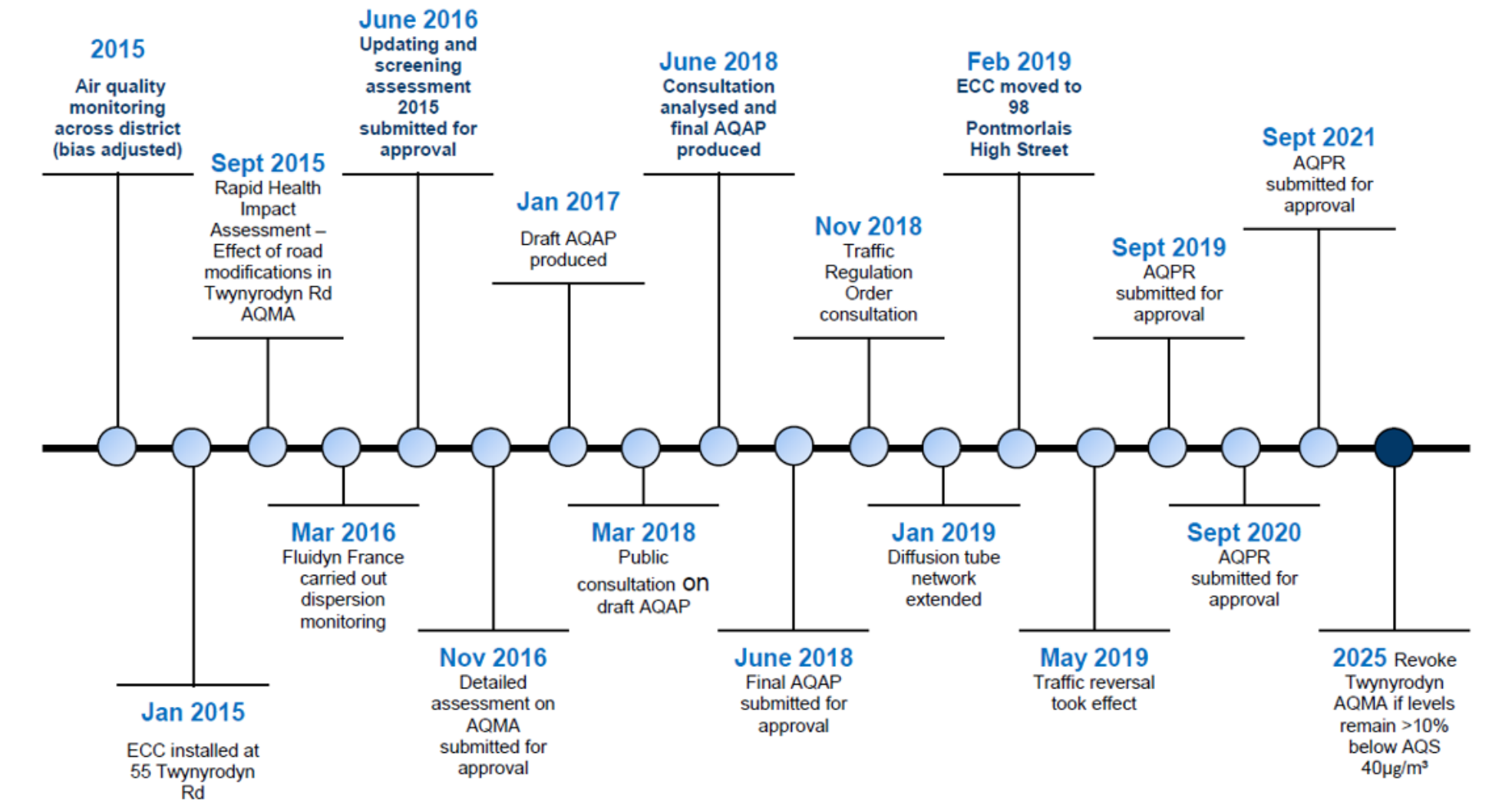


Table 1.2 – Progress on Measures to Improve Air Quality

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 in the AQMA by providing safer pedestrian routes to and from the town centre, reducing vehicle numbers	Reduce emissions in the AQMA by providing safer pedestrian routes to and from the town centre, reducing vehicle numbers	MTCBC	2020	2021-22	Reduction in NO ₂ at monitoring sites along Twynyrodyn Road and reduced traffic counts along Twynyrodyn Road	Maintain concentrations more than 10% below AQS	Traffic data modelling carried out which shows pedestrian crossing should not increase NO ₂ concentrations within the AQMA	The TRC was adopted with the condition of having no Euro I and Euro II buses passing through the AQMA from 2014 onwards	2022	Traffic counts carried out once the new crossing is in place will indicate that people feel safer to access the town centre on foot from the southern end of town therefore reducing vehicle numbers around the AQMA

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	Reversal of 1-way traffic on both Pontmorlais High Street and Church Street (AQAP 2018)	Reduce emissions in the AQMA by providing alternative routes from the town centre)	MTCBC	2017-2018	2019-2020	Reduction in NO ₂ at monitoring sites along Twynyrodyn Road, and reduced traffic counts along Twynyrodyn Road	Reduction of 10µg/m ³ at monitoring sites 14 and 21	In 2023 site 14 has reduced by 16.5 µg/m ³ and site 21 has reduced by 17.5 µg/m ³ since 2017. There has been a reduction in levels of NO ₂ within the AQMA with all sites now below the AQS objective of 40µg/m ³	Concentrations have reduced at all monitoring sites, with all remaining more than 10% below the AQS objective of 40µg/m ³	2020	The implementation of the action plan seems to have reduced NO ₂ within the AQMA post Period 6 (2019). Despite the anomalous data of 2020, 3 years of data have shown overall reduction in concentrations at well below the AQS objective since.

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
3	Increase of environmental charges through permit systems	Environmental Permits charges set by Welsh Government and subject to annual review are according to risk, encouraging businesses to comply with permit conditions to operate at lowest applicable risk for process in question	MTCBC			Proportion of businesses in lowest risk category for their type of operation	0% No permitted processes operate within the AQMA	92% (12 out of 13 active permitted processes) were within lowest risk category for their type of operation in 2023	Newly permitted businesses are being given support to reduce their risk to the lowest possible for each site and process	Ongoing	Following inspections businesses are guided on how to achieve full permit compliance
4	Saturday shuttle bus provision	Reduce journeys to and from the town centre by providing an alternative (free during a 6-week trial)	MTCBC	2018	2018	Number of people getting on and off the shuttle bus at the Red house and College stops	<1% Extremely hard if not impossible to prove.	Use of the shuttle bus was low and it ceased to operate on 25th December 2018.	The trial was completed and it was found to be unviable	2018	The aim was to bring people to the Town Centre from the outlying retail areas to generate income. The lack of use meant operating the bus was not economically viable

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
5	Cycle to work scheme	Salary sacrifice scheme towards purchase of bicycle	Halfords Cycle 2 Work / Merthyr Tydfil Rewards	2010	2010	Number of people joining scheme	<1% Extremely hard if not impossible to prove.	Scheme attracts a handful of people every year. To date 300 people have joined the scheme	37 additional successful applications	Ongoing / periodic purchase windows	The aim is for MTCBC works to cycle to work. Although many live in Merthyr Tydfil only a few live within or travel through the AQMA and as such effects will be marginal. There is no way of checking of those who have accessed the scheme whether and how often they cycle to work.

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
6	Walking to school initiatives	Encouraging primary school students to walk to school		2010	Ongoing	Number of students walking to school	<1% Extremely hard if not impossible to prove.	Not monitored	Not monitored	Ongoing	Schools including Twynnyroddyn Community Primary school are able to take part in schemes to encourage walking to school including addressing road safety, walking buses, etc. This includes a Walk to School week and Kerbcraft Child Pedestrian Training. It is unclear how effective they are at changing parental choice to drive or walk in the long run. There are plans to obtain baseline data on how students travel to school in future

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	Scoot to school	Training to primary school children to travel to school by scooter	Sustrans	Pre 2010	Ongoing	Number of students scooting to school	<1% Extremely hard if not impossible to prove	Not monitored	Not monitored	Ongoing	It is unclear whether being a fun activity means it causes short term rather than long term changes
8	National Standards Cycling Scheme	Training year 6 students on cycling safety levels 1 & 2	Sustrans / MTCBC	Pre 2010	Ongoing	Number of people signing up to schemes	<1% Extremely hard if not impossible to prove	Consistently high uptake up to national lockdown	Not monitored	Ongoing	By delivery to all 22 primary schools it aims to encourage students starting secondary school to cycle to school. Although many take the course the number who then start secondary school by cycling and those who maintain it throughout their time at secondary school is not known

2 Air Quality Monitoring Data and Comparison with Air Quality Objectives

2.1 Summary of Monitoring Undertaken in 2023

2.1.1 Automatic Monitoring Sites

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

MTCBC did not undertake automatic (continuous) monitoring during 2023 with approved reference monitors.

During 2023, MTCBC undertook automatic (continuous) monitoring utilizing an AQMesh pod, which is a monitoring system for indicative purposes only. The monitor was located as a co-location site alongside the diffusion tube S23 until September 6th when it was moved to Dowlais High Street further to complaints received regarding increased traffic queues through Dowlais up to Dowlais Top roundabout, due to the dualling project of the A465 road works. These monitoring results are indicative only, information about the sites and the indicative monitoring results are detailed in the Appendix E.

2.1.2 Non-Automating Monitoring Sites

MTCBC undertook non- automatic (passive) monitoring of NO₂ at 35 sites during 2023. Table 2.1 presents the details of the sites.

Maps showing the location of the monitoring sites are provided in Figure 2.1 to Figure 2.7.

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 Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
S01	S01	Roadside	305042	206524	NO ₂	No	0.0	3.4	No	2.3
S02	S02	Urban background	304743	206261	NO ₂	No	0.0	43.3	No	1.9
S03	S03	Suburban	305832	205941	NO ₂	No	0.0	52.8	No	2.1
S04	S04	Roadside	305001	205763	NO ₂	No	0.0	3.6	No	2.5
S05	S05	Roadside	305140	205910	NO ₂	No	0.0	1.1	No	2.3
S06	S06	Roadside	305426	205144	NO ₂	No	0.0	5.1	No	2.3
S07	S07	Roadside	309640	197033	NO ₂	No	0.0	1.6	No	2.1
S08	S08	Urban centre	304866	206137	NO ₂	No	0.0	3.4	No	2.3
S09	S09	Suburban	303525	206388	NO ₂	No	0.0	6.3	No	1.9
S10	S10	Roadside	305180	206744	NO ₂	No	0.0	1.6	No	2.3
S11	S11	Roadside	305382	205872	NO ₂	Twynrodyn Road AQMA	1.7	3.0	No	3.0
S12	S12	Roadside	307171	207915	NO ₂	No	0.0	1.6	No	2.4
S13	S13	Roadside	304947	206261	NO ₂	No	0.0	3.2	No	2.5
S14	S14	Roadside	305410	205410	NO ₂	Twynrodyn Road AQMA	0.0	2.3	No	2.5
S15	S15	Suburban	309573	196518	NO ₂	No	0.0	3.4	No	2.0
S16	S16	Suburban	303360	206822	NO ₂	No	0.0	37.0	No	2.2
S17	S17	Kerbside	304942	206204	NO ₂	No	0.0	1.0	No	3.0
S18	S18	Roadside	305217	205880	NO ₂	Twynrodyn Road AQMA	0.0	2.3	No	2.4
S19	S19	Roadside	305299	205865	NO ₂	Twynrodyn Road AQMA	0.0	5.3	No	2.1
S20	S20	Roadside	305149	205906	NO ₂	Twynrodyn Road AQMA	0.0	1.5	No	2.3
S21	S21	Roadside	305394	205871	NO ₂	Twynrodyn Road AQMA	0.0	1.5	No	2.3
S22	S22	Roadside	305147	205906	NO ₂	Twynrodyn Road AQMA	0.0	4.9	No	2.3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
S23	S23	Roadside	304987	206411	NO ₂	No	0.0	2.9	No	2.7
S24	S24	Roadside	305415	205863	NO ₂	Twynyrodyn Road AQMA	1.0	3.7	No	2.1
S25	S25	Roadside	307034	202698	NO ₂	No	0.0	1.1	No	2.3
S26	S26	Roadside	305296	205895	NO ₂	No	0.0	2.9	No	2.3
S27	S27	Roadside	305182	206138	NO ₂	No	0.0	6.0	No	2.6
S28	S28	Roadside	305579	206811	NO ₂	No	0.0	1.4	No	2.1
S29	S29	Roadside	307112	202547	NO ₂	No	0.0	3.4	No	2.6
S30	S30	Suburban	303570	206676	NO ₂	No	0.0	8.4	No	2.1
S31	S31	Urban background	304782	205886	NO ₂	No	0.0	5.7	No	2.1
S32	S32	Roadside	304835	205924	NO ₂	No	0.0	2.8	No	2.5
S33	S33	Roadside	304898	205929	NO ₂	No	0.0	2.4	No	2.5
S34	S34	Urban Centre	304917	206009	NO ₂	No	0.0	5.7	No	2.7
S35	S35	Urban centre	304840	206058	NO ₂	No	0.0	4.3	No	2.7

