



**WATFORD  
BOROUGH  
COUNCIL**

## 2025 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 2025

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### Local Responsibilities and Commitment

This ASR was prepared the Community & Environmental Services Team of Watford Borough Council with the support and agreement from Hertfordshire County Council.

This ASR has not been signed off by a Director of Public Health. As one of 10 Hertfordshire District Councils it is not possible to get sign off from Hertfordshire's Director of Public Health. However, a representative from Watford Borough Council regularly attends the Herts and Beds Air Quality Forum along with colleagues from Hertfordshire's Public Health team. This enables collaboration and consultation between both teams.

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## Executive Summary: Air Quality in Our Area

### Air Quality in Watford Borough

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Low-income communities are also disproportionately impacted by poor air quality, exacerbating health and social inequalities.

Watford is a concentrated urban area situated to the Northwest of London. The latest estimated population of Watford is 102,200 (2021) (Source: Office for National Statistics - Census 2021). It has a well-established regional shopping centre with major rail and road communication links. It has both mainline and underground train stations, the M1 lies along the northern boundary of the borough and the M25 is situated to the west. The Borough is also served by several major trunk roads, including the A41, A411, A412 and A405.

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

**Table ES 1 - Description of Key Pollutants**

| Pollutant  | Description  |
|--|--|
| Nitrogen Dioxide (NO <sub>2</sub> )                          | Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.   |
| Sulphur Dioxide (SO <sub>2</sub> )                           | Sulphur dioxide (SO <sub>2</sub> ) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.  |
| Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> ) | <p>Particulate matter is everything in the air that is not a gas.</p> <p>Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes.</p> <p>PM<sub>10</sub> refers to particles under 10 micrometres. Fine particulate matter or PM<sub>2.5</sub> are particles under 2.5 micrometres.</p> |

The main pollutants of concern in the Borough are NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>. These are mainly associated with road traffic. NO<sub>2</sub> is formed during the combustion process when Nitrogen in the air bonds with Oxygen. Road vehicles emit particulate matter from their exhaust and from non-exhaust sources such as brake, tyre and road surface wear and the resuspension of road dust.

## 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.

Key measures to improve air quality in the Watford area are outlined in the Air Quality Action Plan and the following local policies and strategies.

### Watford Local Plan 2021-2038

The [Watford Local Plan](#) was adopted on 17<sup>th</sup> October 2022. The plan received the RTPI East of England Best Plan in 2023. The judges were particularly impressed by the performance of the plan in relation to climate action and sustainable development and that Watford Borough Council had worked collaboratively with a range of stakeholders and the local community to ensure that concerns had been listened to in developing and revising the plan.

The [Sustainability Appraisal Adoption Statement](#) for the Watford Borough Council Local Plan 2021 - 2038 outline how environmental considerations have been integrated into the Local Plan, how the Sustainability Appraisal and consultation responses have been taken into account, the reasons why the adopted Local Plan policies were chosen ahead of alternative options and the steps the Council will take to monitor the effects of the Local Plan.

Chapter 8 of the plan: A Climate Emergency sets out requirements that new buildings need to achieve to reduce carbon emissions and contribute towards the borough becoming carbon neutral, while mitigating impacts associated with climate change, such as living environments, building quality and flood risk. Included in this chapter is the policy to manage local air quality and the factors that were considered in its development.

Policy CC8.4 states that *“Development will be supported where it minimises emissions that would contribute towards a worsening of existing air quality and seeks to improve existing air quality. Appropriate mitigation measures will be required to address any potential*

*impact on air quality, along with encouraging the provision of electric vehicle charging points where parking is provided.*

*All major developments and other forms of development that are considered to be at risk of impacts resulting from significant emissions or pollutants will need to consider air quality. This includes, but is not limited to, development where the occupiers/ users may be sensitive to poor air quality and development in close proximity to an Air Quality Management Area. Proposals will be required to consider the cumulative impacts in conjunction with other developments in the vicinity and include mitigation measures where necessary.*

*a) Where a development would cause harm to air quality, planning permission will not be granted unless appropriate mitigation measures are proposed, which demonstrate that:*

*Public exposure to the pollution source has been minimised;*

*b) Sensitive development has been located an appropriate distance away from the source of exposure; and*

*c) The development would not lead to the creation of a new street canyon or a building configuration that inhibits effective pollution dispersion”*

The monitoring indicator for this policy is the number of Air Quality Management Areas with a target of a reduction in the number of Air Quality Management Areas.

Policies that influence air quality in Watford are included in Chapter 9: Conserving and Enhancing the Environment, Chapter 11: A Sustainable Travel Town and Chapter 12: A Healthy Community.

Chapter 13 Site Allocations and New Development, identifies land suitable for new development and the types of land use that would be acceptable, along with site-specific issues that should be considered by applicants. Where required the impact of the development on the Council's AQMAs shall be taken into consideration.

### **Watford's Environmental Strategy: Addressing the Climate and Ecological Emergency 2023 – 2030**

The Environmental Strategy: Addressing the Climate and Ecological Emergency 2023-2030 was approved in March 2023, along with the [first two-year delivery plan](#). The strategy set out overarching targets as well as specific targets under two themes: Leading by Example and People Power and four topics: Achieving Net Zero, Nature and Ecological Restoration, Responsible Resource Use and Adapting to Change. The delivery plan has

the target “All Watford to meet national Air Quality Objectives and Air Quality Standards Regulations by Spring 2025” under the theme Nature and Ecological Restoration on page 9

### **Transforming Travel in Watford: the strategy for 2021-2041**

A [joint strategy](#) document between Watford Borough Council and Hertfordshire County Council to enable and encourage sustainable travel that can often be quicker and more straight forward around the town. The strategy is looking at better walking and cycling routes as well more accessible public transport. The following 6 objectives have been identified for the strategy.

- Cutting congestion: Reducing the number of car journeys by making cycling, walking or public transport the natural first choice for local trips.
- Providing for future journeys: Investing in efficient and green ways to travel for both current and future residents and businesses.
- Boosting health and wellbeing: Encouraging healthier travel choices that keep people physically fit and active, promote positive mental health, improve air quality, and make our streets safer.
- Ensuring all our community benefits: Offering equality of access to transport for all.
- Making best use of new technology: Providing green and environmentally friendly travel solutions.
- Delivering a great customer experience: Promoting high quality, easy-to-use travel options.

These objectives have been used to guide the selection of actions that make up the strategy for the future of transport in Watford. More information on the Transforming Travel in Watford strategy and related initiatives can be found [here](#).

### **Conclusions and Priorities**

The latest monitoring data shows a general trend of decreasing concentrations of NO<sub>2</sub> over the last 5 years. This is in line with the national trend until 2023. However, at the time of writing this information had not been updated on the [Defra website](#) to include 2024 data. Defra recently reported that “between 2007 and 2019 inclusive, the annual mean NO<sub>2</sub> concentration at roadside sites reduced by an average of 1.8 µg/m<sup>3</sup> each year. This reduction was observed at most long-running monitoring sites across the UK, which could be a consequence of the large reduction in road transport emissions of NO<sub>2</sub> over the same

period in the UK, as newer vehicles subject to stricter emissions standards enter the transport fleet”.

In 2024, NO<sub>2</sub> concentrations did not exceed the annual mean objective at any of the Council's diffusion tube sites. There was not a requirement to undertake a fall off with distance calculation as all concentrations were measured below 36 µg/m<sup>3</sup>.

A study carried out on behalf of Defra and the Devolved Administrations identified that where road traffic is the primary source of emissions, exceedances of the NO<sub>2</sub> 1 hour mean are unlikely to occur where the annual mean is below 60µg/m<sup>3</sup>. It can therefore be determined that there were no exceedances of the 1-hour objective in 2024. (LAQM:TG22)

Due to budgetary issues, the Council's roadside monitor was decommissioned in December 2023. There are no other proposed changes to the monitoring network.

AQMA 2 has been compliant with the annual mean objective at all locations for 5 years and below the 10% margin for error since 2022. Consequently, Watford Borough Council will consider revocation of this AQMA in 2025.

AQMA 3A has been compliant with the annual mean objective at all locations since 2023 and for the 1<sup>st</sup> time in 2024 below the 10% margin for error. Should the trend continue Watford Borough Council will consider revocation of this AQMA in 2027.

There are no new major sources of emissions in the Borough. The Council has not introduced any new AQMAs or strategies.

Priorities for Watford Borough Council in 2025 are

- Uploading the revised Air Quality Action Plan (AQAP) to the portal by 28<sup>th</sup> June 2025 as previously agreed with Defra.
- Deliver Watford's Environmental Strategy according to the first 2-year delivery plan.
- Continue to work with Hertfordshire County Council on the Transforming Travel in Watford: the strategy for 2021-2041

## How to get Involved

Residents, businesses and visitors to the Borough can play a role in improving air quality, for example, walking, cycling or using public transport instead of driving. For those who need to use a car, replacing it with a greener vehicle such as an electric one is a great way of improving air quality. If individuals or businesses are not ready to replace their existing

vehicles, they should ensure that they are serviced regular and tyre pressures are at the appropriate level as doing so will help lower emissions as well as saving money.

During the summer of 2021 Watford Borough Council and Hertfordshire County Council surveyed residents, businesses and visitors to identify the actions to be included in the Transforming Travel in Watford Strategy mentioned previously. The following key projects amongst others were included in the strategy and enables residents, businesses and visitors to get involved in improving air quality in Watford.

- Watford Cycle Hub - Watford cycle hub offers cycle repair services, maintenance and cycle training. It also accepts old bikes and recycles them. [Watford Cycle Hub Bicycle Sales Training Service & Repair](#)
- Beryl Bike Hire Scheme - Bikes and e bikes are available to hire 24/7 (via Beryl Bays across Watford) all year round through a user-friendly smartphone app. [Watford bike and e-bike share | Beryl](#)
- Watford Travel app - Free to download and use, the travelWatford app, is available on IOS and Android. It brings together all of Watford's transport options and lets people choose the best options for a given journey based on cost, waiting time and environmental impact.
- Sustainable business grants - There is information on the Council's [website](#) regarding the following: eCargo Bike Grant Fund; Plug in vehicle grant; Workplace Charging Scheme and Electric taxi vehicles.
- Air Pollution Alert System - Hertfordshire and Bedfordshire Air Pollution Alert System is a free service to subscribers in Hertfordshire and Bedfordshire that sends registered users an alert message if air pollution in their area is forecast or measured to be moderate, high or very high. The description of the level of pollution is based upon the UK's Air Quality Banding System. To find out more and sign up please visit this website [Let's clear the air](#).

For inspiration and to find out how changing how we travel to and around Watford can help not only climate, but financially to each person too please see these case studies. [Travel case studies – www.watford.gov.uk](#)

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## 1 Local Air Quality Management

This report provides an overview of air quality in Watford Borough during 2024. 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 Watford Borough 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 E.1.

## 2 Actions to Improve Air Quality

### 2.1 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 Watford Borough Council can be found in Table 2.1. The table presents a description of the 2 AQMAs that are currently designated within Watford Borough. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

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

**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                                     |
|--------------------------------------|---|---------------------------------------|---|--|----------------------------------|-----------------------------------|--|---|--|
| AQMA 2<br>Vicarage Road              | Declared 17/02/2006, Amended 10/04/2019 | NO2 Annual Mean                       | A predominately residential area with a cluster of commercial buildings within and as well as close to the vicinity. Queuing traffic. | NO   | 58                               | 26.8 µg/m <sup>3</sup>            | 5 years  | Watford Borough Council Air Quality Action Plan, 2024 | <a href="#">Watford Air Quality Action Plan 2024</a> |
| AQMA 3A<br>Aldenham Road, Chalk Hill | Declared 25/06/2015, Amended 10/04/2019 | NO2 Annual Mean                       | A main road within proximity to Bushey Station. Queuing traffic.  | NO   | 56.8                             | 33.2 µg/m <sup>3</sup>            | 2 years  | Watford Borough Council Air Quality Action Plan, 2024 | <a href="#">Watford Air Quality Action Plan 2024</a> |

Watford Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date

Watford Borough Council confirm that all current AQAPs have been submitted to Defra

## 2.2 Progress and Impact of Measures to address Air Quality in Watford Borough Council

Defra's appraisal of last year's ASR concluded that the report is well structured, detailed, and provides the information specified in the guidance. The following comments were added as commentary and designed to help inform future reports:

1. As recommended a discussion on the revocation of both AQMAs is included in the Executive Summary and trend analysis in section 3.2.1. Nitrogen Dioxide. It is recommended that AQMA 2 is revoked, Further monitoring to ensure that concentrations in AQMA 3A remain below  $36\mu\text{g}/\text{m}^3$  is required.
2. The data capture in Table A.3, and Table A.5 to A.8 is presented to one decimal place to remain consistent with other tables in the report. It has been difficult to limit the number of decimal places in the past as due to the restrictions in data formatting in the Diffusion Tube Data Processing Tool.
3. As it had been commended a screen capture of the appropriate national bias adjustment factor spreadsheet has been provided to demonstrate the use of the correct national bias adjustment factor.
4. The legend on the maps shown in Figure D.1 to Figure D.3 has now been included on all figures for clarity.
5. Watford Borough Council's revised AQAP was approved by cabinet on 8<sup>th</sup> July 2024. Minutes of the meeting can be found [here](#).

