



Buckinghamshire  
Council

# 2023 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995  
Local Air Quality Management, as amended by the  
Environment Act 2021

Date: June 2023

<b>Information</b>	<b>Buckinghamshire Council Details</b>
<b>Local Authority Officer</b>	Cerys Williams and Deborah Ferady
<b>Department</b>	Strategic Environmental Protection, Housing and Regulatory Services
<b>Address</b>	The Gateway, Gatehouse Road, Aylesbury HP19 8FF
<b>Telephone</b>	03001 316000
<b>E-mail</b>	environmentalhealth@buckinghamshire.gov.uk
<b>Report Reference Number</b>	BC/ASR/2023
<b>Date</b>	30 <sup>th</sup> June 2023

## Executive Summary: Air Quality in Our Area

### Air Quality in Buckinghamshire Council

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas<sup>1,2</sup>.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 343,000 deaths at typical ages<sup>3</sup>, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017<sup>4</sup>.

Buckinghamshire Council is a unitary local authority in England, the area of which comprises most of the ceremonial county of Buckinghamshire equivalent to 1,874 km<sup>2</sup> with an estimated population of 543,973 (Office for National Statistics, 2019). It was created in April 2020 from the areas that were previously administered by Buckinghamshire County Council including the districts of Aylesbury Vale, Chiltern, South Bucks and Wycombe.

Buckinghamshire is predominately rural but has several market towns including Amersham, Aylesbury, Beaconsfield, Buckingham, Chesham, Gerrards Cross, High Wycombe, Iver and Marlow. The main source of air pollution in Buckinghamshire is from road transportation. There are four motorways which run through the Buckinghamshire Council Area, M4, M25 M40 and the A404(M) and the other main routes of traffic are the A40, A41, A412, A413, A418, A421, A4010. There are currently 125 Environmental Permits issued by Buckinghamshire Council to businesses including but not limited to

---

<sup>1</sup> Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

<sup>2</sup> Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>3</sup> Defra. Air quality appraisal: damage cost guidance, January 2023

<sup>4</sup> Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

petrol stations, dry cleaners, brickworks, crematoria, foundries, cement batchers, maggot breeders, manufacturers of timber and wood-based products and vehicle refinishers.

Currently nitrogen dioxide (NO<sub>2</sub>) is the major pollutant of concern within Buckinghamshire and is monitored using chemiluminescence continuous monitors and passive diffusion tubes.

The majority of Buckinghamshire already meets the Air Quality Objectives (AQOs) (set by the UK Government) for NO<sub>2</sub>. In 2022 there was a general decrease in concentrations recorded at most monitoring locations. However, a small fraction of monitoring locations did show slightly higher concentrations than those recorded in 2021. It is also noted that concentrations have not returned to the same levels measured before the COVID-19 pandemic.

Since the last Annual Status Report (ASR), no amendments have been made to the existing nine Air Quality Management Areas (AQMAs) that have been declared for exceedances of the annual mean nitrogen dioxide objective. For further information visit the UK Air website <https://uk-air.defra.gov.uk/aqma/list>.

## Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan<sup>5</sup> sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM<sub>2.5</sub> targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce PM<sub>2.5</sub> in their areas. The Road to Zero<sup>6</sup> details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

---

<sup>5</sup> Defra. Environmental Improvement Plan 2023, January 2023

<sup>6</sup> DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

Below are some of the actions taken by Buckinghamshire Council to improve air quality within the county.

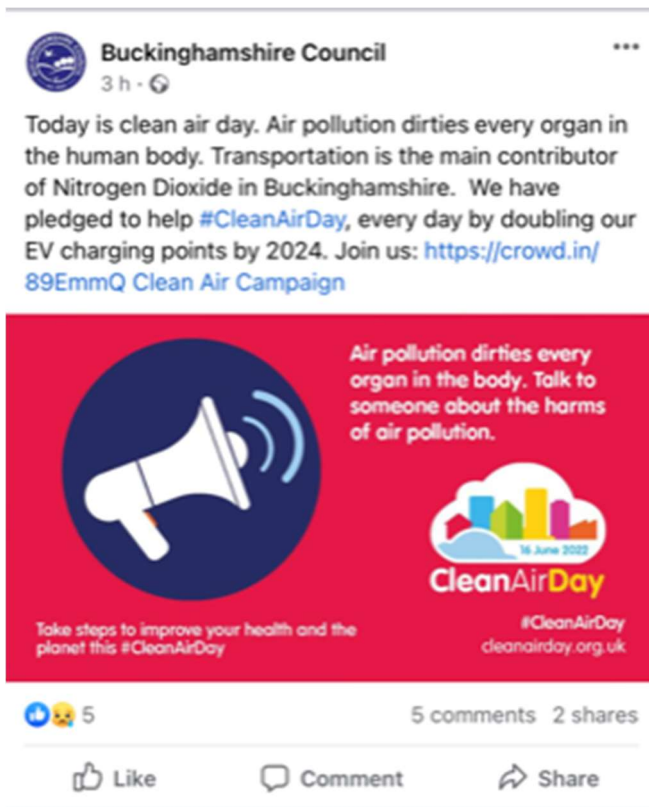
### Clean Air Day 2022

Buckinghamshire Council in conjunction with Bucks Business First, Global Action Plan and the University of Buckingham supported Global Action Plan on Clean Air Day on 16<sup>th</sup> June 2022 by holding a networking lunch for local businesses. The day included a 'Focus on Marketing Your Green Credentials' workshop and a Networking Lunch, where attendees joined representatives from Buckinghamshire Council, Buckinghamshire Business First and Global Action Plan for an update on the support available for businesses adopting electric vehicles and creating low-carbon workspaces.

One-to-one advice was also available from Low Carbon Advisers and Global Action Plan to help businesses reduce their energy and associated cost, measure their carbon footprint, and find out what resources are available to start the transition to adopting electric vehicles for individual businesses.



Buckinghamshire Council also posted messages on social media, such as Twitter and Facebook, in support of the day and an article was emailed to all members of staff. Examples of tweets and posts published are provided below.



## Climate Change & Air Quality Strategy

The Climate Change and Air Quality Strategy published in October 2021 sets out what Buckinghamshire council will do, and how we will work with partners and residents to achieve net-zero for carbon emissions for Buckinghamshire as a whole by 2050 and to improve air quality across Buckinghamshire pursuant to achieving national air quality objectives.

An update report has been published by the council which outlines the progress made during 2021 – 2022 against the targets set out within the Strategy. A copy of the [Progress Report for 2021 – 2022](#) can be accessed on the council's website.

## Electric Vehicle Action Plan

In June 2022 Buckinghamshire Council launched a 5-year Action Plan to support the transition of the county to electric vehicles (EVs).

The Action Plan covers a range of measures, including doubling the number of EV charging parking spaces across Buckinghamshire by 2023/4 and an ambition to have more than 1,000 publicly available charging spaces across the county by 2027.

The aim of the EV Action Plan is to help to reduce carbon emissions and improve air quality in Buckinghamshire as set out in Buckinghamshire Council's Climate Change and



Air Quality Strategy. The Action Plan will also support the council's commitment to achieve net zero carbon emissions for Buckinghamshire by 2050. Transportation currently contributes 51% of carbon emissions in Buckinghamshire, with 65% of these generated by cars.

The EV Action Plan will ensure there is a spread of EV charge points of different types across Buckinghamshire and will also focus on increasing coverage in areas currently without access to a charge point. To achieve this, the council will work with EV charge point operators, parish and town councils, and local businesses to encourage the installation of charge points. They'll also seek additional funding for new charge points from the Office for Zero Emission Vehicles.

The Action Plan also includes the installation of EV charging points at Buckinghamshire Council offices and depots to support staff to take up EVs and to help transition the council's fleet to EVs. This has already begun, with the council's Family Support Service installing EV charge points for its vehicles in High Wycombe and Aylesbury.

More information on the plan can be found on the [Electric Vehicles page](#) on the Council's website.



Electric Vehicle Charging points in Chesham

## **Electric Vehicle Charging**

Buckinghamshire Council has been successful in securing £407,000 of funding through the On-Street Residential ChargePoint Scheme (ORCS) to install 64 'fast' 7kW electric vehicle charging points in 16 car parks across Buckinghamshire to improve the counties EV charging infrastructure as set out in the Electric Vehicle Action Plan.

A project is also being run to install electric vehicle charging points in parish council car parks across Buckinghamshire. The project is in its infancy however it is expected there will be approximately 12 suitable locations with 2 charging points in each location, but this is to be confirmed. The charge points are planned to be installed by May 2024.

The Council will be launching a pilot scheme in the Demonstration Town of Wendover for on-street charging. This involves in-pavement channels which will enable residents with no off-street parking to safely run an electric vehicle cable from the edge of their property across the pavement to their EV via that channel. Under this scheme it is also intended to install 10 lamppost charging points for residents to utilise.

Finally, Buckinghamshire Council have been awarded around 2 million pounds from the Local Electric Vehicle Infrastructure (LEVI) fund for future projects.

## **Buckinghamshire Council Local Plan**

Buckinghamshire Council must produce a Local Plan within five years of coming into being: that is, by April 2025. As such the council at the beginning of the plan making process. In February 2022 residents were asked to complete a questionnaire survey to start early discussions and find out the issues which residents and organisations think are important in shaping the future of the area. Details of the survey can be found in the [Statement of Consultation Document](#).

Two calls for sites of previously developed land (brownfield) have also been completed with the latest taking place in September 2022.

It is a priority for the Strategic Environmental Protection team that Air Quality is given the attention required to enable the Council to allow future development without compromising Air Quality. The team have responded to all internal and external consultations drawing the attention of planning policy to potential opportunities and issues.

## **Local Transport Plan**

Buckinghamshire Council is in the process of updating its Local Transport Plan. This will be the fifth Transport Plan for Buckinghamshire (LTP5) and it will set out the ambitions,



policies and plans for delivering transport improvements for all types of transport across the county until 2040. The initial public consultation on the LTP5 vision and objectives is currently taking place and is due to close on Sunday 4<sup>th</sup> June. The Strategic Environmental Protection Team will feed into this consultation.

The LTP5 policies will be developed using feedback received during the consultation, current transport challenges in Buckinghamshire and government priorities. An implementation plan will also be created to deliver the policies. A further public consultation on the draft LPT5 policies and action plan is due to be held in the winter of 2023 with an aim to adopt them in the Summer of 2024. More information can be found on the [Local Transport Plan page](#) on the council's website.

### **Buckinghamshire Bus Service Improvement Plan**

In response to the National Bus Strategy 'Bus Back Better,' Buckinghamshire Council developed the Bus Service Improvement Plan (BSIP). The plan was updated in November 2022 and a copy can be accessed from the [national bus strategy page](#) on the council's website. It represents the Council's plan to establish buses as a key travel mode in Buckinghamshire, providing connectivity and accessibility to all with safe, reliable, and regular bus services.

The Government announced allocations of BSIP funding in April 2022 and have only awarded monies to 31 authorities. 40 other authorities will receive no funding at this stage and, unfortunately, Buckinghamshire is one of those. This is extremely disappointing as we submitted an ambitious plan containing nearly 50 schemes to improve bus services for our residents and covering all the areas the Department for Transport asked us to focus on, including plans for greener buses, more frequent services, lower fares, improved technology, and travel information.

The Department for Transport have told us that the BSIP scheme was significantly oversubscribed nationally, and that further funding may be available in future.

We will now continue work to set up an Enhanced Partnership with bus companies and remain fully committed to improving public transport in Buckinghamshire and working to secure Government funding in the future.

### **'Pick Me Up' Demand Responsive Transport (DRT) Service**

Buckinghamshire Council and Carousel Buses have launched a new 'demand responsive transport' (DRT) service in and around High Wycombe. Described as a cross between a bus and taxi service, the new DRT service comes as part of a pilot scheme funded by the

Government's Rural Mobility Fund. The new service will run for the next 3 years, with scope to run for longer if the pilot is successful.

Sitting under Carousel's 'PickMeUp' brand, the Wycombe pilot will serve several communities, including Booker, Daws Hill, Wooburn Green, Wycombe Marsh, Loudwater and Downley. These either have a limited bus service or a route which only serves part of the community.

Users will be able to book one of the five fully accessible minibuses to collect them from one of the 500+ pickup points – also known as 'virtual bus stops' – out and about in the local area.

Buses can be booked in advance of a trip via the app, through which you can also pay for your ticket and track your bus in real time. Those without access to the app can book over the phone. Buses can be booked in advance, or on the day of travel, and will run from Monday to Friday, 6am-7pm.

Journeys will only cost a little more than a local bus service – between £2 and £3.50 per trip depending on distance travelled. Concessionary bus passes will be accepted for free travel.



One of the Carousel PickMeUp buses



Carousel PickMeUp bus zone map for High Wycombe

### High Wycombe Transport Strategy and Local Cycling and Walking Infrastructure Plan (LCWIP)

Buckinghamshire Council have developed a draft Transport Strategy and a draft Local Cycling and Walking Infrastructure Plan (LCWIP) for High Wycombe. This is because there is a need to identify transport measures that can support the planned growth in High Wycombe and the draft Transport Strategy and draft LCWIP outline how we propose to do this.

The High Wycombe 2050 Transport Strategy sets the ambition for the town's transport system. It consists of:

- a vision statement
- three 'Connecting' themes, each with a set of key outcomes
- 26 transport schemes

Our vision is: "By 2050, High Wycombe will be among the best connected and most innovative towns in the Thames Valley, where all journeys, from start to finish, are low emission, seamless, and safe for everyone".

The Transport Strategy is the implementation plan for this vision. It sets out the key transport schemes required in the next 5, 10, 15 years and beyond.

The High Wycombe Local Cycling and Walking Infrastructure Plan (LCWIP) is a supporting plan to the draft High Wycombe 2050 Transport Strategy. The LCWIP focuses on walking and cycling.

The High Wycombe LCWIP aims to recommend ways to make cycling and walking in the High Wycombe area safe, accessible, and attractive for all users. It consists of:

- a future walking and cycling network covering High Wycombe and links to surrounding areas.
- 5 concepts to identify interventions to improve cycling and walking networks.

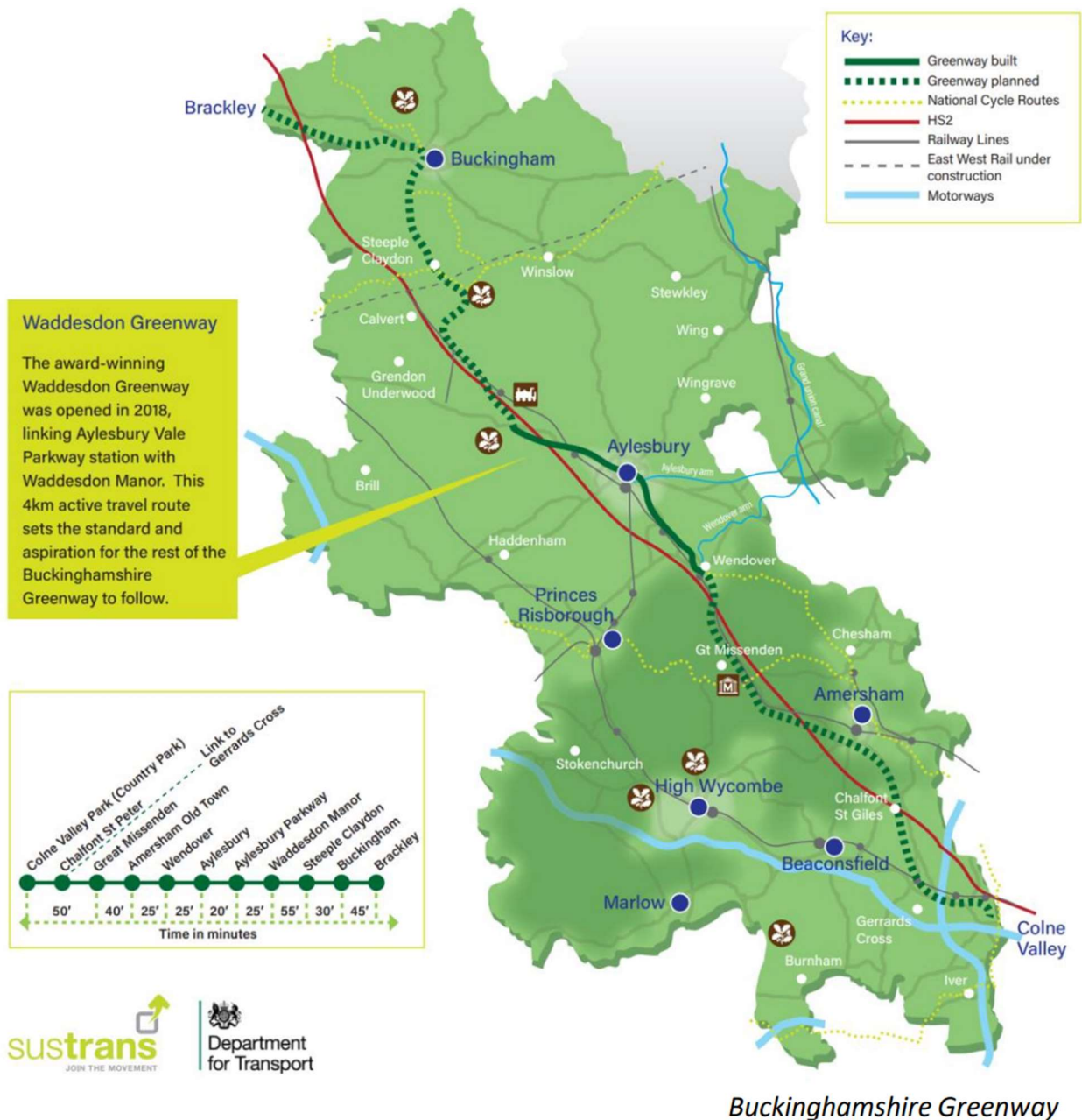
The LCWIP will play a key role in promoting physical activity, health, and wellbeing, and improving the local environment including air quality.

A public consultation was held at the end of 2022 on the Draft Strategy and Plan and the responses received have been analysed. The Council intend to progress with the Strategy and Plans with the aim of adopting them as policy in 2023.

### **Buckinghamshire Local Cycling and Walking Infrastructure Plan (LCWIP)**

Buckinghamshire Council have started to develop a Council-wide Local Cycling and Walking Infrastructure Plan (LCWIP) that will outline a high-level strategic network across Buckinghamshire. It will also set out priority active travel routes for future investment, focusing on inter-settlement links. It will also incorporate and build upon the emerging Buckinghamshire Greenway which is a strategic north-south active travel network spine, see map below.





The Strategic Environmental Team will be involved and participate in any consultation on the plan.

**E-Scooter Trial**

Buckinghamshire Council, as part of the Department for Transport (DfT) trials, have implemented an Electric Scooter rental trial to help support a ‘green’ alternative to local travel that is convenient, clean, and affordable. E-scooters can also reduce reliance on car trips, reduce congestion and improve air quality. The trial has been extended by the Department for Transport until May 2024 and is currently taking place in Aylesbury, High Wycombe, and Princes Risborough.



In 2022 more than 130,000 rides covering over 160,000 miles were made on the trial e-scooters.

### **BetterPoints Bucks**

Launched in January 2023, BetterPoints Bucks is a behaviour change programme, underpinned by academic research, that incentivises and rewards people for making positive changes to their lives. Delivered through an app and online platform it enables Local Authorities to incentivise, track, reward, and measure activities such as walking, cycling, wheeling and public transport and engaging directly with local audiences.

The app rewards subscribers for being active and for making other positive changes by providing them with points. The points can then be redeemed with high street shops and local businesses or donated to a choice of charities and local food banks.

Within Buckinghamshire, we are taking a holistic approach to help a wide range of people lead better, healthier lives. The vision is a systems-based approach which works across active travel and health, recognising shared aims of encouraging people to be more active to tackle obesity, reduce smoking prevalence, whilst also reducing solo car use to improve air quality and reduce congestion. The latest version of Better Points calculates CO<sub>2</sub> and NO<sub>2</sub> avoided, in real time on all journeys not made by car and highlights this on the app.

In April 2023 there were 886 registered users and engagement is recorded as 58%.

Industry standard for engagement in health & wellbeing apps after 30 days is as little as 8.5%. Users who take bus journeys of more than one mile are also rewarded. In April 451 users had travelled just under 32,500 miles.

More information and details on how to download the app can be found on the [BetterPoints Bucks website](#).

### **Play Streets**

Play Streets sessions have been implemented on several streets within Buckinghamshire. They involve low-key, temporary road closures, on quiet residential streets outside of rush hour and organised by neighbours, creating safe spaces for children to play out together and for people to connect informally on their doorstep.

### **Love Exploring**

Love Exploring is an app encouraging communities to explore their local area, parks, and green spaces more through walking. It creates bespoke activities to bring audio guides and augmented reality games to local areas. Free to all, the games and guided trails

include quizzes that get the user hunting for clues as they explore the place they are visiting. Love exploring has been launched in several parks within Buckinghamshire with the aim of extending the areas covered throughout 2023.

### **Modeshift STARS Education**

There are now 64 schools in Buckinghamshire with Modeshift STARS (Sustainable Travel Accreditation and Recognition for Schools), increasing the numbers by 14% from the same time last year. The scheme offers schools an online tool to help them plan, monitor and develop a nationally recognised School Travel Plan against set criteria. This plan will later designate the accreditation they will be able to achieve. The scheme is sponsored by the Department for Transport and encourages school aged children and young people to walk, bike, scoot or get the bus to school.

Sites are awarded Green, Bronze, Silver, Gold, and Platinum accreditation. Silver and Gold recognise sites that achieve a reduction in single-occupancy car journeys to/from their site and Platinum recognises sites that achieved an increase in active travel modes. Currently 3 schools have achieved a Platinum rating, 7 schools gold, 6 schools' silver, 39 schools' bronze and 9 schools green.

Buckinghamshire Council actively supports and encourages schools and individuals to take part in active travel as its part of tackling climate change and improving air quality within Buckinghamshire, aiming for carbon neutrality or net-zero in terms of carbon emissions by 2050. The council is also motivating children to create safe spaces around schools, such as Modeshift STARS Walking Bubbles, which can encourage families to park at least five minutes away from their destination, using a form of active transport to travel the rest of the way.

More information can be found on the [Buckinghamshire School Travel Planning website](#).

### **Hackney Carriage and Private Hire Licensing Policy**

A new Hackney Carriage and Private Hire Licensing Policy came into force with the aim of improving the environment and air quality by encouraging the use of low and ultra-low emission [such as electric, hybrid or liquefied petroleum gas (LPG)] taxi and private hire vehicles (PHVs). From the date of the implementation of the policy zero and ultra-low emission vehicles will be licensed for up to 15 years, and all other vehicles will be licensed for up to 10 years (except for wheelchair accessible and prestigious vehicles which can also be licensed for 15 year).

As a result of the Council's vehicle age policy, over 90% of taxis and PHVs now meet Euro 5 emission standards as a minimum and a third now meet the higher Euro 6 emission standards. The Council aims to only issue licences to ultralow or zero emission vehicles by 2030.

### **Projects funded by the Air Quality Grant Scheme**

- In 2020/21 Buckinghamshire Council received a grant of £97,900. Working with Global Action Plan (GAP) as key delivery partner and local business engagement groups, Buckinghamshire Council led a campaign to accelerate the mode shift to electric vehicles and e-bikes in Buckinghamshire aimed at employers and their staff. 30 large employers received tailored, high quality, and independent support to implement actions to increase EV and e-bikes in their own operations and to encourage and enable their staff (including staff on low to middle income brackets) to buy or lease EVs and e-bikes taking advantage of attractive incentives on offer. This project made purchasing cars and bikes a more realistic option for many citizens who live and work in Buckinghamshire, especially those on lower incomes.

Global Action Plan also attended events organised by Bucks Business First to promote the benefits of EV ownership and how it can impact positively by reducing air pollutants and greenhouse gases. Case studies were also created to explain how a variety of organisations have transitioned to the introduction of electric vehicles.

This project concluded in December 2022. More information on the project including links to the case studies and the final report to Defra can be found on the [Electric Vehicles in Business page](#) on the council's website.

