Merthyr Tydfil County Borough Council 2025 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 2025

Information	Merthyr Tydfil County Borough Council
Local Authority Officer	Lucy Marley
Department	Environmental Health Department
Address	Civic Centre Castle Street Merthyr Tydfil CF47 8AN
Telephone	01685 725000
E-mail	Lucy.Marley@merthyr.gov.uk
Report Reference Number	MTCBC/APR/2025
Date	September 2025

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 (NO_x = NO + NO_2) are formed during the combustion of fossil fuels. It is estimated that, on average in 2023, 68% of the NO_2 concentrations at the roadside originate as NO_x emissions from road transport Defra 2025. As such, MTCBC is concerned about roadside NO_2 concentrations. A passive diffusion tube air quality monitoring network is implemented throughout the district.

The NO_2 concentrations experienced an average 24% drop throughout the district in 2020, due to the impact of COVID-19 and associated lock down measures, in comparison to the previous year (2019). Despite a slight increase in concentrations following the lifting of lockdown measures, all sites have remained more than 10% below the annual mean air quality objective (AQS 40 µg/m^3), including those situated within the Council's Air Quality Management Area (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 (AQS 40 µg/m^3) for NO_2 were observed. The observed concentrations were associated with road 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 the 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 via Twynyrodyn Road. Traffic build-up appears to have shifted away from the AQMA with fewer queues developing on Twynyrodyn Road.

Since 2020, all monitoring sites within the AQMA have remained more than 10% below the AQS objective. From 2021 the concentrations within the AQMA have been decreasing and the overall downward trend has continued into 2024. Whilst 2020 was a compliant year in terms of concentrations, it is disregarded as anomalous for reasons stated above. 2021 up to and including 2024 provide a longer-term data set which demonstrates year on

year compliance, in addition to an overall reduction at each site within the AQMA. As such, MTCBC is confident that the traffic reversal measures implemented in 2019 have been successful and it is now in a position to propose revocation of the AQMA.

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 was 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.

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 has not significantly increased concentrations of NO_2 along Pontmorlais High Street or any other diversion route.

NO_2 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. Continued monitoring and demonstration that concentrations remain more than 10% below the AQS objective will allow the AQMA to be revoked in 2025.

Although concentrations within the AQMA have remained more than 10% below the annual mean air quality objective since the traffic reversal, MTCBC has also closely monitored some other sites, the concentrations for which previously measured within 10% of the annual mean air quality objective however, these have since also demonstrated concentrations of more than 10% below the annual mean air quality objective. These have been discussed in previous annual reports.

MTCBC continues to study the measured concentrations across the current monitoring network alongside traffic patterns. If new heavy traffic areas that may detrimentally affect air quality are identified, new monitoring locations can be added to the network. This was the case in 2021 when four new monitoring locations were added around the new bus interchange at Swan Street. Similarly, should concentrations at any of the monitoring locations increase to within 10% or exceed the AQS objective, additional works will be considered in updated action plans.

The current focus in addition to continued operation of the existing monitoring network, is to seek approval to revoke the Twynyrodyn AQMA. This report will inform the proposal, which if approved will mean the AQMA will be revoked and Merthyr Tydfil County Borough will have no active AQMA's. Further work to monitor success of the proposed revocation will be carried out to support the decision post-revocation.

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.

Table of Contents

Executive Summary: Air Quality in Our Area i
Air Quality in Merthyr Tydfil County Borough Council i
Actions to Improve Air Quality ii
Local Priorities and Challenges iii
How to Get Involved iv
1 Actions to Improve Air Quality 1
1.1 Previous Work in Relation to Air Quality 1
1.2 Air Quality Management Areas 8
1.3 Implementation of Action Plans 10
2 Air Quality Monitoring Data and Comparison with Air Quality Objectives 20
2.1 Summary of Monitoring Undertaken in 2024 20
2.1.1 Automatic Monitoring Sites 20
2.1.2 Non-Automating Monitoring Sites 20
2.2 2024 Air Quality Monitoring Results 31
2.3 Comparison of 2024 Monitoring Results with Previous Years and the Air Quality Objectives 37
2.3.1 Nitrogen Dioxide (NO_2) 37
2.3.2 Particulate Matter (PM_{10}) 38
2.3.3 Particulate Matter ($PM_{2.5}$) 38
2.3.4 Other Pollutants Monitored (optional) 38
2.4 Summary of Compliance with AQS Objectives as of 2024 39
3 New Local Developments 40
3.1 Road Traffic Sources (and Other Transport) 41
3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources 41
3.3 Other Sources 41
3.4 Bonfires / Incidents ..... **Error! Bookmark not defined.**
3.5 Firework Displays ..... **Error! Bookmark not defined.**
3.6 Domestic Wood Burners ..... **Error! Bookmark not defined.**
4 Policies and Strategies Affecting Airborne Pollution 43
4.1 Local / Regional Air Quality Strategy 43
4.2 Air Quality Planning Policies 43
4.3 Local Transport Plans and Strategies 44
4.4 Active Travel Plans and Strategies 44
4.5 Local Authorities Well-being Objectives 45
4.6 Green Infrastructure Plans and Strategies 46
4.7 Climate Change Strategies 47
5 Conclusion and Proposed Actions 48

5.1 Conclusions from New Monitoring Data 48
5.2 Conclusions relating to New Local Developments 49
5.3 Other Conclusions 50
5.4 Proposed Actions 50
References 52
Appendices 54
Appendix A: Quality Assurance / Quality Control (QA/QC) Data 55
Appendix B: A Summary of Local Air Quality Management 57
5.5 Purpose of an Annual Progress Report 57
5.6 Air Quality Objectives 57
Appendix C: Air Quality Monitoring Data QA/QC 59
5.7 QA/QC of Diffusion Tube Monitoring 59
Diffusion Tube Annualisation 59
Diffusion Tube Bias Adjustment Factors 60
NO_2 Fall-off with Distance from the Road 60
5.8 QA/QC of Automatic Monitoring ..... **Error! Bookmark not defined.**
PM_{10} and $PM_{2.5}$ Monitoring Adjustment ..... **Error! Bookmark not defined.**
Automatic Monitoring Annualisation ..... **Error! Bookmark not defined.**
NO_2 Fall-off with Distance from the Road ..... **Error! Bookmark not defined.**
Appendix D: AQMA Boundary Maps 62
Glossary of Terms 63

Tables

Table 1.1 – Declared Air Quality Management Areas.....9
Table 1.2 – Progress on Measures to Improve Air Quality 13
Table 2.2 – Details of Non-Automatic Monitoring Sites 21
Table 2.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3) 31

Figures

Figure 1.1 – Timeline of events for the Twynyrodyn Road AQMA 12
Figure 2.1 – Maps of Non-Automatic Monitoring Sites.....24
Figure 2.2 – Map of S12 Non-Automatic Monitoring Site 25
Figure 2.3 – Map of Non-Automatic Monitoring Sites.....26
Figure 2.4 – Map of Non-Automatic Monitoring Sites inclusive of AQMA and AQMA monitoring locations.....27
Figure 2.5 – Map of Non-Automatic Monitoring Sites.....28
Figure 2.6 – Map of Non-Automatic Monitoring Sites.....29
Figure 2.7 – Map of Non-Automatic Monitoring Sites.....30
Figure 2.8 – Trends in Annual Mean NO_2 Concentrations at Twynyrodyn Road AQMA ...34
Figure 2.9 – Trends in Annual Mean NO_2 Concentrations 35
Figure 2.10 – Trends in Annual Mean NO_2 Concentrations in areas of concern following traffic reversal 36

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.

Report Title	Year	Outcomes
		Progress report 2007 found NO_2 levels had increased but within AQS objective of 40µg/m³ at all locations. Level at 55 Twynyrodyn Road was within 10% of the limit and monitoring network expanded in this area. Progress report 2008 found levels increased and at 55 Twynyrodyn Road, a marginal exceedance identified. Considered necessary to proceed to detailed assessment.
Detailed assessment	2009	Reviewed data for monitoring sites on Twynyrodyn Road and modelled NO_2 levels for length of the road. Recommended siting of additional diffusion tubes at various points on road and declaring AQMA.
Updating and screening assessment and progress reports	2009-2011	NO_2 reduced, AQS objectives met at all locations with relevant public exposure. 2010 progress report determined based on reduction no longer necessary to carry out further detailed assessment or declare AQMA. Detailed assessments necessary for 2 new permitted processes and 1 substantially changed installation. Progress report 2011 found NO_2 levels had increased throughout the borough, with marked exceedance at 55 Twynyrodyn Road. Considered necessary to increase number of monitoring sites on Twynyrodyn Road prior to declaring AQMA in relation to this site.
Detailed assessment	2011	Reviewed emissions data from Prince Charles Hospital combustion plant. Concluded emissions will not result in any exceedances of objectives unless

Report Title	Year	Outcomes
		on-site emergency generators used for extended periods.
Updating and screening assessment and progress reports	2012-2014	No new developments or proposed developments that could be considered to adversely affect air quality. 1 exceedance of NO_2 at 55 Twynyrodyn Road. Progress report 2013 found action to reduce NO_2 levels at 55 Twynyrodyn Road, has reduced it to below AQS objective. Additional monitoring found further location on same road link where NO_2 levels exceeded AQS objective. Progress report 2014 identified new bus station development proposed may adversely affect NO_2. Environmental Health department liaised with Regeneration Group to ensure air quality considered in planning process. NO_2 levels on Twynyrodyn Road had increased to exceed AQS objective. Unclear if temporary and related to ongoing changes to traffic flow. Further monitoring proposed. Detailed assessment and declaration of AQMA on Twynyrodyn Road necessary.
Detailed assessment	2015	Elevated NO_2 on Twynyrodyn Road associated with traffic. Wind speed and direction, and 2 storey terraced housing without front gardens resulted in NO_2 accumulating around 55 Twynyrodyn Road. Predominantly associated with uphill traffic during early evening. Considered necessary to declare AQMA from Western End of

Report Title	Year	Outcomes
		Twynyrodyn Road to 147 Gilfach Cynon. MTCBC declared AQMA on 30th Jan 2017.
Updating and screening assessment and progress reports	2015-2017	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. NO_2 exceedances were contained within AQMA on Twynyrodyn Road. Action plan under development for public consultation, on options to improve traffic flow and reduce traffic numbers. Additional monitoring in Swansea Road in anticipation of Trago Mills opening, attracting additional traffic to Swansea Road area.
Annual report	2018	NO_2 exceedances were contained within AQMA on Twynyrodyn Road. Action plan to reverse traffic flow along Pontmorlais High Street and Church Street approved by Welsh Government following public consultation and Council approval. Impact of Trago Mills on Swansea Rd has not resulted in annual mean within 10% of AQS objectives. 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.
Annual report	2019	Action plan implemented to reverse traffic flow along Pontmorlais High

Report Title	Year	Outcomes
		Street and Church Street on 28th May 2019. Additional monitoring locations added to the network used to assess any changes in vehicle routes around the town centre and along Pontmorlais High Street and the impact it might have on air quality. A decrease in levels of NO_2 on Swansea Road around the Trago Mills site has been observed. All sites within the AQMA are now below the annual air quality objective however one site remains within 10% of the AQS objective.
Annual report	2020	Continued monitoring of network to assess effectiveness of the traffic reversal and changes around the town centre and along Pontmorlais High Street. Proposal to revoke the AQMA in 2021 if levels were shown to have continued to remain outside 10% of the AQS objective.
Annual report	2021	Continued monitoring of network to assess the effectiveness of the traffic reversal and changes around the town centre and along Pontmorlais High Street. 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.
Annual report	2022	Continued monitoring of network to assess the effectiveness of the traffic reversal and changes around the town

Report Title	Year	Outcomes
		centre and along Pontmorlais High Street. On course to revoke AQMA in 2025 as concentrations at all monitoring sites remain more than 10% below the AQS objective.
Annual report	2023	Continued monitoring of network to assess the effectiveness of the traffic reversal and changes around the town centre and along Pontmorlais High Street. On course to revoke AQMA in 2025 as concentrations at all monitoring sites remain well below 10% of the AQS objective.
Annual report	2024	Continued monitoring of network to assess the effectiveness of the traffic reversal and changes around the town centre and along Pontmorlais High Street. All monitoring sites remain well below 10% of the AQS objective. Preparing to consult on proposal to revoke Twynyrodyn AQMA in 2025.