Watford Borough Council has taken forward several direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 12 measures are included within Table 2.2, with the type of measure and the progress Watford Borough Council have made during the reporting year of 2024 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 Watford Borough Council Air Quality Action Plan, 2024 and Transforming Travel in Watford: the strategy for 2021-2041. Key completed measures are:

- Promotion of cycling and walking; In November 2024 a 6.5-mile cycling and walking route known as the Green Loop opened. The route connects Watford Junction train station to Cassiobury Park and can be used for commuting, leisure, or shopping. It uses sections of National Cycle Route 6, Ebury Way, and other cycle paths. Watford Borough Council has created a map, flyer, and GPS route planner to help people navigate the loop, which can be found on [Green Loop – www.watford.gov.uk](#). The Green Loop project was named the winner in the ‘Excellence in Digital Planning’ category at the RTPI Awards for Excellence in Digital Planning Practice.
- Launched in March 2020, the Beryl Bike scheme had by September 2024 clocked up over half a million sustainable journeys across more than 1,340,000 km. This has generated over 190,000 hours of physical activity and, according to industry calculations, saved over 51 tonnes of carbon emissions, a significant boost for public health and the region’s air quality. The report also showed that 49% of riders in Watford have used a Beryl vehicle to replace a car, van, motorcycle or taxi journey (either as a driver or a passenger). In 2024 the scheme expanded into towns in neighbouring authorities enabling hassle-free rides between Croxley, Bushey, and Watford.
- Implement Service Improvement Plan - A Bus Service Improvement Plan (BSIP) details how Local Transport Authorities, working closely with local bus operators, and local communities will set out the vision to deliver a step-change in bus services. Further information on the implementation of the plan can be seen in the infographic [Intalink Enhanced Partnership’s Bus Service Improvement Plan Performance Report – April 2024](#)
- From 2 January 2024, any Watford resident facing mobility challenges, social anxiety, or other vulnerabilities, can book the shopper bus to get to local supermarkets across the town. The service is bookable up to three months in advance and costs just £6 per person for a return trip, with an accompanying carer paying only £1 a trip. See [Watford Shopper Bus Service | Communities 1st](#) for further details.
- Road Infrastructure Improvements – In 2024 the well-used Whippendell Road Parade has undergone an extensive upgrade. As well as other enhancements pedestrian safety and accessibility have also been improved through updated crossings, protective bollards, and reconstructed speed humps and drainage, while

maintained bike stands support easy access to public and active transportation options.

- Promotion of car sharing scheme; Launched in March 2024, the car club offers hire of electric vehicles by the hour or by the day, enabling individuals and organisations access to a vehicle without the need for ownership and on an as-needed basis. By the end of 2024 the car club has seen its fleet of fully electric vehicles actively used for more than 3,790 hours, covering a remarkable 160,000 miles. By choosing these electric vehicles over traditional petrol or diesel options, members have collectively saved an estimated 2,624kg kilograms of CO<sub>2</sub> emissions.
- Promotion of Travel Plans; Travel plans offer practical measures to promote active, healthy, safe and sustainable travel to and from places of work, children's centres, schools and colleges. Hertfordshire County Council are registered for [Modeshift Stars for Schools](#) and [Modeshift Stars for Business](#).
- Annual Council vehicle fleet review - In February 2024 Watford Borough Council secured three new electric vehicles for the town's parks maintenance, which is managed by Veolia. The recent additions consist of three electric cage tippers, boasting several environmental advantages such as better air quality, diminished noise pollution, and reduced carbon dioxide emissions.
- Installation of EV charging points – In 2024 Watford Borough Council successfully secured a grant worth £386,250 from the On-Street Residential Scheme. The funding will support the installation of 24 twin charge points and 40 lamp column charge points, increasing the existing infrastructure across the town and bringing the total number of locations to 115 on-street charging points. These new charging columns will be strategically placed on-street, with a mix of 2/3/4 charge points per location, ensuring convenient access to EV charging facilities for residents and visitors alike. As of July 2024, Watford boasts 392 public EV chargers, a remarkable increase from 209 in the previous year – an impressive 88% rise.

Watford Borough Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in AQMA 2 and AQMA 3A

**Table 2.2 – Progress on Measures to Improve Air Quality**

**Commented [NE1]:** I am not sure much has been achieved since July 2024 but should this reflect current AQAP

| Measure No. | Measure Title                     | Category                              | Classification   | Year Measure Introduced in AQAP | Estimated / Actual Completion Date | Organisations Involved  | Funding Source  | Funding Status | Estimated Cost of Measure | Measure Status | Reduction in Pollutant / Emission from Measure <sup>1</sup>                                       | Key Performance Indicator                                 | Progress to Date | Comments / Barriers to Implementation  |
|-------------|-----------------------------------|---------------------------------------|--|---------------------------------|------------------------------------|---|---|----------------|---------------------------|----------------|---|---|------------------|--|
| 1           | Watford Cycle Hub                 | Promoting Travel Alternatives         | Promotion of cycling   | 2012                            | 2012                               | Watford Cycle Club, Watford Community Housing, Watford Borough Council, Hertfordshire Cycling | Watford Borough Council   | Funded         | £100k - 500k              | Ongoing        | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 1% of 5.6µg/m <sup>3</sup> / 1% of 6.1µg/m <sup>3</sup>   | Ongoing          | Watford cycle hub offers cycle repair services, maintenance and cycle training. It also accepts old bikes and recycles them. |
| 2           | Beryl Bike Hire Scheme            | Promoting Travel Alternatives         | Promotion of cycling   | 2020                            | 2020                               | Beryl, Watford Borough Council  | Watford Borough Council   | Funded         | £50k - 100k               | Completed      | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 10% of 5.6µg/m <sup>3</sup> / 10% of 6.1µg/m <sup>3</sup> | Complete         | See notes in section 2.2 above   |
| 3           | Green loop improvement            | Transport Planning and Infrastructure | Cycle Network  | 2025                            | 2025                               | Hertfordshire County Council, Watford Borough Council   | Watford Borough Council   | Funded         | £100k - £500k             | In progress    | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 25% of 5.6µg/m <sup>3</sup> / 25% of 6.1µg/m <sup>3</sup> |                  | See notes in section 2.2 above   |
| 4           | Watford Car Club                  | Alternatives to private vehicle use   | Car Clubs  | 2024                            | 2024                               | Enterprise Car Club, Watford Borough Council  | Watford Borough Council   | Fully funded   | £50k - £100k              | Ongoing        | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 1% of 5.6µg/m <sup>3</sup> / 1% of 6.1µg/m <sup>3</sup>   | Implementation   | See notes in section 2.2 above   |
| 5           | E-charging points across the town | Promoting Low Emission Transport      | Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV | 2023                            | 2023                               | Watford Borough Council   | Watford Borough Council/ On-street Residential ChargePoint Scheme | Fully Funded   | £100k - £500k             | Implementation | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 20% of 5.6µg/m <sup>3</sup> / 20% of 6.1µg/m <sup>3</sup> | Implementation   | As of July 2024, Watford boasts 392 public EV chargers<br>See notes in section 2.2 above                                     |
| 6           | E-bikes with beryl                | Promoting Low Emission Transport      | Other  | 2020                            | 2020                               | Beryl, Watford Borough Council  | Watford Borough Council   | Fully funded   | £50k - £100k              | Ongoing        | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In                                | 5% of 5.6µg/m <sup>3</sup> / 5% of 6.1µg/m <sup>3</sup>   | Ongoing          | See notes in section 2.2 above   |

| Measure No. | Measure Title                        | Category                                | Classification               | Year Measure Introduced in AQAP | Estimated / Actual Completion Date | Organisations Involved                                    | Funding Source          | Funding Status | Estimated Cost of Measure | Measure Status | Reduction in Pollutant / Emission from Measure <sup>1</sup>                                       | Key Performance Indicator                                 | Progress to Date | Comments / Barriers to Implementation  |
|-------------|--------------------------------------|---|------------------------------|---------------------------------|------------------------------------|---|-------------------------|----------------|---------------------------|----------------|---|---|------------------|--|
|             |                                      |   |                              |                                 |                                    |   |                         |                |                           |                | AQMA 3A = 3.7µg/m <sup>3</sup>  |   |                  |  |
| 7           | Other useful e-transport information | Promoting Low Emission Transport        | Other                        | 2023                            | 2023                               | Watford Borough Council                                   | Watford Borough Council | Fully funded   | <£10k                     | Ongoing        | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 1% of 5.6µg/m <sup>3</sup> / 1% of 6.1µg/m <sup>3</sup>   | Ongoing          |  |
| 8           | Watford Travel app                   | Promoting Travel Alternatives           | Personalised Travel Planning | 2020                            | 2020                               | Molten Mouse, Watford Borough Council                     | TBC                     | Fully funded   | £10k - £50k               | Ongoing        | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 5% of 5.6µg/m <sup>3</sup> / 5% of 6.1µg/m <sup>3</sup>   | Ongoing          | Free to download and use, the travelWatford app, is available on IOS and Android. It brings together all of Watford's transport options and lets people choose the best options for a given journey based on cost, waiting time and environmental impact.  |
| 9           | Sustainable business grants          | Public information                      | Via the Internet             | 2023                            | 2023                               | Watford Borough Council                                   | Watford Borough Council | Fully funded   | <£10k                     | Ongoing        | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 2% of 5.6µg/m <sup>3</sup> / 2% of 6.1µg/m <sup>3</sup>   | Ongoing          | There is information on the Council's website regarding the following: eCargo Bike Grant Fund; Plug in vehicle grant; Workplace Charging Scheme and Electric taxi vehicles.  |
| 10          | Future Travel Watford                | Policy Guidance and Development Control | Other policy                 | 2021                            | 2021                               | Hertfordshire County Council/Watford Borough Council      | Watford Borough Council | Fully funded   | £10k - £50k               | Implementation | Average measured reduction in AQMA 2 = 3.4µg/m <sup>3</sup> and In AQMA 3A = 3.7µg/m <sup>3</sup> | 30% of 5.6µg/m <sup>3</sup> / 30% of 6.1µg/m <sup>3</sup> | Ongoing          | 6 key themes: increasing active travel opportunities, improving public transport for longer journeys, providing alternatives to petrol car, making the town centre more pedestrian and cycle friendly, supporting change and making moving goods more sustainable.   |
| 11          | Air Pollution Alert System           | Public Information                      | Via the Internet             | 2023                            | 2024                               | Hertfordshire County Council/Ricardo Energy & Environment | HCC                     | Fully funded   | <£10k                     | Ongoing        | N/A   | N/A   | Ongoing          | Hertfordshire and Bedfordshire Air Pollution Alert System is a free service to subscribers in Hertfordshire and Bedfordshire that sends registered users an alert message if air pollution in their area is forecast or measured to be moderate, high or very high. The description of the level of pollution is based upon the UK's Air Quality Bands |
| 12          | Council vehicle fleet review         | Vehicle Fleet Efficiency                | Other                        | TBC                             | TBC                                | Watford Borough Council                                   | Watford Borough Council | funded         | cost per vehicle          | Ongoing        | Small impact  | N/A   | Ongoing          | Anticipated that replacement vehicles will be all electric. Range, cost or availability of suitable vehicles could be barriers. See notes in section 2.2 above for progress so far.  |

<sup>1</sup>It has not been possible to determine which measure is responsible for the reduction in pollutant concentration. Therefore, the average reduction in measured concentrations when comparing data from 2023 and 2024 have been utilised.

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy<sup>1</sup>, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM<sub>2.5</sub>). There is clear evidence that PM<sub>2.5</sub> (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

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

- An Officer of the Council attends the Hertfordshire and Bedfordshire Air Quality Forum.
- The Council will ensure compliance with the Environmental Permitting Regulations to help reduce PM<sub>2.5</sub> concentrations.
- Watford Borough Council has declared the whole borough as a Smoke Control Area. An outline of the smoke control area can be found on Defra's [interactive map](#). 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. More information can be found on the [council's website](#).

