



2023 Air Quality Annual Status Report (ASR)

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

Date: June 2023

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Executive Summary: Air Quality in Our Area

Air Quality in West Berkshire Council

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

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages³, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017⁴.

The major source of air quality pollutants in West Berkshire are road transport and in particular the contribution from the A339 and A4 has been identified. The main pollutant is nitrogen dioxide (NO₂) in Newbury & Thatcham and as a consequence, two Air Quality Management Areas (AQMAs) have been declared. The Newbury AQMA was declared for exceedances of both the one-hour and Annual Mean NO₂ objective. The Thatcham AQMA was declared for the Annual Mean NO₂ Objective. Details can be found at: <https://uk-air.defra.gov.uk/aqma/list?view=W> and maps are in Appendix D.

The Nitrogen dioxide (NO₂) levels in 2022 have showed a decrease on the pre pandemic levels of 2018, and in 2022 15 of the 36 monitoring sites have increased since 2021, and 19 have decreased. None of the monitoring locations within West Berkshire exceeded the Annual Objective (40µg/m³). The 1 Hourly NO₂ objective was also not exceeded in 2022 (permitted level of 18 exceedances of 200µg/m³ per year). These decreases are likely to

¹ Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

³ Defra. Air quality appraisal: damage cost guidance, January 2023

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

be due to the new traffic patterns which are merging across the area, where the peak hours are dispersing creating a better traffic flow and less congestion.

The two AQMA's within the District show that they are maintaining a NO₂ level well below the Air Quality Objectives for the past 5 years, and if this trend continues over the next 3 years then we will be looking to obtain agreement from DEFRA to revoke them. The continuous monitor located within the Newbury AQMA showed that the Annual Mean Objective was met, measuring 26.2µg/m³ of NO₂ in 2022, which has decreased from 27.5µg/m³ in 2021. The decrease may be due to change in people's behaviour and working from home more, the upgrading to new greener cars and perhaps the realisation the cars are detrimental to the environment.

Over the past 5 years there has been a general decrease of NO₂, at a number of sites both within, close too and away from the existing AQMA's.

No extensions or amendments to the AQMAs are required and no new AQMAs need to be declared.

During the Pandemic in both 2020 and 2021 we saw a greater reduction in NO₂ during the year, and there was an even greater reduction during the national lock downs. Regardless of the lock downs the overall the average levels in West Berkshire have been reducing over the 5 years up to 2022.

As a unitary authority Environmental Health has continued to work in conjunction with the Transport Policy Team with the implementation of Local Transport Plan 3 (2011 – 2026). The Plan includes a Transport Vision setting out the long-term transport Strategy for each of the 4 main geographical areas of the District, as identified in the Local Development Framework Core Strategy. These Visions have been prepared taking into account a “Mixed Strategy” approach of looking to provide people in the District with more sustainable travel choices. The Plan acknowledges the link with the existing AQAP and any future AQAP's and there is a specific Policy on Air Quality (Policy LTP K6) which states that:

The Council will fulfil its responsibilities for Local Air Quality Management and focus on the following:

- i. Highlighting ways in which air quality can be protected through the development management process

- ii. Identifying areas where the Air Quality Objective values are being or are likely to be exceeded
- iii. Establishing a framework for air quality improvements
- iv. Investigating the feasibility of using mobile alerts to highlight periods of higher pollution levels
- v. LTP Strategies continue to be reviewed; no new strategies were implemented in 2020
- vi. Working on the link between air quality, particularly from PM_{2.5} and public health in West Berkshire continues. There has been closer working with the Public Health Portal.

The major source of air quality pollutants in West Berkshire is road transport and in particular the contribution from the A339 and A4 has been identified. The main pollutant is nitrogen dioxide (NO₂) in Newbury & Thatcham and as a consequence, two Air Quality Management Areas (AQMAs) have been declared.

Actions to Improve Air Quality

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

The Environmental Improvement Plan⁵ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM_{2.5} targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce PM_{2.5} in their areas. The Road to Zero⁶ details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

⁵ Defra. Environmental Improvement Plan 2023, January 2023

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

- Environmental Health reviews development control applications for air quality impact. Air quality assessments have been provided where necessary for a variety of applications and appropriate mitigation requested. Applications included significant housing development sites, STOR power generation plant, traffic flow changes to a road scheme, and any applications which may have an impact to the AQMAs.
- West Berkshire Council has completed all Pollution Prevention and Control inspections for 2021/22 and 2022/23 as required for the control of emission to air from industrial processes.
- In 2019 the Bear Lane, A339 (Sainsbury's roundabout) improvements works to enable improved traffic flow were completed, and traffic lights were decided against following the modelling impact results. The true impact of these works shall be seen in the 2024 when all the traffic data has been collated.
- In 2022, 36 Electric vehicle (EV) charging points were available in West Berkshire, the EV chargers are all plotted on the council's web page <https://info.westberks.gov.uk/onstreetev>
- Our Policy Guidance Planning for Air Quality document, the joint Public Health and Air Quality website and the Public Protection Partnership website ([Air Quality - PPP \(publicprotectionpartnership.org.uk\)](https://www.airquality-ppp.org.uk)) all contain information for residents, businesses and consultants regarding air quality and air pollution matters, which is reviewed regularly and updated as necessary.
- This bus station is having Bio-Gas Buses pass through as they run into Reading which has strict air quality standards and West Berkshire benefits from these.
- Looking ahead there are a considerable number of road initiatives to be carried out, electric vehicle charging points to be installed, further developments to be made to cycle routes, improvements to the cycle lesson and bike storage facilities at schools.
- West Berkshire Council also continues to support and recognises the softer Education, Training and Publicity (ETP) elements provided by the Road Safety Team as well as being active members of the Cycle Forum and wider Berkshire Safer Roads group (other partners include Wokingham, Bracknell, Slough and Windsor and Maidenhead). The collaborative work under Berkshire Safer Roads ensures we maintain a wider and more consistent message across borders. The Road Safety Team aims and objectives are to find opportunities to change behaviour in relation to Active Travel and break down the barriers to encourage more walking and cycling.

- For Clean Air Day in 2022 we wrote to all the schools within Bracknell Forest and asked them to sign up to be an Air Quality Ninja , an every time they travelled to school by an alternative “green” method of transport, they received points, and the more point they received the higher the Ninja belts they achieved. Unfortunately, not many schools signed up, so going forward engaging with schools will require a more direct course.
- In 2020 a joint application made by Public Protection Partnership with West Berkshire and Wokingham Councils was made to the Air Quality Grant Scheme 2020 and was successful in securing funding for a project related to a behaviour change anti-idling campaign, and localised PM_{2.5} monitoring & action planning, at schools located near to the AQMAs. As a result of this funding we were able to appoint an Air Quality Officer and able to launch our “Bumper Sticker” competition to all the Primary Schools within West Berkshire, Bracknell Forest & Wokingham. More information about the grant can be found in Appendix C.

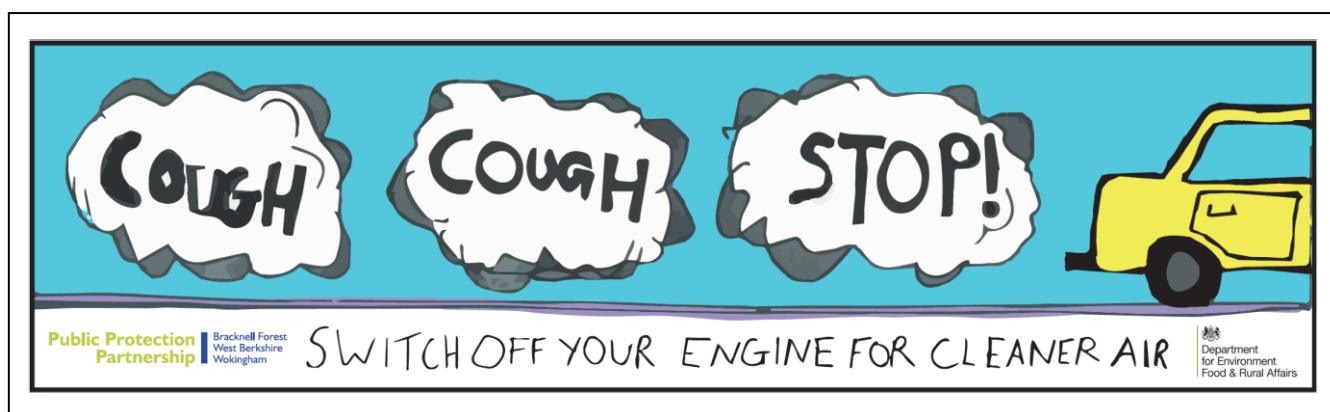


Figure S.1-The Bumper Sticker

- The Traffic Safety Team run grant funded Cycle Training through Bikeability from beginner child & adults to advance cycling ([Cycle Training - West Berkshire Council](#)). As you can see from Figure S.2. This year 2022/23 has been very successful with 5403 participants incredible increase from 2696 people in 2021/22 using the Bikeability programme. The Traffic and Road Safety Team have also been working with the SEND schools, (Castle, Brookfields, Mary Hare School for the Deaf and Newbury College) to ensure the fun had from cycling is accessible to all. <https://www.newburytoday.co.uk/news/pupils-pedal-power-9306455/>

Bikeability Programme	2016-2017	2017-2018	2018-2019	2019-2020	2020 - 2021	2021-2022	2022-2023
Level 1	17	0	163	0	33	863	1827
Level 1 & 2	1311	1284	1170	1120	982	823	234
Level 2	0	0	0	0	0	800	1011
Level 3	53	71	81	67	65	90	78
Balance	65	0	145	153	75	120	369
Bikeability Fix	33	0	43	0	45	0	1855
Learn to Ride	0	0	25	55	25	86	29
Total	1479	1355	1627	1395	1225	2696	5403

Figure S.2 Show the amount of people using the Bikeability programme

- In the West Berkshire our [schools](#) play an active part in encouraging children to walk and cycle to school, through School Travel Plans (STP). Every school in our district has an STP which they use to set targets to encourage greater walking, cycling and scooting to school. The STP also states how they will try to reduce the number of children arriving by car. Within the plan, the schools identify schemes that will help them to achieve these goals. To help encourage schools to continue their efforts, we are changing the way we monitor STPs. Using an interactive website from [Modeshift](#), we are helping schools to monitor and update their STP continually, and we reward those schools who achieve excellence in school travel.
- A School Street scheme has been set up at Calcot Infant & Junior School by the Traffic Safety Team under the Road Traffic Regulation Act 1984 (Figure S.3). This prohibits the driving from Monday to Friday between the times of 08:15 to 09:15 and 14:30 to 15:30 on Royal Avenue, Curtis Road and Gatcombe Close. Only those with permits (residents) will have access. As this was so successful several more school street are being set up in 2023/24.

Figure S.3 The School Street Sign

Conclusions and Priorities

There was no exceedance of the monitored NO₂ Annual Mean Objective (40µg/m³) at the continuous monitor located in Newbury, the level was 26.2 µg/m³ in 2022 compared 27.5µg/m³ in 2021. The hourly objective (permitted level of 18 exceedances of 200µg/m³ per year) was also met as there no exceedances.

There were no exceedances of the Annual Air Quality Objective level of 40µg/m³ from the ratified and bias adjusted diffusion tubes within the Newbury AQMA or the Thatcham AQMA. There were no locations greater than 60µg/m³ which indicates no exceedance of the 1-hour Objective. This year (2022) showed that 19 sites have decreased since 2021, and 15 have increased. Overall, the concentrations have been showing a trend of decreasing NO₂ since 2018. According to DEFRA it is not appropriate to revoke any of the AQMAs as of yet as we will need 3 consecutive years of, pandemic free NO₂ data below the level of 36µg/m³. The data collected indicated that no further extension are needed to be made to the AQMAs and we do not need to look at declaring anymore.

The following local priorities continue to be:

- Nationally exploring the link between public health and PM_{2.5}
- Joint working between Public Health and Environmental Health teams and links within the Berkshire Public Health Shared Team and Traffic Safety.
- Continuing to work within the unitary authority with Transport Policy and Highways Teams. There are some localised areas of congestion at peak times which require

managing and investment, where improvements are needed to increase capacity at key junctions or effectively manage traffic flow. New development is planned through the Local Development Framework Core Strategy and additional transport and highway measures are planned alongside these new developments which will assist in addressing the impact and manage the additional trips associated with new developments.

- Continue with the continuous and passive air quality monitoring programmes in 2023.
- The EV chargers continue to be plotted on the interactive map on the intranet, or the council's web page <https://info.westberks.gov.uk/onstreetev> to help promote the use of the vehicles in the borough.
- Continue the School Streets projects and the promotion of alternative travel to school

The following challenges have been identified:

- Budget allocation for progressing measures and actions. Funding applications will be applied for where possible/appropriate.
- Linking of Public Health Outcome Framework and Health profiles to air quality to show any causal relationship.
- Burning of fuels as some areas of West Berkshire are rural, and this for some people is their only source of heating. We are continuing to educate people on the best types of fuels to use to help reduce pollution. [Air Quality \(Domestic Solid Fuels Standards\) \(England\) Regulations 2020 - PPP \(publicprotectionpartnership.org.uk\)](https://www.publicprotectionpartnership.org.uk)

West Berkshire shall not be revoking any AQMA's this year as they require 3 consecutive years of data within the AQMA's which shows that the NO₂ is 10% below (36µg/m³) the National Air Quality Objectives (40µg/m³). The data cannot be used from COVID, therefore this year is the first year of data below 36µg/m³.

Stakeholders meetings have been carried in in 2022, and will be continuing in 2023 to review the Air Quality Action Plan, and to look at creating a new one in the near future.

Local Engagement and How to get Involved

For further details on air quality in West Berkshire please refer to our website at <http://info.westberks.gov.uk/index.aspx?articleid=27513> .

Individuals or members of local groups are invited to share any ideas they have to cut nitrogen dioxide levels in West Berkshire by emailing ehadvice@westberkshire.gov.uk

Other useful websites are:

<https://uk-air.defra.gov.uk/>

<https://www.gov.uk/government/publications/2010-to-2015-government-policy-environmental-quality/2010-to-2015-government-policy-environmental-quality#appendix-5-international-european-and-national-standards-for-air-quality>

There are a number of ways our residents can help to improve local air quality:

- Public Protection Partnership <https://publicprotectionpartnership.org.uk/environmental-health/air-quality/vehicle-idling/>
- Domestic Fuel information <https://publicprotectionpartnership.org.uk/environmental-health/air-quality/air-quality-domestic-solid-fuels-standards-england-regulations-2020/>
- Walk or cycle short distances of less than one or two miles rather than driving (see <http://info.westberks.gov.uk/index.aspx?articleid=27868> for routes in West Berkshire).
- Search for car sharing opportunities using Lift share (see <https://liftshare.com/uk>) or Faxi (<https://faxi.co.uk/>) to share journeys with work colleagues
- Newbury Car Club (see <http://www.co-wheels.org.uk/newbury>)
- Use the bus or train regularly and keep up-to-date with the latest bus route timetables (see <http://info.westberks.gov.uk/index.aspx?articleid=27888>)
- Urban Limits <http://urbanlimits.org/>
- Safer Steps <http://safersteps.co.uk/>
- Road Rangers <http://theroadrangers.co.uk/>
- Travel Planning (Get Your Coat App) <https://getyourcoat.app/>
- Independent Travel (RouteGuard App) www.routeguard.co.uk

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Quality Team of Public Protection Partnership for West Berkshire Council with the support and agreement of the following officers and departments:

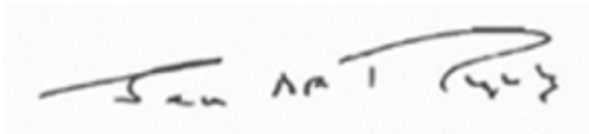
Highways Authority,

Environmental Health & Public Health,

Planning Authority

This ASR has been approved by: Sean Murphy

This ASR has been signed off by the Manager of Public Protection Partnership



Sean Murphy

Head of Public Protection Partnership

This ASR has been approved by: John Ashton

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



John Ashton

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If you have any comments on this ASR please send them to Environmental Health at:

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1 Local Air Quality Management

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

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by West Berkshire 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

Air Quality Management Areas

Air Quality Management Areas (AQMA) 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 AQMA declared by West Berkshire Council can be found in Table 2.1. The table presents a description of the 2 AQMA that are currently designated within West Berkshire Council. Appendix D: Map(s) of Monitoring Locations and AQMA provides maps of AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO₂ annual mean

We have looked into proposing to revoke the AQMA however LAQM.TG22 states “*The revocation of an AQMA should be considered following **three consecutive years of compliance** with the relevant objective as evidenced through monitoring. Where NO₂ monitoring is completed using diffusion tubes, to account for the inherent uncertainty associated with the monitoring method, it is recommended that revocation of an AQMA should be considered following **three consecutive years** of annual mean NO₂ concentrations being lower than 36µg/m³ (i.e. within 10% of the annual mean NO₂ objective). There should not be any declared AQMA for which compliance with the relevant objective has been achieved for a consecutive five-year period.*” We cannot use COVID years data for 2020 and 2021 therefore West Berkshire have achieved 1 consecutive year so far under the limit of 36µg/m³ for both the Thatcham and Newbury AQMA’s as all the monitoring within these areas were below 36 µg/m³. See Table 2.0 for the revocation details.

Table 2.0 – Maximum NO₂ level reached in each AQMA (µg/m³)

AQMA	2022	2023	2024	2025	2026	Total consecutive years below 36 (µg/m ³)
Thatcham	29.0					1
Newbury	27.6					1

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
Newbury AQMA	Declared 2009	NO ₂ 1 Hour Mean	An area encompassing a very small number of properties at the roundabout junction of A339, A343 St Johns Road and Greenham Road. (CM data)	NO	61	0	5 year (2018 to 2022)	Newbury AQAP	Microsoft Word - WestBerks 2022 vP H (publicprotectionpartnership.org.uk)
Newbury AQMA	Declared 2009	NO ₂ Annual Mean	An area encompassing a very small number of properties at the roundabout junction of A339, A343 St Johns Road and Greenham Road.	NO	54.4	27.6	5 year (2018 to 2022)	Newbury AQAP	Microsoft Word - WestBerks 2022 vP H (publicprotectionpartnership.org.uk)

Thatcham AQMA	Declared 2009	NO ₂ Annual Mean	An area encompassing a very small number of properties along the A4	NO	53.3	29.9	5 year (2018 to 2022)	Newbury AQAP	Microsoft Word - WestBerks 2022 vP H (publicprotectionpartnership.org.uk)
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West Berkshire Council confirm the information on UK-Air regarding their AQMA(s) is up to date.