Notes:

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

(2) N/A if not applicable.

Figure 2.1 – Map of Non-Automatic Monitoring Sites across the County Borough

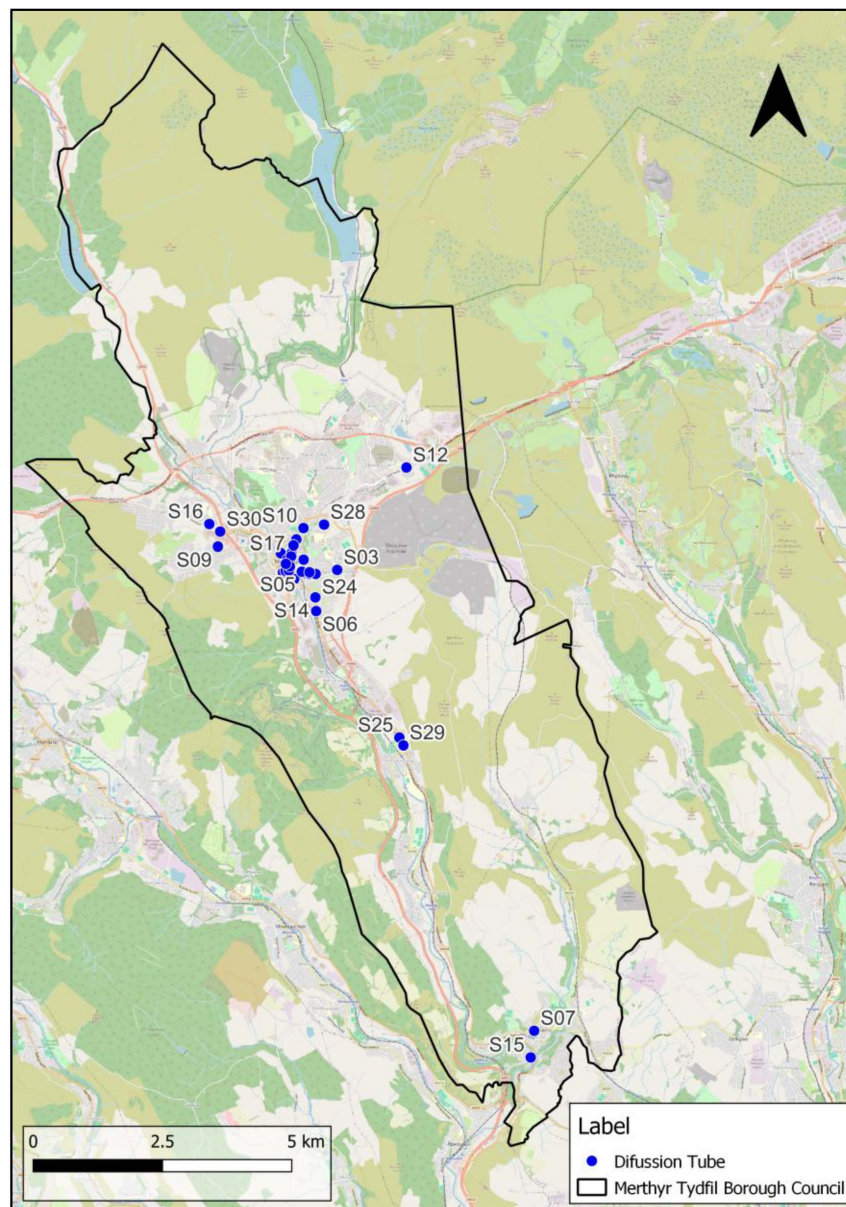


Figure 2.2 – Map of S12 Non-Automatic Monitoring Site

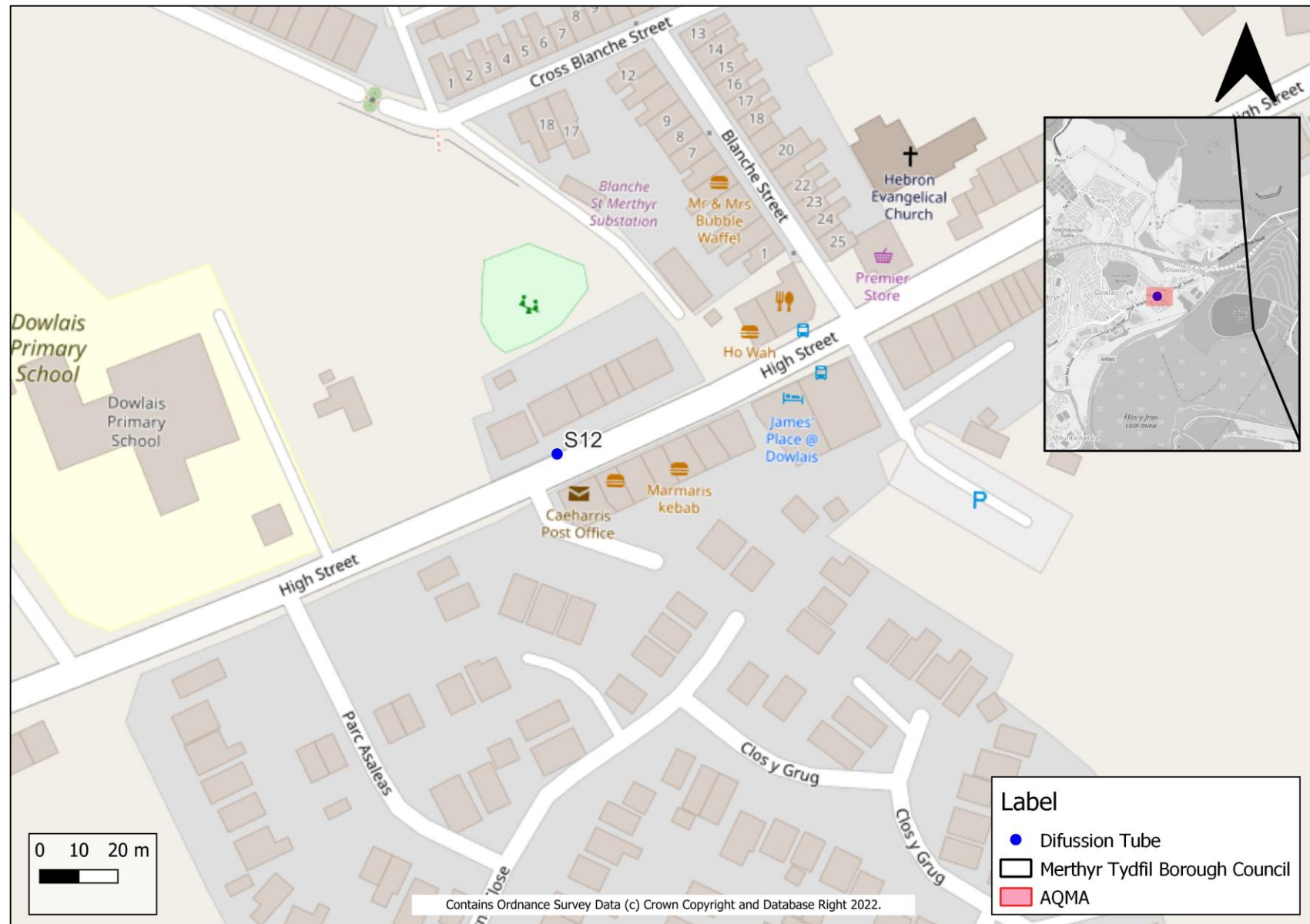


Figure 2.3 – Map of Non-Automatic Monitoring Sites

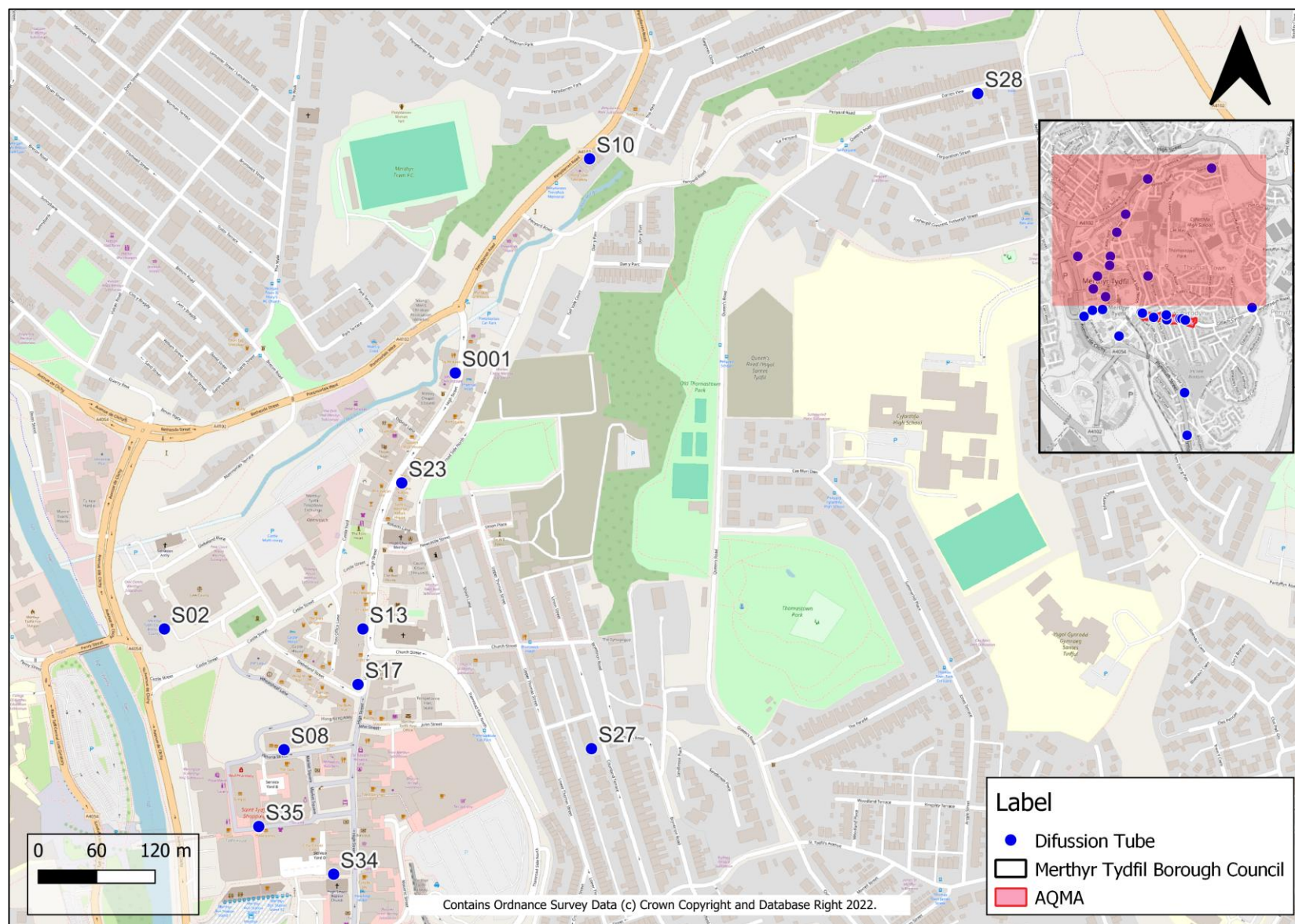


Figure 2.4 – Map of Non-Automatic Monitoring Sites inclusive of AQMA and AQMA monitoring locations