NO_2 continued to exceed the AQS objective in 2017 (40µg/m³) along Twynyrodyn Road (stretch near 55 Twynyrodyn Road within AQMA). This was in line with results in previous years and due to the exceedances, action was required to bring about a reduction in NO_2 concentrations.

MTCBC currently has one AQMA, Twynyrodyn Road which was declared in January 2017 following a detailed assessment carried out in 2015 which demonstrated elevated NO_2 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 NO_2 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. Subsequently 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 NO_2 concentration at Ladysmith Place, Troedyrhiw which 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 NO_2 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 NO_2 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 33.2µg/m³ and 27.8µg/m³ respectively for that year.

Data for 2020, which was atypical for around 75% of the year showed that 6/7 Ladysmith Place and 37 Brookfield Terrace measured annual mean concentrations of 25.6µg/m³ and 20.9µg/m³ respectively, a notable decrease from 2019 data explained by reasons already discussed. Since 2021, concentrations at both Ladysmith Place and Brookfield Terrace have decreased year on year with 2024 demonstrating concentrations of 22.6µg/m³ and 17.6µg/m³ respectively. These are both lower than the abnormally low concentrations demonstrated for 2020. As such there is no anticipation at present that further focus is necessary along Cardiff Road other than continued monitoring.

Data for 2024 for all monitoring locations remains more than 10% below the AQS objective with the greatest concentration 26.4µg/m³ recorded within the current AQMA at 51 Twynyrodyn Road. This concentration is 34% below the AQS objective of 40µg/m³ and 27% below 36µg/m³ (the concentration above which brings a location into closer focus for possible action).

1.2 Air Quality Management Areas

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

A summary of AQMAs declared by 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 Twynyrodyn Road AQMA webpage.

Table 1.1 – Declared Air Quality Management Areas

AQMA	Relevant Air Quality Objective(s)	Comments on Air Quality Trend	City / Town<Delete column if not relevant>	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 28th, 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 2024 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 any designated AQMAs.

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

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 NO_2 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 2018, the average NO_2 concentration in the AQMA was 29.3µg/m³. In 2024, the average NO_2 concentration in the AQMA was 19.7µg/m³. This shows an overall average reduction of 9.6µg/m³ or around 32% since 2018, demonstrating that the traffic reversal has been effective. Improvements within the AQMA following comparison of the latter half of 2019 compared to the same for 2018 (post traffic reversal) provided initial indication that the reduction in concentrations was as a direct result of the measures undertaken. Due to the disruption of data reflective of normal circumstances as a result of Covid-19 lockdown measures in 2020 and now being 5 years on, concentration reductions have been observed at all monitoring locations, not only at those within the AQMA. This may be explained by a combination of some legacy effects in terms of increased remote working and the increasing uptake of electric vehicles which in combination reduce vehicle emissions.

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 improve pedestrian safety. Since the implementation of the changes, which were completed during 2023, data at the closest monitoring site (S4) at 15 Lower High Street measured concentrations of 4.9µg/m³ lower than data for 2022. Data at that site however, showed a marginal concentration increase of 2µg/m³ between 2023 and 2024 at 20.3µg/m³, still well below the AQS objective.

Of further concern in relation to the works to Caedraw roundabout was a potential impact at monitoring site (S20) at 17 Court Terrace situated at the western end of the AQMA. The concerns related to a potential increase in traffic congestion around Caedraw roundabout which could further affect traffic approaching from the roundabout at the bottom of Twynyrodyn hill and Tesco. Concentrations at S20 for 2024 were 20.2µg/m³, again well below the AQS objective. 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

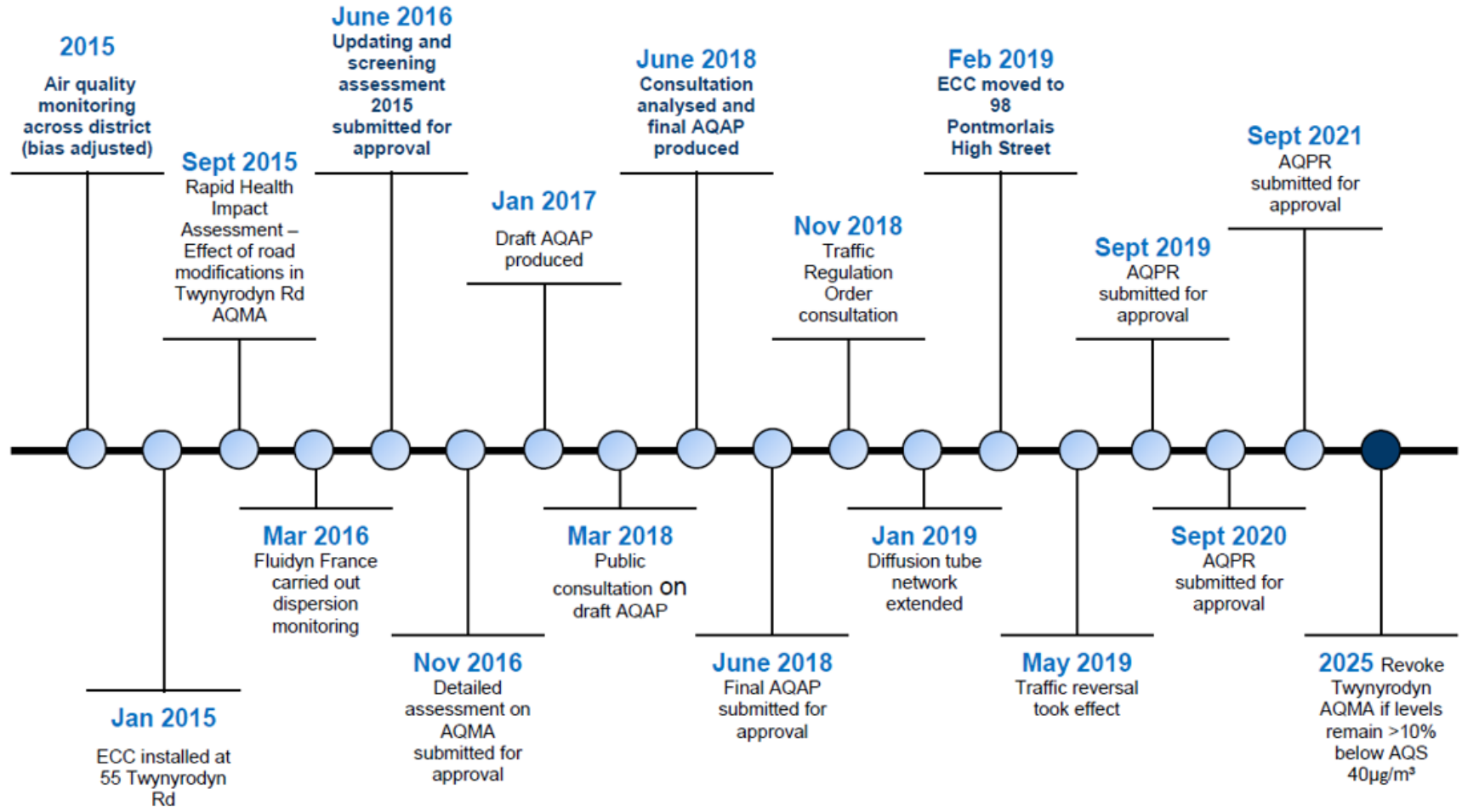


Table 1.2 – Progress on Measures to Improve Air Quality

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Organisations Involved	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	*Concentrations in and around the AQMA have not been adversely affected by the improvements to pedestrian infrastructure*

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Organisations Involved	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/m3 at monitoring sites 14 and 21		*In 2024 site 14 has reduced by 18.8µg/m3 and site 21 has reduced by 19.7µg/m3 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/m3*	*Conentrations have reduced at all monitoring sites, with all remaining more than 10% below the AQS objective of 40µg/m3*	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	Organisations Involved	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 2024*	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

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Organisations Involved	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments Relating to Emission Reductions
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	Organisations Involved	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 **331** people have joined the scheme*	*31 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	Organisations Involved	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 Twynyrodyn 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.

No.	Measure	Focus	Lead Authority	Planning Phase	Implementation Phase	Indicator	Target Annual Emission Reduction in the AQMA	Organisations Involved	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 2024

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 2024 with approved reference monitors.

2.1.2 Non-Automating Monitoring Sites

Merthyr Tydfil County Borough Council undertook non- automatic (passive) monitoring of NO_2 at 35 sites during 2024. **Table 2.1** presents the details of the sites.

Maps showing the locations of the monitoring sites are provided in Figures 2.2 – 2.8 (pages 24 - 30). 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	Imperial Hotel	Roadside	305042	206524	NO_2	No	0.0	3.4	No	2.3
S02	Civic Centre	Urban background	304743	206261	NO_2	No	0.0	43.3	No	1.9
S03	Twynyrodyn Infants School	Suburban	305832	205941	NO_2	No	0.0	52.8	No	2.1
S04	15 Lower High Street	Roadside	305001	205763	NO_2	No	0.0	3.6	No	2.5
S05	1 Alma Street	Roadside	305140	205910	NO_2	No	0.0	1.1	No	2.3
S06	11 Mardy Terrace, Plymouth Street	Roadside	305426	205144	NO_2	No	0.0	5.1	No	2.3
S07	36 Brynteg	Roadside	309640	197033	NO_2	No	0.0	1.6	No	2.1
S08	Victoria Street taxi rank	Urban centre	304866	206137	NO_2	No	0.0	3.4	No	2.3
S09	Six Bells Estate	Suburban	303525	206388	NO_2	No	0.0	6.3	No	1.9
S10	11 Park Place, Penydarren Road	Roadside	305180	206744	NO_2	No	0.0	1.6	No	2.3
S11	11 Alexandra Terrace, lamp-post	Roadside	305382	205872	NO_2	Twynyrodyn Road AQMA	1.7	3.0	No	3.0
S12	Dowlais Upper	Roadside	307171	207915	NO_2	No	0.0	1.6	No	2.4
S13	110 High Street	Roadside	304947	206261	NO_2	No	0.0	3.2	No	2.5
S14	55 Twynyrodyn Road	Roadside	305410	205410	NO_2	Twynyrodyn Road AQMA	0.0	2.3	No	2.5
S15	Quakers Yard	Suburban	309573	196518	NO_2	No	0.0	3.4	No	2.0
S16	Erw Las	Suburban	303360	206822	NO_2	No	0.0	37.0	No	2.2
S17	119 High Street, corner	Kerbside	304942	206204	NO_2	No	0.0	1.0	No	3.0