West Berkshire Council confirm that all current AQAPs have been submitted to Defra.

Progress and Impact of Measures to address Air Quality in West Berkshire

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 are designed to help inform future reports.

A number of errors within the tables in the report are also noted. Table 2.1 references 'Newbury AQAP' for both the Newbury and Thatcham AQMAs and the year the AQAP was published has not been included. The same errors have been included in the excel data tables file version of Table 2.1, with the 'Level of Exceedance Current Year' column having also been completed incorrectly in this file. Table 2.1 also does not include a link to the relevant AQAP for each AQMA, a link is instead included to the local authority's webpage on the UK AIR website. A link to the relevant AQAP document itself or a note as to how members of public can access this should be provided in this table in future reports.

1. Table A.2 has not been completed correctly, with certain columns having been mixed up. The height of the '31 Chapel Street' site is missing in Table A.2. The 'valid data capture for monitoring period' is incorrect throughout Tables A.3, A.4, and A.5. There are also two tables labelled Table C.2.
2. Passive monitoring of nitrogen dioxide (NO₂) using diffusion tubes was completed at 38 locations during 2021 (an increase of two since 2020). This includes two triplicate sites, one of which is co-located with the automatic monitor (CM1), which monitors NO₂. Some diffusion tube sites appear to have been relocated since 2020 and two additional sites have been added. This is welcomed, however a discussion of the reasons for these changes has not been included and would be beneficial to include in future years.
3. It is apparent that two of the diffusion tube sites ('17 Chapel Street Thatcham 1' and '17 Chapel Street Thatcham 2') are duplicates with the same co-ordinates. If it is confirmed that these coordinates are correct for both sites, the data for these sites should be processed correctly, by deriving the average annual mean in line with the guidance in LAQM.TG(16), for presentation within next year's ASR.
4. Both the annual mean and 1-hour mean Air Quality Objectives for NO₂ were complied with at all monitoring locations within 2021.

5. Comments from last year's ASR have been mentioned and addressed. This is welcomed and encouraged for future ASRs.
6. The report includes detailed discussion of the measures the council are taking to address PM_{2.5}. The council set out that, within the next reporting year, they intend to establish the feasibility of monitoring PM_{2.5} (particularly at schools within the vicinity of AQMAs) within their jurisdiction, which is commended. Links are provided and discussed regarding the Public Health Outcomes Framework and fraction of mortality attributable to PM_{2.5} emissions, which is welcomed. Comparisons to the regional and national average would be beneficial to include in future reports.
7. Reference is also made to the PM_{2.5} Defra Background Maps, which is welcomed, however these have been referenced incorrectly. The 2018 base year is the latest available (rather than 2017, as stated in the ASR) and these can be used to determine the maximum modelled background concentrations of PM_{2.5} for the current year, which is not clear in the report. This should be amended in future ASRs.
8. Sufficient detail is included in the QA/QC procedures for both the automatic analyser and the NO₂ diffusion tubes. Calculations for local bias adjustment and annualisation are outlined in detail. Distance correction was not required. Data showing the choice of bias adjustment factors for previous years, and discussion around the choice to apply the local factor this year, has been included. Derivation of and a direct comparison against the national factor has not been demonstrated. It would be beneficial to include this in future reports. A figure showing the national bias adjustment factor determination would be welcomed.
9. The laboratory and analysis method for the 2021 diffusion tubes is not specified in the report and the council have not discussed whether the diffusion tubes were deployed in line with the Defra calendar dates during 2021. This information should be included within all future reports.
10. The Council have provided mapping of their automatic and diffusion tube monitoring network in relation to their AQMAs, however this is labelled with site IDs that do not correlate with those in the results tables. This should be amended in future reports.

11. The council have included detailed trend graphs, which is commendable. However, graphs appear to only be included for monitoring sites that are within the AQMAs. In future years, it is recommended that the Council also include another graph to present trends at the monitoring locations outside of the AQMAs.
12. The Council has included a discussion and review of its AQMAs, which is well-informed due to its monitoring network. Total revocation of both AQMAs has been considered and a decision has been made to keep these in place for now. This is supplemented by commentary around compliance data through 2020 - 2021 likely having been affected by COVID-19 restrictions. This is accepted, and if further years of compliance with the relevant objectives are monitored, full revocation of both AQMAs should be considered.
13. The Council has taken forward a number of important measures during 2021 and the progress being made on other measures is detailed, which is commendable. However, some information for certain measures is missing within Table 2.2. This should be provided, where possible, in future reports.
14. The continual collaborative approach that West Berkshire Council is taking with the Public Protection Partnership is commended.
15. Table 2.1 does not state the year the most recent Air Quality Action Plan (AQAP) was published, nor is this discussed anywhere else in the report. It is noted that the latest AQAP for both AQMAs appears to have been published on the council's website in 2011. The Environment Act requires that a local authority must, for the purpose of achieving AQOs in an AQMA designated by that authority, prepare an action plan in relation to that area. The Act also requires that Action Plans be periodically reviewed. While no time limit is explicitly set within the Act, ideally this is expected to occur no later than every five years. It is recommended that the Council follow this guidance.

West Berkshire Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 15 measures are included within Table 2.2, with the type of measure and the progress West Berkshire Council have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans.

- Further A339 Bear Lane (Sainsbury's roundabout) improvement works to enable improved traffic flow have been completed and traffic lights were decided against at the nearby St Johns Road roundabout following the modelling impact results. The results of the impact for the changes will not be available until the 2023/2024 reports as we will due to technical difficulties with the traffic counter.
- Bio-Gas Buses pass through the District, as they run from Newbury from Reading which has strict Air Quality standards, this in turn benefits West Berkshire.
- The car club is run by enterprise cars and you can book via this link. [Hire a Pay-as-you-go Car in Newbury \(Car Club\) - West Berkshire Council](#)
- Many electric trains are now running through the District and in December 2019 there was a change to the timetable. As a result, the Thatcham Level crossing is being monitored by the Transport Policy Team to investigate the knock-on effect of those changes, and will continue through 2022.
- Active work on the reduction of HGVs through Newbury with the erection of Positive Signage in 2019/20 to influence the travel direction of the freight and greater use of the bypass, a count id being conducted to see if this has worked.
- Further walking, running and cycling groups such as Let's Ride, Run Together and Walking for Health (led walks across West Berkshire) have been set up to provide activities for beginners, mental health groups and other interested parties.
- In 2022 we have 36 Electric vehicle (EV) charging points installed in West Berkshire. We are increasing these when new Council car parks are being built or supermarkets planned for. The EV chargers are all plotted on the council's web page <https://info.westberks.gov.uk/onstreetev>
- National Cycle Network 422 expansion – A4 Newbury to Thatcham and on to Calcot was completed in 2019, and continues to be popular, even more so since lockdown. This provision of improved cycle ways through the Thatcham AQMA, and potentially linking Newbury to Legoland, Windsor <https://osmaps.ordnancesurvey.co.uk/51.40608,-1.41302,10>,
- Pedestrian and cyclist directional signage project commenced in 2018/19 and is continued throughout 2022 to promote and improve walking and cycling facilities.

- Cycle parking – improvements to existing facilities and introduction of new ones began and continues in schools into 2022.
- Our social media pages are also very active with AQ hints and tips on anti-idling, monitoring and competitions.

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

Newbury

- New station/Council offices car park at Market Street.
- Improvements to the capacity of Robin Hood Roundabout (subject to external funding).
- A4 cycle track, further improvements.
- A339 Sandford, create junction for new school and future housing development.
- Start construction of Kings Road Link Road (due to be completed 2023).
- Further on-street EV charge points throughout the borough.
- New EV charge points in car parks, locations to be confirmed.
- Investment in cycle parking at schools.

Thatcham

- Further development of A4 cycle route.
- Optimisation of traffic signal timings on A4.
- On-street electric vehicle charge points.

Theale

- On-street electric vehicle charge points.

Pangbourne

- On-street electric vehicle charge points.

District wide

- Clean Air Day in June 2023 to increase awareness and promote health, and anti-idling. We have asked all schools in West Berkshire to sign up to an air quality pledge that will share the anti-idling information that will be sent to them with the children and their carers which transport them to school each day.

West Berkshire's priorities for the coming year are

- Continue to review the impact of planning applications and implement Air Quality conditions on major planning applications where relevant.

- Joint working between Public Health England and the Public Protection Partnership (<https://publicprotectionpartnership.org.uk/>) and links within the Berkshire Public Health Shared Team.
- Continuing to work within the unitary authority with Transport Policy and Highways Teams as well as Development Control.
- Carry on the continuous and passive air quality monitoring programmes.
- Establish the feasibility of monitoring PM_{2.5}, as this be required through the Environment Act 2021.
- Continue to monitor schools for NO₂ nearest to the AQMA through our DEFRA Grant.
- Bikeability classes for year 5 in Primary Schools to encourage safe cycling and to give them confidence.
- Continue the School Street Programme, which will continue to achieve:
 - Cut down on traffic and parking pressures outside schools.
 - Discourage car journeys to school and encourage walking and cycling.
 - Make the street outside schools safer at the start and end of the day.
 - Improve air quality and create a more pleasant environment for everyone.
 - <https://info.westberks.gov.uk/school-streets>

West Berkshire's priorities for the coming year are to continue monitoring the air quality levels through-out the district, run the DEFRA Grant campaign and to work with other agencies to help improve the air quality.

The principal anticipated challenges and barriers to implementation for West Berkshire include lack of funding and resources.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Variable message Signing (VMS) linked to Newbury car Park System	Traffic Management	Other	2011	2011-14	WBC	WBC	NO	Funded	£500k - £1 million	Completed	Negligible	Car park usage	Installed as part of Parkway opening spring 2012	Car Parks team feedback that the signs are invaluable at directing traffic to available parking especially at busy times. Queuing has reduced at entrances. They also note that there are an increased number of parking spaces available so this may have helped reduce queuing also.
2	Study into signalling junction at Burger King Roundabout	Traffic Management	UTC, Congestion management, traffic reduction	2019	Summer 2019	WBC	WBC	NO	Funded	< £10k	Completed	15 ug/m3 (based on 2008 data)	Reduction in queuing time and congestion within AQMA and reduction in NO2 and emission levels	Surveys ordered March 2017 and model to be completed late 2017. Model indicates some benefit to replacing the roundabout with a traffic signal controlled crossroads. No budget is currently in place to deliver such a project, but could be delivered in conjunction with the Sandleford development if funding becomes available.	Decision has been made not to take any further action at this time.
3	Amendments to Bear Lane (Sainsbury's) Junction of A339, as this junction can impact on A343 Greenham Road Junction	Traffic Management	UTC, Congestion management, traffic reduction	2012	2019	WBC	WBC	NO	Funded	£1 million - £10 million	Completed	15 ug/m3 (based on 2008 data)	Queuing time and congestion close to AQMA and reduction in NO2 levels	Complete. Changes to roundabout being looked at along with Bear Lane by WBC consultants - see new action. Sainsbury's roundabout, Cheap Street and Market Street have been redesigned to re-route traffic and improve flow. Work to begin January 2019.	Results regarding the AQ impact will not be available until 2024 report, due to traffic data issues.
4	Improved local bus services to reduce short car journeys	Transport Planning and Infrastructure	Bus route improvements	2015	2016	WBC	WBC	NO	Funded	£1 million - £10 million	Implementation	Negligible	Increase in no. of passenger journeys	Capital works - Complete. New developer-funded bus service - starting May 2016	Ongoing monitoring of passenger journeys. Also improvements to Reading Buses fleet to alternative fuels (gas).

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
															We are on the Reading buses network and they require strict standards.
5	Smarter Choices(1) Investigate the feasibility of a district wide car share scheme	Alternatives to private vehicle use	Car Clubs	2012	2015	WBC	WBC	NO	Not Funded	£500k - £1 million	Completed	Negligible	No. of car share cars and their usage	Works commenced	Complete: District wide car sharing isn't feasible - a focus on location journeys instead- see (3).
6	Smarter Choices(2) Investigate the feasibility of a car club for Newbury and Thatcham area (Racecourse)	Alternatives to private vehicle use	Car Clubs	2012	2016	WBC	WBC	NO	Not Funded	>£10K	Implementation	Negligible	No. of car share cars and their usage	5 Car Newbury scheme was launched in 2016 in partnership with Co-wheels. One of the vehicles is electric. Usage is growing year on year.	2016/17 Public launch, promoting & monitoring uptake. Data will be available on number of members, vehicle usage, number of miles, trips etc. Greater promotion is desired but in 2019 the car club use continued to increase. There is promotion with a short film focused on using the electric car. As at the end of 2019, the car club had 103 Members. The car with the highest use had 374 bookings in 2019. Changed to Enterprise Car Club Hire a Pay-as-you-go Car in Newbury (Car Club) - West Berkshire Council
7	Smarter Choices(3) Promote Car sharing opportunities within the district	Alternatives to private vehicle use	Car Clubs	2012	2032	WBC	WBC	NO	Partially Funded	>£10k	Implementation	Negligible	No. of car share cars and their usage	West Berkshire Council FAXI car share/cycling & walking partner website being promoted (44 registered as of 9/3/16) and dedicated Council Car share bays (24 registered users).Car sharing within locally situated schools had been explored but wasn't a great deal of interest. AWE had invested heavily in car sharing and have their own internal system.	Number of people registered and their locations and journey type. FAXI car sharing focused around Newbury Town Centre. Opportunity for greater up take. AWE car share still on going.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
8	Electrification of Newbury to Reading railway line	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2017	2018	Network Rail	Network Rail	NO	Not Funded	Network Rail	Completed	Negligible. Some air pollution reductions in and around major urban train stations along route as diesel trains are replaced.	Increased reliability of services and increase passenger usage	Boundary Road bridge over railway line due be carried out in 13/14, NR required to raise bridge due to electrification but there are issues re-sighting. Works have completed on many bridges. Boundary Road Bridge work began in 2015, due for completion Jan 17.). Electric trains started running on Newbury to Reading local services in Jan 2019. London to Bedwyn and London to West Country Services will run on electric power as far as Newbury and then switch to diesel.	Hendy Review is likely to result in any decision to electrify the Berks and Hants line to the west of Newbury being delayed beyond the end of Network Rail Control Period 6 (2019-2024). Electric trains are all running. In December 2019 there was a change to the time table. Thatcham level crossing has been monitored in terms of the knock-on impact of the new timetable on congestion around the station.
9	Supplementary Planning Document for AQ	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2019	2022	WBC	WBC	NO	Not Funded	<£10K	Implementation	negligible	Reduce reliance of car in new development. Us of s106 funds	Planning and Air quality document drafted and due to be launched in 2019. No current Supplementary Planning Document.	Proposed emissions from large scale developments more quantifiable than from small scale.
10	Reduction of HDVs using A339 through Newbury	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2017	2018	WBC	WBC	NO	Not Funded	< £10k	Implementation	links with 15 ug/m3(based on 2008 data)	Reduction in HDV journeys along this section of road network and decrease in NO2 levels measured.	Freight Strategy review commenced 2013. Discussions by WBC with HCC held. Options paper to TPTG Jan 15, recommending positive signage at a cost of £15-20k on the local network and £20-30k per sign on the A34. WBC can only really influence northbound traffic from the Swan Roundabout. Freight Route Network Maps had recently been updated- purely advisory. Direction signs now in place northbound to encourage greater use of the bypass by HGVs.	Completed signs are up.
11	Electric charging points	Promoting Low	Procuring alternative Refuelling	2015	2023	Wbc	WBC	NO	Not Funded	>£500K	Implementation	negligible	Use of charging points.	(1) Successful OLEV grant to install charge points on	(1) Council charge points installed for WBC use at Kennet Centre (Mar 13)

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
		Emission Transport	infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel										Increase in EV ownership and use of/demand for (public) charge points	<p>WBC land 2013-15. (2) Ecotricity Rapid charge points installed at motorway service stations.</p> <p>(3) Agreement by FGW to install at Aldermaston and Theale stations.</p> <p>(4) EV Residential Guidance included in the WBC Residential Parking Guidance</p> <p>(5) ULEV Readiness Programme</p> <p>(6) ULEV Strategy proposed</p> <p>(7) Promoting EV Vehicles. A contract has been let to install charge points on the highway in residential areas. Funded by OLEV grant.</p> <p>EV charge points in car parks: Electric Vehicle Charging Points in Car Parks - West Berkshire Council</p> <p>On street charge points: On-street Residents Electric Car Charge Points - West Berkshire Council</p>	<p>and Ampere Road, Newbury (Mar 14) under OLEV Public Sector charging scheme. (2) Run by Ecotricity, data on use not readily available.</p> <p>(3) Once installed, unlikely to have readily available data on use.</p> <p>(4). EVCP to be considered at all residential developments, as a minimum infrastructure enabling installation of EVCP at a later date.</p> <p>(5) Successful Bid for OLEV funding (Aug 15). For 2 further charge points, installed at Kennet Centre Newbury and 1 at Wokingham for the Joint EH&L Service use (Mar 16). 3 EV vans and 2 EV Cars have been procured, awaiting delivery Mar 16.</p> <p>(6) ULEV Strategy began by TP, for Transport Vision and revised LTP.</p> <p>(7) Support of EV-ENT held by WB Green Exchange in May 2016. 2 electric cars provided with Public Protection Service for work use.</p>
12	Health Education	Public Information	Other	2012	2032	WBC/PH	WBC/PH	NO	Not Funded	< £10k	Implementation	Decrease in hospital admissions from asthma. Increase in walking and cycling.	Healthier residents	<p>Completed: The specific project mentioned affecting 5,000 households is complete. The survey of results indicated a shift towards more sustainable travel journeys, with 24% of respondents walking more often, and 10% using the bus more regularly, and an 8% increase in cycling. More importantly, 15% of respondents stated that they now made fewer single</p>	<p>Business and school travel planning. Travel Planning activity is supported at schools close to AQMA and a review of success of various initiatives will help to refocus and deliver more targeted interventions going forward. Businesses are encouraged to engage with Travel Planning and will be able to link in with the Liftshare scheme once it is rolled out to AQMA areas during 2023.</p>