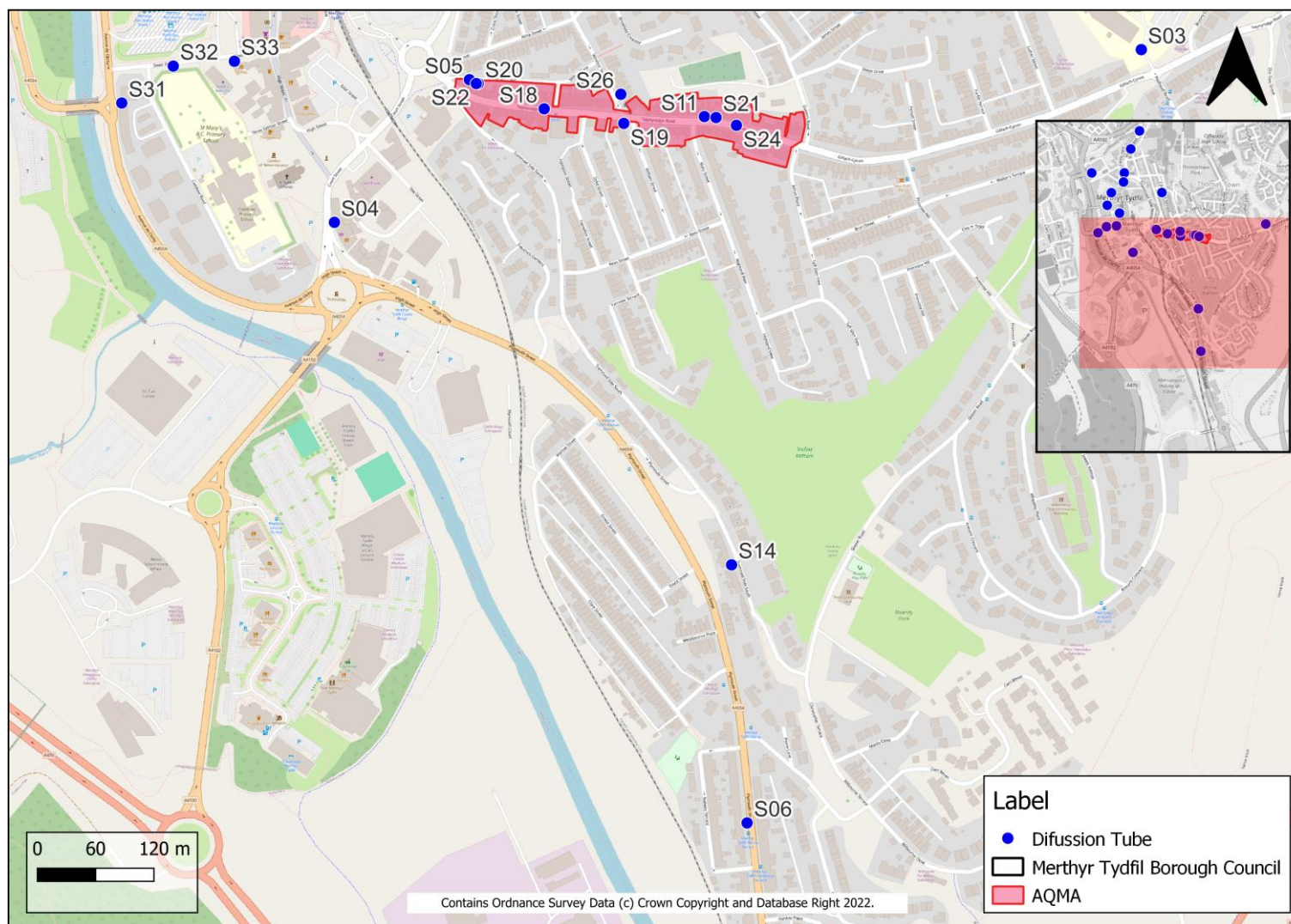


Figure 2.5 – Map of Non-Automatic Monitoring Sites

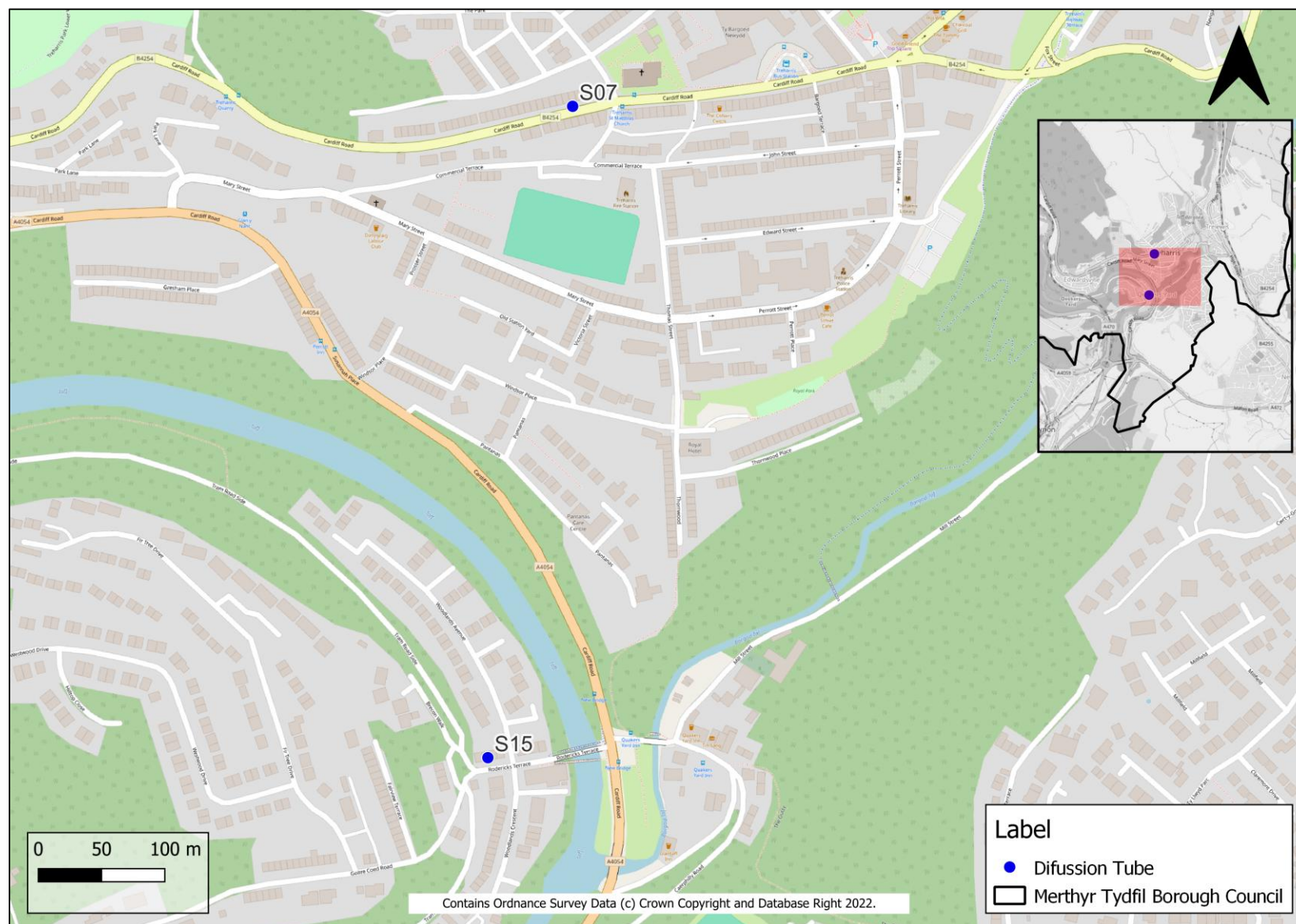


Figure 2.6 – Map of Non-Automatic Monitoring Sites

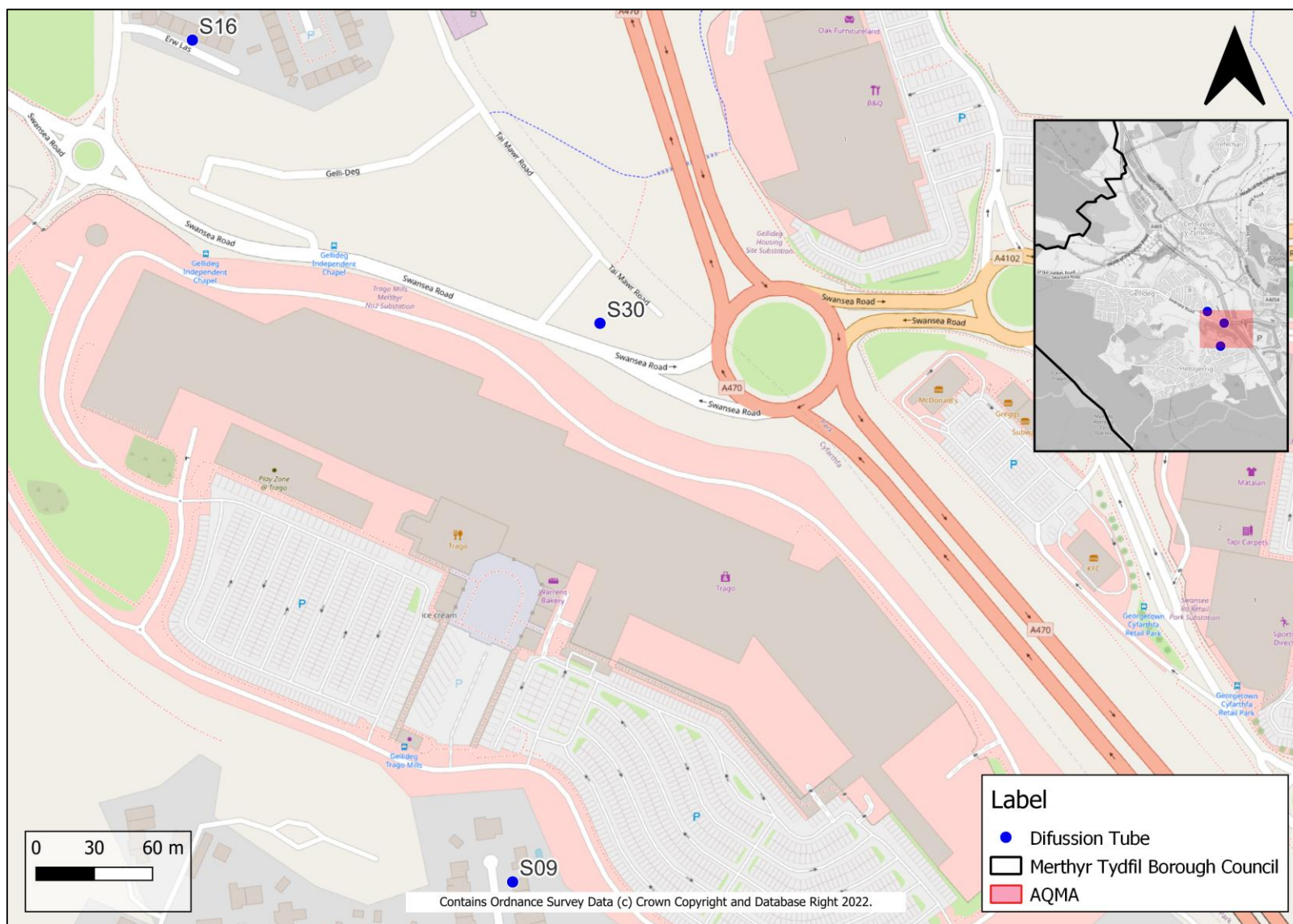
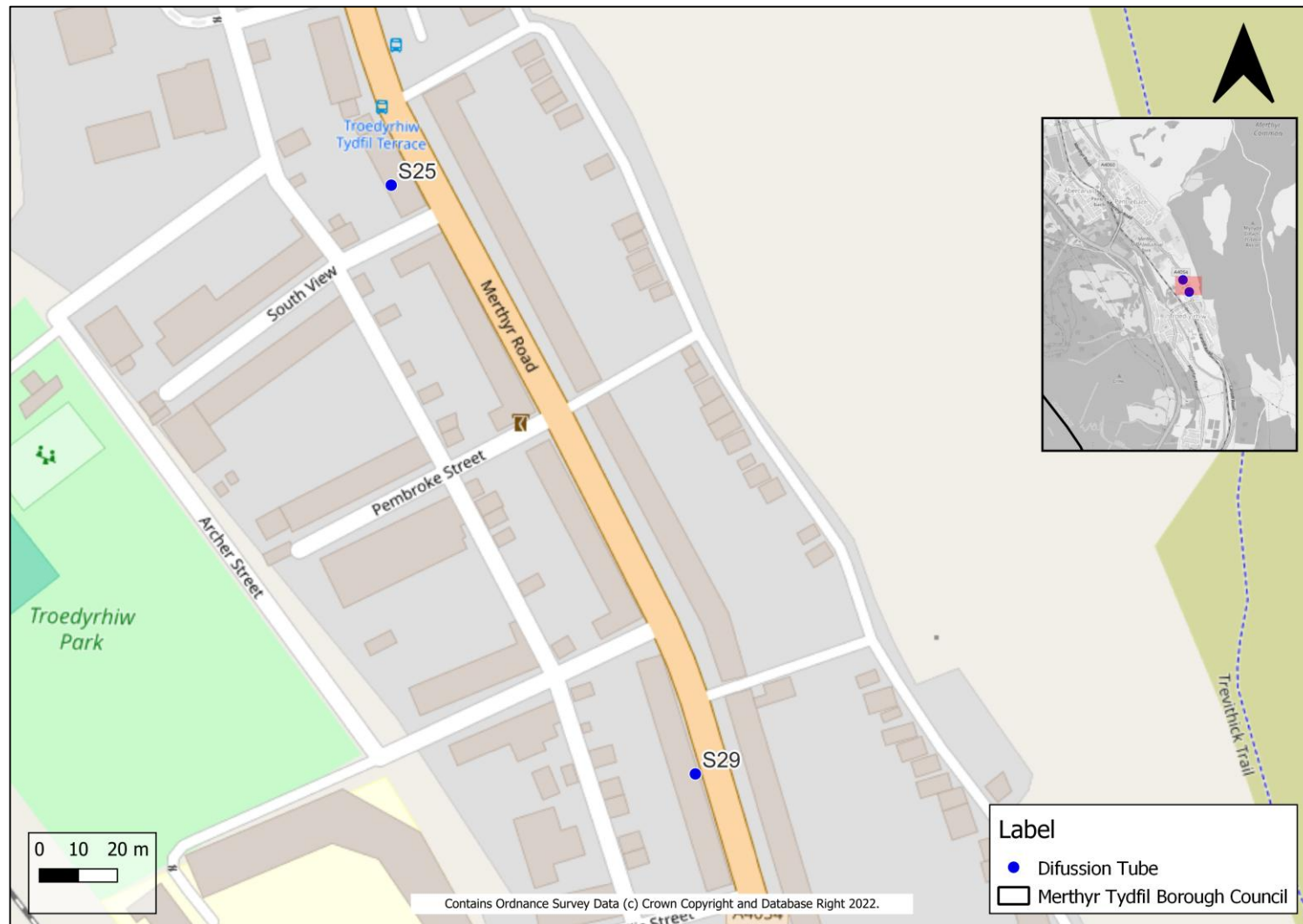


Figure 2.7 – Map of Non-Automatic Monitoring Sites



2.2 2023 Air Quality Monitoring Results

Table 2.2 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2019	2020	2021	2022	2023
S01	305042	206524	Roadside	82.7	82.7	23.1	21.4	25.9	25.8	24.8
S02	304743	206261	Urban background	90.4	90.4	16.6	11.7	12.4	12.8	11.6
S03	305832	205941	Suburban	82.7	82.7	11.1	8.4	8.5	9.2	7.4
S04	305001	205763	Roadside	82.7	82.7	24.9	19.1	21.8	23.2	18.3
S05	305140	205910	Roadside	100	100.0	22.3	13.8	16.5	15.6	14.2
S06	305426	205144	Roadside	100	100.0	25.3	18.8	19.9	19.0	17.5
S07	309640	197033	Roadside	100	100.0	17.9	13.0	13.9	13.7	12.1
S08	304866	206137	Urban centre	90.4	90.4	18.8	15.1	15.1	14.5	12.4
S09	303525	206388	Suburban	100	100.0	10.6	7.4	7.9	6.9	6.3
S10	305180	206744	Roadside	100	100.0	30.7	26.1	28.8	31.0	27.0
S11	305382	205872	Roadside	100	100.0	35.0	24.6	29.7	28.5	24.3
S12	307171	207915	Roadside	100	100.0	22.0	17.6	21.0	21.3	19.4
S13	304947	206261	Roadside	100	100.0	21.7	19.4	23.0	22.2	20.1
S14	305410	205410	Roadside	100	100.0	33.2	24.7	29.1	26.9	24.2
S15	309573	196518	Suburban	92.3	92.3	11.5	9.5	10.1	9.5	8.0
S16	303360	206822	Suburban	100	100.0	11.6	8.8	10.0	9.7	8.2