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)
S18	91 Twynyrodyn Road	Roadside	305217	205880	NO_2	Twynyrodyn Road AQMA	0.0	2.3	No	2.4
S19	40 William Street	Roadside	305299	205865	NO_2	Twynyrodyn Road AQMA	0.0	5.3	No	2.1
S20	17 Court Terrace	Roadside	305149	205906	NO_2	Twynyrodyn Road AQMA	0.0	1.5	No	2.3
S21	51 Twynyrodyn Road	Roadside	305394	205871	NO_2	Twynyrodyn Road AQMA	0.0	1.5	No	2.3
S22	14 Arfryn Terrace	Roadside	305147	205906	NO_2	Twynyrodyn Road AQMA	0.0	4.9	No	2.3
S23	98 Pontmorlais	Roadside	304987	206411	NO_2	No	0.0	2.9	No	2.7
S24	64 Gilfach Cynon	Roadside	305415	205863	NO_2	Twynyrodyn Road AQMA	1.0	3.7	No	2.1
S25	37 Brookfield Terrace	Roadside	307034	202698	NO_2	No	0.0	1.1	No	2.3
S26	6 Windsor Terrace	Roadside	305296	205895	NO_2	No	0.0	2.9	No	2.3
S27	5 Somerset Place, Union Street	Roadside	305182	206138	NO_2	No	0.0	6.0	No	2.6
S28	48 Darren View	Roadside	305579	206811	NO_2	No	0.0	1.4	No	2.1
S29	6/7 Ladysmith Square	Roadside	307112	202547	NO_2	No	0.0	3.4	No	2.6
S30	Bron Gelli, Swansea Road	Suburban	303570	206676	NO_2	No	0.0	8.4	No	2.1
S31	Caedraw Flats, downpipe	Urban background	304782	205886	NO_2	No	0.0	5.7	No	2.1

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)
S32	Swan Street, lamp-post	Roadside	304835	205924	NO_2	No	0.0	2.8	No	2.5
S33	Picton House, Swan Street	Roadside	304898	205929	NO_2	No	0.0	2.4	No	2.5
S34	High Street Chapel	Urban Centre	304917	206009	NO_2	No	0.0	5.7	No	2.7
S35	Graham Way, River Walk	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 – Maps of Non-Automatic Monitoring Sites

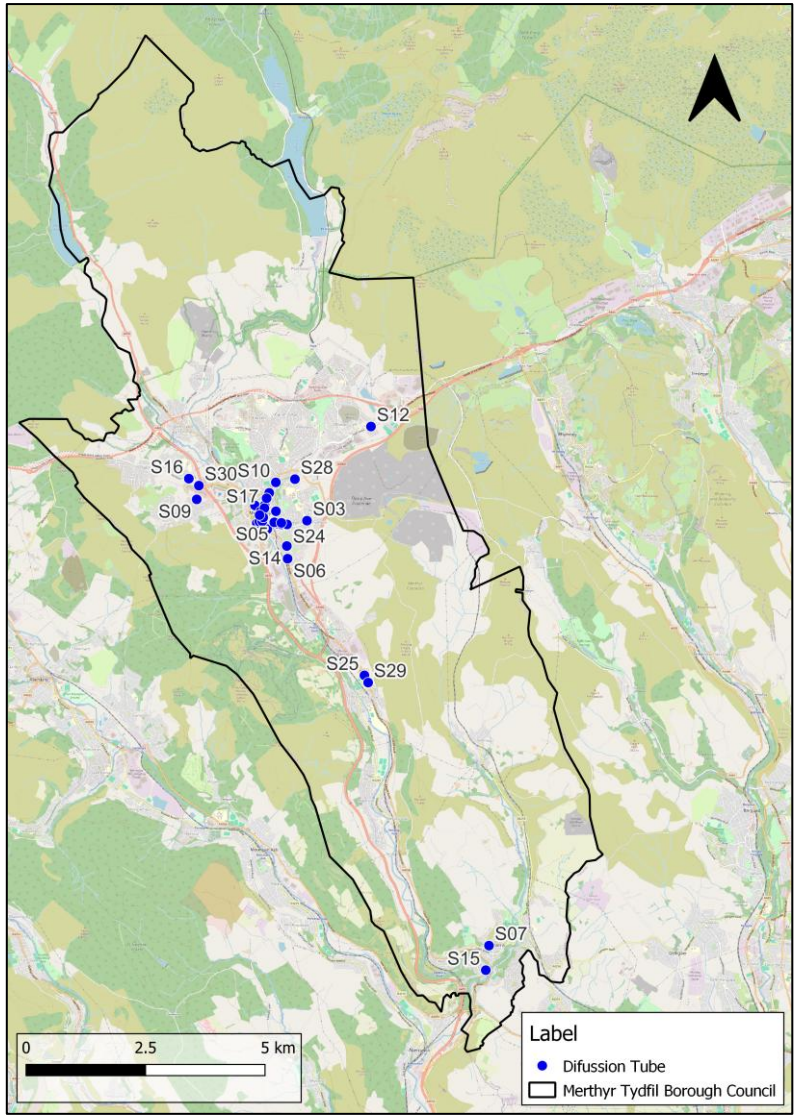


Figure 2.2 – Map of S12 Non-Automatic Monitoring Site

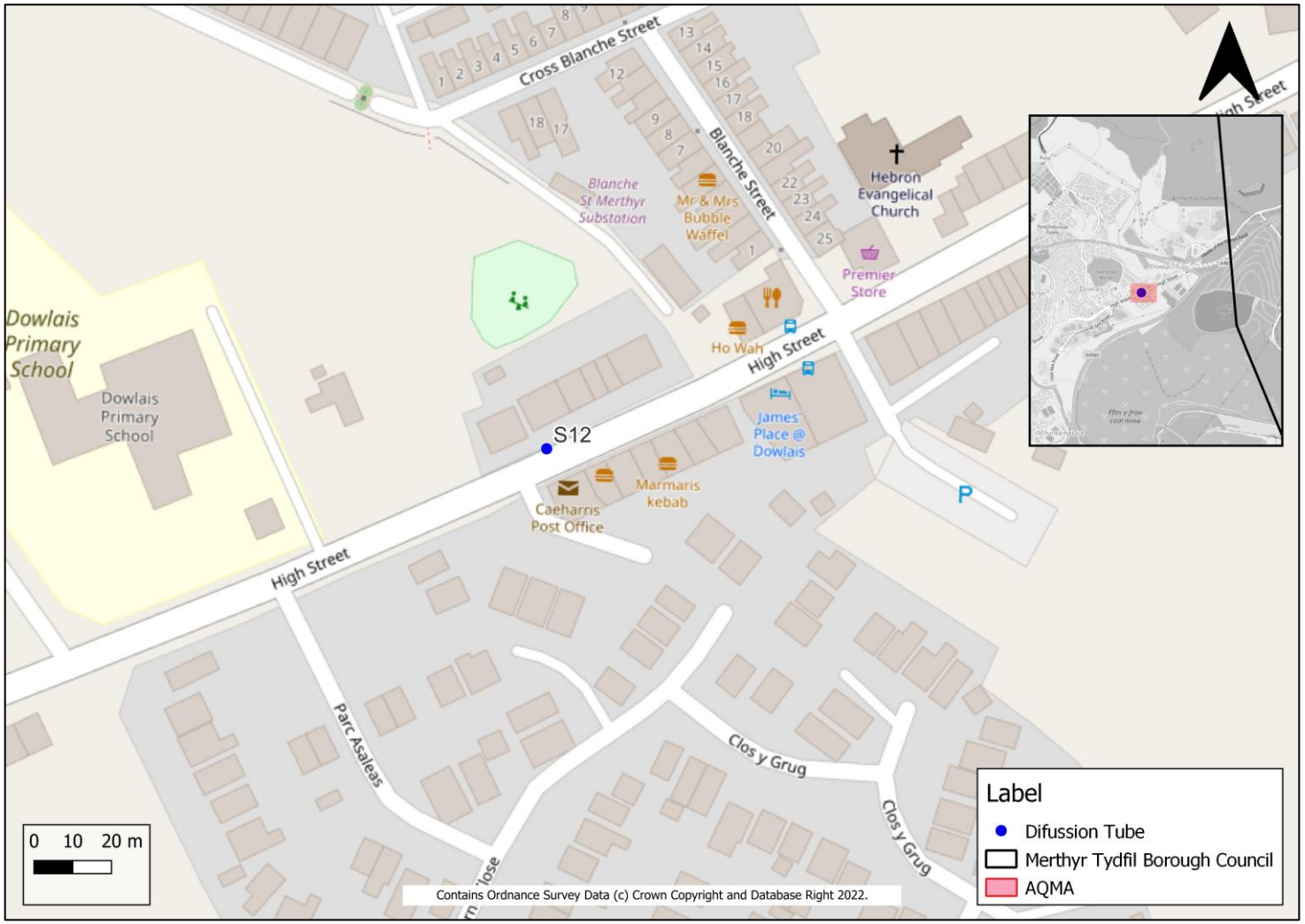


Figure 2.3 – Map of Non-Automatic Monitoring Sites

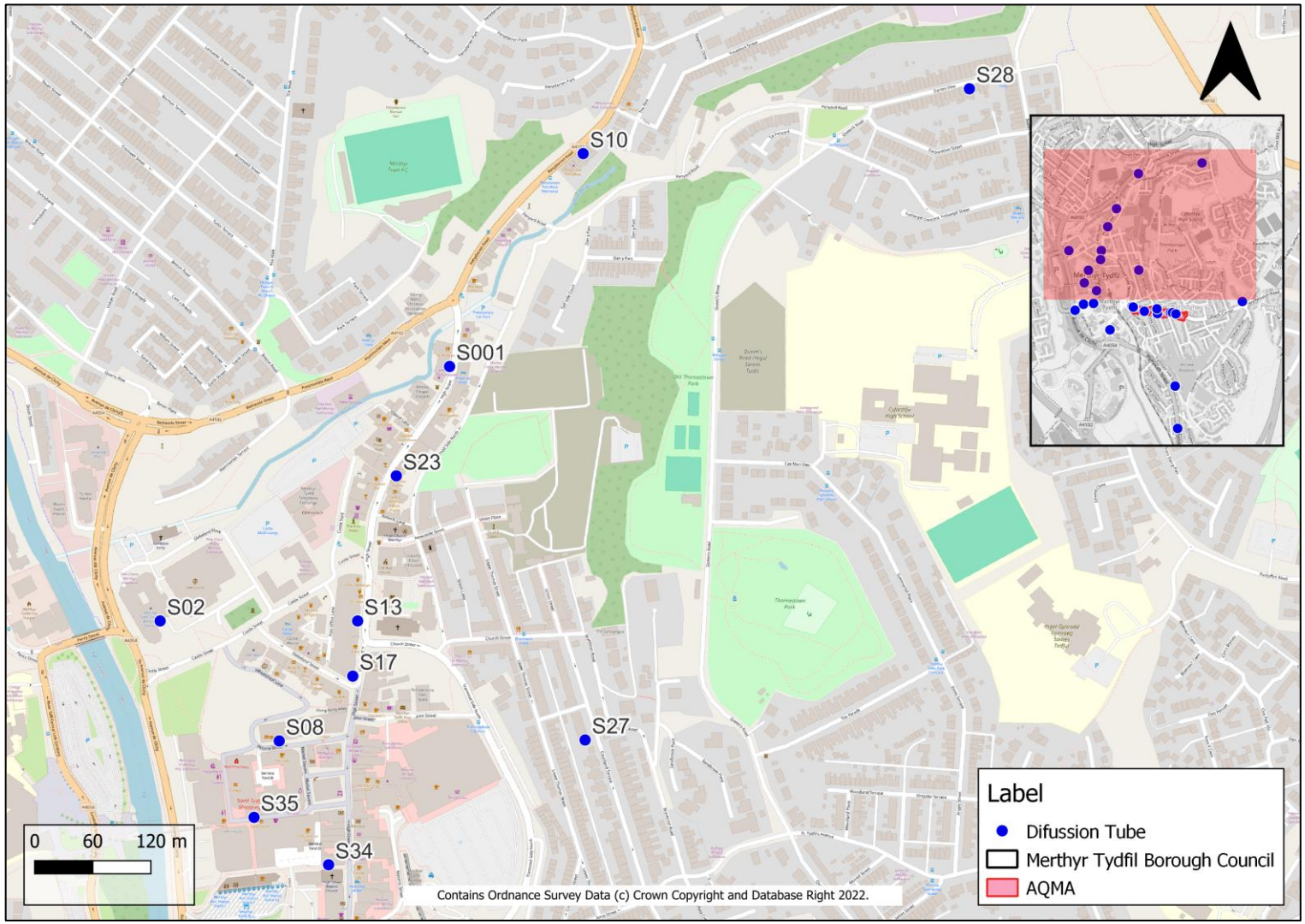


Figure 2.4 – Map of Non-Automatic Monitoring Sites inclusive of AQMA and AQMA monitoring locations