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
														occupancy car journeys. DEFRA funding to discuss Idling and health links in 2022.	
13	National Cycle Route (Newbury to Legoland)	Promoting Travel Alternatives	Promotion of cycling	2017	2019	WBC	WBC	NO	Not Funded	£1 million - £10 million	Completed	Negligible	Cycleway usage	WSP commissioned to undertake a wider feasibility into the proposal. Business Case submitted to the TV LEP. The LEP awarded the funds to the scheme in December 2015. The proposed funding for the scheme is £5.5million, with £4.2m from the LEP. West Berkshire has committed a further £100,000 via funds from the annual Capital budget. Other funds and monies will be combined to further support the route, such as developer contributions. Cycle facilities have been improved on the A4 between Newbury and Thatcham. Further improvements planned during 2019-2020.	2016/17 Survey & Planning, 2017/18 & 2018/19 .On-site works NCN Route 422 is the indicative route title for a National Cycle Route potentially linking Newbury through to Ascot and Windsor 2020 objectives have been delivered.
14	Park and Ride	Alternatives to private vehicle use	Bus based Park & Ride	2011	2011	WBC	WBC	NO	Not Funded	n/a	Aborted	Negligible	Reduce emissions within the town centre by reducing the number of cars and congestion.	P&R proposal rejected by TPTG July 2011 due to cost and unsuitability of Newbury.	Closed – not to be carried out.
15	Cycle lane on A343 St Johns Road between Burger King Roundabout and St Johns Roundabout	Transport Planning and Infrastructure	Cycle network	2012	2015	WBC	WBC	NO	Not Funded	£1 million - £10 million	Completed	Negligible	Reduction in car journeys along this section of road network and decrease in NO2 levels measured	Implemented	Completed. Part of Cycle way improvement programme for 2011/12. Approx £100k per annum (£50k capital grant & £50k Developer Contributions (S106)

PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations

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

The latest PM_{2.5} data available (2018) from DEFRA show that West Berkshire Council has a maximum level of 10.78 µg/m³ (co-ordinates x 477500 y171500), and the average level of 9.22 µg/m³. [Background Mapping data for local authorities - 2018 - Defra, UK](#). Figure 1.2 below shows that 0.81% of PM_{2.5} is produced by Road & Transport, the other 99.19% is from other factors.

The fraction of mortality attributable to particulate air pollution indicator' value for West Berkshire Council and other Local Authorities within Berkshire, can be seen in Table 2.3.

Table 2.3: Showing the Fraction of Mortality attributable to particulate air pollution indicator value within Berkshire.

National England Average	South East Region	West Berkshire	Reading	Wokingham	Bracknell Forest	Windsor & Maidenhead	Slough
5.5%	5.4%	5.4%	5.9%	5.9%	5.9%	5.9%	6.3%

([Public health profiles - OHID \(phe.org.uk\)](#))

West Berkshire is taking the following measures to address PM_{2.5}:

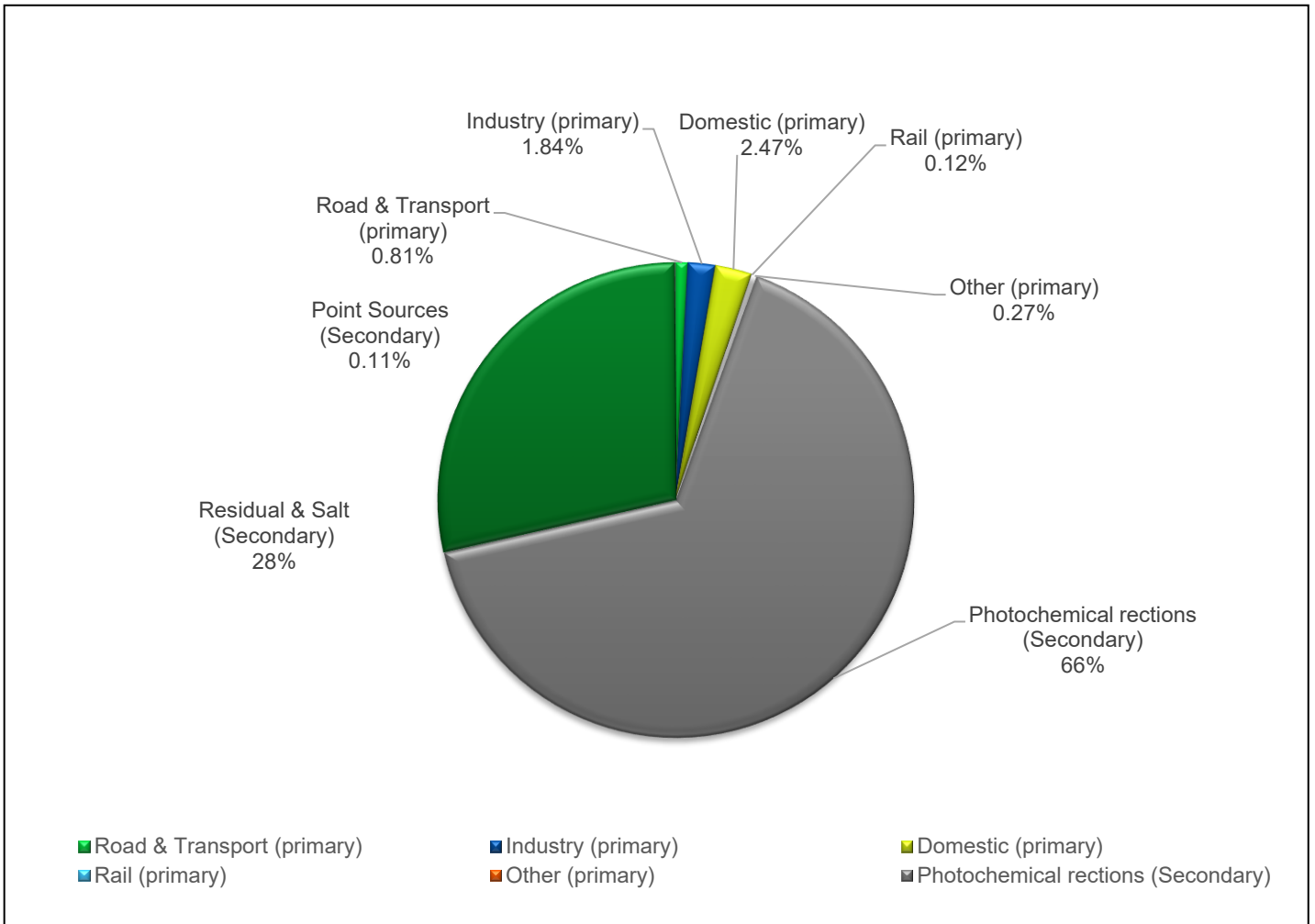
- The link of the Health and Wellbeing Strategy, Public Health Service Plan and the Public Health Action Plan include many actions to increase walking and cycling in order to encourage and increase active travel, to reduce obesity and inactivity. <https://info.westberks.gov.uk/wfh>
- Joint working between Public Health and Environmental Health teams for air quality will consider in detail how West Berkshire will explore the impact on PM_{2.5} throughout the

district and how it may be reduced. The results will be linked to the Public Health Outcomes Framework. It is likely that a marketing plan will be set up to raise awareness of how air quality can be improved by active travel and the uptake of electric vehicles.

- Work on implementing the actions in the Local Transport Plan and the Local Development Framework Core Strategy. For example, a new housing development might contribute to alterations to nearby junctions to increase capacity whilst also improving cycle and pedestrian links, provision of electric vehicle charging infrastructure, contributing to bus services so that the site is served by public transport and linking many other measures together in a site travel plan to encourage people to choose sustainable travel.
- A fresh policy is being used to assess residential developments in West Berkshire. The policy has been in use since 2016 when it was at an advanced stage of development and has since been formally adopted (9th May 2017) so it will continue to be used into the future.
- The new policy 'Policy P1: Residential Parking for New Development' has the following advantages for addressing sustainable travel, therefore less traffic. <https://info.westberks.gov.uk/CHttpHandler.ashx?id=45231&p=0>. It brings down the threshold for when residential travel plans will be required from 50 dwellings for more urban areas and 80 dwellings for areas with more rural characteristics. This means there is more emphasis on encouraging walking, cycling, public transport and car sharing / car clubs for forthcoming developments than previously across the District.
- There is a requirement for new residential developments to install electric charging points, or at least the basic infrastructure, to enable them to be fitted at a later date. Before, this was simply encouraged by officers on larger developments but now it is part of the policy against which applications are assessed. In 2019 31 Electric vehicle (EV) charging points were installed in West Berkshire, the EV chargers are all plotted on the council's web page <https://info.westberks.gov.uk/onstreetev>
- The Council's 'Cycling and Motorcycling Advice and Standards for New Development' is also now embedded within the policy so that appropriate cycle parking provision is included in the plans for new residential developments. This will support the encouragement of greater cycling across the district. <https://osmaps.ordnancesurvey.co.uk/51.40608,-1.41302,10>,

- Pedestrian and cyclist directional signage – this project commenced in 2018/19 to improve walking and cycling facilities and promotion
- Cycle parking – improvements to existing facilities and introduction of new ones began and continues in schools into 2023.
- Clean Air Day 2023 in June to help raise awareness and asking Schools send details to the parents regarding idling and how to stop it! If they pledge to do this then they will get a certificate.
- The Public Protection Partnership has been awarded the DEFRA AQ Grant (£259k) to measure into the PM_{2.5} of the schools located near the AQMA, and to ascertain what mitigation measures can be taken to each specific site to help them achieve the National AQ Objectives. We will also be carrying out behaviour change anti-idling campaigns throughout the whole of the borough in 2023. We will be looking at site specific signage different areas e.g. taxi ranks, school areas, commuter traffic, day trippers and more.

Table 2.4. A pie chart showing both the Primary and Secondary sources of PM_{2.5}



<https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2017>

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

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

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

West Berkshire Council undertook automatic (continuous) monitoring at 1 sites during 2022 Table A.1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

West Berkshire Council undertook non- automatic (i.e. passive) monitoring of NO₂ at 36 sites during 2022 Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided 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.

Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.1.3 Nitrogen Dioxide (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

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

Figure A.5 – Trends in Annual Mean NO₂ Concentrations within wider West Berkshire district (outside AQMA)

Table A.5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

3.1.4 Newbury Continuous Monitor (NO₂)

The annual data capture at a rate was 84.6% this was due to an instrument error from the 16th August to 3rd October 2022, due to a faulty ambient pressure sensor causing occasional zero flow resulting in a lower than zero NO reading.

For 2022 there were no exceedance of the annual 1 Hourly Objective (200µg/m³ not to be exceeded more than 18 times per year).

The ratified continuous monitored NO₂ annual mean did not exceed the objective with a year on year reduction from 26.2 µg/m³ in 2022 compared to 27.5 µg/m³ in 2021, 29.2 µg/m³ in 2020, 35.9 µg/m³ in 2019 and 36.4 µg/m³ in 2018. The concentrations were lower in 2021 and 2020 on the A339 due to the pandemic, however this reduction trend is continuing and the 2022 results show that new ways of hybrid working may be adding to the reduction on NO₂ along with the newer greener electric vehicles on the road.

The monthly average of NO₂ level was lower in 2022 than 2021 from April to July and during October and November.

NO₂ Diffusion Tube Data

3.1.5 Newbury AQMA

There are five diffusion tubes within the Newbury AQMA and three within proximity (see Map D.4). There were no exceedances of the Air Quality Objectives (40.0µg/m³) for the diffusion tubes within the AQMA. In 2022 four of the locations decreased in NO₂ compared to that of 2021. These locations were 1 Winchester Court (decreased from 26.0µg/m³ in 2022 from 27.1µg/m³ in 2021), 3 Howard Road (decreased from 13.6µg/m³ in 2022 from 16.2µg/m³ in 2021), 1 St Johns Road (decreased from 21.0µg/m³ in 2022 from 22.5µg/m³ in 2021). The Newbury Gardens Day Nursery (decreased from 18.6µg/m³ in 2021 to 16.1µg/m³ in 2022). Only one site has increased, 63 St John's Road, from 17.2µg/m³ in 2021 to 19.9µg/m³ in 2022.

The highest levels of NO₂ in this AQMA were recorded at the continuous monitor (see Map D.3) and the Annual Mean Objective was met, measuring 26.6µg/m³ NO₂, which has decreased continually over the past five years from 37.1µg/m³ in 2018. (See Figure A.1) the 2022 co-located study (diffusion tubes) measured 27.6µg/m³ in 2022.

If there continues to be no exceedances in the AQMA in the 2024 and 2025 ASR (omitting 2020 and 2021 data due to Covid-19 lockdown West Berkshire may be recommending to DEFRA that the Newbury AQMA is revoked as we will have continual evidence that the NO₂ is below the Annual Mean Objective of 40.0µg/m³. Monitoring within and outside this AQMA will continue in 2023 and until the AQMA is revoked.

3.1.6 Thatcham AQMA

There are 5 diffusion tube sites (see Map D.7) within the Thatcham AQMA and two within close proximity. For the last five years the results have shown a year on year decrease of the NO₂ Annual Mean Objective within the AQMA. Only two sites increased in NO₂ this years, and remaining three decreased.

The highest levels of NO₂ in this AQMA were recorded at 17 Chapel Street with 29.0µg/m³ and the levels did not exceed the Annual Mean Objective. The site has showed a decrease from 36.0µg/m³ in 2018 to 29.0µg/m³ in 2022. However this year the site has increased from 26.5µg/m³ in 2021 to 29.0µg/m³ in 2022 (Figure A.2). The only other site to have increased in NO₂ in 2022 was 40 Chapel Street (2022 in 23.3µg/m³ from 23.1µg/m³ in 2021).

The three remaining sites have all decreased in NO₂, 31 Chapel Street, (22.9µg/m³ 2022 from 25.6µg/m³ 2021), 75 Chapel Street (19.3µg/m³ 2022 from 18.9µg/m³ 2021) and 130 Park Avenue (15.3µg/m³ 2022 from 14.6µg/m³ 2021).

If there continues to be no exceedances in the AQMA in the 2024 and 2025 ASR (omitting 2020/21 due to Covid-19 lockdown) West Berkshire will consider recommending to DEFRA that the Thatcham AQMA is revoked if we have continual evidence that the NO₂ is below the Annual Mean Objective of 40.0µg/m³.

Monitoring within and outside this AQMA will continue in 2023 and until the AQMA is revoked.

3.1.7 Sites outside the AQMA (NO₂)

Overall, throughout the whole district, only 15 of the 2022 sites showed an increase in NO₂ levels compared to 2021, and 19 showed a decrease. All of the 2022 increased levels remain below the Annual Mean Objective (40µg/m³).

The 9 sites which increased in NO₂ and are not in the AQMA's are:

- ❖ A339 Newbury Central (increased from 27.6µg/m³ in 2021 to 27.9µg/m³ in 2022),
- ❖ Old Bakery, Tidmarsh (increased from 20.6µg/m³ in 2021 to 21.1µg/m³ in 2022),
- ❖ The Cross Key Inn, Pangbourne (increased from 22.5µg/m³ in 2021 to 30.3µg/m³ in 2022),
- ❖ Elizabeth Court, Theale (increased from 14.5µg/m³ in 2021 to 16.5µg/m³ in 2022).
- ❖ 374 London Road, Newbury (increased from 16.7µg/m³ in 2021 to 16.8µg/m³ in 2022).
- ❖ Calcot School (increased from 11.3µg/m³ in 2021 to 12.1µg/m³ in 2022).
- ❖ Westwood Farm School (increased from 9.8µg/m³ in 2021 to 10.7µg/m³ in 2022).
- ❖ Streatley (increased from 20.1µg/m³ in 2021 to 20.5µg/m³ in 2022).
- ❖ 55 Station Road/near Canal, Woolhampton (increased from 8.2µg/m³ in 2021 to 8.8µg/m³ in 2022).

Due to the low levels achieved at Calcot School, and Westwood Farm School these location have been decommissioned and for 2023 a new site was set up in Speen.

The traffic counter on the A340 Tidmarsh has shown that the daily traffic average traffic in 2022 has stayed very similar to that in 2021. With 11,882 vehicles in 2022 from 11,439 in 2021. However, the 2022 daily averages are not as high as the 2019 yet at 12,959 vehicles. Therefore, the increase of NO₂ at the Old Bakery, Tidmarsh and Cross Keys Inn may not be due to the increase of traffic on the roads. It may be due to other factors such as roads works creating queues, or vehicles parking and idling next to the tube locations.

The traffic counter on the A4 Calcot has shown that the daily traffic average traffic has decreased in 2022 to 31145 from 32,368 in 2021. The 2022 daily averages are still not as high as the 2019 yet at 33,356. The monitoring site which measures the A4 is the Calcot Hotel, and the NO₂ reduced this year from 24.5 µg/m³ in 2021 to 24.0 µg/m³ in 2022.

There were no results greater than 60µg/m³, which indicates no exceedance of the 1-hour Mean Objective.

3.1.8 Particulate Matter (PM₁₀)

There is currently no reference data being collected for PM_{2.5}, options are being looked into for the future.

3.1.9 Particulate Matter (PM_{2.5})

There is currently no reference data being collected for PM_{2.5}, options are being looked into for the future.