S17	304942	206204	Kerbside	90.4	90.4	18.9	14.8	17.3	19.6	18.1
S18	305217	205880	Roadside	100	100.0	24.1	18.9	20.9	21.0	18.2
S19	305299	205865	Roadside	100	100.0	19.1	14.8	16.3	16.4	14.6
S20	305149	205906	Roadside	100	100.0	25.9	20.2	24.1	23.8	20.8
S21	305394	205871	Roadside	100	100.0	38.2	25.7	33.0	30.4	28.7
S22	305147	205906	Roadside	100	100.0	26.0	18.5	21.7	22.9	19.4
S23	304987	206411	Roadside	100	100.0	18.3	14.5	17.6	17.1	14.3
S24	305415	205863	Roadside	100	100.0	23.8	17.4	16.8	16.7	15.5
S25	307034	202698	Roadside	100	100.0	27.8	20.9	23.6	22.9	18.6
S26	305296	205895	Roadside	100	100.0	16.8	12.6	14.0	14.4	12.7
S27	305182	206138	Roadside	100	100.0	13.1	10.7	10.9	11.1	9.4
S28	305579	206811	Roadside	100	100.0	16.2	12.2	14.6	13.7	12.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2019	2020	2021	2022	2023
S29	307112	202547	Roadside	100	100.0	33.2	25.6	28.8	26.3	24.3
S30	303570	206676	Suburban	75	75.0	17.8	14.4	16.7	17.0	15.2
S31	304782	205886	Urban background	100	100.0	22.1	13.8	17.4	17.5	16.5
S32	304835	205924	Roadside	82.7	82.7	-	-	19.6	18.8	17.3
S33	304898	205929	Roadside	100	100.0	-	-	14.9	14.2	13.0
S34	304917	206009	Urban Centre	84.6	84.6	-	-	14.1	13.4	10.8
S35	304840	206058	Urban centre	100	100.0	-	-	11.8	11.2	10.9

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.

☒ Diffusion tube data has been bias adjusted.

☒ Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.

Notes:

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

Exceedances of the NO_2 annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

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

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

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

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

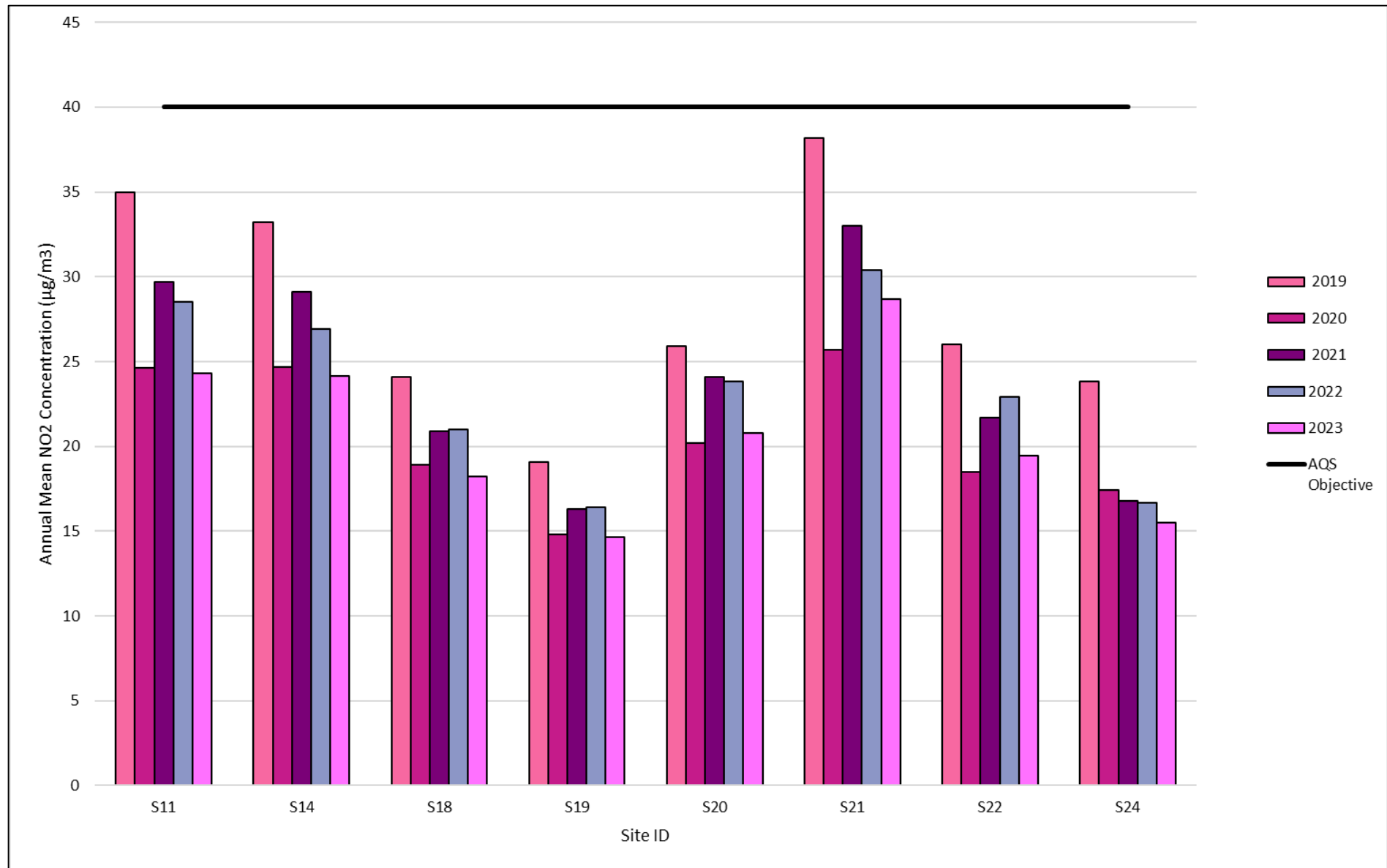
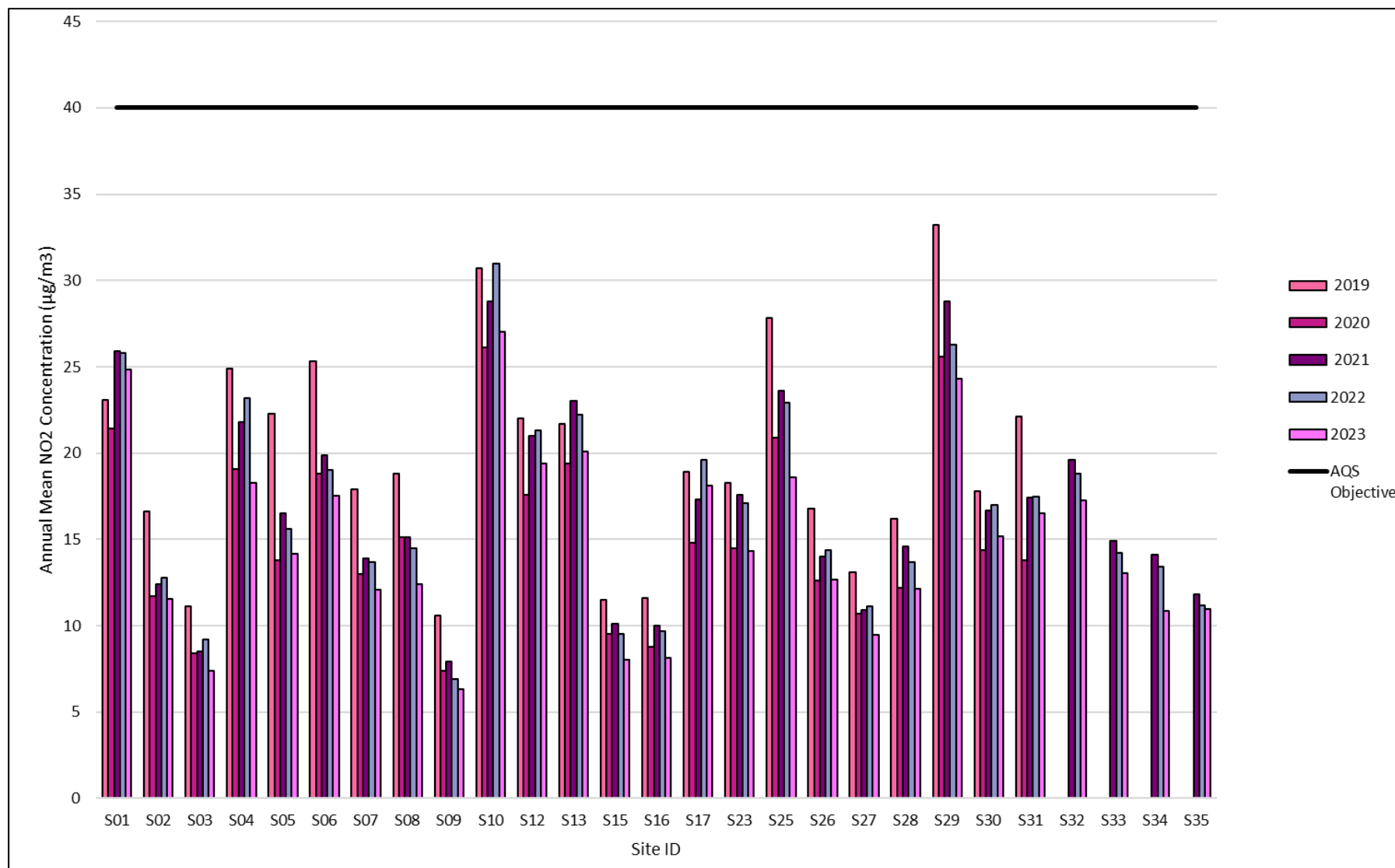
Figure 2.8 – Trends in Annual Mean NO₂ Concentrations at Twynyrodyn Road AQMA

Figure 2.9 – Trends in Annual Mean NO₂ Concentrations

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

2.3.1 Nitrogen Dioxide (NO₂)

Overall, observed NO₂ annual mean concentrations were higher in 2019. In 2020, these concentrations dropped in average a 24% throughout the district, due to the impact of COVID-19 and associated lock down measure, in comparison to the previous year (2019). In 2021, the concentrations had slightly increased but remained below the pre pandemic concentrations. In general, 2022 concentrations decreased compared with 2021. All sites observed a fall in concentrations in 2023 compared with 2022, with an average of 11% reduction within the borough. All sites observed concentrations more than 10% below the annual mean air quality objective up to 2020. At one site, located within the Council Air Quality Monitoring Area (AQMA), the observed concentration (38.2 µg/m³) in 2019 was within 10% of the annual mean air quality objective (36µg/m³). This site is within the council AQMA and as such, the AQMA was not compliant in 2019.

There are inherent uncertainties associated with monitoring NO₂ using diffusion tubes. To account for this, a revocation of an AQMA should be considered following three consecutive years of annual mean NO₂ concentrations being lower than 10% of the annual mean NO₂ AQS objective (36µg/m³). Additionally, as the LAQM Technical guidance¹ states, *it is not advisable for the revocation of an AQMA to be based solely upon compliance in a year not representative of long-term trends. For example, compliance being reached in 2020 may not be representative of long-term trends in pollutant concentrations due to the change in activity observed across the UK as a result of COVID-19 and associated lock down measures.* For this reason, and following a conservative approach, the revocation of the AQMA will be studied in 2025 when further monitoring data will be available and long-term trend will be better understood. MTCBC intends to continue monitoring and plans to revoke the AQMA in 2025 if concentrations remain below 10% of the AQS objectives.

In 2023, the highest concentration was 28.7µg/m³ and was observed at S21 located within Twynyrodyn Road AQMA. This concentration and all the other concentrations observed in 2023 are well below the 10% of the annual mean NO₂ AQS objective (36µg/m³).

¹ LAQM Technical Guidance TG(22). Defra 2022

Concentrations within the AQMA varied from $28.7\mu\text{g}/\text{m}^3$ to $14.6\mu\text{g}/\text{m}^3$. Outside the AQMA the highest concentration recorded was $27.0\mu\text{g}/\text{m}^3$ at S10, located at Park Place, Penydarren Road.

The Council now has at least 3 years' worth of robust data; this demonstrates the effectiveness of the traffic reversal implemented as a result of the 2018 action plan, in terms of both a general decrease in NO_2 concentrations in the Twynyrodyn area and demonstration that other routes such as Pontmorlais High Street have not been adversely impacted as a result.

Although there are concerns with the areas closer to the top of the hill approaching the Dowlais roundabout, the existing nearby monitoring location (Dowlais Upper – site S12, has consistently recorded NO_2 concentrations below 10% of the AQS objectives. There has been a marginal increase from 2021 to 2022, with the annual mean concentration during 2021 being $21.0\mu\text{g}/\text{m}^3$ compared to $21.3\mu\text{g}/\text{m}^3$, followed by a 9% decrease in 2023 ($19.4\mu\text{g}/\text{m}^3$).

2.4 Summary of Compliance with AQS Objectives as of 2023

Merthyr Tydfil County Borough Council has examined the results from monitoring in the borough. Concentrations are all below the objectives, therefore no further action is required.

If annual mean NO_2 concentrations remain below the objectives in 2024, MTCBC intends to revoke the Twynyrodyn Road AQMA in 2025.

3 New Local Developments

The Environmental Health Department is aware of planned developments through consultation on the planning process and the Local Development Plan. Presently, MTCBC is embarking on a 15-year plan which covers residential accommodation, public transport and active travel in and around the town centre.

An air quality assessment has been submitted as part of the outline application for the Rhydycar snow centre development. Impacts on air quality would include construction phase, particularly in terms of dust and particulates and increased traffic to and from the site via the A470 once in operation. The air quality report submitted indicates negligible impact on air quality once in operation. A copy of the Air Quality Assessment for the proposed mixed use leisure development at Rhydycar West, Merthyr Tydfil, CF48 1RW is available at: <https://www.merthyr.gov.uk/resident/planning-and-building-control/planning-search-and-weekly-lists/> - Planning ref: P/23/0065 (Outline application). The application for the proposed mixed leisure development at Rhyd-y-car West comprising of an indoor snow centre, water park, outdoor activity centre and ancillary hotel accommodation is as yet undecided. Should outline permission be granted, the Environmental Health department will make further comments on any full application submitted in future.

MTCBC is also aware of an undecided application to reinstate an historic planning permission for Vaynor Quarry (planning ref: P/22/0206). There is no indication at present as to when or if the site will again become operational.

3.1 Road Traffic Sources (and Other Transport)

As identified in previous reports and the Detailed Assessment in 2015, Twynyrodyn Road is a narrow, busy street with residential properties close to the kerb and remains the location of an AQMA. Despite an interruption to typical data for the area due to the pandemic, ongoing monitoring since demonstrates that the traffic reversal measures implemented have had a positive impact on Twynyrodyn Road. All sites along Twynyrodyn Road are now more than 10% below the AQS objective and no exceedances are anticipated. The highest recorded concentration of NO₂ along Twynyrodyn Road was 28.7µg/m³ in 2023 and reductions between 6 and 15 percent have been observed at different sites compared with 2022 within the AQMA. In 2017, the average NO₂ concentration in the AQMA was 33.0µg/m³. In 2023, the average NO₂ concentration in the

AQMA was $20.7\mu\text{g}/\text{m}^3$. This shows an overall average reduction of $12.3\mu\text{g}/\text{m}^3$, demonstrating that the traffic reversal has been effective.

3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

MTCBC is currently in receipt of a planning application to reinstate an historic planning permission to resume quarrying works and mineral extraction at the existing site, which has been mothballed since circa 2007 with works at the site being intermittent prior. The earliest commencement of operations, providing permission is granted, would be 2024 however, it is likely to be further in the future. An Environmental Report has been submitted in respect of the application which considers a number of issues including air quality. The potential for adverse effects on air quality from the proposed development would be a result of process contribution and road traffic emissions associated with the site.