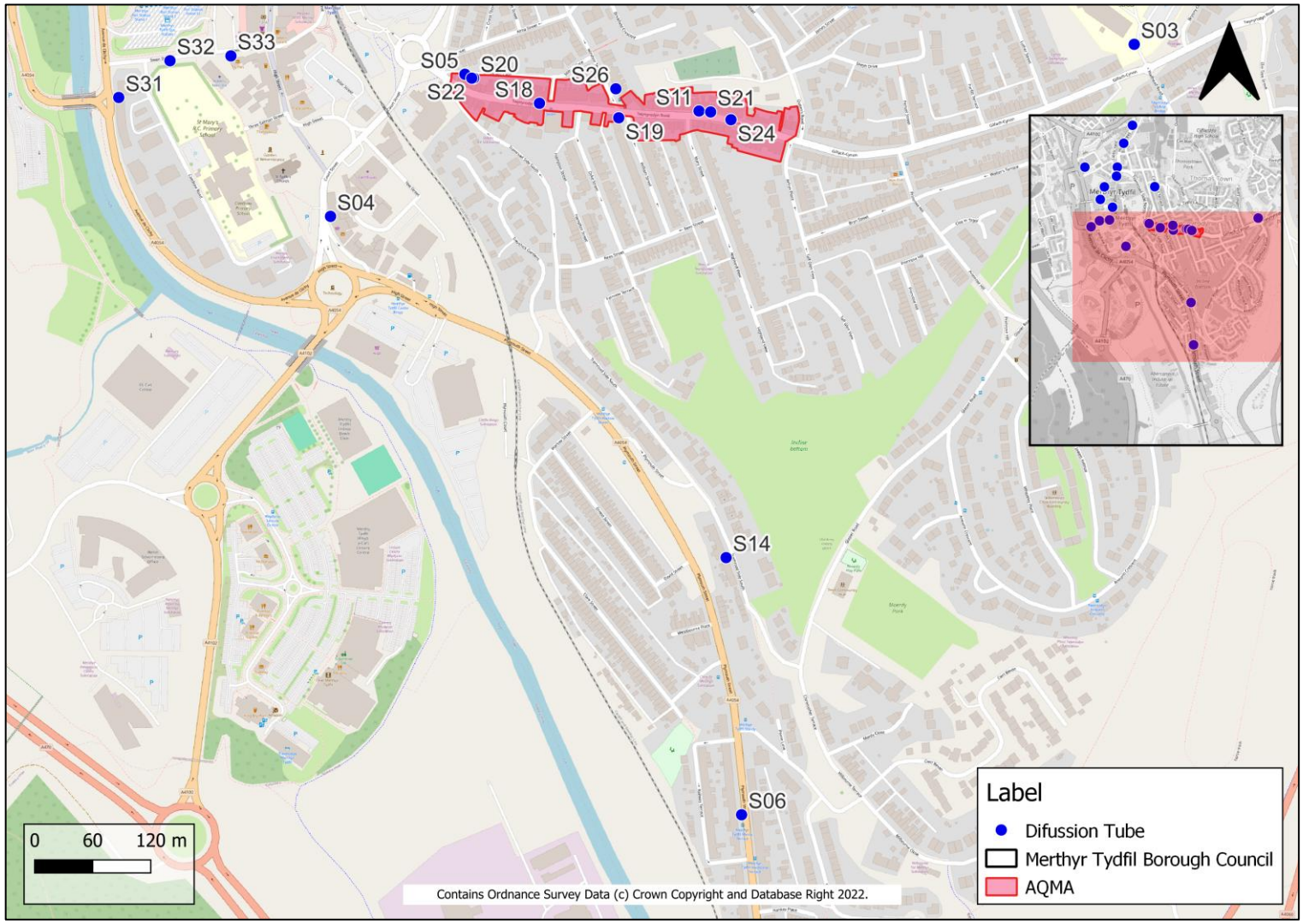


Figure 2.5 – Map of Non-Automatic Monitoring Sites

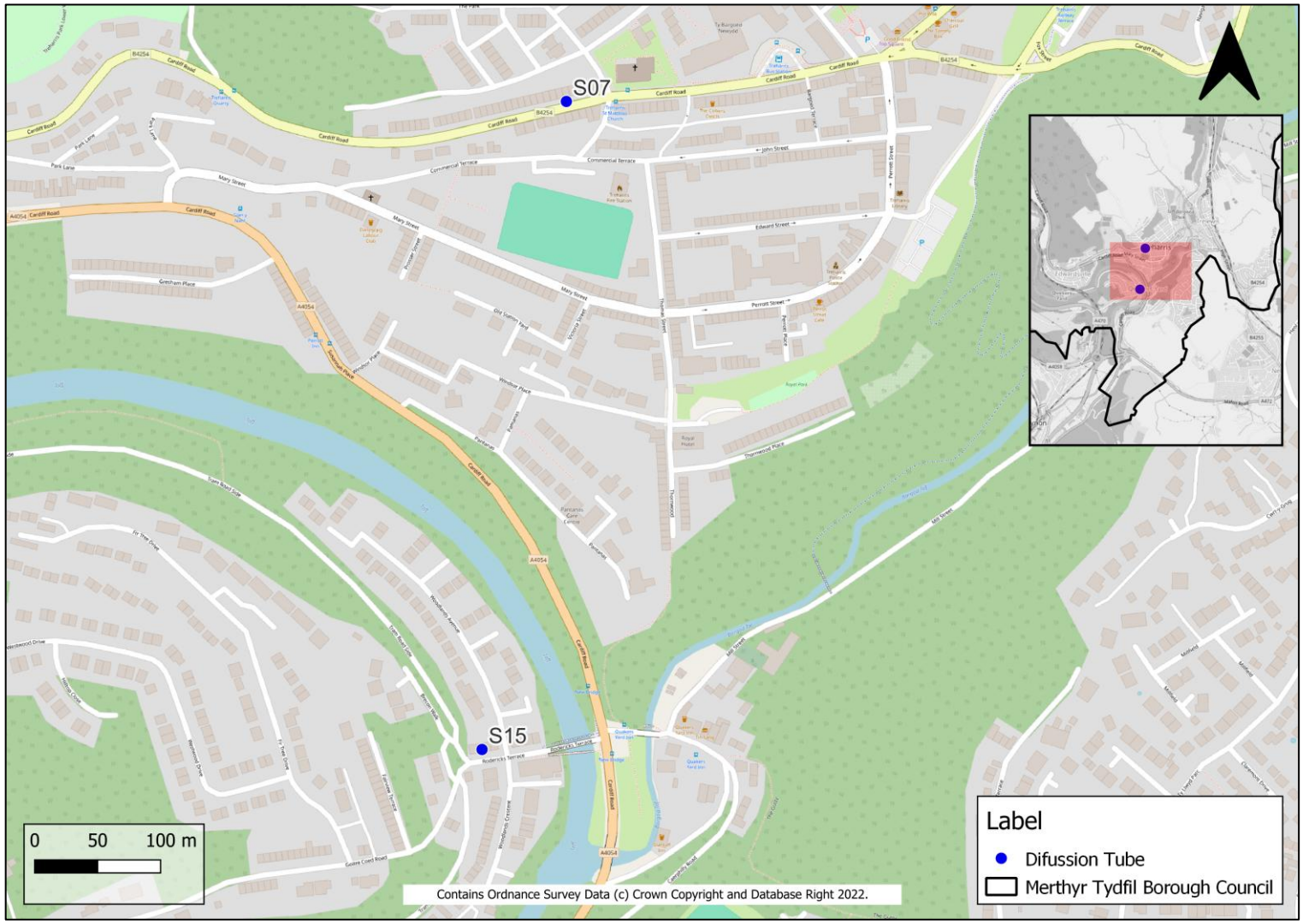


Figure 2.6 – Map of Non-Automatic Monitoring Sites

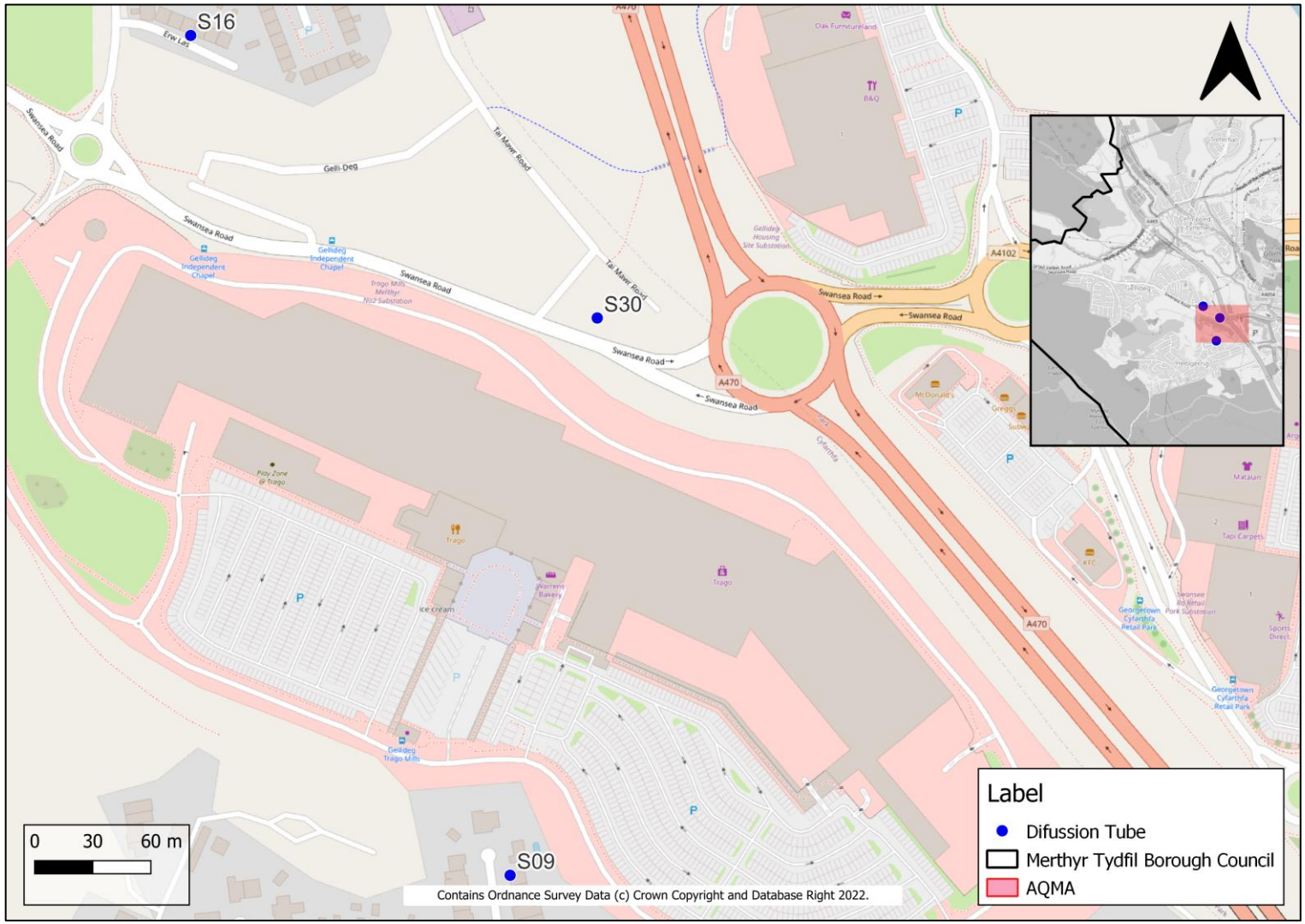
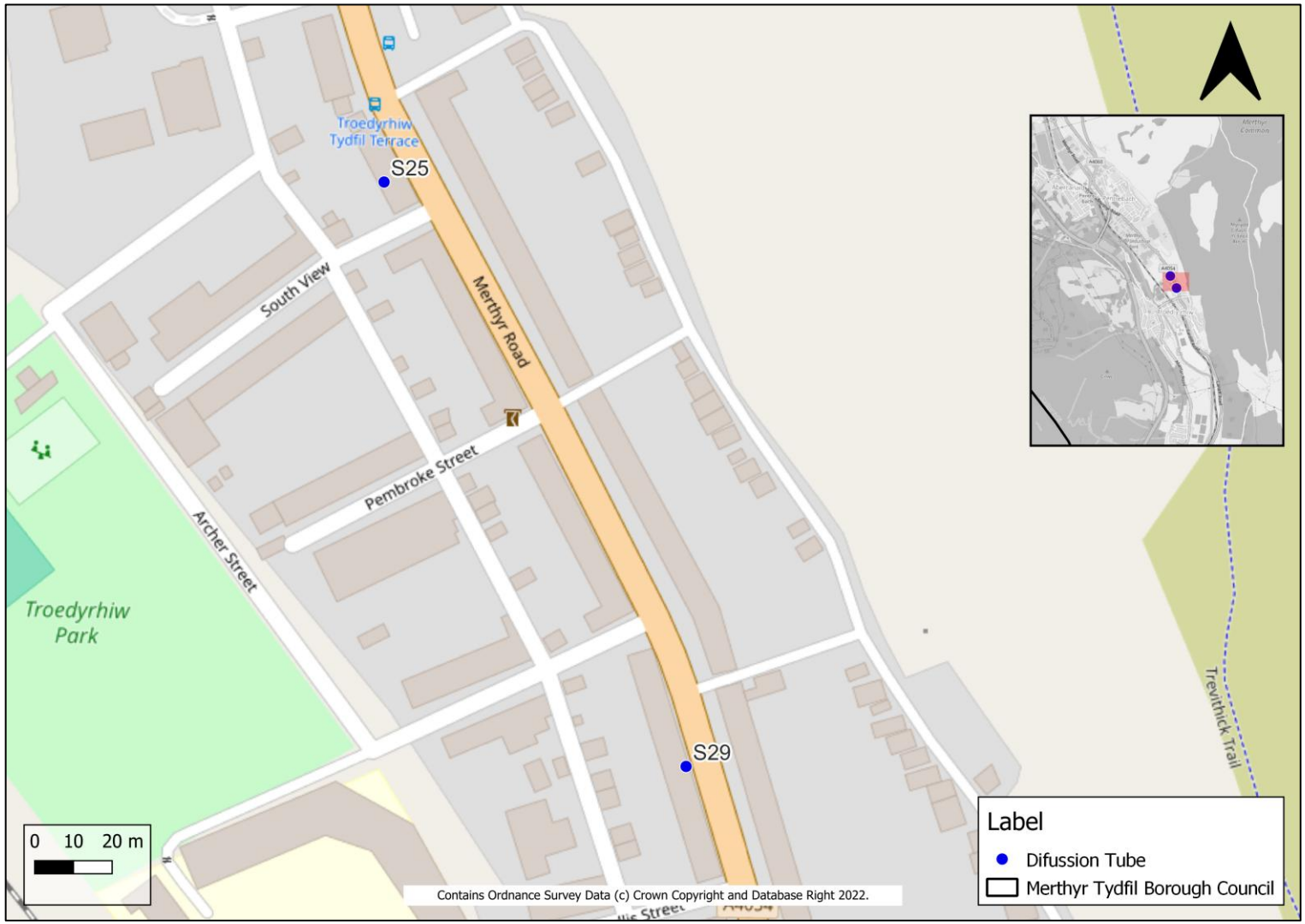


Figure 2.7 – Map of Non-Automatic Monitoring Sites



2.2 2024 Air Quality Monitoring Results

2.3 Table 2.2 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

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 2024 (%) (2)	2020	2021	2022	2023	2024
S01	305042	206524	Roadside	100	100	21.4	25.9	25.8	24.8	21.6
S02	304743	206261	Urban background	100	100	11.7	12.4	12.8	11.6	11.2
S03	305832	205941	Suburban	100	100	8.4	8.5	9.2	7.4	7.1
S04	305001	205763	Roadside	100	100	19.1	21.8	23.2	18.3	20.3
S05	305140	205910	Roadside	100	100	13.8	16.5	15.6	14.2	12.5
S06	305426	205144	Roadside	100	100	18.8	19.9	19.0	17.5	15.9
S07	309640	197033	Roadside	56.6	56.6	13.0	13.9	13.7	12.1	13.0
S08	304866	206137	Urban centre	100	100	15.1	15.1	14.5	12.4	11.6
S09	303525	206388	Suburban	100	100	7.4	7.9	6.9	6.3	5.5
S10	305180	206744	Roadside	100	100	26.1	28.8	31.0	27.0	25.2
S11	305382	205872	Roadside	100	100	24.6	29.7	28.5	24.3	23.8
S12	307171	207915	Roadside	100	100	17.6	21.0	21.3	19.4	16.6
S13	304947	206261	Roadside	100	100	19.4	23.0	22.2	20.1	19.7
S14	305410	205410	Roadside	100	100	24.7	29.1	26.9	24.2	21.9
S15	309573	196518	Suburban	100	100	9.5	10.1	9.5	8.0	8.3
S16	303360	206822	Suburban	100	100	8.8	10.0	9.7	8.2	8.4