3.1.10 Sulphur Dioxide (SO₂)

DEFRA does not require West Berkshire to monitor the SO₂

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
CM1 Newbury	Roadside	477407	166560	NO2	YES Newbury AQMA	Chemiluminescent	1	4.7	1.8	2

Notes:

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

(2) N/A if not applicable

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
40 Chapel Street Thatcham 3	40 Chapel Street Thatcham 3	Kerbside	451926	167460	NO2	Thatcham AQMA	0.0	3.5	No	2.2
31 Chapel Street Thatcham	31 Chapel Street Thatcham	Roadside	451906	167441	NO2	Thatcham AQMA	0.0	1.6	No	2.1
17 Chapel Street Thatcham 1	17 Chapel Street Thatcham 1	Roadside	451870	167438	NO2	Thatcham AQMA	0.0	3.5	No	2.4
44 Hambridge Road Newbury	44 Hambridge Road Newbury	Urban Background	448129	166909	NO2	No	0.0	4.3	No	2.4
A339(64) Greenham Road Newbury	A339(64) Greenham Road Newbury	Roadside	447448	166454	NO2	Newbury AQMA	12.0	2.0	No	2.5
1 Winchester Court Newbury	1 Winchester Court Newbury	Roadside	447411	166562	NO2	Newbury AQMA	0.0	5.0	No	2.2
Newbury Gardens Day Nursery	Newbury Gardens Day Nursery	Suburban	447352	166619	NO2	Newbury AQMA	0.0	7.0	No	3.0
20 Deadmans Lane Greenham	20 Deadmans Lane Greenham	Suburban	447515	164720	NO2	No	0.0	10.5	No	2.0
A343 Andover Rd(Parkhouse School)	A343 Andover Rd(Parkhouse School)	Kerbside	445899	164705	NO2	No	18.1	0.8	No	2.1
Abbeydale Monks Lane Newbury	Abbeydale Monks Lane Newbury	Kerbside	446921	165303	NO2	No	21.0	2.0	No	2.3
3 Howard Road Newbury	3 Howard Road Newbury	Roadside	447406	166445	NO2	Newbury AQMA	0.0	11.0	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
63 St Johns Road Newbury	63 St Johns Road Newbury	Urban Background	447380	166533	NO2	Newbury AQMA	0.0	6.2	No	2.6
1 St Johns Road Newbury	1 St Johns Road Newbury	Roadside	447036	166436	NO2	Newbury AQMA	0.0	4.8	No	2.2
7a Bridge Street Hungerford	7a Bridge Street Hungerford	Roadside	433909	168815	NO2	No	0.0	1.5	No	2.3
43 Hawthorn Road Newbury	43 Hawthorn Road Newbury	Urban Background	447478	167868	NO2	No	0.0	13.0	No	2.7
6 Market Place Newbury	6 Market Place Newbury	Urban Centre	447202	167020	NO2	No	9.5	1.3	No	2.2
42 Kings Road Newbury	42 Kings Road Newbury	Roadside	447434	166993	NO2	No	0.0	11.3	No	2.1
40 Bartholomew Street Newbury	40 Bartholomew Street Newbury	Roadside	446939	166848	NO2	No	0.0	2.7	No	1.9
31 Shaw Road Newbury	31 Shaw Road Newbury	Kerbside	447693	167820	NO2	No	0.0	0.6	No	2.2
13 Shaw Road Newbury	13 Shaw Road Newbury	Urban Background	447632	167774	NO2	No	0.0	7.0	No	1.7
132 London Road Newbury	132 London Road Newbury	Roadside	447720	167678	NO2	No	0.0	3.0	No	2.4
A339 Newbury Central	A339 Newbury Central	Kerbside	447454	167296	NO2	No	204.0	4.0	No	2.6
374 London Road Newbury	374 London Road Newbury	Urban Background	449034	167520	NO2	No	0.0	12.5	No	2.3
Old Bakery Tidmarsh	Old Bakery Tidmarsh	Roadside	463504	174864	NO2	No	0.0	2.2	No	2.1

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
The Cross Key Inn Pangbourne	The Cross Key Inn Pangbourne	Roadside	463468	176433	NO2	No	0.0	4.0	No	1.9
4 Willows Court Pangbourne	4 Willows Court Pangbourne	Roadside	463441	176522	NO2	No	0.0	3.0	No	2.6
Calcot Hotel	Calcot Hotel	Kerbside	466293	171863	NO2	No	16.0	2.0	No	2.3
Elizabeth Court Theale	Elizabeth Court Theale	Urban Background	464574	171294	NO2	No	0.0	32.0	No	2.3
75 Chapel Street Thatcham	75 Chapel Street Thatcham	Roadside	452288	167445	NO2	Thatcham AQMA	0.0	3.4	No	2.0
130 Park Avenue Thatcham	130 Park Avenue Thatcham	Roadside	451965	167498	NO2	Thatcham AQMA	7.0	2.0	No	2.2
Calcot School	Calcot School	Roadside	466044	171996	NO2	No	0	2.0	No	2.0
Westwood Farm School	Westwood Farm School	Kerbside	466515	175348	NO2	No	2.0	1.5	No	2.1
Streatley	Streatley	Roadside	459202	180749	NO2	No	0	1.5	No	2.2
Near Canal / 55 Station Road	Near Canal / 55 Station Road	Kerbside	457291	166573	NO2	No	0	0.5	No	2.2
1 Kingfisher Court Pangbourne	1 Kingfisher Court Pangbourne	Roadside	463551	176623	NO2	No	0	2.0	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
Continuous Monitor 1, A343, A339 and Greenham Road Newbury	Continuous Monitor 1, A343, A339 and Greenham Road Newbury	Roadside	447410	166561	NO2	Newbury AQMA	0.0	5.0	Yes	2.0

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
CM1	477407	166560	Roadside	100	84.6	36	35.9	29.2	27.5	26.2

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

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

Notes:

The annual mean concentrations are presented as µg/m³.

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

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

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

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

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

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
40 Chapel Street Thatcham 3	451926	167460	Kerbside	92.6	100.0	18.3	19.4	18.0	23.1	23.3
31 Chapel Street Thatcham	451906	167441	Roadside	100.0	100.0	31.8	28.6	27.7	25.6	22.9
17 Chapel Street Thatcham 1	451870	167438	Roadside	50.1	100.0	36.0	31.7	27.7	26.5	25.6
44 Hambridge Road Newbury	448129	166909	Urban Background	100.0	100.0	31.4	31.6	29.5	20.1	19.1
A339(64) Greenham Road Newbury	447448	166454	Roadside	90.6	100.0	26.0	24.1	22.3	21.2	23.5
1 Winchester Court Newbury	447411	166562	Roadside	75.8	100.0	26.2	29.9	26.6	27.1	26.0
Newbury Gardens Day Nursery	447352	166619	Suburban	100.0	100.0	36.0	32.7	29.8	18.6	16.1
20 Deadmans Lane Greenham	447515	164720	Suburban	83.7	100.0		19.6	18.2	15.7	15.2
A343 Andover Rd(Parkhouse School)	445899	164705	Kerbside	73.6	100.0	23.0	20.2	19.4	13.0	11.0
Abbeydale Monks Lane Newbury	446921	165303	Kerbside	81.8	100.0	14.2	15.5	13.1	14.7	14.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
3 Howard Road Newbury	447406	166445	Roadside	92.6	100.0	15.4	19.9	15.2	16.2	13.6
63 St Johns Road Newbury	447380	166533	Urban Background	92.3	100.0	22.0	18.6	15.4	17.2	19.9
1 St Johns Road Newbury	447036	166436	Roadside	100.0	100.0	25.0	22.4	16.7	22.5	21.0
7a Bridge Street Hungerford	433909	168815	Roadside	90.1	100.0	31.0	26.8	22.1	18.5	17.4
43 Hawthorn Road Newbury	447478	167868	Urban Background	100.0	100.0	26.0	23.1	21.0	15.1	14.3
6 Market Place Newbury	447202	167020	Urban Centre	82.6	100.0	21.0	18.5	16.3	19.0	18.7
42 Kings Road Newbury	447434	166993	Roadside	90.1	100.0	24.9	26.0	20.8	16.3	15.7
40 Bartholomew Street Newbury	446939	166848	Roadside	84.6	100.0	23.0	20.3	18.9	22.8	21.8
31 Shaw Road Newbury	447693	167820	Kerbside	100.0	100.0	29.0	27.4	23.3	21.9	20.0
13 Shaw Road Newbury	447632	167774	Urban Background	100.0	100.0	28.0	25.6	25.6	21.9	21.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
132 London Road Newbury	447720	167678	Roadside	85.1	100.0	30.0	26.5	25.6	25.7	23.6
A339 Newbury Central	447454	167296	Kerbside	100.0	100.0	32.0	28.1	25.1	27.6	27.9
374 London Road Newbury	449034	167520	Urban Background	90.6	100.0	29.4	29.9	30.6	16.7	16.8
Old Bakery Tidmarsh	463504	174864	Roadside	90.6	100.0	23.0	22.1	18.1	20.6	21.1
The Cross Key Inn Pangbourne	463468	176433	Roadside	80.7	100.0	29.0	29.5	20.9	22.5	25.9
4 Willows Court Pangbourne	463441	176522	Roadside	92.6	100.0	34.0	29.6	26.2	18.7	18.4
Calcot Hotel	466293	171863	Kerbside	100.0	100.0	28.0	24.8	20.5	24.5	24.0
Elizabeth Court Theale	464574	171294	Urban Background	100.0	100.0	19.3	28.4	25.6	14.6	16.5
75 Chapel Street Thatcham	452288	167445	Roadside	100.0	100.0	22.0	20.3	18.3	19.3	18.9
130 Park Avenue Thatcham	451965	167498	Roadside	90.1	100.0	28.0	22.2	24.4	15.3	14.6
Calcot School	466044	171996	Roadside	100.0	100.0				11.3	12.6
Westwood Farm School	466515	175348	Kerbside	100.0	100.0				9.8	10.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
Streatley	459202	180749	Roadside	91.7	100.0				20.1	20.5
Near Canal / 55 Station Road	457291	166573	Kerbside	90.4	100.0				8.2	8.8
1 Kingfisher Court Pangbourne	463551	176623	Roadside	100.0	100.0				20.0	20.0
Continuous Monitor Triplicate Tubes, A343, A339 and Greenham Road Newbury	463551	176623	Roadside	91.7	100.0	31.8	28.6	27.7	26.4	27.6

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 NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 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 NO₂ Concentrations in Newbury AQMA (diffusion tubes)



Figure A.2 – Trends in Annual Mean NO₂ Concentrations in Thatcham AQMA

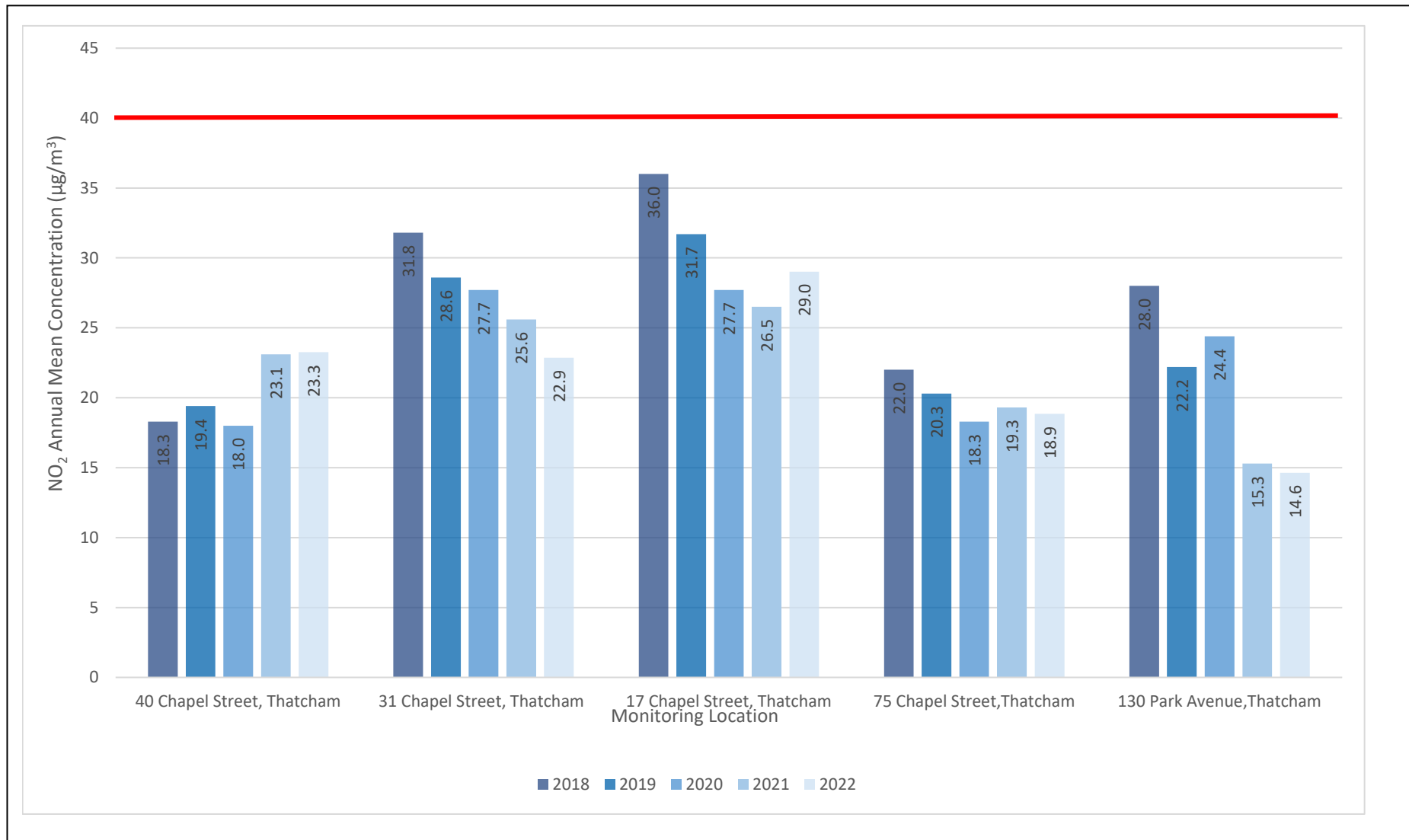


Figure A.3 – Trends in Annual Mean NO₂ Concentrations within Newbury (outside AQMA)

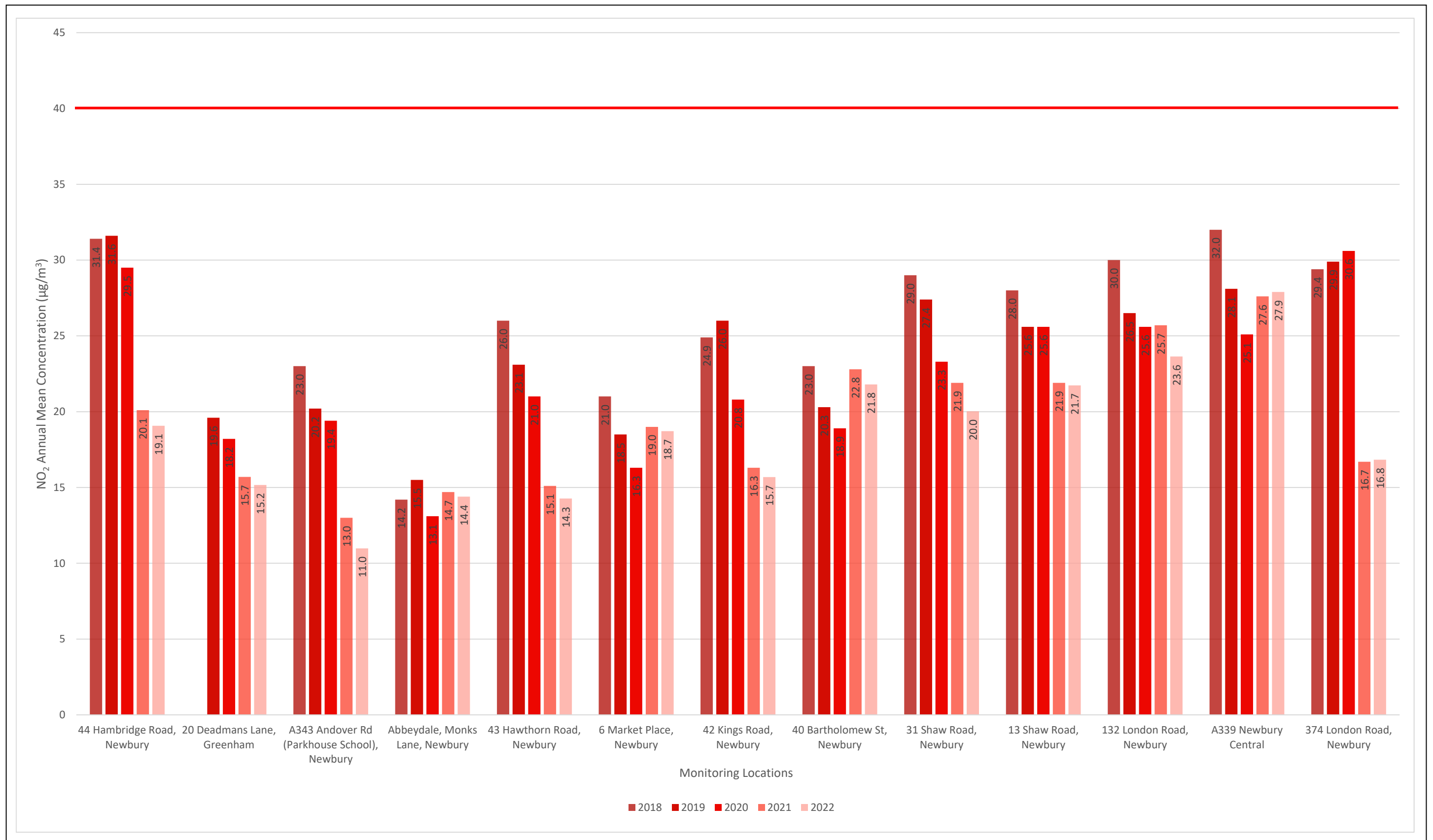


Figure A.4 – Trends in Annual Mean NO₂ Concentrations within wider West Berkshire district (outside AQMA)



Figure A.5 – Trends in Annual Mean NO₂ Concentrations within wider West Berkshire district (outside AQMA)



Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2022 (%) ⁽²⁾	2018	2019	2020	2021	2022
CM1	477407	166560	Roadside	100	84.6	1	2	1	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded.