- In 2021/22 Buckinghamshire Council received Capital funding of £578,000 for the renovation of a 26 tonne Refuse Collection Vehicle to include an electric powertrain (and other items required for five years' worth of maintenance). A contract has been awarded and work will begin in 2023.
- In 2021/22 Buckinghamshire Council (working with Spelthorne and Ricardo E&E) also received £91,273 of funding to create Air Quality Toolkits. This project is currently being rolled out and has provided all of Buckinghamshire's Community Boards with materials to enable them, local schools, and organisations to carry out campaigns and to raise awareness of local air quality issues.

Included will be access to the use of one air quality sensor, campaign materials, advice, and toolkits on how to run campaigns. The results from the sensor will help to

illustrate and monitor the impact of campaigns carried out during the year. The toolkit will also improve participants knowledge about air quality and educate on what steps individuals can take to reduce their exposure to air pollution.



An Airly Sensor which will be made available to the Community Boards to monitor air quality in their area.

- In 2022/23 Buckinghamshire Council were awarded £120,000 to provide travel planning and eco driving support for local businesses. The main aim of this project is to enable greater collaboration with local businesses, with the aim of encouraging low emission vehicle practices and improvements to the HGV fleet travelling in and around Buckinghamshire reducing emissions from HGVs and encouraging safer driving. Although the main focus will be on HGV fleets it has been considered prudent not to limit the project to HGVs and include all fleet types as this would increase the impact of the project.

## Conclusions and Priorities

Only one exceedance of the annual mean nitrogen dioxide objective was identified in Buckinghamshire in 2022. This was at a new monitoring location Site ID number AV36 within the Friarage Road AQMA in Aylesbury. Where it is not possible to measure NO<sub>2</sub>

concentrations at precisely the desired location, Defra have developed a calculator that allows users to predict the annual mean NO<sub>2</sub> concentration for a location (“receptor”) that is close to a monitoring site. This enables Local Authorities to determine the concentrations of air pollutants at sensitive receptors where it wouldn’t otherwise be possible as the location cannot facilitate the installation of monitoring equipment. Further information on the fall off with distance calculation can be found on page and Appendix C. Once the fall off with distance calculation was completed a concentration of 41.1 µg/m<sup>3</sup> was recorded. Concentrations were measured within 10% of the objective at six other locations. Once the fall off from distance calculation had been completed the concentration of NO<sub>2</sub> was found to be significantly below the average annual objective at all sites apart from site ID numbers AV14 and AV40 both within or slightly adjacent to the Stoke Road AQMA in Aylesbury which remained within 10% of the annual mean objective. All other diffusion tube sites in 2022 reported concentrations well below the annual mean objective level of 40 µg/m<sup>3</sup>.

Following a significant decrease at most monitoring locations in Buckinghamshire in 2020 and 2021 due to the COVID-19 pandemic it is noted that in 2022 concentrations at all monitoring sites have not returned to pre-pandemic levels.

Monitoring completed in the Tring Road AQMA over the last five years has shown that concentrations of NO<sub>2</sub> have consistently been below the annual mean objective level of 40 µg/m<sup>3</sup>. Therefore, we will start the consideration of revoking the Tring Road AQMA in 2023.

### **Buckinghamshire Council’s priorities for 2023**

#### **Unitary Authority and Better Buckinghamshire programme**

Since the creation of the Strategic Environmental Protection Team in August 2021 all suppliers and contracts for air quality monitoring equipment held by the legacy councils have now been aligned into one contract.

The next step is to continue working on the consolidation of all Air Quality Action Plans into one and explore the adoption of a Supplementary Planning document for the whole of Buckinghamshire.

#### **Buckinghamshire Council Local Plan**

Buckinghamshire Council must produce a Local Plan within five years of coming into being, that is by April 2025. As such the council at the beginning of the plan making process.



It is a priority for the Strategic Environmental Protection team that Air Quality is given the attention required to enable the Council to allow future development without compromising Air Quality. The team have responded to all internal and external consultations drawing the attention of planning policy to potential issues.

### **Implementation of Defra Air Quality Grant Projects**

The Strategic Environmental Protection Team will continue to progress and implement the projects awarded funding through the Defra Air Quality Grant.

### **Revoking Tring Road AQMA**

Monitoring completed has shown that NO<sub>2</sub> concentrations remain significantly below the annual mean objective level of 40 µg/m<sup>3</sup>. Concentrations would reduce again once the fall off with distance calculation had been applied. It is considered highly unlikely that traffic along the A41 would increase in such significant numbers that would result in the objective not being met at the nearest sensitive receptor. Therefore, we will look at the process of revoking the Tring Road AQMA following Defra guidance and the Council's governance procedure. See the Air Quality Management Area section for background information on making this decision.

### **National Infrastructure Projects**

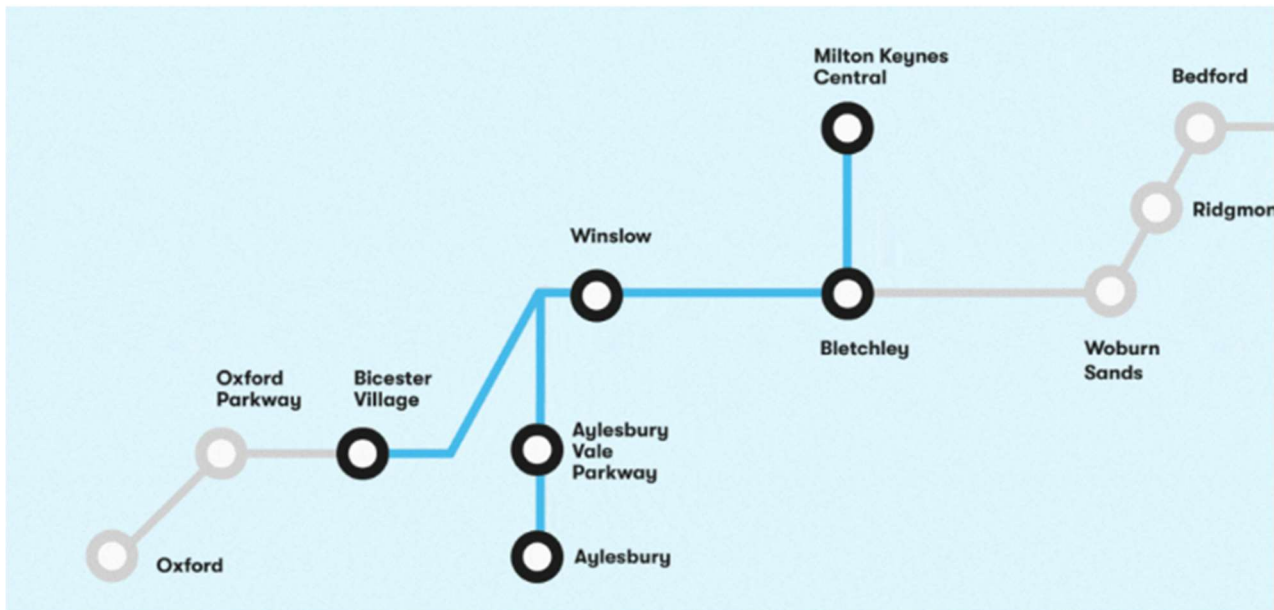
In addition, there are several National Infrastructure Projects (NIPs) currently being constructed within Buckinghamshire over the next few years. If not managed appropriately they have the potential to cause a large and significant impact on local air quality.

**Crossrail** - The Elizabeth line opened on Tuesday 24 May 2022 with services between Paddington and Abbey Wood. TfL Rail services from Reading and Heathrow to Paddington mainline, and Shenfield to Liverpool Street mainline were also rebranded to the Elizabeth line. The new Queen Elizabeth line will provide more frequent faster trains from Taplow, Iver and Langley into and across London. It is expected to increase the capacity and therefore the patronage to these stations. Buckinghamshire Council will work with other agencies to promote sustainable travel to these stations so to avoid an increase in pollution.

**East West Rail (EWR)** - East West Rail is a major railway project. It aims to deliver much-needed transport connections for communities between Oxford and Cambridge.

Construction on connection 1 between Oxford and Milton Keynes started in 2020 with the aim of having trains running in 2025. Further information on the progress of the project and

what measures EWR have in place to reduce disruption on the local community can be found here on the [Network Rail website](#).



Map of Connection Stage One of East West Rail – Bicester to Bletchley/Milton Keynes

**High Speed 2 (HS2)** - Route wide sources of air quality impacts identified include highway construction traffic, highway interventions, and the use of Non-Road Mobile Machinery (NRMM), which may have temporary effects on local air quality. These effects may occur in the vicinity of HS2 construction sites, as well as alongside several roads used by the construction traffic moving to and from each site. The effects are mostly from changes in NO<sub>2</sub> concentrations and particulate matter, including PM<sub>10</sub> and PM<sub>2.5</sub>.

A mass haul strategy to cope with the movement of excavated material to various locations along the route is in place. HS2 have committed to, wherever practicable, keep the movement of this material within the boundary of the HS2 project thereby reducing the need to use HGVs on the public roads. Internal haul roads have been developed which follow the rail trace through the middle of the earthwork areas (i.e., embankments, cuttings). Substantial activity including digging out the north portal at South Heath and excavating the cutting from there to Wendover has taken place. To connect parts of this area of the route an overhead earth conveyor system is being constructed at the northwest of the South Heath Cutting. Where possible HS2 are trying to reduce HGV movements by using rail.

The HS2 environmental statement (as amended) included an assessment of the impacts of the scheme on air quality during both construction and operation. The HS2 Air Quality Strategy and HS2 Phase One Information Paper E31 “Air Quality” summarises the impacts

and the project includes a HS2 Air Quality Action Plan which was revised in 2019. More information can be found at [Monitoring the environmental effects of HS2](#).

Officers will continue to carefully monitor the effects of the project on air quality in the Buckinghamshire Council administrative area, provide challenge where appropriate and seek further mitigation where reasonable to do so.

**Upgrade M4 Jct. 4 – 8/9 to a Smart Motorway** – The upgraded motorway between junctions 4 and 8/9 was opened in December 2022. The national speed limit has been restored between junctions 4 and 8/9. This marks the lifting of the final restriction on the upgraded M4 between junctions 4 and 12.

During the construction phase of each of these developments Buckinghamshire Council will continue to work with the relevant agencies and organisations to minimise impacts upon air quality.

## Local Engagement and How to get Involved

Emissions from road transportation are the major source of air pollution in Buckinghamshire. Therefore, members of the public can help reduce local air pollution concentrations by choosing to use more sustainable transport options such as walking, cycling, car sharing and/or use public transport. They can also reduce reliance on cars for trips where possible.

There are increasing opportunities within the Buckinghamshire Council area to use sustainable transport options, such as improved walking routes and cycling routes. Information on these routes can be found on the Council's website [Cycling and walking | Buckinghamshire Council](#).

When using a car for trips, emissions can be minimised by ensuring that the vehicle is not over revved, and that the engine is switched off when the vehicle is stationary (parked) or is likely to be stationary for a period.

Air quality monitoring data is hosted on the Air Quality England website ([Buckinghamshire Council - Air Quality monitoring service \(airqualityengland.co.uk\)](#)) which allows access to existing and historical air quality levels.

For further information on Air Quality and how to reduce emissions and exposure to pollution please refer to the Clean Air Hub website run by the Charity Global Action Plan.

[Clean Air Hub: The UK's go to source for information on clean air and air pollution](#)

## Local Responsibilities and Commitment

This ASR was prepared by the Strategic Environmental Protection Team of Buckinghamshire Council with the support of the following departments:

- Transport Strategy and Funding Team
- Energy and Climate Change Team
- Public Health Team
- Taxi Licensing Team
- Building Control Team

This ASR has been signed off by the Director of Public Health.



Dr Jane O'Grady

Director of Public Health at Buckinghamshire Council

If you have any comments on this ASR, please send them to Cerys Williams or Deborah Ferady at:

Strategic Environmental Protection

Buckinghamshire Council

The Gateway

Gatehouse Road

Aylesbury

HP19 8FF

Email: [environmental.health@buckinghamshire.gov.uk](mailto:environmental.health@buckinghamshire.gov.uk)

## Table of Contents

<b>Executive Summary: Air Quality in Our Area</b> .....	<b>i</b>
Air Quality in Buckinghamshire Council .....	i
Actions to Improve Air Quality .....	ii
Conclusions and Priorities .....	xv
Local Engagement and How to get Involved.....	xix
Local Responsibilities and Commitment .....	xx
<b>1 Local Air Quality Management</b> .....	<b>1</b>
<b>2 Actions to Improve Air Quality</b> .....	<b>2</b>
Air Quality Management Areas .....	2
Progress and Impact of Measures to address Air Quality in Buckinghamshire Council.....	11
PM <sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations .....	27
<b>3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance</b> .....	<b>31</b>
Summary of Monitoring Undertaken .....	31
3.1.1 Automatic Monitoring Sites .....	31
3.1.2 Non-Automatic Monitoring Sites .....	31
Individual Pollutants .....	31
3.1.3 Nitrogen Dioxide (NO <sub>2</sub> ) .....	32
<b>Appendix A: Monitoring Results</b> .....	<b>36</b>
<b>Appendix B: Full Monthly Diffusion Tube Results for 2022</b> .....	<b>74</b>
<b>Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC</b> .....	<b>83</b>
New or Changed Sources Identified Within Buckinghamshire Council During 2022 .....	83
Additional Air Quality Works Undertaken by Buckinghamshire Council During 2022 .....	83
QA/QC of Diffusion Tube Monitoring .....	84
Diffusion Tube Annualisation .....	85
Diffusion Tube Bias Adjustment Factors .....	85
NO <sub>2</sub> Fall-off with Distance from the Road.....	87
QA/QC of Automatic Monitoring .....	89
Automatic Monitoring Annualisation .....	89
NO <sub>2</sub> Fall-off with Distance from the Road.....	89
<b>Appendix D: Summary of Air Quality Objectives in England</b> .....	<b>90</b>
<b>Glossary of Terms</b> .....	<b>91</b>
<b>References</b> .....	<b>93</b>



## Figures

Figure A.1 – Trends in Annual Mean NO <sub>2</sub> Concentrations.....	64
--	----

## Tables

Table 2.1 – Declared Air Quality Management Areas.....	4
Table 2.2 – Progress on Measures to Improve Air Quality.....	15
Table A.1 – Details of Automatic Monitoring Sites.....	36
Table A.2 – Details of Non-Automatic Monitoring Sites.....	37
Table A.3 – Annual Mean NO <sub>2</sub> Monitoring Results: Automatic Monitoring (µg/m <sup>3</sup> ).....	51
Table A.4 – Annual Mean NO <sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m <sup>3</sup> )....	52
Table A.5 – 1-Hour Mean NO <sub>2</sub> Monitoring Results, Number of 1-Hour Means > 200µg/m <sup>3</sup> .....	73
Table B.1 – NO <sub>2</sub> 2022 Diffusion Tube Results (µg/m <sup>3</sup> ).....	74
Table C.1 – Annualisation Summary (concentrations presented in µg/m <sup>3</sup> ).....	85
Table C.2 – Bias Adjustment Factor.....	87
Table C.3 – Local Bias Adjustment Calculation.....	87
Table C.4 – NO <sub>2</sub> Fall off With Distance Calculations (concentrations presented in µg/m <sup>3</sup> )	88
Table D.1 – Air Quality Objectives in England.....	90

# 1 Local Air Quality Management

This report provides an overview of air quality in Buckinghamshire Council during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

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 likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Buckinghamshire Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table D.1.

## 2 Actions to Improve Air Quality

### Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained and provide dates by which measures will be carried out.

A summary of AQMAs declared by Buckinghamshire Council can be found in Table 2.1. The table presents a description of the nine AQMAs that are currently designated within Buckinghamshire Council. Maps of AQMAs and the air quality monitoring locations in relation to the AQMAs can be found on the council's [air quality management reviews and annual report webpage](#). The air quality objectives pertinent to the current AQMA designations are as follows:

- NO<sub>2</sub> annual mean

In the 2016 and 2017 ASRs Aylesbury Vale District Council made a recommendation to revoke the Tring Road AQMA. Defra's appraisal of the 2017 ASR recommended that before the AQMA is considered for revocation the council should review the monitoring sites within the AQMA to ensure there are no exceedances in location of relevant exposure that have not yet been considered. A review of the monitoring sites located with the Tring Road AQMA was completed and an additional 3 diffusion tubes were deployed within the AQMA or on the boundary from January 2018.

In the 2019 ASR revocation of the Tring Road AQMA was considered again as monitoring results were consistently below the annual mean objective level of 40 µg/m<sup>3</sup>. The monitoring data from 2020 and 2021 showed a continuing downward trend. However, the data from these years is not representative of usual traffic levels and circumstances due to restrictions put in place during the COVID-19 pandemic. It was therefore concluded in the 2022 ASR that monitoring would continue in 2022 before any decision is reached in revoking the AQMA.

Monitoring completed during 2022 has shown that concentrations remain significantly below the annual mean objective level of 40 µg/m<sup>3</sup> and all 3 locations monitored concentrations

below 30 µg/m<sup>3</sup> for the last 3 years. Concentrations would reduce again once the fall off with distance calculation had been applied. It is considered highly unlikely that traffic along the A41 would increase in such significant numbers that would result in the objective not being met at the nearest sensitive receptor. Therefore, we will begin the process of revoking the Tring Road AQMA following Defra guidance and the Council's governance procedure.

**Table 2.1 – Declared Air Quality Management Areas**

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Friarage Road AQMA	16th June 2008	NO2 Annual Mean	An area encompassing several properties along the A418 (Friarage Road and Oxford Road) in Aylesbury	NO	44	41.1	Not compliant	Aylesbury Air Quality Action Plan	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>
Stoke Road AQMA	16th June 2008	NO2 Annual Mean	An area encompassing the junction of the A413 Wendover Road, Walton St and the B4443 Stoke Road in Aylesbury	NO	59	No Exceedance	1 year	Aylesbury Air Quality Action Plan	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Tring Road AQMA	4th July 2005	NO2 Annual Mean	An area encompassing a stretch of the A41 Tring Road and properties bordering it between the Oakfield Road/King Edward Avenue junction and Queen Street in Aylesbury	NO	40	No Exceedance	5 years	Aylesbury Air Quality Action Plan	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>
Chesham AQMA	Declared 20th August 2007	NO2 Annual Mean	A small part of the A416 including Broad Street and Berkhamstead Road	NO	50	No Exceedance	4 years	Air Quality Action Plan (AQAP) 2019	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>



AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
South Bucks AQMA	Declared 2004	NO2 Annual Mean	An area surrounding the M25, M40 and M4 motorways	NO	42.8	No Exceedance	3 years	Buckinghamshire Air Quality Action Plan - South Bucks Area	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>
South Bucks District Council AQMA No 2	Declared August 2018	NO2 Annual Mean	Iver Parish	NO	44	No Exceedance	3 years	Buckinghamshire Air Quality Action Plan - South Bucks Area	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>
AQMA No.1 (M40)	Declared 01/08/01 Amended 22/12/17	NO2 Annual Mean	Along the M40 Motorway throughout District. Area includes land and property to each side of the carriageway that were modelled to have	YES	n/a	No Exceedance		Wycombe District Air Quality Action Plan	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
			exceeded national air quality objectives for NO2 (annual mean)						
AQMA No.2 (High Wycombe)	Declared 22/12/2017	NO2 Annual Mean	Main arterial roads of High Wycombe including West Wycombe Rd, Oxford St, Hughenden Rd, Abbey Way, Marlow Hill, Bridge St, Crendon St, Queen Victoria Rd, Easton St, London Rd and Amersham Hill (part of). Area also includes properties to	NO	52	No Exceedance	3 years	Wycombe District Air Quality Action Plan	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
			the side of these roads where exceedances were modelled to include an area that passed through a significant part of a building or plot of land.						

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA No.3 (Marlow)	Declared 22/12/2017	NO2 Annual Mean	Area incorporates the High Street (between Station Rd / Pound Ln roundabout and West St / Spittal St roundabout), West St (between High St / Spittal St roundabout and Westwood Rd), Spittal St, Chapel St, Little Marlow Rd (between Chapel St and Foxes Piece School), and areas of land to either side of the carriageway on the aforementioned roads.	NO	52	No Exceedance	3 years	Wycombe District Air Quality Action Plan	<a href="https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/">https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/</a>

- Buckinghamshire Council confirm the information on UK-Air regarding their AQMA(s) is up to date.**
- Buckinghamshire Council confirm that all current AQAPs have been submitted to Defra.**

## Progress and Impact of Measures to address Air Quality in Buckinghamshire Council

Defra's appraisal of last year's ASR concluded "on the basis of the evidence provided by the local authority the conclusions reached are acceptable for all sources and pollutants. The next step for Buckinghamshire Council is to submit an Annual Status Report in 2023.

Detailed comments were as follows:

- Defra acknowledged that the monitoring results were clearly and correctly presented, with a detailed discussion provided. It was advised to further enhance the section it would be beneficial to discuss maximum concentrations report and overall trends observed in each of the AQMAs. This advice has been noted and implemented in this year's ASR.
- As recommended, changes in the monitoring network have been clearly detailed and discussed.
- Inconsistency was reported between the AQMA names within the ASR, and what is reported on the LAQM website. As recommended the AQMA names within the 2022 ASR are aligned with those on the LAQM website.
- It was advised that 10 AQMAs are detailed on the LAQM portal, but only 9 are referenced in the ASR. This was due to an error on the LAQM portal which has been rectified.
- Annualisation was completed using London Harlington. However, it was advised that this is classed as an urban industrial site, and it was recommended to use an urban background when completing annualisation. London Hillingdon has been used in this year's ASR.
- It was recommended that a key/label for each of the AQMAs on the maps within Appendix D should be included to improve clarity. In this year's ASR an interactive GIS map has been created to allow users to easily navigate and find the monitoring locations and the locations of the AQMAs which includes a key. The map can be found on the council's [air quality management reviews and annual report webpage](#)

Buckinghamshire Council has taken forward several direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 39 measures are included within Table 2.2, with the type of measure and the progress Buckinghamshire Council



have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans, Climate Change and Air Quality Strategy and the Freight Strategy.

Key completed measures are:

- Working with Global Action Plan as key delivery partner and local business engagement groups, Buckinghamshire Council led a campaign to accelerate the mode shift to electric vehicles and e-bikes in Buckinghamshire aimed at employers and their staff. 30 large employers received tailored, high quality, and independent support to implement actions to increase EV and e-bikes in their own operations and to encourage and enable 10,000 of their staff (including staff on low to middle income brackets) to buy or lease EVs and e-bikes taking advantage of attractive incentives on offer. This project was completed in December 2022.
- The EV Action plan was completed and launched in June on Clean Air Day 2022.
- An annual progress report for the Climate Change and Air Quality Strategy was published in October 2022.

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

- We will continue to roll out of air quality toolkit to the local community boards to enable Air Quality campaigns to be carried out locally either by the boards or local schools. The team will provide ongoing support to each board and will also top up the toolkit with up-to date and relevant campaign materials throughout the year.
- The Strategic Environmental Protection team will be looking into using the new Buckinghamshire wide transport model to get a better understanding on where monitoring locations may be required in the future.
- Apply for funding from the Air Quality Grant.
- Consolidate the Air Quality Action Plans into one document.

Buckinghamshire Council's priorities for the coming year are:

- Continue to gather monitoring data on NO<sub>2</sub> concentrations throughout Buckinghamshire and particularly within the AQMAs.

- Continue to work with various Departments across the council on projects which will improve air quality within Buckinghamshire.
- Buckinghamshire Council are in the process of producing a new local plan for the new authority. It is a priority for the Strategic Environmental Protection team to continue working in partnership with the planning policy team to ensure air quality is included as a key consideration. The team have responded to all internal and external consultations drawing the attention of planning policy to potential issues. The team will also support the work on the development of a Buckinghamshire wide Supplementary Planning document.
- The Strategic Environmental Protection team will be looking into using the new Buckinghamshire wide transport model to get a better understanding on where monitoring locations will be required in the future.
- The Strategic Environmental Protection team will work collaboratively with council teams and other agencies to deliver the council's flagship programme to improve opportunities for people in Buckinghamshire known as Opportunity Bucks. This is the council's local response to the government's [Levelling Up White Paper published in February 2022](#) which sets out 12 national missions designed to spread opportunity across the whole UK and improve everyday life and life chances for people in underperforming places. Visit the [Opportunity Bucks pages](#) on the Buckinghamshire Council website for full information on the scheme.