It is anticipated that:

- Measures to reduce emissions of NO<sub>x</sub> by encouraging a move away from internal combustion engine vehicles to ultra-low emission vehicles (ULEV) will reduce PM<sub>2.5</sub> emissions from exhausts.
- Measures to reduce road travel altogether will reduce PM<sub>2.5</sub> emissions from brake and tyre wear and dust re-suspension.

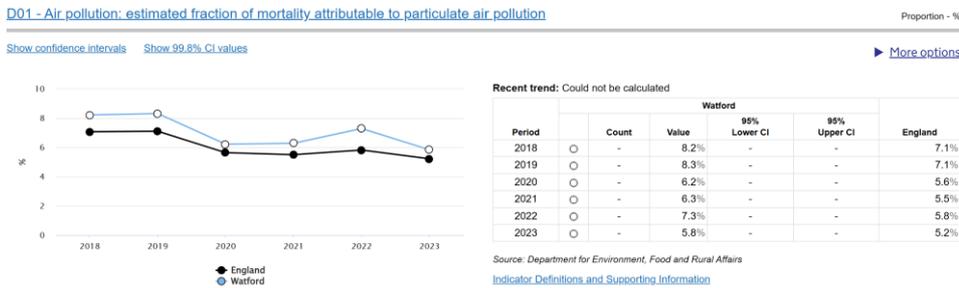
The Public Health Outcomes Framework has been set up by Government to get a better understanding of trends in public health to enable them to fulfil their vision of improving the nation's health and to improve the health of the poorest fastest. Included within the

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<sup>1</sup> Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

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 Watford than the national average for England it does follow a similar trend.



**Figure 2.1 - D.01 Air Pollution estimated fraction of mortality attributable to particulate air pollution.**

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

This section sets out the monitoring undertaken within 2024 by Watford Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2020 and 2024 to allow monitoring trends to be identified and discussed.

### 3.1 Summary of Monitoring Undertaken

#### 3.1.1 Non-Automatic Monitoring Sites

Watford Borough Council undertook non- automatic (i.e. passive) monitoring of NO<sub>2</sub> at 30 sites during 2024. Table A.1 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D. 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.

### 3.2 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.

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

**Error! Reference source not found.** and Table A.2 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 2024 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.

Figure A.1 presents trends in NO<sub>2</sub> annual mean concentrations at diffusion tube sites WF03 to WF64 between the years 2020 to 2024. In 2024, there were no exceedances of the annual mean objective. Over the last 5 years there has been a general trend of reduction experienced at most sites. In 2022, the Council reported diffusion tube data from several new monitoring locations. In 2024, annual mean concentrations at each of these monitoring locations continued to decrease.

Figure A.2 presents trends in NO<sub>2</sub> annual mean concentrations in AQMA 2 between the years 2020 to 2024. In 2024, there were no exceedances of the annual mean objective. Over the last five years there has been a general trend of reduction experienced within AQMA 2. In 2022, the Council reported diffusion tube data from three new monitoring locations within the AQMA. In 2024, annual mean concentrations at each of these monitoring locations continued to decrease.

Figure A.3 presents trends in NO<sub>2</sub> annual mean concentrations in AQMA 3A between the years 2020 to 2024. In 2024, there were no exceedances of the annual mean objective. Over the last five years there has been a general trend of reduction experienced within AQMA 3A. In 2022, the Council reported diffusion tube data from two new monitoring locations within the AQMA. In 2024, annual mean concentrations at each of these monitoring locations continued to decrease.

There will be no changes to existing AQMAs or the declaration of a new AQMA.

Due to budgetary issues, the Council's roadside monitor was decommissioned in December 2023. There are no other proposed changes to the monitoring network.

A study carried out on behalf of Defra and the Devolved Administrations identified that where road traffic is the primary source of emissions, exceedances of the NO<sub>2</sub> 1 hour mean are unlikely to occur where the annual mean is below 60µg/m<sup>3</sup>. It can therefore be determined that there were no exceedances of the 1-hour objective.

AQMA 2 has been compliant with the annual mean objective at all locations for 5 years and below the 10% margin for error since 2022. Consequently, Watford Borough Council will consider revocation of this AQMA in 2025.

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AQMA 3A has been compliant with the annual mean objective at all locations since 2023 and for the 1<sup>st</sup> time in 2024 below the 10% margin for error. Should the trend continue Watford Borough Council will consider revocation of this AQMA in 2027.

## Appendix A: Monitoring Results

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

| Diffusion Tube ID | Site Name              | Site Type  | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) <sup>(1)</sup> | Distance to kerb of nearest road (m) <sup>(2)</sup> | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|-------------------|------------------------|------------|-------------------------|--------------------------|----------------------|----------------------|--|---|---|-----------------|
| WF03              | Hospital Vicarage Road | Kerbside   | 510600                  | 195700                   | NO2                  | No                   | 0.0  | 0.0   | No  | 2.0             |
| WF29              | Pinner Road            | Kerbside   | 512000                  | 195300                   | NO2                  | Yes - AQMA 3A        | 6.0  | 2.0   | No  | 2.1             |
| WF36              | Ravenscroft            | Industrial | 512300                  | 200100                   | NO2                  | No                   | 8.0  | 0.0   | No  | 2.2             |
| WF37              | o/s 358 St Albans Road | Kerbside   | 511200                  | 198100                   | NO2                  | No                   | 5.0  | 1.0   | No  | 2.4             |
| WF38              | A405 Horseshoe Lane    | Kerbside   | 511700                  | 200700                   | NO2                  | No                   | 2.0  | 4.0   | No  | 3.0             |
| WF39              | Balmoral Road          | Kerbside   | 511000                  | 198300                   | NO2                  | No                   | 0.0  | 1.0   | No  | 2.4             |
| WF40              | Salisbury Road         | Kerbside   | 511000                  | 198000                   | NO2                  | No                   | 0.0  | 2.0   | No  | 2.4             |
| WF41              | Leavesden Road         | Kerbside   | 510900                  | 197800                   | NO2                  | No                   | 0.0  | 1.0   | No  | 2.5             |
| WF42              | Queens Road            | Kerbside   | 511200                  | 197000                   | NO2                  | No                   | 4.0  | 1.0   | 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) |
|-------------------|-----------------------------------|-----------|-------------------------|--------------------------|----------------------|----------------------|--|---|---|-----------------|
| WF43              | Farraline Road                    | Kerbside  | 510800                  | 196000                   | NO2                  | Yes - AQMA 2         | 4.0  | 2.0   | No  | 2.4             |
| WF44              | Chalk Hill                        | Kerbside  | 512000                  | 195500                   | NO2                  | Yes - AQMA 3A        | 6.0  | 2.0   | No  | 2.1             |
| WF45              | Wellington Road                   | Kerbside  | 510800                  | 197200                   | NO2                  | No                   | 10.0   | 4.0   | No  | 2.3             |
| WF46a             | Town Hall                         | Roadside  | 510565                  | 196808                   | NO2                  | No                   | 0.0  | 6.0   | Yes   | 2.0             |
| WF46b             | Town Hall                         | Roadside  | 510565                  | 196808                   | NO2                  | No                   | 0.0  | 6.0   | Yes   | 2.0             |
| WF46c             | Town Hall                         | Roadside  | 510565                  | 196808                   | NO2                  | No                   | 0.0  | 6.0   | Yes   | 2.0             |
| WF47              | Willow Lane                       | Kerbside  | 510335                  | 195610                   | NO2                  | No                   | 3.0  | 1.0   | No  | 2.4             |
| WF48              | High Street                       | Kerbside  | 511727                  | 195610                   | NO2                  | Yes - AQMA 3A        | 4.0  | 1.0   | No  | 2.4             |
| WF49              | Gammons Lane (o/s 67)             | Kerbside  | 510499                  | 198454                   | NO2                  | No                   | 5.0  | 1.0   | No  | 2.4             |
| WF50              | Eastbury Road (Oxhey Early Years) | Kerbside  | 511073                  | 194940                   | NO2                  | No                   | 0.0  | 2.7   | No  | 2.9             |
| WF51              | Deacons Hill                      | Kerbside  | 511266                  | 195050                   | NO2                  | No                   | 8.0  | 3.0   | No  | 2.4             |
| WF52              | Victoria PH                       | Kerbside  | 512034                  | 195414                   | NO2                  | Yes - AQMA 3A        | 10.0   | 1.0   | No  | 2.6             |
| WF53              | Villiers Road                     | Kerbside  | 512043                  | 194963                   | NO2                  | Yes - AQMA 3A        | 4.0  | 1.0   | No  | 2.6             |

| 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) |
|-------------------|--------------------|------------------|-------------------------|--------------------------|----------------------|----------------------|--|---|---|-----------------|
| WF54              | Water Lane         | Kerbside         | 511381                  | 196214                   | NO2                  | No                   | 25.0   | 1.0   | No  | 2.8             |
| WF55              | Vicarage Road      | Kerbside         | 510985                  | 196196                   | NO2                  | No                   | 3.0  | 2.0   | No  | 2.7             |
| WF56              | Wiggenhall Road    | Kerbside         | 511053                  | 195813                   | NO2                  | Yes - AQMA 2         | 3.0  | 2.0   | No  | 3.2             |
| WF58              | Beechen Grove      | Kerbside         | 510966                  | 196665                   | NO2                  | No                   | 10.0   | 0.0   | No  | 2.8             |
| WF59              | Upton Road         | Kerbside         | 510598                  | 196482                   | NO2                  | Yes - AQMA 2         | 4.0  | 4.0   | No  | 2.8             |
| WF60              | Merton Road        | Kerbside         | 510827                  | 196082                   | NO2                  | Yes - AQMA 2         | 6.0  | 0.0   | No  | 2.7             |
| WF61              | Ladys Close        | Urban Background | 511141                  | 196009                   | NO2                  | No                   | 30.0   | 4.0   | No  | 2.8             |
| WF62              | Hempstead Road     | Kerbside         | 509814                  | 197936                   | NO2                  | No                   | 14.0   | 0.0   | No  | 2.7             |
| WF63              | Purbrock Avenue    | Kerbside         | 511113                  | 199326                   | NO2                  | No                   | 18.0   | 3.0   | No  | 2.8             |
| WF64              | Rickmansworth Road | Kerbside         | 509721                  | 196184                   | NO2                  | No                   | 17.0   | 1.0   | No  | 2.8             |

**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 – 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 2024 (%) <sup>(2)</sup> | 2020 | 2021        | 2022        | 2023 | 2024 |
|-------------------|-------------------------|--------------------------|------------|---|--|------|-------------|-------------|------|------|
| WF03              | 510600                  | 195700                   | Kerbside   | 67.8  | 67.8                                       | 21.9 | 23.3        | 21.5        | 18.7 | 15.6 |
| WF29              | 511951                  | 195319                   | Kerbside   | 99.5  | 99.5                                       | 26.1 | 32.0        | 30.0        | 28.9 | 23.4 |
| WF36              | 512261                  | 199872                   | Industrial | 99.5  | 99.5                                       | 17.7 | 18.6        | 18.4        | 15.5 | 13.8 |
| WF37              | 511200                  | 198100                   | Kerbside   | 89.3  | 89.3                                       | 25.4 | 27.2        | 27.1        | 23.8 | 19.0 |
| WF38              | 511700                  | 200700                   | Kerbside   | 99.5  | 99.5                                       | 23.2 | 23.3        | 25.0        | 20.2 | 18.3 |
| WF39              | 511000                  | 198300                   | Kerbside   | 99.5  | 99.5                                       | 24.1 | 25.5        | 24.5        | 23.0 | 17.3 |
| WF40              | 511000                  | 198000                   | Kerbside   | 75.0  | 75.0                                       | 25.5 | 25.8        | 24.3        | 22.7 | 18.3 |
| WF41              | 510900                  | 197800                   | Kerbside   | 90.1  | 90.1                                       | 26.9 | 27.1        | 25.3        | 25.5 | 17.6 |
| WF42              | 511200                  | 197000                   | Kerbside   | 75.0  | 75.0                                       | 20.7 | 22.3        | 20.6        | 19.0 | 17.5 |
| WF43              | 510800                  | 196000                   | Kerbside   | 84.2  | 84.2                                       | 34.9 | 38.3        | 34.7        | 29.9 | 26.8 |
| WF44              | 511918                  | 195462                   | Kerbside   | 99.5  | 99.5                                       | 39.5 | <b>45.6</b> | <b>44.6</b> | 36.0 | 33.2 |
| WF45              | 510800                  | 197200                   | Kerbside   | 99.5  | 99.5                                       | 27.0 | 29.8        | 24.5        | 23.3 | 16.1 |