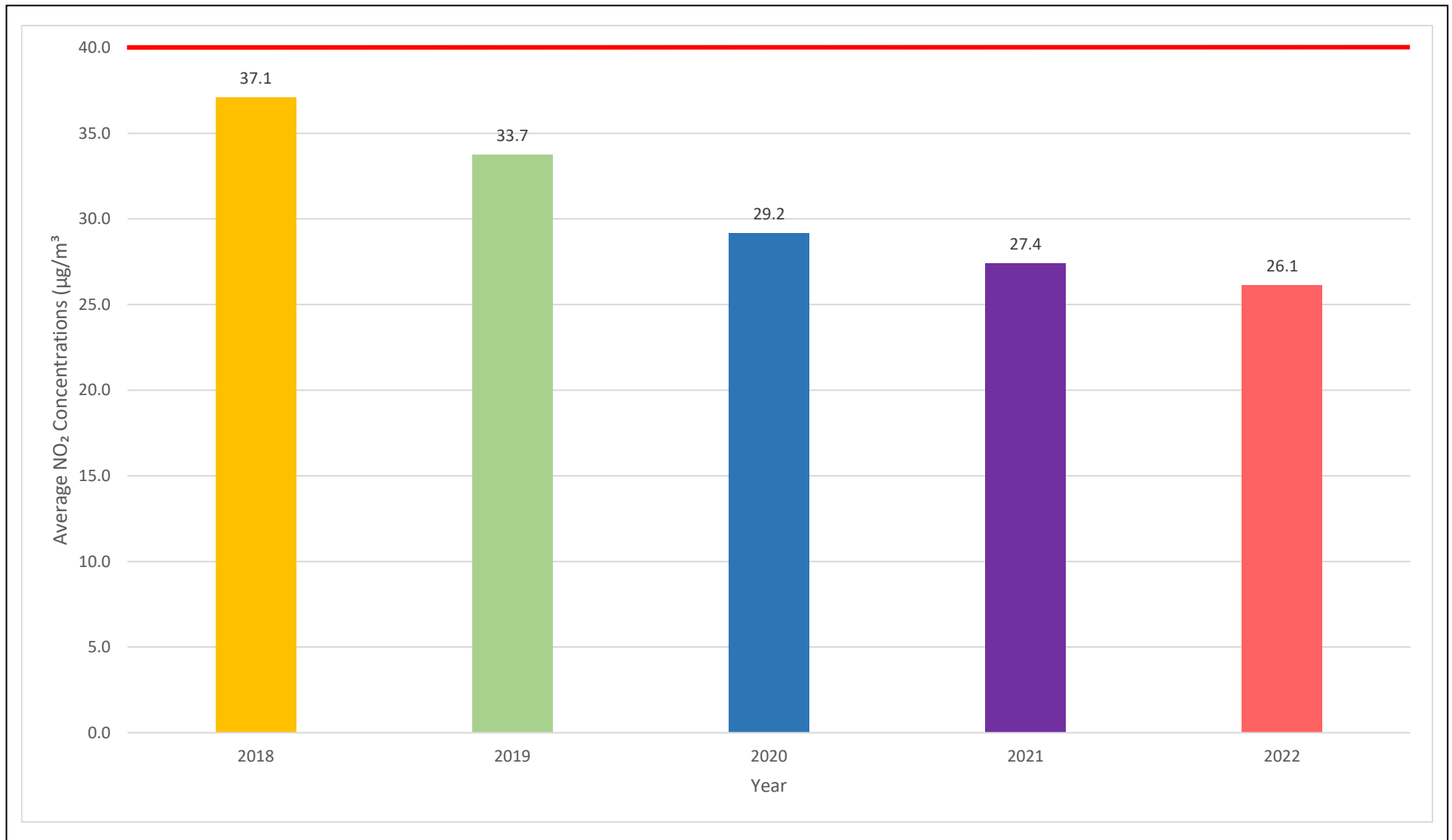
Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

Figure A.7 – Trends in Number of the NO₂ annual mean from the Continuous Monitor



Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO₂ 2022 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
40 Chapel Street Thatcham 3	451926	167460	36.0		30.6	26.3	22.8	23.1	24.4	28.5	28.7	26.3	29.7	35.5	28.4	23.3	-	
31 Chapel Street Thatcham	451906	167441	19.6	28.7	32.7	22.3	25.0	27.8	28.0	27.7	27.0	32.6	35.1	28.0	27.9	22.9	-	
17 Chapel Street Thatcham 1	451870	167438								29.0	31.3	31.7	32.7	33.5	31.6	25.6	-	
44 Hambridge Road Newbury	448129	166909	33.6	20.0	20.1	22.6	20.5	21.2	21.4	21.0	24.3	23.6	24.2	26.5	23.3	19.1	-	
A339(64) Greenham Road Newbury	447448	166454	38.2	22.4	29.9	24.6		25.2	30.6	29.0	31.3	26.4	25.6	32.3	28.7	23.5	-	
1 Winchester Court Newbury	447411	166562			29.4	28.9		29.4	31.7	27.3	34.4	32.2	34.7	36.9	31.7	26.0	-	
Newbury Gardens Day Nursery	447352	166619	22.3	12.4	31.1	21.2	14.7	13.9	19.2	22.3	21.6	16.9	18.5	20.9	19.6	16.1	-	
20 Deadmans Lane Greenham	447515	164720	26.1	15.1	18.2	12.9		15.2	16.7	16.8		19.9	19.6	24.5	18.5	15.2	-	
A343 Andover Rd(Parkhouse School)	445899	164705	25.1	10.8	17.2	14.1	9.3	8.8	10.6	12.2			12.4		13.4	11.0	-	
Abbeydale Monks Lane Newbury	446921	165303	25.3	13.5	24.1		12.3	12.6	15.1	17.5	17.4	15.8		21.9	17.6	14.4	-	
3 Howard Road Newbury	447406	166445		10.9	26.2	18.2	11.2	10.9	14.2	18.3	18.1	15.7	16.2	22.1	16.5	13.6	-	
63 St Johns Road Newbury	447380	166533	35.1	39.8	28.3	18.8	14.3		29.8	21.2	21.1	17.5	17.4	23.2	24.2	19.9	-	
1 St Johns Road Newbury	447036	166436	24.2	20.5	32.8	25.9	19.8	22.2	24.4	25.4	28.5	25.9	26.7	31.6	25.7	21.0	-	
7a Bridge Street Hungerford	433909	168815	27.9	19.8	22.5		17.9	17.3	18.3	20.7	20.7	21.4	21.2	26.1	21.2	17.4	-	
43 Hawthorn Road Newbury	447478	167868	22.8	12.6	25.7	17.1	12.4	11.7	14.8	19.3	17.9	16.7	16.4	21.5	17.4	14.3	-	
6 Market Place Newbury	447202	167020	30.8		31.7		18.0	17.5	22.2	17.2	23.6	21.3	27.0	19.1	22.8	18.7	-	
42 Kings Road Newbury	447434	166993	29.0	17.8	21.0		14.1	14.5	16.8	15.7	19.3	17.9	19.9	24.5	19.1	15.7	-	
40 Bartholomew Street Newbury	446939	166848	36.2	22.8	29.2	25.3	22.5			22.7	26.1	24.8	25.7	30.7	26.6	21.8	-	
31 Shaw Road Newbury	447693	167820	30.0	28.7	27.9	19.0	20.5	19.8	21.2	21.8	23.6	23.9	29.1	27.5	24.4	20.0	-	
13 Shaw Road Newbury	447632	167774	36.7	22.7	30.1	22.7	20.2	23.6	25.3	25.2	26.0	26.7	30.8	28.1	26.5	21.7	-	
132 London Road Newbury	447720	167678			33.0	26.2	25.3	22.7	28.7	30.4	30.8	28.3	31.4	31.4	28.8	23.6	-	
A339 Newbury Central	447454	167296	42.3	28.5	28.8	26.4	32.0	36.4	34.8	35.6	36.7	35.3	32.7	38.8	34.0	27.9	-	

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 (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
374 London Road Newbury	449034	167520	32.5	18.1	21.1	16.5		15.7	20.0	21.8	19.4	17.5	22.8	20.3	20.5	16.8	-	
Old Bakery Tidmarsh	463504	174864	57.1	21.3	27.2	19.7		18.5	21.6	21.2	23.1	21.2	24.1	27.6	25.7	21.1	-	
The Cross Key Inn Pangbourne	463468	176433	36.2	23.1	40.1				29.2	33.3	29.9	29.5	30.2	32.5	31.5	25.9	-	
4 Willows Court Pangbourne	463441	176522	27.2		17.8	21.8	15.9	17.6	20.3	21.7	25.1	25.1	29.0	25.3	22.4	18.4	-	
Calcot Hotel	466293	171863	40.9	27.1	41.7	24.3	23.6	26.2	25.8	28.0	30.0	33.0	18.2	32.5	29.3	24.0	-	
Elizabeth Court Theale	464574	171294	49.8	17.3	25.5	15.5	13.8	14.7	15.6	17.2	18.4	10.2	20.8	23.5	20.2	16.5	-	
75 Chapel Street Thatcham	452288	167445	32.9	24.0	25.0	16.2	20.9	20.0	20.8	20.1	21.5	21.8	25.2	27.6	23.0	18.9	-	
130 Park Avenue Thatcham	451965	167498	26.5	13.8	23.5		12.0	11.9	12.5	14.1	16.8	19.9	22.3	22.8	17.8	14.6	-	
Continuous Monitor 1	447410	166561	39.5	31.3	36.6	28.9	30.3		33.0	30.1	35.6	32.6	35.7	37.7	-	-	-	Triplicate Site with Continuous Monitor 1, A343, A339 and Greenham Road Newbury, Continuous Monitor 1, A343, A339 and Greenham Road Newbury and Continuous Monitor 1, A343, A339 and Greenham Road Newbury - Annual data provided for Continuous Monitor 1, A343, A339 and Greenham Road Newbury only
Continuous Monitor 2	447410	166561	40.7	30.7	35.2	26.7	31.3		33.4	26.1	36.9	34.5	36.3	37.7	-	-	-	Triplicate Site with Continuous Monitor 1, A343, A339 and Greenham Road Newbury, Continuous Monitor 1, A343, A339 and Greenham Road Newbury and Continuous Monitor 1, A343, A339 and Greenham Road Newbury - Annual data provided for Continuous Monitor 1, A343, A339 and Greenham Road Newbury only
Continuous Monitor 3	447410	166561	38.7	31.6	37.6	28.2	31.4		30.4	29.2	38.5	35.1	33.6	37.0	33.7	27.6	-	Triplicate Site with Continuous Monitor 1, A343, A339 and Greenham Road Newbury, Continuous Monitor 1, A343, A339 and Greenham Road Newbury and Continuous Monitor 1, A343, A339 and Greenham Road Newbury - Annual data provided for Continuous Monitor 1, A343, A339 and Greenham Road Newbury only
Calcot School	466044	171996	19.6	14.5	22.7	12.6	10.0		9.7	11.8	12.8	15.1	17.8	21.8	15.3	12.6	-	
Westwood Farm School	466515	175348	34.7	10.9	18.5	8.1	7.2	6.6	7.4	8.6	10.7	12.2	12.8	19.2	13.1	10.7	-	
Streatley	459202	180749	33.6	27.0	30.9	18.4	24.2	22.2	21.7	21.4	22.7	23.8		29.3	25.0	20.5	-	
Near Canal / 55 Station Road	457291	166573	16.1	8.6	13.3	9.2	6.8	6.8	7.6	12.8	12.2		10.5	13.8	10.7	8.8	-	

All erroneous data has been removed from the NO₂ 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.

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

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within West Berkshire Council During 2022

West Berkshire Council has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by West Berkshire Council During 2022

DEFRA Grant 2021

The grant awarded was £259,000 for the projects of creating an anti-idling campaign, measuring PM_{2.5} at the schools located near/within the AQMAs and looking at behaviour change of our residents with the aim of reducing exposure of children at school and raising awareness of parents /carers and children and the wider community.

PM_{2.5} Monitoring

AECOM, air quality consultants, were appointed to monitor PM_{2.5} and PM₁₀ and weather at or close to 14 selected schools that were within or close to the AQMAs. Monitoring at the schools, took place between February 2022 to February 2023 for a minimum of 3 months to include term time and holiday period. This provided a snap shot of the levels around schools using a low-cost air quality sensor unit (Vortex) providing real-time measurements at 5 minute intervals. As the data was not ratified nor calibrated against a reference equivalent monitor, the data only provides an indicative measurement. The monitors were paired with weather sensors located close by to continuously measure parameters including wind speed and direction, temperature and rainfall. The air quality monitoring equipment was attached to a lamp post or street light and the weather station positions close by but on another lamp post or street light.

The data have not been annualised to represent an annual mean and are therefore the results are indicative only. However, the period means were all below the relevant air quality

objectives. All the schools were within the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 for PM_{2.5} (i.e. the annual mean should not exceed 25 µg/m³ and the interim target of 12 µg/m³ to be met by end 2027 and long term target of 10 µg/m³ by 2040.)

Hourly, daily and weekly results were analysed for temporal distribution and also plotted to compare the difference between school term time and holiday. Lower concentrations seen in the daytime were due to warmer temperature allowing PM to disperse; the night time cooler temperatures reduce the atmospheric boundary layer and increase stability acting to trap PM closer to the ground. The concentrations did vary, weather clearly influenced concentrations such as rainfall acts to disperse and deplete pollution more readily. The winter higher concentrations from the continent were seen as opposed to the cleaner maritime air from the Atlantic. Patterns in road traffic flow effects but not as significant as weather conditions though. The morning rush hour increase in concentration was evident, as were higher concentrations recorded around 9am and then again around 4pm coinciding with the end of the school day. Concentrations seen to be higher in the middle of the week and then at the end of the week and weekends, these are due to changes in road traffic and commercial/industrial activity in the post-covid hybrid working pattern. Overall lower concentrations were noted in holiday periods.

The schools have all been sent their site-specific Particulate Monitoring Report and Action Plan. This detailed the details of the monitoring, the results and details analysis, a number of actions to further investigate the sources of pollution and to target air quality improvements for children at the school and the surrounding area. It is recommended that an audit of sources around the school is considered before considering the most appropriate actions are taken forward. The audit could include looking at the age of boilers and where flues are positioned; considering the location of the playground to busy roads and does any screening exist; school travel plans and how accessibility for cycling/scooting to school; review of vehicle engine idling or traffic queuing outside the school. In addition a number of mitigation measures were identified, divided into generic which could be applicable across the district/borough and more specific to the school. For each measure an approximate timescale and cost was given based on the following criteria: potential air quality benefits; cost; deliverability; and wider benefits (e.g. improved safety, child health and promotion of sustainable transport). See Appendix A for an example of a generic and specific mitigation measure table.

While the study did not identify any significant health risks associated with exposure to PM2.5 recommendations have been made to reduce the levels of PM2.5 in the air wherever possible.

Biggest NO₂ Loser

During 2022 the Biggest Loser section of the DEFRA Grant award was started and this involved using diffusion tubes to measure the NO₂ outside 14 Schools within Wokingham Borough Council which are located closest to the 3 AQMA's. The 2022 results will be compared against the 2023 results to see if the Behaviour change experiment of education children & carers and erecting signs asking for the guardians who drop off the children actually makes a difference outside a school.

QA/QC of Diffusion Tube Monitoring

West Berkshire Council uses GRADKO as the supplier used for diffusion tubes within 2022 and the method of preparation, e.g. 50% TEA in water. The monitoring that has been completed is in adherence with the 2022 Diffusion Tube Monitoring Calendar. The limit of detection is for the diffusion tubes is less than 2 µg/m³ over a 4-week exposure period. Specific values available upon request.

The Workplace Analysis Scheme for Proficiency (WASP) is an independent analytical performance testing scheme, operated by the Health and Safety Laboratory (HSL). WASP formed a key part of the former UK NO₂ Network's QA/QC and remains an important QA/QC exercise for laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management. The laboratory participants analyse four spiked tubes and report the results to HSL. HSL assign a performance score to each laboratory's result, based on their deviation from the known mass of nitrite in the analyte. The Performance criteria are due to be changed, at present the criteria are based on the z-score method, and equates to the following:

GOOD: Results obtained by the participating laboratory are on average within 13% of the assigned value. This equates to a Rolling Performance Index (RPI) of 169 or less.

ACCEPTABLE: Results obtained by the participating laboratory are on average within 13-26% of the assigned value. This equates to an RPI of 169 - 676.

WARNING: Results obtained by the participating laboratory are on average within 26 – 39% of the assigned value. This equates to an RPI of 676 - 1521.

FAILURE: Results obtained by the participating laboratory differ by more than 39% of the assigned value. This equates to an RPI of greater than 1521.

However, from April 2009, the criteria has been based upon the Rolling Performance Index (RPI) statistic and will be tightened to the following:

GOOD: Results obtained by the participating laboratory are on average within 7.5% of the assigned value. This equates to an RPI of 56.25 or less.

ACCEPTABLE: Results obtained by the participating laboratory are on average within 15% of the assigned value. This equates to an RPI of 225 or less.

UNACCEPTABLE: Results obtained by the participating laboratory differ by more than 15% of the assigned value. This equates to an RPI of greater than 225.

West Berkshire Council use Gradko International for the supply and analysis of the nitrogen dioxide diffusion tubes for their non-automatic monitoring programme. Gradko's performance for AIR PT please see Table C.2. Nitrogen Dioxide AIR PT 2019.

Diffusion Tube Annualisation

As annualisation is required for any site with data capture less than 75% but greater than 25%. The diffusion tubes located at 17 Chapel Street, Thatcham captured only 5 months (41.7%) of the data. The details of the calculation method undertaken is provided in **Error!**

Reference source not found..