S17	304942	206204	Kerbside	100	100	14.8	17.3	19.6	18.1	16.8
S18	305217	205880	Roadside	100	100	18.9	20.9	21.0	18.2	17.8
S19	305299	205865	Roadside	100	100	14.8	16.3	16.4	14.6	14.3
S20	305149	205906	Roadside	100	100	20.2	24.1	23.8	20.8	20.2
S21	305394	205871	Roadside	100	100	25.7	33.0	30.4	28.7	26.4
S22	305147	205906	Roadside	100	100	18.5	21.7	22.9	19.4	18.6

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 2024 (%) (2)	2020	2021	2022	2023	2024
S23	304987	206411	Roadside	100	100	14.5	17.6	17.1	14.3	13.8
S24	305415	205863	Roadside	100	100	17.4	16.8	16.7	15.5	13.8
S25	307034	202698	Roadside	100	100	20.9	23.6	22.9	18.6	17.6
S26	305296	205895	Roadside	100	100	12.6	14.0	14.4	12.7	11.7
S27	305182	206138	Roadside	100	100	10.7	10.9	11.1	9.4	9
S28	305579	206811	Roadside	90.6	90.6	12.2	14.6	13.7	12.2	10.7
S29	307112	202547	Roadside	100	100	25.6	28.8	26.3	24.3	22.6
S30	303570	206676	Suburban	100	100	14.4	16.7	17.0	15.2	14.8
S31	304782	205886	Urban background	100	100	13.8	17.4	17.5	16.5	14.9
S32	304835	205924	Roadside	100	100	-	19.6	18.8	17.3	14.9
S33	304898	205929	Roadside	100	100	-	14.9	14.2	13.0	10.9
S34	304917	206009	Urban Centre	100	100	-	14.1	13.4	10.8	10.5
S35	304840	206058	Urban centre	100	100	-	11.8	11.2	10.9	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 µg/m^3.

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**.

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 NO_2 Concentrations at Twynyrodyn Road AQMA