| 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 2024 (%) <sup>(2)</sup> | 2020 | 2021 | 2022        | 2023 | 2024 |
|----------------------|-------------------------|--------------------------|-----------|---|--|------|------|-------------|------|------|
| *WF46a, WF46b, WF46c | 510565                  | 196808                   | Roadside  | 99.5  | 99.5                                       | 20.2 | 21.7 | 20.7        | 22.2 | 20.6 |
| WF47                 | 510335                  | 195610                   | Kerbside  | 99.5  | 99.5                                       | 19.6 | 21.4 | 20.3        | 19.0 | 15.9 |
| WF48                 | 511727                  | 195610                   | Kerbside  | 99.5  | 99.5                                       | 34.6 | 35.1 | 34.2        | 31.5 | 27.0 |
| WF49                 | 510499                  | 198454                   | Kerbside  | 99.5  | 99.5                                       | 23.7 | 24.4 | 23.2        | 21.3 | 19.1 |
| WF50                 | 511093                  | 194914                   | Kerbside  | 99.5  | 99.5                                       | 23.3 | 24.4 | 23.0        | 21.4 | 17.3 |
| WF51                 | 511266                  | 195050                   | Kerbside  | 99.5  | 99.5                                       |      |      | 33.0        | 28.3 | 23.0 |
| WF52                 | 512046                  | 195440                   | Kerbside  | 79.9  | 79.9                                       |      |      | <b>40.0</b> | 35.8 | 32.3 |
| WF53                 | 512047                  | 194959                   | Kerbside  | 91.7  | 91.7                                       |      |      | 25.2        | 21.0 | 18.6 |
| WF54                 | 511381                  | 196214                   | Kerbside  | 89.3  | 89.3                                       |      |      | 26.7        | 25.5 | 19.5 |
| WF55                 | 510985                  | 196196                   | Kerbside  | 93.0  | 93.0                                       |      |      | 32.3        | 28.6 | 26.5 |
| WF56                 | 511053                  | 195813                   | Kerbside  | 99.5  | 99.5                                       |      |      | 25.6        | 23.0 | 21.2 |
| WF58                 | 510966                  | 196665                   | Kerbside  | 64.9  | 64.9                                       |      |      | 25.1        | 20.7 | 16.4 |
| WF59                 | 510598                  | 196482                   | Kerbside  | 85.0  | 85.0                                       |      |      | 24.8        | 23.0 | 20.3 |

| 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 2024 (%) <sup>(2)</sup> | 2020 | 2021 | 2022 | 2023 | 2024 |
|-------------------|-------------------------|--------------------------|------------------|---|--|------|------|------|------|------|
| WF60              | 510827                  | 196082                   | Kerbside         | 93.0  | 93.0                                       |      |      | 30.9 | 28.2 | 22.2 |
| WF61              | 511141                  | 196009                   | Urban Background | 93.0  | 93.0                                       |      |      | 18.0 | 16.5 | 14.0 |
| WF62              | 509814                  | 197936                   | Kerbside         | 93.0  | 93.0                                       |      |      | 21.9 | 20.1 | 15.6 |
| WF63              | 511113                  | 199326                   | Kerbside         | 99.5  | 99.5                                       |      |      | 28.2 | 27.1 | 24.8 |
| WF64              | 509721                  | 196184                   | Kerbside         | 89.3  | 89.3                                       |      |      | 25.2 | 20.7 | 16.9 |

\* Reported as an average triplicate site in 2022, 2023 and 2024. In 2020 and 2021 WF46a only.

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 60 $\mu\text{g}/\text{m}^3$ , 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

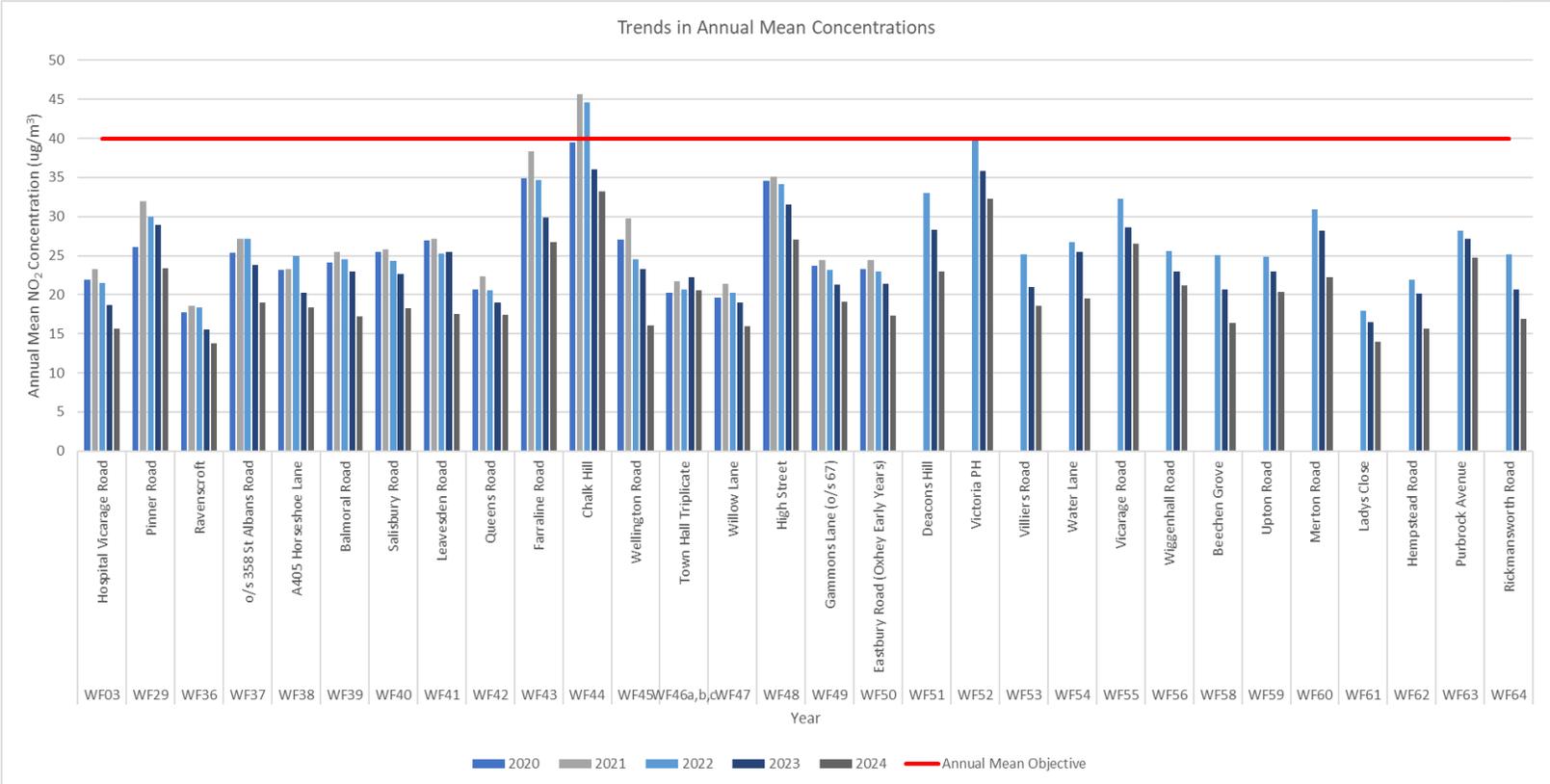
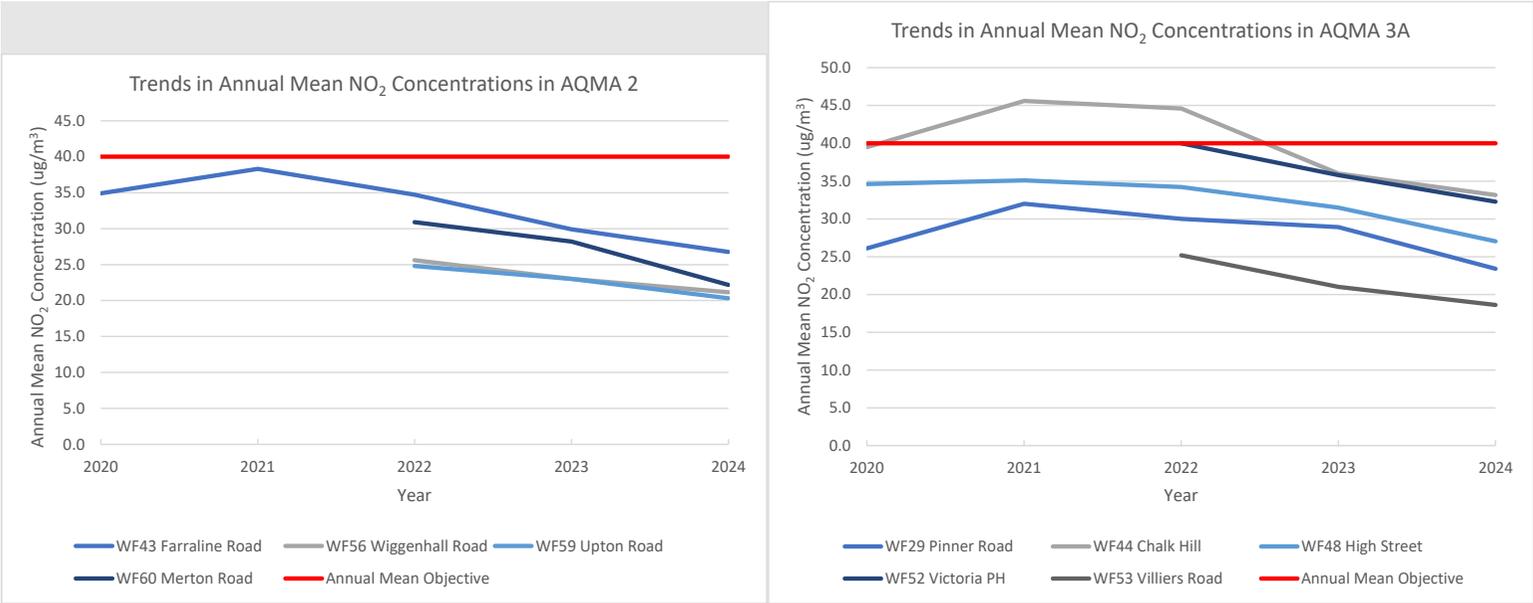