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

Site ID	Annualisation Factor <i>Oxford URN Site OX8 2022</i>	Annualisation Factor <i>Swindon URN Site SWHO 2022</i>	Annualisation Factor <i>Chilbolton Observatory URN CHBO 2022</i>	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
17 Chapel Street Thatcham	0.9535	0.9923	1.0122	0.9860	31.6	31.2

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 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_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

West Berkshire Council have applied a national bias adjustment factor of 0.82 to the 2022 monitoring data. A summary of bias adjustment factors used by West Berkshire Council over the past five years is presented in Table C.2.

Table C.2

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	Database Diffusion Tube Bias Factors v03 23-FINAL.xlsx (live.com) Gradko 50%	0.82
2021	Local	-	0.84
2020	Local	-	0.99
2019	Local	-	0.91
2018	Local	-	1.0

Table C.3 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1
Periods used to calculate bias	8
Bias Factor A	0.82 (0.74 - 0.93)
Bias Factor B	22% (8% - 35%)
Diffusion Tube Mean (µg/m ³)	33.5
Mean CV (Precision)	3.3%
Automatic Mean (µg/m ³)	27.5
Data Capture	95%
Adjusted Tube Mean (µg/m ³)	27 (25 - 31)

	Local Bias Adjustment Input 1

Notes: the national figure of 0.82 was used due to Poor overall data capture from the continuous monitor.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

QA/QC of Automatic Monitoring

TRL carry out the QA/QC on behalf of West Berkshire Council, below are details of TRL's process of QA/QC.

Site operation

Routine instrument calibrations are conducted approximately once per fortnight, which involve zero and span checks, a written record of the gas analyser diagnostics and a general visual inspection of all equipment is undertaken. There is a written operating procedure and a calibration record sheet is completed at every site visit.

Data retrieval and daily data checking

Data from the monitoring station is retrieved and processed on a Campbell CR10x data logger as 15-minute mean data. The logger was interrogated via a Siemens TC35i GSM modem at 8-hourly intervals by the ENVIEW 2000 software hosted at TRL. This was used to retrieve, check and archive data. TRL's internal QA/QC procedures require all data to be backed up on a secure server and all documentation associated with each site to be uniquely identified and securely stored to provide an audit trail. Daily data inspections are undertaken

during office hours using the facilities of the Data Management System. Initial observations of the Management System indicate whether the site has been contacted during its nominated 'poll time' overnight. If this has not been successful a manual poll of the site may be required. If this is not successful further investigation of the communications integrity will be required to establish contact with the site modem and data logger. Three day plots of recorded data are viewed for the requested site, and these are inspected and assessed for continuity, validity, minimum and maximum values, date and time, power failures and general integrity. All anomalies are recorded on the Daily Check sheet, as required. Any anomalies or queries arising from daily inspection of data, or system operation, are brought to the attention of the Project Manager who will evaluate the situation, and initialise any necessary action. In the event that the PM is not available, contact will be made with the next available senior person within the monitoring team. Any issues identified with equipment operation will be referred to the client for attention within 24 hours (excluding weekends). On a weekly basis, data are examined using summary statistics and outlier analysis to establish data validity. If unusual data episodes are recorded, these would be routinely examined over longer data periods to establish their impact on trends but would also be cross referenced with data peaks and troughs recorded at other national monitoring stations. In addition, integrity and validity of data logger clock times are checked, and any significant errors recorded in the Data Management System logbook. All site data recorded through the Data Management System is archived on TRL's Network. The data is backed up daily, and the TRL IT Department maintains these data within their long-term and secure archives. This secures all data in the event of any system failure.

Data calibration and ratification

Data is ratified as per AURN recommended procedures. The calibration and ratification process for automatic gas analysers corrects the raw dataset for any drift in the zero baseline and the upper range of the instrument. This is done using a Evista-based calibration and ratification file which incorporates the zero and span check information from the calibration visits. The zero reading recorded during the calibration visits is used to adjust any offset of the baseline of the data. The difference between the span value obtained between one calibration visit and the next visit is used to calculate a factor. This change is assumed to occur at the same rate over the period between calibrations and as such the factor is used as a linear data scaler. This effectively results in the start of the period having no factor applied and the end of the period being scaled with the full factor with a sliding scale of the factor in-between. After applying the calibration factors, it is essential to screen

the data, by visual examination, to see if they contain any unusual measurements or outliers. Errors in the data may occur as a result of equipment failure, human error, power failures, interference or other disturbances. Data validation and ratification is an important step in the monitoring process. Ratification involves considerable knowledge of pollutant behaviour and dispersion, instrumentation characteristics, field experience and judgement. On completion of this data correction procedure, these data were converted to hourly means and a summary of these data were provided to West Berkshire Council at quarterly intervals and a calendar year annual report is prepared.

Independent Site Audits

In addition to these checks an independent site audit is carried out every 12 months to ensure the nitrogen dioxide analyser is operating correctly. The audits that are carried out utilise procedures that are applied within DEFRA's National Automatic Air Monitoring Networks Quality Control Programme. The efficiency of the analyser's convertor is checked and the analyser is also leak tested. The gas bottle used for calibrations on site is also checked against the auditor's gas bottle to ensure the stability of the gas concentration.

The site audit for the West Berkshire, Newbury automatic monitoring unit was carried out on 21st December 2022.

A major factor governing the analyser's performance is the NO_x analyser's converter and its ability to reduce the nitrogen dioxide to nitric oxide. The recommended range for instrumentation in the national automatic air monitoring network is in the range of 98% - 102% efficient. Our tests show the converter in the West Berkshire, Newbury analyser to be 98.4% efficient at an NO₂ concentration of 270 ppb. This is a good result.

To ensure that the analysers are sampling only ambient air the instruments were leak checked. The results were satisfactory, indicating that the analyser sampling systems were free of significant leaks. The analyser exhibited some instability with its responses to both zero and span (calibration) gases with increased levels of variation (noise), this should be investigated at the next routine service.

The NO_x analyser flow rate was measured using a calibrated flow meter and compared against the analyser's flow rate sensor to evaluate its accuracy. The measured flow rate result was outside the ($\pm 10\%$) recommended limit and it was advised the underlying reason be investigated at the next service.

Please note the following cylinder recalculation test was undertaken at the Twyford station on the same day.

Based on the Twyford NOx analyser's response to the audit standard and audit zero, the concentrations of the stations NO cylinder have been reassessed. This provides an indication of the site standards stability. For the purpose of these stability checks, the criteria adopted within the national network, and used here, is that the recalculated concentration should lie within 10% of the stated concentrations.

The results of the recalculations are presented in Table C.2.

The recalculated results for the site NO cylinder 21901300088296 indicate the concentrations are stable, within the definition adopted above, and can therefore reliably be used to scale ambient data.

All the recommendations of the audit have been investigated accordingly by TRL engineers.

Table C.4 West Berkshire, Newbury and Twyford

TRL Wokingham – NO cylinder 21901300088296				
	NOx (ppb)	% change from stated	NO (ppb)	% change from stated
Manufacturers Stated Concentration	464	---	464	---
Recalculated Concentration (07/12/20)	450	-3.1	476	2.6
Recalculated Concentration (21/12/21)	468	0.8	468	0.9

Certificate of Calibration

Calibration factors and zeros have been produced on the basis of the audit calibrations conducted. All of these calibrations were conducted with transfer standards traceable to national metrology standards. The Certificate of Calibration provides the calibration and zero

response factors for the oxides of nitrogen analysers under test on the day of the audits. It is available upon request from TRL.

Data Management

The following recommendations and comments can be made as a result of these audits:

- Compare the TRL database scaling factors for the day of the audit with the factors and zeros on the Certificate of Calibration. If a deviation greater than the uncertainty associated with the calibration factor on the certificate is found, investigate the underlying reason and implement suitable data management actions.

Automatic Monitoring Annualisation

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

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

No automatic NO₂ monitoring locations within West Berkshire Council required distance correction during 2022.