The air quality element of the report includes a dust assessment for particulates in accordance with the IAQM (Institute for Air Quality Management) mineral dust guidance document. Additionally, modelling of road traffic emissions has been carried out using ADMS-Roads dispersion model (version 5.0.0.1). The Report also details operational and design measures to minimise dust emissions.

A copy of the Environmental Report submitted as part of the application can be viewed at: <https://publicaccess.merthyr.gov.uk/online-applications/> (ref: P/22/0206)

3.3 Other Sources

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

MTCBC confirms that all the following have been considered:

- Road traffic sources
- Other transport sources
- Industrial sources
- Commercial and domestic sources
- New developments with fugitive or uncontrolled sources.

Bonfires occur occasionally, both around the 5th November and in domestic gardens. As these occur on an isolated rather than continuous basis they are not considered likely to

significantly affect air quality. Some properties have installed domestic wood burners. This is on a scattered and random basis throughout the borough. Due to the scattered nature it is not considered to have significantly affected air quality. It is however important to note that proposed legislative changes detailed in the Welsh Government's White Paper on a Clean Air (Wales) Bill may see a reduction in any contribution to higher levels of pollutants as a result of solid fuel burning, if implemented.

MTCBC has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area:

- Rhyd-y-car West mixed leisure development (see page 35)
- Vaynor Quarry quarrying works and mineral extraction (see page 35 and 36)

Therefore, MTCBC will need to further consider the implications to local air quality arising from these developments.

4 Policies and Strategies Affecting Airborne Pollution

4.1 Local / Regional Air Quality Strategy

MTCBC have an informal strategy of addressing air quality. A network of diffusion tubes and one real-time monitor are used to assess air quality and to produce the required annual reports. Changes to the traffic network are regularly considered including whether these necessitate a change to the air quality monitoring network. MTCBC have taken steps to improve air quality by carrying out the traffic reversal on Pontmorlais High Street and Church Street as identified in the AQMA action plan.

The Environmental Health Department previously considered drawing up a written local air quality strategy to formalise the current approach. Although this not yet complete, the strategy will be finalised pending the outcome of the Clean Air Plan for Wales which proposes a new Clean Air Act for Wales. Once produced, it will be made available to the public on the MTCBC website.

4.2 Air Quality Planning Policies

The Local Development Plan 2016-2031 was adopted in January 2020. Environmental Health provided comments on candidate sites, including their potential to impact air quality. Development includes a small increase in industrial and commercial sites and a significant increase in residential sites, in particular a substantial housing development on the former Hoover site. The size of the site means that although increased residential use will affect air quality, it offers sustainable travel options being large enough to accommodate a Metro and/or Park and Ride facility. The size of modern properties in conjunction with the requirements for roadways and parking, mean canyon effects are unlikely therefore offering residents a degree of protection. As it is likely to be developed in phases by a large-scale single developer, this will allow mitigation measures to be considered during the planning process.

Also identified was the conversion of former offices to residential flats, within the town centre. Depending on the location, this may necessitate an expansion of the air quality monitoring network however, as the town centre is substantially pedestrianised or otherwise restricted, the air quality impact is not considered to be a major factor.

4.3 Local Transport Plans and Strategies

The Environmental Health Department has considered the Special Planning Guidance produced by various councils and is considering producing a SPG to require mitigation measures to offset some of the deterioration in air quality caused by increased residential use, particularly the introduction of domestic vehicles to an area. This will be explored further when a local air quality strategy is formalised. It should be noted however, that the increasing use of electric vehicles in addition to improved emissions technologies for new petrol and diesel vehicles is likely to produce an incrementally positive effect on emissions. The extent of this will depend on available infrastructure for charging as well as economic ability.

4.4 Active Travel Plans and Strategies

MTCBC's local transport plan is a part of the South East Valleys Local Transport Plan, with 4 other councils. These areas make up the capital city region in that they are within commuting distance of Cardiff.

The plan focusses on economic growth by improving commuting to Cardiff and Newport, and transport to encourage economic growth in other areas, social inclusion through providing transport to disadvantaged areas and improving environmental quality through safer, healthier and sustainable travel.

The plan considers various other related documents including the Wales Transport Strategy 2021 and the Active Travel (Wales) Act 2013. It incorporates the Cardiff Capital Region Metro, a plan to link various modes of transport to improve connectivity between Cardiff and the South East Valleys.

The aim is to offer other modes of transport than driving such as active travel (walking and cycling), regional rail and buses as well as highway improvements to ease congestion and assist in freight transport. Aims include integrating active travel and public transport to offer multi-modal alternatives to the car.

To carry out the aims of the LTP, MTCBC is expected to seek funding through sources including the private sector and Welsh Government funds. Under the LTP, MTCBC has developed the new bus interchange, now operational and will be providing, in conjunction with Transport for Wales a railway Park and Ride scheme serving Pentrebach station, improved pedestrian and cycle access to Merthyr College and Cyfarthfa Retail Park and to improve the Taff Trail for active travel. Additionally, the LTP covers the dualling of the

A465 Heads of the Valleys Road to improve West-East routes between the South East Wales Valleys, which is in the construction phase.

As part of MTCBC active travel plan, the River Walk crossing has been upgraded to improve pedestrian access links between the college and the town. A new crossing has also been installed at Lower High Street in conjunction with widening of footpaths in order to make the route into the town from the south end more pedestrian-friendly to therefore encourage more people to walk. It is aimed at encouraging healthier lifestyles and reducing the negative impacts of traffic on neighbourhoods and communities. The aim of improving the active travel routes is to encourage people to swap from car journeys to active travel methods. By reducing the number of journeys made by car, in particular short journeys, where car engines have little time to warm up and perform efficiently, air quality should improve.

4.5 Local Authorities Well-being Objectives

Air pollution is considered in the well-being objectives, specifically in relation to the Twynyrodyn AQMA. There are 4 key areas of well-being:

- Best start to life;
- Working life;
- Environmental well-being; and,
- Living well.

Implementation of the action plan to address the Twynyrodyn Road AQMA is a key performance indicator in environmental well-being and a specific project for working life. This is in addition to how air quality and congestion affects people's perception of the area and can slow journeys to work.

The key performance indicator set is that air quality along Twynyrodyn Road, should remain >10% below the AQS objective for NO₂. The Environmental Health Department reports on progress towards this performance indicator at scrutiny meetings. Since the traffic reversal on 28th May 2019 and despite anomalous data for much of 2020, data for 2021, 2022 and 2023 have shown that all sites along Twynyrodyn Road have remained well below 10% the AQS objective for NO₂.

4.6 Green Infrastructure Plans and Strategies

Active travel aims to improve access for walking, including the use of mobility scooters and cycling. It addresses routes to schools, workplaces, shops and services such as healthcare and leisure. It does not address walking or cycling for recreational purposes. MTCBC has improved various walking and cycling routes. Within the next 5 years, new routes will be developed and in 5 or more years, routes will be developed or improved subject to feasibility studies.

Expansion of active travel routes such as additional cycle tracks, maintenance of existing routes and improved infrastructure in favour of active travel aims to further improve car-less travel by way of improved connectivity with the new multi-modal, integrated transport network for the heads of the valleys and capital region. Part of this network is the new bus interchange which is located close to the proposed metro station. Works to the Merthyr Tydfil section of the rail line have now commenced.

The River Walk crossing has been upgraded to improve pedestrian access links between the college and the town. A new crossing has also been installed at Lower High Street in conjunction with widening of footpaths in order to make the route into the town from the south end more pedestrian-friendly to therefore encourage more people to walk.

It is aimed at encouraging healthier lifestyles and reducing the negative impacts of traffic on neighbourhoods and communities. The aim of improving the active travel routes is to encourage people to swap from car journeys to active travel methods. By reducing the number of journeys made by car, in particular short journeys, where car engines have little time to warm up and perform efficiently, air quality should improve.

4.7 Climate Change Strategies

The well-being objectives include the need to limit climate change. Low carbon usage contributes towards the objectives of a prosperous Wales and a resilient Wales. The well-being objectives for MTCBC include, under 'environmental well-being', the key performance indicator of carbon management of local authority buildings and fleet. Carbon dioxide (CO₂) emissions from local authority buildings reduced from 2016/2017 to 2018/2019 and there are targets to reduce emissions further. This is in order to comply with Welsh Government's plan for the Welsh Public Sector to be carbon neutral by 2030. At the time of writing, MTCBC have developed and published its 'Decarbonisation Plan 2023 – 2030', which can be downloaded [here](#), in line with the Welsh Government's

objective mentioned above. Additionally, the Clean Air Bill for Wales proposes to lower AQS objectives for key pollutants.

5 Conclusion and Proposed Actions

5.1 Conclusions from New Monitoring Data

Data for 2019 following implementation of the traffic flow reversal (post-period 6) showed a decrease in concentrations of NO₂ within the AQMA. On 2019, all sites but one within the AQMA were more than 10% below the AQS objective, with the monitoring location at 51 Twynyrodyn Road being the only site which, although was below the AQS objective, remained within 10% of it. This may have been attributable to periods 1-6 providing data for pre-traffic flow reversal, which were similar to years 2016, 2017 and 2018 where the AQS objective was exceeded each year respectively. As such, it was anticipated that once a whole year of typical data was obtained, the concentration for 51 Twynyrodyn Road would fall more than 10% below the AQS objective over the following year. Annual concentrations of NO₂ within the AQMA for all other monitoring locations fell well below the AQS objective during 2019. During 2020, the reduction was expected due to the pandemic as mentioned previously however, due to the reduction during the second half of 2019, it was expected to remain below the AQS objective going forward. 2021 data did indeed show that the NO₂ concentration for 51 Twynyrodyn Road being 33µg/m³ for that year had reduced to well below 10% of the AQS objective. There has been a further reductions of the annual mean NO₂ concentrations at 51 Twynyrodyn Road for 2022 and 2023 being 30.4µg/m³ and 28.7µg/m³ respectively.

Legacy impacts of the pandemic appeared to have created some beneficial effects on air quality in terms of changes to ways of working and increased home-working, resulting in fewer car journeys. It was therefore determined that the AQMA should remain in place for continued monitoring to obtain a sufficiently longer-term dataset from which future decisions regarding the AQMA can be made. Similarly to 2020, in 2021 pollutant concentrations continued to be impacted by the change in typical activity that resulted from COVID-19 restrictions. MTCBC is presently in a possession of 2 full years of data which demonstrates compliance with the AQS objective and as such plans to revoke the AQMA in 2025 by which time 3 years of data will be available. This is based on the assumption that data for 2024 will also be compliant with the AQS objective. Should this not be the case, then MTCBC will need to delay revocation of the AQMA pending further investigation and development of future air quality management plans.

Previous reports highlighted congestion and year on year exceedances of the NO₂ AQS objective from 2016 to 2018 at 6/7 Ladysmith Place attributable to bottlenecks associated with dropping off and picking up at Troedyrhiw Community Primary School, although it did not exceed the AQS objective in 2019. Indications from the data following implementation of a temporary one-way system in 2019 suggested the improved traffic flow had reduced the concentration of NO₂. NO₂ concentrations for 6/7 Ladysmith Place for 2021 were 28.8µg/m³, 26.3µg/m³ for 2022 and 24.2µg/m³ in 2023. As such, no actions are currently being considered for this location however, should continued monitoring indicate an increase in levels to within 10% of the AQS objective, actions may then be considered.