Buckinghamshire Council worked to implement these measures in partnership with the following stakeholders during 2022:

- Global Action Plan
- Bucks Business First
- Globe BID
- LEAP

The principal challenges and barriers to implementation that Buckinghamshire Council anticipates facing are:

- There are several National Infrastructure Projects being developed in the area. The extent to which the council can further influence these locally is in some cases very limited.

- There are several barriers to HGV movement on the road network in the Iver area, including width and weight restrictions and low bridges which mean that HGV flows are restricted to certain routes, further focussing their impact on particular locations. This prevents the diversion of HGVs to more appropriate roads in terms of environment and place.

Buckinghamshire Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in all 9 AQMAs.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Introduce new planning policy to include electric charging points within large and commercial developments	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2017	2021	Local Authority Strategic Environmental Protection Team and Planning Departments	Local Authority	NO	Funded	£10k - 50k	Completed	Reduced tailpipe emissions	NOx	The VALP has been published and policy on EVs included.	New local planning guidance needs to be considered in light of Iver's Neighbourhood plan and building regs now has a requirement to install EV infrastructure.
2	Improvement of A418 Oxford Road corridor leading to and including Friarage Road AQMA	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2018	2021	Local Authority Transport Department and Buckinghamshire's Local Enterprise Partnership	DfT's National Productivity Investment Fund (NPIF) and Developer Funding	NO	Funded	£1 million - £10 million	Completed	Improved traffic flow and reduced vehicle emissions	NOx	Scheme completed in February 2021	Additional monitoring location introduced in 2022 to ensure the AQMA is adequately monitored. Result is exceedance of the annual mean objective.
3	Low Emission Strategy for Buckinghamshire	Policy Guidance and Development Control	Low Emissions Strategy	2018	2021	Local Authority Environmental Health and Energy and Climate Change Departments	Local Authority	NO	Funded	< £10k	Completed	Reduced emissions	NOx	Climate Change and Air Quality Strategy has been published	An annual progress was published in October 2022 for this report. Please see <a href="https://www.buckinghamshire.gov.uk/environment/sustainability-and-climate-change/energy-and-climate-change/the-climate-change-and-air-quality-strategy/">https://www.buckinghamshire.gov.uk/environment/sustainability-and-climate-change/energy-and-climate-change/the-climate-change-and-air-quality-strategy/</a>

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
4	Encourage the uptake of Electric cars and Bikes	Public Information	Other	2020	2022	Local Authority Environmental Protection, Local Authority Economic Development, Global action Plan and Business Engagement Groups	Defra and Local Authority	YES	Funded	£50k - £100k	Completed	Reduced vehicle emissions	Increase in the uptake of Electric Cars and Bikes	This project has now been completed. More information on the project and the final report can be found here: <a href="https://www.buckinghamshire.gov.uk/parking-roads-and-transport/parking/electric-vehicles/electric-vehicles-in-business/">https://www.buckinghamshire.gov.uk/parking-roads-and-transport/parking/electric-vehicles/electric-vehicles-in-business/</a>	
5	Implementation of a Freight Strategy	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2018	2032	Local Authority Strategic Environmental Protection Team and Transport Departments	Local Authority	NO	Not Funded	£10k - 50k	Planning	Reduced vehicle emissions	Improved HGV fleet	<p>A pilot scheme is being run within Ivinghoe where a 7.5 tonne weight restriction is being applied, giving access for local needs. the zone is now moving through a 2-stage implementation phase.</p> <p>Stage 1 We covered the design, procurement and positioning of signs around the zone. This was completed at the end of February 2023 making the restriction order legal.</p> <p>Stage 2 We will work with our neighbouring authorities on the installation of advance notice signage. This will ensure we let HGV drivers and operators know about this restricted zone before they reach the perimeter. We expect the work to be completed in the first half of 2023.</p>	Buckinghamshire Council are working with the Wexham and Iver Community Board to develop an action plan to reduce the impact of HGVs on the villages.
6	Working with key stakeholders and appointed consultants to ensure that any impacts associated with National Planning Infrastructure	Transport Planning and Infrastructure	Other	2006	Various	Local Authority Strategic Environmental Protection Team, High Speed 2 (HS2), East West Rail (EWR) and London Luton Airport Ltd (LLAL)	HS2 and EWR	NO	Funded	£10k - 50k	Implementation	Limited short-term increase in emissions	NOx and PM	During the construction phase of each of these developments Buckinghamshire Council will continue to work with the relevant agencies and organisations to minimise impacts upon air quality.	

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	e (NPI) projects.														
7	Electric Scooter Rental Trial within Aylesbury, Wycombe and Princes Risborough	Alternatives to private vehicle use	Other	2020	2024	Local Authority, Department for Transport, Zipp Mobility	Department for Transport	NO	Funded	£50k - £100k	Implementation	Reduced vehicle emissions	No of Scooters Hired	During January and December 2022 there have been more than 130,000 rides covering over 160,000 miles.	The scheme has been extended until the end of May 2024.
8	Implementation of Environmental Permitting Regulations	Environmental Permits	Measures to reduce pollution through IPPC Permits going beyond BAT	2016	Ongoing	Local Authority Environmental Health Department	Local Authority and Permitting Fees	NO	Funded	< £10k	Implementation	PM10	No of Permitted Processes with Environment Management schemes	Permitting officer encourages the uptake of Environmental Management schemes to reduce emissions	
9	Community/public engagement to promote and educate on sources of air pollution, impacts on health and how concentrations can be reduced	Public Information	Via other mechanisms	2021	2023	Local Authority Strategic Environmental Protection Team and Communications Departments	Local Authority	NO	Funded	< £10k	Implementation	Not measurable	Uptake of toolkits	Multi-pollutant sensors have been purchased and we are in the process of installing them in local schools. The Community Boards have received their toolkits.	
10	Publication of Electric Vehicle Charging Point Strategy	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel	2019	2022	Local Authority Environmental Health and Transport Strategy Departments	Local Authority	NO	Funded	< £10k	Completed	Reduced vehicle emissions	NOx and PM	Buckinghamshire Council's Electric Vehicle Action Plan was published in June 2022. A link to the document can be found here: <a href="https://www.buckinghamshire.gov.uk/parking-roads-and-transport/parking/electric-vehicles/">https://www.buckinghamshire.gov.uk/parking-roads-and-transport/parking/electric-vehicles/</a>	



Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			recharging												
11	Increase number of cycling networks within the district	Transport Planning and Infrastructure	Cycle network	2020	2020	Local Authority Environmental Health and Transport Departments	Government's Emergency Active Travel Fund	NO	Funded	£500k - £1 million	Completed	Reduced vehicle emissions	NOx and PM	Buckinghamshire Council received a DfT grant, to make active travel more accessible and enjoyable for residents and people who work in the area. The fund will be used to develop fun and engaging materials to inspire students to walk, cycle, or use scooters to get to school. Create new safe and inviting green travel spaces. Offering an alternative to driving by delivering new walking, wheeling and cycling routes in Bucks.	
12	E-Bike rental scheme at Waddesdon Greenway	Transport Planning and Infrastructure	Public cycle hire scheme	2020	2023	Local Authority, Aylesbury Garden Town, Waddesdon Manor and Chiltern Railways	Department for Transport	NO	Funded	£10k - 50k	Implementation	Reduced vehicle emissions	NOx and PM	Installation of a second docking station at Aylesbury Vale Parkway train station – This scheme has now ended.	New trial to be launched see measure 31
13	Installation of electric charging points at Council Offices	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2015	2015	Local Authority Strategic Environmental Protection Team and Department for Transport	OLEV funding (75%) and private companies	NO	Funded	£10k - 50k	Completed	Reduced vehicle emissions	NOx and PM	EV charging points have been installed at all Council Offices	The Council has started installing EV charging points in their depots.
14	Retrofit Polluting Buses with Clean Technology	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2017	2017-2019	Local Authority Strategic Environmental Protection Team and Arriva	Clean Bus Technology Fund 2017	NO	Not Funded	£100k - £500k	Aborted	Reduced vehicle emissions	NOx and PM	Application for funding unsuccessful as Buckinghamshire Council not a Local Authority with a PCM link	Focus on the Bus Service Improvement Plan (see 38)

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
15	Participate in and support Clean Air Day	Public Information	Via other mechanisms	2017	Annually	Local Authority Strategic Environmental Protection Team and Communications Departments	N/A	NO	Not Funded	< £10k	Completed	Not measurable	Shares and Retweets	Working with the Local Community Boards on setting up campaigns for Clean Air Day 2023	
15	Tree planting	Transport Planning and Infrastructure	Other	2019	2019	Local Authority Ecology Department and Voluntary Groups	Local Authority	NO	Partially Funded	< £10k	Completed	Not measurable	KPI not developed	Trees planted within several parks and open spaces	The publication of the AQEG report Impacts of Vegetation on Urban Air Pollution the Council cannot promote tree planting as a cost-effective method of reducing exposure to NO <sub>2</sub> . However, it will continue to support local communities and schools in planting trees for other reasons.
17	Green Wall	Transport Planning and Infrastructure	Other	2012	2022	Buckinghamshire Council and Chesham Town Council	Defra and LA	NO	Funded	< £10k	Completed	Not measurable	KPI not identified	The team can no longer maintain the green wall and looking for another team to take it over.	
18	Taxi policy to encourage LPG/low emission vehicles	Promoting Low Emission Transport	Taxi emission incentives	2019	2015	Local Authority Strategic Environmental Protection Team and Taxi Licensing.	Local Authority	NO	Not Funded	< £10k	Completed	Not measurable	Increase in the number of EV taxis	The council adopted this policy on 24th February 2021	
19	Highway improvements to traffic flow	Traffic Management	Other	2010	2030	Local Authority Environmental Health and Local Authority Urban Transport Management	LA	NO	Not Funded	£10k - 50k	Planning	Reduced vehicle emissions	Smoother running traffic	No progress to date	
20	Parking Enforcement	Traffic Management	Anti-Idling enforcement	2011	2025	Local Authority Environmental Health	LA	NO	Not Funded	< £10k	Planning	Reduced vehicle emissions		No progress to date	Waiting for the Transport Secretary to increase fines.
21	Review of parking restrictions in AQMA	Traffic Management	Other	2010	2016	Local Authority Parking	LA	NO	Funded	< £10k	Completed	Reduced vehicle emissions	Smoother running traffic	An audit has been undertaken on Iver High Street to identify areas where parking is a safety issue. Double yellow lines will be introduced here but concerned it may not be enough.	Public understandably believe the illegal parking is slowing down the lorries on the High Street in Iver. Need to consider speed limit when redesigning parking restrictions.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
22	Planning Policy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2016	2025	Local Authority Strategic Environmental Protection Team and Local Authority Planning Policy and Local Authority Development Management	LA	NO	Partially Funded	< £10k	Planning	Not measurable	Buckinghamshire Council SPD published	Research into SPD currently used in England by other authorities	Consideration will be given for the Wycombe SPD to be applied Buckinghamshire wide. Also need to consider Air Quality Neutral Policy introduced by the Iver Neighbourhood Plan
23	Working with Local Community to reduce air pollution	Public Information	Via other mechanisms	2009	2030	Local Authority and Community Boards	LA and Community Board	NO	Not Funded	< £10k	Implementation	Reduced vehicle emissions		Currently deploying the toolkits to each community board and developing a camping for Clean Air Day	Work with community boards on projects to improve air quality in their area.
24	Develop a business case to obtain funding to deliver a Relief Road for Iver Village	Traffic Management	Other	2019	2021	Local Authority Transport Strategy	S106	NO	Not Funded	> £10 million	Planning	Reduced vehicle emissions	Reduction in congestion	Draft Business Case	Further analysis of additional scope options has demonstrated that the cost of delivering a Relief Road for Iver remains prohibitively high. The proposed Iver Neighbourhood Plan does not include provision for a relief road, reflecting concerns about deliverability. In all proposed iterations, the relief road does not directly benefit all of the Ivers. The Neighbourhood Plan does not support delivery of a major transport intervention which cannot directly benefit all of the Ivers. The Council respects the views of the Parish Council and local people and as such will not be making representations to the Planning Inspector to include a relief road for the Ivers within the proposed Neighbourhood Plan.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
25	Carry out a feasibility study to ascertain whether a Clean Air Zone/Low Emission Zone is the best method for reducing NOx in Iver and Marlow	Promoting Low Emission Transport	Company Vehicle Procurement – prioritising uptake of low emission vehicles	2019	2030	Local Authority Environmental Health	CIL and s106	NO	Partially Funded	£50k - £100k	Implementation	Reduced vehicle emissions	Improved vehicle fleet	Feasibility study completed for Marlow. Does not recommend a Clean Air Zone. Information from this report will be extrapolated to consider the feasibility of a Clean Air zone in other AQMAs	
26	Set up a working group to explore options to provide off road parking on Iver High Street to enable parking restrictions to be placed on Iver High Street.	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	2019	2025	Local Authority Environmental Health, Local Authority Parking, Community Board	Community Board/S106	NO	Not Funded	£10k - 50k	Implementation	Reduction in Emissions on Iver High Street	Reduction in congestion	Scheme developed and subjected to public consultation	A Wexham and Iver Air Quality Task and Finish group has been set up by the Wexham and Ivers Community Board to further consider this as well as other measures.
27	Work with local schools and business to develop Green Travel Plans. Identify good examples and use as champions	Promoting Travel Alternatives	Workplace Travel Planning	2019	2025	Local Authority Strategic Environmental Protection Team, Local Authority Travel Planning	Local Authority	NO	Not Funded	< £10k	Implementation	Not measurable	Increase in Active travel to school and work	Currently 3 schools have achieved a Platinum rating, 7 schools gold, 6 schools' silver, 39 schools' bronze and 9 schools green.	Will be working on encouraging businesses to join Modeshift Stars during 2023/4
28	Promote Vehicle retrofitting programmes, and where possible explore financial incentives to encourage uptake.	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2019	2024	Local Authority Environmental Health, Local Authority Energy and Climate Change, Local Authority Transport strategy	Local Authority /Grants/s106	NO	Not Funded	£10k - 50k	Planning	Not measurable	Improved HGV fleet	No progress to date	Funding

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
29	Promote driver training and ECO aids	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2019	2025	Local Authority Environmental Health, Local Authority Energy and Climate Change, Local Authority Transport strategy	Local Authority /Grants/s106	NO	Partially Funded	£10k - 50k	Planning	Not measurable	No of Eco-Driving raining and eco aids taken up	Grant received to promote Eco-Driving Aids in Buckinghamshire	
30	Work with Local Industrial Estates and explore the provision of alternative Fuel Infrastructure to promote Low Emission HGVs	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019	2026	Local Authority Environmental Health, Local Authority Energy and Climate Change, Local Authority Transport strategy	Grants/s106	NO	Not Funded	< £10k	Planning	Not measurable	Availability of alternative fuel	No progress to date	Funding
31	Investigate various cycle hire schemes available and identify a scheme that may be suitable	Alternatives to private vehicle use	other	2019	2025	Local Authority Strategic Environmental Protection Team, Local Authority Energy and Climate Change, Local Authority Transport strategy	Grants/s106	NO	Not Funded	< £10k	Implementation	Not measurable	Cycle Hire Scheme	Buckinghamshire Council will be launching a e bike trial scheme initially in Aylesbury and High Wycombe to run alongside their e scooter trial scheme and extending it to Princes Risborough at an appropriate time during the scheme. It is hoped that by introducing e bikes to the residents of Buckinghamshire it will provide a cleaner and healthier mode of local travel to a wider age group and help towards the target of zero emissions. The scheme will last for a year and if successful will be made a permanent option of local travel within Buckinghamshire.	Focus is on suitable infrastructure to enable an increase in cycling participation

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
32	Working with the bus and rail operating companies, we will endeavour to develop new ways of making public transport more attractive to the public.	Alternatives to private vehicle use	Other	December 2018	n/a	Buckinghamshire Council	Grants/s106	NO	Funded	£500k - £1 million	Implementation	Not measurable	KPI not set within AQAP	See Bus Service Improvement Plan	
33	Raise awareness of Park & Ride facilities at Handy Cross in order to increase public usage.	Alternatives to private vehicle use	Bus based Park & Ride	December 2018	n/a	Buckinghamshire Council	Existing communications budgets	NO	Funded	< £10k	Implementation	Not measurable	Numbers of people using the P&R	Wycombe Park & Ride has continued to be provided free, and well publicised, for in excess of a year and a half (extended beyond being provided free whilst major roadworks is in the town centre).	First phase successful, second phase ongoing
34	We will continue to lobby government to provide meaningful legislation, standards and guidance that will assist with reducing Nitrogen Dioxide and Particulate Matter concentrations.	Policy Guidance and Development Control	Other policy	December 2018	n/a	Buckinghamshire Council	n/a	NO	Not Funded	< £10k	Implementation	Not measurable	KPI not set within AQAP	Buckinghamshire Council have responded to several government consultations that relate entirely, or in part, to air quality over the last year.	



Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
35	WDC will work with the Highway Authority to identify and agree Information displays at strategic positions as drivers are entering the Air Quality Management Areas to inform them that they are entering such.	Transport Planning and Infrastructure	Other	December 2018	2023	Highway Authority	Community Infrastructure Levy grants	NO	Funded	< £10k	Completed	Not measurable	KPI not set within AQAP	Signs erected across AQMAs in Wycombe. These have been supplemented with Correx signs in strategic positions such as car parks. More anti-idling correx signs have been made available to Community Boards as part of the toolkit.	
36	Businesses will be engaged on a regular basis to encourage ways they can contribute to reducing emission levels. We will encourage more working from home, greener vehicle procurement, electric vehicle charging point roll out within their car parks, amongst other initiatives.	Promoting Travel Alternatives	Workplace Travel Planning	December 2018	2025	Buckinghamshire Council	Local Authority/S106/ Grants	NO	Not Funded	< £10k	Implementation	Not measurable	Businesses engaged	The work with Global Action Plan on accelerating the uptake of EV in businesses has enabled the Strategic Environmental Protection team to engage with local businesses. We will continue to work with BBF on our next project	

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
37	Policy DM2 of WDC's Development Plan requires all developments that require the submission of a Transport Assessment should contribute to several sustainable travel measures, including putting in place a Travel Plan in line with Buckinghamshire Council guidance on Travel Plans 4. occupancy car use by 10%.	Promoting Travel Alternatives	Other	December 2018	n/a	Buckinghamshire Council	n/a	NO	Not Funded	< £10k	Implementation	Not measurable	KPI not set within AQAP	Travel plans have been submitted for all major developments since the publication of the Air Quality Action Plan.	
38	In response to the national bus strategy 'Bus Back Better', published in March 2021 that sets out Government priorities to improve bus services in England and requires Buckinghamshire Council have developed a Bus Service Improvement Plan (BSIP). The council has	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2022	2023	Buckinghamshire Council	Local Authority and if successful the BSIP fund	NO	Partially Funded	£50k - £100k	Planning	Not measurable	KPI not set within AQAP	Buckinghamshire Council will continue work to set up an Enhanced Partnership with bus companies and remain fully committed to improving public transport in Buckinghamshire and working to secure Government funding in the future.	The Government announced allocations of BSIP funding in April 2022 and have only awarded monies to 31 authorities. 40 other authorities will receive no funding at this stage and, unfortunately, Buckinghamshire is one of those. This is extremely disappointing as we submitted an ambitious plan containing nearly 50 schemes to improve bus services for our residents and covering all of the areas the Department for Transport asked us to focus on, including plans for greener buses, more frequent services, lower fares, improved technology and travel information.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	a positive relationship with local bus companies and has also made a commitment to enter into an Enhanced Partnership with all local bus operators. This partnership will be the means to delivering the service improvements outlined in the BSIP.														
39	Increase the number of publicly available EV charging points in Buckinghamshire	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2027	Buckinghamshire Council	OZEV	No	Partially Funded	£1 million - £10 million	Implementation	Not measurable	KPI set in EV Action Plan	Secured funding from ORCS scheme to install 64 charging points in 16 council owned car parks.	

## **PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations.**

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Buckinghamshire Council is taking the following measures to address PM<sub>2.5</sub>:

Continue to attend the Health Protection Assurance Committee and use this platform to highlight the importance of reducing PM<sub>2.5</sub> concentrations on public health and to further engage with Public Health and other departments in Buckinghamshire Council to work with the team to improve air quality.

Measures outlined in the action planning section above should also reduce the emissions of PM<sub>2.5</sub> in the area. However, some measures to be included in the new action plan such as ensuring compliance with Permitting regulations and promoting the use of cleaner fuels for wood burning stoves may have minor impact on NO<sub>2</sub> but would have a greater impact on the reduction of PM<sub>2.5</sub>. The Council will also compel applicants of NIPs and other local developments to follow good construction practice to minimise fugitive dust.

Buckinghamshire Council has four smoke control areas three of which are located within Aylesbury and a fourth that covers the central area of High Wycombe. A map showing the locations of the smoke control areas can be found on the [smoke control page](#) on the council's website. Smoke control areas are areas where smoke cannot be emitted from a domestic chimney unless an authorised fuel is burnt, or an exempt appliance is used. The main aim of such areas is to reduce the amount of pollution, in particular PM pollutants, emitted into the atmosphere from domestic burning.

The Public Health Outcomes Framework has been set up by Government to get a better understanding of trends in public health to enable them to fulfil their vision of improving the nation's health and to improve the health of the poorest fastest. Included within the framework is an indicator for PM<sub>2.5</sub>. Indicator D.01 can be found in Section D known as Health Protection. The objective of section D is to protect the population's health from major incidents and other threats, whilst reducing health inequalities. The figures below

show the latest data available on the Office for Health Improvement & Disparities Website [Public Health Outcomes Framework](#).

The fraction of mortality attributable to particulate air pollution is slightly higher in Buckinghamshire than most of its neighbours and although over the last 9 years it has been both above and below the national average for England it does follow a similar trend.

D01 - Fraction of mortality attributable to particulate air pollution (new method) 2021

Proportion - %

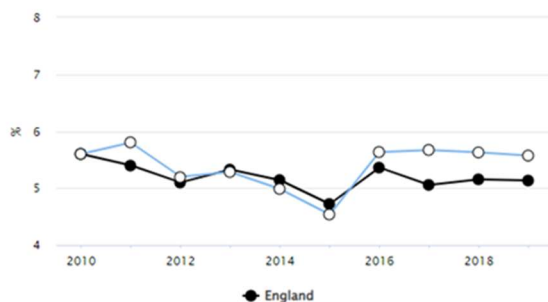
Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England	-	-	5.5	-	-
South East region	-	-	5.4	-	-
Slough	-	-	6.3	-	-
Portsmouth	-	-	6.2	-	-
Reading	-	-	5.9	-	-
Windsor and Maidenhead	-	-	5.9	-	-
Bracknell Forest	-	-	5.9	-	-
Wokingham	-	-	5.9	-	-
Southampton	-	-	5.9	-	-
Surrey	-	-	5.8	-	-
Buckinghamshire UA	-	-	5.7	-	-
Milton Keynes	-	-	5.7	-	-
Medway	-	-	5.6	-	-
Hampshire	-	-	5.5	-	-
Oxfordshire	-	-	5.5	-	-
West Berkshire	-	-	5.4	-	-
Brighton and Hove	-	-	5.3	-	-
West Sussex	-	-	5.1	-	-
Kent	-	-	5.1	-	-
Isle of Wight	-	-	4.9	-	-
East Sussex	-	-	4.7	-	-

D01 - Fraction of mortality attributable to particulate air pollution

Proportion - %

Show confidence intervals Show 99.8% CI values

[More options](#)



Recent trend: Could not be calculated

Period	Buckinghamshire UA				South East	England
	Count	Value	95% Lower CI	95% Upper CI		
2010	-	5.6%*	-	-	5.5%	5.6%
2011	-	5.8%*	-	-	5.5%	5.4%
2012	-	5.2%*	-	-	5.1%	5.1%
2013	-	5.3%*	-	-	5.2%	5.3%
2014	-	5.0%*	-	-	4.9%	5.1%
2015	-	4.5%*	-	-	4.7%	4.7%
2016	-	5.6%*	-	-	5.9%	5.4%
2017	-	5.7%*	-	-	5.6%	5.1%
2018	-	5.6%*	-	-	5.6%	5.2%
2019	-	5.6%	-	-	5.2%	5.1%

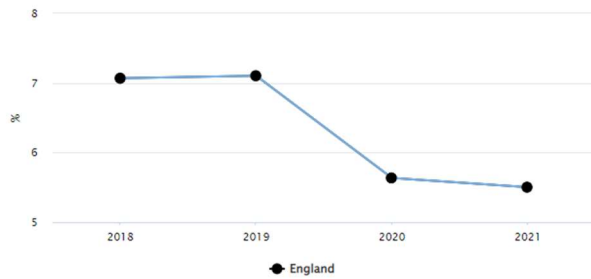
Source: Background annual average PM<sub>2.5</sub> concentrations for the year of interest are modelled on a 1km x 1km grid using an air dispersion model, and calibrated using measured concentrations taken from background sites in Defra's Automatic Urban and Rural Network (<http://uk-air.defra.gov.uk/interactive-map>). Data on primary emissions from different sources and a combination of measurement data for secondary inorganic aerosol and models for sources not included in the emission inventory (including re-suspension of dusts) are used to estimate the anthropogenic (human-made) component of these concentrations. By approximating LA boundaries to the 1km by 1km grid, and using census population data, population weighted background PM<sub>2.5</sub> concentrations for each lower tier LA are calculated. This work is completed under contract to Defra, as a small extension of its obligations under the Ambient Air Quality Directive (2008/50/EC). Concentrations of anthropogenic, rather than total, PM<sub>2.5</sub> are used as the basis for this indicator, as burden estimates based on total PM<sub>2.5</sub> might give a misleading impression of the scale of the potential influence of policy interventions (COMEAP, 2012).