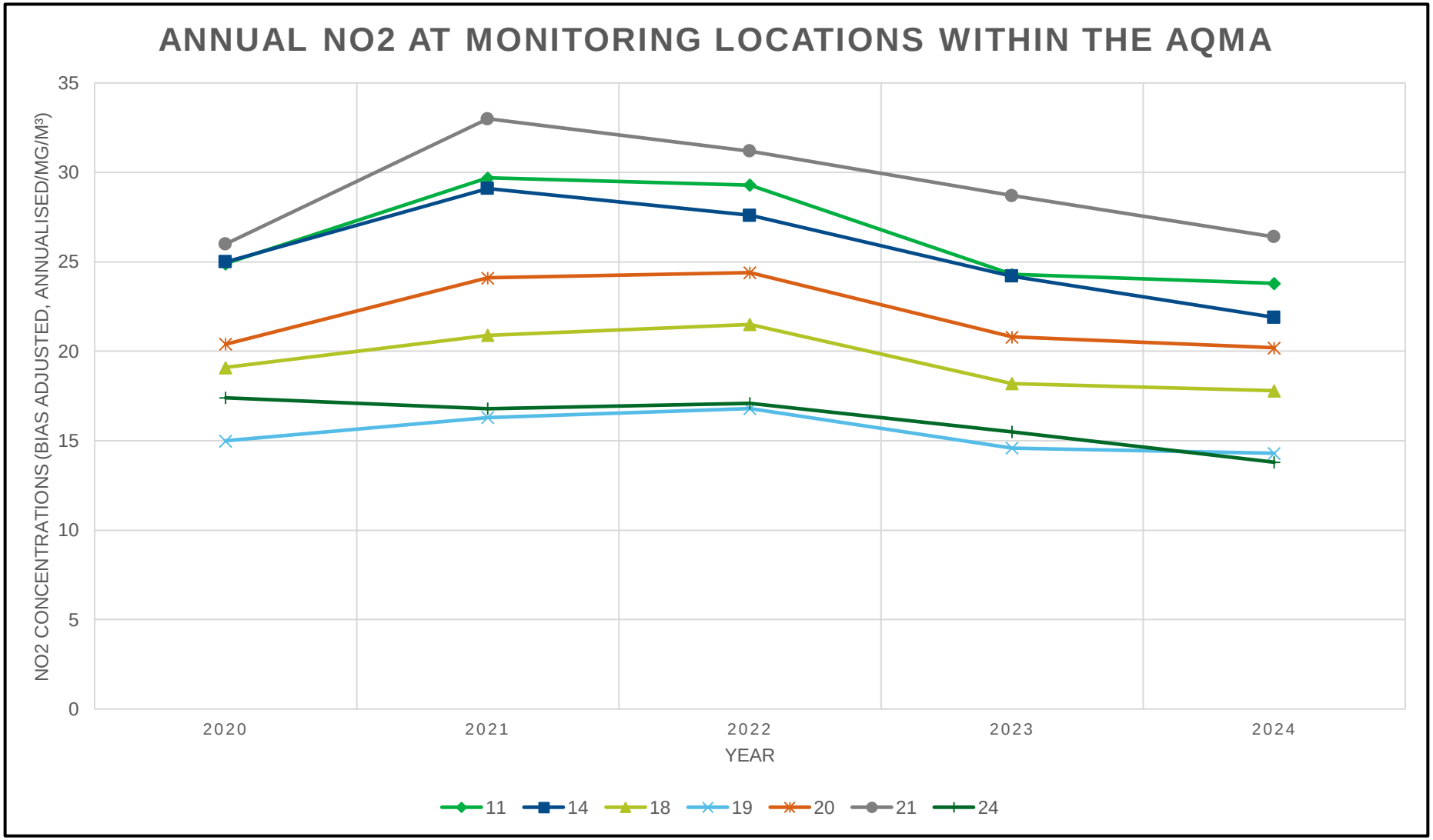


Figure 2.9 – Trends in Annual Mean NO_2 Concentrations

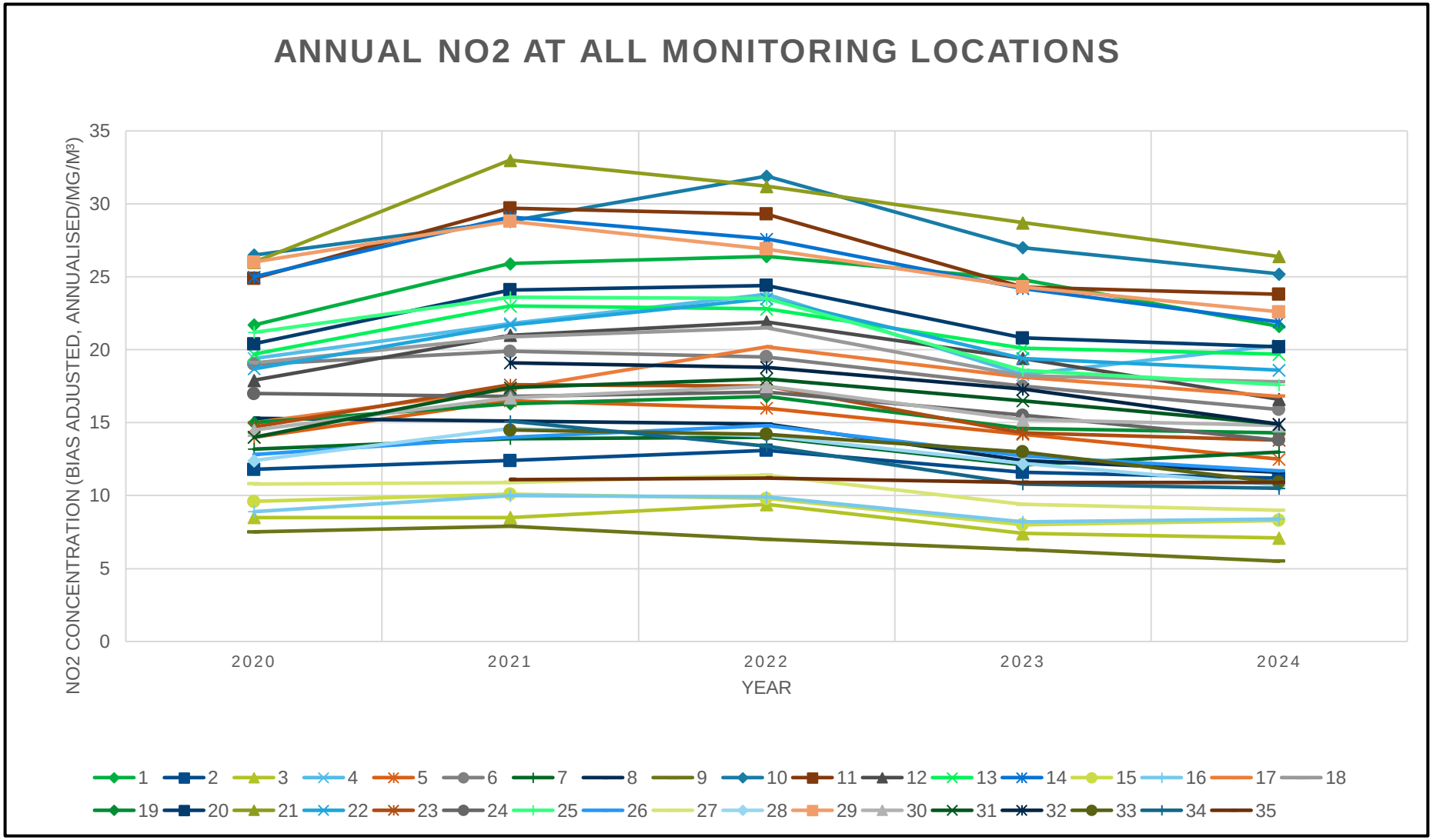
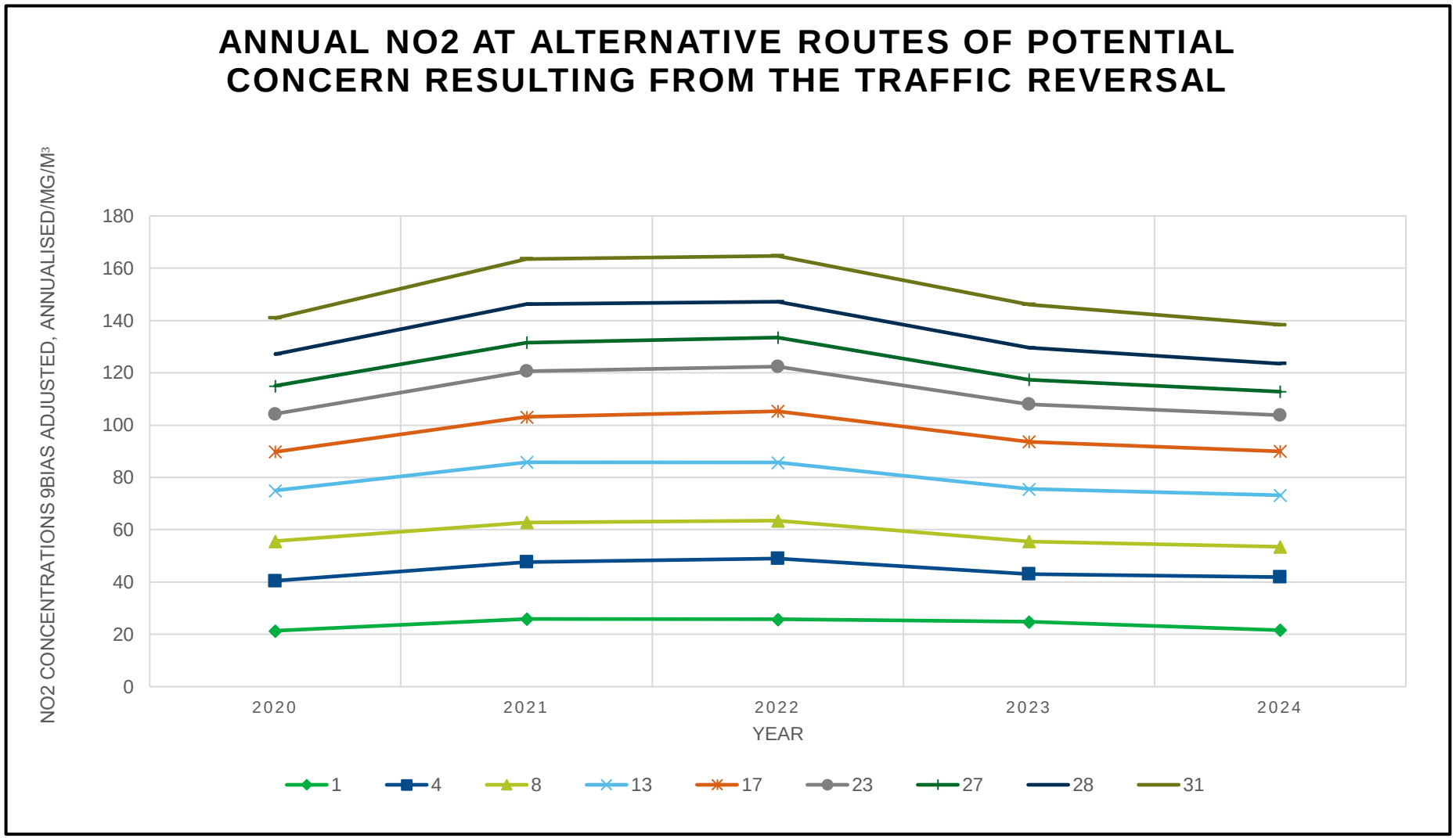


Figure 2.10 – Trends in Annual Mean NO_2 Concentrations in areas of concern following traffic reversal



2.4 Comparison of 2024 Monitoring Results with Previous Years and the Air Quality Objectives

2.4.1 Nitrogen Dioxide (NO_2)

Overall, observed NO_2 annual mean concentrations were higher in 2019. During 2020, these concentrations dropped on average by 24% throughout the district, due to the impact of COVID-19 and associated lock down measures, 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 across the Borough. At one site, located within the Council's Air Quality Monitoring Area (AQMA), the observed concentration (38.2 µg/m^3) in 2019 was within 10% of the annual mean air quality objective (40µg/m^3). This site is within the AQMA and as such, the AQMA was not compliant in 2019.

There were concerns in recent years regarding concentrations at Dowlais Top particularly closer to the top of the hill approaching the Dowlais roundabout as a result of diversions associated with the dualling of the A465. The existing nearby monitoring location (Dowlais Upper – site S12, has consistently recorded NO_2 concentrations of more than 10% below the AQS objective. There was however a marginal increase from 2021 to 2022, with the annual mean concentration during 2021 being 21.0µg/m³ compared to 21.3µg/m³, followed by a 9% decrease in 2023 (19.4µg/m³) which has further decreased in 2024 to 16.6µg/m³.

There are inherent uncertainties associated with monitoring NO_2 using diffusion tubes. To account for this, a revocation of an AQMA should be considered following three consecutive years of annual mean NO_2 concentrations being more than 10% below the annual mean NO_2 AQS objective of 40µg/m³ (36µg/m^3). Additionally, as the LAQM Technical guidance[1] 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 is now being considered in 2025 as MTCBC is now in possession of four years of data indicating a year on year downward trend across the whole Borough. MTCBC intends to continue monitoring and plans to revoke the AQMA in 2025 as NO_2 concentrations have remained more than 10% below the AQS objective.