Figure A. 2 – Trends in Annual Mean NO<sub>2</sub> Concentrations in AQMAs



## Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO<sub>2</sub> 2024 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 (0.77) | Annual Mean: Distance Corrected to Nearest Exposure | Comment   |
|-------------------|-------------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------------|--|---|---|
| WF03              | 510600                  | 195700                   |      | 25.7 | 28.9 |      | 22.3 | 16.7 |      | 14.5 | 22.1 | 19.5 | 14.3 |      | 20.5                  | 15.6   | -   |   |
| WF29              | 512000                  | 195300                   | 39.2 | 30.2 | 30.1 | 26.0 | 30.8 | 0.6  | 28.2 | 22.4 | 30.7 | 34.6 | 46.4 | 40.8 | 30.0                  | 23.4   | -   |   |
| WF36              | 512300                  | 200100                   | 21.0 | 16.6 | 19.1 | 12.2 | 19.4 | 12.7 | 16.7 | 13.8 | 17.6 | 21.5 | 22.0 | 19.6 | 17.7                  | 13.8   | -   |   |
| WF37              | 511200                  | 198100                   | 28.4 | 27.0 | 29.0 | 19.9 | 26.4 | 16.6 | 22.4 | 19.1 | 26.7 | 23.2 | 28.9 |      | 24.3                  | 19.0   | -   |   |
| WF38              | 511700                  | 200700                   | 29.3 | 26.3 | 25.4 | 18.8 | 23.6 | 19.4 | 21.4 | 19.3 | 21.5 | 25.3 | 28.8 | 23.1 | 23.5                  | 18.3   | -   |   |
| WF39              | 511000                  | 198300                   | 28.4 | 26.5 | 25.6 | 19.1 | 20.8 | 18.7 | 22.3 | 20.9 | 21.9 | 19.3 | 29.9 | 12.0 | 22.1                  | 17.3   | -   |   |
| WF40              | 511000                  | 198000                   | 34.0 | 30.8 | 26.1 | 20.3 | 12.9 |      |      |      | 23.5 | 10.5 | 28.3 | 24.2 | 23.4                  | 18.3   | -   |   |
| WF41              | 510900                  | 197800                   | 0.8  |      | 28.4 | 19.8 | 25.8 | 21.3 | 23.4 | 20.2 | 23.1 | 24.4 | 36.0 | 24.4 | 22.5                  | 17.6   | -   |   |
| WF42              | 511200                  | 197000                   | 53.7 |      |      | 17.1 | 19.2 | 12.9 | 16.8 | 13.8 | 17.4 | 22.1 | 28.6 |      | 22.4                  | 17.5   | -   |   |
| WF43              | 510800                  | 196000                   | 38.8 | 37.9 | 33.0 | 25.9 | 35.5 | 35.2 | 34.9 | 32.4 |      | 34.0 |      | 35.7 | 34.3                  | 26.8   | -   |   |
| WF44              | 512000                  | 195500                   | 41.5 | 47.5 | 42.8 | 40.7 | 41.8 | 43.5 | 42.2 | 37.2 | 45.5 | 44.6 | 53.0 | 29.9 | 42.5                  | 33.2   | -   |   |
| WF45              | 510800                  | 197200                   | 0.8  | 30.8 | 28.4 | 18.9 | 27.2 | 20.5 | 20.2 | 18.9 | 26.1 | 31.8 | 11.4 | 12.3 | 20.6                  | 16.1   | -   |   |
| WF46 <sub>a</sub> | 510565                  | 196808                   | 38.6 | 25.9 | 29.4 | 25.9 | 24.7 | 23.0 | 22.7 | 20.8 | 26.6 | 30.9 | 35.1 |      | -                     | -  | -   | Triplicate Site with WF46a, WF46b and WF46c - Annual data provided for WF46c only |
| WF46 <sub>b</sub> | 510565                  | 196808                   | 42.0 | 31.8 | 29.8 | 24.4 | 26.3 | 22.6 | 22.5 | 20.8 | 27.8 | 30.4 | 30.3 | 13.9 | -                     | -  | -   | Triplicate Site with WF46a, WF46b and WF46c - Annual data provided for WF46c only |
| WF46 <sub>c</sub> | 510565                  | 196808                   | 1.4  | 32.0 | 27.8 | 22.8 | 26.6 | 19.6 | 21.6 | 20.4 | 25.5 | 36.8 | 36.6 | 30.1 | 26.4                  | 20.6   | -   | Triplicate Site with WF46a, WF46b and WF46c - Annual data provided for WF46c only |
| WF47              | 510335                  | 195610                   | 19.6 | 22.9 | 23.0 | 15.4 | 21.1 | 15.2 | 18.4 | 19.3 | 22.1 | 23.3 | 29.6 | 15.3 | 20.4                  | 15.9   | -   |   |
| WF48              | 511727                  | 195610                   | 45.1 | 42.5 | 37.7 | 28.5 | 33.6 | 28.8 | 34.0 | 33.4 | 32.1 | 31.9 | 39.9 | 28.4 | 34.7                  | 27.0   | -   |   |
| WF49              | 510499                  | 198454                   | 28.8 | 28.8 | 27.2 | 18.8 | 20.2 | 19.8 | 21.5 | 18.3 | 22.4 | 28.9 | 32.5 | 27.3 | 24.5                  | 19.1   | -   |   |

| 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 (0.77) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|-------|-------------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------------|--|---|---------|
| WF50  | 511073                  | 194940                   | 30.9 | 26.1 | 26.2 | 15.6 | 19.6 | 16.0 | 17.9 | 15.5 | 17.7 | 25.7 | 30.6 | 24.0 | 22.2                  | 17.3   | -   |         |
| WF51  | 511266                  | 195050                   | 38.1 | 39.3 | 34.5 | 21.1 | 23.8 | 26.7 | 32.9 | 23.1 | 31.9 | 31.4 | 15.8 | 34.6 | 29.4                  | 23.0   | -   |         |
| WF52  | 512034                  | 195414                   | 46.9 | 47.0 | 41.6 | 35.5 |      | 38.6 | 39.8 | 35.1 | 44.9 | 45.2 | 39.1 | <0.4 | 41.4                  | 32.3   | -   |         |
| WF53  | 512043                  | 194963                   | 31.5 | 28.6 |      | 19.4 | 22.0 | 17.4 | 18.6 | 15.8 | 22.9 | 29.2 | 30.3 | 27.0 | 23.9                  | 18.6   | -   |         |
| WF54  | 511381                  | 196214                   | 1.1  | 33.5 | 28.8 | 21.2 | 27.8 | 20.4 | 24.5 | 22.2 | 26.8 | 31.3 | 37.3 |      | 25.0                  | 19.5   | -   |         |
| WF55  | 510985                  | 196196                   |      | 36.0 | 35.0 | 31.4 | 35.9 | 33.1 | 28.8 | 26.2 | 31.0 | 38.3 | 42.5 | 36.2 | 34.0                  | 26.5   | -   |         |
| WF56  | 511053                  | 195813                   | 36.6 | 29.7 | 30.1 | 22.0 | 25.3 | 21.4 | 23.4 | 21.9 | 25.2 | 28.7 | 31.4 | 29.9 | 27.1                  | 21.2   | -   |         |
| WF58  | 510966                  | 196665                   | 1.0  |      | 25.9 |      | 27.7 | 20.1 | 21.6 | 18.3 | 26.5 | 20.1 |      |      | 20.2                  | 16.4   | -   |         |
| WF59  | 510598                  | 196482                   |      | 26.3 | 23.8 | 18.2 | 24.8 |      | 21.3 | 18.9 | 37.6 | 29.1 | 33.2 | 27.3 | 26.1                  | 20.3   | -   |         |
| WF60  | 510827                  | 196082                   |      | 36.7 | 35.9 | 27.7 | 32.1 | 24.9 | 25.3 | 23.5 | 24.3 | 27.9 | 39.0 | 15.7 | 28.5                  | 22.2   | -   |         |
| WF61  | 511141                  | 196009                   |      | 20.1 | 20.1 | 16.6 | 15.9 | 9.5  | 13.6 | 12.7 | 16.7 | 20.5 | 28.2 | 23.5 | 17.9                  | 14.0   | -   |         |
| WF62  | 509814                  | 197936                   |      | 23.7 | 24.3 | 18.8 | 21.3 | 16.1 | 16.6 | 15.8 | 20.4 | 25.4 | 30.8 | 7.1  | 20.0                  | 15.6   | -   |         |
| WF63  | 511113                  | 199326                   | 40.0 | 38.8 | 33.5 | 24.1 | 27.1 | 29.3 | 33.2 | 31.1 | 26.6 | 35.2 | 34.7 | 27.3 | 31.7                  | 24.8   | -   |         |
| WF64  | 509721                  | 196184                   | 27.5 | 27.8 | 25.0 | 24.6 | 15.0 | 17.4 | 20.1 | 16.6 | 19.5 | 22.7 | 21.8 |      | 21.6                  | 16.9   | -   |         |

- 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.
- Watford Borough Council confirm that all 2024 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 Watford Borough During 2024**

Watford Borough has not identified any new sources relating to air quality within the reporting year of 2024.

### **Additional Air Quality Works Undertaken by Watford Borough Council During 2024**

Watford Borough has not completed any additional works within the reporting year of 2024.

### **QA/QC of Diffusion Tube Monitoring**

Diffusion tubes were supplied by SOCOTEC (Didcot laboratory) in 2024. The method of preparation used was 50% TEA (triethanolamine) in acetone.

SOCOTEC are UKAS accredited. Diffusion Tubes were analysed in accordance with SOCOTEC's standard operating procedure ANU/SOP/1015. This method meets the guidelines set out in DEFRA's 'Diffusion Tubes For Ambient NO<sub>2</sub> Monitoring: Practical Guidance.'

SOCOTEC participate in the AIR PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes. SOCOTEC currently holds the highest rank of a Satisfactory laboratory. In all 4 rounds in 2024 100% of results submitted were determined to be satisfactory.

SOCOTEC were considered to have good diffusion tube precision in 2024.

### **Diffusion Tube Annualisation**

Annualisation is required for any site with data capture less than 75% but greater than 25%. Annualisation was required for WF03 and WF58. Details of the calculation method undertaken are provided in Table C.1.

**Table C.1 – Annualisation Summary (concentrations presented in µg/m³)**

| Site ID | Annualisation Factor London Hillingdon | Annualisation Factor London North Kensington | Annualisation Factor Reading New Town | Annualisation Factor Borehamwood Meadow Park | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean |
|---------|--|--|---------------------------------------|--|------------------------------|----------------------|------------------------|
| WF03    | 0.9710                                 | 0.9752                                       | 0.9857                                | 0.9767                                       | 0.9771                       | 20.5                 | 20.0                   |
| WF58    | 1.0147                                 | 1.0566                                       | 1.0491                                | 1.0509                                       | 1.0428                       | 20.2                 | 21.0                   |

**Diffusion Tube Bias Adjustment Factors**

The diffusion tube data presented within the 2025 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 with regard to 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.

Watford Borough Council have applied a national bias adjustment factor of 0.78 to the 2024 monitoring data. A summary of bias adjustment factors used by Watford Borough over the past five years is presented in Table C.2.

Watford Borough Council applied a national bias adjustment as the Council's roadside monitor that was collocated with a triplicate set of diffusion tubes has now been closed. Watford Borough Council no longer have a triplicate co-location study site in the area.

| National Diffusion Tube Bias Adjustment Factor Spreadsheet   |   |  |  | Spreadsheet Version Number: 04/25   |                          |                                       |  |          |                |                                    |
|--|---|--|--|---|--------------------------|---------------------------------------|--|----------|----------------|------------------------------------|
| Follow the steps below in the correct order to show the results of relevant co-location studies  |   |  |  | This spreadsheet will be updated at the end of June 2025  |                          |                                       |  |          |                |                                    |
| Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods  |   |  |  | Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet |                          |                                       |  |          |                |                                    |
| This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use.                                     |   |  |  | LAQM National Website   |                          |                                       |  |          |                |                                    |
| The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory. |   |  |  | Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.     |                          |                                       |  |          |                |                                    |
| Step 1:  | Step 2:   | Step 3:                                  | Step 4:  |   |                          |                                       |  |          |                |                                    |
| Select the Laboratory that Analyzes Your Tubes from the Drop-Down List   | Select a Preparation Method from the Drop-Down List                                       | Select a Year from the Drop-Down List    | Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor shown in blue at the foot of the final column. |   |                          |                                       |  |          |                |                                    |
| If a laboratory is not shown, we have no data for this laboratory.   | If a preparation method is not shown, we have no data for this method at this laboratory. | If a year is not shown, we have no data. | If you have your own co-location study then see footnote. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953                                 |   |                          |                                       |  |          |                |                                    |
| Analysed By  | Method  | Year                                     | Site Type  | Local Authority   | Length of Study (months) | Diffusion Tube Mean Conc. (Dm) (µg/m) | Automatic Monitor Mean Conc. (Cm) (µg/m) | Bias (B) | Tube Precision | Bias Adjustment Factor (A) (Cm/Dm) |
| SOCOTEC Didsot   | 50% TEA in acetone  | 2024                                     | R  | Slough Borough Council  | 11                       | 23                                    | 17                                       | 34.0%    | G              | 0.79                               |
| SOCOTEC Didsot   | 50% TEA in acetone  | 2024                                     | R  | Slough Borough Council  | 10                       | 31                                    | 23                                       | 33.4%    | G              | 0.75                               |
| SOCOTEC Didsot   | 50% TEA in acetone  | 2024                                     | R  | Slough Borough Council  | 11                       | 30                                    | 23                                       | 33.7%    | G              | 0.75                               |
| SOCOTEC Didsot   | 50% TEA in acetone  | 2024                                     | R  | Thames District Council   | 10                       | 19                                    | 15                                       | 24.3%    | G              | 0.80                               |
| SOCOTEC Didsot   | 50% TEA in acetone  | 2024                                     | UB   | Wirral Council  | 9                        | 14                                    | 12                                       | 19.9%    | G              | 0.83                               |
| SOCOTEC Didsot   | 50% TEA in acetone  | 2024                                     | R  | Derry City And Strabane District Council  | 11                       | 28                                    | 32                                       | -11.8%   | G              | 1.13                               |
| SOCOTEC Didsot   | 50% TEA in acetone  | 2024                                     | UB   | Derry City And Strabane District Council  | 11                       | 11                                    | 7  | 58.1%    | G              | 0.63                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | R  | Hornham District Council  | 11                       | 22                                    | 17                                       | 31.1%    | G              | 0.76                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | R  | Leeds City Council  | 10                       | 36                                    | 28                                       | 32.5%    | G              | 0.75                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | KS   | Leeds City Council  | 11                       | 29                                    | 20                                       | 42.7%    | G              | 0.70                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | R  | Leeds City Council  | 11                       | 24                                    | 18                                       | 36.4%    | G              | 0.73                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | UC   | Leeds City Council  | 10                       | 25                                    | 19                                       | 31.2%    | G              | 0.76                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | R  | Huntingdonshire District Council  | 11                       | 28                                    | 23                                       | 21.1%    | G              | 0.83                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | R  | North East Lincolnshire Council   | 11                       | 39                                    | 21                                       | 64.1%    | G              | 0.54                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | UB   | North East Lincolnshire Council   | 10                       | 12                                    | 10                                       | 20.0%    | G              | 0.83                               |
| SOCOTEC Didsot   | 50% TEA in Acetone  | 2024                                     | R  | North East Lincolnshire Council   | 11                       | 21                                    | 18                                       | 15.7%    | G              | 0.86                               |
| SOCOTEC Didsot   | 50% TEA in acetone  | 2024                                     |  | <b>Overall Factor* (33 studies)</b>   |                          |                                       |  |          | <b>Use</b>     | <b>0.78</b>                        |

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

| Monitoring Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
|-----------------|-------------------|--|-------------------|
| 2024            | National          | 03/25  | 0.78              |
| 2023            | National          | 03/24  | 0.77              |
| 2022            | National          | 03/23  | 0.76              |
| 2021            | National          | 03/22  | 0.78              |
| 2020            | National          | 03/21  | 0.77              |

**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. No diffusion tube NO<sub>2</sub> monitoring locations within Watford Borough required distance correction during 2024.