D01 - Fraction of mortality attributable to particulate air pollution (new method)

Proportion - %

[Show confidence intervals](#) [Show 99.8% CI values](#)

[More options](#)

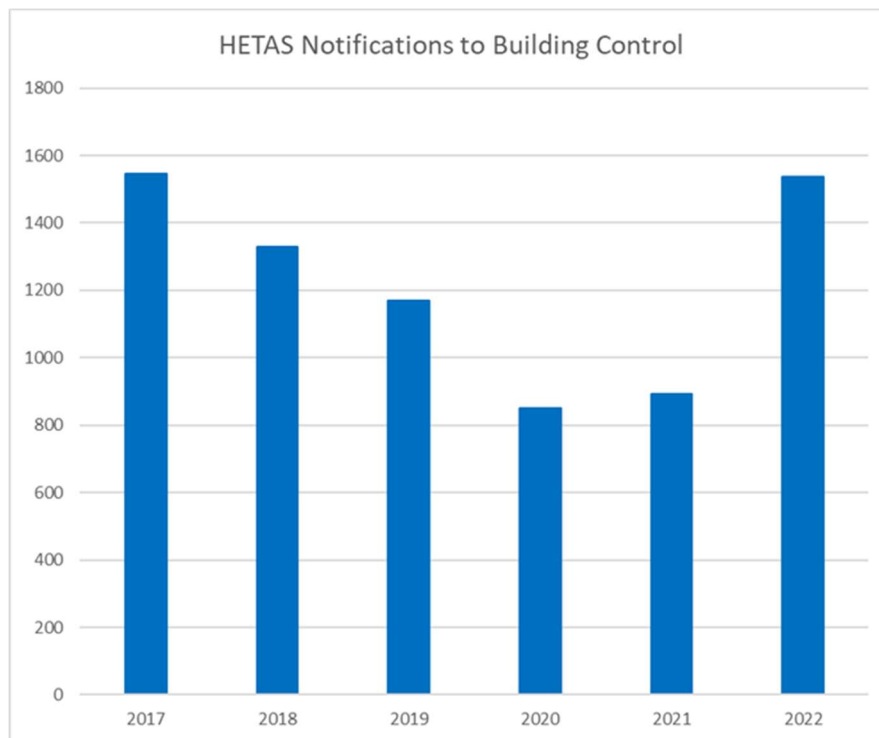


Recent trend: Could not be calculated

Period	England			
	Count	Value	95% Lower CI	95% Upper CI
2018	-	7.1%	-	-
2019	-	7.1%	-	-
2020	-	5.6%	-	-
2021	-	5.5%	-	-

Source: Background annual average PM<sub>2.5</sub> concentrations for the year of interest are modelled on a 1km x 1km grid using an air dispersion model, and calibrated using measured concentrations taken from background sites in Defra's Automatic Urban and Rural Network (<https://uk-air.defra.gov.uk/interactive-map>). By approximating LA boundaries to the 1km by 1km grid, and using census population data, population weighted background PM<sub>2.5</sub> concentrations for each lower tier LA are calculated. This work is completed under contract to Defra, as a small extension of its obligations under the Ambient Air Quality Directive (2008/50/EC). Concentrations of total PM<sub>2.5</sub> are used for estimating the mortality burden attributable to particulate air pollution (COMEAP, 2022).

It is widely reported the wood burning stoves are a significant source of PM<sub>2.5</sub> emissions. Early evidence seems to suggest there is an increase in the number of residents within Buckinghamshire are fitting wood burning stoves. Figures on the number of HETAS notifications received by Buckinghamshire Council in connection to the installation of stoves/wood burners in domestic properties has been obtained from our Building Control Department, see graph below. This shows that following a downward trend in 2018 – 2021 there has been a sharp increase in the number of stoves/wood burners being installed in domestic properties with approximately 900 notifications received in 2021 compared to approximately 1500 notifications in 2022. The Strategic Environmental Protection Team are also seeing an increase in the number of new chimneys and flues being included in planning applications.



Research by Kantar has revealed that most people are unaware of the impact of wood burning stoves on Air Quality. The following research by Kantar on behalf of Defra provides useful information on burning in domestic premises in the UK - [Burning In UK Homes and Gardens Research Report](#). The Strategic Environmental Protection Team is concerned that the installation of wood burning stoves will continue to rise in future years resulting in an increase in PM<sub>2.5</sub> emissions.

Due to this concern in the summer of 2022 Global Action Plan and Hertfordshire County Council with Buckinghamshire Council being a partner authority put in a bid to Defra's Air Quality Fund to set up a national campaign called Clean Air Night. Clean Air Night would be a sister event to the already successful Clean Air Day. The aim of the campaign was to increase public understanding of the links between domestic burning, air pollution and harm to health.

Unfortunately, the bid was unsuccessful. However, the Strategic Environmental Protection Team are proposing to conduct a campaign with the support of our Communications and Public Health teams in the winter of 2023 to help educate members of the public about the risks to human health from domestic burning.

The Environment Act 2021 became law on the 9<sup>th</sup> of November 2021. The Act introduces legislation that will improve air and water quality, tackle waste, increase recycling, halt the decline of species, and improve our natural environment.

The following indicators amongst others were published in December 2022.

- An Annual Mean Concentration Target for PM<sub>2.5</sub> levels in England to be 10 µg m<sup>-3</sup> or below by 2040.
- A Population Exposure Reduction Target for a reduction in PM<sub>2.5</sub> population exposure of 35% compared to 2018 to be achieved by 2040.

On the 1st of May 2023 Defra published their framework for local authorities to make best use of their powers and make air quality improvements for their communities. In 2023 Buckinghamshire Council will review The Air Quality Strategy to establish how the Council will support Defra in achieving its targets.



## 3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

This section sets out the monitoring undertaken within 2022 by Buckinghamshire Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

### Summary of Monitoring Undertaken

#### 3.1.1 Automatic Monitoring Sites

Buckinghamshire Council undertook automatic (continuous) monitoring at 2 sites during 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The [Air Quality England – Buckinghamshire page](#) presents automatic monitoring results for Buckinghamshire Council.

Maps showing the locations of the monitoring sites are located on the council's [air quality management reviews and annual report webpage](#). Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

#### 3.1.2 Non-Automatic Monitoring Sites

Buckinghamshire Council undertook non- automatic (i.e., passive) monitoring of NO<sub>2</sub> at 149 sites with 171 diffusion tubes during 2022. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided on the council's [air quality management reviews and annual report webpage](#). Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g., annualisation and/or distance correction), are included in Appendix C.

### Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater

than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

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

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO<sub>2</sub> annual mean concentrations for the past five years with the air quality objective of 40µg/m<sup>3</sup>. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e., the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2022 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO<sub>2</sub> hourly mean concentrations for the past five years with the air quality objective of 200µg/m<sup>3</sup>, not to be exceeded more than 18 times per year.

#### **Automatic Monitoring Sites**

As illustrated in Table A.3 and Figure A.1 the results from the continuous monitoring have remained consistency below the annual mean objective of 40 µg/m<sup>3</sup> for the last five years.

In 2022 the Stokenchurch monitor, Site ID Number CM1, which is located immediately adjacent to AQMA No.1 (M40) at 40 Marcourt Way, recorded an annual average of 19 µg/m<sup>3</sup> with 96.7% data capture. The Wycombe Abbey 5 monitor, Site ID number CM2, which is located within the High Wycombe AQMA at Abbey School, recorded an annual average of 28 µg/m<sup>3</sup> with 96.7% data capture.

There were no exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> not to be exceeded more than 18 times/year) at either location during 2022, see Table A.5.

#### **Non-Automatic Monitoring Sites**

As illustrated in Table A.3 the results from the diffusion tube monitoring undertaken over the last five years indicates that levels of NO<sub>2</sub> have continually reduced throughout Buckinghamshire during this period.

It is noted that COVID-19 restrictions during 2020 and the first half of 2021 resulted in a significant decrease in recorded concentrations of NO<sub>2</sub> at most monitoring locations in

2020 with a slight increase in levels at most sites in 2021. However, monitoring data for 2022 shows that all sites have not returned to pre-pandemic concentrations and 88 sites out of a total of 149 (59%) sites saw an improvement in concentrations or remained the same in 2022 compared to 2021. This is further illustrated in the graphs presented in Figure A.1.

One exceedance of the annual mean nitrogen dioxide objective was recorded within Buckinghamshire during 2022. This was located at Site ID number AV36 and is within the Friarage Road AQMA. Once fall off from distance calculation was completed to the nearest sensitive receptor, the concentration of NO<sub>2</sub> was found to still be above the annual mean objective with a reading of 41.1 µg/m<sup>3</sup>. This location was a new monitoring site for 2022 and was introduced to ensure the AQMA is adequately monitored.

Six additional locations, Site ID numbers AV14, 18, 23, 39 and 40 within the Aylesbury Vale area and site ID number CDC30 within the Chiltern area, recorded concentrations within 10% of the annual mean objective. This required a fall off with distance calculation and the inputs used to calculate these fall-off with distance values are shown in table C.4. Once the calculation had been completed the concentration of NO<sub>2</sub> was found to be significantly below the average annual objective at all sites apart from site ID numbers AV14 and AV40 which remained within 10% of the annual mean objective.

All other diffusion tube sites in 2022 reported concentrations well below the annual mean objective of 40 µg/m<sup>3</sup>.

The results recorded within Buckinghamshire in 2022 reflects the national trend where the annual mean NO<sub>2</sub> concentration at the roadside concentrations decreased slightly from 2021 and remain 24% lower than concentrations in 2019.

In 2022, Buckinghamshire Council undertook a review of all diffusion tube monitoring locations within the county. This resulted in 14 sites being added to the monitoring network and 9 sites being removed.

Site ID numbers AV36, 37, 38, 39, 40, 41 and 42 within the Aylesbury Vale area, Site ID numbers CDC29 and 30 within the Chiltern Area, Site ID numbers SB48, 49, 50, 51 and 52 in the South Bucks area were added. These sites were added to the monitoring network for the following reasons.

- Concerns had been raised by members of the public and/or local politicians on the possible impact of increased traffic in the area as a result of NIPs and large developments

- The Strategic Environmental Protection team are ensuring that areas not previously identified in the screening process are monitoring concentrations below the objective.

All sites recorded concentrations below the annual mean objective concentrations of 40  $\mu\text{g}/\text{m}^3$  except for AV36 which has been discussed above.

Site ID number AV3 in the Aylesbury Vale area, Site ID numbers CDC10 and 22 in the Chiltern Area, Site ID numbers SB3, 15, 23, 40 and 45 in the South Bucks area and Site ID number W11 in the Wycombe area were all removed. This is because the sites were recording concentrations significantly below the annual mean objective concentrations of 40  $\mu\text{g}/\text{m}^3$  or they were a duplicate tube and was no longer required.

Based on the monitoring results obtained during 2022, and the previous four years of results, as discussed in the Air Quality Management Areas section we will be starting the process of revoking the Tring Road AQMA in 2023. No other amendments are proposed within the remaining AQMAs.

### **Summary of Results within each AQMA**

**Tring Road AQMA** – All monitoring locations within the Tring Road AQMA, Site ID numbers AV12, 28 and 29, were below the annual mean nitrogen dioxide national air quality objective. The highest recorded concentration in this AQMA in 2022 was located at Site ID number AV28, 133 Tring Road, with a reading of 27.1  $\mu\text{g}/\text{m}^3$ . As discussed this AQMA will be revoked.

**Friarage Road AQMA** – As previously discussed one monitoring location within the Friarage Road AQMA exceeded the annual mean nitrogen dioxide objective in 2022. This was located at Site ID number AV36, 51 Friarage Road, and once the fall off from distance calculation was completed to the nearest sensitive receptor, the concentration of NO<sub>2</sub> was recorded as 41.1  $\mu\text{g}/\text{m}^3$ . This location was a new monitoring site for 2022 and was introduced to ensure the AQMA is adequately monitored. The other monitoring site within the AQMA, Site ID number AV20, was below the annual mean nitrogen dioxide national air quality objective

**Stoke Road AQMA** – All monitoring locations within the Stoke Road AQMA, Site ID numbers AV14, 15, 16, 18, 41 and 42, were below the annual mean nitrogen dioxide national air quality objective. However, Site ID number AV14, located at 25 Wendover Road, did remain within 10% of the annual mean objective once the fall off from distance calculation was completed with a recorded concentration of 36.3  $\mu\text{g}/\text{m}^3$ .

One other site located to the north of the Stoke Road AQMA also remained within 10% of the annual mean objective once the fall off from distance calculation was completed. This was Site ID number AV40, located at 9 Walton Terrace, where a concentration of 38.4  $\mu\text{g}/\text{m}^3$  was recorded. This site is a new site in 2022 and therefore monitoring will continue in this location.

**Chesham AQMA** - All monitoring locations within the Chesham AQMA, Site ID numbers CDC 7/7a, 8/8a, 9/9a, 11/11a, 12/12a and 29, were below the annual mean nitrogen dioxide national air quality objective. The highest recorded concentration in this AQMA in 2022 was located at Site ID number CDC8/8a, at the Jolly Sportsman PH with a reading of 27.8  $\mu\text{g}/\text{m}^3$ .

**South Bucks AQMA** – The monitoring locations immediately within the South Bucks AQMA, Site ID number SB47 at Wilton Lodge, Beaconsfield, was below the annual mean nitrogen dioxide national air quality objective with a concentration of 25.1  $\mu\text{g}/\text{m}^3$ .

**South Bucks District Council AQMA No 2** - All monitoring locations within the South Bucks District Council No 2 AQMA, Site ID numbers SB1, 2, 4, 21, 22, 24, 25, 26, 27, 28/29, 30/31, 32/33, 34/35, 36, 42 and 49, were below the annual mean nitrogen dioxide national air quality objective. The highest recorded concentration in this AQMA in 2022 was located at Site ID number SB30/31, Colne Cottage, 6 Thorney Land North, Iver, with a reading of 31.2  $\mu\text{g}/\text{m}^3$ .

**AQMA No.1 (M40)** - All monitoring locations located immediately adjacent to AQMA No.1 (M40) AQMA, Site ID numbers W15/16/17, 32 and 40 were below the annual mean nitrogen dioxide national air quality objective. The highest recorded concentration in this AQMA in 2022 was located at Site ID number W40, Handy Cross Roundabout, Marlow Road, High Wycombe with a reading of 21.2  $\mu\text{g}/\text{m}^3$ .

**AQMA No.2 (High Wycombe)** - All monitoring locations within the AQMA No.2 (High Wycombe) AQMA, Site ID numbers W4, 5, 8, 18, 20, 21, 34, 38, 39, 51 and 55, were below the annual mean nitrogen dioxide national air quality objective. The highest recorded concentration in this AQMA in 2022 was located at Site ID number 51, Bridge Street, High Wycombe, with a reading of 35.2  $\mu\text{g}/\text{m}^3$ .

**AQMA No.3 (Marlow)** - All monitoring locations within the AQMA No.3 (Marlow) AQMA, W2 and 49, were below the annual mean nitrogen dioxide national air quality objective. The highest recorded concentration in this AQMA in 2022 was located at Site ID number W49 at Waitrose, Chapel Street with a reading of 34.5  $\mu\text{g}/\text{m}^3$ .

## Appendix A: Monitoring Results

**Table A.1 – Details of Automatic Monitoring Sites**

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Inlet Height (m)
CM1	Stokenchurch	Suburban	476604	195436	NO2	Yes M40 AQMA	Chemiluminescent;	1.5	23	1.5
CM2	Wycombe Abbey 5	Roadside	486352	192478	NO2	Yes Wycombe AQMA	Chemiluminescent	45.9	7.5	2

**Notes:**

(1) 0m if the monitoring site is at a location of exposure (e.g., installed on the façade of a residential property).

(2) N/A if not applicable

**Table A.2 – 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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
AV1	West Street, Buckingham	Roadside	469518	234006	NO2	No	0.0	1.5	No	3.0
AV2	3 Bridge Street, Buckingham	Roadside	469587	233939	NO2	No	0.0	2.0	No	3.0
AV4	Candleford Court, Bridge Street, Buckingham	Roadside	469672	233862	NO2	No	0.0	5.0	No	3.0
AV5	Oxfam, Market Square, Buckingham	Roadside	469610	233982	NO2	No	0.0	8.0	No	3.0
AV6	16 Market Sq, Buckingham	Roadside	469597	233999	NO2	No	1.0	2.0	No	3.0
AV7	6 High Street, Buckingham	Roadside	469727	234117	NO2	No	0.5	3.0	No	3.0
AV8	29 High Street, Winslow	Roadside	476979	227698	NO2	No	0.0	2.5	No	3.0
AV9	27 Elmhurst Road, Aylesbury	Roadside	481891	214979	NO2	No	11.0	2.0	No	3.0
AV10	181 Aylesbury Road, Bierton	Roadside	483948	215645	NO2	No	1.0	2.0	No	3.0
AV11	Cambridge Street, Aylesbury	Roadside	482177	214093	NO2	No	1.0	1.0	No	3.0
AV12	87 Tring Road, Aylesbury	Roadside	483128	213637	NO2	Yes - Tring Road	2.5	3.0	No	3.0
AV13	183 Tring Road, Aylesbury	Roadside	483601	213590	NO2	No	13.0	3.0	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
AV14	25 Wendover Road, Aylesbury	Roadside	482436	213121	NO2	Yes - Stoke Road	1.0	2.5	No	3.0
AV16	31 Stoke Road, Aylesbury	Roadside	482376	213039	NO2	Yes - Stoke Road	3.0	2.5	No	3.0
AV17	Viridian Square, Walton Street, Aylesbury	Roadside	482278	213271	NO2	No	4.0	2.0	No	3.0
AV18	1 -5 Wendover Road, Aylesbury	Roadside	482374	213170	NO2	Yes - Stoke Road AQMA	2.0	1.0	No	3.0
AV19	Exchange Street, Aylesbury	Roadside	482237	213717	NO2	No	2.5	0.5	No	3.0
AV20	Friarage Road/Oxford Road Roundabout, Aylesbury	Roadside	481451	213588	NO2	Yes - Friarage Road AQMA	7.0	2.0	No	3.0
AV21	Oxford Road, Aylesbury	Roadside	481381	213823	NO2	No	8.5	5.0	No	3.0
AV22	10 Gatehouse Road, Aylesbury	Roadside	481408	213940	NO2	No	12.5	0.5	No	3.0
AV23	Moorlands House, Friarage Road, Aylesbury	Roadside	481514	213860	NO2	No	4.0	2.0	No	3.0
AV24	Stonehaven Road/Bicester Road, Aylesbury	Roadside	480710	214576	NO2	No	12.0	3.0	No	3.0
AV25	Buckingham Road, Aylesbury	Roadside	481768	214276	NO2	No	5.0	3.0	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
AV26	High Street, Wendover	Roadside	486811	207795	NO2	No	1.0	3.0	No	3.0
AV27	91 Leighton Road, Wing	Roadside	488573	222902	NO2	No	2.5	1.5	No	3.0
AV28	133 Tring Road, Aylesbury	Roadside	483337	213644	NO2	Yes - Tring Road AQMA	4.5	2.5	No	3.0
AV29	149 Tring Road, Aylesbury	Roadside	483394	213646	NO2	Yes - Tring Road AQMA	10.0	3.0	No	3.0
AV30	Oakfield Road, Aylesbury	Roadside	483488	213729	NO2	No	1.5	3.0	No	3.0
AV31	41 Aston Clinton Road, Aylesbury	Roadside	484902	213138	NO2	No	6.5	2.4	No	3.0
AV32	Mandeville Road, Aylesbury	Roadside	482157	212768	NO2	No	3.7	1.6	No	3.0
AV33	Weedon Road, Aylesbury	Roadside	481743	214967	NO2	No	0.2	4.2	No	3.0
AV34	New Street, Aylesbury	Roadside	481766	214182	NO2	No	0.3	3.3	No	3.0
AV35	Long Meadow, Aylesbury	Urban Background	483660	212602	NO2	No	13.3	0.9	No	3.0
AV36	51 Friarage Road, Aylesbury	Roadside	481607	213704	NO2	Yes - Friarage Road AQMA	0.2	3.0	No	3.0
AV37	Oscar Lodge, New Street, Aylesbury	Roadside	482038	213981	NO2	No	3.3	3.1	No	2.4

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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
AV38	116 Tring Road, Aylesbury	Roadside	483573	213579	NO2	No	11.2	2.9	No	2.2
AV39	Viridian Square 2, Aylesbury	Roadside	482289	213256	NO2	No	2.1	3.1	No	2.5
AV40	9 Walton Terrace, Walton Street, Aylesbury	Roadside	482328	213242	NO2	No	0.6	3.1	No	2.4
AV15, AV41, AV42	2 Stoke Road, Aylesbury	Roadside	482444	213090	NO2	Yes - Stoke Road AQMA	1.0	1.0	No	1.5
CDC1, CDC1a	Ashley Green Bus Stop	Roadside	497640	205271	NO2	No	26.8	3.2	No	1.5
CDC2, CDC2a	Ashley Green Speed Camera	Roadside	497622	205191	NO2	No	17.6	0.7	No	1.5
CDC3	Petrol St Nashleigh Hill, Chesham	Roadside	496326	202932	NO2	No	18.6	1.4	No	1.5
CDC4	St Columbas Church, Berkhamstead Road, Chesham	Roadside	496305	202884	NO2	No	11.1	1.5	No	1.5
CDC5, CDC5a	305 Berkhamstead Road, Chesham	Roadside	496261	202656	NO2	No	12.9	1.5	No	1.5
CDC6, CDC6a	336 Berkhamstead Road, Chesham	Roadside	496272	202699	NO2	No	5.6	1.3	No	1.5
CDC7, CDC7a	Dentist Chesham	Roadside	496278	202743	NO2	Yes - Chesham AQMA	4.0	1.7	No	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
CDC8, CDC8a	Jolly Sportsman PH, Chesham	Roadside	496247	202328	NO2	Yes - Chesham AQMA	2.0	1.9	No	1.5
CDC9, CDC9a	170 Broad Street, Chesham,	Roadside	496215	202300	NO2	Yes - Chesham AQMA	5.8	1.6	No	1.5
CDC11, CDC11a	Uplands Court Broad Street, Chesham	Roadside	496133	202072	NO2	Yes - Chesham AQMA	6.0	3.7	No	1.5
CDC12, CDC12a	Police St Broad Street, Chesham	Roadside	496107	202033	NO2	Yes - Chesham AQMA	6.6	2.1	No	1.5
CDC13, CDC13a	St Marys Way, Chesham	Roadside	495850	201510	NO2	No	7.5	1.4	No	1.5
CDC14, CDC14a	St Marys roundabout Outside New Flats, Chesham	Roadside	495869	201436	NO2	No	1.2	1.3	No	1.5
CDC15	75 High Street Great Missenden	Roadside	489484	201234	NO2	No	1.5	0.9	No	1.5
CDC16	10 Wycombe Road Prestwood	Roadside	487002	200812	NO2	No	11.4	1.3	No	1.5
CDC17	Broombarn Lane Little Missenden	Roadside	487991	200978	NO2	No	15.4	3.4	No	1.5
CDC18	Speed bumps Old Amersham	Roadside	495298	197520	NO2	No	7.8	2.3	No	1.5
CDC19	Amersham Hosp Old Amersham	Roadside	495446	196797	NO2	No	17.4	2.0	No	1.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
CDC20	Stanley Hill, Amersham	Roadside	496760	197100	NO2	No	27.5	1.3	No	1.5
CDC21, CDC21a	Gore Hill, Amersham	Roadside	495960	196940	NO2	No	8.3	0.9	No	1.5
CDC23	Hervines Park Amersham	Urban Background	495708	198806	NO2	No			No	1.5
CDC24, CDC24a	Rickmansworth Road Amersham	Roadside	496550	198720	NO2	No	24.3	2.2	No	1.5
CDC25	Nightingales Lane Little Chalfont	Roadside	499260	197452	NO2	No	29.8	1.9	No	1.5
CDC27	High Street Chalfon St Peter	Roadside	500050	190810	NO2	No	9.0	3.6	No	1.5
CDC28, CDC28a	Vets Chalfont St Giles	Roadside	499250	193750	NO2	No	6.4	1.1	No	1.5
CDC29	157 Broad Street , Chesham	Roadside	496222	202281	NO2	Yes - Chesham AQMA	2.2	4.0	No	2.5
CDC30	130 Station Road, Amersham	Roadside	496314	198072	NO2	No	0.8	1.6	No	2.2
SB1	Old Slade Lane, Iver	Roadside	503696	178533	NO2	SBDC AQMA 2	13.0	1.0	No	2.5
SB2	Victoria Cescent, Iver	Roadside	504056	180901	NO2	SBDC AQMA 2	7.0	1.0	No	2.6
SB4	Uxbridge Road, Iver Heath,	Roadside	502072	182753	NO2	SBDC AQMA 2	11.0	2.5	No	2.3
SB5	Oxford Road/Knighton-	Roadside	504754	185138	NO2	No	9.0	2.0	No	2.4