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

Figure D.1 – Map of the Newbury AQMA



Figure D.2 – Map of the Thatcham AQMA



Figure D.3 – Map of the Newbury AQMA Air Quality Monitoring Locations

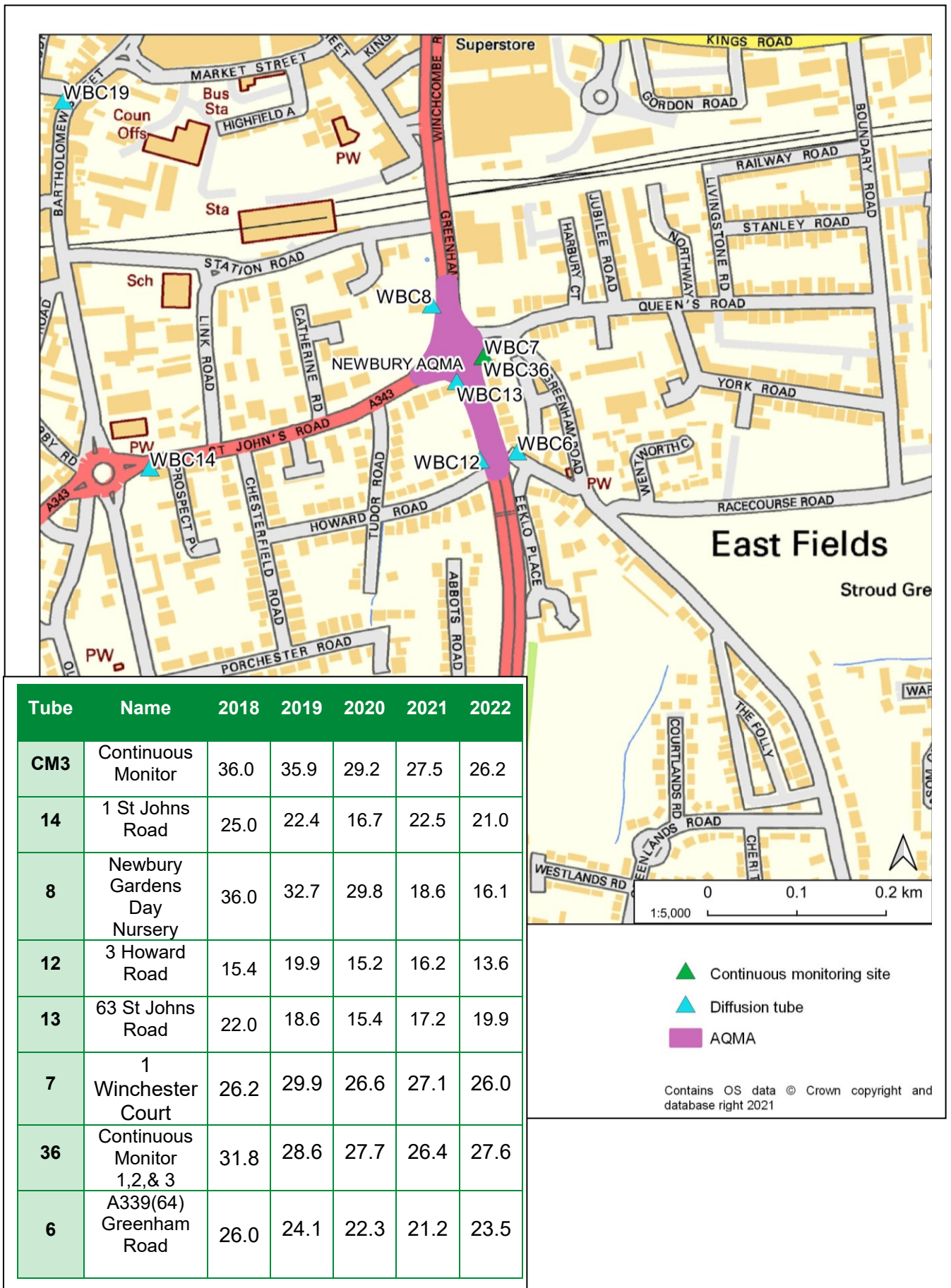


Figure D.4 – Map of the Thatcham AQMA Air Quality Monitoring Locations

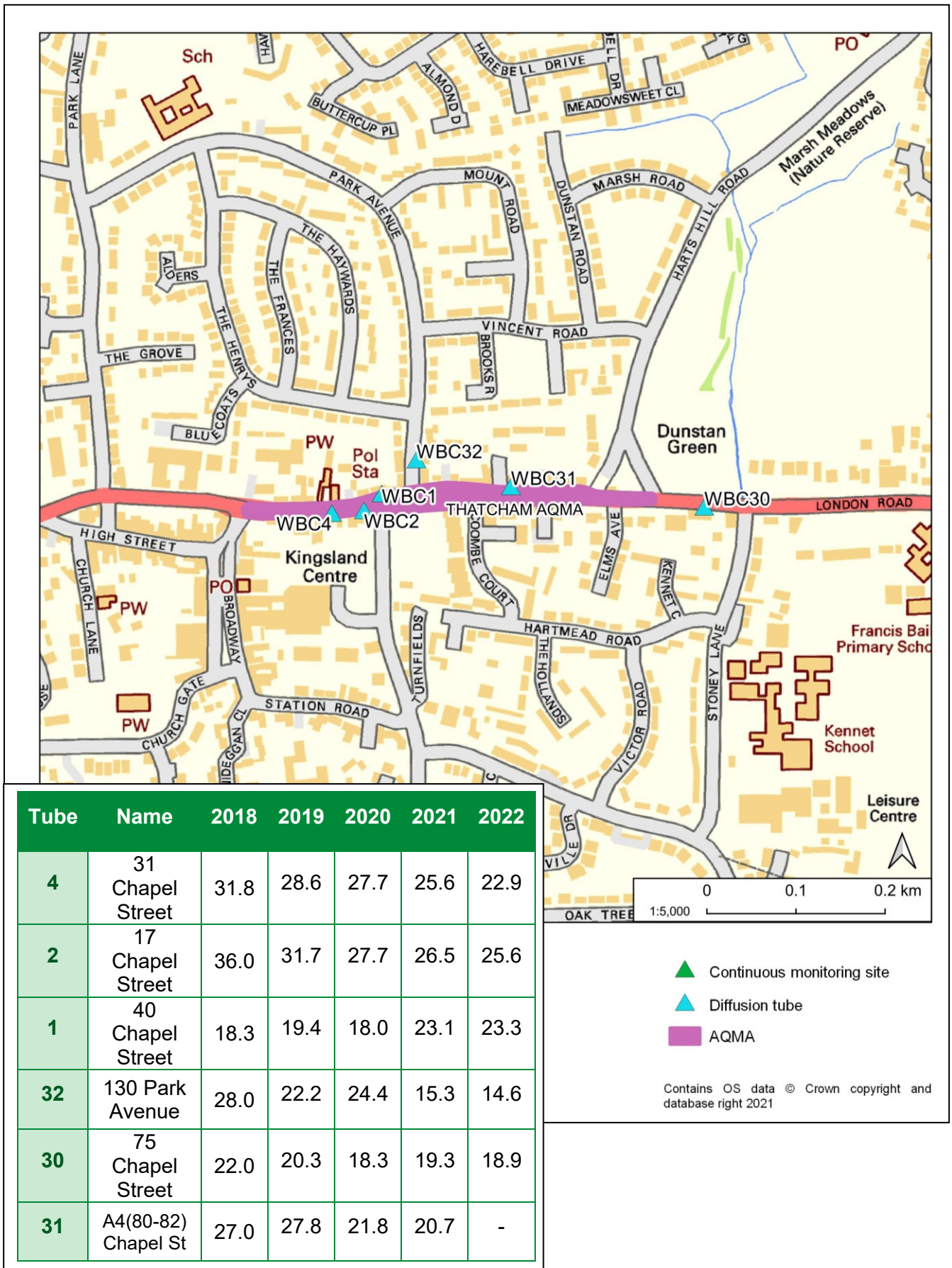


Figure D.5 – Map of Newbury (North) Air Quality Monitoring Sites

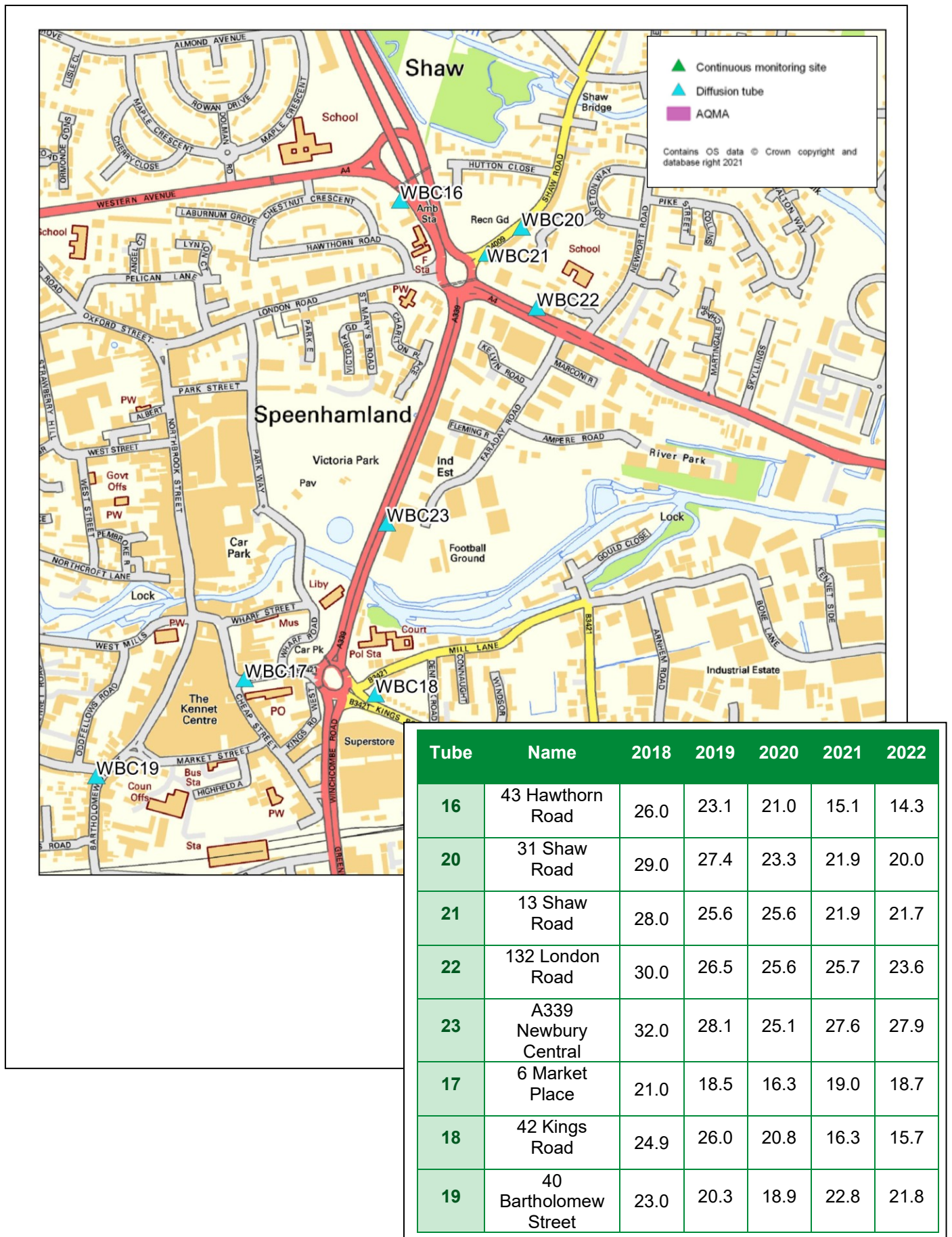


Figure D.6 – Map of Newbury (South) Air Quality Monitoring Sites

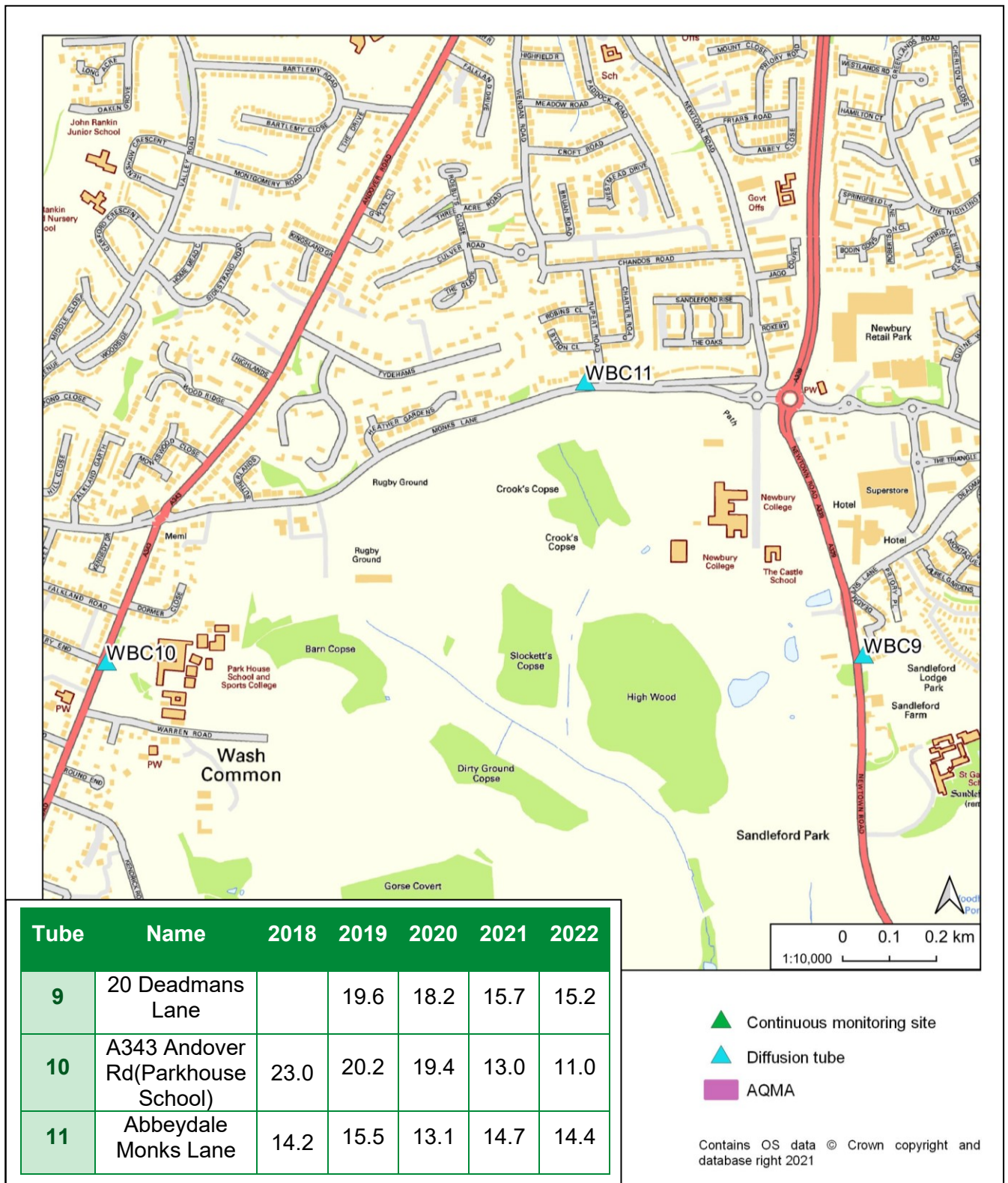


Figure D.7 – Map of Pangbourne Monitoring Site

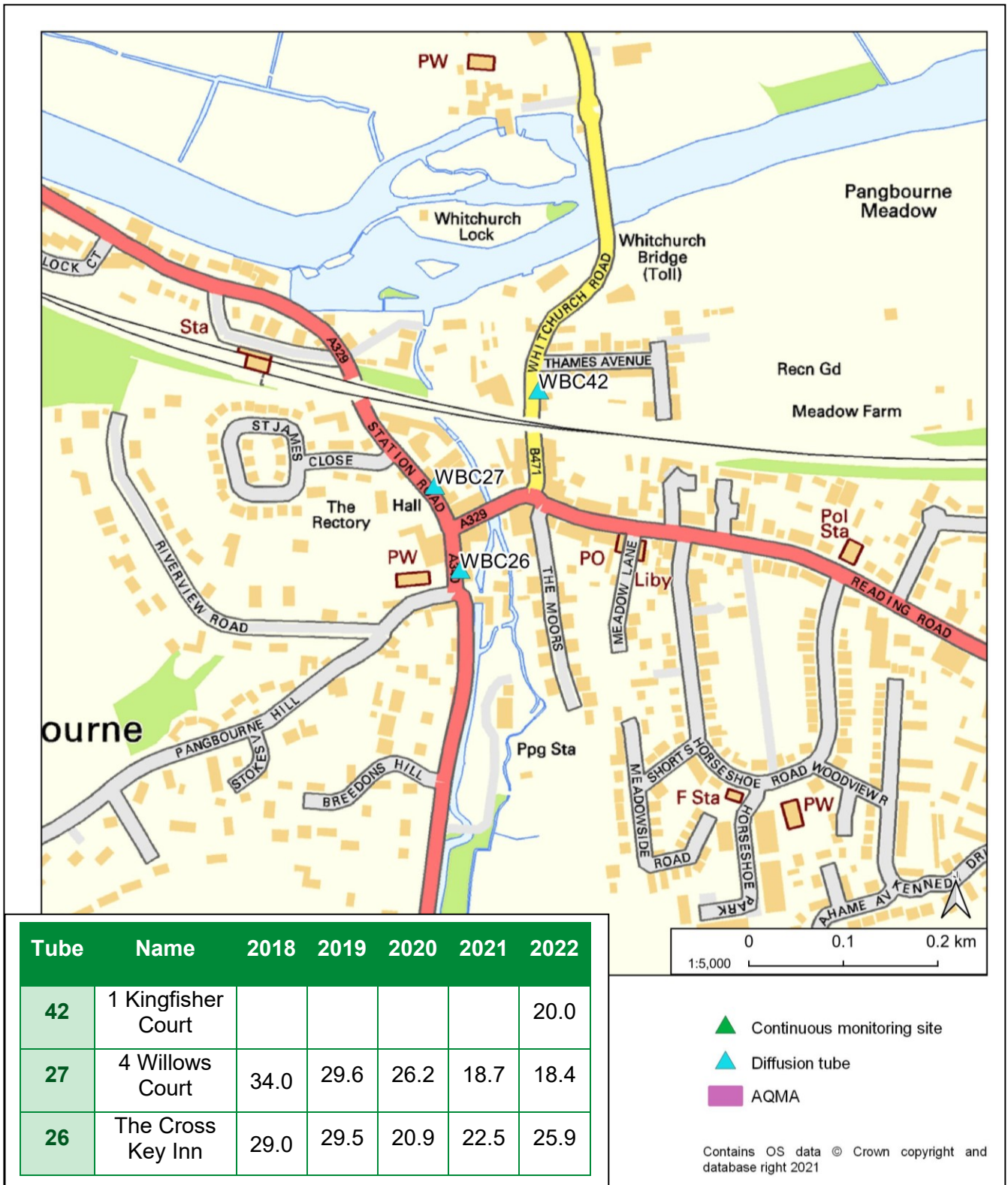


Figure D.8 – Map of Theale & Calcot Air Quality Monitoring Site

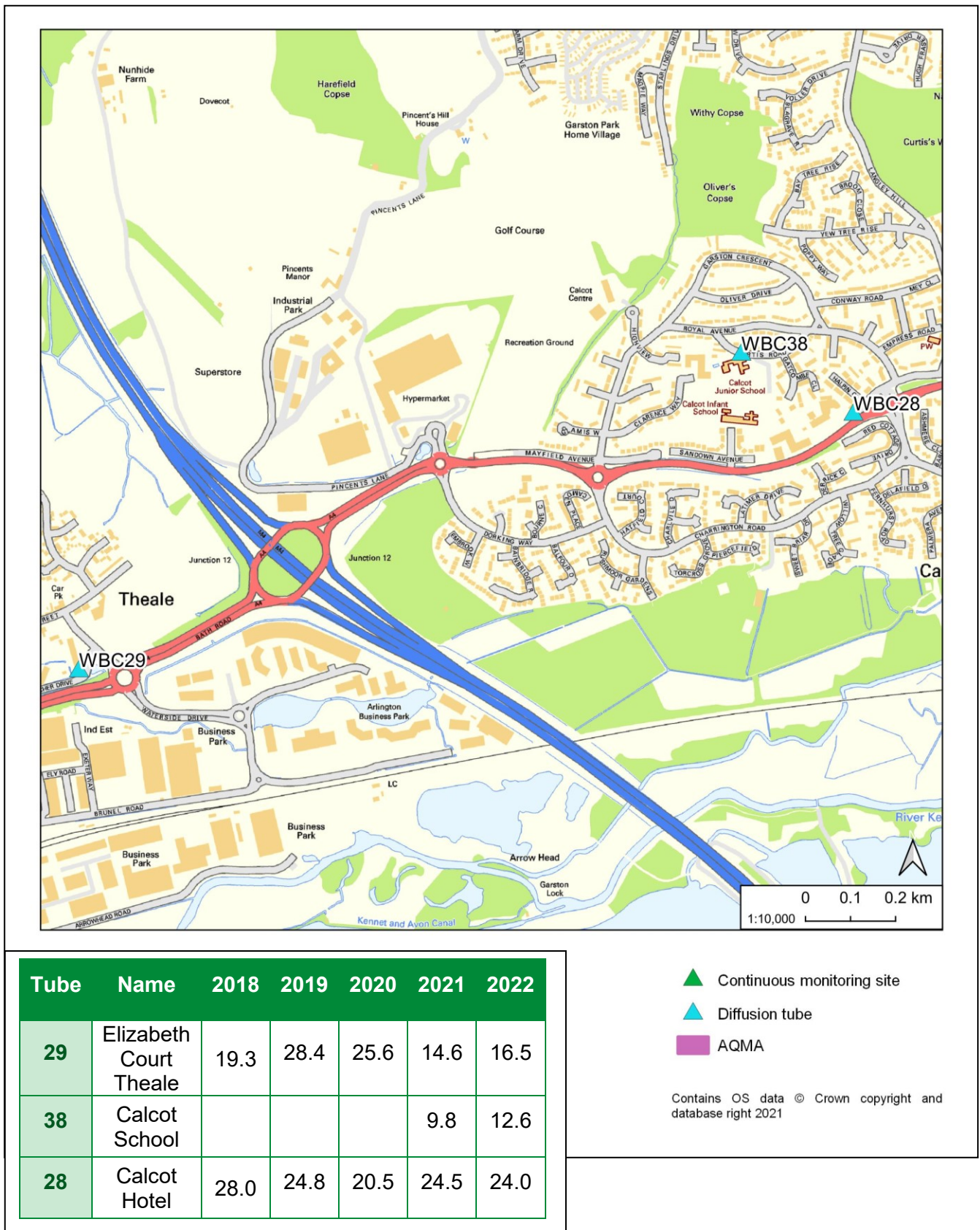