## Appendix D: Map(s) of Monitoring Locations and AQMAs

Figure D. 1 – Map of Non-Automatic Monitoring Site

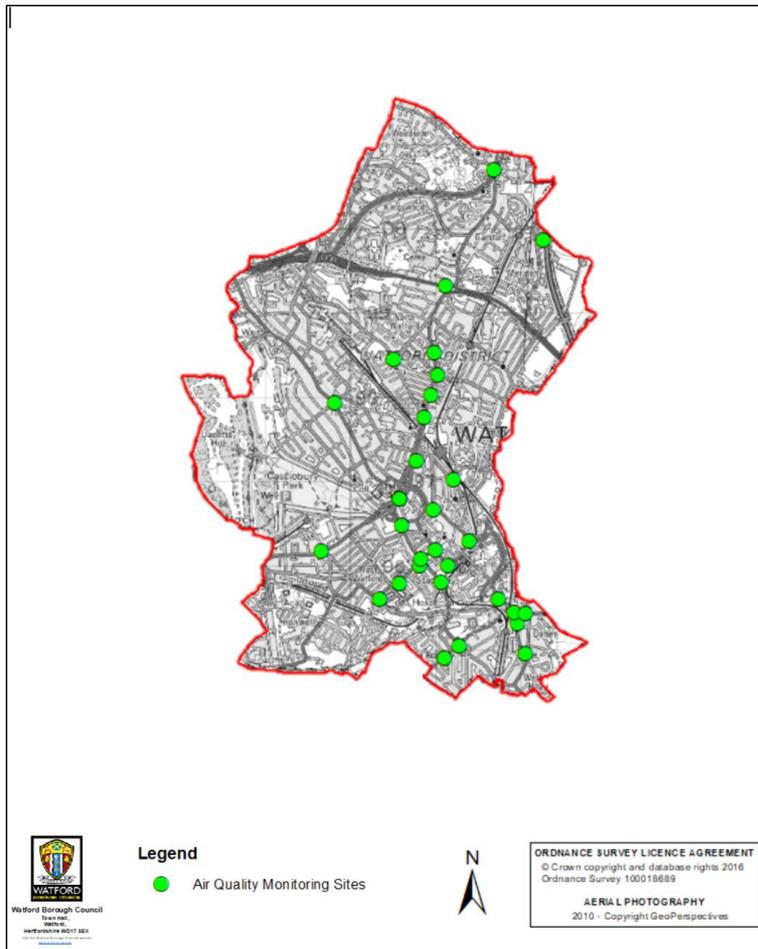


Figure D. 2 - Map showing Non-Automatic Monitoring Sites in and around AQMA No. 2 (Vicarage Road)

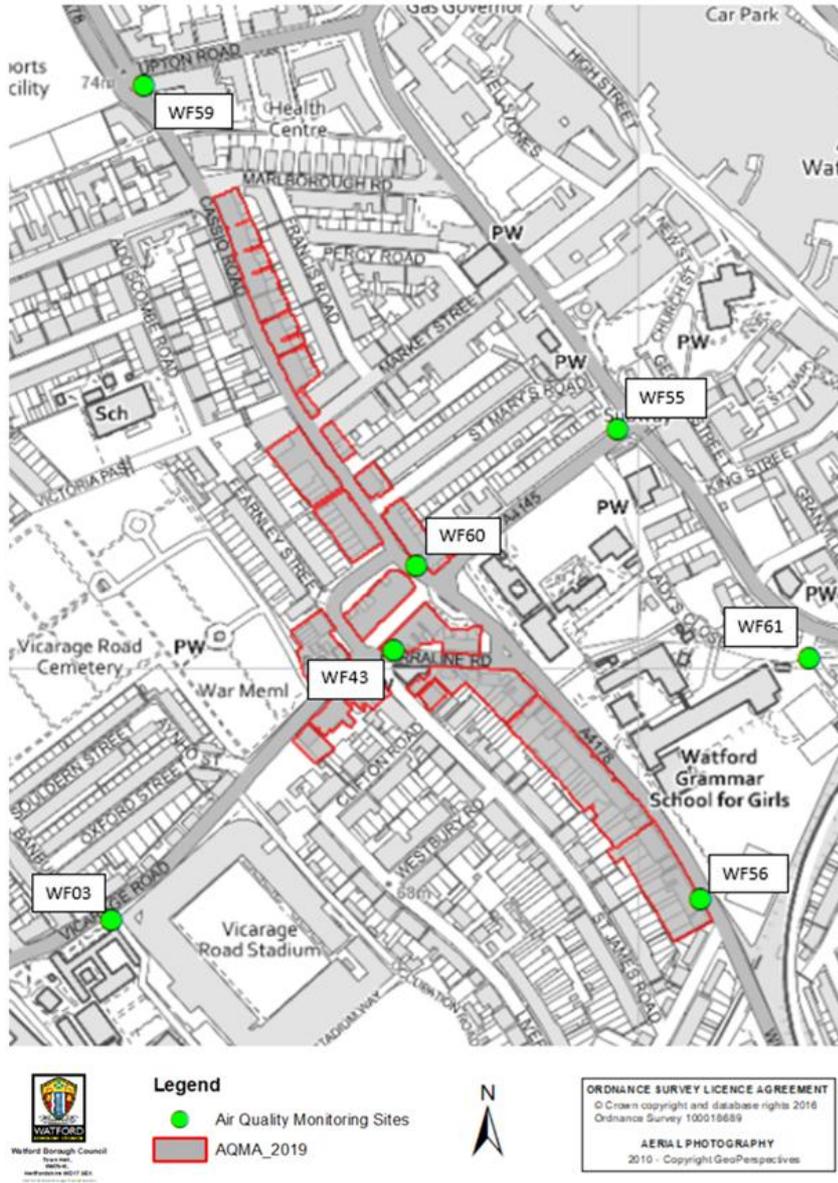
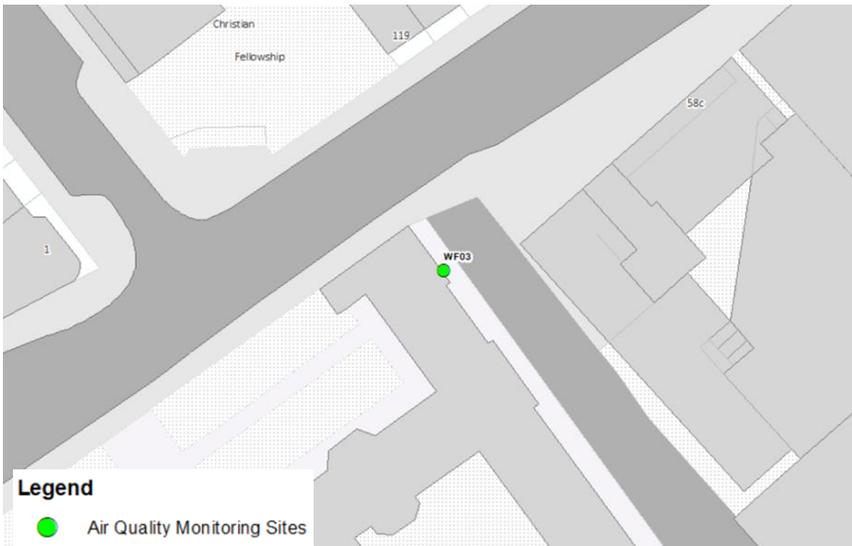


Figure D. 3 - Map showing Non-Automatic Monitoring Sites in and around AQMA 3A (Pinner Road)



**Figure D. 4 - Map showing Non-Automatic Monitoring Site WF03 Hospital Vicarage Road**



**Figure D. 5 - Map showing Non-Automatic Monitoring Sites WF29 Pinner Road, WF44 Chalk Hill, WF52 Victoria PH (AQMA 3A)**