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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
	Way Lane, New Denham									
SB8	Packhorse Rd, Gerrards Cross	Roadside	500259	188613	NO2	No	8.0	2.0	No	2.5
SB12	Beaconsfield Road, Farnham Common	Roadside	496095	185599	NO2	No	25.0	3.0	No	2.4
SB13	Costa, Station Rd, Beaconsfield,	Roadside	493873	191040	NO2	No	20.0	2.0	No	2.2
SB14	North Drive, Beaconsfield	Roadside	584728	192313	NO2	No	20.0	3.0	No	2.0
SB16	High St, Burnham	Roadside	493136	182503	NO2	No	0.0	1.0	No	2.6
SB17	Bath Road, Taplow	Roadside	491668	181187	NO2	No	20.0	1.0	No	2.5
SB21	47 Richings Way, Iver	Roadside	503690	179278	NO2	SBDC AQMA 2	18.0	2.0	No	2.1
SB22	29 Thorney Lane South, Iver	Roadside	503972	179701	NO2	SBDC AQMA 2	25.0	1.6	No	2.3
SB24	Langley Park Road, Iver	Roadside	503050	181176	NO2	SBDC AQMA 2	17.0	1.8	No	2.4
SB25	Bangors Road South, Iver	Roadside	503604	181378	NO2	SBDC AQMA 2	9.0	1.7	No	2.1
SB26	Wood Lane, Iver	Roadside	502100	182473	NO2	SBDC AQMA 2	9.0	3.3	No	2.2
SB27	Church Road, Iver	Roadside	502520	183456	NO2	SBDC AQMA 2	10.0	3.1	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SB28, SB29	Swan Pub, High Street, Iver	Roadside	503899	181199	NO2	SBDC AQMA 2	0.4	2.1	No	2.2
SB30, SB31	Colne Cottage, 6 Thorney Lane North, Iver	Roadside	503924	181127	NO2	SBDC AQMA 2	0.6	1.5	No	1.5
SB32, SB33	Tower Arms, Thorney Lane South, Iver	Roadside	504047	179475	NO2	SBDC AQMA 2	2.1	2.1	No	2.1
SB34, SB35	Wood Cottages, 2 Slough Road, Iver	Roadside	502217	182870	NO2	SBDC AQMA 2	3.7	1.9	No	2.2
SB36	Black Horse Pub, 95 Slough Road, Iver	Roadside	503022	183070	NO2	SBDC AQMA 2	1.0	n/a	No	2.0
SB37	Aylesbury End, Beaconsfield,	Roadside	494478	190142	NO2	No	1.0	3.5	No	2.0
SB38	Grand Union House, Iver	Roadside	503618	180518	NO2	No	30.0	5.0	No	2.0
SB39	Fulmer, Tatling End	Roadside	501652	187168	NO2	No	18.0	3.0	No	1.5
SB41	Iver Village Junior School, Iver	Roadside	503256	181272	NO2	No	27.0	3.2	No	1.5
SB42	Belle Farm Lodge, Seven Hills Road, Iver Heath	Roadside	502477	184784	NO2	SBDC AQMA 2	16.0	1.0	No	1.5
SB44	Burnham Beeches, Farnham	Roadside	496099	185047	NO2	No	n/a	n/a	No	1.5



Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SB46	Alderbourne Cottage, Tatling End	Roadside	501568	186763	NO2	No	55.0	34.0	No	1.5
SB47	Wilton Lodge, Beaconsfield	Roadside	494862	190156	NO2	SBDC AQMA 1	11.2	2.2	No	1.5
SB48	Moorfield Road, Denham	Roadside	504195	187988	NO2	No	16.9	3.1	No	2.2
SB49	Costa Coffee, High Street, Iver	Roadside	503759	181200	NO2	Yes - SBDC AQMA 2	3.4	2.5	No	2.0
SB50	The Crown, Farnham Royal	Roadside	496008	182953	NO2	No	1.1	3.7	No	2.2
SB51	13 Highway, Station Rd Beaconsfield	Roadside	493859	191103	NO2	No	2.7	0.8	No	2.1
SB52	Park Lane, Beaconsfield	Roadside	494825	190250	NO2	No	8.2	1.0	No	2.2
W1	High Street Crossing, Marlow	Urban Centre	485012	186444	NO2	No	0.0	1.0	No	2.1
W2	Solicitors, Chapel Street, Marlow	Roadside	484966	186773	NO2	Yes - Marlow AQMA	0.0	2.3	No	2.4
W3	Barber Shop, Cambridge Road, Marlow	Roadside	484753	186888	NO2	No	4.3	6.0	No	2.4
W4	Abbey Accommodation, Abbey School, Marlow Hill, High Wycombe	Roadside	486384	192513	NO2	Yes - Wycombe AQMA	0.0	4.8	No	2.4

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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W5	Morrisons, Hughenden Road, High Wycombe	Roadside	486471	193665	NO2	Yes - Wycombe AQMA	2.0	1.5	No	2.1
W6	Desborough Avenue, High Wycombe	Roadside	485869	193231	NO2	No	0.0	3.0	No	2.4
W7	Suffield Road 1, High Wycombe	Roadside	486116	192890	NO2	No	11.8	1.3	No	2.1
W8	London Road, High Wycombe	Roadside	487101	192766	NO2	Yes - Wycombe AQMA	0.0	3.5	No	2.1
W9	Marlow Road, High Wycombe	Roadside	485353	191416	NO2	No	12.6	3.7	No	2.1
W10	White Horse, West Wycombe Road, High Wycombe	Roadside	485514	193658	NO2	No	1.2	2.0	No	2.1
W12	Dovecot Road, High Wycombe	Roadside	486364	193266	NO2	No	0.0	13.0	No	2.1
W13	School Close, High Wycombe	Roadside	485891	191788	NO2	No	15.0	17.0	No	2.1
W14	Amersham Hill (School), High Wycombe	Roadside	487048	193473	NO2	No	0.0	16.0	No	2.4
W15, W16, W17	40 Marcourt Road, Stokenchurch	Suburban	476602	195435	NO2	No	1.5	14.0	Yes	2.0
W18	Crendon Street, High Wycombe	Roadside	486785	192987	NO2	Yes - Wycombe AQMA	2.0	3.0	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W19	Rail Bridge, Amersham Hill, High Wycombe	Roadside	486842	193144	NO2	No	2.0	7.0	No	2.4
W20	Marsh Retail Park, London Road, High Wycombe	Roadside	488858	191923	NO2	Yes - Wycombe AQMA	0.0	3.5	No	2.1
W21	Chapel Street Crossing, Marlow	Roadside	485070	186871	NO2	Yes - Wycombe AQMA	0.0	1.0	No	2.4
W22	West Wycombe Road, High Wycombe	Roadside	485665	193586	NO2	No	0.0	1.5	No	2.4
W23	Amersham Hill, High Wycombe	Roadside	487787	194657	NO2	No	0.3	0.1	No	2.1
W24	Hughenden Road, High Wycombe	Roadside	486485	193803	NO2	No	4.8	2.0	No	2.1
W25	Suffield Road 2, High Wycombe	Urban Background	486079	192883	NO2	No	3.7	1.7	No	2.1
W29	Wedding Centre, Little Marlow Road, Marlow	Roadside	485217	187010	NO2	No	0.1	7.2	No	2.1
W30	Butchers Tap, Spittal Street, Marlow	Roadside	484868	186656	NO2	No	0.0	1.7	No	2.1
W31	Marlow High Street	Urban Centre	484888	186571	NO2	No	1.5	3.0	No	2.4
W32	Knaves Beech, Loudwater, High Wycombe	Roadside	490784	190216	NO2	No	0.0	23.0	No	2.4

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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W33	Dentist, London Road, Loudwater, High Wycombe	Roadside	490247	190768	NO2	No	19.9	2.4	No	2.1
W34	Pedestal Roundabout, West Wycombe Road, High Wycombe	Roadside	483442	194645	NO2	Yes - Wycombe AQMA	11.6	6.0	No	2.1
W35	West Street 1, Marlow	Roadside	484749	186496	NO2	No	0.0	2.3	No	2.4
W36	West Street 2, Marlow	Roadside	484643	186436	NO2	No	0.3	2.0	No	2.4
W37	West Wycombe Village, High Street, West Wycombe	Roadside	482896	194659	NO2	No	0.0	1.5	No	2.4
W38	Kwik Fit, London Road, High Wycombe	Kerbside	487561	192616	NO2	Yes - Wycombe AQMA	6.1	0.9	No	2.1
W39	Chapel Lane, High Wycombe	Kerbside	484421	194179	NO2	Yes - Wycombe AQMA	23.4	0.1	No	2.4
W40	Handy Cross Roundabout, Marlow Road, High Wycombe	Suburban	485290	191280	NO2	No	0.0	19.0	No	2.1
W41	55 Chapel Street, Marlow	Roadside	485024	186825	NO2	No	0.0	2.4	No	2.4

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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W42	Tanning Centre, High Street, Marlow	Urban Centre	485028	186327	NO2	No	6.0	3.5	No	2.4
W43	Glade View, Little Marlow Road, Marlow	Roadside	485182	186974	NO2	No	0.0	4.8	No	2.4
W44	Daws Hill Lane, High Wycombe	Roadside	486607	191725	NO2	No	23.5	1.5	No	2.4
W45	Church Street, High Wycombe	Urban Centre	486520	193110	NO2	No		0.5	No	2.4
W46	Chiltern Shopping Centre, Church Street, High Wycombe	Urban Centre	486474	193121	NO2	No	4.7	0.5	No	2.1
W47	Castle Street, High Wycombe	Roadside	486766	193065	NO2	No	1.4	2.2	No	2.1
W48	Oxford Street, High Wycombe	Urban Centre	486381	193179	NO2	No	6.0	1.0	No	2.1
W49	Waitrose, Chapel Street, Marlow	Roadside	484958	186748	NO2	Yes - Marlow AQMA	0.2	1.0	No	2.4
W50	Zabida Court, Green Street, High Wycombe	Roadside	485462	193384	NO2	No	2.0	2.0	No	2.1
W51	Bridge Street, High Wycombe	Roadside	486144	193271	NO2	Yes - Wycombe AQMA	0.5	2.0	No	2.1
W52	West Street 3, Marlow	Roadside	484830	186550	NO2	No	0.3	2.0	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
W53	Chapel Street 2, Marlow	Roadside	484893	186677	NO2	No	0.3	1.5	No	2.4
W54	Desborough Avenue, High Wycombe	Roadside	485763	193278	NO2	No	2.0	1.0	No	2.1
W55	Easton Street, High Wycombe	Roadside	486823	192874	NO2	Yes - Wycombe AQMA	2.0	0.2	No	2.1

**Notes:**

(1) 0m if the monitoring site is at a location of exposure (e.g., installed on the façade of a residential property).

(2) N/A if not applicable.

**Table A.3 – Annual Mean NO<sub>2</sub> Monitoring Results: Automatic Monitoring (µg/m<sup>3</sup>)**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
CM1	476604	195436	Suburban	96.7	96.7	28.8	28.9	21	18	19
CM2	486352	192478	Roadside	96.75	96.75			23.39	26	28

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

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

#### Notes:

The annual mean concentrations are presented as µg/m<sup>3</sup>.

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

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

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%).



**Table A.4 – Annual Mean NO<sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m<sup>3</sup>)**

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
AV1	469518	234006	Roadside	92.3	92.5	31.0	30.2	21.8	24.1	26.5
AV2	469587	233939	Roadside	82.7	81.1	34.8	32.1	22.8	25.6	26.5
AV4	469672	233862	Roadside	84.6	84.9	15.8	14.9	11.5	11.9	12.3
AV5	469610	233982	Roadside	92.3	92.5	27.2	25.2	19.0	18.8	19.6
AV6	469597	233999	Roadside	84.6	84.9	37.2	35.3	25.4	27.0	27.2
AV7	469727	234117	Roadside	84.9	84.9	29.6	28.5	22.1	20.6	23.2
AV8	476979	227698	Roadside	84.9	84.9	28.8	27.3	21.8	22.7	23.0
AV9	481891	214979	Roadside	92.5	92.5	35.4	34.1	26.7	27.5	26.3
AV10	483948	215645	Roadside	92.5	92.5	23.7	23.2	18.4	18.1	16.7
AV11	482177	214093	Roadside	92.5	92.5	33.2	31.7	25.0	28.0	26.5
AV12	483128	213637	Roadside	92.5	92.5	30.5	27.7	21.9	20.4	21.0
AV13	483601	213590	Roadside	75.5	75.5	<b>40.7</b>	37.4	28.2	32.2	32.9
AV14	482436	213121	Roadside	92.5	92.5	<b>47.9</b>	<b>48.2</b>	39.1	<b>42.2</b>	38.8

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
AV16	482376	213039	Roadside	77.4	77.4	39.5	<b>40.1</b>	33.8	35.5	31.6
AV17	482278	213271	Roadside	77.4	77.4	<b>45.1</b>	<b>49.9</b>	<b>40.2</b>	39.8	33.2
AV18	482374	213170	Roadside	77.4	77.4	<b>41.6</b>	<b>41.6</b>	32.7	37.2	36.8
AV19	482237	213717	Roadside	92.5	92.5	39.9	<b>40.7</b>	31.2	33.0	31.0
AV20	481451	213588	Roadside	92.5	92.5	37.9	36.6	29.6	31.5	31.9
AV21	481381	213823	Roadside	92.5	92.5	21.3	21.9	17.2	18.6	18.6
AV22	481408	213940	Roadside	92.5	92.5	25.4	25.8	20.9	22.8	21.1
AV23	481514	213860	Roadside	92.5	92.5	<b>45.3</b>	39.8	31.7	36.5	38.6
AV24	480710	214576	Roadside	77.4	77.4	33.8	33.6	26.9	28.0	26.8
AV25	481768	214276	Roadside	84.9	84.9	29.7	29.5	22.8	23.6	24.4
AV26	486811	207795	Roadside	66.0	66.0	24.1	25.9	18.3	19.8	19.9
AV27	488573	222902	Roadside	92.5	92.5	31.6	32.5	24.7	27.4	24.4
AV28	483337	213644	Roadside	84.9	84.9	33.9	32.5	25.3	26.1	27.1
AV29	483394	213646	Roadside	81.1	81.1	35.6	35.6	27.7	27.4	25.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
AV30	483488	213729	Roadside	92.5	92.5	27.4	26.2	21.6	22.3	21.9
AV31	484902	213138	Roadside	92.5	92.5				32.2	27.7
AV32	482157	212768	Roadside	92.5	92.5				25.0	21.4
AV33	481743	214967	Roadside	84.9	84.9				23.6	22.5
AV34	481766	214182	Roadside	77.4	77.4				39.8	35.4
AV35	483660	212602	Urban Background	92.5	92.5				12.6	10.4
AV36	481607	213704	Roadside	92.5	92.5					<b>41.6</b>
AV37	482038	213981	Roadside	60.4	60.4					33.8
AV38	483573	213579	Roadside	92.5	92.5					18.9
AV39	482289	213256	Roadside	84.9	84.9					37.2
AV40	482328	213242	Roadside	83.0	83.0					39.9
AV15, AV41, AV42	482444	213090	Roadside	92.5	92.5					32.5
CDC1, CDC1a	497640	205271	Roadside	92.5	92.5	22.9	20.5	12.0	13.9	13.6
CDC2, CDC2a	497622	205191	Roadside	92.5	92.5	19.4	18.8	11.9	12.1	11.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
CDC3	496326	202932	Roadside	92.5	92.5	31.3	28.4	21.7	22.5	20.0
CDC4	496305	202884	Roadside	92.5	92.5	27.4	25.5	19.5	20.7	20.0
CDC5, CDC5a	496261	202656	Roadside	92.5	92.5	31.7	29.1	18.0	21.7	23.2
CDC6, CDC6a	496272	202699	Roadside	84.9	84.9	29.1	26.7	18.7	24.5	19.6
CDC7, CDC7a	496278	202743	Roadside	92.5	92.5	29.9	26.9	17.3	23.0	22.3
CDC8, CDC8a	496247	202328	Roadside	92.5	92.5	<b>40.7</b>	35.9	21.4	29.7	27.8
CDC9, CDC9a	496215	202300	Roadside	92.5	92.5	37.9	32.2	24.3	28.3	27.3
CDC11, CDC11a	496133	202072	Roadside	92.5	92.5	<b>40.1</b>	36.2	27.7	27.2	26.5
CDC12, CDC12a	496107	202033	Roadside	92.5	92.5	<b>40.7</b>	33.8	20.8	29.0	26.4
CDC13, CDC13a	495850	201510	Roadside	83.0	83.0	34.8	29.6	19.6	24.4	22.5
CDC14, CDC14a	495869	201436	Roadside	92.5	92.5	<b>40.2</b>	34.6	26.1	27.3	25.2
CDC15	489484	201234	Roadside	92.5	92.5	20.9	18.3	13.7	13.8	13.2
CDC16	487002	200812	Roadside	92.5	92.5	21.5	19.3	13.2	13.4	13.0
CDC17	487991	200978	Roadside	92.5	92.5	21.3	17.4	11.9	12.7	12.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
CDC18	495298	197520	Roadside	92.5	92.5	25.3	23.1	15.4	17.0	16.1
CDC19	495446	196797	Roadside	92.5	92.5	30.5	25.4	17.0	20.9	19.7
CDC20	496760	197100	Roadside	92.5	92.5	<b>44.6</b>	36.9	26.0	27.4	25.6
CDC21, CDC21a	495960	196940	Roadside	92.5	92.5	<b>43.6</b>	34.6	25.3	27.1	26.6
CDC23	495708	198806	Urban Background	84.9	84.9	13.4	11.8	7.9	8.0	8.6
CDC24, CDC24a	496550	198720	Roadside	92.5	92.5	28.7	23.7	17.0	16.9	15.2
CDC25	499260	197452	Roadside	92.5	92.5	30.8	27.6	18.9	20.1	20.2
CDC27	500050	190810	Roadside	83.0	83.0	27.3	24.1	16.9	18.4	16.1
CDC28, CDC28a	499250	193750	Roadside	92.5	92.5	35.8	28.7	18.9	20.2	18.6
CDC29	496222	202281	Roadside	83.0	83.0					21.4
CDC30	496314	198072	Roadside	92.5	92.5					37.9
SB1	503696	178533	Roadside	92.5	92.5	27.0	25.2	16.1	16.2	16.3
SB2	504056	180901	Roadside	92.5	92.5	29.3	27.7	17.4	18.3	18.6
SB4	502072	182753	Roadside	92.5	92.5	<b>43.8</b>	<b>42.0</b>	29.0	30.7	28.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
SB5	504754	185138	Roadside	75.5	75.5	32.8	31.6	22.0	24.5	20.5
SB8	500259	188613	Roadside	92.5	92.5	36.0	35.4	22.8	24.8	22.4
SB12	496095	185599	Roadside	58.5	58.5	35.4	32.3	23.1	26.4	23.9
SB13	493873	191040	Roadside	92.5	92.5	34.0	30.5	22.1	23.2	21.8
SB14	584728	192313	Roadside	92.5	92.5	35.9	37.9	25.6	25.5	26.0
SB16	493136	182503	Roadside	92.5	92.5	25.3	24.1	15.2	17.1	13.2
SB17	491668	181187	Roadside	92.5	92.5	18.6	19.7	13.6	15.9	21.6
SB21	503690	179278	Roadside	92.5	92.5	32.9	30.9	20.9	23.3	26.5
SB22	503972	179701	Roadside	92.5	92.5	38.2	37.2	25.4	28.1	24.4
SB24	503050	181176	Roadside	92.5	92.5	31.2	29.5	19.8	21.7	20.1
SB25	503604	181378	Roadside	92.5	92.5	31.6	32.7	22.7	22.8	21.9
SB26	502100	182473	Roadside	92.5	92.5	29.1	29.1	20.0	20.7	21.0
SB27	502520	183456	Roadside	83.0	83.0	35.3	37.3	26.8	30.3	26.8
SB28, SB29	503899	181199	Roadside	92.5	92.5	39.0	36.8	25.7	30.2	28.0

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
SB30, SB31	503924	181127	Roadside	81.1	81.1	<b>42.0</b>	<b>43.6</b>	26.4	32.6	31.2
SB32, SB33	504047	179475	Roadside	92.5	92.5	<b>42.0</b>	39.2	26.4	28.6	26.9
SB34, SB35	502217	182870	Roadside	92.5	92.5	31.0	28.9	19.3	22.5	19.8
SB36	503022	183070	Roadside	92.5	92.5	37.3	39.1	28.4	30.0	28.2
SB37	494478	190142	Roadside	92.5	92.5	30.8	29.6	19.0	20.4	23.8
SB38	503618	180518	Roadside	92.5	92.5	27.5	28.0	18.0	21.2	20.4
SB39	501652	187168	Roadside	92.5	92.5	38.5	38.7	26.3	28.5	27.3
SB41	503256	181272	Roadside	83.0	83.0	27.5	25.5	19.1	20.6	20.6
SB42	502477	184784	Roadside	92.5	92.5	27.1	28.2	19.4	19.1	17.6
SB44	496099	185047	Roadside	84.9	84.9	17.7	17.4	10.7	11.6	10.4
SB46	501568	186763	Roadside	92.5	92.5	33.6	30.7	20.4	22.3	21.1
SB47	494862	190156	Roadside	92.5	92.5		<b>42.1</b>	28.3	29.6	25.1
SB48	504195	187988	Roadside	84.9	84.9					20.3
SB49	503759	181200	Roadside	92.5	92.5					27.8



Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
SB50	496008	182953	Roadside	92.5	92.5					23.5
SB51	493859	191103	Roadside	84.9	84.9					19.2
SB52	494825	190250	Roadside	92.5	92.5					23.9
W1	485012	186444	Urban Centre	100.0	100.0	28.5	23.8	17.5	17.8	18.4
W2	484966	186773	Roadside	100.0	100.0	<b>44.3</b>	37.4	26.1	31.2	32.3
W3	484753	186888	Roadside	100.0	100.0	31.4	32.1	22.5	22.8	23.4
W4	486384	192513	Roadside	66.0	66.0	<b><u>62.1</u></b>	<b>48.8</b>	-	-	26.3
W5	486471	193665	Roadside	66.0	66.0	32.3	36.4	26.0	27.3	23.4
W6	485869	193231	Roadside	92.5	92.5	30.1	35.4	25.2	24.2	25.6
W7	486116	192890	Roadside	100.0	100.0	27.3	26.4	17.5	18.3	20.3
W8	487101	192766	Roadside	100.0	100.0	36.7	35.3	23.7	30.2	29.7
W9	485353	191416	Roadside	92.5	92.5	34.8	37.5	21.2	26.7	28.2
W10	485514	193658	Roadside	100.0	100.0	<b>50.6</b>	<b>42.9</b>	32.1	32.6	32.2
W12	486364	193266	Roadside	100.0	100.0	24.9	25.9	19.1	19.7	20.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
W13	485891	191788	Roadside	100.0	100.0	25.9	26.2	20.7	18.3	19.8
W14	487048	193473	Roadside	100.0	100.0	18.8	19.1	17.0	14.1	14.6
W15, W16, W17	476602	195435	Suburban	64.2	64.2					18.4
W18	486785	192987	Roadside	100.0	100.0	39.2	38.3	30.3	32.8	31.9
W19	486842	193144	Roadside	100.0	100.0	32.3	34.3	29.5	34.3	34.5
W20	488858	191923	Roadside	100.0	100.0	<b>41.1</b>	<b>43.0</b>	25.5	23.8	24.1
W21	485070	186871	Roadside	90.6	90.6	39.7	39.1	32.7	33.8	35.0
W22	485665	193586	Roadside	73.6	73.6	30.5	30.9	29.5	28.8	31.0
W23	487787	194657	Roadside	83.0	83.0	36.3	<b>40.9</b>	23.4	22.3	25.1
W24	486485	193803	Roadside	100.0	100.0	26.6	27.1	31.3	31.6	31.7
W25	486079	192883	Urban Background	90.6	90.6	19.3	17.9	20.6	21.3	21.1
W29	485217	187010	Roadside	92.5	92.5	29.2	27.6	12.9	14.3	12.4
W30	484868	186656	Roadside	92.5	92.5	25.1	26.6	21.8	22.6	23.0
W31	484888	186571	Urban Centre	81.1	81.1	<b>40.4</b>	<b>40.3</b>	17.6	19.3	19.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
W32	490784	190216	Roadside	100.0	100.0	<b>48.5</b>	<b>46.0</b>	19.3	19.0	17.4
W33	490247	190768	Roadside	100.0	100.0	32.2	30.8	29.2	32.1	30.3
W34	483442	194645	Roadside	100.0	100.0	34.4	31.4	36.0	37.8	34.8
W35	484749	186496	Roadside	84.9	84.9	33.4	32.1	22.3	23.4	22.1
W36	484643	186436	Roadside	84.9	84.9	30.8	29.7	21.3	23.6	22.8
W37	482896	194659	Roadside	92.5	92.5	39.3	35.4	22.5	27.0	25.1
W38	487561	192616	Kerbside	92.5	92.5	29.7	30.1	24.1	27.6	27.6
W39	484421	194179	Kerbside	84.9	84.9	38.7	37.1	21.4	33.1	29.9
W40	485290	191280	Suburban	100.0	100.0	26.9	27.6	19.4	21.4	21.2
W41	485024	186825	Roadside	100.0	100.0	26.3	24.8	28.7	30.8	30.3
W42	485028	186327	Urban Centre	81.1	81.1	29.2	21.1	19.0	19.9	22.3
W43	485182	186974	Roadside	100.0	100.0	27.2	25.9	15.4	18.5	19.6
W44	486607	191725	Roadside	100.0	100.0	37.8	36.5	14.0	19.4	18.3
W45	486520	193110	Urban Centre	83.0	83.0	35.5	35.1	19.9	21.4	22.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
W46	486474	193121	Urban Centre	90.6	90.6	<b>43.6</b>	<b>40.0</b>	26.6	32.0	32.5
W47	486766	193065	Roadside	100.0	100.0	<b>45.0</b>	<b>43.8</b>	25.5	28.3	27.0
W48	486381	193179	Urban Centre	92.5	92.5	29.4	31.2	29.7	35.8	35.2
W49	484958	186748	Roadside	92.5	92.5	<b>42.3</b>	39.2	29.9	30.4	34.5
W50	485462	193384	Roadside	92.5	92.5	30.8	30.4	24.9	23.2	23.8
W51	486144	193271	Roadside	92.5	92.5	<b>40.0</b>	32.7	35.8	36.7	35.2
W52	484830	186550	Roadside	100.0	100.0	31.7	30.1	21.0	21.7	22.1
W53	484893	186677	Roadside	92.5	92.5	37.6	29.2	20.5	22.9	22.3
W54	485763	193278	Roadside	100.0	100.0	31.7	30.1	22.3	24.3	28.2
W55	486823	192874	Roadside	100.0	100.0	37.6	29.2	20.1	22.9	22.9

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<sub>2</sub> annual mean objective of  $40\mu\text{g}/\text{m}^3$  are shown in **bold**.

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

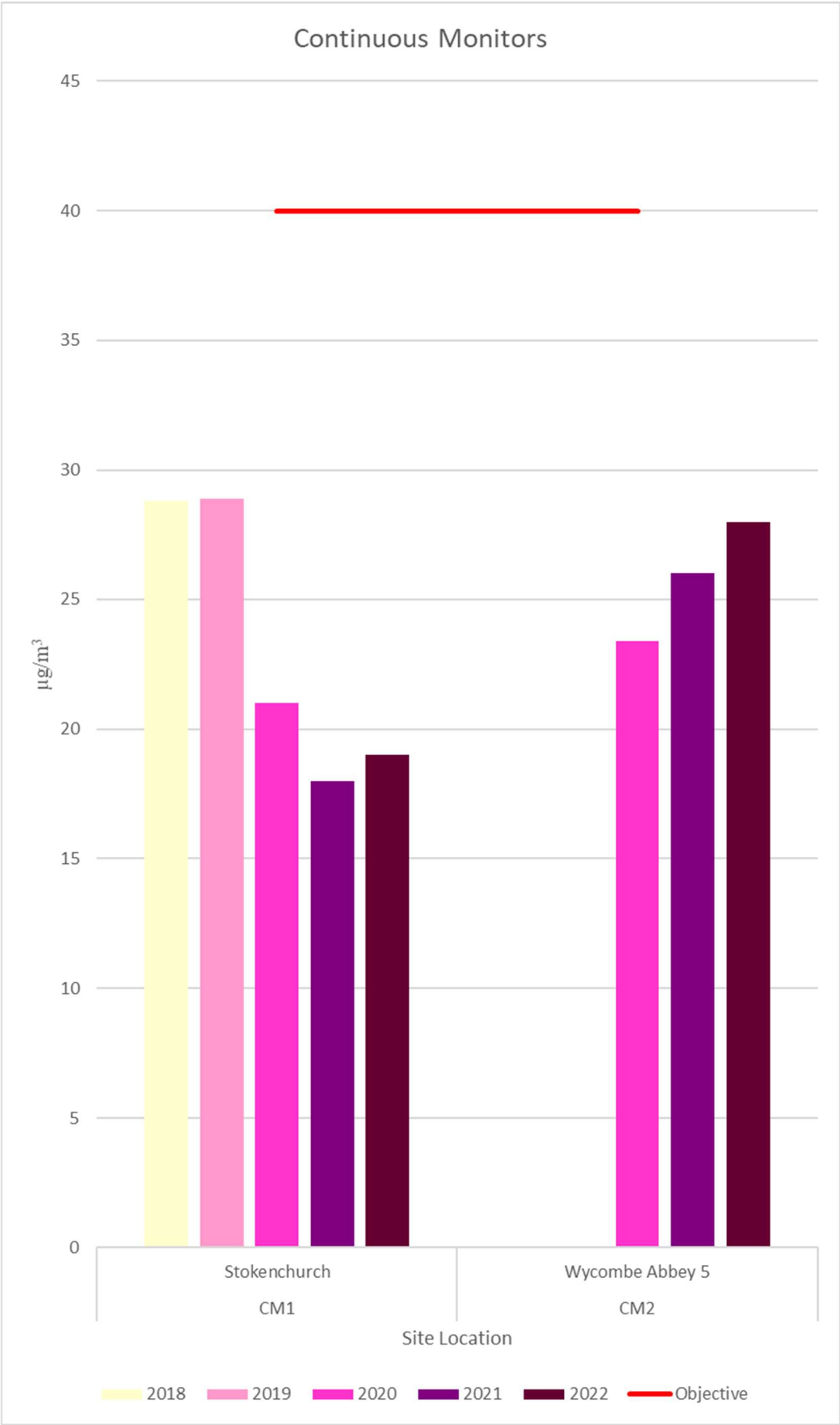
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

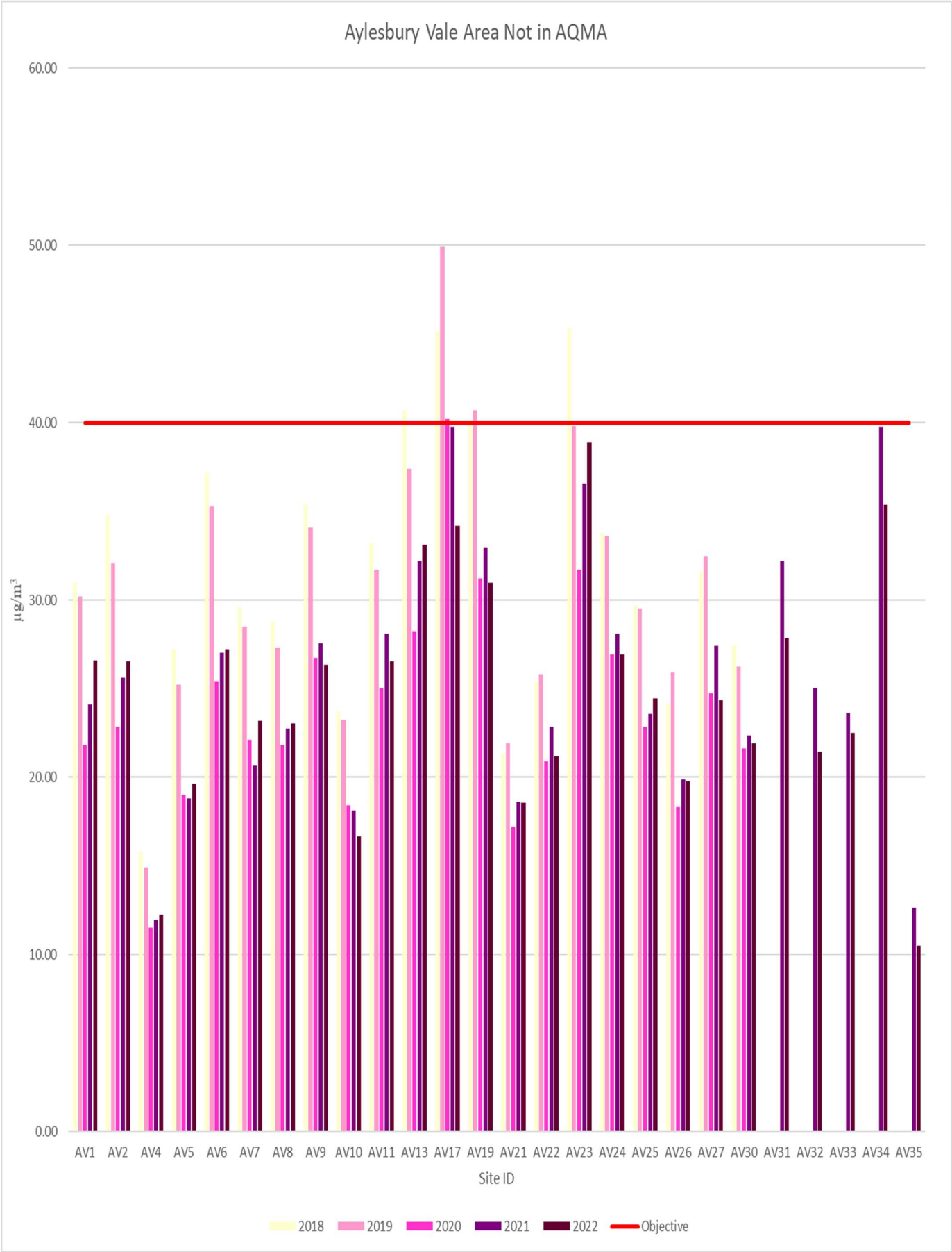
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

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

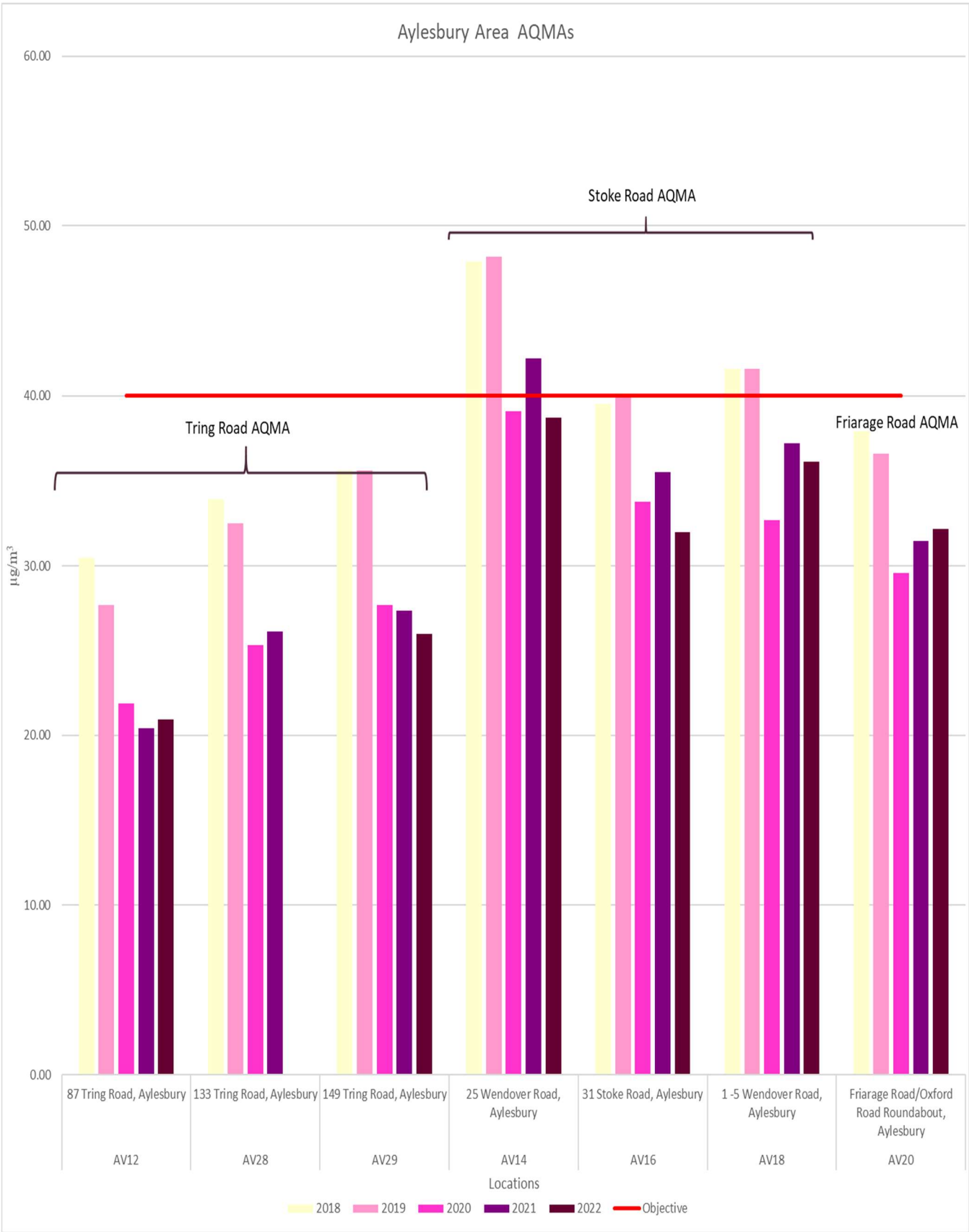
(2) Data capture for the full calendar year (e.g., if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

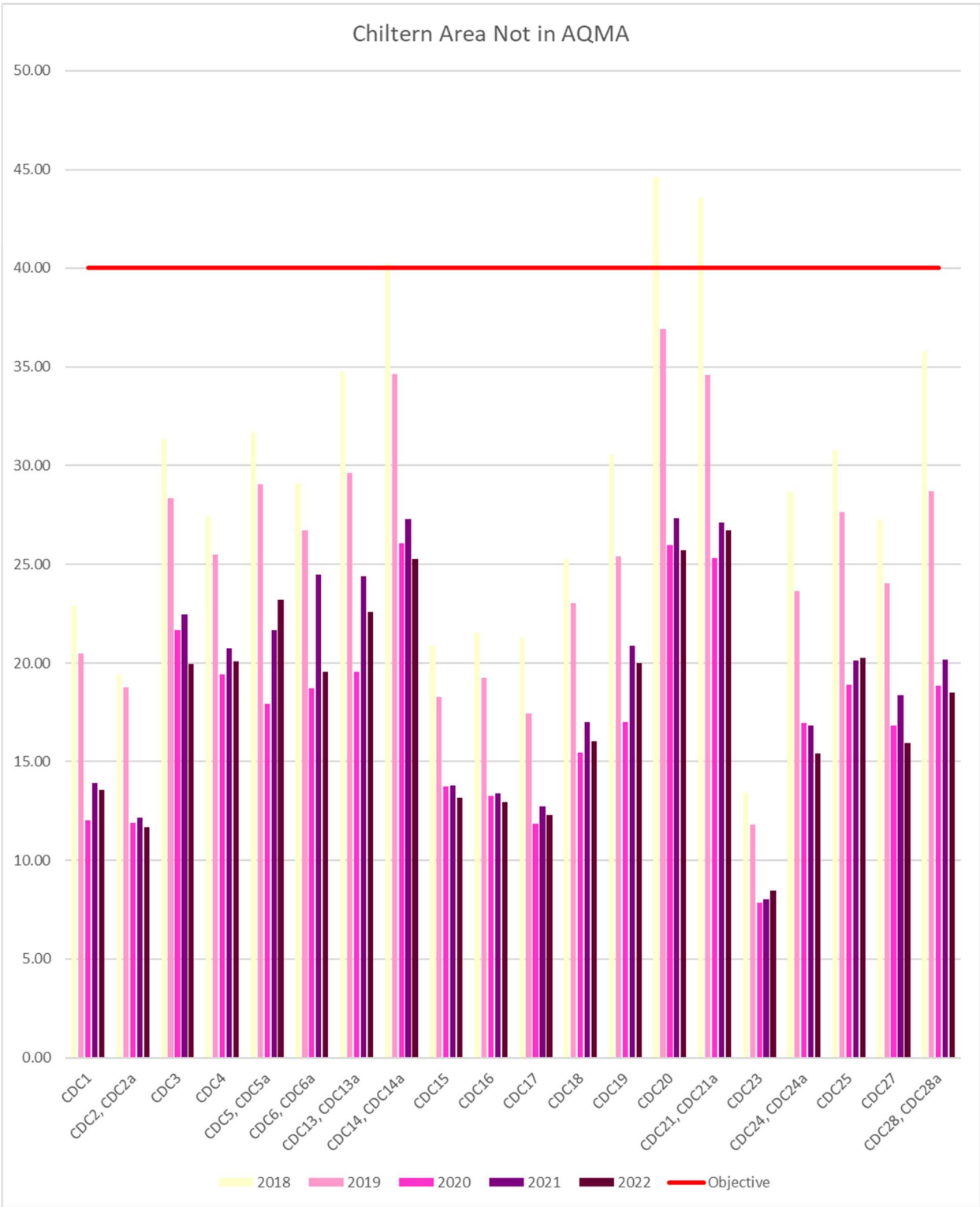
Figure A.1 – Trends in Annual Mean NO<sub>2</sub> Concentrations