Figure D.9 – Map of (41) 55 Station Road Monitoring Site

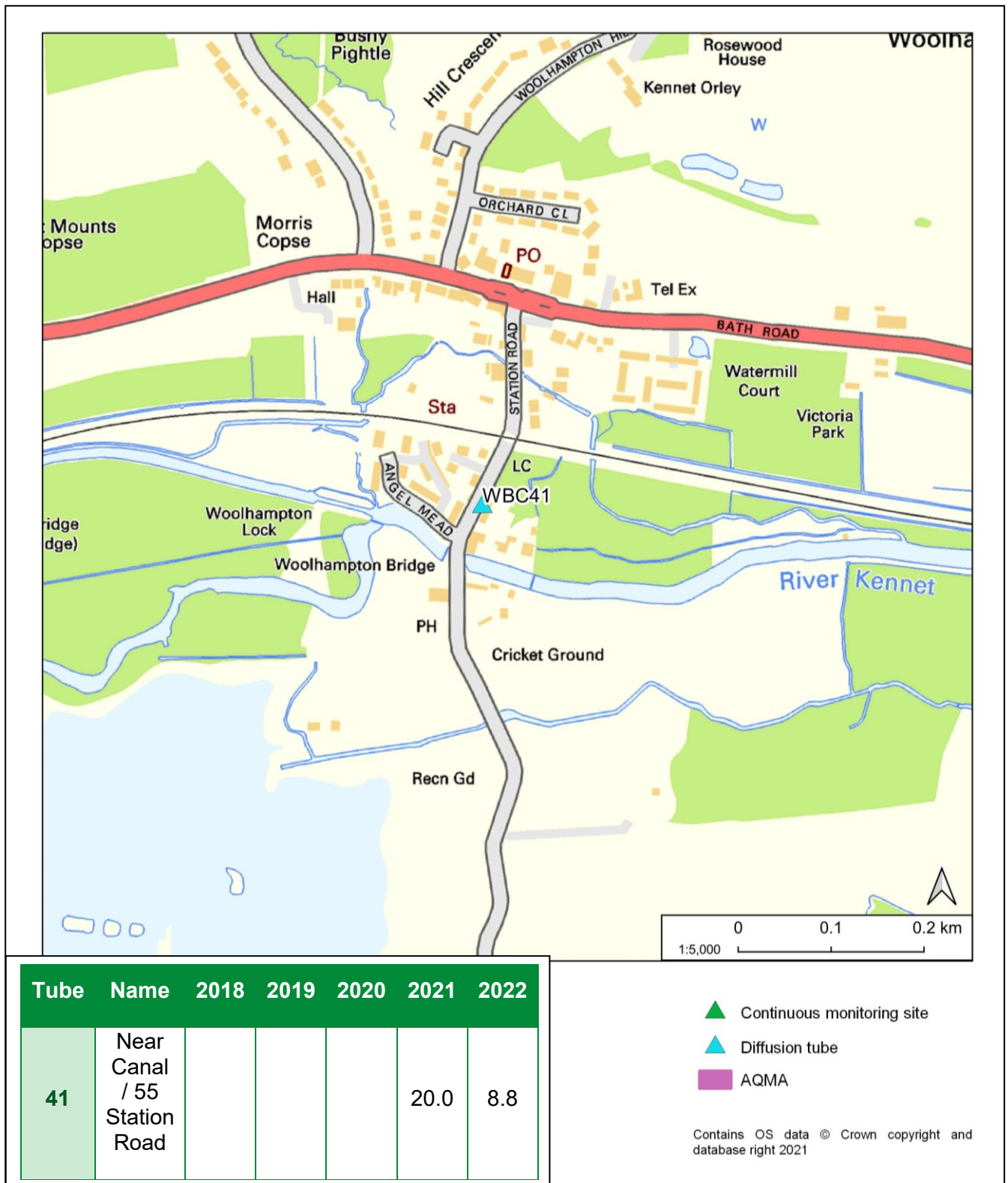


Figure D.10 – Map of (40) Streatley Monitoring Site

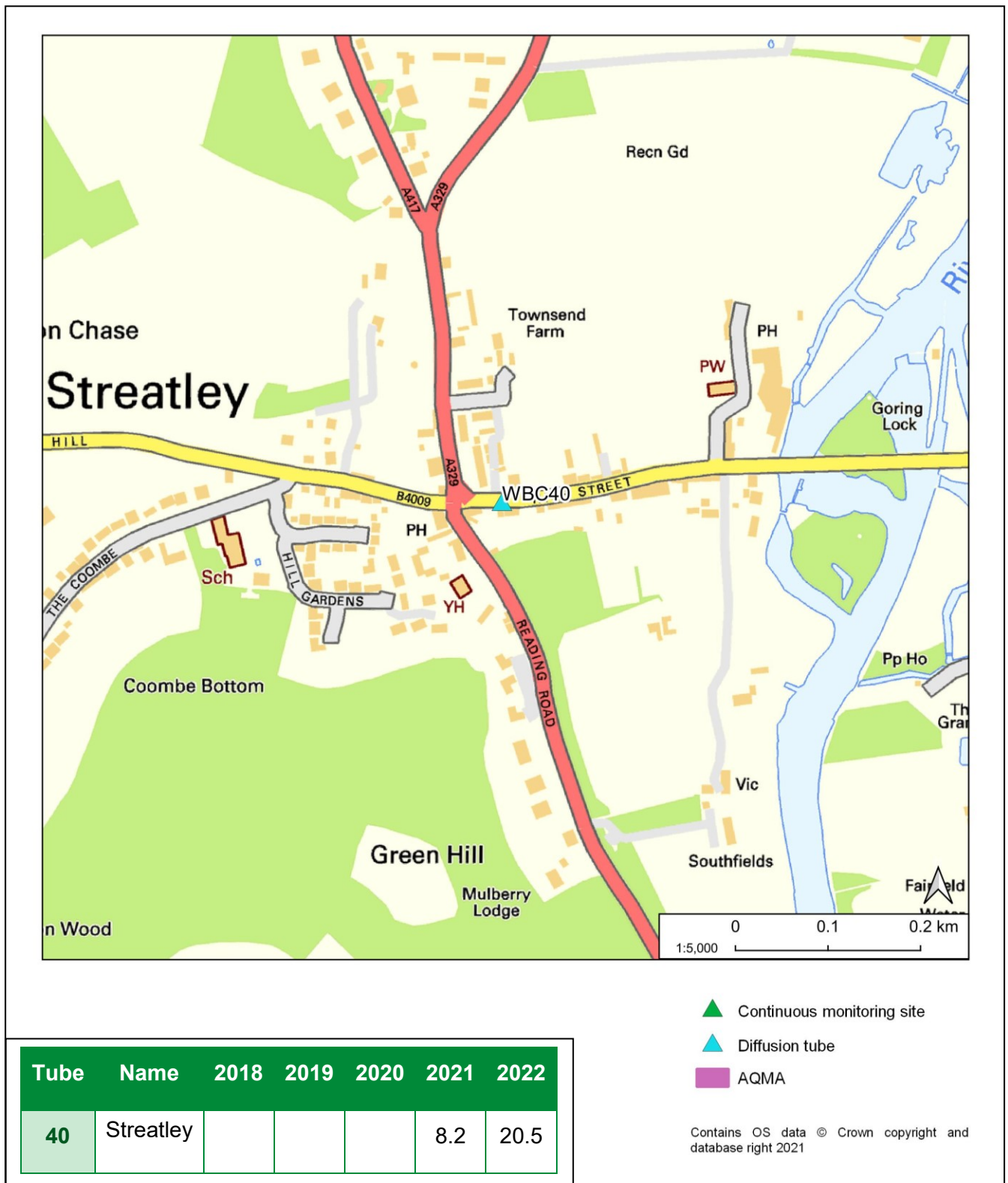


Figure D.11 – Map of (39) Westwood Farm Monitoring Site

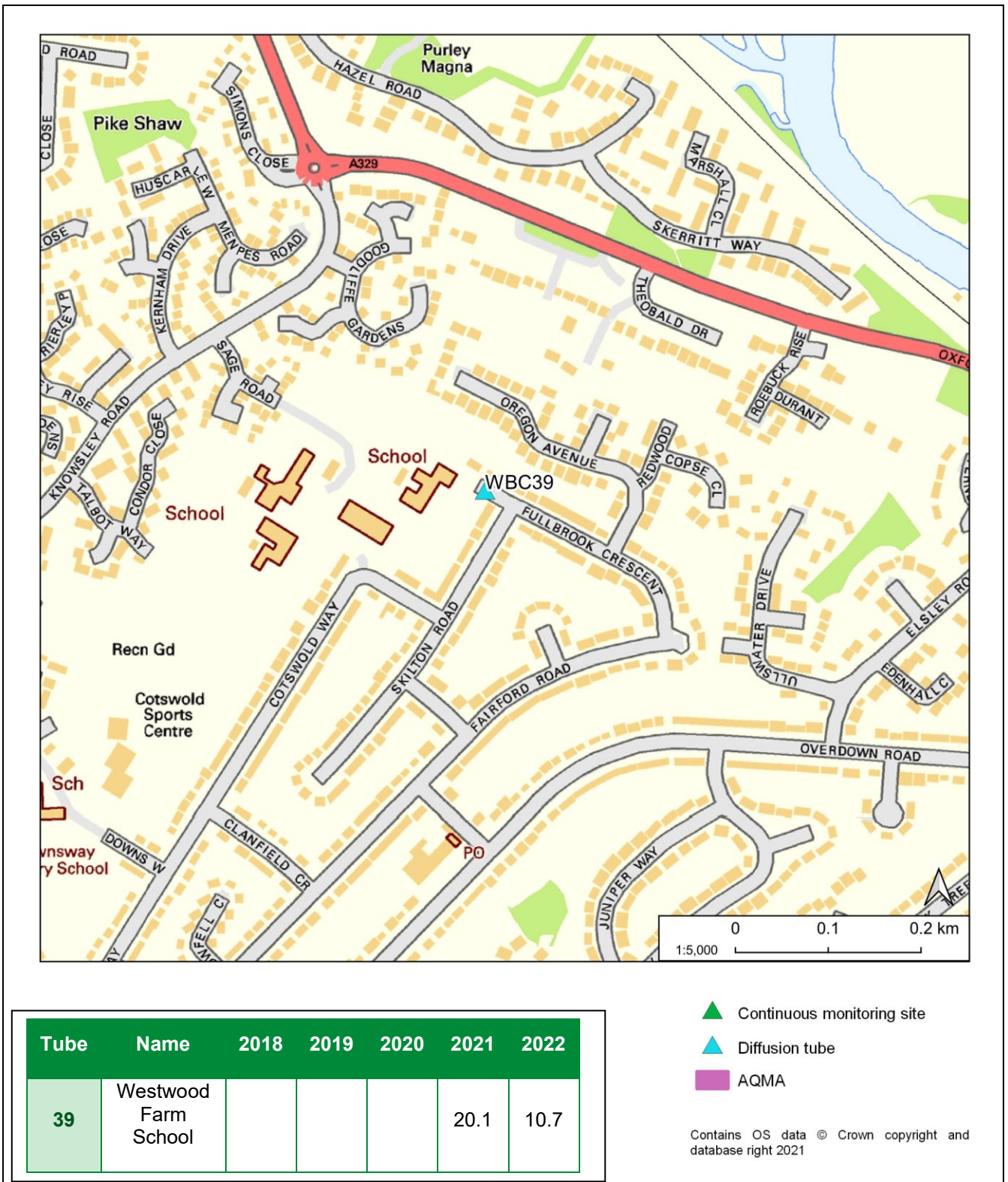


Figure D.12 – Map of (24) 374 London Road, Newbury Monitoring Site

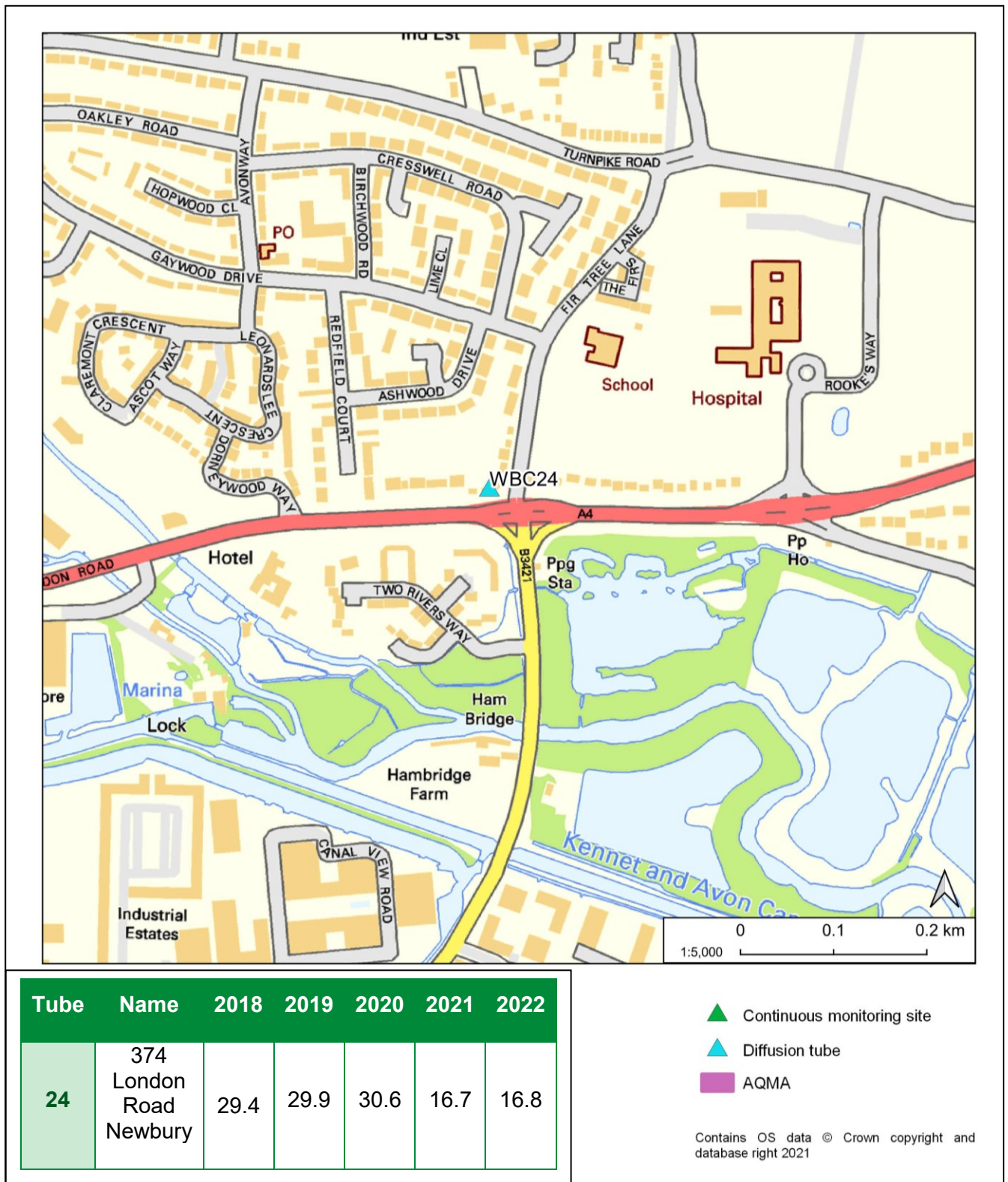


Figure D.13 – Map of (15) 7a Bridge Street Hungerford Monitoring Site

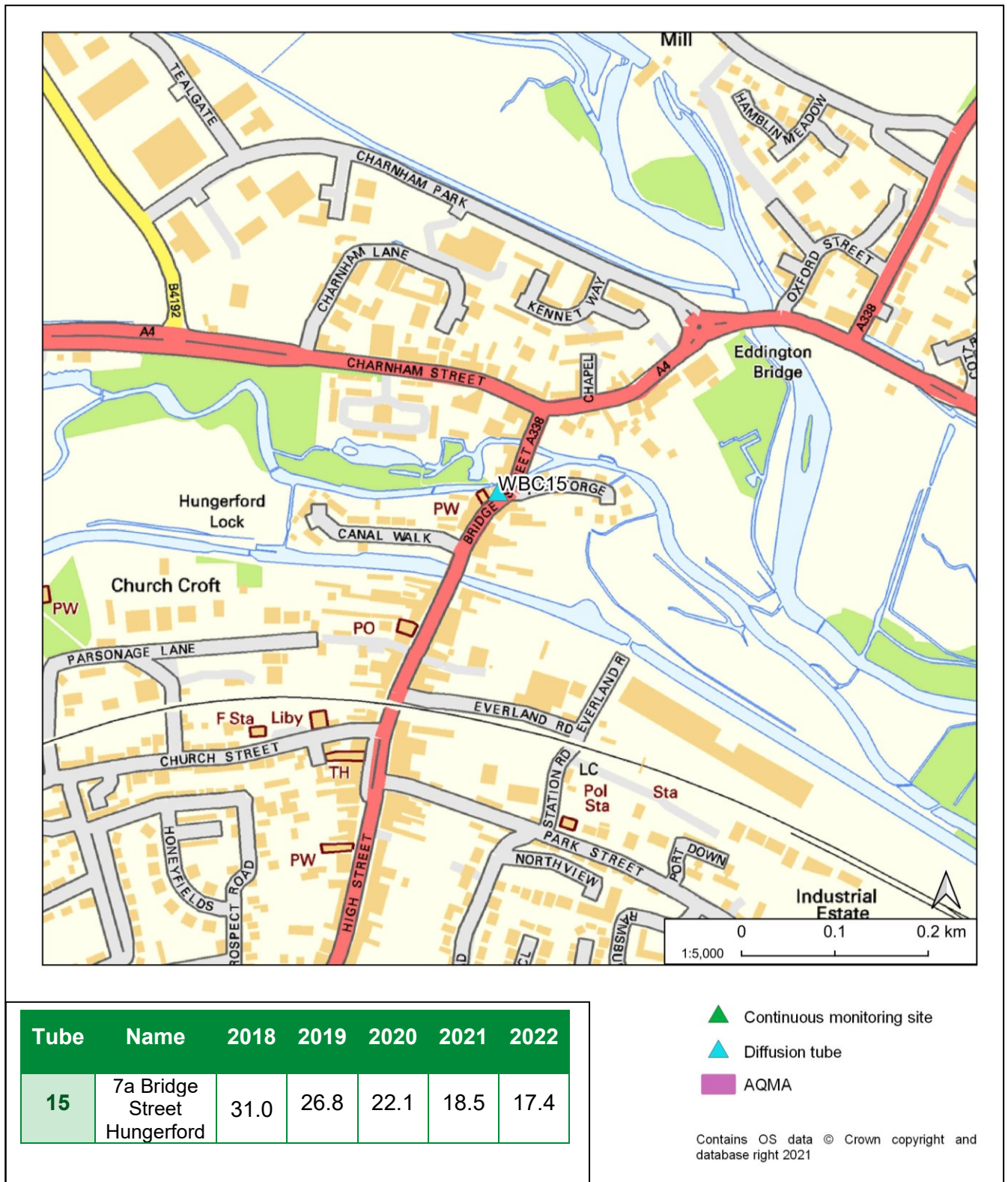
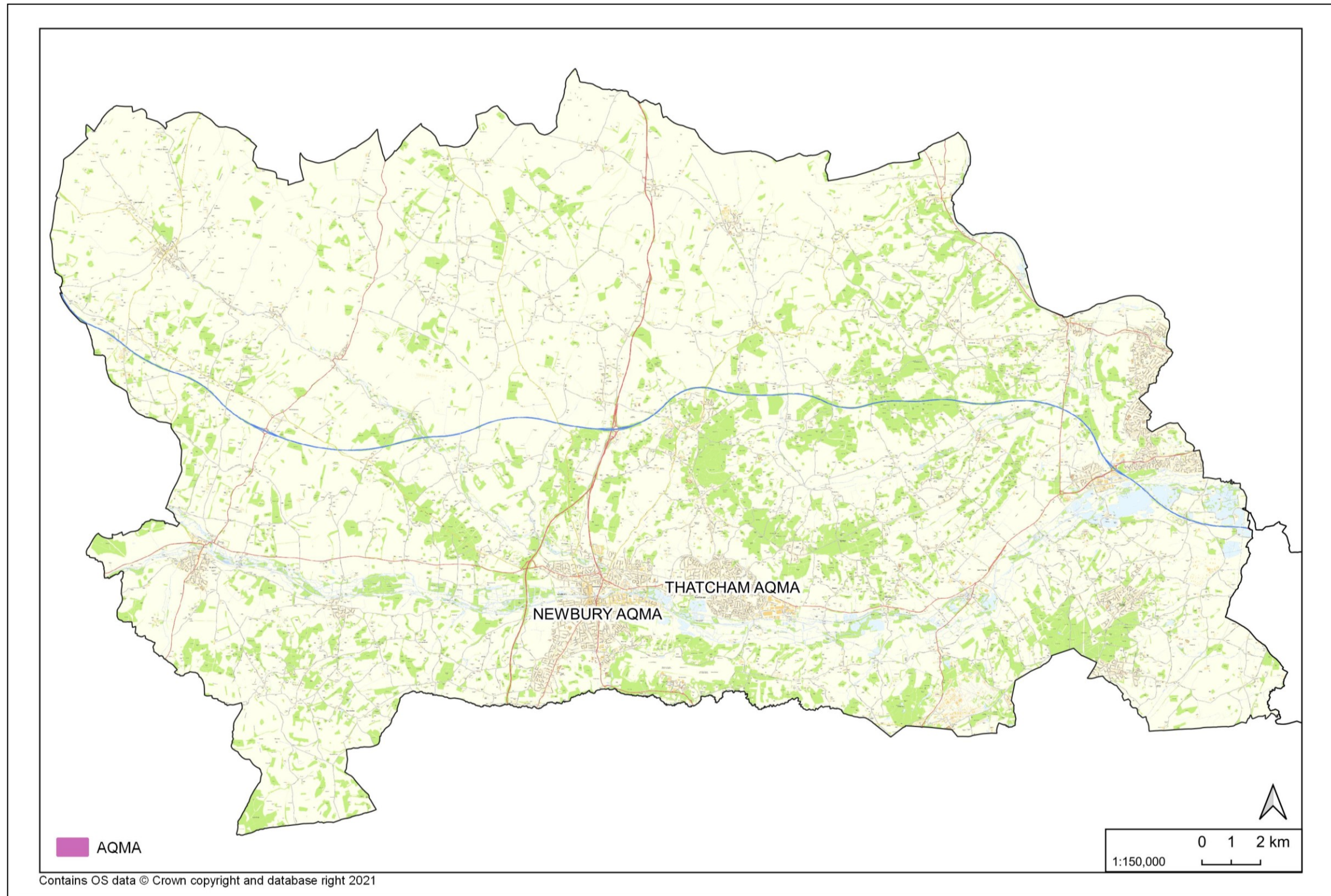


Figure D.14 – Map of West Berkshire



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

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

⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

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