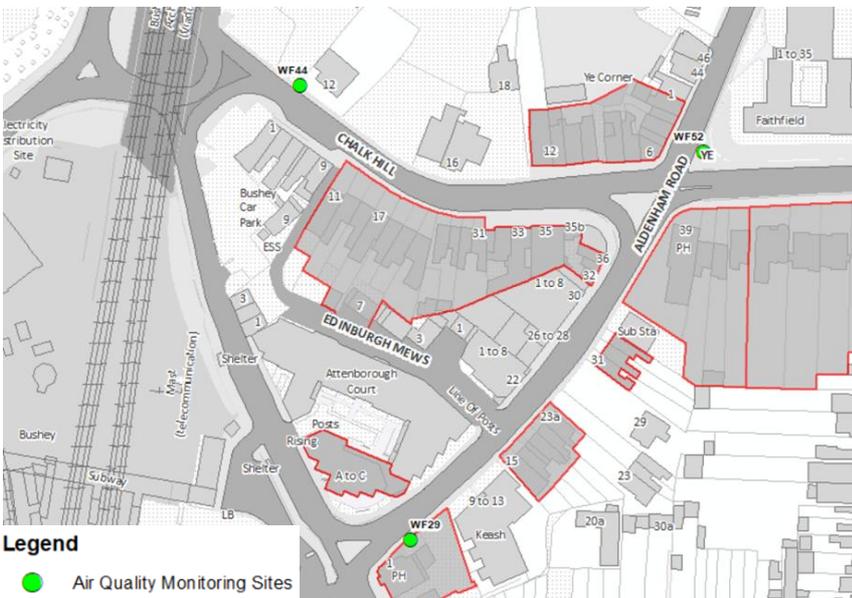




Figure D. 8- Map showing Non-Automatic Monitoring WF38 A405 Horseshoe Lane

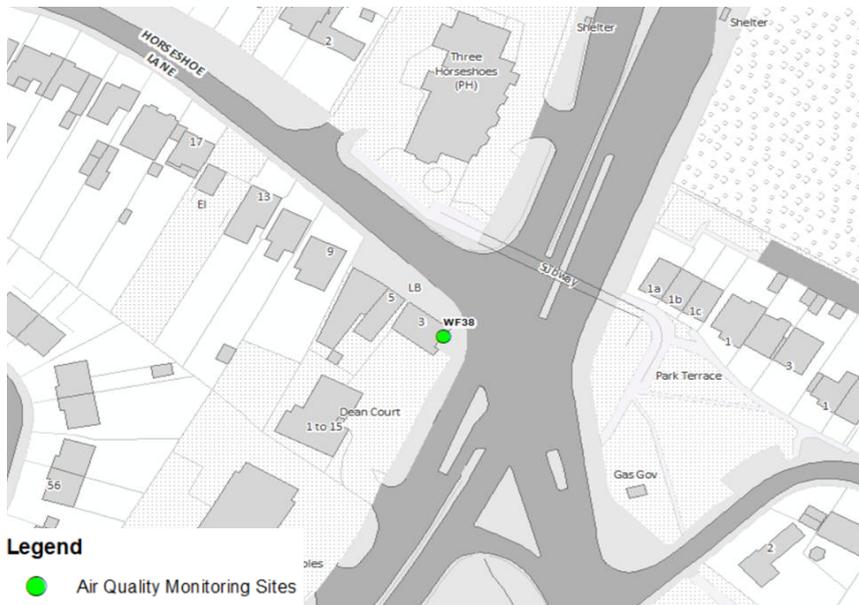


Figure D. 9 - Map showing Non-Automatic Monitoring WF39 Balmoral Road

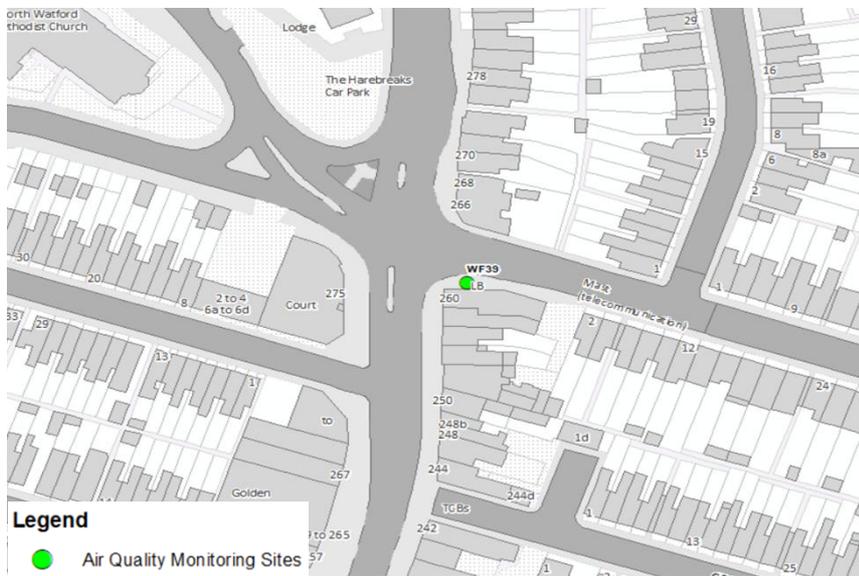


Figure D. 10- Map showing Non-Automatic Monitoring WF40 Salisbury Road



Figure D. 11 - Map showing Non-Automatic Monitoring WF41 Leavesden Road

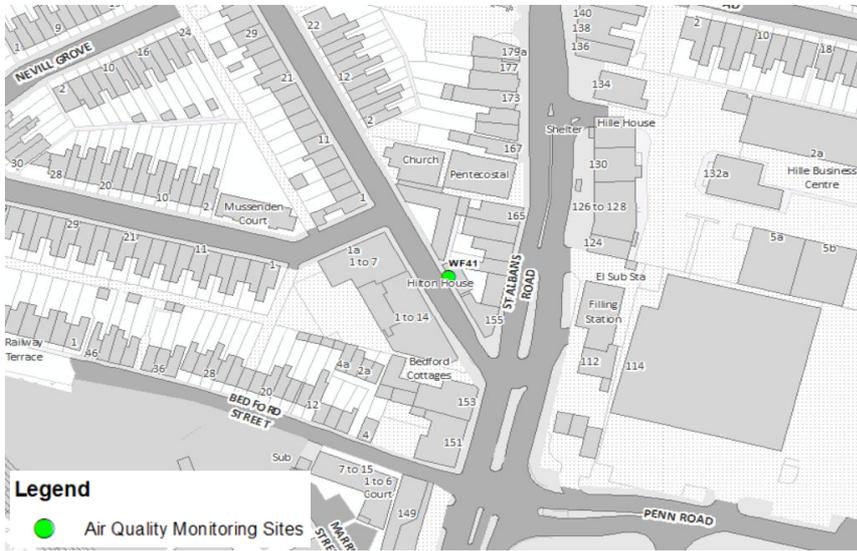


Figure D. 12 - - Map showing Non-Automatic Monitoring WF42



Figure D. 13 - Map showing Non-Automatic Monitoring WF43 Farraline Road, WF60 Merton Road (AQMA 2)



Figure D. 14 - Map showing Non-Automatic Monitoring WF45 Wellington Road



Figure D. 15 - Map showing Non-Automatic Monitoring WF46a, WF46b, WF46c Town Hall (also the site of WF1 – Automatic Monitoring Site)

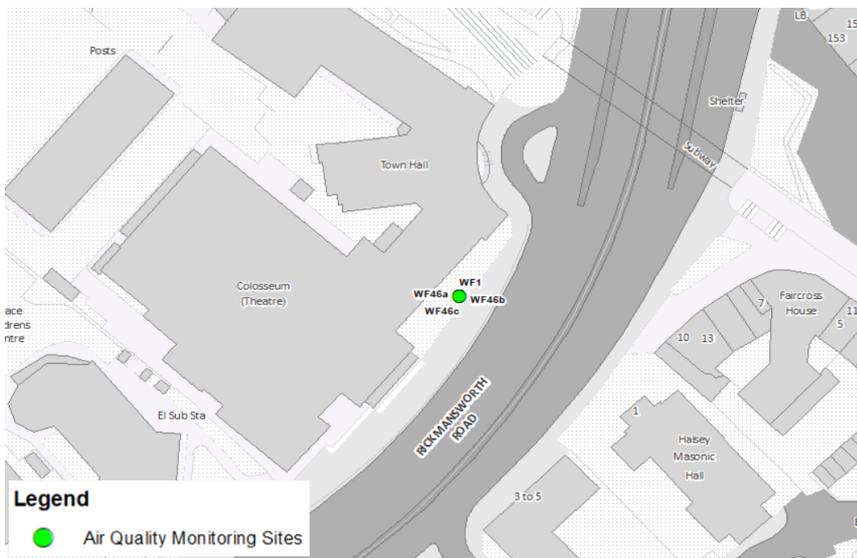


Figure D. 16 - Map showing Non-Automatic Monitoring Site WF47 Willow Lane

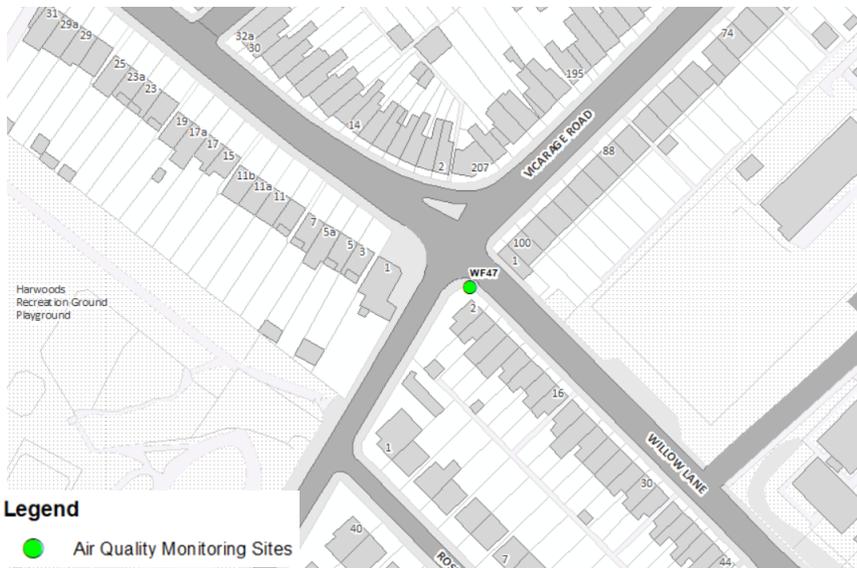
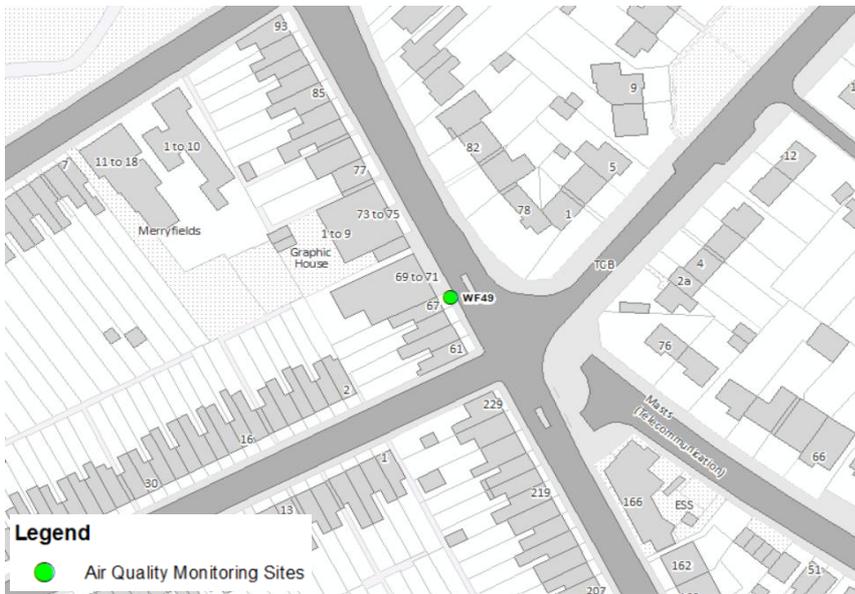


Figure D. 17 - Map showing Non-Automatic Monitoring Site WF48 High Street (AQMA 3A)



**Figure D. 18 - Map showing Non-Automatic Monitoring Site WF49 Gammons Lane (o/s 67)**



**Figure D. 19- Map showing Non-Automatic Monitoring Site WF50 Eastbury Road (Oxhey Early Years)**

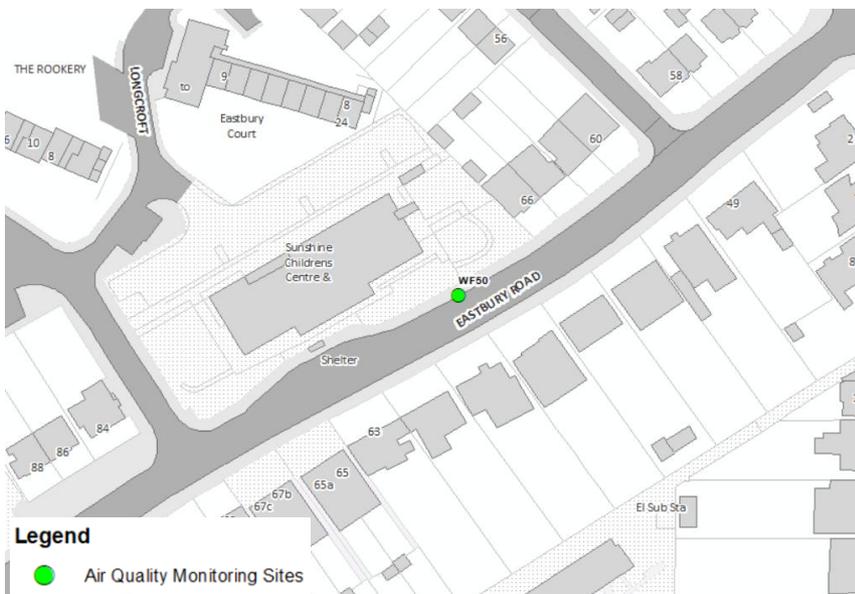


Figure D. 20- Map showing Non-Automatic Monitoring Site WF51 Deacons Hill

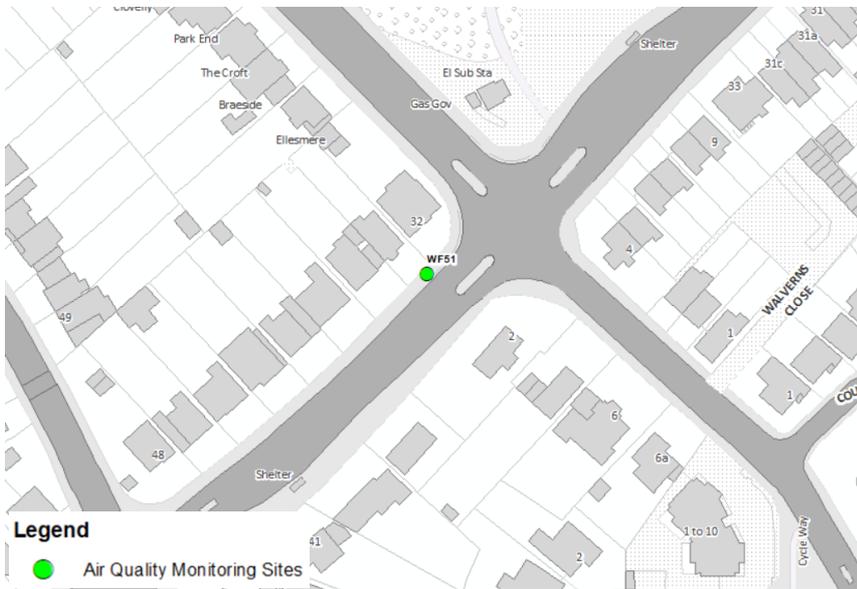


Figure D. 21- Map showing Non-Automatic Monitoring Site WF53 Villiers Road (AQMA 3A)