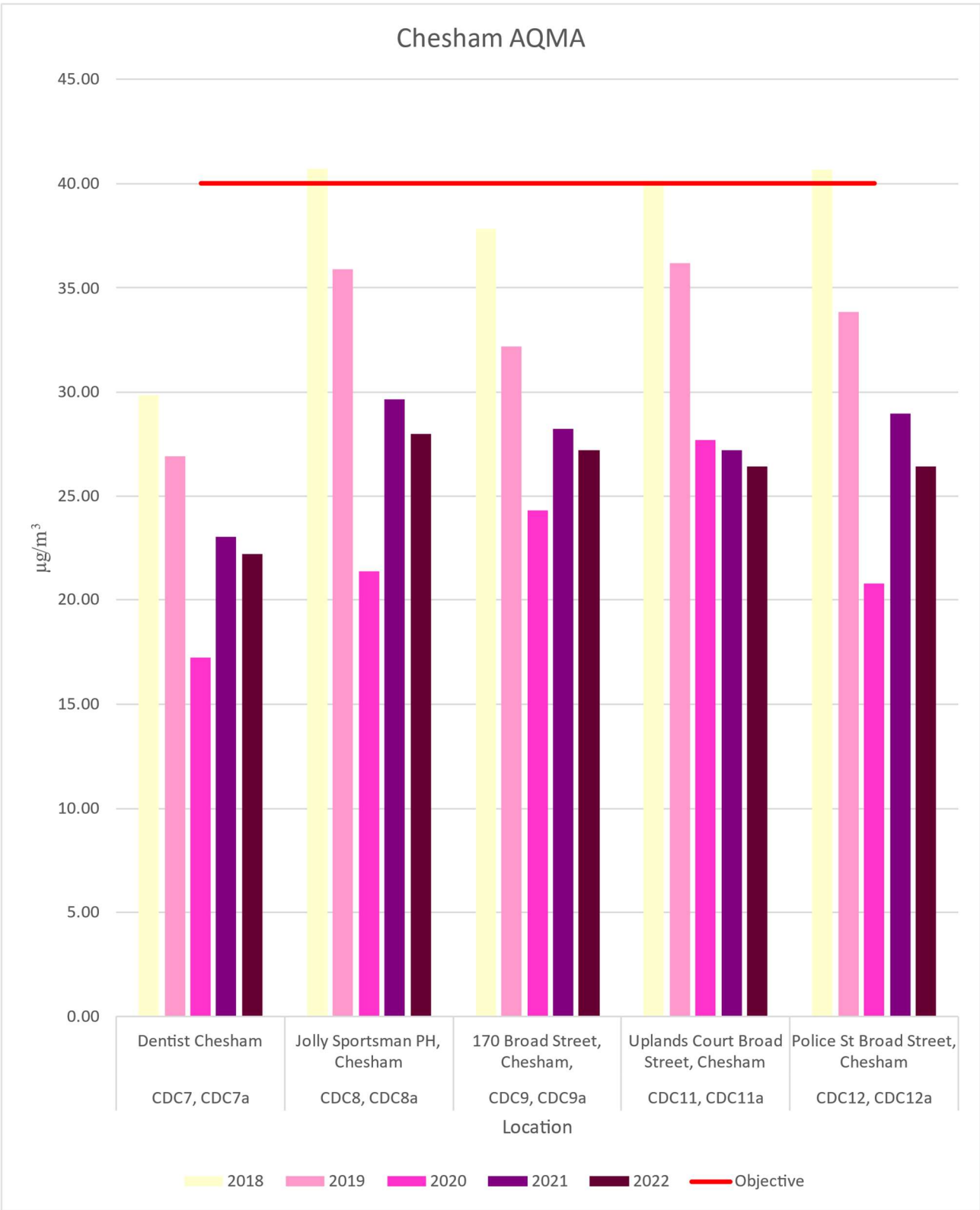


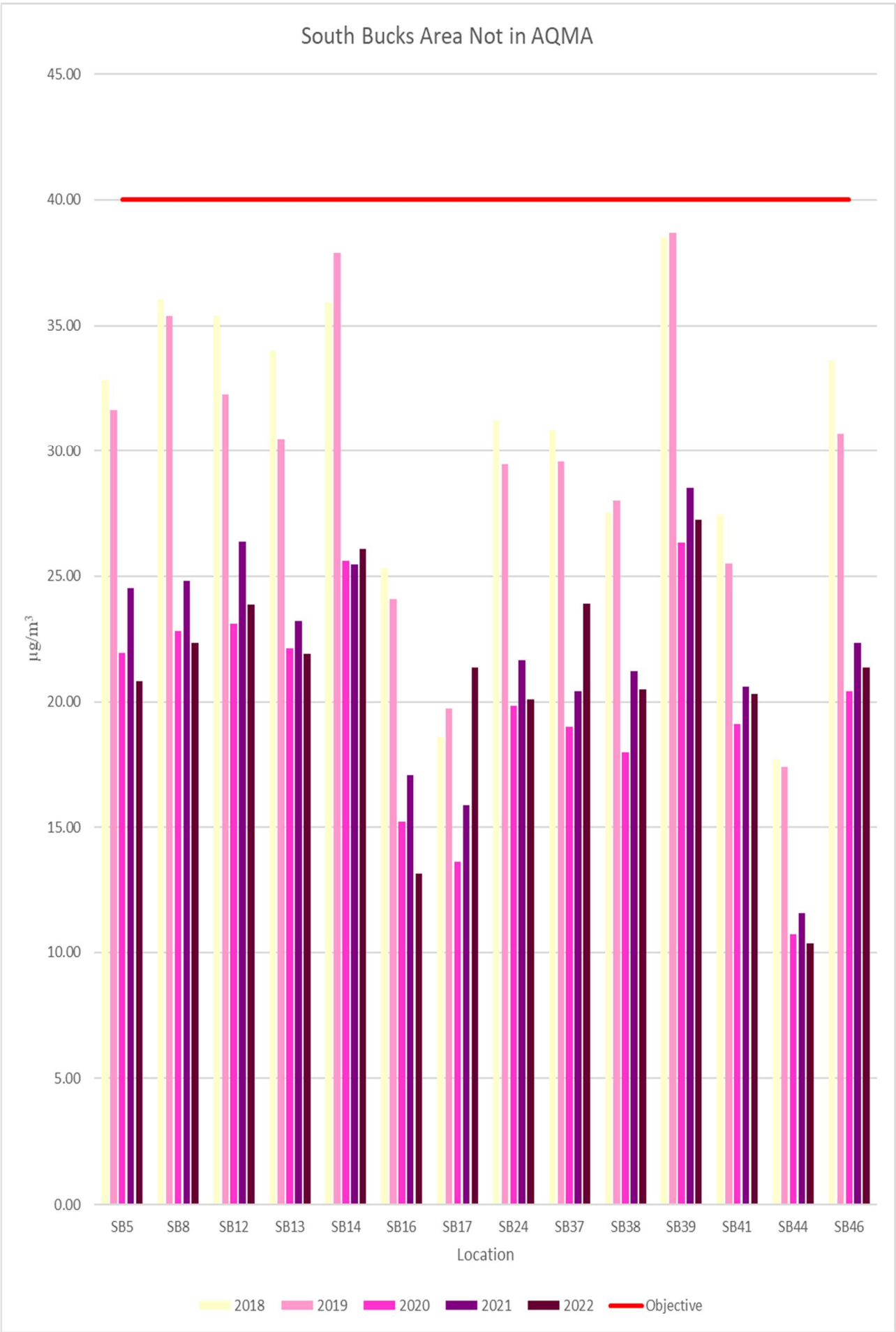




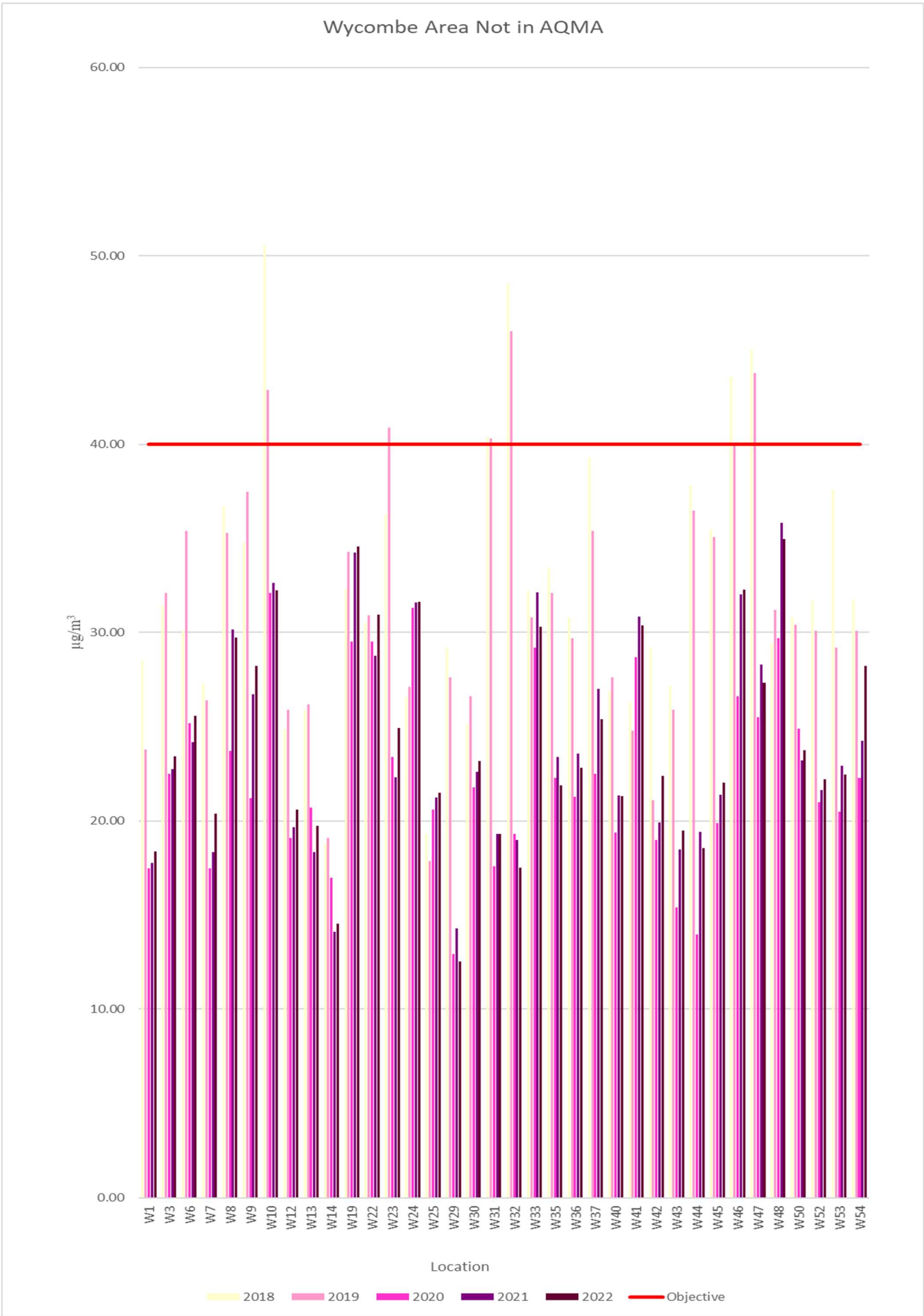


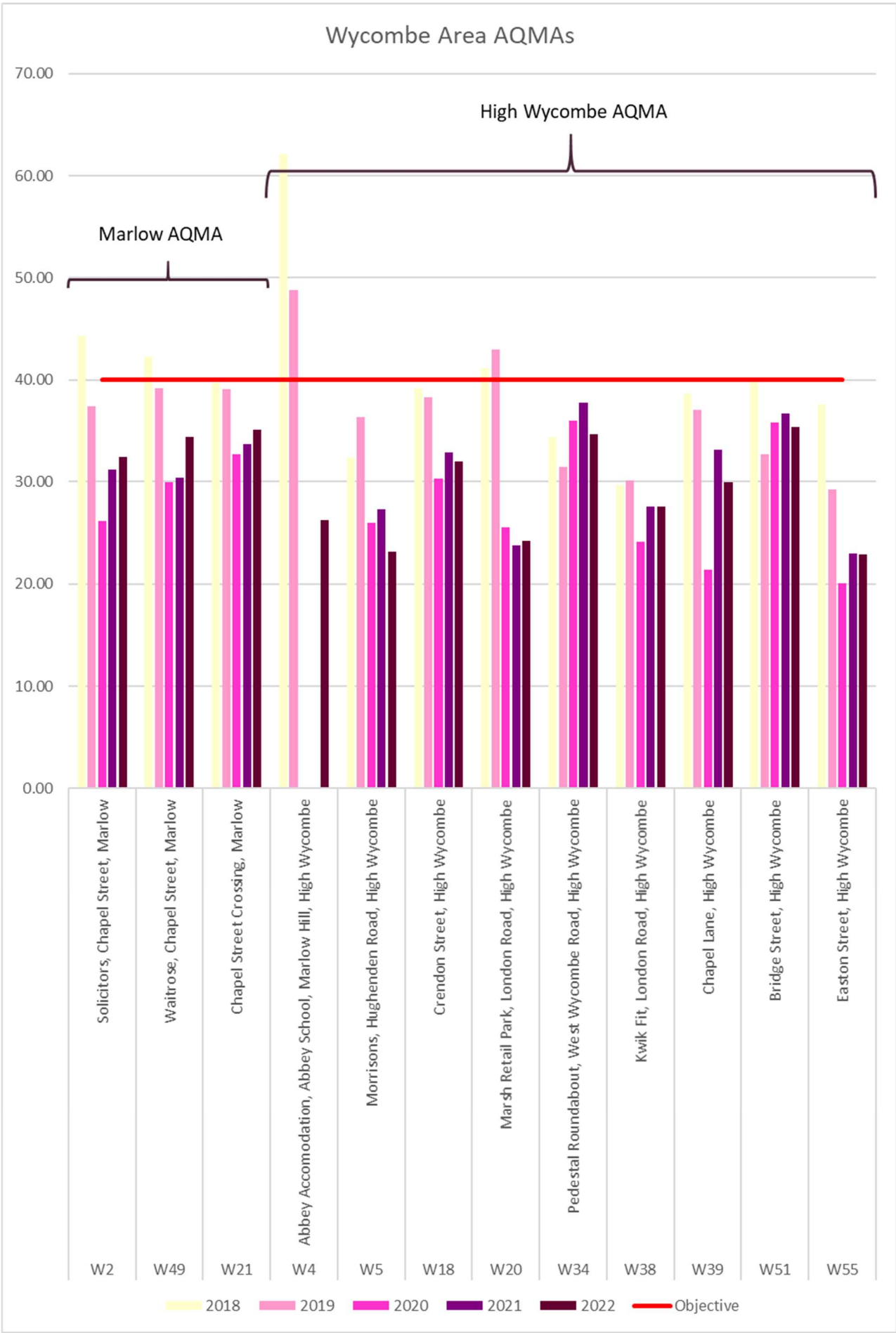












**Table A.5 – 1-Hour Mean NO<sub>2</sub> Monitoring Results, Number of 1-Hour Means > 200µg/m<sup>3</sup>**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
CM1	476604	195436	Suburban	96.7	96.7	0	0	0	0	0
CM2	486352	192478	Roadside	96.75	96.75			0	0	0

**Notes:**

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m<sup>3</sup> have been recorded.

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

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

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

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



## Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO<sub>2</sub> 2022 Diffusion Tube Results (µg/m<sup>3</sup>)

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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
AV1	469518	234006		24.8	50.2	35.8	29.0	30.9	35.4	40.2	39.7	39.7	27.0	31.9	34.8	26.5	-	
AV2	469587	233939		41.4	41.0	32.1	36.1	38.9	36.1	31.6	33.7	33.7	24.5		34.8	26.5	-	
AV4	469672	233862			23.4	17.2	11.9	11.0	12.9	15.1	19.3	19.3	13.6	17.2	16.1	12.3	-	
AV5	469610	233982		24.3	39.2	24.8	22.1	19.9	20.4	25.6	25.0	25.0	30.6	27.0	25.7	19.6	-	
AV6	469597	233999			37.8	33.7	33.2	31.7	36.9	35.7	34.9	34.9	39.3	39.6	35.8	27.2	-	
AV7	469727	234117		32.6	38.2	25.6	28.8	29.4	28.0	28.3	29.2	29.2		35.6	30.5	23.2	-	
AV8	476979	227698			37.6	28.8	27.8	28.3	30.4	26.5	29.8	29.8	30.5	33.1	30.3	23.0	-	
AV9	481891	214979		39.7	38.4	29.3	34.9	32.9	31.7	30.4	36.2	36.2	34.4	36.5	34.6	26.3	-	
AV10	483948	215645		24.2	31.7	21.7	17.7	15.8	18.0	19.6	22.8	22.8	20.3	26.5	22.0	16.7	-	
AV11	482177	214093		36.1	40.9	36.8	32.1	30.5	31.7	36.4	36.7	36.7	31.1	35.0	34.9	26.5	-	
AV12	483128	213637		27.5	35.1	30.1	22.8	20.8	24.6	26.1	26.2	26.2	30.1	33.3	27.7	21.0	-	
AV13	483601	213590		39.6	47.2	37.1		41.5	43.7		49.0	49.0	46.7	38.2	43.3	32.9	-	
AV14	482436	213121		69.6	49.5	46.2	54.9	55.0	54.3	43.4	50.7	50.7	34.2	52.1	51.0	38.8	36.3	
AV15	482444	213090		50.0	45.7	39.9	44.5	42.8	46.9	41.0	46.0	46.0	42.3	35.1	-	-	-	Triplicate Site with AV15, AV41 and AV42 - Annual data provided for AV42 only
AV16	482376	213039				43.8	40.2	43.1	46.7	46.5	50.1	50.1	30.3	28.0	41.6	31.6	-	
AV17	482278	213271		64.6	44.1	42.7	52.5	44.3			39.6	39.6	57.7	19.7	43.7	33.2	-	
AV18	482374	213170			50.7	42.9	42.2	43.2	44.2	39.7	47.8	47.8		69.6	48.4	36.8	30.7	
AV19	482237	213717		40.0	55.2	40.8	35.2	36.8	28.3	46.1	39.1	39.1	42.8	44.9	40.8	31.0	-	

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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
AV20	481451	213588		42.1	52.8	41.8	35.3	40.3	42.2	42.2	46.0	46.0	42.8	34.4	41.9	31.9	-	
AV21	481381	213823		21.7	38.1	23.4	19.7	17.4	19.7	24.2	27.1	27.1	23.1	27.0	24.5	18.6	-	
AV22	481408	213940		25.6	41.7	24.8	23.1	22.4	24.2	25.6	31.0	31.0	27.6	29.2	27.8	21.1	-	
AV23	481514	213860		34.7	75.5	53.1	40.4	46.9	51.6	62.8	55.7	55.7	42.0	44.2	50.8	38.6	31.0	
AV24	480710	214576			43.8	29.9	34.5		32.6	28.4	35.2	35.2	44.6	34.5	35.2	26.8	-	
AV25	481768	214276			45.2	28.1	24.9	27.3	27.7	28.0	33.1	33.1	38.7	35.4	32.1	24.4	-	
AV26	486811	207795			35.0			21.4	22.4	23.3	25.2	25.2	32.0	30.8	27.1	19.9	-	
AV27	488573	222902		29.8	41.4	32.2	29.8	29.1	31.4	28.0	29.2	29.2	34.2	37.8	32.1	24.4	-	
AV28	483337	213644			43.0	34.9	33.3	31.8	34.3	36.0	34.3	34.3	37.2	37.3	35.6	27.1	-	
AV29	483394	213646		34.9	42.5	34.7	30.7	30.8	33.6	33.8	35.1	35.1	30.5		34.1	25.9	-	
AV30	483488	213729		29.1	36.1	26.7	24.6	24.9	28.0	24.5	27.5	27.5	36.8	31.2	28.8	21.9	-	
AV31	484902	213138		40.1	45.5	36.7	36.8	35.8	39.1	42.8	31.4	31.4	28.8	34.1	36.4	27.7	-	
AV32	482157	212768		27.2	34.8	30.7	25.6	24.7	39.5	31.0	22.1	22.1	19.7	32.2	28.2	21.4	-	
AV33	481743	214967			40.0	29.1	26.5	25.5	26.0	29.0	29.0	29.0	29.5	32.1	29.6	22.5	-	
AV34	481766	214182			57.1	51.6	46.8	30.6	43.1	51.6	47.2	47.2		44.1	46.6	35.4	-	
AV35	483660	212602		14.6	22.5	14.1	9.7	9.9	11.6	11.3	12.9	12.9	17.3	14.9	13.7	10.4	-	
AV36	481607	213704		54.4	63.8	52.2	54.0	56.1	61.7	59.3	61.0	61.0	54.7	33.8	54.8	<b>41.6</b>	<b>41.1</b>	
AV37	482038	213981			39.7	41.5	45.9	44.6	45.1				52.3	38.9	43.7	33.8	-	
AV38	483573	213579		24.7	38.8	28.3	19.5	20.3	22.9	26.8	26.4	26.4	24.5	18.3	24.9	18.9	-	
AV39	482289	213256			40.7	43.9	48.3	53.4	49.0	41.6	47.3	47.3	64.4	53.4	49.0	37.2	33.4	
AV40	482328	213242		47.9	62.4		49.3	48.4	50.1	50.8	46.8	46.8	57.7	61.9	52.5	39.9	38.4	

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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
AV41	482444	213090		45.4	42.4	40.4		43.0	44.7	40.2	44.6	44.6	41.9	38.6	-	-	-	Triplicate Site with AV15, AV41 and AV42 - Annual data provided for AV42 only
AV42	482444	213090		50.9	43.0	38.9	45.1	42.9	44.7	44.0	42.6	42.6	40.9	35.9	42.8	32.5	-	Triplicate Site with AV15, AV41 and AV42 - Annual data provided for AV42 only
CDC1	497640	205271		17.0	26.8	19.4	12.6	13.1	14.4	16.8	19.4	15.2	21.1	21.9	-	-	-	Duplicate Site with CDC1 and CDC1a - Annual data provided for CDC1a only
CDC1 <sub>a</sub>	497640	205271		19.4	27.6	17.8	12.9	12.6	16.3	14.4	16.8	19.5	15.8	22.2	17.9	13.6	-	Duplicate Site with CDC1 and CDC1a - Annual data provided for CDC1a only
CDC2	497622	205191		13.4	22.2	13.1	9.9	11.6	12.0	11.9	14.7	19.4	16.4	21.1	-	-	-	Duplicate Site with CDC2 and CDC2a - Annual data provided for CDC2a only
CDC2 <sub>a</sub>	497622	205191		17.4	23.2	13.9	11.7	13.0	13.7	13.1	14.3	18.3	19.2	14.0	15.4	11.7	-	Duplicate Site with CDC2 and CDC2a - Annual data provided for CDC2a only
CDC3	496326	202932		27.5	33.6	23.3	21.2	24.5	22.4	18.4	24.5	31.5	35.0	27.2	26.3	20.0	-	
CDC4	496305	202884		32.6	32.2	22.9	25.8	24.1	21.6	20.1	24.7	29.1	32.0	25.5	26.4	20.0	-	
CDC5	496261	202656		33.1	36.4	29.1	27.8	28.7	27.5	26.1	31.8	30.8	33.3	27.8	-	-	-	Duplicate Site with CDC5 and CDC5a - Annual data provided for CDC5a only
CDC5 <sub>a</sub>	496261	202656		34.3	35.3	31.7	24.8	27.6	30.3	26.6	32.3	29.6	31.3	35.3	30.5	23.2	-	Duplicate Site with CDC5 and CDC5a - Annual data provided for CDC5a only
CDC6	496272	202699		29.7		26.4	21.8	21.0	23.7	21.7	25.7	29.4	29.7	31.8	-	-	-	Duplicate Site with CDC6 and CDC6a - Annual data provided for CDC6a only
CDC6 <sub>a</sub>	496272	202699		29.6		25.1	20.6	22.3	26.9	22.1	26.7	29.6	26.0	25.2	25.9	19.6	-	Duplicate Site with CDC6 and CDC6a - Annual data provided for CDC6a only
CDC7	496278	202743		33.3	34.6	25.2	25.7	23.9	25.3	23.4	26.5	35.2	34.1	32.0	-	-	-	Duplicate Site with CDC7 and CDC7a - Annual data provided for CDC7a only
CDC7 <sub>a</sub>	496278	202743		34.1	36.9	25.5	23.5	24.4	24.6	21.4	28.6	34.0	36.4	34.1	29.3	22.3	-	Duplicate Site with CDC7 and CDC7a - Annual data provided for CDC7a only
CDC8	496247	202328		36.6	45.7	39.7	32.5	33.5	32.8	39.6	33.6	41.5	40.3	26.3	-	-	-	Duplicate Site with CDC8 and CDC8a - Annual data provided for CDC8a only
CDC8 <sub>a</sub>	496247	202328			50.9	38.4	30.2	33.3	31.2	36.4	35.2	35.3	44.7	36.8	36.6	27.8	-	Duplicate Site with CDC8 and CDC8a - Annual data provided for CDC8a only
CDC9	496215	202300		45.8	38.5	32.8	33.1	33.8	30.6	29.0	32.3	38.5		44.6	-	-	-	Duplicate Site with CDC9 and CDC9a - Annual data provided for CDC9a only
CDC9 <sub>a</sub>	496215	202300		41.0	36.5	31.9	31.3	33.3	32.2	29.2	36.1	39.5	42.6	33.1	35.9	27.3	-	Duplicate Site with CDC9 and CDC9a - Annual data provided for CDC9a only
CDC1 <sub>1</sub>	496133	202072		40.3	38.6	33.9	26.5	26.6	35.7	32.1	31.2	39.2		41.7	-	-	-	Duplicate Site with CDC11 and CDC11a - Annual data provided for CDC11a only