In 2023, the highest NO_2 concentration of 28.7µg/m^3 was observed at S21 located within Twynyrodyn Road AQMA. This concentration and all the other concentrations observed in 2023 were well below the 10% of the annual mean NO_2 AQS objective (40µg/m^3). Concentrations within the AQMA varied from 28.7µg/m^3 to 14.6µg/m^3. In 2024 further reductions in concentrations were observed within the AQMA with the highest concentration of 26.1µg/m³ at S21 and the lowest being 13.8µg/m³ at S24. Outside the AQMA the highest concentration recorded in 2024 was 25.2µg/m³ at S10, a further 1.8µg/m³ (3%) lower than that of the previous year (2023).

MTCBC now have at least 4 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.

2.4.2 Particulate Matter (PM_{10})

Merthyr Tydfil County Borough Council does not currently undertake monitoring of particulate matter (PM_{10}).

2.4.3 Particulate Matter ($PM_{2.5}$)

Merthyr Tydfil County Borough Council does not currently undertake monitoring of particulate matter ($PM_{2.5}$).

2.4.4 Other Pollutants Monitored

Merthyr Tydfil County Borough Council does not currently undertake monitoring of any other pollutants.

2.5 Summary of Compliance with AQS Objectives as of 2024

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.

Merthyr Tydfil County Borough Council intends to Revoke the Twynyrodyn AQMA for lack of exceedance of pollutant NO_2.

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 was submitted as part of the outline planning application for the proposed 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 indicated 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 via: https://publicaccess.merthyr.gov.uk/online-applications/ - 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 was approved by the Planning and Regulatory Committee against the Council's recommendation of refusal. As such, the application has been referred to Welsh Government for determination and updates will be available on MTCBC's website as and when they become available.

MTCBC is currently in the process of determining an outline planning application for a residential development of the former Hoover site in Pentrebach, identified as the Hoover Strategic Regeneration Area, located within the 'Primary Growth Area' as defined in MTCBC's Replacement Local Development Plan (2016 – 2031). The proposed development includes up to 440 new dwellings in addition to a mix of commercial development and recreational provision to serve the new neighbourhood. Incorporated into the plans are active travel routes and connectivity with a new metro station complimenting the existing network. The application is available via:

https://publicaccess.merthyr.gov.uk/online-applications/ - Planning ref: P/25/0165.

3.1 Road Traffic Sources (and Other Transport)

MTCBC confirms that there are no new/newly identified narrow congested streets with residential properties close to the kerb or busy streets where people may spend one hour or more close to traffic. Additionally there are no new/newly identified roads with high flows of buses and/or HGVs. MTCBC confirms that there are no new/newly identified busy junctions or roads with significantly changed traffic flows within the local authority area.

3.2 Industrial / Fugitive or Uncontrolled Sources / Commercial Sources

MTCBC is currently in receipt of an undetermined 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. 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. At the time of writing, the application remains in consultation phase and there is no indication at present as to when or if the site will again become operational.

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.

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 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.

With regard to the proposed revocation of the Twynyrodyn AQMA, at the time of writing, MTCBC is planning consultation with affected communities and Council Cabinet members before submitting the proposal to Welsh Government for approval. Should the revocation be approved, MTCBC intends to produce a local air quality strategy having regard to the new Environment (Air Quality and Soundscapes) Act 2024 which received Royal Assent in February 2024. Once produced, it will be made available to the public on the MTCBC website. The strategy will be regularly reviewed in order to take account of emerging legislative developments anticipated to reduce the AQS objectives of some key pollutants.

MTCBC have secured grant funding from Welsh Government's local air Quality management support fund 2025 – 2028 and are currently in the process of planning to expand its air quality monitoring capabilities across the Borough which will compliment the existing passive network. These new monitoring developments will be detailed in MTCBC's local air quality strategy and will be made available to the public as above.

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 Supplementary 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 NO_2 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 unitary authorities (Blaenau Gwent CBC; Caerphilly CBC; Rhondda Cynon Taff CBC and Torfaen CBC). 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 ability to Cardiff and Newport, 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 with less reliance on individual car journeys.

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 modes of transport other 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 was completed during 2025.

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 more than 10% below the AQS objective for NO_2. 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, 2023 and 2024 have shown that all sites along Twynyrodyn Road have remained well below 10% the AQS objective for NO_2.

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.

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 as supported by the 'South East Wales Valleys Local Transport Plan'. 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 been largely completed.

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 (CO_2) emissions from local authority buildings has decreased by 4% between 2023 and 2024 and by 18% since 2020.

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.

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 NO_2 within the AQMA. In 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 (40µg/m³), 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 to more than 10% below the AQS objective over the following year. Annual concentrations of NO_2 within the AQMA for all other monitoring locations fell to well below the AQS objective during 2019. During 2020, the notable 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. Data for 2019 did indeed show that the NO_2 concentration for 51 Twynyrodyn Road being 33µg/m³ for that year had reduced to more than 10% below the AQS objective. There have been further reductions of the annual mean NO_2 concentrations at 51 Twynyrodyn Road for 2022, 2023 and 2024 being 30.4µg/m³, 28.7µg/m³ and 26.4µg/m³ respectively.

Previous reports highlighted congestion and year on year exceedances of the NO_2 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 NO_2. NO_2 concentrations for 6/7 Ladysmith Place for 2021 were 28.8µg/m³, 26.3µg/m³ in 2022, 24.2µg/m³ in 2023 and 22.6µg/m³ in 2024. As such, no actions are currently being considered for this location however, should continued monitoring indicate an increase in concentrations to within 10% or exceedance of the AQS objective, actions may then be considered.

Legacy impacts of the pandemic appeared to have created some beneficial effects to 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. Although as expected, concentrations increased across the Borough after the atypical data of 2020, there has been a general downward trend year on year for most locations and MTCBC is presently in possession of 4 full years of data which demonstrates compliance with the AQS objective and as such plans to revoke the AQMA in 2025.

In addition to the positive downward trend and year on year compliance with the annual mean AQS objective for NO_2 (40µg/m³), it is important also to acknowledge the AQS objective of 1-hour mean concentrations of 200µg/m³ not to be exceeded more than 18 times per year. During 2024 and portions of 2023 and 2022, the AQMesh pod used for indicative continuous monitoring was no longer providing data. Despite the absence of automatic monitoring of NO_2 in 2024 and significant portions of the previous years, whilst it is not possible to report accurate 1-hourly mean concentrations, there is a correlation between the annual mean NO_2 concentration and 1-hourly mean NO_2 concentration. Research carried out by the devolved governments established this relationship and determined that where a passive monitoring site records an annual mean concentration of less than 60µg/m³, the likelihood of that site to record an exceedance of the 1-hourly mean of 200µg/m³ is considered very low. As all diffusion tube monitoring sites are well below the annual mean concentration of 40µg/m³, it is considered highly unlikely that the 1-hourly mean objective has been exceeded at any of the monitoring locations.

5.2 Conclusions relating to New Local Developments

Although there is no current indication regarding if or when quarrying works may resume at the Vaynor Quarry in Trefechan, should the planning application be approved, the Environmental Health department will liaise closely with the operator and where appropriate, Natural Resources Wales to ensure effective mitigation against negative effects on air quality, particularly in respect of PM_{10} and $PM_{2.5}$.

The Environmental Health department has provided comments to MTCBC's Planning department in relation to the proposed development at the Hoover site in respect of the outline planning application and has concluded that it is unlikely that the impact of the

development will result in a potential exceedance of any of the UK National Air Quality Objectives within the Borough.

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. Data for 2021, 2022, 2023 and 2024 have demonstrated all sites within the Borough are well below 10% of the AQS objective and therefore MTCBC is confident that the data have demonstrated not only compliance, but a general and gradual downward trend in NO_2 concentrations. Monitoring continues at all sites through 2025 and exceedances are not anticipated, indicating there is minimal possibility that a further AQMA would need to be declared again in the Twynyrodyn area. MTCBC is now in a position to propose revocation of the Twynyrodyn AQMA and as such intends to seek approval to commence the consultation process.

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.

5.4 Proposed Actions

The following actions are proposed to address air quality:

- No new AQMAs will be declared in 2026.
- MTCBC plans to revoke the existing AQMA in 2025 as data for 2024 has continued to show compliance with the AQS objective throughout the AQMA. This means MTCBC have 4 full years representative of long-term trends of data demonstrating compliance with the AQS objective.
- Work to secure additional monitoring equipment to add automatic monitoring to the network is to continue. New monitoring capabilities and locations will be detailed in a new local Air Quality Strategy.

- Should revocation of the AQMA be approved, post-revocation monitoring will continue in and around the AQMA area. Additionally, the existing passive diffusion tube monitoring network will be reviewed across the Borough in conjunction with the planned additional monitoring capabilities mentioned above.

References

Emissions of air pollutants in the UK – Nitrogen oxides (NOx) – Gov.uk:

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

Relationship between the Annual Mean and 1-hour NO_2 Objectives:

https://laqm.defra.gov.uk/air-quality/guidance/relationship-between-annual-mean-and-1-hour-mean-no2-objective/

Title	Author	Date
South East Valleys Local Transport Plan	Blaenau Gwent CBC; Caerphilly CBC; Merthyr Tydfil CBC; Rhondda Cynon Taff CBC; and Torfaen CBC	2015 - 2020
Local Air Quality Management – Technical Guidance LAQM (TG22)	DEFRA	2022
National Diffusion Tube Bias Adjustment Factor Spreadsheet (06/25)	DEFRA	2025
LAQM Helpdesk February 2025: Summary of laboratory performance in AIR NO_2 proficiency testing scheme (February 2023 – February 2025)	LAQM	2025
Annual Progress Report	MTCBC	2020
Annual Progress Report	MTCBC	2021
Annual Progress Report	MTCBC	2022

First Replacement Local Development Plan 2016-2031	MTCBC	2018
Focus on the Future: Wellbeing in our Community 2017-2022	MTCBC	2018
Wellbeing of Future Generations (Wales) Act 2015	Welsh Government	2015
A New Wales Transport Strategy: 2021	Welsh Government	2021
Merthyr Tydfil County Borough Council Decarbonisation Plan 2023 - 2030	MTCBC	2023

Appendices

Appendix A: Monthly Diffusion Tube Monitoring Results

Appendix B: A Summary of Local Air Quality Management

Appendix C: Air Quality Monitoring Data QA/QC

Appendix D: AQMA Boundary Maps

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

Table A.1 – Full Monthly Diffusion Tube Results for 2024 (µg/m^3)