5.2 Conclusions relating to New Local Developments

The development of most concern in terms of air quality is the continued dualling of the A465 and its associated diversions. The works are scheduled for completion during 2025, with a number of diversions in place for the duration, some of which may be in place for a number of months. Areas likely to be affected are Dowlais, Twynnyrodyn, Town Centre with congestion expected at Cyfarthfa Retail Park and Park/Trago Mills roundabout.

The impact on air quality may be unavoidable as the scheme has been assessed as necessary for the long-term well-being of Wales and will ultimately benefit the Merthyr Tydfil County Borough. As any negative effect will be temporary, it is not considered necessary to take action at this time. This will be reviewed if any diversions remain in prolonged use, the data indicates exceptionally high concentrations of NO₂ or if the public raise health concerns that warrant investigation. Concerns have been raised in Dowlais as a result of increased traffic queues however, the monitoring location along the road has not to date recorded any exceedances of the AQS objective.

5.3 Other Conclusions

As discussed in this and previous reports, further monitoring was necessary to assess the longer-term effectiveness of the implemented measures in accordance with the 2018 Action Plan in relation to the existing AQMA. Although data for 2021, 2022 and 2023 have demonstrated all sites within the Borough are well below 10% of the AQS objective, MTCBC's aim has been to obtain sufficient longer-term data in this respect before considering revocation of the AQMA. Monitoring continues at all sites through 2024 and exceedances are not anticipated. Should this be the case then it will be considered feasible to revoke the AQMA in 2025. Consultation will be carried out to ensure there is

minimal possibility that a further AQMA would need to be declared again in the Twynnyroddyn area.

In the long term, the focus of the Local Transport Plan on providing alternatives to using cars should contribute to improved air quality. Similarly, improvements to the existing vehicle fleet as older vehicles are replaced and additionally, the increase in use of electric vehicles and improved emissions technologies to new petrol and diesel vehicles should also contribute to improved air quality.

The Environmental Health Department will continue to monitor air quality and will look to produce an air quality strategy and are considering special planning guidance around air quality.

5.4 Proposed Actions

The following actions are proposed to address air quality:

- No new AQMAs will be declared in 2024.
- MTCBC plans to revoke the existing AQMA in 2025 should data for 2024 continue to show compliance with the AQS objective throughout the AQMA. This will mean MTCBC will have 3 full years representative of long-term trends of data demonstrating compliance with the AQS objective.
- Monthly monitoring data to date from 6/7 Ladysmith Place indicates that although bottlenecks exist, the NO₂ concentrations at the site remain within the AQS objective.
- NO₂ concentrations at monitoring locations near diversions associated with the dualling of the A465 will be closely monitored as the scheme progresses and the Environmental Health Department meets regularly with the Future Valleys Construction, the main contractor overseeing the scheme.
- Research into establishing an alternative to the current AQMesh pod (TEOM), with equipment which is equivalent to the reference method.
- Work will continue on a local Air Quality Strategy.

References

1. Defra. (2024). Emissions of air pollutants in the UK – Nitrogen oxides (NO_x). Available at: [https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-nitrogen-oxides-nox#:~:text=Nitrogen%20oxides%20\(NOx\)%20refers%20to,which%20is%20harmful%20to%20health](https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-nitrogen-oxides-nox#:~:text=Nitrogen%20oxides%20(NOx)%20refers%20to,which%20is%20harmful%20to%20health) Last access: 23/09/2024

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: AQMesh pod (TEOM) Monitoring Results

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

Table A.1 – Full Monthly Diffusion Tube Results for 2023 (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S01	305042	206524	39.1	39.1	25.2	36.2	27.2	26.0			31.8	33.2	34.4	26.2	31.8	24.8		
S02	304743	206261	18.3	17.1	12.3	13.2	11.0		10.6	12.1	14.7	18.4	21.0	14.4	14.8	11.6		
S03	305832	205941	12.9	14.2	7.7	9.4	9.7	7.2	6.0	7.5	10.9			9.2	9.5	7.4		
S04	305001	205763	19.2	32.3	25.1	27.5		10.5	18.5	25.0	29.4	25.4		21.6	23.5	18.3		
S05	305140	205910	25.1	24.6	15.8	19.3	14.0	13.5	13.6	15.4	14.5	21.1	26.5	14.4	18.2	14.2		
S06	305426	205144	29.2	32.2	16.9	20.4	17.5	18.7	17.7	21.5	21.9	22.3	28.1	22.9	22.4	17.5		
S07	309640	197033	18.6	20.3	12.3	19.8	17.5	12.2	10.1	12.3	14.9	17.4	19.0	11.9	15.5	12.1		
S08	304866	206137	22.2	22.4	13.8	14.7	13.2	13.0	10.7	13.2	16.4	20.1		15.0	15.9	12.4		
S09	303525	206388	9.4	11.2	6.8	8.8	7.2	6.2	3.6	7.6	7.6	11.0	13.0	5.2	8.1	6.3		
S10	305180	206744	30.6	43.1	32.7	39.4	31.8	33.3	29.2	29.3	39.0	38.6	38.1	31.0	34.7	27.0		
S11	305382	205872	41.5	45.0	28.9	34.6	39.9	32.8	23.1	21.6	30.2	23.2	19.6	33.4	31.2	24.3		
S12	307171	207915	26.1	35.0	21.7	27.2	21.9	24.9	17.8	23.3	28.7	29.7	25.0	17.0	24.9	19.4		
S13	304947	206261	23.3	37.2	21.7	21.6	19.8	19.5	20.9	19.9	25.9	31.5	38.0	29.5	25.7	20.1		
S14	305410	205410	37.4	45.4	26.4	31.2	34.8	29.6	20.8	28.9	27.3	32.4	32.4	25.1	31.0	24.2		
S15	309573	196518	13.1	13.3	10.2		9.2	7.3	6.7	8.9	10.4	7.5	15.7	10.8	10.3	8.0		
S16	303360	206822	5.0	14.3	9.4	10.9	8.2	8.6	6.9	9.7	12.8	13.4	16.3	9.9	10.5	8.2		
S17	304942	206204	30.3	26.8		20.8	18.8	17.4	14.6	20.6	21.5	25.4	34.0	25.4	23.2	18.1		
S18	305217	205880	22.2	31.9	21.9	22.2	20.5	22.9	18.2	19.0	23.3	27.5	27.1	23.6	23.4	18.2		
S19	305299	205865	18.4	27.2	17.5	18.3	17.2	14.6	15.2	15.8	16.9	18.2	27.8	17.9	18.8	14.6		
S20	305149	205906	29.0	36.1	26.4	32.7	30.9	23.0	16.8	24.4	27.8	32.5	30.8	9.3	26.6	20.8		
S21	305394	205871	39.4	51.3	26.6	39.1	42.9	35.1	25.8	30.1	31.9	39.3	46.5	33.5	36.8	28.7		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S22	305147	205906	29.7	33.3	24.5	27.0	18.4	23.4	21.3	22.7	29.3	20.9	24.5	23.8	24.9	19.4		
S23	304987	206411	12.0	27.0	16.9	19.7	18.9	18.2	11.9	17.5	20.4	23.0	16.0	18.7	18.4	14.3		
S24	305415	205863	19.1	25.9	18.9	21.7	16.0	17.9	14.0	17.3	20.5	22.7	26.6	18.0	19.9	15.5		
S25	307034	202698	31.5	34.8	22.8	23.2	20.8	20.9	18.2	21.7	24.2	16.6	30.7	20.6	23.8	18.6		
S26	305296	205895	19.9	21.1	15.2	17.8	12.5	14.5	10.2	13.2	14.4	20.1	21.6	14.2	16.2	12.7		
S27	305182	206138	13.7	16.1	11.7	11.7	8.2	8.6	7.6	11.2	12.4	14.5	17.5	12.1	12.1	9.4		
S28	305579	206811	20.9	20.5	12.9	16.3	11.8	12.8	10.3	13.7	14.8	16.8	21.8	14.4	15.6	12.2		
S29	307112	202547	41.7	41.8	29.1	31.7	26.9	24.7	20.0	26.7	31.3	28.1	40.5	31.2	31.1	24.3		
S30	303570	206676	24.2	23.4	20.2	22.0	16.4	17.2	12.6				23.3	16.0	19.5	15.2		
S31	304782	205886	21.4	25.8	21.2	25.6	19.8	21.0	13.1	16.6	22.2	26.6	25.1	15.5	21.2	16.5		
S32	304835	205924	21.0	24.0	20.1	21.7	19.2			16.1	22.9	26.5	29.3	20.8	22.2	17.3		
S33	304898	205929	21.0	22.5	15.5	16.1	12.3	13.4	11.4	14.1	17.7	20.5	20.8	15.1	16.7	13.0		
S34	304917	206009			11.7	15.3	10.3	10.8	8.7	12.8	15.6	19.6	19.8	14.5	13.9	10.8		
S35	304840	206058	15.9	17.7	11.4	12.6	10.5	8.5	11.3	11.5	17.4	16.5	23.5	11.5	14.0	10.9		

- ☒ All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table A.1.
- ☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.
- ☐ Local bias adjustment factor used.
- ☒ National bias adjustment factor used.
- ☒ Where applicable, data has been distance corrected for relevant exposure in the final column.
- ☒ MTCBC confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

Appendix B: A Summary of Local Air Quality Management

5.5 Purpose of an Annual Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in the Environment Act 1995, as amended by the Environment Act 2021, and associated government guidance. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas and to determine whether or not the air quality objectives are being achieved. Where exceedances occur, or are likely to occur, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) within 18 months of declaration setting out the measures it intends to put in place in pursuit of the objectives. Action plans must then be reviewed and updated no later than every five years; or if a local authority considers there is a need for further or different measures to be taken in order to achieve air quality standards; or if significant changes to sources occur within your local area.

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

5.6 Air Quality Objectives

The air quality objectives applicable to LAQM in Wales are set out in the Air Quality (Wales) Regulations 2000, No. 1940 (Wales 138), Air Quality (Amendment) (Wales) Regulations 2002, No 3182 (Wales 298), and are shown in Table B.1.

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

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

Appendix C: Air Quality Monitoring Data QA/QC

5.7 QA/QC of Diffusion Tube Monitoring

Diffusion tubes were manufactured and analysed by Socotec Didcot. The absorbent is analysed for NO₂ concentration using 50% TEA in acetone. Diffusion tubes were kept and used in accordance with the manufacturer's instructions and were left out for a minimum of 4 weeks with the exception of the period 5, where the diffusion tube exposure period was shorter than the recommended 4 weeks (-4 days).

Precision is the ability of a measurement to be consistently reproduced. Diffusion tubes are defined as having good precision when the coefficient of variation between triplicate tubes is <20% for 8 periods out of 12, and <10% overall. In 2023 good precision was found in 32 out of 34 co-location studies. As such the precision for diffusion tubes used in Merthyr Tydfil County Borough is considered good.

AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme. AIR offers a number of test samples designed to test the proficiency of laboratories undertaking analysis of chemical pollutants in ambient indoor, stack and workplace air. For the 2023 period, the percentage of results submitted by SOCTEC that were deemed to be satisfactory was 100% for all rounds reported at the time of writing (rounds AR055 [Jan – Feb 2023], AR056 [May – June 2023], AR058 [July – Aug 2023] and AR059 [Sept – Oct 2023]). Further information about this scheme is available on the [DEFRA webpage](#).

Diffusion tubes were installed according to the annually published Tube Monitoring Calendar available at [Defra webpage](#), with the exception of period 5 on which the tubes were changed +6 days beyond the due date respectively. On other periods (6, 7 and 8) tubes were changed up to 2 days before or after the due date, this does not cause an issue with the dataset.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within MTCBC recorded data capture of 75% or more therefore it was not required to annualise any monitoring data.