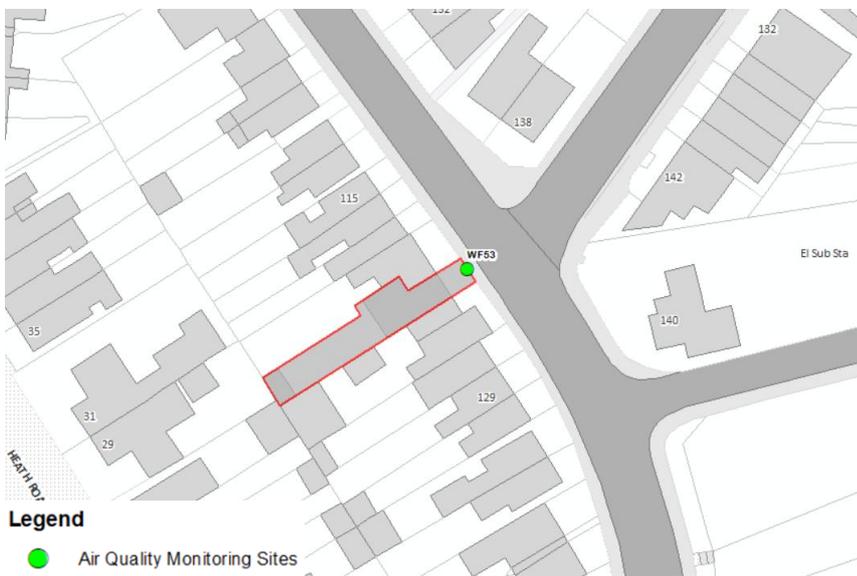




Figure D. 24- Map showing Non-Automatic Monitoring Site WF56 Wiggenhall Road (AQMA 2)

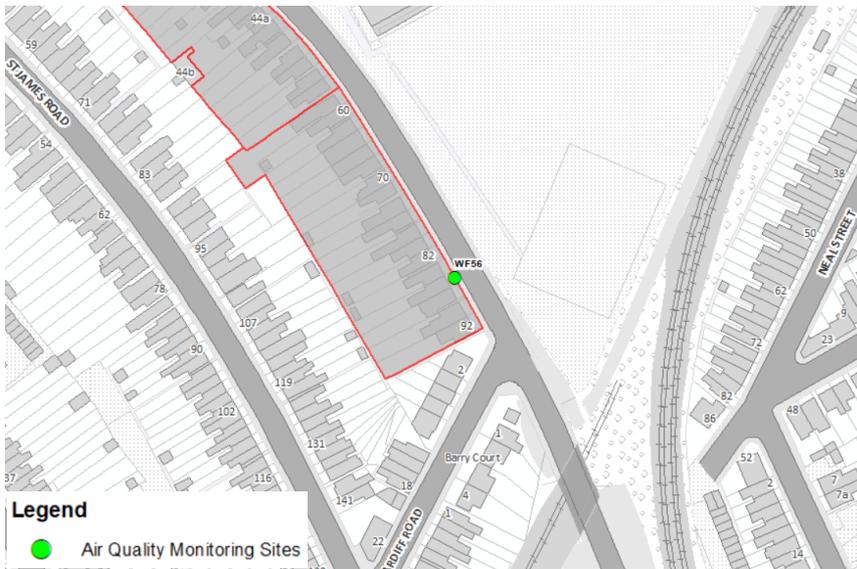


Figure D. 25- Map showing Non-Automatic Monitoring Site WF58 Beechen Grove

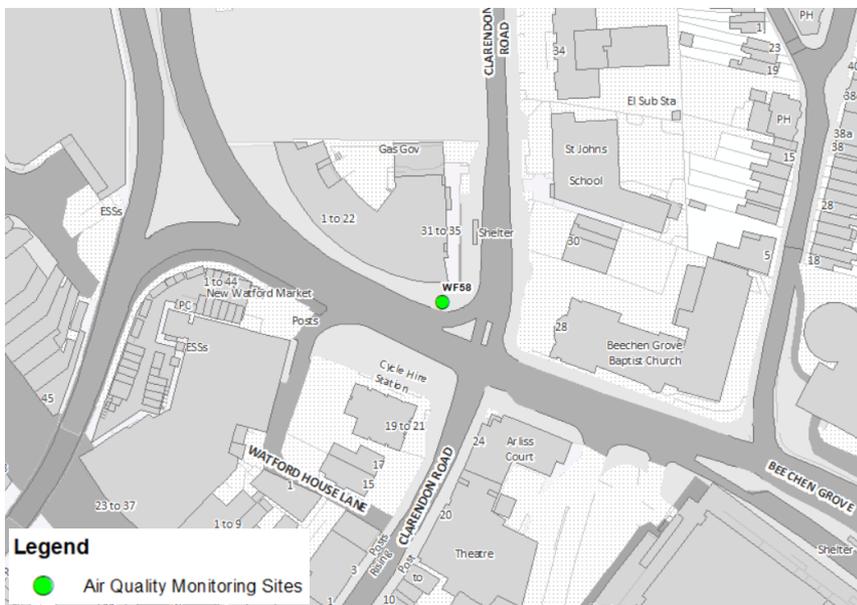


Figure D. 26 - Map showing Non-Automatic Monitoring Site WF59 Upton Road

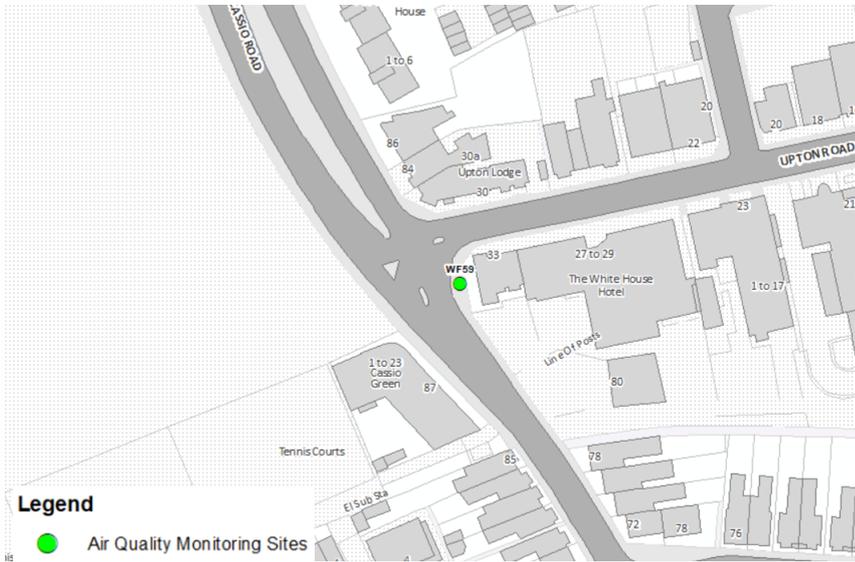


Figure D. 27- Map showing Non-Automatic Monitoring Site WF61 Ladys Close

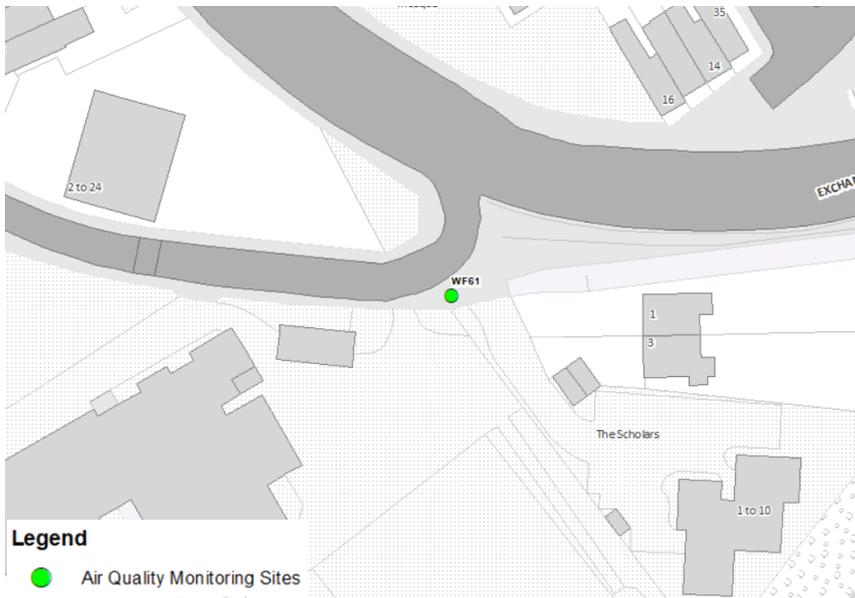


Figure D. 28 - Map showing Non-Automatic Monitoring Site WF62 Hempstead Road

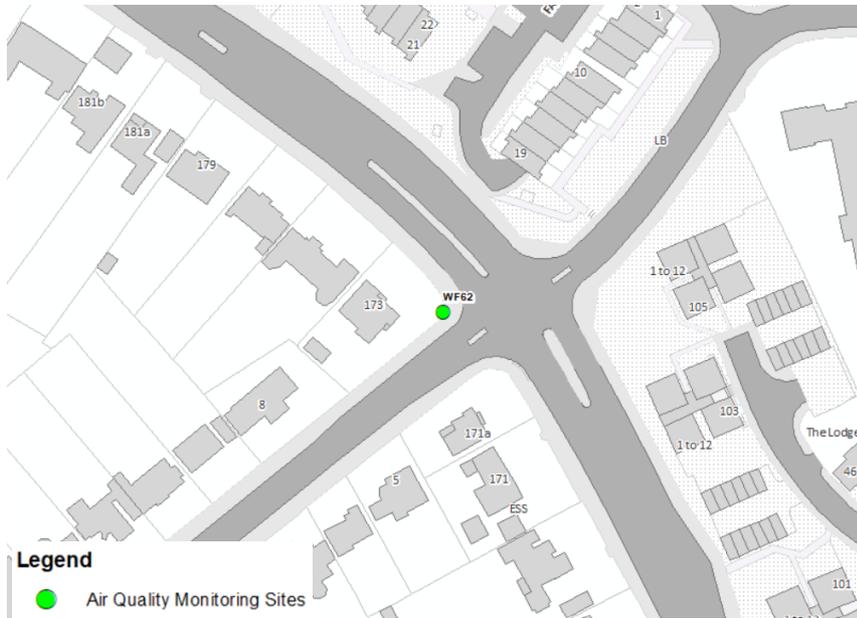
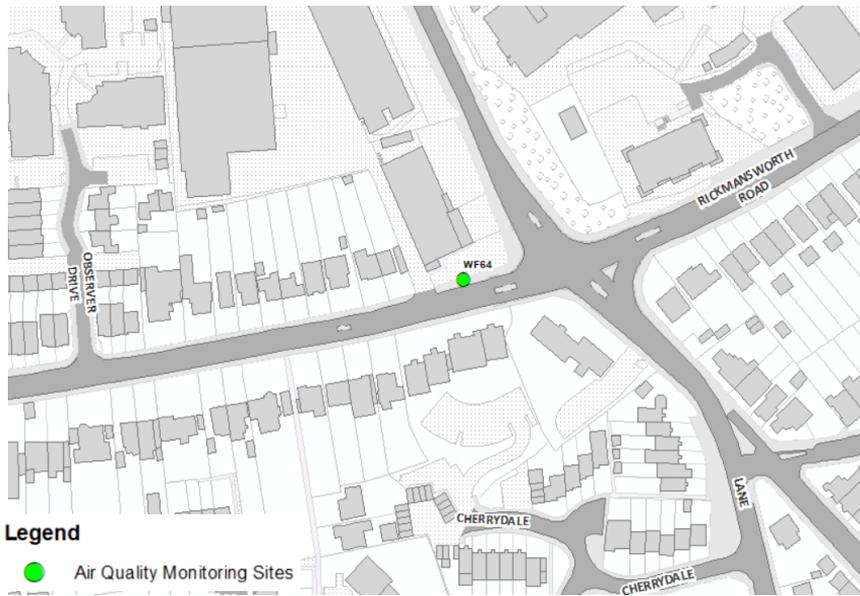


Figure D. 29 - Map showing Non-Automatic Monitoring Site WF63 Purbrock Avenue



**Figure D. 30 - Map showing Non-Automatic Monitoring Site WF64 Rickmansworth Road**



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

**Table E.1 – Air Quality Objectives in England<sup>2</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>2</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  |
| Defra             | Department for Environment, Food and Rural Affairs  |
| DMRB              | Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways  |
| LAQM              | Local Air Quality Management  |
| NO <sub>2</sub>   | Nitrogen Dioxide  |
| NO <sub>x</sub>   | Nitrogen Oxides   |
| PM <sub>10</sub>  | Airborne particulate matter with an aerodynamic diameter of 10µm or less  |
| PM <sub>2.5</sub> | Airborne particulate matter with an aerodynamic diameter of 2.5µm or less   |
| QA/QC             | Quality Assurance and Quality Control   |
| SO <sub>2</sub>   | Sulphur Dioxide   |

## 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.
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- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.