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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CDC1 1a	496133	202072		39.7	40.0	32.8	28.2	31.6	31.0	32.1	33.1	39.1	36.3	39.3	34.9	26.5	-	Duplicate Site with CDC11 and CDC11a - Annual data provided for CDC11a only
CDC1 2	496107	202033		35.9	36.6	38.8	28.6	32.1	32.0	40.1	35.0	38.9	26.7		-	-	-	Duplicate Site with CDC12 and CDC12a - Annual data provided for CDC12a only
CDC1 2a	496107	202033		35.1	47.3	38.5	30.1	31.9	33.2	36.2	33.5	39.4	35.6	30.3	34.7	26.4	-	Duplicate Site with CDC12 and CDC12a - Annual data provided for CDC12a only
CDC1 3	495850	201510		37.4	45.4	30.9		22.5		24.7	30.9	29.5	26.3	24.1	-	-	-	Duplicate Site with CDC13 and CDC13a - Annual data provided for CDC13a only
CDC1 3a	495850	201510			45.3	33.1		21.7	24.9	22.7	29.3	28.2	26.7	28.3	29.6	22.5	-	Duplicate Site with CDC13 and CDC13a - Annual data provided for CDC13a only
CDC1 4	495869	201436		29.1	33.6	27.0	30.9	33.8	32.3	29.5	37.6	33.8	43.9	30.2	-	-	-	Duplicate Site with CDC14 and CDC14a - Annual data provided for CDC14a only
CDC1 4a	495869	201436		26.2	37.4	28.0	31.2	32.2	34.1	32.2	35.0	39.9	34.3	38.9	33.2	25.2	-	Duplicate Site with CDC14 and CDC14a - Annual data provided for CDC14a only
CDC1 5	489484	201234		17.2	24.5	17.0	14.8	12.9	15.4	14.7	17.8	17.9	18.8	19.2	17.3	13.2	-	
CDC1 6	487002	200812		16.1	23.9	16.2	14.3	12.8	14.2	15.7	16.1	18.4	20.7	19.2	17.1	13.0	-	
CDC1 7	487991	200978		17.4	23.8	14.2	12.8	12.2	15.8	13.4	10.4	17.3	21.7	18.5	16.1	12.3	-	
CDC1 8	495298	197520		19.8	28.2	20.9	18.9	16.3	19.5	17.7	21.9	22.9	19.6	25.9	21.2	16.1	-	
CDC1 9	495446	196797		26.9	33.4	21.6	24.5	24.7	25.5	23.7	26.3	33.9	33.4	15.7	25.9	19.7	-	
CDC2 0	496760	197100		39.4	50.4	33.9	28.5	27.3	24.7	30.3	28.7	36.3	39.6	32.8	33.7	25.6	-	
CDC2 1	495960	196940		32.6	48.7	34.6	34.1	28.9	33.7	37.2	34.4	34.2	33.3	33.4	-	-	-	Duplicate Site with CDC21 and CDC21a - Annual data provided for CDC21a only
CDC2 1a	495960	196940		29.9	49.6	37.1	31.4	30.5	35.8	35.8	35.6	34.8	35.1	32.6	35.0	26.6	-	Duplicate Site with CDC21 and CDC21a - Annual data provided for CDC21a only
CDC2 3	495708	198806		10.1	17.5	11.7	8.3	7.4	9.6	7.8	11.8	14.1		13.3	11.3	8.6	-	
CDC2 4	496550	198720		23.1	29.7			18.3	17.1	15.1	19.3	29.1	23.7	7.2	-	-	-	Duplicate Site with CDC24 and CDC24a - Annual data provided for CDC24a only
CDC2 4a	496550	198720		24.0	29.9	17.4	17.9	16.9	17.2	15.9	18.5	25.5	27.8	17.3	20.0	15.2	-	Duplicate Site with CDC24 and CDC24a - Annual data provided for CDC24a only
CDC2 5	499260	197452		23.8	35.2	23.9	26.6	25.9	25.3	24.5	27.2	32.9	25.1	23.2	26.6	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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CDC27	500050	190810		23.3	16.5		20.6	16.2	19.6	19.2	19.2	24.6	25.9	24.5	21.2	16.1	-	
CDC28	499250	193750		21.8	28.5	26.3	20.7	20.6	23.5	23.1	26.6	24.6	17.6	28.3	-	-	-	Duplicate Site with CDC28 and CDC28a - Annual data provided for CDC28a only
CDC28a	499250	193750		19.9	33.2	25.0	20.8	22.0	25.2	22.6	26.4	25.3	26.7	26.7	24.4	18.6	-	Duplicate Site with CDC28 and CDC28a - Annual data provided for CDC28a only
CDC29				31.5	35.5	27.6	23.0	23.9	22.3	23.2	25.0		35.2	33.7	28.2	21.4	-	
CDC30	496314	198072		54.4	60.8	47.6	44.5	42.8	45.2	50.0	49.9	52.2	40.8	57.4	49.8	37.9	35.4	
SB1	503696	178533		20.2	37.9	17.5	15.0	13.1	17.4	19.4	20.4	25.0	23.1	26.2	21.4	16.3	-	
SB2	504056	180901		25.7	37.2	21.4	15.6	17.3	20.8	23.1	24.3	30.5	28.5	25.5	24.5	18.6	-	
SB4	502072	182753		38.9	42.8	41.2	33.6	34.2	39.5	38.3	35.2	36.7	39.4	36.3	37.7	28.7	-	
SB5	504754	185138			35.8	28.8	21.9	24.4	25.1	28.6	28.9		31.8	21.1	27.0	20.5	-	
SB8	500259	188613		31.7	38.1	28.2	24.1	24.0	27.0	26.7	29.7	33.6	28.9	31.2	29.4	22.4	-	
SB12	496095	185599					28.8	29.4	29.3	27.4	29.4		29.6	29.1	29.0	23.9	-	
SB13	493873	191040		33.1	39.7	25.8	26.3	24.8	24.6	23.2	28.0	23.7	35.2	32.5	28.7	21.8	-	
SB14	584728	192313		43.5	42.5	26.5	32.4	32.3	27.5	23.9	30.9	40.0	42.9	35.0	34.3	26.0	-	
SB16	493136	182503		27.1	24.5	14.3	12.7	10.8	12.1	13.3	14.6	20.4	21.5	19.3	17.3	13.2	-	
SB17	491668	181187		17.4	38.1	28.8	39.7	20.1	21.1	26.9	26.0	29.6	31.0	30.4	28.5	21.6	-	
SB21	503690	179278		38.4	35.0	33.2	33.4	31.2	34.1	35.8	33.2	38.3	38.2	33.6	34.9	26.5	-	
SB22	503972	179701		29.9	53.7	34.2	26.0	27.0	30.8	35.1	34.8	26.1	33.7	26.8	32.1	24.4	-	
SB24	503050	181176		25.4	39.6	25.6	19.9	17.9	22.2	22.9	25.6	30.2	31.1	30.3	26.5	20.1	-	
SB25	503604	181378		30.6	40.6	25.2	25.8	26.8	27.3	23.4	27.1	33.6	33.0	25.1	28.8	21.9	-	
SB26	502100	182473		27.3	39.3	25.6	21.2	21.1	23.8	26.5	28.1	32.4	35.6	25.4	27.7	21.0	-	
SB27	502520	183456		32.2	46.3	37.1		30.3	32.0	31.5	31.6	39.3	37.4	33.8	35.2	26.8	-	

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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SB28	503899	181199		38.5	56.5	40.9	27.8	29.3	33.4	33.7	38.7	35.1	40.1	32.5	-	-	-	Duplicate Site with SB28 and SB29 - Annual data provided for SB29 only
SB29	503899	181199		38.7	55.0	37.7	31.8	29.3	34.3	37.5	39.4	36.7	38.0	32.7	36.8	28.0	-	Duplicate Site with SB28 and SB29 - Annual data provided for SB29 only
SB30	503924	181127		44.9	52.3	39.2	36.3	35.1	37.7	39.3	38.9	45.8	48.2		-	-	-	Duplicate Site with SB30 and SB31 - Annual data provided for SB31 only
SB31	503924	181127			53.0	38.2	35.0	30.2	39.5	37.7	43.6	44.6	39.3		41.1	31.2	-	Duplicate Site with SB30 and SB31 - Annual data provided for SB31 only
SB32	504047	179475			46.4	36.8	32.9	30.0	33.4	38.9	41.2	40.7	13.2	13.6	-	-	-	Duplicate Site with SB32 and SB33 - Annual data provided for SB33 only
SB33	504047	179475		33.8	46.4	36.6	35.2	32.0	34.9	39.8	39.0	42.0	40.3	42.3	35.4	26.9	-	Duplicate Site with SB32 and SB33 - Annual data provided for SB33 only
SB34	502217	182870		26.6	33.1	29.1	21.7	21.2	24.1	24.8	27.3	26.0	26.5	29.6	-	-	-	Duplicate Site with SB34 and SB35 - Annual data provided for SB35 only
SB35	502217	182870		27.0	35.6	28.3	18.2	20.8	24.9	26.5	24.6	25.6	24.5	27.8	26.1	19.8	-	Duplicate Site with SB34 and SB35 - Annual data provided for SB35 only
SB36	503022	183070		38.1	44.4	33.6	34.4	31.2	34.7	38.8	35.2	38.3	42.4	37.5	37.1	28.2	-	
SB37	494478	190142		30.8	46.0	32.0	25.0	24.9	28.1	30.1	30.8	29.6	35.5	33.2	31.4	23.8	-	
SB38	503618	180518		30.9	40.4	24.5	22.5	21.8	23.6	23.3	26.6	28.6	26.9	27.4	26.9	20.4	-	
SB39	501652	187168		40.2	35.1	31.4	34.7	31.5	33.5	32.7	39.0	43.0	36.3	37.0	35.9	27.3	-	
SB41	503256	181272		27.8	35.2	20.1		17.5	19.8	18.4	22.1	48.0	30.3	28.1	27.1	20.6	-	
SB42	502477	184784		30.0	31.4	21.9	21.4	22.1	21.9	19.3	23.7	26.9	23.5	16.3	23.2	17.6	-	
SB44	496099	185047		14.1		12.7	14.2	12.5	12.5	13.3	11.7	13.7	16.8	14.8	13.7	10.4	-	
SB46	501568	186763		22.7	55.6	32.8	20.3	20.2	24.2	34.3	23.9	27.8	26.3	21.2	27.8	21.1	-	
SB47	494862	190156		50.6	40.1	29.4	26.1	28.6	29.9	27.5	32.4	34.1	37.3	30.9	33.0	25.1	-	
SB48					33.5	25.4	21.3	20.0	20.2	23.1	27.3	32.6	28.7	32.4	26.7	20.3	-	
SB49				42.9	51.1	32.2	30.4	38.6	34.0	32.1	38.5	29.5	39.8	37.5	36.6	27.8	-	
SB50				30.9	36.3	29.0	26.8	28.0	27.6	27.5	32.5	32.8	34.9	33.8	31.0	23.5	-	



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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SB51				22.1	44.7	24.6	22.8	17.8	20.7		23.1	28.1	25.6	24.2	25.3	19.2	-	
SB52				39.4	36.6	33.9	28.1	24.8	25.9	24.0	31.0	33.9	35.9	31.7	31.4	23.9	-	
W1	485012	186444	32.5	21.2	33.1	22.5	18.7	17.4	21.6	24.8	21.8	23.8	25.9	27.2	24.2	18.4	-	
W2	484966	186773	51.5	38.4	47.3	49.9	40.0	41.3	45.5	44.3	39.5	38.4	38.8	37.2	42.5	32.3	-	
W3	484753	186888	37.5	35.4	31.3	28.7	29.8	31.2	31.4	14.7	27.1	34.6	38.3	29.7	30.8	23.4	-	
W4	486384	192513				39.4	29.7	27.8	28.5	35.1	28.7	26.2	25.0		30.2	26.3	-	
W5	486471	193665	23.5	40.2	38.4	35.9		29.5		27.7			54.8	45.1	37.3	23.4	-	
W6	485869	193231	45.1	31.2	44.3	33.6	26.3	28.0	26.6	34.4	27.9	36.7		36.2	33.7	25.6	-	
W7	486116	192890	43.5	26.5	32.4	24.8	19.4	19.6	22.0	20.9	25.0	29.5	32.6	26.0	26.7	20.3	-	
W8	487101	192766	45.0	35.8	45.7	44.1	34.0	32.2	38.7	38.0	38.6	37.4	40.9	39.0	39.1	29.7	-	
W9	485353	191416	48.4	33.0	40.9	32.6	30.2	27.2	34.4	32.4		40.6	50.3	38.6	37.0	28.2	-	
W10	485514	193658	54.2	44.5	44.7	40.6	36.4	39.3	37.4	40.3	36.8	38.0	48.1	48.4	42.4	32.2	-	
W12	486364	193266	40.3	28.7	32.1	24.9	21.2	21.8	22.1	23.9	23.5	28.3	33.2	25.4	26.9	20.5	-	
W13	485891	191788	39.7	27.2	26.8	23.9	21.2	21.9	20.6	18.6	24.3	27.7	27.4	32.2	26.1	19.8	-	
W14	487048	193473	28.1	18.7	22.3	17.2	16.4	15.7	15.4	15.2	16.9	19.7	21.3	23.1	19.2	14.6	-	
W15	476602	195435		25.7	22.6	18.6	20.9	30.2	20.1	16.6			26.6		-	-	-	Triplicate Site with W15, W16 and W17 - Annual data provided for W17 only
W16	476602	195435		24.5	20.7	17.5	20.9	20.9	21.1	17.0			28.8		-	-	-	Triplicate Site with W15, W16 and W17 - Annual data provided for W17 only
W17	476602	195435		24.1	22.1	19.1	21.2	20.7	20.1	16.4			24.0		21.6	18.4	-	Triplicate Site with W15, W16 and W17 - Annual data provided for W17 only
W18	486785	192987	51.7	40.2	51.8	43.6	35.8	33.4	38.5	44.3	34.7	45.0	44.7	41.1	42.0	31.9	-	
W19	486842	193144	48.2	42.0	53.4	44.6	41.7	46.2	47.6	41.4	45.7	50.9	40.3	44.0	45.5	34.5	-	
W20	488858	191923	45.0	35.9	34.6	28.1	25.1	27.0	27.9	26.9	29.8	37.0	34.2	30.8	31.7	24.1	-	

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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W21	485070	186871	61.8	51.3	44.8	43.1	39.3	46.3	42.9	42.3	41.9		47.2	47.8	46.1	35.0	-	
W22	485665	193586		41.1	41.5	42.6	38.5	40.9	38.9		37.0	43.4	42.5		40.8	31.0	-	
W23	487787	194657	47.1	33.1	34.3	30.9			22.6	25.7	25.2	31.4	38.7	39.2	33.0	25.1	-	
W24	486485	193803	56.5	44.6	41.9	37.7	34.1	35.8	34.9	35.8	37.7	43.9	47.8	48.7	41.7	31.7	-	
W25	486079	192883	39.2	28.8	36.6	26.3		21.5	25.7	24.9	31.6	28.6	29.8	18.0	27.8	21.1	-	
W29	485217	187010		18.1	24.1	16.6	12.3	14.0	14.6	15.5	16.8	5.6	23.6	19.9	16.3	12.4	-	
W30	484868	186656		29.2	37.3	30.8	26.7	29.3	29.4	32.4	28.0	34.0	32.1	26.1	30.3	23.0	-	
W31	484888	186571		19.1	31.3	30.9	21.6	17.6	24.3	28.3	33.8	23.3	23.8		25.4	19.3	-	
W32	490784	190216	26.6	28.5	25.7	19.3	20.4	22.3	22.1	19.9	23.3	28.9	20.3	19.6	22.9	17.4	-	
W33	490247	190768	35.2	42.9	48.9	37.7	30.9	34.0	34.5	39.4	39.5	41.6	49.9	43.9	39.8	30.3	-	
W34	483442	194645	27.0	50.1	43.7	47.7	46.2	45.8	49.1	48.8	43.1	52.3	48.7	45.4	45.8	34.8	-	
W35	484749	186496	19.8			34.7	28.5	25.9	28.3	31.7	30.8	24.5	30.6	33.4	29.1	22.1	-	
W36	484643	186436	58.8			30.3	25.2	26.0	24.2	26.1	24.3	29.1	25.1	31.3	30.0	22.8	-	
W37	482896	194659	54.0	29.3	39.0	35.9	30.4		30.6	30.6	28.8	34.3	30.9	23.7	33.0	25.1	-	
W38	487561	192616	41.0	37.9	36.6	37.2	27.2	26.6		40.3	35.8	37.7	39.6	39.1	36.3	27.6	-	
W39	484421	194179	31.8			41.1	36.4	36.3	38.5	45.7	40.1	41.9	42.3	39.3	39.4	29.9	-	
W40	485290	191280	30.8	29.6	31.3	28.5	25.9	26.4	26.1	26.1	22.2	35.9	34.8	19.2	27.8	21.2	-	
W41	485024	186825	54.3	39.9	42.4	40.8	38.5	38.7	37.2	32.0	39.4	38.1	40.3	38.2	39.9	30.3	-	
W42	485028	186327	58.9	21.5	26.5	22.3		23.5	24.4	23.1	32.2		30.5	31.6	29.4	22.3	-	
W43	485182	186974	39.7	23.4	30.8	24.3	17.7	19.7	18.6	20.8	21.5	28.7	30.0	32.5	25.8	19.6	-	
W44	486607	191725	47.5	21.7	23.8	24.7	21.9	20.7	22.8	22.1	23.5	20.9	25.7	18.1	24.1	18.3	-	



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 (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W45	486520	193110		31.7	33.9	27.3	23.4	20.9	25.4	27.4	30.5		33.7	35.8	29.1	22.1	-	
W46	486474	193121	31.2	41.9	44.3		38.5	37.9	46.8	44.6	41.3	43.9	45.2	51.5	42.8	32.5	-	
W47	486766	193065	39.4	36.8	44.3	35.7	31.3	25.1	34.4	38.0	37.7	39.4	42.3	27.0	35.6	27.0	-	
W48	486381	193179	42.0	50.8	46.3	41.1	41.7	44.4		42.6	38.5	56.3	51.2	51.3	46.3	35.2	-	
W49	484958	186748	56.6	39.9	37.5	42.7	39.7		41.8	46.5	38.4	49.5	53.8	51.5	45.4	34.5	-	
W50	485462	193384		30.9	41.7	34.3	26.0	24.9	27.6	31.9	27.9	34.0	31.1	33.6	31.4	23.8	-	
W51	486144	193271	57.1	49.5	50.3	46.2	43.0	43.0	46.7	45.4	45.4	43.8		42.1	46.3	35.2	-	
W52	484830	186550	44.1	29.6	33.3	26.9	25.1	25.4	25.4	28.1	25.3	29.9	30.6	27.2	29.1	22.1	-	
W53	484893	186677		29.8	32.9	29.6	27.0	29.1	28.2	27.8	30.8	31.6	34.9	23.7	29.3	22.3	-	
W54	485763	193278	59.0	35.5	42.7	32.0	33.0	30.7	32.5	34.2	25.1	42.0	39.4	39.5	37.1	28.2	-	
W55	486823	192874	42.4	32.3	28.7	26.7	24.8	25.0	26.3	25.8	29.0	32.6	31.6	35.8	30.2	22.9	-	

All erroneous data has been removed from the NO<sub>2</sub> diffusion tube dataset presented in Table B.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.

Buckinghamshire Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

#### Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

## **Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC**

### **New or Changed Sources Identified Within Buckinghamshire Council During 2022**

Buckinghamshire Council received several applications for Data Centres in the Southern area of the county. A data centre is a physical facility that organisations use to house their critical applications and data. A data centre's design is based on a network of computing and storage resources that enable the delivery of shared applications and data. The key components of a data centre design include routers, switches, firewalls, storage systems, servers, and application-delivery controllers. To ensure continuous operation even in the event of a power cut data centres also include large numbers of back-up generators usually powered by diesel. Unlike vehicle emissions, which are expected to reduce significantly over the next 10 to 20 years, diesel backup generators will remain polluting at the same load/rate over the lifetime of the proposal, emitting NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

Considering the significant number of diesel backup generators, and the lifetime associated with the operation of a typical diesel back-up generator (i.e., 30 years), the planning system must be effective compel developers to select the most sustainable technologies, which, once approved, will be in place for a long period of time. Where this has not been achieved, where possible the Council are seeking s106 contributions to mitigate emissions.

### **Additional Air Quality Works Undertaken by Buckinghamshire Council During 2022**

Buckinghamshire Council has not completed any additional works within the reporting year of 2022.

## QA/QC of Diffusion Tube Monitoring

Nitrogen dioxide analysis procedures are compliant with the Diffusion Tubes for Ambient NO<sub>2</sub> Monitoring: Practical Guidance for users and laboratories (February 2008) and in the majority in adherence with the 2022 Diffusion Tube Monitoring Calendar. There was a small divergence from the calendar in January 2023 this has been accounted for in the Diffusion Tube Date Processing tool. In 2022 Buckinghamshire Council used SOCOTEC 50% TEA in Acetone diffusion tubes in all areas.

### Good versus Poor Precision

For the purposes of Local Air Quality Management, tube precision is separated into two categories, “good” or “poor”, as follows: tubes are considered to have “good” precision where the Coefficient of Variation (CV) of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%, and the average CV of all monitoring periods is less than 10%. Tubes are considered to have “poor” precision where the CV of four or more periods is greater than 20% and/or the average CV is greater than 10%. ESG Didcot / SOCOTEC, 50% TEA in Acetone scored good in all colocation studies in 2022 and no poor.

SOCOTEC are UKAS accredited laboratories and participate in the AIR NO<sub>2</sub> PT scheme. Laboratory summary performance for AIR NO<sub>2</sub> PT round 49 and 50 for comparing spiked NO<sub>2</sub> diffusion tubes for SOCOTEC can be found in the table below. This table will be updated when further rounds of the scheme have been included.

Air PT Round	AIR PT AR049	AIR PT AR050
Conducted in the period	January – February 2022	May - June 2022
SOCOTEC	100%	100%

## Diffusion Tube Annualisation

**Table C.1 – Annualisation Summary (concentrations presented in  $\mu\text{g}/\text{m}^3$ )**

Site ID	Annualisation Factor London Hillingdon	Annualisation Factor Reading New Town	Annualisation Factor Oxford St Ebbes	Annualisation Factor Borehamwood Meadow Park	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
AV26	0.9726		0.9786	0.9505	0.9672	27.1	26.2
AV37	1.0234		1.0201	1.0142	1.0192	43.7	44.5
SB12	1.0968		1.0742	1.0770	1.0827	29.0	31.4
W4	1.1150		1.1929	1.1325	1.1468	30.2	34.6
W5	0.9531	0.5326	0.9078	0.9057	0.8248	37.3	30.8
W15	1.0847		1.1422	1.1354	1.1208	-	-
W16	1.0847		1.1422	1.1354	1.1208	-	-
W17	1.0847		1.1422	1.1354	1.1208	21.6	24.2

## Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance on the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO<sub>x</sub>/NO<sub>2</sub> continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Buckinghamshire Council have applied a national bias adjustment factor of 0.76 to the 2022 monitoring data. A summary of bias adjustment factors used by Buckinghamshire Council over the past five years is presented in

Table C.2.

**Table C.2 – Bias Adjustment Factor**

Aylesbury Vale and Wycombe Area and the whole of Buckinghamshire Council Area from 2022 onwards (SOCOTEC 50% TEA in Acetone)

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23 (26)	0.76
2021	National	04/22 (14)	0.83
2020	National	03/21	0.82
2019	National	03/20	0.87
2018	National	02/19	0.92

Chiltern Area (Gradko 50% TEA in Acetone)

Year	Local or National	Version of National Spreadsheet (Number of Studies)	Adjustment Factor
2021	National	04/22 (14)	0.83
2020	National	03/21	0.82
2019	National	03/20	0.87
2018	National	02/19	0.92

South Bucks Area (20% TEA in Water)

Year	Local or National	Version of National Spreadsheet (Number of Studies)	Adjustment Factor
2021	National	04/22 (32)	0.84
2020	National	03/21	0.81
2019	National	03/20	0.93
2018	National	02/19	0.93

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

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-

automatic annual mean NO<sub>2</sub> concentrations corrected for distance are presented in Table B.1.

**Table C.3 – NO<sub>2</sub> Fall off With Distance Calculations (concentrations presented in µg/m<sup>3</sup>)**

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
AV14	2.5	3.5	38.8	9.1	36.3	<i>Predicted concentration at Receptor within 10% the AQS objective.</i>
AV18	1.0	3.0	36.8	9.1	30.7	
AV23	2.0	6.0	38.6	9.1	31.0	
AV36	3.0	3.2	41.6	11.88514	<b>41.1</b>	<i>Predicted concentration at Receptor above AQS objective.</i>
AV39	3.1	5.2	37.2	9.121701	33.4	
AV40	3.1	3.7	39.9	9.1	38.4	<i>Predicted concentration at Receptor within 10% the AQS objective.</i>
CDC30	1.6	2.3	37.9	9.8	35.4	

## QA/QC of Automatic Monitoring

Ricardo E&E were employed to undertake validation and ratification work on the automatic monitoring stations in Buckinghamshire during 2022. The data has been fully validated and ratified to the standards described in the Local Air Quality Management – Technical Guidance LAQM TG (22) and is available on the Air Quality England Website [Buckinghamshire Council - Air Quality monitoring service \(airqualityengland.co.uk\)](https://www.airqualityengland.co.uk)

## Automatic Monitoring Annualisation

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

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

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure has been estimated using the NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO<sub>2</sub> concentrations corrected for distance are presented in Table B.1.



## Appendix D: Summary of Air Quality Objectives in England

**Table D.1 – Air Quality Objectives in England<sup>7</sup>**

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO <sub>2</sub> )	200µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO <sub>2</sub> )	40µg/m <sup>3</sup>	Annual mean
Particulate Matter (PM <sub>10</sub> )	50µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM <sub>10</sub> )	40µg/m <sup>3</sup>	Annual mean
Sulphur Dioxide (SO <sub>2</sub> )	350µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO <sub>2</sub> )	125µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO <sub>2</sub> )	266µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean

<sup>7</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority 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
ASR	Annual Status Report
BSIP	Bus Service Improvement Plan
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
DRT	Demand Responsive Transport
EU	European Union
EV	Electric Vehicle
EWR	East West Rail
FDMS	Filter Dynamics Measurement System
GAP	Global Action Plan
HGV	Heavy Good Vehicle
HS2	High Speed 2
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Infrastructure Plan
LEVI	Local Electric Vehicle Infrastructure
LTP5	Local Transport Plan 5
NIP	National Infrastructure Project
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control

Abbreviation	Description
ORCS	On-Street Residential ChargePoint Scheme
PHVs	Private Hire Vehicles
SO <sub>2</sub>	Sulphur Dioxide
SCA	Smoke Control Area

## References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Buckinghamshire Council ASR Appraisal report 2022

### Websites:

- National Statistics Nitrogen Dioxide (NO<sub>2</sub>)  
<https://www.gov.uk/government/statistics/air-quality-statistics/nitrogen-dioxide>
- Public Health Outcomes Framework  
<https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/4/gid/1000043/pat/159/par/K02000001/ati/15/are/E92000001/iid/93861/age/230/sex/4/cat/-1/ctp/-1/yrr/1/cid/4/tbm/1>