Diffusion Tube Bias Adjustment Factors

MTCBC have applied a national bias adjustment factor of 0.78 to the 2023 monitoring data. A summary of bias adjustment factors used by MTCBC over the past five years is presented in Table C.1.

The diffusion tubes used by MTCBC were provided and analysed using a solution of 50% TEA in Acetone by Socotec Didcot. The national bias adjustment factor version 06/24 for this laboratory and method include 34 studies. The list and results of the studies is shown in Figure C 1.

Figure C 1 Studies involved in the national bias adjustment factor utilized

Analysed By ¹	Method ² <small>Transducer calibration, choice (M1) from the spreadsheet</small>	Year ³ <small>Transducer calibration, choice (M1)</small>	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu\text{g}/\text{m}^3$)	Automatic Monitor Mean Conc. (Cm) ($\mu\text{g}/\text{m}^3$)	Bias (B)	Tube Precision ⁴	Bias Adjustment Factor (A) (Cm/Dm)
SOCOTEC Didcot	50% TEA in acetone	2023	UB	City Of York Council	11	15	12	27.3%	G	0.78
SOCOTEC Didcot	50% TEA in acetone	2023	R	City Of York Council	11	22	17	26.8%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2023	R	City Of York Council	3	22	17	33.7%	G	0.75
SOCOTEC Didcot	50% TEA in acetone	2023	R	City Of York Council	10	31	25	26.1%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2023	UB	Gravesham Borough Council	12	19	15	25.6%	G	0.80
SOCOTEC Didcot	50% TEA in acetone	2023	UB	Gravesham Borough Council	12	23	19	18.4%	G	0.84
SOCOTEC Didcot	50% TEA in acetone	2023	R	Ipswich Borough Council	3	26	20	33.0%	G	0.75
SOCOTEC Didcot	50% TEA in acetone	2023	R	Ipswich Borough Council	12	36	27	34.3%	G	0.74
SOCOTEC Didcot	50% TEA in acetone	2023	R	North East Lincolnshire Council	12	43	26	61.9%	G	0.62
SOCOTEC Didcot	50% TEA in acetone	2023	UB	North East Lincolnshire Council	10	13	10	29.1%	G	0.77
SOCOTEC Didcot	50% TEA in acetone	2023	R	North East Lincolnshire Council	11	24	21	18.0%	G	0.85
SOCOTEC Didcot	50% TEA in acetone	2023	R	Cardiff Council / Shared Regulatory Services	11	41	34	22.2%	G	0.82
SOCOTEC Didcot	50% TEA in acetone	2023	UB	Torfaen County Borough Council	11	12	9	43.3%	G	0.70
SOCOTEC Didcot	50% TEA in Acetone	2023	R	East Suffolk Council	12	29	21	38.3%	G	0.72
SOCOTEC Didcot	50% TEA in Acetone	2023	R	Wrexham County Borough Council	11	17	14	25.2%	G	0.80
SOCOTEC Didcot	50% TEA in Acetone	2023	R	Horsham District Council	12	21	17	23.5%	G	0.81
SOCOTEC Didcot	50% TEA in acetone	2023	R	Horsham District Council	3	25	17	43.1%	G	0.70
SOCOTEC Didcot	50% TEA in acetone	2023	R	Horsham District Council	10	23	23	-2.3%	G	1.02
SOCOTEC Didcot	50% TEA in Acetone	2023	UI	North Lincolnshire Council	10	14	11	26.2%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2023	R	Bridgend Council	11	32	27	20.6%	G	0.83
SOCOTEC Didcot	50% TEA in acetone	2023	R	Cambridge City Council	12	22	18	24.8%	G	0.80
SOCOTEC Didcot	50% TEA in acetone	2023	R	Leeds City Council	10	39	29	32.3%	G	0.76
SOCOTEC Didcot	50% TEA in acetone	2023	KS	Leeds City Council	10	30	20	48.3%	G	0.67
SOCOTEC Didcot	50% TEA in acetone	2023	R	Leeds City Council	12	25	19	30.0%	G	0.77
SOCOTEC Didcot	50% TEA in acetone	2023	UC	Leeds City Council	11	26	19	40.0%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2023	KS	Marleybone Road intercomparison	11	53	38	41.4%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2023	R	Vale Of White Horse District Council	10	22	18	21.2%	G	0.83
SOCOTEC Didcot	50% TEA in acetone	2023	UB	Wirral Council	11	15	13	16.7%	G	0.86
Socotec Didcot	50% TEA in acetone	2023	R	Dacorum Borough Council	11	21	18	12.0%	P	0.89
Socotec Didcot	50% TEA in acetone	2023	R	Derry City And Strabane District Council	10	33	34	-3.8%	G	1.04
Socotec Didcot	50% TEA in acetone	2023	UB	Derry City And Strabane District Council	10	11	8	37.1%	P	0.73
Socotec Didcot	50% TEA in acetone	2023	R	Horsham District Council	12	21	16	31.4%	G	0.76
Socotec Didcot	50% TEA in acetone	2023	R	Waverley Borough Council	12	24	18	31.9%	G	0.76
Socotec Didcot	50% TEA in acetone	2023	R	Waverley Borough Council	12	26	19	35.8%	G	0.74
SOCOTEC Didcot	50% TEA in acetone	2023		Overall Factor⁵ (34 studies)				Use		0.78

Table C.1 – Bias Adjustment Factor

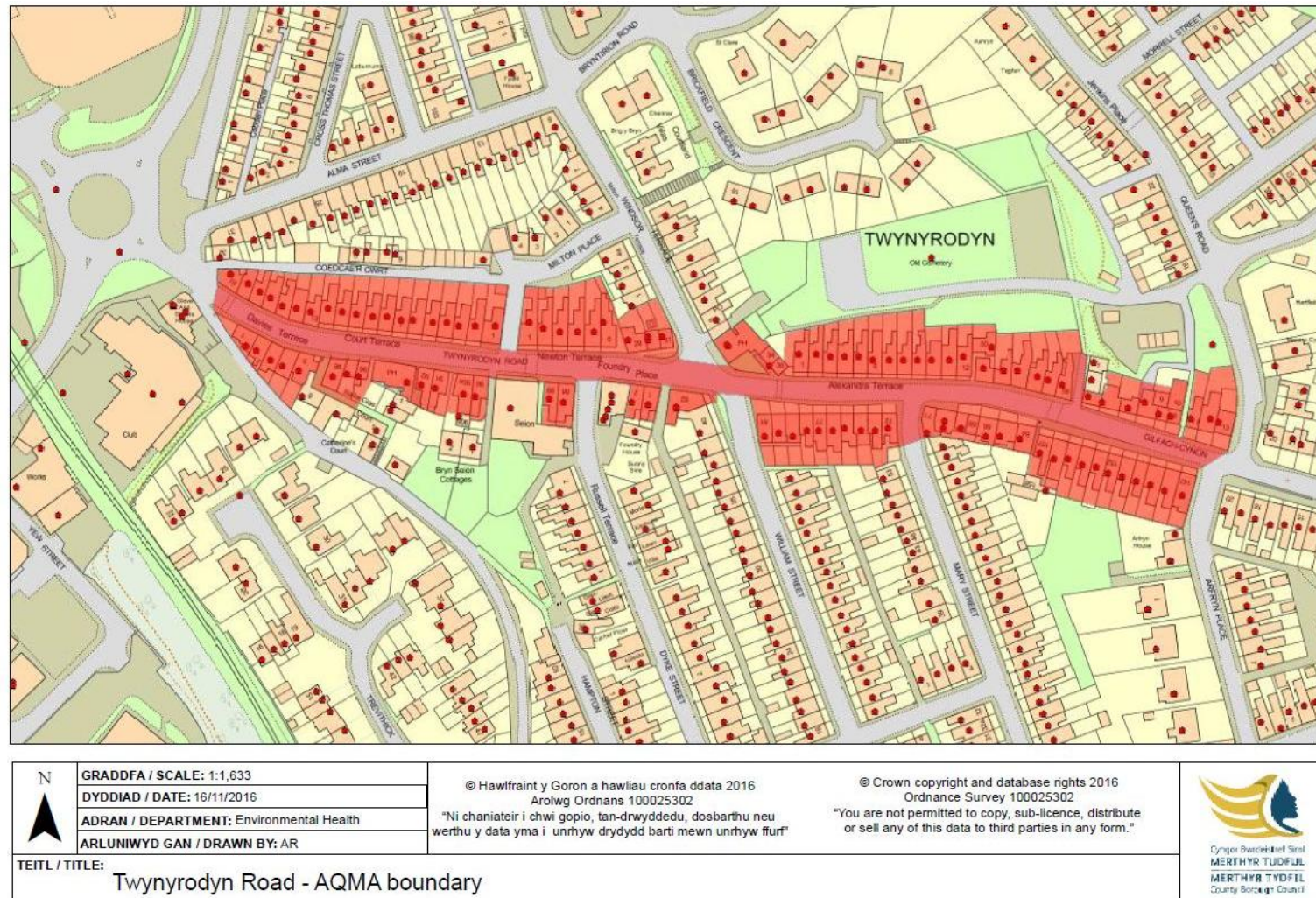
Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	06/24	0.78
2022	National	06/23	0.76
2021	National	06/21	0.78
2020	National	09/20	0.76
2019	National	06/19	0.75

NO₂ Fall-off with Distance from the Road

No diffusion tube NO₂ monitoring locations within MTCBC required distance correction during 2023.

Appendix D: AQMA Boundary Maps

Figure D.1 – Twynyrodyn Road AQMA boundary



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
AQS	Air Quality Strategy
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
MTCBC	Merthyr Tydfil County Borough Council
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

Appendix E: AQMesh pod (TEOM) Monitoring Results

MTCBC implements an AQMesh pod to continuously monitor particulate matter within the borough. The AQMesh pod uses TEOM (Tapered Element Oscillating Microbalance) technology which is not an approved reference method. This monitor provides useful indicative measurements and is being used for this purpose. An updated proficiency testing, 'Summary of Laboratory Performance in AIR NO₂ Proficiency Testing Scheme (May 2022 – June 2024)' is available in this link:

<https://laqm.defra.gov.uk/air-quality/air-quality-assessment/qa-qc-framework/>.

In 2023, the monitor was initially co-located with the diffusion tube S23. On September 6th, the monitor was moved to Dowlais High Street further to complaints received regarding increased traffic queues through Dowlais up to Dowlais Top roundabout, due to the dualling project of the A465 road works. There is an existing DT monitoring point in Dowlais (S12). The AQMesh pod is not located with the existing Dowlais DT but is further up, where the complaints were more focussed.

Only data from August 4th onwards is available for 2023 for the AQMesh pod.

The average concentration from August 4th to September 5th was 21.2µg/m³. This corresponds to the period when the AQMesh pod was co-located with the diffusion tube at site S23.

From September 6th to December 31st the tube was located at Dowlais top roundabout. The average for these approximately four months period, was 31.0µg/m³ for Dowlais Top roundabout. As the AQMesh pod it is not an accredited piece of equipment, the data has not been annualised. Anecdotally, traffic queues have reduced in line with removal of the two temporary smaller roundabouts and reversion back to one large roundabout at Dowlais top.

Although one whole year of data is not available for the locations, the telemetry data from the AQMesh pod have not indicated that further measurements need to be taken at the locations before mentioned. MTCBC will continue to monitor the areas and will regularly evaluate the need to relocate the AQMesh pod monitor or increase the diffusion tube monitoring network.