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	37.8	34.2	25.1	26.2	26.5	26.3	23.9	29.2	20	29.7	33.4	20.1	27.7	21.6		
S02	304743	206261	20.1	19.6	15.7	13	12.1	5.5	11.4	12.5	12.9	18.4	17.4	13.4	14.3	11.2		
S03	305832	205941	16.2	11.8	9.7	8.1	6.5	6.2	6.7	5.8	6.8	12.6	9.9	9.3	9.1	7.1		
S04	305001	205763	33	30.5	26.1	24.7	26.3	18.6	19.6	17	28.7	30.3	32.9	25	26.1	20.3		
S05	305140	205910	23.4	19.4	17.4	16.8	15	13.4	13.4	12.6	11.8	19.9	23.9	5.1	16	12.5		
S06	305426	205144	27.7	27.2	23.3	20.1	20	17.2	17.1	16.7	21.2	9.6	23	22.2	20.4	15.9		
S07	309640	197033	18	-	13.7	11.6	11	8.7	11.1	9.6	-	-	-	-	12	13.0		**Annualised - Table C.2.**
S08	304866	206137	16.6	18.4	15.1	13.5	12.2	11	11.2	9.2	14.9	20.1	24.9	10.9	14.8	11.6		
S09	303525	206388	8	8.3	7.6	6.8	5.6	2.5	5.1	3.5	6.9	9.1	13.2	7.5	7	5.5		
S10	305180	206744	41.1	39.3	40.5	30.6	29.9	26.1	28.2	31.6	28.3	36.3	39.2	16.6	32.3	25.2		
S11	305382	205872	30.9	35.4	22.3	28.6	31.5	29.4	25.8	29	35.9	33.9	33.6	30.1	30.5	23.8		
S12	307171	207915	19	23.7	22.8	19.8	22.8	17.5	17.3	18.4	24.2	25.8	28.2	15.9	21.3	16.6		
S13	304947	206261	31.3	31.6	32.4	23.7	23.5	23.1	19.6	21.2	21.8	27.4	29.2	18.6	25.3	19.7		
S14	305410	205410	33	29.2	27	25.9	27	29.8	24.1	26.9	34.1	33.8	33.6	13.2	28.1	21.9		
S15	309573	196518	10.6	13.9	13.3	14	8.5	6.6	8.5	6.9	9.4	13.2	15.1	7.6	10.6	8.3		
S16	303360	206822	14.6	12.8	10.6	8.7	8.7	7.9	7.6	6.9	10.1	15.2	17.6	9	10.8	8.4		
S17	304942	206204	28.9	27.1	18.7	21.4	18.2	17.5	16.7	16.5	19.1	25	28.4	21.3	21.6	16.8		
S18	305217	205880	27.4	28.4	24.9	19.5	21.2	17.8	20	19.9	21.9	28	27.1	17.2	22.8	17.8		
S19	305299	205865	24.5	23.5	18	14.2	15.1	12.9	13.4	14.3	18.7	20.4	25.3	19.7	18.3	14.3		
S20	305149	205906	33.4	29.9	28.3	28.5	27.7	22.1	21.2	22.2	34	33.4	19.9	9.7	25.9	20.2		

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
S21	305394	205871	38	39	28.9	32	32	31.6	25.3	29.4	41.4	37.6	44.8	26.3	33.9	26.4		
S22	305147	205906	31.6	29.5	24.5	20.9	17.9	19.2	21.7	20.8	19.5	31.7	30.5	18.7	23.9	18.6		
S23	304987	206411	12.5	21	16.7	18.9	19.1	14.2	14.3	14.8	10	23.3	26.9	20.4	17.7	13.8		
S24	305415	205863	26.8	19.9	19.1	15.4	17.4	14.8	14.5	14.6	18.8	18.8	26.2	5.3	17.6	13.8		
S25	307034	202698	24.6	32.9	25.6	23.9	18.9	17.5	18.4	17.4	21.5	27	23.1	20.2	22.6	17.6		
S26	305296	205895	20.3	18.3	16	10.9	12.4	9.4	10.9	10.1	14.1	20.9	22	14.3	15	11.7		
S27	305182	206138	18.9	14	11.9	10.2	8.9	7.5	8.6	8.1	9.4	14.2	18.2	8.1	11.5	9		
S28	305579	206811	23.6	17.3	15.1	12.4	12.8	10.4	11.3	9.6	10.6	-	17.4	10.7	13.7	10.7		
S29	307112	202547	39.4	38.1	28.9	25.7	27.3	25.6	22.6	23.9	19.5	30.6	36	29.8	29	22.6		
S30	303570	206676	24.8	24.9	18.6	15.5	15.6	8.8	13.6	16.1	19.5	23.9	27.4	19	19	14.8		
S31	304782	205886	27	23.5	20.8	15.2	18.1	13.2	13.5	14.1	20	26.9	18.5	17.7	19	14.9		
S32	304835	205924	26.2	14.7	22.5	18.8	17.9	16.1	15.4	16.7	16.5	22.2	25.4	17	19.1	14.9		
S33	304898	205929	11.2	18.8	14.8	13	13	11.9	11.3	12.4	16.4	17.6	23	4.7	14	10.9		
S34	304917	206009	18.7	16.8	15	10.5	10.6	9.1	7.3	9.7	13.4	18.3	20.1	11.8	13.4	10.5		
S35	304840	206058	19.5	20.6	9.8	10.3	10.1	8.6	7.9	11.4	14.9	17.6	23.1	13.5	13.9	10.9		

☒ **All erroneous data has been removed from the NO_2 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 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**.

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**.

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 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

5.7 QA/QC of Diffusion Tube Monitoring

Diffusion tubes were manufactured and analysed by Socotec Didcot. The absorbent is analysed for NO_2 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.

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 2024 good precision was found in 33 out of 37 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 2024 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 AR062 [Jan – Feb 2024], AR063 [April – June 2024], AR065 [July – Aug 2024] and AR066 [Sept – Oct 2024]). 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 3 where the tubes were changed +1 day beyond the due date. This does not cause an issue with the dataset.

Diffusion Tube Annualisation

Annualisation is required at any non-automatic monitoring site for which there was data capture of less than 75% but greater than 25%. This was the case for DT (S7) which captured data for 56% of 2024. All other non-automatic monitoring sites within MTCBC recorded data of more than 75% and as such did not require annualisation. Details of the calculation method undertaken are provided in **Table C.2.**

Diffusion Tube Bias Adjustment Factors

Merthyr Tydfil County Borough Council have applied a national bias adjustment factor of 0.78 to the 2024 monitoring data. A summary of bias adjustment factors used by Merthyr Tydfil County Borough Council 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 06/25 for this laboratory and method include 37 studies. The list and results of the studies is shown in Error! Reference source not found..

Error! Reference source not found..

Diffusion Tube Bias Adjustment Factors 06/25 Issue of the Spreadsheet							
Laboratory	Method	Year	Previous Number of	New (06/25) Update			
				No. Studies Added	Total No. of Studies	Factor	Change in Factor
Aberdeen Scientific Services	20% TEA in water	2024	6	0	6	0.76	0.00
Edinburgh Scientific Services	50% TEA in acetone	2024	2	5	7	0.86	0.03
Glasgow Scientific Services	20% TEA in water	2024	1	0	1	0.82	0.00
Gradko	20% TEA in water	2024	27	4	31	0.84	0.00
Gradko	50% TEA in acetone	2024	12	0	12	0.88	0.00
Lambeth Scientific Services	50% TEA in acetone	2024	2	6	8	0.8	-0.01
Milton Keynes Council	20% TEA in water	2024	1	0	1	0.75	0.00
SOCOTEC Didcot	20% TEA in water	2024	1	1	2	0.74	-0.01
SOCOTEC Didcot	50% TEA in acetone	2024	33	4	37	0.78	0.00
SOCOTEC Glasgow	20% TEA in water	2024	1	0	1	0.77	0.00
SOCOTEC Glasgow	50% TEA in acetone	2024	1	0	1	0.79	0.00
Somerset County Council	20% TEA in water	2024	4	0	4	0.81	0.00
Staffordshire County Council	20% TEA in water	2024	16	4	20	0.8	-0.02
Tayside Scientific Services	20% TEA in water	2024	1	0	1	0.76	0.00
Number of Studies Included			**108**	**24**	**132**		

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	06/25	0.78
2023	National	06/24	0.78
2022	National	06/23	0.76
2021	National	06/21	0.78
2020	National	09/20	0.76

NO_2 Fall-off with Distance from the Road

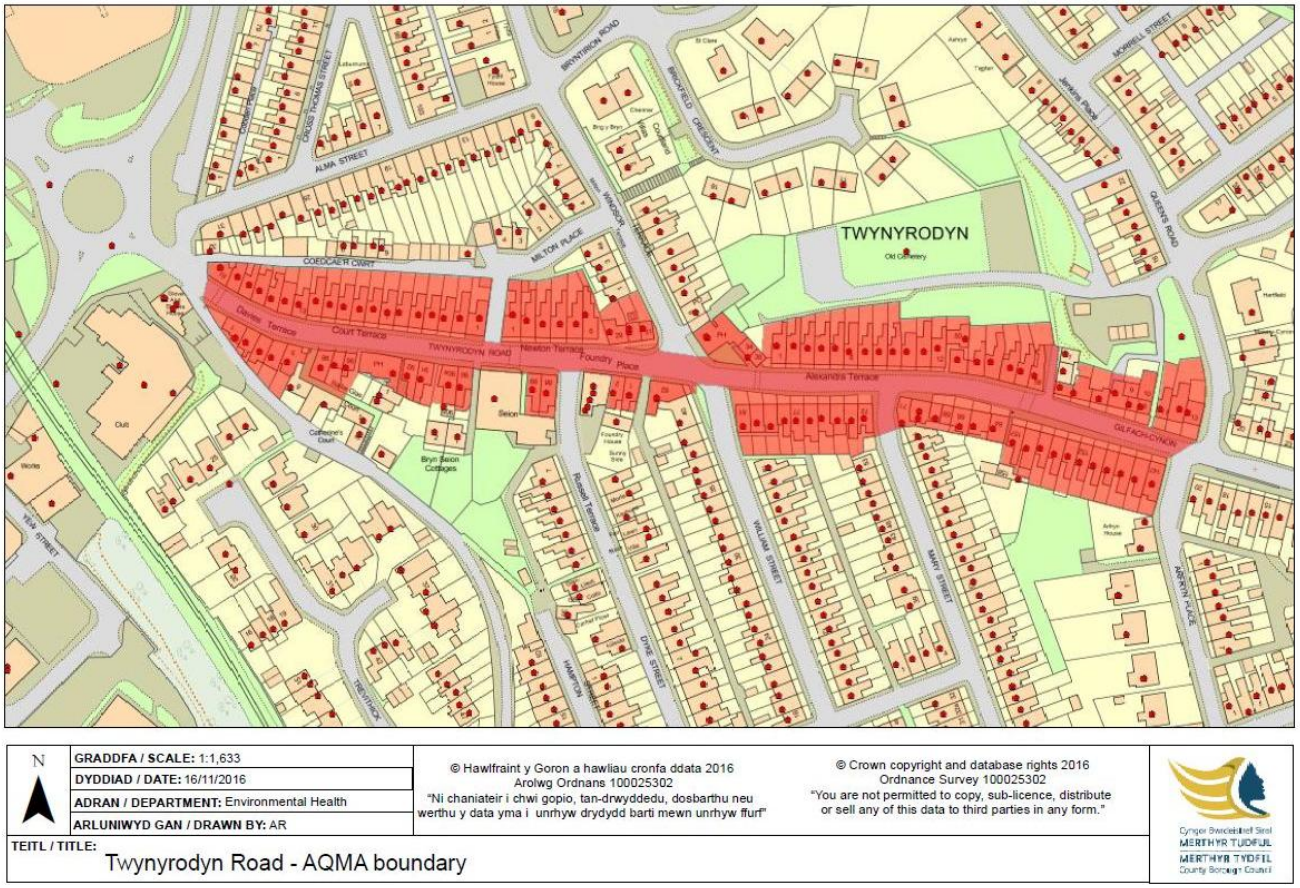
No diffusion tube NO_2 monitoring locations within Merthyr Tydfil County Borough Council required distance correction during 2024.

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

Site ID	Annualisation Factor Caerphilly White Street	Annualisation Factor Caerphilly Islwyn Road	Annualisation Factor RCT Pontypridd Gelliwastad Road	Annualisation Factor Caerphilly Blackwood High Street	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
S07	1.1069	1.0999	1.0553	1.0956	1.0894	12.0	13.0	

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
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 10 µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5 µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide