Elmbridge Borough Council

2024 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: July 2024

Stantec

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For and on behalf of Stantec UK Limited				

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Executive Summary: Air Quality in Our Area

The following Annual Status Report (ASR) was prepared and written by Stantec UK Ltd (Stantec), on behalf of Elmbridge Borough Council ('the Council') in accordance with Local Air Quality Management (LAQM) Technical Guidance (TG) 2022[1], published by Department for Environment, Food and Rural Affairs (DEFRA) on behalf of the devolved administrations. The 2024 ASR provides the latest information regarding air quality in Elmbridge for the reporting year of 2023. It also provides updates on actions to improve air quality that have occurred since the previous 2023 ASR[2] was published.

Air Quality in Elmbridge

This report is designed to provide a summary for those living and working within the Borough of Elmbridge about the state of air quality in the area. It also provides progress on the actions that the Council and others, including the public, are taking, or could take, to improve air quality. Air quality and a healthy environment are important to the Council and measures to improve air quality are also in the Council Plan and The Council Vision 2030[3].

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[4].

[1] Department for Environment, Food and Rural Affairs (Defra). Local Air Quality Management Technical Guidance (TG22), August 2022.

[2] Elmbridge Borough Council. 2023 Air Quality Annual Status Report, 2023. Available at: www.elmbridge.gov.uk/sites/default/files/2024-01/2023%20Annual%20air%20quality%20status%20report.pdf

[3] Elmbridge Borough Council. Vision 2023. 2023. Available at: https://www.elmbridge.gov.uk/sites/default/files/2023-03/Vision%202030.pdf

[4] UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[5].

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

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

The main air pollutants of concern within Elmbridge are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$). Whilst sulphur dioxide (SO_2) is referred to in Table ES 1, previous rounds of Review and Assessment and historic monitoring of SO_2 (at Bell Farm School, Hersham) have concluded that concentrations of SO_2 are compliant with Air Quality Strategy Objectives in Elmbridge. Emissions of SO_2 have continued to decline across the UK (i.e., a 99% reduction in SO_2 emissions from the energy sector between 2005 to 2022[6]) which has largely been driven by the decline in use of coal in the energy

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

[6] Defra. National Statistics: Emissions of Pollutants in the UK – Sulphur Dioxide (SO_2), February 2024. Available at: https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-sulphur-dioxide-so2

sector and limits on sulphur content in liquid fuels. Therefore, SO_2 is not considered to be a pollutant of concern currently within Elmbridge.

Nitrogen Dioxide

The air quality objectives relevant to LAQM in England are outlined in Appendix E. Monitoring undertaken by the Council shows that there were no breaches of the annual mean objective for NO_2 in 2023 at any of the monitoring locations within the Borough. The vast majority of measured NO_2 concentrations in 2023 at monitoring sites within the Borough were lower than measured NO_2 concentrations in 2022.

Surrey-wide modelling of air pollutant concentrations, undertaken by Cambridge Environmental Research Consultants (CERC)[7], provides source apportionment predictions for nitrogen oxides (NO_x: nitric oxide (NO) plus NO_2) in Elmbridge. The modelled largest contributor to NO_x emissions in Elmbridge is road transport sources (48%), with diesel cars (20%) being the largest contributor within the road transport source group.

Particulate Matter – $PM_{2.5}$

Two $PM_{2.5}$ targets were published via The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[8] and are set out below:

- an annual mean concentration target for $PM_{2.5}$ levels in England to be 10 µg/m^3 or below by 2040; and
- a population exposure reduction target for a reduction in $PM_{2.5}$ population exposure of 35% compared to 2018 to be achieved by 2040.

The Government has published an Environmental Improvement Plan 2023[9] which sets out the following interim $PM_{2.5}$ targets to be met by the end of January 2028:

- the highest annual mean concentration in the most recent full calendar year must not exceed 12 µg/m^3 of $PM_{2.5}$; and

[7] CERC. Detailed Air Quality Modelling and Source Apportionment for Elmbridge Borough Council. Final Report, November 2019.

[8] UK Statutory Instrument 2023 No.96. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

[9] Defra. Environmental Improvement Plan, January 2023.

- compared to 2018, the reduction in population exposure to $PM_{2.5}$ in the most recent full calendar year must be 22% or greater.

The Environmental Improvement Plan also details how these targets will be met including reducing emissions at home, driving effective local action through local authorities, maintaining, and improving the regulatory framework for industrial emissions, supporting farmers to reduce their impact on ammonia[10] emissions and reducing emissions from cars and other forms of transport.

There is currently no legal duty for local authorities to take action on $PM_{2.5}$ and the above targets do not form part of the Local Air Quality Management Framework. However, local authorities are expected to contribute towards reducing $PM_{2.5}$ by targeting sources of $PM_{2.5}$ emissions within their control.

Furthermore, the Council has ambitiously committed to achieving the former World Health Organisation (WHO) Guideline Value for $PM_{2.5}$[11] of an annual mean concentration of 10 $\mu g/m^3$ by 2030 through their Air Quality Action Plan[12]. This can only be achieved through partnership working with the Surrey Authorities to drive down levels of $PM_{2.5}$ across the County.

Surrey-wide modelling of pollutant concentrations, undertaken by Cambridge Environmental Research Consultants (CERC)[7], provides source apportionment predictions for particulate matter (PM_{10} and $PM_{2.5}$) in Elmbridge. The modelled largest contributor to $PM_{2.5}$ emissions is “other sources[13]” at 20% which is followed by road source contribution at 17%. Furthermore, the report shows predicted exceedances of the 24-hour mean PM_{10} objective along the A3 and M25 (in 2017), however, the exceedances occur within the

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[10] When ammonia mixes with other gases in the atmosphere, it can result in the formation of secondary particulate matter.

[11] In September 2021, the WHO introduced even more stringent Guideline Values for $PM_{2.5}$ (5 $\mu g/m^3$).

[12] Elmbridge Brough Council. Elmbridge Borough Council Air Quality Action Plan, 2021. Available at: www.elmbridge.gov.uk/sites/default/files/2023-03/Air%20Quality%20Action%20Plan%202021%20to%202026.pdf

[13] These sources include: (1) combustion in commercial, institution and agricultural sectors, (2) combustion in industry, (3) combustion in energy production and transfer, (4) production processes, (5) extraction and distribution of fossil fuels, (6) solvent use, (7) other transport and machinery, (8) waste treatment and disposal, (9) agricultural, forests and land use change, (10) other sources and sinks.

road and are therefore not representative of relevant exposure. The report also shows that in 2017, a large proportion of Elmbridge exceeded the 10 µg/m^3 target value set out in the AQAP.

Actions to Improve Air Quality

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

The Environmental Improvement Plan[9] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant most harmful to human health. The Air Quality Strategy[14] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[15] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal transport, and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Monitoring

The Council works to understand local air quality through a monitoring network within its administrative boundary to include two real time monitoring stations (measuring NO_2) and a network of passive diffusion tubes monitoring NO_2 levels. The Council obtained Community Infrastructure Levy (CIL) funding for a particulate automatic monitoring station to be installed to help establish an understanding of baseline concentrations of particulate matter (PM_{10} and $PM_{2.5}$) in the Borough and monitor progress in reducing concentrations. There were delays with implementing the project, and costs had increased, however, additional CIL funding was secured in July 2023 and the real-time monitoring station, located on Esher High Street has now been installed. Measured PM_{10} and $PM_{2.5}$ data from

[14] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

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

this monitoring station will be reported in next year's ASR. Live data for all three real time monitoring stations, two stations measuring nitrogen dioxide and one measuring particulates can be viewed on https://www.ukairquality.net/.

Local Planning Policy

Measures to improve air quality have been included in the Council's Development Management Plan[16] and air quality is an important consideration for all planning applications, particularly within and adjacent to the Boroughs six AQMAs. Addressing air quality as part of new developments is embedded in the draft Local Plan which has been submitted to the Secretary of State and is currently undergoing independent examination. In recognition of the importance of addressing air quality within the Borough, a specific 'air quality' policy is proposed (draft Policy ENV8) in the Regulation 19 Draft Elmbridge Local 2037[17]. Currently air quality is included within a wider policy which encompasses other types of pollution.

The Council has also committed to preparing several Supplementary Planning Documents (SPDs), to provide detailed guidance on the implementation of policies set out in the draft Local Plan. The Council's adopted Local Development Scheme (LDS) 2023-2026, identified three SPDs to be prepared which have particular relevance to air quality. These are the Elmbridge Local Design Code; the Climate Change and Renewables SPD; and the Healthy Environment SPD. The Climate Change and Renewables SPD and the Healthy Environment SPD are still under development, however the Elmbridge Design Code[18] was adopted in April 2024. The Design Code requires developers to acknowledge the constraints and opportunities that help shape the design process, and this will include environmental considerations such as air quality. It also includes requirements for new developments relating to enhancing connectivity and sustainable transport infrastructure

[16] Elmbridge Borough Council. Development Management Plan, 2015. Available at: https://www.elmbridge.gov.uk/sites/default/files/2023-05/Development%20Management%20Plan.pdf

[17] Elmbridge Borough Council. Regulation 19 Draft Elmbridge Local Plan 2037, 2022. Available at: https://www.elmbridge.gov.uk/local-plan-examination

[18] Elmbridge Borough Council. Elmbridge Design Code, September 2023. Available at: www.elmbridge.gov.uk/sites/default/files/2024-04/Elmbridge%20Design%20Code%202024.pdf

through development design, as well as green infrastructure and electric vehicle charging infrastructure provision.

Council Plans and Strategies

In July 2019, the Council declared a 'Climate Emergency' and have pledged to take action locally to contribute to national carbon neutral targets through the development of policies and practices, together with the aim of making the Council a carbon neutral organisation by 2030. The Council has adopted its Carbon Management and Reduction Plan[19] in 2020 to assist in the delivery of this commitment.

The Council recently launched The Elmbridge Vision 2030[20], for a sustainable, thriving Elmbridge driven by the power of its community. Sustainability is at the heart of the Vision and the Borough's Air Quality Action Plan 2021- 2026[12] is integral to the commitment for sustainability and enhancing our natural environment. There are number of carbon reduction measures proposed as part of these plans and strategies which will also benefit air quality, including the installation of electric car charging points in the key Council car parks and encouraging the use of sustainable transport modes.

The Council's AQAP was approved by DEFRA and Council members and adopted in December 2021. Progress on measures to improve air quality within the AQAP have been reported in this ASR.

Public Information

The Council continues to fund and promote the airAlert pollution warning service to people living and working in the Borough. As of May 2024, 289 residents in Elmbridge had subscribed to receive airAlerts. The Council intends to move to a new provider for this service in October 2024. Those currently subscribed to airAlert will be requested to join the new service as the October switch date approaches.

The Council also utilises its website to display public information regarding air quality to include details on its monitoring, current and historical ASRs in addition to the AQAP. The

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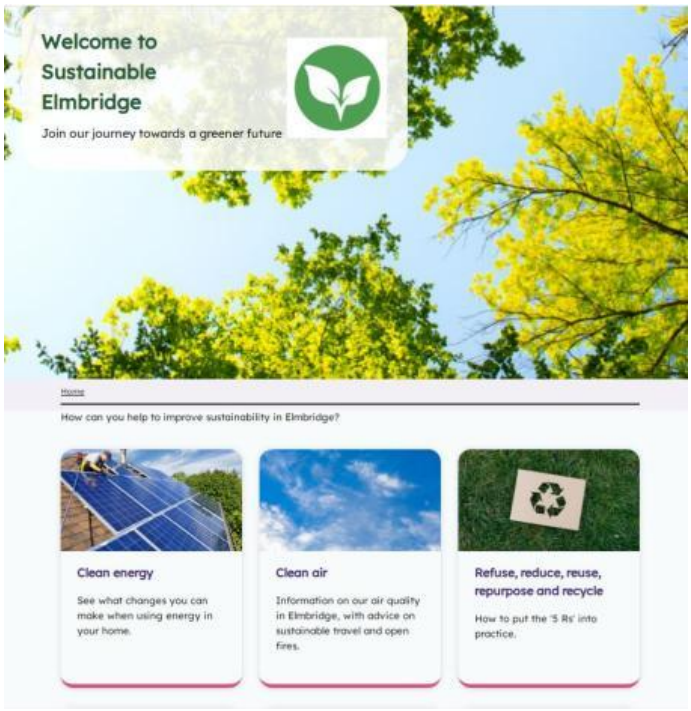
[19] Elmbridge Borough Council. Carbon Management and Reduction Plan, July 2023. Available at: www.elmbridge.gov.uk/sites/default/files/2023-03/Carbon%20Management%20and%20Reduction%20Plan%202020%20to%202030.pdf

[20] Elmbridge Borough Council. Vision 2030, 2024. Available at: www.elmbridge.gov.uk/sites/default/files/2024-04/Vision%202030.pdf

'Improving your local air quality' page[21] informs residents of the main pollutants in the Borough, has a short video and explains how residents can help to improve both outdoor and indoor air quality, as well as highlighting what the major sources of both outdoor and indoor air pollution are.



The recent Sustainable Elmbridge hub includes a 'Clean air' page[22] that provides more detail about the ways residents can reduce the air pollution that they produce, focusing on electric transport, active travel, utilisation of public transport, car sharing and open fires and woodburning stoves. The page also includes a link to the Councils AQAP[18].

Surrey Air Alliance

The Surrey Air Quality Study Group, formed in May 2016, has developed into the Surrey Air Alliance (SAA) consisting of officer representatives from all eleven District and Borough Councils, and Surrey County Council's (SCC) Highways and Public Health services.

[21] Elmbridge Borough Council Website. Improving your local air quality. Available at: www.elmbridge.gov.uk/environment/air-quality/improving-your-local-air-quality

[22] Elmbridge Borough Council Website. Clean air. Available at: www.elmbridge.gov.uk/sustainable-elmbridge-0/clean-air

The Council continues to be an active member of the Surrey Air Alliance (SAA) and assists in the delivery of the SAA workplan.

A key workplan task which the Council has led is the Surrey-wide air quality modelling project. The air quality modelling project, undertaken by CERC, was completed in 2019 and establishes a clear baseline for key pollutants (NO_2, PM_{10} and $PM_{2.5}$) across Surrey. The Council will work with the SAA to deliver an update to the Surrey-wide modelling which will be published in 2026/27. The interactive contour maps of modelled pollutant concentrations have continued to be hosted on the SCC website throughout 2023: https://surreycc.maps.arcgis.com/apps/webappviewer/index.html?id=43910ffb100248ed972115b7a9b49d20.

A key workplan project the Council is involved in is directed at raising awareness of air quality within schools close to AQMAs. The SAA have worked with The Safer Travel Team and received grant funding from Surrey County Councils 'Rethinking Transport' budget to support schools in encouraging parents and children to travel to school more sustainably.

Within Elmbridge there are currently eleven schools with a School Travel Plan on Modeshift STARS (an accreditation scheme which aims to recognises schools that have shown excellence in sustainable and active travel), nine schools have a bronze accreditation level, one achieving the highest accreditation level (platinum), and one with the lowest accreditation grade (green). Some schools have also accepted the challenge

to become Green Flag schools through the internationally recognised Eco-Schools Framework, focusing their efforts on topics including transport and energy. As of May 2023, a total of 232 schools have engaged with the Eco-Schools programme with 73 schools in the County achieving Green Flag, 10 of which are within Elmbridge. As of May 2024, 14 Schools within Elmbridge have achieved Green Flag status, 6 with distinction.

A new initiative within schools was launched in 2023 called Let's Go Zero with commitment to achieve Net Zero by 2030. As of May 2024, 8 schools within Elmbridge have committed to Let's Go Zero.

During 2022 the SAA has been working with the Surrey Heartlands Children and Young People's Asthma Team on a project to develop an Asthma care bundle. As part of this work the SAA drew up a prioritised list of schools based on modelled pollution concentrations at all schools within the county, so that the Asthma team could identify the initial tranche of schools to roll the project out to, and the group has been briefed on the pollution warning services available in Surrey including Surrey airAlert. Three schools within Elmbridge were on the prioritised list.

The SAA also fed information into the Asthma Toolkit. See the following link for more information https://www.healthysurrey.org.uk/children-and-families/asthma-toolkit/parent-and-carer. The above link provides information for the general public on indoor and outdoor air quality issues.

Ask about Asthma week was held during 3-9 October 2022, where 40 primary schools across Surrey Heartlands were targeted and sent stickers and a weblink to the toolkit. Elmbridge released an article promoting the week with links to the toolkit and airAlert.

The group also attended a number of meetings to help support the production of an Air Quality Pack for healthcare professionals, with the aim of ensuring air quality information is easily accessible and available, what messaging about poor air quality means for patients, and what actions they can take.

In 2023 the SAA gave a briefing on air quality (17th May) to the Surrey Asthma Network, including a discussion on ozone levels across the county and how this can also impact on health.

The group also helped the Surrey Heartlands Children and Young People's Asthma Team at their Children and Young People's Asthma Learning Event on the 20 June 2023, with a stand demonstrating the Surrey airAlert service, and other pollution services available across the UK. The event was well attended by a number of health care professionals (doctors, nurses, and pharmacists) working in asthma and respiratory medicine, and provided a key forum at which to demonstrate pollution warning services in Surrey. As of June 2023, 21 schools within Elmbridge have signed up for asthma training which includes education on asthma triggers such as air pollution.

In the last year the SAA has supported the implementation of the a paediatric toolkit for parents and schools, Asthma friendly school | Healthy Surrey. As part of this work, the SAA promoted the Schools' Air Quality Monitoring for Health and Education project SAMHE.

SAMHE schools receive a free indoor air quality monitor linked to an interactive Web App, enabling teachers and pupils to view and investigate data on classroom air quality. This initiative was also promoted in SCC's schools bulletin, which goes to all schools in Elmbridge. This is a citizen science project looking at how poor indoor air quality impacts pupils' health and attention levels. The air quality monitor measures carbon dioxide (CO_2), total volatile organic compounds (TVOCs), particulate matter (PM), temperature and relative humidity.

In March 2021, DEFRA awarded £256,686 from the Air Quality Grant to fund a project to encourage a greater uptake of Electric Vehicles as Taxi's across seven eligible Boroughs, and Districts in Surrey which included Elmbridge. Taxis were selected as the target vehicles given the high mileage and multiple trips the vehicles make within Surrey's AQMAs and the nature of the journeys which take the vehicles into areas frequented by the members of our communities who are most sensitive to air pollution such as to hospitals and care facilities and schools. The project has since been reconfigured to

accommodate longer vehicle trials based on feedback from the taxi trade and potential vehicle suppliers and submission of the reconfigured project was made to DEFRA for approval. Further funding has been secured to take the electric vehicle taxi project forward. It is intended the grants will be awarded by Autumn 2024 for completion of trials Autumn 2025. The Council is participating in this project and the Council's Licensing and Pollution Teams are supporting the project.

Domestic wood burning as a lifestyle choice has been identified as a significant contributor to local air pollution. In 2020, it was estimated that 25% of the UKs manmade $PM_{2.5}$ emissions came from domestic combustion of which 70% were from wood burning[23]. In September 2023 a second consortium (including SCC, District and Borough Councils) application was submitted; led by Hertfordshire County Council (HCC), for DEFRA air quality grant funding to support Global Action Plan's Clean Air Night campaign in January 2025. The submission followed the unsuccessful application in 2022, to support Global Action Plan's Clean Air Night campaign in January 2024. In February 2024 DEFRA notified HCC that while the application scored higher than the previous application, the bid was unsuccessful on this occasion. The SAA was a founder supporter for Global Action's Clean Air Night campaign in January 2024, Clean Air Night | Global Action Plan (actionforcleanair.org.uk). The plan is to support the 2025 campaign; however, this is unlikely to be to the extent planned in the consortium grant bid.

Encouraging Uptake of Sustainable Travel Modes

Elmbridge was one of the first boroughs in Surrey to have its Local Cycling and Walking Infrastructure Plan (LCWIP) developed by the County Council. Dated March 2022, the Elmbridge LCWIP Report was prepared through a process of joint working between SCC and Borough Councils and the SCC appointed consultants, Atkins. The report includes the following:

- identification of where good walking and cycling facilities would be most beneficial;
- identification of what improvements are required at these locations; and
- plan how these improvements can be delivered, and which to prioritise first.

[23] Blake, E. Urban outdoor air quality, 2023. Available at: https://researchbriefings.files.parliament.uk/documents/POST-PN-0691/POST-PN-0691.pdf

SCCs is currently in the process of undertaking a Feasibility Study for all Phase 1 Walking and Cycling Routes and in March 2023, Elmbridge Borough Council agreed a financial contribution towards the implementation of the Cobham Walking Route and the Hampton Court Cycle Route/Path.

Encouraging Uptake of Electric Vehicles

The Council's Environmental Enforcement Officers continue to use an electric pool car for work travel. The Council's Parking Enforcement Contractor also has the use of electric vehicle and mopeds. Also, in late Summer 2023, three electric pool car vehicles were made available for staff to book and use for meetings and site visits.

The Council's work towards becoming carbon neutral by 2030 and support a sustainable Elmbridge continues with the Green Fleet Strategy 2030 which sets out the plan to decarbonise the Council's fleet vehicles by 2030. The Green Fleet Strategy and phased vehicle replacement programme will see eight vehicles replaced in 2023/24: that's 28% of the current fleet moving to electric within the first year. An interim measure from the strategy, will be transferring our Community Support Service's diesel fleet to 'Green BioFuel'.

The Council is also increasing the provision of electric vehicle chargepoints within the Borough.

As of April 2024, the Council has fast 11-22kW electric vehicle chargepoints at the following locations:

- Hollyhedge Road car park, Cobham
- Churchfield Road car park, Weybridge
- Civic Centre car park, Esher
- Drewitts Court car park, Walton-on-Thames
- Claygate Centre for the Community (Elm Road, Claygate, KT10 0EH)
- Cobham Centre for the Community (Oakdene Road, Cobham, KT11 2LY)
- Community Transport, (River Mole Business Park, Mill Road, Esher, KT10 8BJ)
- Hersham Centre for the Community (7 Queens Road, Hersham, KT12 5LU)
- Molesey Centre for the Community (Bishops Fox Way, West Molesey, KT8 2AS)
- Walton Centre for the Community (Manor Road, Walton-on-Thames, KT12 2PB)

The Council is also exploring the options for the further provision of off-street electric vehicle chargepoints, as well as liaising with SCC on their delivery on-street electric vehicle chargepoints network.

In July 2020, the Council adopted a new taxi and private hire licencing policy 2020 – 2025 that came into force on 1 September 2020. The new policy recognises the need to ensure the health and wellbeing of residents and aims to improve local air quality by encouraging the use of low and ultra-low emissions taxi and private hire vehicles such as electric, hybrid or liquified petroleum gas (LPG). From 1 September 2020, the Council will not issue new licences for diesel vehicles unless they meet the latest Euro Standards currently Euro 6. All new petrol vehicles must also meet the latest Euro emission standards. By 1st January 2026 the Council will phase out the use of diesel vehicles that do not meet the latest (Euro 6) European emission standards. As of May 2024, there has been over a 20% reduction in the number of diesel Private Hire and Taxi licensing vehicles registered within the Borough.

Conclusions and Priorities

Air quality monitoring has shown a general decrease in NO_2 concentrations across the Borough during the 2019 to 2023 monitoring period. It should be noted that measured NO_2 concentrations in 2020 and 2021 were much lower than previous years due to the impact of COVID-19 on road traffic levels. Monitoring in the Borough shows that there were no breaches of the annual mean objective for NO_2 in 2023 at any of the monitoring sites. However, further action is required to ensure that NO_2 concentrations continue to reduce across the Borough. The Council is also committed to targeting $PM_{2.5}$ pollution through a range of interventions with the aim of achieving annual mean concentrations of less than 10 µg/m^3 by 2030 across the Borough.

Since 2020, concentrations have remained below the annual mean NO_2 objective at monitoring sites in all the AQMAs declared by Elmbridge. Furthermore, NO_2 annual mean concentrations have been more than 10% below the NO_2 objective for three consecutive years in all AQMAs at locations of relevant exposure (i.e. once adjusted for fall-off with distance). However, monitoring results from 2020 and 2021 are not considered representative due to COVID-19 restrictions in place during these years and therefore do not provide a suitable basis for revoking any AQMAs. Therefore, monitoring will continue in the AQMAs until it can be demonstrated that concentrations have been more than 10% below the annual mean NO_2 objective for a minimum of three consecutive years (from

2021) under 'normal' conditions. If concentrations stay at more than 10% below the annual mean NO_2 objective following the results from the reporting year of 2024, it will be considered whether it is appropriate to revoke any AQMAs.

Measured annual mean NO_2 concentrations within the former Cobham High Street AQMA (Cobham 1 and Cobham 7) have been more than 10% below the annual mean NO_2 objective for several years. The revocation of the Cobham High Street AQMA was approved by DEFRA in 2020.

The areas prioritised for action in 2023/2024 are:

- **Priority 1 – reducing NO_2 levels within the Borough's AQMAs to below the objective in the shortest time practicable.**
- **Priority 2 – targeting $PM_{2.5}$ through a range of interventions with the aim of reaching the World Health Organisations recommended level of 10µg/m^3 by 2030 within the Borough.**
- **Priority 3 – modal shift to more sustainable transport.**
- **Priority 4 – ensuring air quality is a priority within the Council's policies and those of SCC and assist in delivering the projects and actions.**
- **Priority 5 – partnership working as part of the SAA to improve Surrey's air quality.**

Local Engagement and How to get Involved

Our approach to local engagement includes the following messages and tools:

- As the majority of air pollution is associated with traffic, consider alternatives to using your car; public transport, walking or cycling will help reduce emissions.
- Whilst driving minimise the amount of time you idle your engine to reduce emissions
- When purchasing a new car, consider vehicles with lower exhaust emissions, such as hybrid or electric vehicles. Information on electric car grants is available at: https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles
- Sustainable Elmbridge hub – tips and tools to tackle climate change and improve air quality. See https://www.elmbridge.gov.uk/sustainable-elmbridge-0.
- If you are carrying out building works, consider future-proofing your home by installing an electric vehicle charge point. A fast (7kW) charger is recommended

and there are grants available which can bring the cost down to under £300. More information can be found at: https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles.

- Where possible consider installing zero emission heating technologies. If installing or replacing an existing wood burning stove, consider purchasing one that has been approved for use in smoke control areas by DEFRA or an Eco-design ready stove to help reduce emissions. More information can be found at: https://www.elmbridge.gov.uk/pollution/local-air-quality/
- Air pollution can cause short term (acute) and long term (chronic) health problems. The most sensitive groups are adults and young children with respiratory conditions and adults with heart conditions. If you feel that you are in one of the higher risk groups or have particular concerns regarding air quality, you can sign up to our airAlert information service. For more information visit the airAlert website at: http://www.airalert.info/Surrey/Default.aspx.

Local Responsibilities and Commitment

This ASR was prepared by the Planning and Environmental Health Team of Elmbridge Council with the support and agreement of the following officers and departments:

- Elmbridge Borough Council – Planning and Environmental Health, Assets Management and Property Services and Climate Change and Sustainability.
- Members of the Surrey Air Alliance (SAA made up from the eleven Surrey Districts and Boroughs, Surrey County Council Public Health, and Highways Teams).

This ASR has been approved by:

- Suzanne Parkes, Head Planning and Environmental Heath at Elmbridge Borough Council.

- Cllr Caroline James, Portfolio Holder for Planning and Cllr Ashley Tilling Portfolio Holder for Climate Change, Environmental Services and Sustainability approved the ASR at Individual Cabinet Member Decision Making (ICMDM) on 25th June 2024.

Ruth Hutchinson, Director of Public Health Surrey County Council - On behalf of the Surrey County Council Director of Public Health, the Public Health team work closely with Surrey Air Alliance including District and Borough Council partners responsible for submitting Annual Statement Reports (ASR) on air quality within their area; to develop initiatives and implement actions to improve air quality across the county of Surrey, through collaboration and consultation.

If you have any comments on this ASR please send them to Paul Leadbeater at:

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1 Local Air Quality Management

This report provides an overview of air quality in Elmbridge during 2023. 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 Elmbridge Borough Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1. page 67.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by the Council can be found in Table 2.1. The table presents a description of the six AQMAs that are currently designated within Elmbridge. Appendix D: Maps of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objective pertinent to the current AQMA designations is the NO_2 annual mean.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Walton-on-Thames High Street	01/11/2013	NO_2 Annual Mean	An area encompassing part of the High Street, Walton-on-Thames, between its junction with Hepworth Way/Church Street and Ashley Road/Herhsam Road	YES	42.3	27.3	7 years	Air Quality Action Plan for Elmbridge Borough 2021 - 2026	https://www.elmbridge.gov.uk/pollution/local-air-quality/
Weybridge High Street	17/11/2008	NO_2 Annual Mean	An area encompassing Balfour Road, Church Street, High Street and Monument Hill, Weybridge.	YES	62	30.7	3 years	Air Quality Action Plan for Elmbridge Borough 2021 - 2026	https://www.elmbridge.gov.uk/pollution/local-air-quality/
Hampton Court	17/11/2008	NO_2 Annual Mean	An area encompassing parts of Hampton Court Way and Riverbank.	NO	50.7	24.9	3 years	Air Quality Action Plan for Elmbridge Borough 2021 - 2026	https://www.elmbridge.gov.uk/pollution/local-air-quality/
Hinchley Wood	17/11/2008	NO_2 Annual Mean	An area encompassing part of the A309 Kingston Bypass between Littleworth Road and Manor Road North.	YES	57.7	25.4	7 years	Air Quality Action Plan for Elmbridge Borough 2021 - 2026	https://www.elmbridge.gov.uk/pollution/local-air-quality/

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
Esher High Street	17/06/2005	NO_2 Annual Mean	An area extending along the High Street, Church Street and including parts of Esher Green and Lammas Lane.	YES	62.1	30.3	3 years	Air Quality Action Plan for Elmbridge Borough 2021 - 2026	https://www.elmbridge.gov.uk/pollution/local-air-quality/
Walton Road, Molesey	18/06/2005	NO_2 Annual Mean	An area extending 50m either side of the centre line of Walton Road, Molesey between its junction with Tonbridge Road and Esher Road/Bridge Road.	NO	55.8	27.6	3 years	Air Quality Action Plan for Elmbridge Borough 2021 - 2026	https://www.elmbridge.gov.uk/pollution/local-air-quality/

☒ **Elmbridge Borough Council confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **Elmbridge Borough Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Elmbridge

Defra's appraisal of last year's 2023 ASR concluded that the report was well structured, detailed, and provided the information specified in the Guidance. Furthermore, the following comments were provided by Defra to help inform future reports:

- Extensive trend graphs have been provided for all monitoring data, which is commended.
- The Council have provided excellent mapping of all monitoring locations within the district and included AQMA boundaries, which is commended.
- The use of the Public Health Outcomes Framework to account for the health effects of $PM_{2.5}$ is commended with reference to achieving the WHO recommended level of 10µg/m^3 by 2030. This is indicative of good practice.
- The Council has considered the comments made during previous appraisals. This is commended and the Council is encouraged to continue this approach for ASRs.
- The Council is recommended to continue to review their current monitoring regime, specifically the addition of several new non-automatic monitoring sites (diffusion tubes) across the region. This is important as additional sites will help to identify whether there are other key areas of relevant exposure where there may be exceedances and the appropriate measures can be adopted accordingly.
- There is one minor formatting issue in the report. In Tables C.1 and C.2 in Appendix C, all values should be presented to the same number of decimal places. The Council is encouraged to correct this in future reports.
- The Council have provided clear evidence of several key actions to improve air quality during 2022 and frequently meet with local and regional organisations in the district to ensure that local concerns are being addressed. This is commended.

The 2024 ASR has addressed these comments by conducting the following:

- The need for additional monitoring sites has been considered. As no exceedances of the annual mean NO_2 objective have been identified in 2023, and a full review of

monitoring sites was undertaken in 2020, no additional monitoring sites are considered to be required at this time. A full review of all diffusion tube locations will be undertaken following the CERC Surrey wide modelling update in 2026.

- Minor formatting issues have been corrected.
- Where elements of the 2023 ASR have been commended or are indicative of good practice, they have also been included in this ASR.

The Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Thirty-two measures are included within Table 2.2, with the type of measure and the progress the Council has made during the reporting year of 2023 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. Key completed measures are:

- Implementation of the LCWIP for Elmbridge.
- The Council agreed on financial contributions towards the implementation of Cobham Walking Route and the Hampton Court Cycle Route/ Path.
- Installation of more electrical vehicle chargepoints across the Borough.
- Continued funding and promotion of the airAlert pollution warning service.
- Continued support for the successful engagement and behaviour change programme in Surrey Schools.
- Responding to the ‘Climate Emergency’, included as a priority in the Council Plan 2022/2023, and implementation of the Council Carbon Management and Reduction Plan.
- Funding has been secured for the SAA electric taxi project.
- A particulate matter monitor has been installed in Esher.

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

- Increase the number of electric vehicles chargepoints in the Borough.
- Supporting Transport for Southeast including the publication of the Strategic Investment Plan.
- Air Quality appropriately considered within the Local Transport Plan 4 (LTP4).
- Continued progress and delivery on DEFRA air quality grant projects.

- Continued progress and delivery on SAA projects, new pollution warning service, support for schools projects, Clean Air Day and Clean Air Night campaigns and commissioning of the CERC air quality modelling
- Reporting of PM_{10} and $PM_{2.5}$ concentrations in the 2024 ASR following installation of the automatic monitoring in Esher.
- Upgrade both real-time stations measuring nitrogen dioxide to 4G connectivity.

The Council's priorities for the coming year remain:

- Priority 1 – reducing NO_2 levels within the Borough's AQMAs to below the objective in the shortest time practicable.
- Priority 2 – targeting $PM_{2.5}$ through a range of interventions with the aim of reaching the World Health Organisations recommended level of 10µg/m^3 by 2030 within the Borough.
- Priority 3 – modal shift to more sustainable transport.
- Priority 4 – ensuring air quality is a priority within the Council's policies and those of SCC and assist in delivering the projects and actions.
- Priority 5 – partnership working as part of the SAA to improve Surrey's air quality.

The Council worked to implement these measures in partnership with the following stakeholders during 2023:

- SAA (includes all Surrey Districts and Boroughs, SCC Public Health and Highways Teams);
- SCC Trading Standards Team; and
- SCC Safer Travel Team.

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

- As part of the Governments Road Investment Strategy 2015 to 2020, improvements are being made to the M25 Junction 10/A3 Wisley Interchange. Improvements include restoring heathland and upgrading the junction because it is the busiest section on the M25 with over 300,000 vehicles passing through each day. Throughout the improvements which started in summer 2022 traffic has been rerouted through Elmbridge resulting in traffic delays and congestion. Since December 2022 the project has been progressed and work is expected to finish summer 2025. For more information, please refer to Appendix C, new or changed sources.

- Action EBC5 (Pilot Cargo Bike Scheme) – there has been an agreement between all parties to take this project no further.

Progress on measures has been slower than expected due to limited support from other services due to competing work demands to assist in project work.

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

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	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
EBC-1	Use of, and exploration of possibilities for increasing use of, Council electric vehicles for journeys within the Borough and supporting electric vehicle use by Council contractors	Promoting Low Emission Transport	Public Vehicle Procurement -Prioritising uptake of low emission vehicles	2020	2025	EBC	EBC	NO	Partially Funded	£10k - 50k	Implementation	Reduced vehicle emissions	Environmental Enforcement officer's new electric vehicle	Environmental Enforcement officers use an electric pool car for visit visits within the borough. Building on this year, the Green Fleet Strategy vehicle replacement programme has seen the following electric vehicles come into our fleet: three electric pool cars for staff usage meeting and site visit usage, including of the replacement the Mayor's vehicle, two community transport buses and two support vans with electric vehicles.	The Carbon Management and Reduction Plan includes actions that will assist in the implementation of this measure including: • Review of the Council's internal purchases, working towards the ambition of an ultra-low carbon fleet. • Replace and review existing electric vehicle fleet and increase number of electric pool cars. The full Carbon Management and Reduction Plan can be viewed at: https://www.elmbridge.gov.uk/your-council/council-plans-policies-and-strategies/climate-change-plans/our-carbon-footprint#:~:text=Our%20Carbon%20Management%20and%20Reduction,2020%2C%20and%20has%20been%20revised.

Measure No.	Measure Title	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
EBC-2	Increasing the number of electric vehicles charging points in Council car parks	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging	2020	2023	EBC	EBC	NO	Partially Funded	£10k - 50k	Implementation	Reduced vehicle emissions	No. of charging points installed	The Council has electric vehicle chargepoints at the following locations: • Hollyhedge Road car park • Churchfield Road car park • Civic Centre car park • Drewitts Court car park • Claygate Centre for the Community • Cobham Centre for the Community • Community Transport, • Hersham Centre for the • Molesey Centre for the Community • Walton Centre for the Community	A requirement for all developments to implement electric vehicle chargepoints in accordance with the standards set out in the Parking Supplementary Planning Document (SPD) has been included in the emerging Local Plan. The Council adopted the Parking SPD in July 2020. The document includes standards that new developments are expected to meet in relation to electric vehicle charging infrastructure. The Parking SPD is available at: Elmbridge Borough Council - Supplementary planning documents: https://www.elmbridge.gov.uk/planning/planning-policy-and-guidance/supplementary-planning-documents The Parking SPD will be reviewed following the adoption of the new Local Plan.

Measure No.	Measure Title	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
EBC-3	Use of a tiered fee structure for taxi licensing to benefit operators with lower emission vehicles	Promoting Low Emission Transport	Taxi Licensing conditions	2020	2026	EBC	N/A	NO	Funded		Implementation	Reduced vehicle emissions	Percentage/ type diesel vehicles remaining	New EBC Taxi and Private Hire Licensing Policy adopted in September 2020. As of May 2024, there has been over a 20% decrease in the number of diesel Private Hire and Taxi licensing vehicles registered within the borough.	The EBC Taxi and Private Hire Licensing Policy 2020 – 2025 includes a commitment to phase out use of all diesel-fuelled vehicles and petrol-fuelled vehicles that do not meet the latest Euro standard. From September 2020, new licences will not be issued for diesel-fuelled vehicles or petrol- fuelled vehicles that do not meet the latest Euro standard. The Taxi and Private Hire Licensing Policy is available at: https://www.elmbridge.gov.uk/licensing/taxi-and-private-hire-licensing/passenger-policies-and-information#:~:text=The%20law%20requires%20that%20passengers,be%20operated%20throughout%20the%20journey. Furthermore, if a licence holder wishes to replace their vehicle, the replacement vehicle must meet a higher Euro emission standard that the existing vehicle. Also see SCC-3, SAA DEFRA grant from Taxi project.

Measure No.	Measure Title	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
EBC-4	Reducing Council staff and fleet transport emissions as part of the Council's Carbon Reduction Strategy	Promoting Travel Alternatives	Workplace Travel Planning	2020	2030	EBC	EBC	NO	Partially Funded	£10k - 50k	Implementation	Reduced vehicle emissions	Latest carbon reduction action plan updates.	Initial assessment of emissions completed. Additionally, a salary sacrifice scheme has been introduced for staff who would like to purchase their own electric vehicle.	The Carbon Management and Reduction Plan (CRMP) includes actions that will assist in the implementation of this measure including: • Review of the Council's internal purchases, working towards the ambition of an ultra-low carbon fleet. • Replace and review existing electric vehicle fleet and increase number of electric pool cars. The full Carbon Management and Reduction Plan can be viewed at: https://www.elmbridge.gov.uk/your-council/council-plans-policies-and-strategies/climate-change-plans/our-carbon-footprint#:~:text=Our%20Carbon%20Management%20and%20Reduction,2020%2C%20and%20has%20been%20revised.
EBC-5	Investigate options for a pilot cargo bike scheme for local businesses	Promoting Travel Alternatives	Promotion of cycling	2021	2023	EBC	-	-	Not Funded		Aborted	-	-	While the specific pilot won't be going forward, the council has introduced a Green Business Boost grant scheme where local businesses can apply for funding to help with their decarbonisation measures, which would include them purchasing an e-cargo bike.	High streets are where the Boroughs AQMAs are located. Exploring alternate delivery options for high street businesses could help reduce emissions within AQMAs. SCC plan to implement measure through the Local Transport Plan 4 (LTP4).

Measure No.	Measure Title	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
EBC-6	Work towards fulfilling the Council's pledge to be carbon neutral by 2030	Promoting Travel Alternatives	Other	2020	2030	EBC	EBC	NO	Partially Funded	£10k - 50k	Implementation	-	-	Carbon Management and Reduction Plan 2030 actions are monitored and reported against as part of the council's quarterly performance report.	The Carbon Management and Reduction Plan contains actions aimed at fulfilling the Council's Carbon neutral pledge. Such actions that will also be beneficial to air quality include: • Seeking strategic direction on enabling remote working for Council staff. • Replacement of gas-fired boilers with electric or other state-of-the- art technologies at the Civic Centre. • Planning for future replacement of gas-fired boilers at community centres. The full Carbon Management and Reduction Plan can be viewed at: https://www.elmbridge.gov.uk/your-council/council-plans-policies-and-strategies/climate-change-plans/our-carbon-footprint#:~:text=Our%20Carbon%20Management%20and%20Reduction,2020%2C%20and%20has%20been%20revised. The emerging Local Plan will also seek to encourage more sustainable development through the implementation of policies regarding energy usage etc. One of the key principles of the plan is Tackling Climate.

Measure No.	Measure Title	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
EBC-7	Embed air quality in the Local Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021	2025	EBC	EBC	NO	Funded	< £10k	Implementation	Reduced vehicle and building emissions	Adoption of the Local Plan and the Climate Change & Renewables SPD and Elmbridge Design Code	Ongoing. The Elmbridge Design Code was adopted in April 2024.	The emerging Local Plan will seek to encourage more sustainable development through the implementation of policies regarding matters such as energy efficiency, renewable and low carbon energy; minimising waste and promoting a circular economy; promoting high standards of sustainable design; encouraging sustainable transport modes and, the delivery of electric vehicle charging, etc. Specific guidance relating to air quality in terms of standards and design is to be covered in the Climate Change & Renewables SPD, Elmbridge Design Code and Healthy Environment SPD. The latest information regarding the emerging Local Plan can be found at: https://www.elmbridge.gov.uk/planning/new-local-plan
EBC-8	Indoor air quality to be considered as part of the planning process for new development in the AQMAs	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020	2026	EBC	N/A	NO			Planning	N/A	Number of planning applications in AQMA with indoor air quality considered	Ongoing	Housing within existing high streets is on the increase. The six AQMAs are all high street locations. While indoor air quality is not the primary focus of an AQAP it is included as an action on the grounds of public health. Consideration will be given to inclusion within an SPD on air quality.

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EBC-9	Investigate including Air Quality Positive principles in a Design and Renewables SPD	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021	2025	EBC	EBC	NO	Partially Funded	< £10k	Implementation	Reduced vehicle and building emissions	Number of planning applications considered to be air quality positive	The Council adopted the Design Code SPD in April 2024. Work on the Climate Change & Renewables SPD is ongoing.	Details on how this can be achieved to be provided within SPD's covering design and renewables. The Publication London Plan (December 2020), published in 2021, requires large-scale developments to consider how air quality can be improved across the area through an Air Quality Positive approach. The Air Quality Positive approach requires new development proposals to consider ways in which the development could maximise benefits to local air quality, as well as what measures and design features that will be put in place to reduce exposure to air pollution.
EBC-10	Encouraging residents to refrain from garden bonfires	Public Information	Via the Internet		2026	EBC	EBC	NO	Funded	< £10k	Implementation	Reduced stationary source emissions	Reduction in the number of "bonfire" complaints received	Ongoing	Use of the Council's website and social media to promote changes in behaviour to move away from burning.
EBC-11	Promoting approved wood-burning stoves and burning of approved products and encouraging recycling of waste	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	2020	2025	EBC	EBC	NO	Funded	< £10k	Implementation	-	-	In September 2023 a second application led by Hertfordshire County Council (HCC) was submitted, for DEFRA air quality grant funding to support Global Action Plan's Clean Air Night in January 2025. The second bid was also unsuccessful on this occasion, but the plan is to support the 2025 campaign.	Wood burning stove animation video. In, 2022 EBC in partnership with SCC participated in a bid led by Hertfordshire Council and Global Action Plan for DEFRA air quality grant for a public information campaign around particulates from solid fuel burning – Clean Air Night. The bid was unsuccessful.

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EBC-12	Ensure appropriate and effective monitoring is undertaken across Elmbridge to meet statutory review and assessment duties	Other	Other	2021	2026	EBC	EBC	NO	Funded	< £10k	Implementation	-	Production of Air Quality Annual Status Report	Annual reports produced.	The Council seeks to maintain and run and efficient monitoring network. That includes monitoring for NO_2 using diffusion tubes and two monitoring stations. Full monitoring continued throughout 2023.
EBC-13	Installation of a particulate matter monitor in Elmbridge	Other	Other	2020	2024	EBC	Community Infrastructure Levy (CIL)	NO	Not Funded	£10k - 50k	Planning	-	Installation of a particulate matter monitoring site.	Automatic roadside particulate matter monitoring site has been installed in Esher.	After the delays of previous years due to site approvals and securing an electricity supply, costs rose the additional CIL funding was secured, and the particulate matter monitor was installed in April 2024 .
EBC-14	CERC Surrey-wide air quality modelling update	Other	Other	2022	2026	EBC in partnership with SAA	SAA	NO	Not Funded	£10k – 50k	Planning	-	Air quality modelling undertaken		CERC update to borough modelling to be progressed in 2024 and modelling report published in 2026/2027. This will feed into further work such as review of monitoring locations.
EBC-15	Review of diffusion tube locations across the Borough following CERC modelling update	Other	Other	2019	2026	EBC	EBC	NO	Not Funded	< £10k	Planning	N/A	Report on diffusion tube location review produced	Review of diffusion tube locations in accordance with CERC modelling undertake in 2019 and new locations added as a result. Review reported in 2022 ASR appendix F.	Once updated Borough-wide modelling has been undertaken during 2024 – 2026, a further review of diffusion tube locations will be undertaken.
EBC-16	Monitor impact of London Low Emission Zones in Elmbridge AQMAs	Other	Other	2020	2026	EBC in partnership with SAA	EBC	NO	Funded	< £10k	Implementation	N/A	Results of traffic surveys and reported in air quality annual status reports	SAA to monitor the situation as the ULEZ is implemented in Greater London. Elmbridge boarders two London Boroughs, since the ULEZ was introduced, no significant impact noted.	Potential for negative impacts in Esher and Hampton Court with traffic rerouting around LEZ. Identification of any issues will allow further actions to be targeted in these areas. In August 2023, the ULEZ was expanded to cover every London Borough.

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EBC-17	Continuation of the Schools Air Quality Programme	Public Information	Via other mechanisms		2026	EBC in partnership with SAA	DEFRA, SAA	YES	Partially Funded	< £10k	Implementation	Reduced vehicle and building emissions	No. of children/schools reached by promotional / engagement activities	Ongoing	The SAA jointly work with the Safer Travel Team at SCC to deliver a variety of projects, including, Eco schools and Lets Go Zero by 2030 initiative. As of May 2024, 14 schools within Elmbridge have achieved Eco Schools Green Flag status, with 6 of this achieving distinction. In addition, 8 schools within Elmbridge have committed to Lets Go Zero by 2030.
EBC-18	Use of the EBC website to promote public awareness of the Elmbridge AQMAs and air quality in general	Public Information	Via the Internet			EBC	EBC	NO	Funded	< £10k	Implementation	2023 ASR is on website	Latest ASR available on website	Ongoing	The Council's website publishes the current ASR plus historical ASR's and the AQAP. Provides a link to the CERC modelling map, plus links to the three real time monitors. Advice and information on improving outdoor and indoor air quality. https://www.elmbridge.gov.uk/environment/air-quality
EBC-19	Continue to promote the AirAlert service	Public Information	Via other mechanisms			EBC	EBC	NO	Funded	< £10k	Implementation	N/A	Number of residents subscribed in Elmbridge	289 subscriptions May 2024	Elmbridge continues to have the highest number of subscriptions within Surrey as of May 2024. AirAlert promoted via social media and website and within NHS Asthma campaign.
EBC-20	Clean Air Day Activities	Public Information	Via other mechanisms	2020	2026	EBC	EBC	NO	Partially Funded	< £10k	Implementation	-	-	-	Support the annual Clean Air Day (CAD). CAD 2023, 15 June social media campaign drawing attention to air quality.
EBC-21	Raise awareness of indoor air pollution through the EBC website and social media	Public Information	Via the Internet	2021		EBC	EBC	NO	Partially Funded	< £10k	Implementation	N/A	Information available on website	Ongoing	Consideration is also given to planning applications for residential development with AQMAs and the likely impacts on indoor air quality

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EBC-22	Remain an active member of the Surrey Air Alliance and contributors to Work Plan	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2016		EBC	EBC	NO	Funded	< £10k	Implementation	Reduced vehicle and building emissions	Adoption of Work Plan	Constitution adopted and workplan produced. Regular meetings held.	The SAA facilitates Surrey Authorities, and SCC working together to improve air quality in Surrey. Examples of large projects include CERC Countywide modelling project, DEFRA grant for school's project and the recent DEFRA grant for Electric Taxi fleet trial (see measure SCC-3 plus the 2022 & 2023 DEFRA grant application for Clean Air Night).
EBC-23	Work with the Surrey Authorities to achieve the former WHO Guideline Values for PM_{10} and $PM_{2.5}$ in the Elmbridge Borough by 2030 and any further UK Government targets introduced	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2020	2030	EBC in partnership with Surrey Authorities	N/A				Implementation	Reduction in $PM_{2.5}$ concentrations	Achievement of WHO Guideline Values across Elmbridge	AQAP completed and published on website.	Various measures within the AQAP will assist in quantifying PM_{10} / $PM_{2.5}$ concentrations within the Borough and seek to reduce these concentrations within a local authority sphere of control.
SCC-1	Supporting Transport for South East	Policy Guidance and Development Control	Other policy	2021	2023	GLA, SCC and EBC	Developers & highway infrastructure funding	NO	Partially Funded	> £10 million	Planning	Reduced vehicle emissions	-	Transport Strategy adopted in Summer 2020	Elmbridge is located within two of the five study areas (the inner orbital and southwest radial). The outcome of these studies will form the basis of the Transport for South East Strategic Investment Plan for new transport schemes, initiatives, and policies. In March 2023, the Transport Strategic Investment Plan received approval which includes almost 300 multi-modal transport interventions which will be delivered across the south east over the next 27 years. Further information on Transport for South East can be found at: Home - Transport for the South East and Transport body gets green light to proceed with ambitious investment plan - Transport for the South East.

Measure No.	Measure Title	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
SCC-2	Implementation of the Low Emission Transport Strategy for Surrey	Policy Guidance and Development Control	Low Emissions Strategy	2018	2026	SCC and EBC	Developers & highway infrastructure funding	NO	Partially Funded	> £10 million	Implementation	Reduced vehicle emissions	Suite of indicators associated with quantum and distribution of air pollution, travel behaviour and delivery of infrastructure for low emission transport options	Strategy in use	The Low Emissions Transport Strategy will be superseded by implementation of the LTP4. Covered within the LTP4 are the following relevant policy areas which, as the Low Emissions Strategy did, will contribute to lower emissions and therefore improved air quality. LTP4 was adopted in in July 2022, the plan can be viewed on the following website; https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan
SCC-3	Support an electric vehicle strategy for Surrey	Policy Guidance and Development Control	Other policy	2018	2026	SCC and EBC	Developers & highway infrastructure funding	NO	Partially Funded	£100k - £500k	Implementation	-	-	Electric Vehicle Strategy produced and adopted by Elmbridge Borough Council Defra confirmed the electric taxi fleet trial revisions and match funding. The project team have drafted details of the contracts and procurement specifications needed. It is intended the grants will be awarded by Autumn 2024 for completion of trials Autumn 2025.	In March 2023 SCC announced an investment of 60 million pounds with Connect Kerb with the aim of delivering 10,000 public electric vehicle charging points by 2030 across the County. SCC electric vehicle strategy has been enshrined into SCC LTP4. The SAA has also submitted a grant application to DEFRA for an electric taxi fleet trial including telemetric devices in vehicles. In March 2021, the project was awarded £256,868 from the DEFRA Air Quality Grant Fund. May 2022 the project is reconfigured to accommodate longer vehicle trials. DEFRA has approved new project however as of June 2023 awaiting confirmation of match funding.

Measure No.	Measure Title	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
SCC-4	Implementation of the Climate Change Strategy for Surrey	Policy Guidance and Development Control	Low Emissions Strategy	2020	2025	SCC and EBC	Central Government, developers, highways and infrastructure funding.	YES	Partially Funded	£1 million - £10 million	Implementation	Reduced vehicle and building emissions	Implementation of Strategy	Strategy in use	The Strategy has been considered by eleven Districts and Boroughs. The Strategy includes measures that will be beneficial for air quality. Air quality-related actions are provided in the section 'Transport and Air Quality' of the Strategy which can be viewed at: www.surreycc.gov.uk/community/climate-change/what-are-we-doing/climate-change-strategy/2020
SCC-5	Development and implementation of a Local Cycling and Walking Infrastructure Plan (LCWIP) for Elmbridge Borough	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2020	2025	SCC and EBC	Central Government, developers, highways and infrastructure funding.	NO	Partially Funded	£50k - £100k	Implementation	Reduced vehicle emissions	Completion and adoption of the LCWIP	The LCWIP, for Elmbridge has been developed and will move to implementation. Prioritisation of the routes complete, with feasibility work commencing in 2023/24. EBC agreed a financial contribution towards the implementation of the Cobham Walking Route and the Hampton Court Cycle Route/Path.	The LCWIP is a ten-year programme and would include the following: • Identification of where good walking and cycling facilities would be most beneficial. • Identification of what improvements are required at these locations. • Plan how these improvements can be delivered, and which prioritise first. The County LCWIP programme can be viewed at: https://www.surreycc.gov.uk/roads-and-transport/cycling-and-walking/plans
SCC-6	Alteration of existing signalised pedestrian crossings on the High Street, Weybridge to reduce congestion	Traffic Management	Other	2020		SCC and EBC	Developers & highway infrastructure funding	NO	Partially Funded	£10k - 50k	Planning	-	-	Study on going to determine feasibility	Still at feasibility stage. Work brief was issued to SCC's Professional Services Highway Partner in August 2021, awaiting work programme. As of June 2023 – options have been developed and detail drawing have been produced for the project team to consider and comment on. No further information on implementation.

Measure No.	Measure Title	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
SCC-7	Improvements to the Hampton Court Roundabout/ junction to reduce congestion	Traffic Management	Other	2020		SCC and EBC	Developers & highway infrastructure funding	NO	Partially Funded	£10k - 50k	Planning			The Planning application refusal was appealed and subsequently overturned. The Secretary of State for Culture Media and Sport has been asked to give consent to the development under the South Western Railway Act 1913. The Secretary of State will hold an 8-week public consultation closing on 5 June 2024.	An agreed scheme as part of a development proposal. Could be implemented either as part of development or a standalone scheme. The planning application was refused (July 2021). Applicant has appealed, and permission has been granted for the development. As of June 2023, the developers have not submitted to discharge any pre-commencement conditions, start times or whether they intend to implement the scheme.
SCC-8	Installation of additional pedestrian facilities on Esher High Street	Promoting Travel Alternatives	Promotion of walking	2020		SCC and EBC	Developers & highway infrastructure funding	NO	Partially Funded	£10k - 50k	Implementation	-	-	Feasibility study in progress as park of the Esher Town Centre Vision (July 2023).	Feasibility study remains in progress. Following a recent LCWIP workshop, feedback received noted this location is a core walking area and needs a broader consideration of the local aspirations and the competing place vs. movement functions of the road. Significant improvements to achieve the 'place' objective and improve pedestrian facilities would likely require a reduction in capacity
SCC-9	Working with SCC to ensure that Air Quality is appropriately considered within the Local Transport Plan 4 (LTP4)	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2020	2022	SCC and EBC	N/A				Planning	-	-		See action SCC 2. LTP4 was adopted in July 2022, the plan can be reviewed on the following link: https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan.

2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations.

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[24], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter ($PM_{2.5}$). There is clear evidence that $PM_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Public Health Outcomes Framework data tool compiled by Public Health England quantifies the mortality burden of $PM_{2.5}$ within England, as well as on county and local authority scales. The tool is available online at:

https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/0/gid/1000049/pat/6/par/E12000008/ati/102/are/E10000030.

The latest available data for 2022 shows that the percentage of mortality attributable to $PM_{2.5}$ pollution (indicator D01) across England is 5.8%. The percentage within Surrey is 6.2% and within Elmbridge is 6.6%. Elmbridge has a higher percentage of mortality attributable to $PM_{2.5}$ pollution when compared to England and Surrey as a whole.

The modelling exercise undertaken by CERC also quantifies the mortality burden of $PM_{2.5}$, in terms of fraction of deaths attributable to $PM_{2.5}$ pollution, associated total life years lost and economic cost within Elmbridge, and the wider-Surrey area. The estimated total number of deaths attributable to $PM_{2.5}$ pollution in Surrey in 2017 was between 173 – 468, which equated to an estimated economic cost between £87,235,665 – £235,790,256. In Elmbridge, the estimated total number of deaths attributable to $PM_{2.5}$ pollution in 2017 was between 19 - 51, which equated to an estimated economic cost between £9,828,813 – £29,869,995[7].

The CERC modelling contour maps of predicted pollutant concentrations across Surrey and Elmbridge are available in an interactive format at the following website:

https://surreycc.maps.arcgis.com/apps/webappviewer/index.html?id=43910ffb100248ed972115b7a9b49d20.

[24] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

Elmbridge Borough Council is taking the following measures to address $PM_{2.5}$:

- An automatic monitoring station that measures $PM_{2.5}$ has been installed in Esher.
- $PM_{2.5}$ dispersion modelling, funded by the Council, was carried out in 2019 and will be updated during 2024 – 2026.
- Discouraging wood-burning and promoting the use of only approved wood-burning stoves and burning of approved products if wood-burning is necessary. The Council was part of the consortium that took part in Clean Air Night from December 2023 to January 2024 and promoted it on the Council website.
- Promoting travel alternatives through the development and implementation of the LCWIP, installation of additional pedestrian facilities, reducing the Council staff and fleet transport through the Carbon Reduction Strategy.
- Implementing the taxi and private hire licensing policy that came into force 1st September 2020.
- Implementing Surrey's Climate Change Strategy (April 2020)[25] which includes measures targeted at reducing vehicle emissions.
- Implementing Surrey County Council's Low Emissions Transport Strategy (2018)[26] proposals now through LTP4.

[25] Surrey County Council. Surrey's Climate Change Strategy, 2020.

[26] Surrey County Council. Surrey Low Emission Transport Strategy, 2018.

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

This section sets out the monitoring undertaken within 2023 by Elmbridge and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

The Council undertook automatic (continuous) monitoring at two sites during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites. Live data is available on UK Air Quality website (https://www.ukairquality.net/).

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

Elmbridge undertook non- automatic (i.e. passive) monitoring of NO_2 at 41 sites during 2023. 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.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. 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 2023 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Automatic monitoring

During 2023, the Council undertook automatic monitoring of NO_2 concentrations at Hampton Court Parade, within the Hampton Court AQMA, and Weybridge High Street 2, within the Weybridge High Street AQMA. Annual mean NO_2 concentrations at both automatic monitoring sites were well below the objective, with an annual mean NO_2 concentration of 24 µg/m^3 measured at Hampton Court Parade and 25 µg/m^3 measured at Weybridge High Street 2. The measured annual mean concentration at the Hampton Court Parade site has decreased by 4 µg/m^3 in 2023 in comparison to 2022. Whereas the measured annual mean concentration at Weybridge High Street 2 site has remained stable since 2021. Data capture during 2023 was good (>85%) at both automatic monitoring sites.

There were no measured exceedances of the hourly mean NO_2 air quality objective of 200 µg/m^3 at the Hampton Court Parade or Weybridge High Street 2 monitoring sites in 2023.

Non-Automatic Monitoring

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Table B.1, in Appendix B. The diffusion tube data have been processed using the DEFRA Diffusion Tube Processing Tool (v4.0).

In 2023, all monitoring sites within Elmbridge Borough were below the annual mean NO_2 air quality objective. Furthermore, during 2023, there were no measured annual mean NO_2

concentrations greater than 60 µg/m^3, and therefore it is considered unlikely that the hourly mean NO_2 air quality objective was exceeded at monitoring locations within the Borough.

No distance correction has been carried out as no measured concentrations were within 10% of the objective, i.e >36 µg/m^3.

The highest measured annual mean NO_2 concentration in 2023 occurred at Cobham 11 (31.4 µg/m^3), located on the lamppost outside West Lodge, Portsmouth Road, Cobham, outside of any declared AQMAs in the Borough. This was followed by Weybridge 7 (30.7 µg/m^3) and Esher 7 (30.3 µg/m^3) which are in the Weybridge High Street and Esher High Street AQMAs respectively. During 2023, NO_2 concentrations have increased at two monitoring sites in comparison to 2022 concentrations. The greatest NO_2 concentration increase from 2022 to 2023 was 1.7 µg/m^3 at Walton 8. NO_2 concentrations have decreased at 38 monitoring locations in the Borough between 2022 and 2023. In addition, concentrations at one monitoring site, Walton 10, remained stable between 2022 to 2023 at 27.3 µg/m^3. Data trends for all current sites for the past five years are provided in Appendix A, Figures A.1 – A.7. Overall, between 2019 and 2023, measured concentrations have slightly fluctuated over the years, however a general decrease in concentrations is evident across all of the of sites since 2019.

Annual average NO_2 concentrations have remained below the air quality objective at monitoring sites since 2020 in all the AQMAs declared by Elmbridge. Furthermore, measured NO_2 annual mean concentrations have been more than 10% below the NO_2 air quality objective for three consecutive years in all of Elmbridge's AQMAs, except for within the Esher AQMA which had a measured annual mean concentration of 38.9 µg/m^3 at Esher 7 in 2022. However, Esher 7 is not representative of relevant exposure and the distance corrected annual mean concentration during 2023at Esher 7 was 31.8 µg/m^3 and therefore more than 10% below the annual mean NO_2 objective at relevant exposure. It should be noted however, that monitoring results from 2020 and 2021 are not considered representative of 'normal' conditions due to COVID-19 restrictions in place during these years and their impact on traffic flows. Therefore, monitoring will continue in the AQMAs until it can be demonstrated that concentrations have been more than 10% below the annual mean NO_2 objective for a minimum of three consecutive years under 'normal' conditions (i.e post-2021).

3.2.2 Particulate Matter (PM_{10})

PM_{10} monitoring is not required and therefore was not carried out by Elmbridge Borough Council in 2023. However, a roadside particulate matter automatic monitoring station has been installed in Esher which will establish an understanding of baseline concentrations of PM_{10} in the Borough which can then be used for comparison to monitor progress in reducing concentrations in the future.

PM_{10} was included within the modelling exercise undertaken by CERC. Interactive contour maps of predicted pollutant concentrations produced from the CERC modelling exercise can be accessed via the following link:
https://surreycc.maps.arcgis.com/apps/webappviewer/index.html?id=43910ffb100248ed972115b7a9b49d20
The contour map for the predicted annual mean PM_{10} concentrations in 2017 shows no exceedances of the annual mean PM_{10} air quality objective (40 µg/m^3) in Elmbridge. The contour map for the 90.41st percentile of 24-hour mean PM_{10} concentrations shows exceedances of the 24-hour mean air quality objective (50 µg/m^3) along the A3 Portsmouth Road and the M25. However, these exceedances occur within the road and are therefore not representative of relevant exposure.

3.2.3 Particulate Matter ($PM_{2.5}$)

$PM_{2.5}$ monitoring is not required and therefore was not carried out by Elmbridge Borough Council in 2023. However, a roadside $PM_{2.5}$ automatic monitoring station has been installed in Esher which will establish an understanding of baseline concentrations of $PM_{2.5}$ in the Borough which can then be used for comparison to monitor progress in reducing concentrations in the future.

$PM_{2.5}$ was included within the modelling exercise undertaken by CERC. Interactive contour maps of predicted pollutant concentrations produced from the CERC modelling exercise can be accessed via the following link:

https://surreycc.maps.arcgis.com/apps/webappviewer/index.html?id=43910ffb100248ed972115b7a9b49d20

The contour map for the predicted annual mean $PM_{2.5}$ concentrations in 2017 shows a large proportion of Elmbridge was predicted to exceed the 10 µg/m^3 target value as set out in the AQAP.

3.2.4 Sulphur Dioxide (SO_2)

Previous rounds of Review and Assessment and historic monitoring have confirmed that SO_2 concentrations in Elmbridge are compliant with the air quality objectives. Therefore, monitoring of SO_2 is not required and is not currently carried out by Elmbridge Borough Council.

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)
Hampton Court Parade	Hampton Court Parade	Roadside	515338	168292	NO_2	YES - Hampton Court	Chemiluminescence	10.0	1.9	1.6
Weybridge High Street 2	Weybridge High Street 2	Kerbside	507459	164909	NO_2	YES - Weybridge High Street	Chemiluminescence	6.5	0.7	1.8

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)
ESHER 1	Lamppost outside The Hair Gallery, Church St	Roadside	513840	164693	NO_2	YES - Esher	0.4	1.5	No	2.6
ESHER 7	35-37 High St	Roadside	513982	164750	NO_2	YES - Esher	2.3	0.6	No	2.3
ESHER 8	Outside 9 Church St	Roadside	513832	164684	NO_2	YES - Esher	0.1	3.2	No	2.4
ESHER 9	Lamppost next to Churchyard, Church St	Kerbside	513821	164712	NO_2	YES - Esher	12.5	0.6	No	2.6
ESHER 11	The Bear, Copsem Lane side	Roadside	513895	164599	NO_2	YES - Esher	1.6	5.1	No	2.6
ESHER 13	Panahar Tandoori, 124-126 High St	Kerbside	513736	164489	NO_2	YES - Esher	2.7	0.9	No	2.4
ESHER 14	Lamppost in Car Park, Sunrise Living off A3 Roundabout Esher	Roadside	514034	162282	NO_2	NO	6.2	1.0	No	1.6
ESHER 15	Lamppost o/s Helix House, Esher Green/High St,	Roadside	513901	164779	NO_2	YES - Esher	1.1	3.8	No	1.9

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)
	Esher KT10 8AB									
HINCHLEY WOOD 1	Kingston Bypass (opp Fire Station)	Roadside	515248	165535	NO_2	YES - Hinchley Wood	20.8	4.5	No	2.4
HINCHLEY WOOD 3	Lamppost corner Kingston Bypass/Manor Rd Nth, Esher KT10 0AT	Roadside	515728	165191	NO_2	NO	17.3	2.6	No	1.9
HAMPTON COURT 1	Lamp post nr bus stop, entrance to Summer Road, Hampton Court Way	Kerbside	515379	167946	NO_2	YES - Hampton Court	20.9	0.9	No	2.2
HAMPTON COURT 2, HAMPTON COURT 3, HAMPTON COURT 4	Air Quality Station, Hampton Court Parade	Roadside	515338	168292	NO_2	YES - Hampton Court	10.0	1.9	Yes	1.7
HAMPTON COURT 5	Traffic sign, 1 Creek Road	Roadside	515329	168390	NO_2	YES - Hampton Court	13.7	0.4	No	2.4
MOLESEY 1	113 Walton Rd.	Kerbside	514450	168134	NO_2	YES - Walton Road, Molesey	3.5	1.1	No	2.5
MOLESEY 8	44-46 Walton Rd	Roadside	514716	167960	NO_2	YES - Walton Road,	0.1	2.6	No	2.4

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
						Molesey				
MOLESEY 9	Tesco, Walton Rd	Roadside	514507	168086	NO_2	YES - Walton Road, Molesey	4.2	2.6	No	2.4
MOLESEY 10	Molesey Mart 264 Walton RD	Roadside	514169	168152	NO_2	YES - Walton Road, Molesey	0.1	4.9	No	2.4
OX 1	Parking Sign outside Birdshill Farmhouse, Warren lane Oxshott	Roadside	514558	160621	NO_2	NO	20.0	1.8	No	2.0
OX 2	Lamppost o/s Flats1/2, Braeside House, High Street, Oxshott	Roadside	514574	160493	NO_2	NO	5.0	3.0	No	2.2
WALTON 8	Leaders, 46 High St	Roadside	510154	166281	NO_2	YES - Walton-on-Thames High Street	2.0	2.9	No	2.6
WALTON 9	Traffic Sign, Café Nero, 18 High St	Roadside	510082	166379	NO_2	YES - Walton-on-Thames High Street	2.2	2.6	No	2.5
WALTON 10	The Bees Knees, 34 Church St	Roadside	510140	166522	NO_2	YES - Walton-on-Thames	2.0	3.3	No	2.6

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
						High Street				
WALTON 11	Traffic Sign, Ex Dukes Head, Hepworth Way	Roadside	510000	166401	NO_2	YES - Walton-on-Thames High Street	21.0	2.3	No	2.4
WALTON 12	Lamppost o/s 60 High Street, Walton on Thames, KT12 1FL	Roadside	510185	166225	NO_2	YES - Walton-on-Thames High Street	5.7	3.2	No	2.0
WEYBRIDGE 4	Right of 6 Monument Hill	Roadside	507705	164907	NO_2	YES - Weybridge High Street	5.0	2.0	No	2.4
WEYBRIDGE 5	Pizza Express, 1 Monument Hill	Roadside	507609	164966	NO_2	YES - Weybridge High Street	0.4	1.6	No	2.3
WEYBRIDGE 6A	Lamppost o/s 47 High St, Weybridge	Kerbside	507536	164952	NO_2	YES - Weybridge High Street	3.0	0.7	No	3.3
WEYBRIDGE 7	Prezzo, 44 Church St	Roadside	507199	164804	NO_2	YES - Weybridge High Street	0.1	1.5	No	2.4
WEYBRIDGE 8	Lloyd Roberts Opticians, 60A Church St	Roadside	507150	164761	NO_2	YES - Weybridge High Street	0.1	4.6	No	2.4
WEYBRIDGE 13, WEYBRIDGE 14, WEYBRIDG	Air Quality Station, outside 40a High Street, Weybridge	Roadside	507459	164909	NO_2	YES - Weybridge High Street	6.5	0.7	Yes	1.8

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)
E 15										
WEYBRIDGE 16	Lamppost Junction Parvis Road /Brookland Road, Byfleet	Roadside	507190	161340	NO_2	NO	10.4	1.6	No	1.9
WEYBRIDGE 17	CCTV Column o/s Lloyds Bank	Roadside	507365	164831	NO_2	YES - Weybridge High Street	2.6	0.6	No	3.2
COBHAM 1	o/s The Lemon Tree	Roadside	510813	160048	NO_2	NO	3.5	0.6	No	2.4
COBHAM 6	Harlequin Dry Cleaners, 2 Anyards Road	Roadside	510814	160099	NO_2	NO	2.2	6.0	No	2.4
COBHAM 7	Exclusively Surrey, 38A High Street	Roadside	510861	159906	NO_2	NO	4.2	3.1	No	2.4
COBHAM 8	'No Loading Sign' outside Fieldgate Court, Between Streets, Cobham	Kerbside	510300	160375	NO_2	NO	1.3	1.0	No	1.9
COBHAM 9	Sign outside 71 Portsmouth Road, Cobham	Kerbside	510348	160417	NO_2	NO	2.3	1.0	No	2.0
COBHAM 10	Lamppost o/s 41 Portsmouth Road	Kerbside	510262	160454	NO_2	NO	6.4	1.0	No	2.1
COBHAM 11	Lamppost outside West Lodge,	Roadside	509623	160616	NO_2	NO	7.1	1.5	No	2.2

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)
	Portsmouth Road, Cobham									
COBHAM 12	'No Entry Sign', A3 East Bound off slip road, Portsmouth Road, Cobham	Roadside	509560	160720	NO_2	NO	14.3	1.5	No	2.0
COBHAM 13	Railings on Footpath, adjacent to A3 East Bound Slip Rd Cobham	Roadside	509465	160640	NO_2	NO	5.5	2.0	No	1.1

Table A.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
Hampton Court Parade	515338	168292	Roadside	99.8	99.8	**41**	26	27	28	24
Weybridge High Street 2	507459	164909	Kerbside	86.1	86.1	31	24	25	25	25

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

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the NO_2 annual mean air quality objective of 40µg/m^3 are shown in **bold**.

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

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

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

Table A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
ESHER 1	513840	164693	Roadside	100.0	100.0	39.7	25.8	28.2	32.0	27.8
ESHER 7	513982	164750	Roadside	84.6	84.6	**46.0**	31.1	30.2	38.9	30.3
ESHER 8	513832	164684	Roadside	100.0	100.0	**42.4**	30.1	29.6	30.7	27.1
ESHER 9	513821	164712	Kerbside	90.4	90.4	31.9	20.2	21.3	22.5	20.2
ESHER 11	513895	164599	Roadside	90.4	90.4	35.0	23.1	24.9	27.3	24.0
ESHER 13	513736	164489	Kerbside	100.0	100.0	35.7	24.8	23.1	25.4	22.7
ESHER 14	514034	162282	Roadside	100.0	100.0	-	16.8	18.1	20.7	16.6
ESHER 15	513901	164779	Roadside	90.4	90.4	-	25.5	24.7	22.9	20.8
HINCHLEY WOOD 1	515248	165535	Roadside	75.0	75.0	37.4	27.6	27.2	26.8	25.4
HINCHLEY WOOD 3	515728	165191	Roadside	100.0	100.0	-	34.7	29.6	32.6	28.5
HAMPTON COURT 1	515379	167946	Kerbside	90.4	90.4	34.4	23.7	22.7	27.6	22.9
HAMPTON COURT 2, HAMPTON	515338	168292	Roadside	100.0	100.0	38.9	26.2	26.4	27.1	24.9

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 2023 (%) (2)	2019	2020	2021	2022	2023
COURT 3, HAMPTON COURT 4										
HAMPTON COURT 5	515329	168390	Roadside	90.4	90.4	27.7	20.9	22.1	23.5	20.0
MOLESEY 1	514450	168134	Kerbside	73.1	73.1	34.7	22.8	23.8	24.7	23.2
MOLESEY 8	514716	167960	Roadside	84.6	84.6	39.2	27.6	27.1	27.4	27.6
MOLESEY 9	514507	168086	Roadside	90.4	90.4	34.3	24.0	22.6	25.0	23.6
MOLESEY 10	514169	168152	Roadside	100.0	100.0	28.1	19.8	20.4	20.7	19.1
OX 1	514558	160621	Roadside	90.4	90.4	-	19.7	19.6	21.9	20.1
OX 2	514574	160493	Roadside	90.4	90.4	-	20.4	24.8	24.5	23.6
WALTON 8	510154	166281	Roadside	80.8	80.8	36.2	25.4	23.2	24.9	26.6
WALTON 9	510082	166379	Roadside	82.7	82.7	33.6	23.1	23.0	23.5	22.8
WALTON 10	510140	166522	Roadside	100.0	100.0	37.0	28.3	28.0	27.3	27.3
WALTON 11	510000	166401	Roadside	100.0	100.0	39.4	24.2	24.4	29.6	24.0
WALTON 12	510185	166225	Roadside	100.0	100.0	-	24.5	22.5	23.4	22.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
WEYBRIDGE 4	507705	164907	Roadside	67.3	67.3	35.5	29.9	27.7	26.3	23.8
WEYBRIDGE 5	507609	164966	Roadside	100.0	100.0	36.2	28.4	26.3	28.0	27.2
WEYBRIDGE 6A	507536	164952	Kerbside	100.0	100.0	-	23.5	22.1	27.4	23.2
WEYBRIDGE 7	507199	164804	Roadside	100.0	100.0	**45.6**	33.1	33.6	32.8	30.7
WEYBRIDGE 8	507150	164761	Roadside	84.6	84.6	35.2	23.8	25.6	25.9	22.0
WEYBRIDGE 13, WEYBRIDGE 14, WEYBRIDGE 15	507459	164909	Roadside	100.0	100.0	31.5	24.3	25.4	25.7	25.4
WEYBRIDGE 16	507190	161340	Roadside	100.0	100.0	-	23.1	22.8	23.5	20.9
WEYBRIDGE 17	507365	164831	Roadside	100.0	100.0	-	25.4	23.3	23.7	22.7
COBHAM 1	510813	160048	Roadside	84.6	84.6	32.2	18.3	21.6	26.5	21.9
COBHAM 6	510814	160099	Roadside	100.0	100.0	28.1	18.9	19.6	21.3	18.3
COBHAM 7	510861	159906	Roadside	92.3	92.3	33.6	22.7	22.8	23.9	22.8
COBHAM 8	510300	160375	Kerbside	100.0	100.0	-	22.4	23.9	23.7	23.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
COBHAM 9	510348	160417	Kerbside	100.0	100.0	-	21.3	22.1	27.8	23.7
COBHAM 10	510262	160454	Kerbside	100.0	100.0	-	23.5	26.2	23.5	19.8
COBHAM 11	509623	160616	Roadside	100.0	100.0	-	**40.9**	39.2	39.1	31.4
COBHAM 12	509560	160720	Roadside	100.0	100.0	-	26.2	26.1	29.5	24.9
COBHAM 13	509465	160640	Roadside	100.0	100.0	-	24.0	25.2	26.1	24.4

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

☒ **Diffusion tube data has been bias adjusted.**

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

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the NO_2 annual mean air quality objective of 40µg/m^3 are shown in **bold**.

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

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

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

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations in Esher

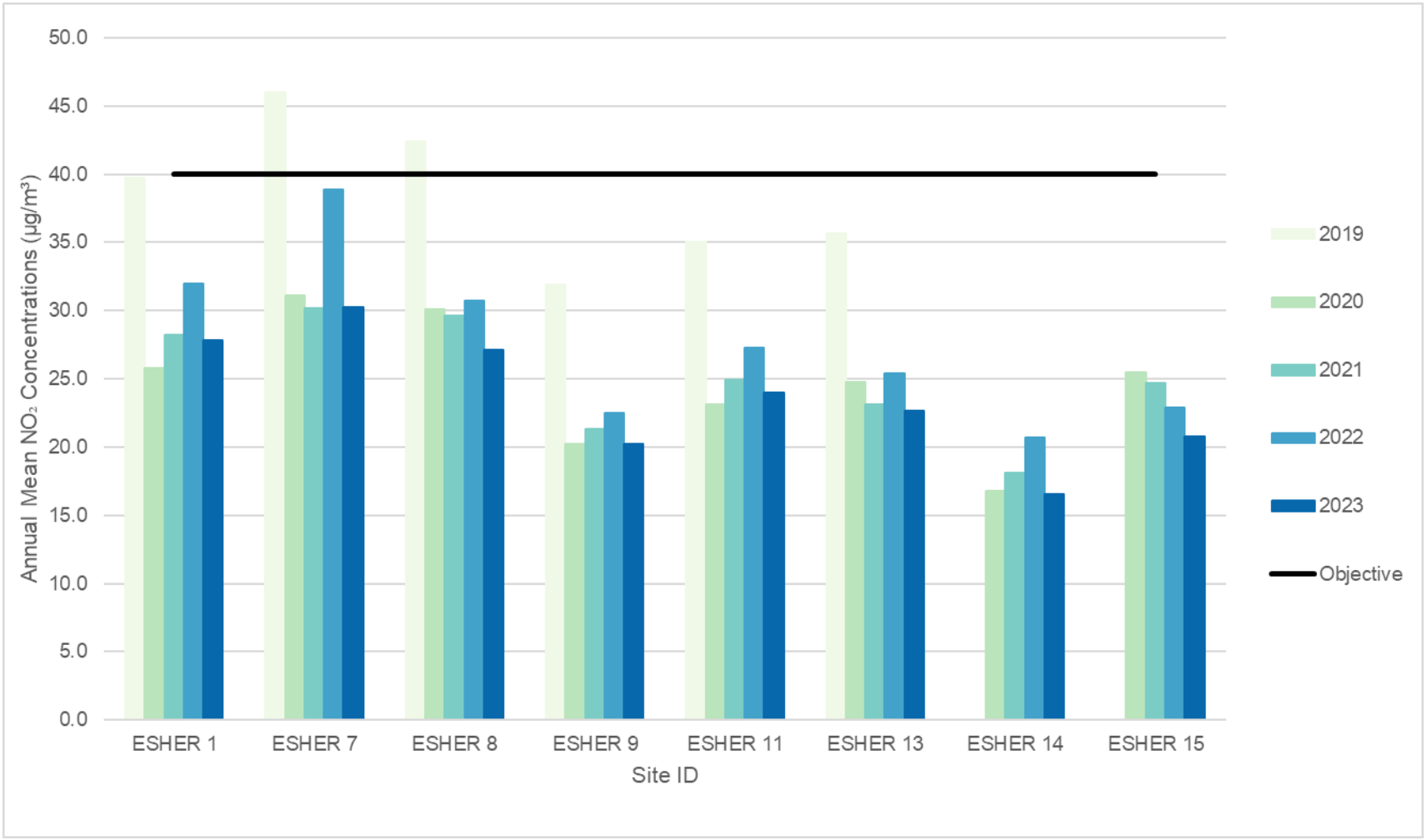


Figure A.2 – Trends in Annual Mean NO_2 Concentrations in Hinchley Wood

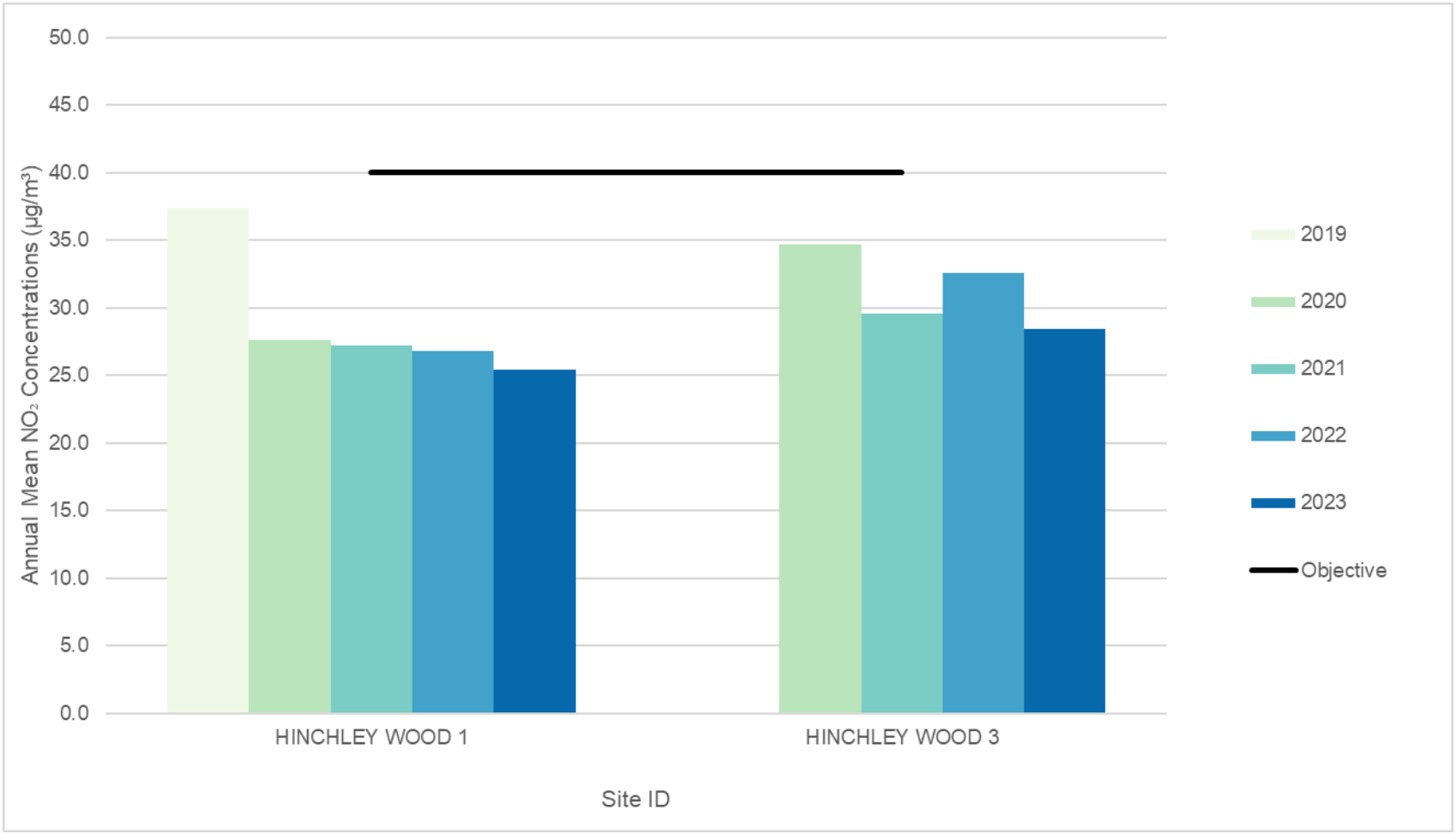


Figure A.3 – Trends in Annual Mean NO_2 Concentrations in Hampton Court

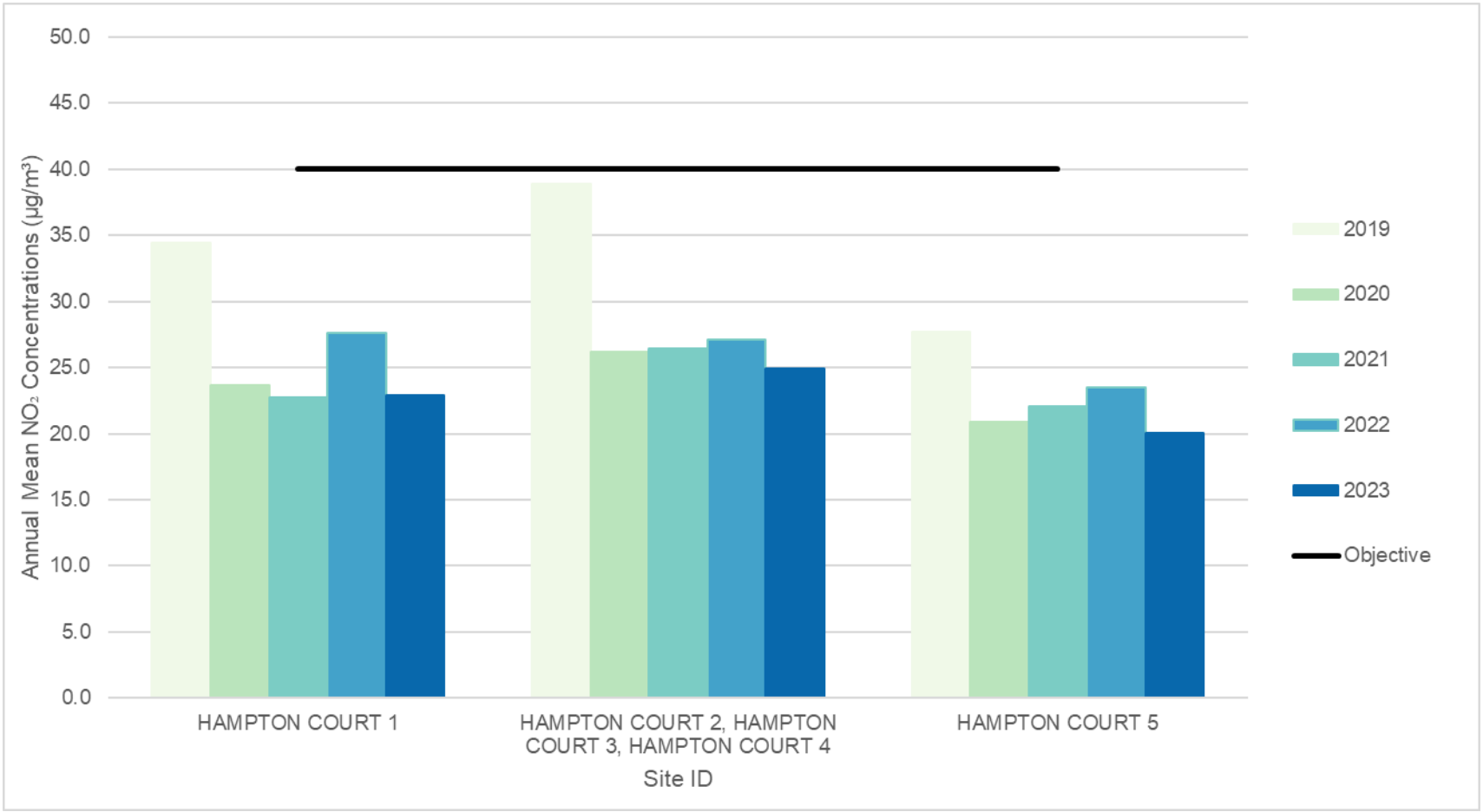


Figure A.4 – Trends in Annual Mean NO_2 Concentrations in Molesey

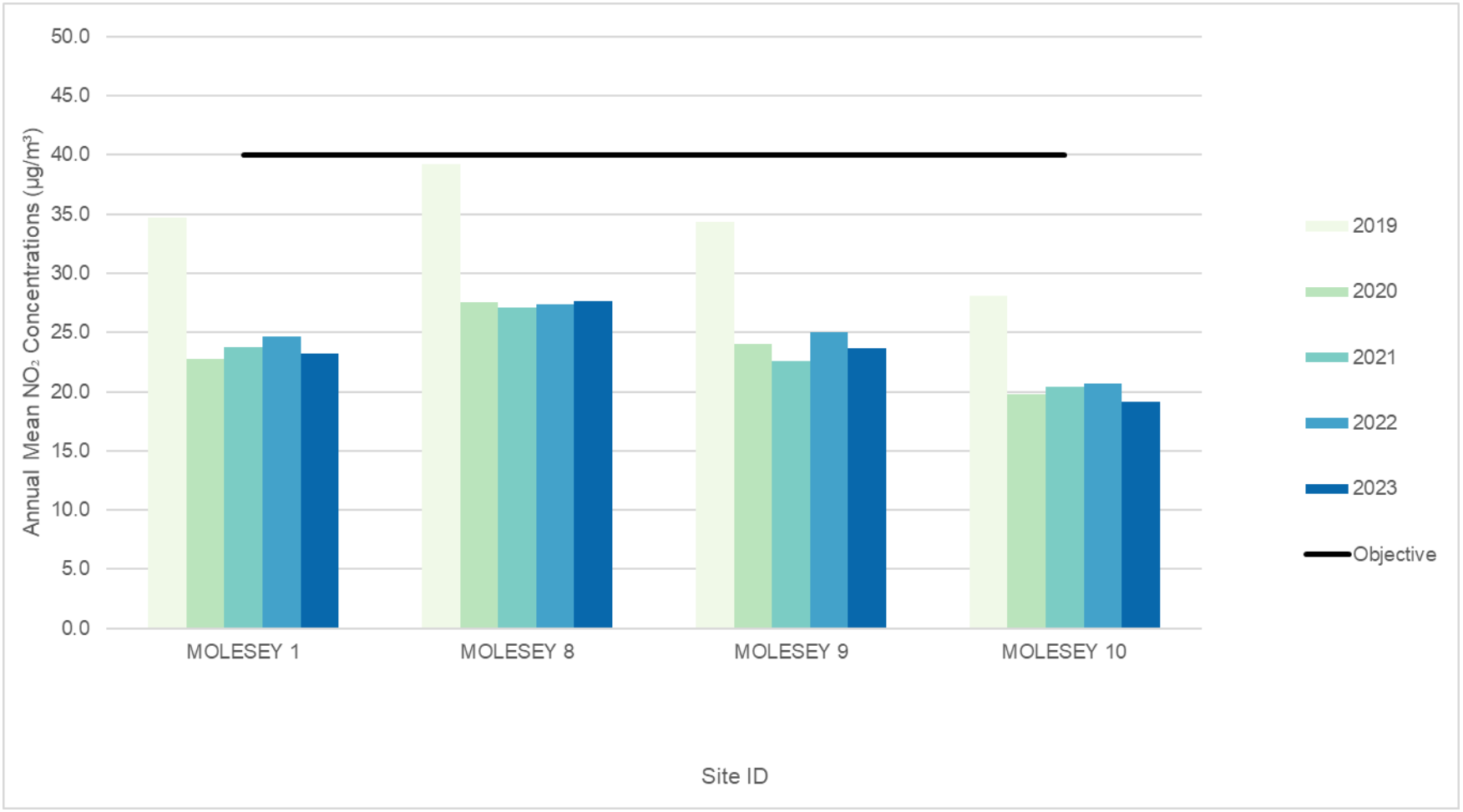


Figure A.5 – Trends in Annual Mean NO_2 Concentrations in Walton-on-Thames

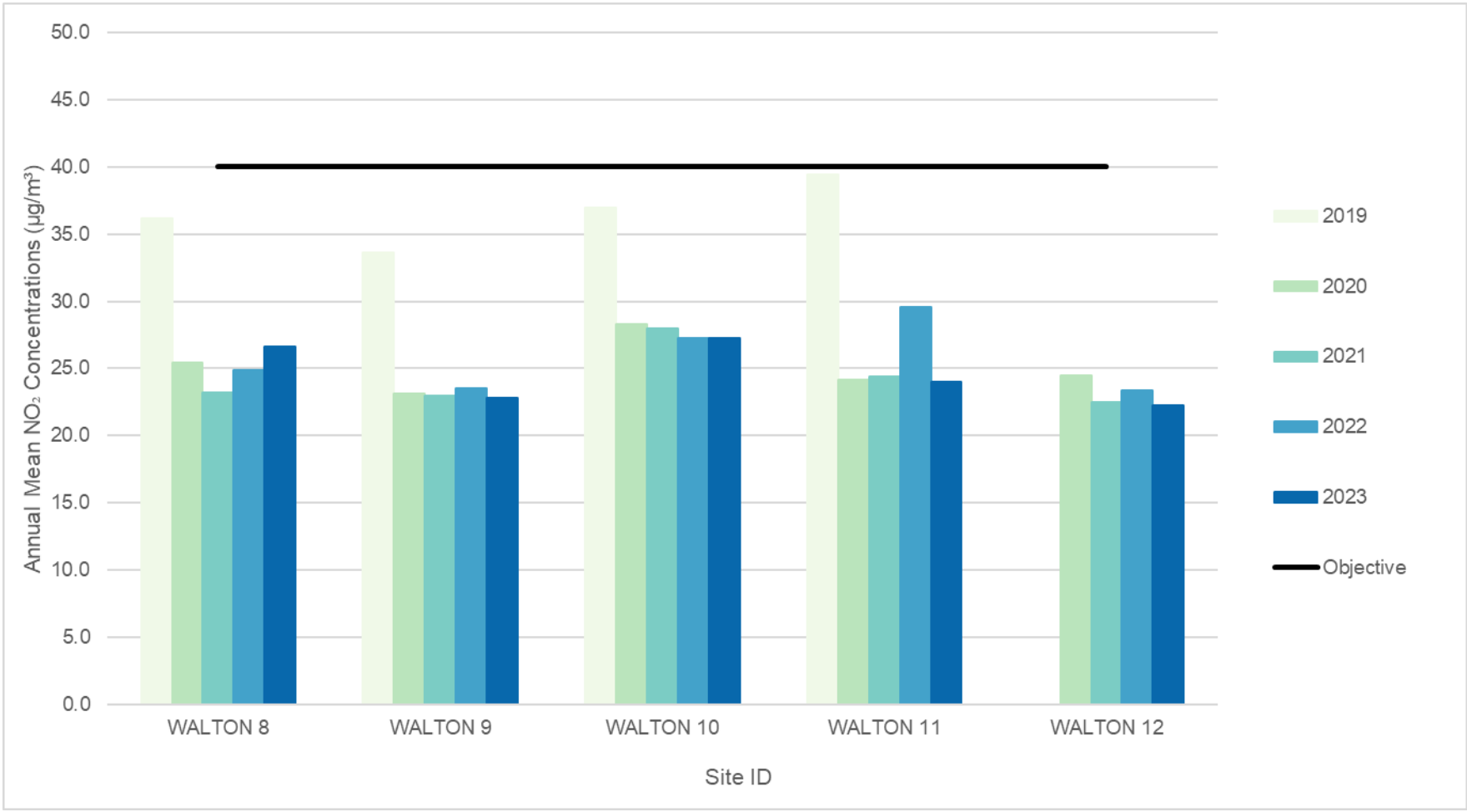


Figure A.6 – Trends in Annual Mean NO_2 Concentrations in Weybridge

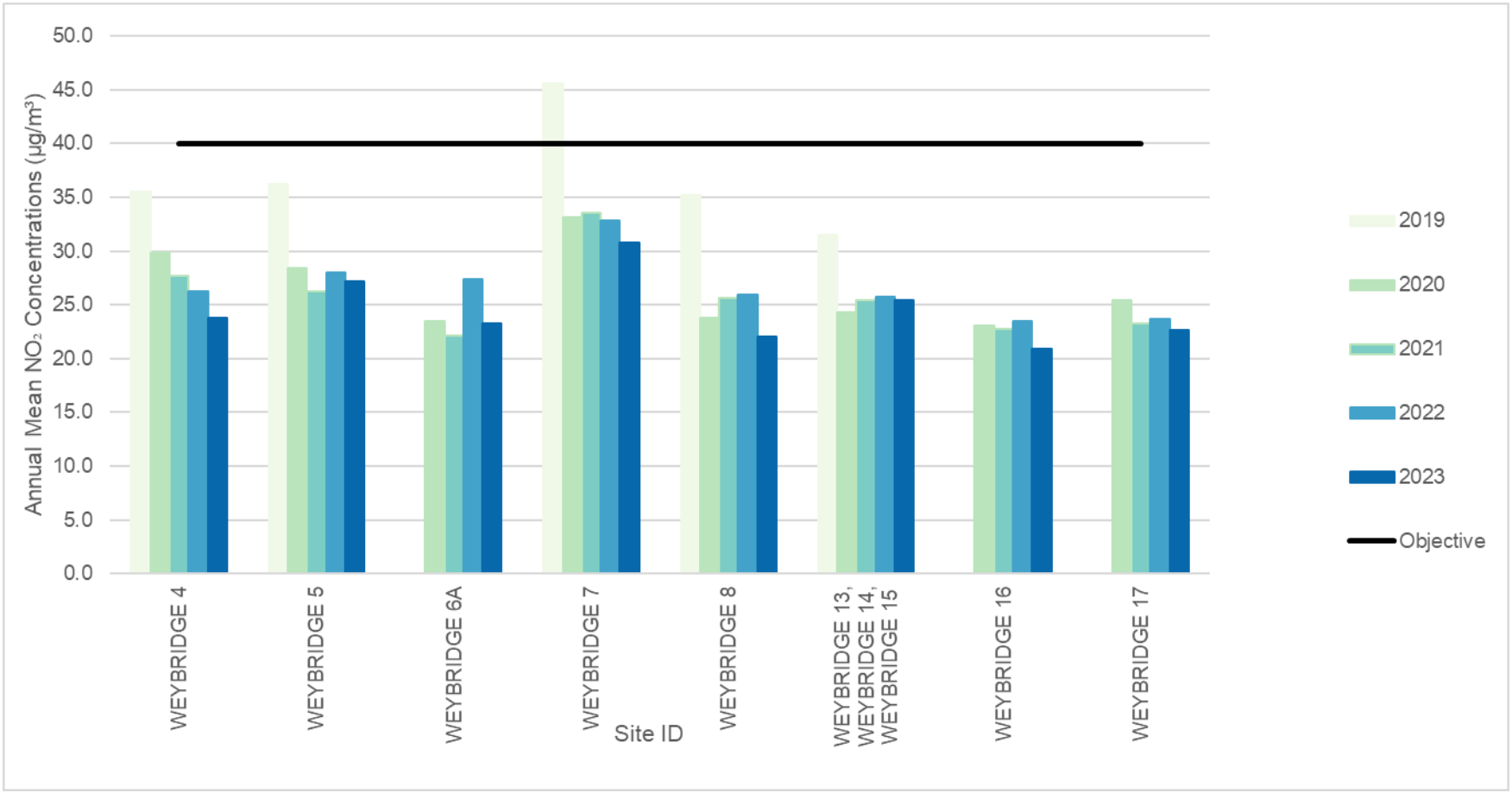


Figure A.7 – Trends in Annual Mean NO_2 Concentrations in Cobham and Oxshott

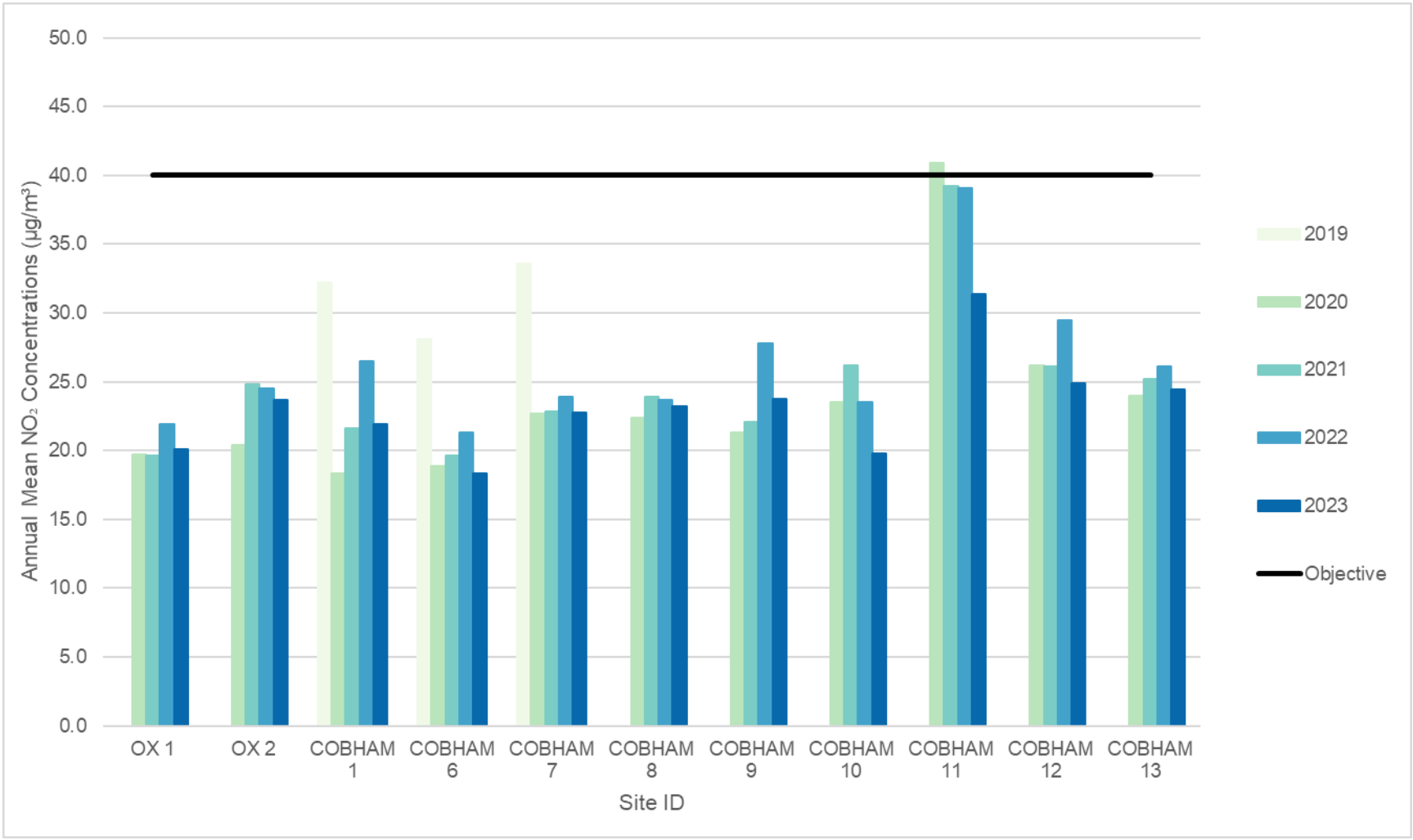


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
Hampton Court Parade	515338	168292	Roadside	99.8	99.8	0	0	0	0	0
Weybridge High Street 2	507459	164909	Kerbside	86.1	86.1	0	0	0	0	0

Notes:

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

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.85)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
ESHER 1	513840	164693	40.0	40.0	31.0	39.0	40.0	30.0	21.0	22.0	41.0	34.0	34.0	21.0	32.8	27.8	-	
ESHER 7	513982	164750	47.0	41.0	35.0	37.0		28.0	28.0	24.0	41.0	38.0	37.0		35.6	30.3	-	
ESHER 8	513832	164684	36.0	39.0	30.0	26.0	31.0	30.0	29.0	27.0	36.0	35.0	36.0	28.0	31.9	27.1	-	
ESHER 9	513821	164712	30.0	29.0		23.0	27.0	18.0	18.0	20.0	28.0	25.0	26.0	18.0	23.8	20.2	-	
ESHER 11	513895	164599	35.0	35.0		29.0	31.0	24.0	23.0	19.0	31.0	27.0	31.0	25.0	28.2	24.0	-	
ESHER 13	513736	164489	32.0	40.0	28.0	27.0	27.0	20.0	17.0	17.0	29.0	29.0	32.0	22.0	26.7	22.7	-	
ESHER 14	514034	162282	27.0	22.0	15.0	21.0	21.0	20.0	19.0	14.0	22.0	17.0	20.0	16.0	19.5	16.6	-	
ESHER 15	513901	164779	34.0	33.0		24.0	27.0	21.0	18.0	13.0	28.0	25.0	27.0	19.0	24.5	20.8	-	
HINCHLEY WOOD 1	515248	165535	38.0	41.0			23.0	19.0		28.0	31.0	32.0	32.0	25.0	29.9	25.4	-	
HINCHLEY WOOD 3	515728	165191	39.0	41.0	36.0	34.0	34.0	29.0	31.0	21.0	35.0	38.0	36.0	28.0	33.5	28.5	-	
HAMPTON COURT 1	515379	167946	33.0	30.0	25.0	27.0	31.0	27.0	22.0	24.0	30.0	27.0		20.0	26.9	22.9	-	
HAMPTON COURT 2	515338	168292	37.0	37.0	26.0	27.0	28.0	26.0	23.0	19.0	35.0	33.0	32.0	27.0	-	-	-	Triplicate Site with HAMPTON COURT 2, HAMPTON COURT 3 and HAMPTON COURT 4 - Annual data provided for HAMPTON COURT 4 only
HAMPTON COURT 3	515338	168292	37.0	38.0	27.0	27.0	29.0	25.0	20.0	18.0	35.0	32.0	32.0	25.0	-	-	-	Triplicate Site with HAMPTON COURT 2, HAMPTON COURT 3 and HAMPTON COURT 4 - Annual data provided for HAMPTON COURT 4 only
HAMPTON COURT 4	515338	168292	40.0	38.0	38.0	30.0	26.0	27.0	25.0	19.0	24.0	32.0	33.0	27.0	29.3	24.9	-	Triplicate Site with HAMPTON COURT 2, HAMPTON COURT 3 and HAMPTON COURT 4 - Annual data provided for HAMPTON COURT 4 only
HAMPTON COURT 5	515329	168390	35.0	25.0	20.0	25.0	24.0	19.0	15.0		26.0	24.0	25.0	21.0	23.5	20.0	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.85)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
MOLESEY 1	514450	168134	31.0	35.0	23.0	30.0	26.0		20.0		29.0		30.0	22.0	27.3	23.2	-	
MOLESEY 8	514716	167960	41.0	38.0	30.0	30.0		22.0	30.0	24.0	34.0		51.0	25.0	32.5	27.6	-	
MOLESEY 9	514507	168086	38.0	34.0	25.0	28.0	20.0		22.0	19.0	33.0	29.0	33.0	25.0	27.8	23.6	-	
MOLESEY 10	514169	168152	31.0	30.0	20.0	22.0	16.0	21.0	19.0	15.0	25.0	23.0	29.0	19.0	22.5	19.1	-	
OX 1	514558	160621	26.0	27.0		23.0	25.0	24.0	19.0	17.0	33.0	24.0	25.0	17.0	23.6	20.1	-	
OX 2	514574	160493	34.0	35.0		30.0	22.0	27.0	22.0	23.0	33.0	29.0	29.0	22.0	27.8	23.6	-	
WALTON 8	510154	166281	36.0	34.0	28.0	27.0	21.0		24.0	18.0	33.0	30.0		62.0	31.3	26.6	-	
WALTON 9	510082	166379	33.0	32.0	25.0	26.0	23.0	20.0			27.0	27.0	31.0	24.0	26.8	22.8	-	
WALTON 10	510140	166522	39.0	39.0	31.0	33.0	33.0	33.0	24.0	24.0	40.0	33.0	31.0	25.0	32.1	27.3	-	
WALTON 11	510000	166401	38.0	35.0	24.0	29.0	26.0	25.0	20.0	19.0	34.0	30.0	33.0	26.0	28.3	24.0	-	
WALTON 12	510185	166225	36.0	24.0	24.0	28.0	26.0	26.0	19.0	17.0	31.0	27.0	29.0	27.0	26.2	22.2	-	
WEYBRIDGE 4	507705	164907	36.0	36.0	28.0	30.0	36.0			25.0		26.0	29.0		30.8	23.8	-	
WEYBRIDGE 5	507609	164966	35.0	36.0	33.0	32.0	24.0	21.0	31.0	24.0	47.0	36.0	35.0	30.0	32.0	27.2	-	
WEYBRIDGE 6A	507536	164952	34.0	33.0	28.0	24.0	33.0	24.0	20.0	19.0	30.0	29.0	31.0	23.0	27.3	23.2	-	
WEYBRIDGE 7	507199	164804	42.0	41.0	37.0	38.0	38.0	30.0	25.0	31.0	41.0	41.0	40.0	30.0	36.2	30.7	-	
WEYBRIDGE 8	507150	164761		30.0	25.0	29.0		23.0	20.0	17.0	32.0	28.0	30.0	25.0	25.9	22.0	-	
WEYBRIDGE 13	507459	164909	39.0	40.0	28.0	33.0	33.0	27.0	25.0	23.0	35.0	30.0	34.0	24.0	-	-	-	Triplicate Site with WEYBRIDGE 13, WEYBRIDGE 14 and WEYBRIDGE 15 - Annual data provided for WEYBRIDGE 15 only
WEYBRIDGE 14	507459	164909	32.0	29.0	28.0	30.0	33.0	30.0	22.0	23.0	34.0	30.0	33.0	24.0	-	-	-	Triplicate Site with WEYBRIDGE 13, WEYBRIDGE 14 and WEYBRIDGE 15 - Annual data provided for WEYBRIDGE 15 only
WEYBRIDGE 15	507459	164909	36.0	32.0	27.0	34.0	34.0	28.0	21.0	24.0	32.0	31.0	33.0	25.0	29.9	25.4	-	Triplicate Site with WEYBRIDGE 13,

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 (0.85)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
																		WEYBRIDGE 14 and WEYBRIDGE 15 - Annual data provided for WEYBRIDGE 15 only
WEYBRIDGE 16	507190	161340	29.0	29.0	25.0	28.0	23.0	24.0	18.0	17.0	27.0	26.0	29.0	20.0	24.6	20.9	-	
WEYBRIDGE 17	507365	164831	31.0	32.0	25.0	26.0	28.0	21.0	20.0	20.0	34.0	30.0	30.0	23.0	26.7	22.7	-	
COBHAM 1	510813	160048	30.0	26.0	26.0	29.0		19.0	21.0	19.0	33.0	28.0	27.0		25.8	21.9	-	
COBHAM 6	510814	160099	24.0	28.0	22.0	21.0	21.0	21.0	16.0	14.0	25.0	24.0	25.0	18.0	21.6	18.3	-	
COBHAM 7	510861	159906	33.0	31.0	26.0		27.0	23.0	21.0	21.0	33.0	28.0	30.0	22.0	26.8	22.8	-	
COBHAM 8	510300	160375	31.0	37.0	25.0	28.0	24.0	27.0	21.0	19.0	31.0	29.0	30.0	26.0	27.3	23.2	-	
COBHAM 9	510348	160417	37.0	38.0	27.0	23.0	27.0	21.0	23.0	17.0	35.0	31.0	32.0	24.0	27.9	23.7	-	
COBHAM 10	510262	160454	24.0	26.0	21.0	27.0	26.0	21.0	18.0	16.0	28.0	25.0	26.0	21.0	23.3	19.8	-	
COBHAM 11	509623	160616	44.0	43.0	36.0	42.0	21.0	34.0	35.0	29.0	44.0	41.0	44.0	30.0	36.9	31.4	-	
COBHAM 12	509560	160720	24.0	33.0	26.0	33.0	36.0	32.0	24.0	22.0	45.0	30.0	27.0	19.0	29.3	24.9	-	
COBHAM 13	509465	160640	38.0	41.0	26.0	32.0	21.0	30.0	22.0	19.0	34.0	30.0	28.0	24.0	28.8	24.4	-	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**

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

☒ **National bias adjustment factor used.**

☒ **Elmbridge Borough Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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 Elmbridge Borough Council During 2023

As part of the Governments Road Investment Strategy 2015 to 2020, improvements will be made to the M25 Junction 10 / A3 Wisley Interchange. These works are scheduled to be completed in summer 2025.

As part of the improvements diverted traffic will reroute within Elmbridge. Improvement works started in December 2022 and a large proportion of the project has been completed to date. Throughout 2023 work was done on Wisley Lane bridge, the Stratford Brook underbridge, Ockham Roundabout, the junction 10 bridge, the Clermont bridge. This work resulted in contraflows being set up on the A3 northbound into Elmbridge and also diversions from the M25 onto the A3 towards the junction between the A3 and the A240.

The London Ultra Low Emission (ULEZ) was extended to cover all of Greater London on 29th August 2023. Whilst the ULEZ is not considered to be a new source of air pollution, it has the potential to displace traffic onto roads within Elmbridge through existing AQMAs. Any increase in traffic flows and resulting NO_2 concentrations will be closely monitored in AQMAs where displaced traffic may travel.

Additional Air Quality Works Undertaken by Elmbridge Borough Council During 2023

Elmbridge has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes in 2023 were prepared and analysed by Lambeth Scientific Services using a preparation method of 50% TEA in acetone.

All diffusion tubes were changed over on the dates outlined in the Defra 2023 Diffusion Tube Monitoring Calendar, except for at the end of February when the diffusion tubes were changed on the 28th February rather than the 1st March. This divergence from the Diffusion Tube Monitoring Calendar is within the ±2 days allowed by Defra.

Lambeth Scientific Services take part in the analytical proficiency testing scheme (AIR-PT), formerly known as the WASP operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). During 2023, 0% of samples were determined to be satisfactory in the 1st quarter, 75% of samples were determined to be satisfactory in the 2nd quarter, 50% of samples were determined to be satisfactory in the 3rd quarter and 0% of samples were determined to be satisfactory in the 4th quarter. The AIR-PT results for 2023 have been raised with Lambeth Scientific Services and they have provided assurance that their analytical procedures are in accordance with DEFRA guidance. Along with continuous monitoring of their procedures, remedial action is being put in place by Lambeth Scientific Services to ensure that a higher percentage of test samples are considered satisfactory in future rounds of the AIR-PT scheme.

Given the AIR-PT 1st and 4th quarter results for 2023, further investigation into the reliability of the diffusion tube monitoring results for 2023 has been undertaken. Diffusion tube precision and accuracy reflects the handling of tubes in the field, and a laboratory's performance or consistency in preparing and analysing tubes. The 'Precision and Accuracy' webpage [27]on DEFRA's LAQM website reports good/bad precision results from co-location studies in 2023; all three co-location studies using diffusion tubes prepared and analysed by Lambeth Scientific Services in 2023 had 'Good' diffusion tube precision. QA/QC of the raw diffusion tube data was also undertaken to remove any erroneous values from the data and did not highlight any clear overall issues with the dataset. Furthermore, the diffusion tube results have been bias adjusted in order to remove bias and improve their accuracy, in accordance with DEFRA's LAQM TG(22). Overall, it has therefore been considered appropriate to report the diffusion tube results from the 1st and 4th quarter of 2023 in this ASR rather than removing these results and annualising the data.

Diffusion Tube Annualisation

Where data capture is less than 75% for a full calendar year, diffusion tube results were annualised following the methodology in LAQM TG (22). Annualisation was carried out at one site, Weybridge 4.

[27] Defra. Precision and Accuracy. Available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/precision-and-accuracy/

Continuous monitoring data from London Hillingdon, London North Kensington, London Westminster and London Bloomsbury urban background sites, part of the Automatic Urban and Rural Network (AURN) were used. Details of the annualisation are provided in Table C.1.

Table C.1 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor London Hillingdon	Annualisation Factor London N. Kensington	Annualisation Factor London Westminster	Annualisation Factor London Bloomsbury	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
WEYBRIDGE 4	1.0	0.9	0.9	0.9	0.9	30.8	28.0

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 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/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Elmbridge Borough Council have applied a national bias adjustment factor of 0.85 to the 2023 monitoring data. A summary of bias adjustment factors used by Elmbridge Borough Council over the past five years is presented in Table C.2.

There are two triplicate co-location sites within Elmbridge. A local bias adjustment factor of 0.85 has been derived from Weybridge High Street 2 co-location and a local bias adjustment factor of 0.83 has been derived from Hampton Court Parade co-location. As a result, the combined local bias adjustment factor is 0.84. The local bias adjustment calculations for the Hampton Court Parade and Weybridge High Street 2 co-location sites are provided in Table C.3. As highlighted in LAQM TG22, there are a number of factors which should be considered when deciding which bias-adjustment factor to use (local or national). It is considered that the national bias adjustment factor is more suitable for adjusting the measured diffusion tube data from 2023 due to the following factors:

- The Weybridge High Street 2 automatic monitor had poor overall data capture in 2023 (<90%) for use in local bias adjustment.

- The national bias adjustment factor (0.85) is slightly higher than the combined local bias adjustment factor (0.84) so leads to higher measured diffusion tube concentrations once bias adjusted.
- LAQM TG.22 states that the national bias adjustment factor is likely to be more reliable as it includes all locally derived factors.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	v03_24	0.85
2022	Local	-	0.92
2021	Local	-	0.93
2020	Local	-	1.01
2019	Local	-	0.99

Table C.3 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1 (Hampton Court Parade)	Local Bias Adjustment Input 2 (Weybridge High Street 2)
Periods used to calculate bias	10	10
Bias Factor A	0.83 (0.76 - 0.92)	0.85 (0.8 - 0.91)
Bias Factor B	20% (9% - 32%)	17% (10% - 25%)
Diffusion Tube Mean (µg/m^3)	29.0	28.9
Mean CV (Precision)	4.4%	3.8%
Automatic Mean (µg/m^3)	24.1	24.7
Data Capture	100%	99%
Adjusted Tube Mean (µg/m^3)	24 (22 - 27)	25 (23 - 26)

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within Elmbridge Borough Council required distance correction during 2023.

QA/QC of Automatic Monitoring

Air Quality Data Management (AQDM) provide the data management services and carry out Local Site Operator duties for the Hampton Court and Weybridge High Street 2 automatic monitors. All data has been validated and ratified to the standards outlined in LAQM TG.22. The 2023 data presented in this ASR is fully ratified.

Automatic Monitoring Annualisation

All automatic monitoring locations within Elmbridge recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within Elmbridge required distance correction during 2023.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 - Automatic Monitoring Locations in Elmbridge

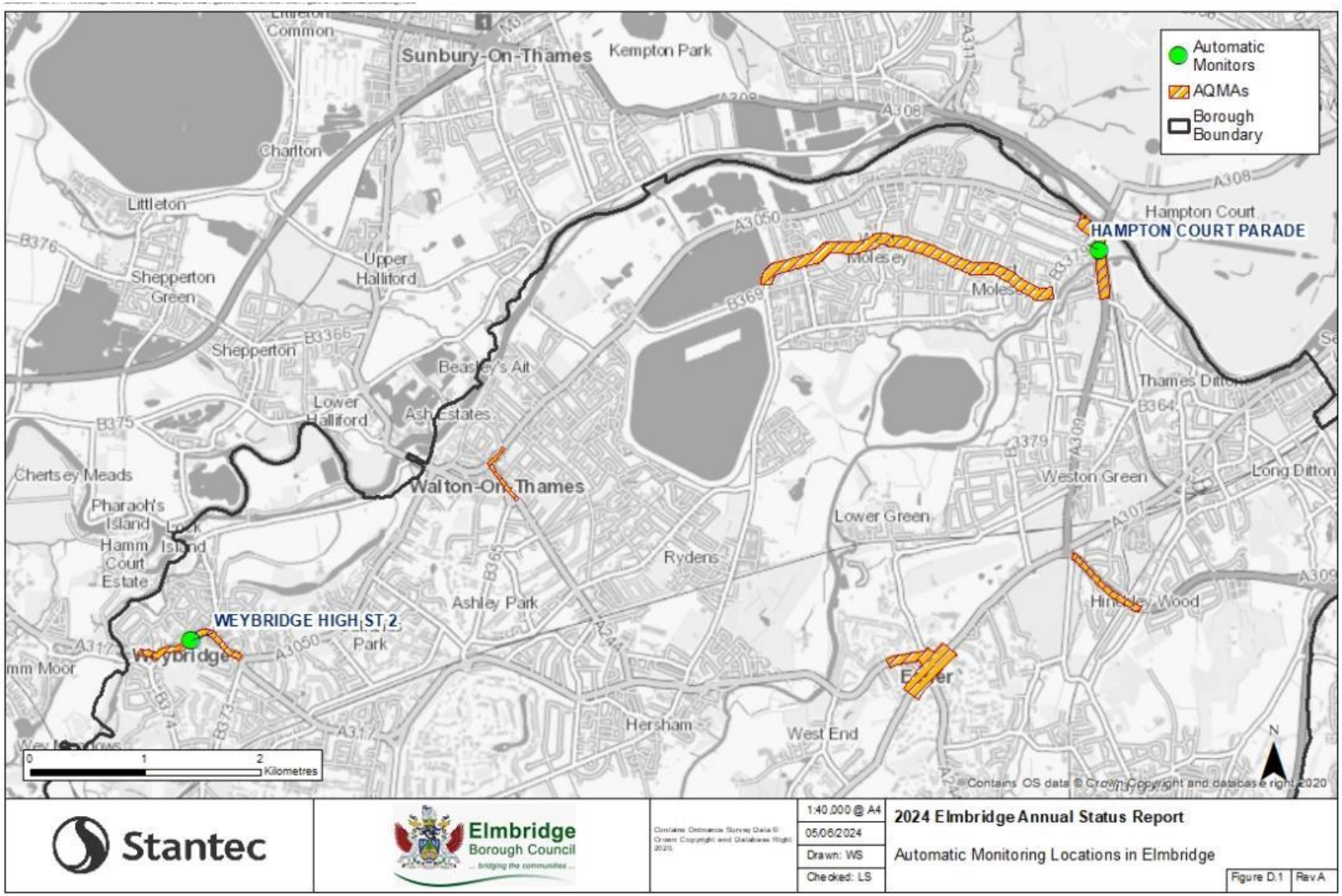


Figure D.2 - Monitoring Locations in Elmbridge

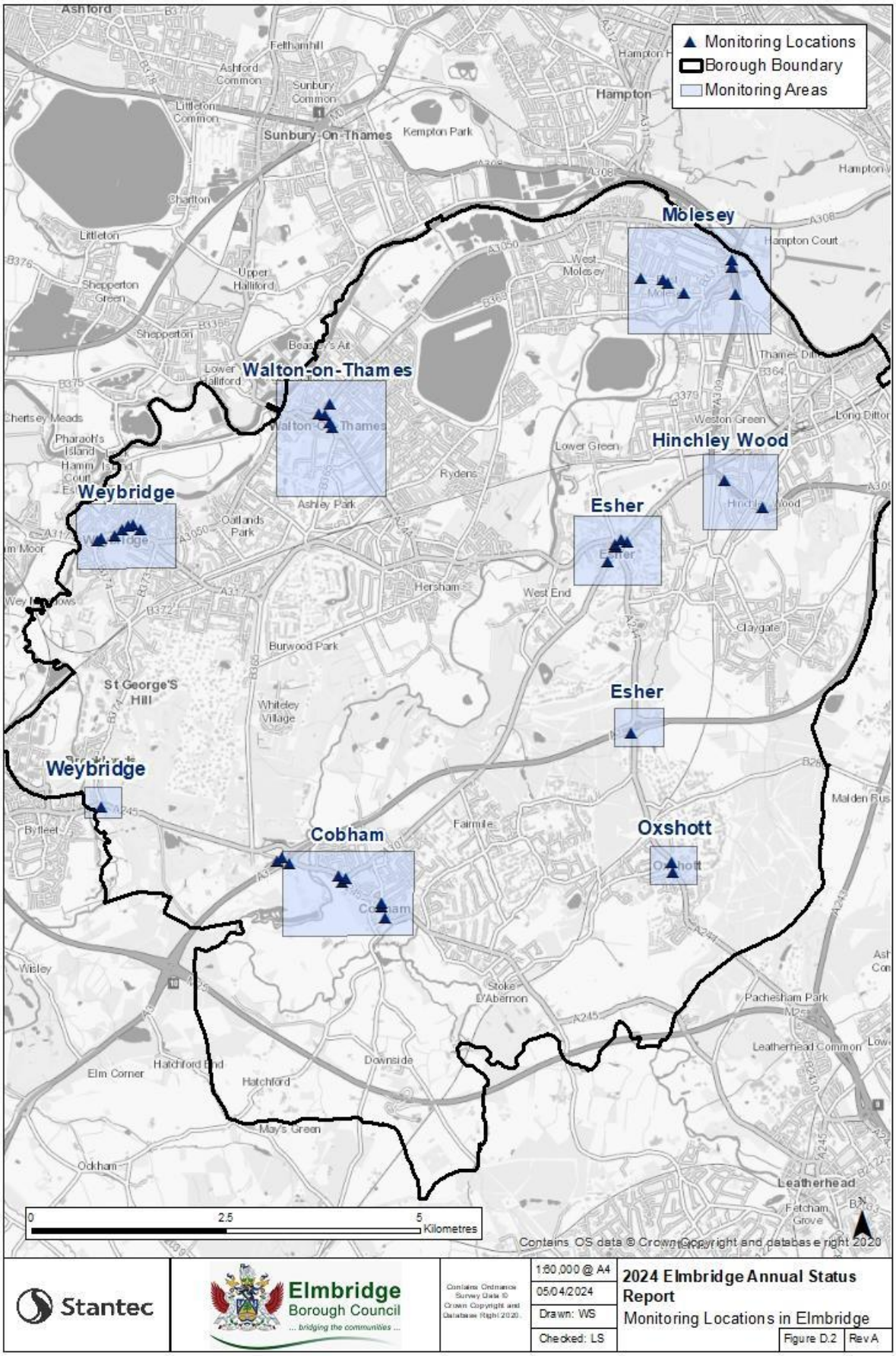


Figure D.3 - Monitoring Locations in Molesey

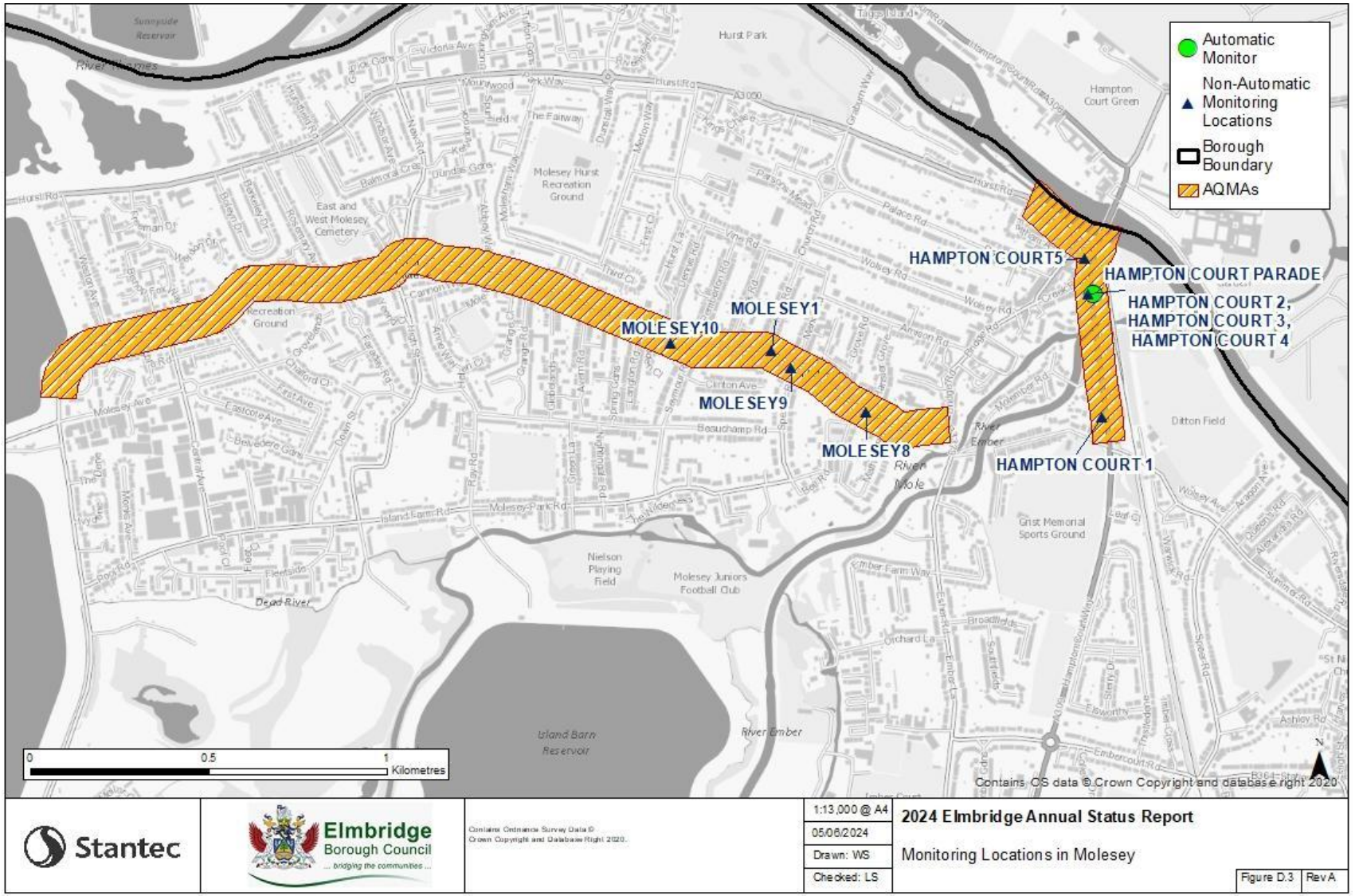


Figure D.4 - Monitoring Locations in Walton-on-Thames

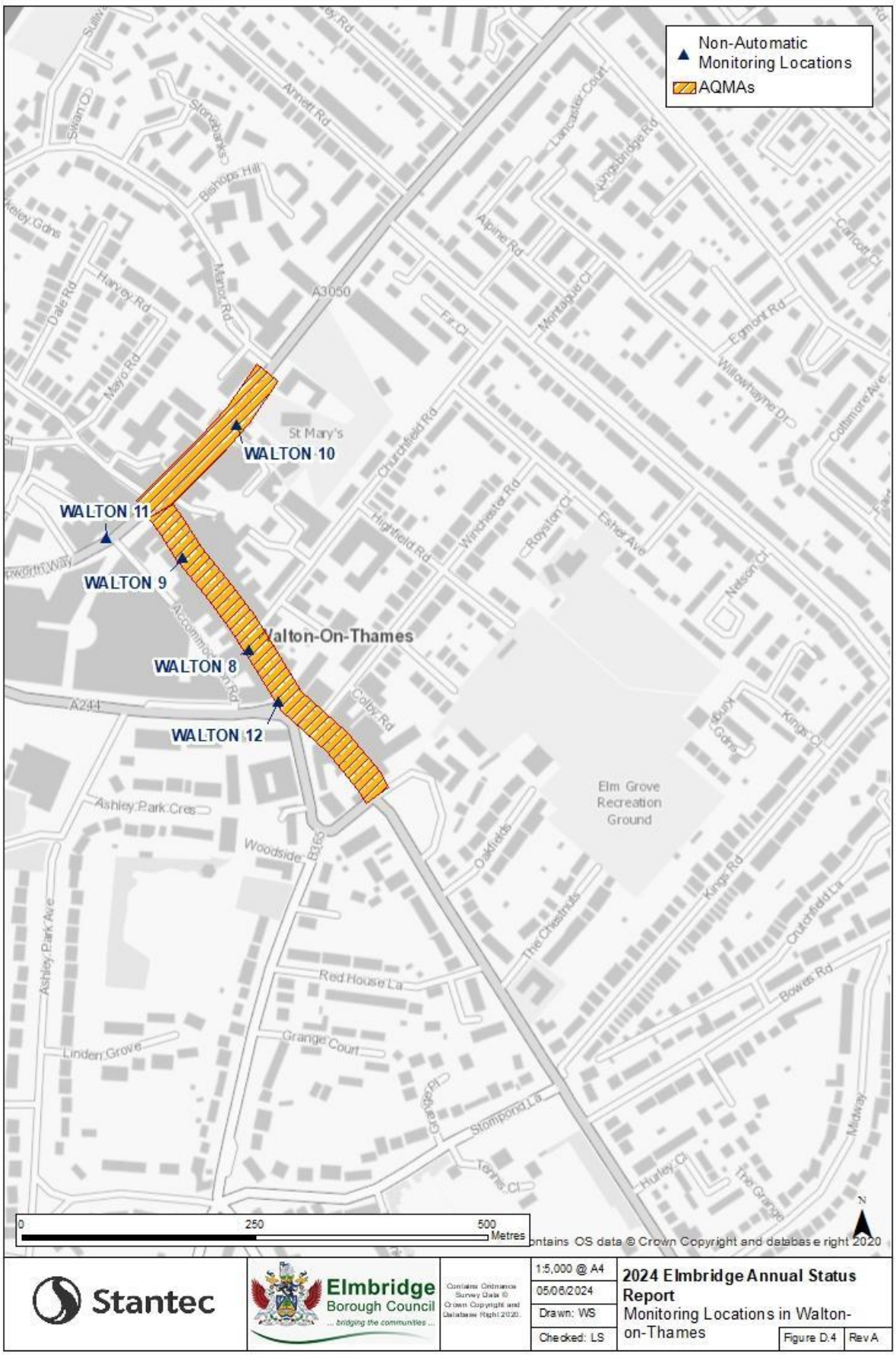


Figure D.5 - Monitoring Locations in Weybridge

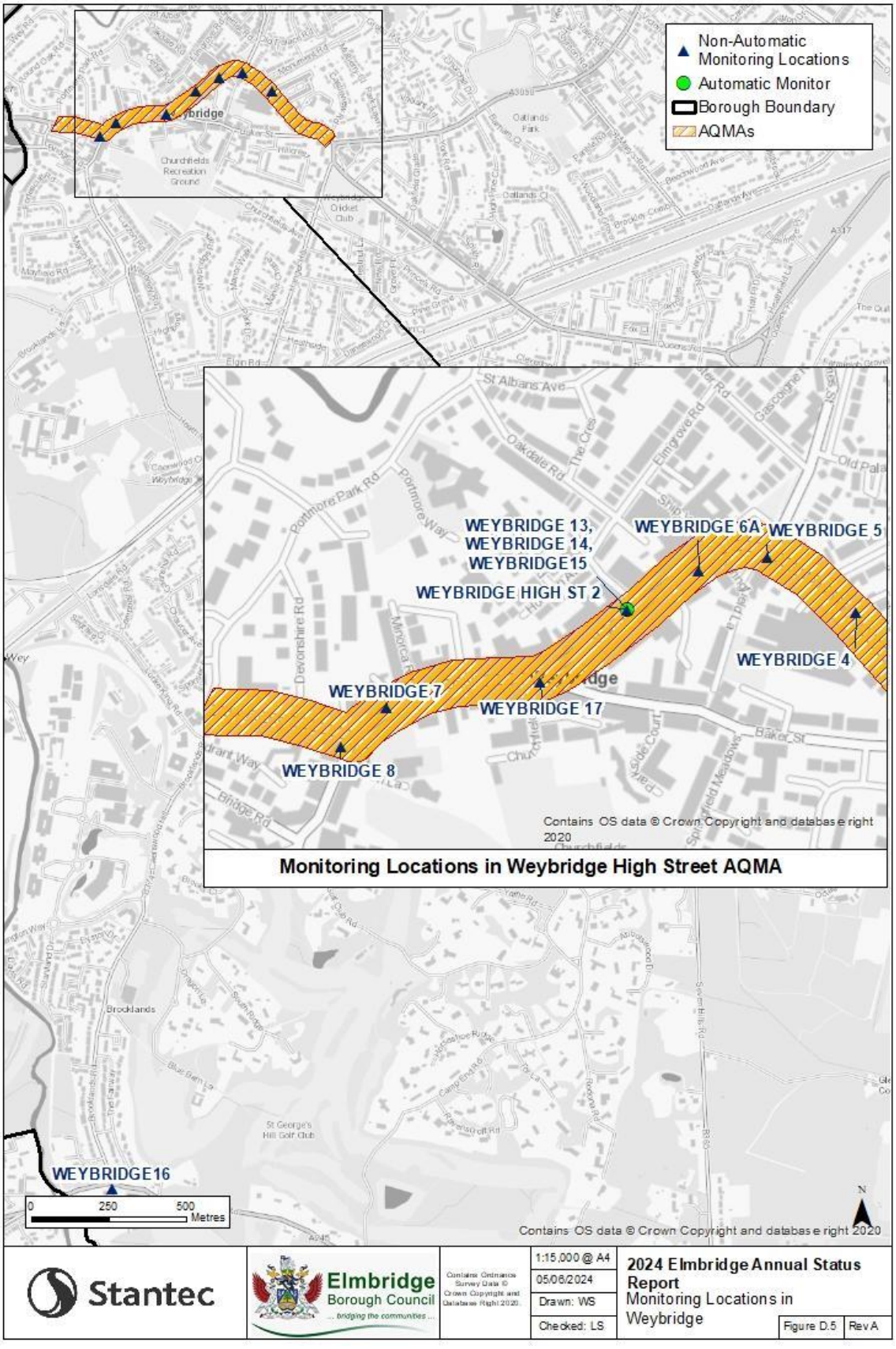


Figure D.6 - Monitoring Locations in Hinchley Wood

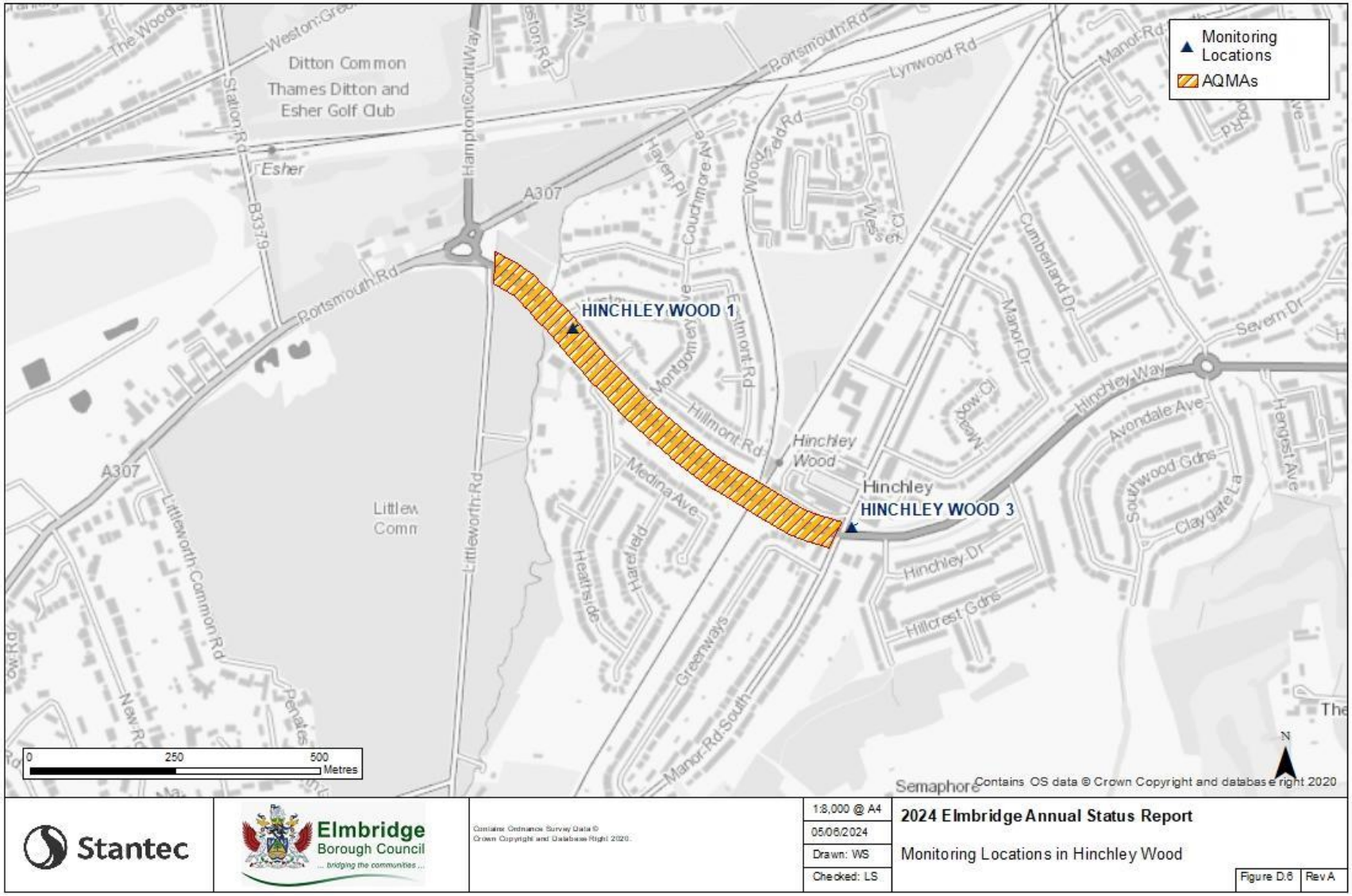


Figure D.7 - Monitoring Locations in Esher

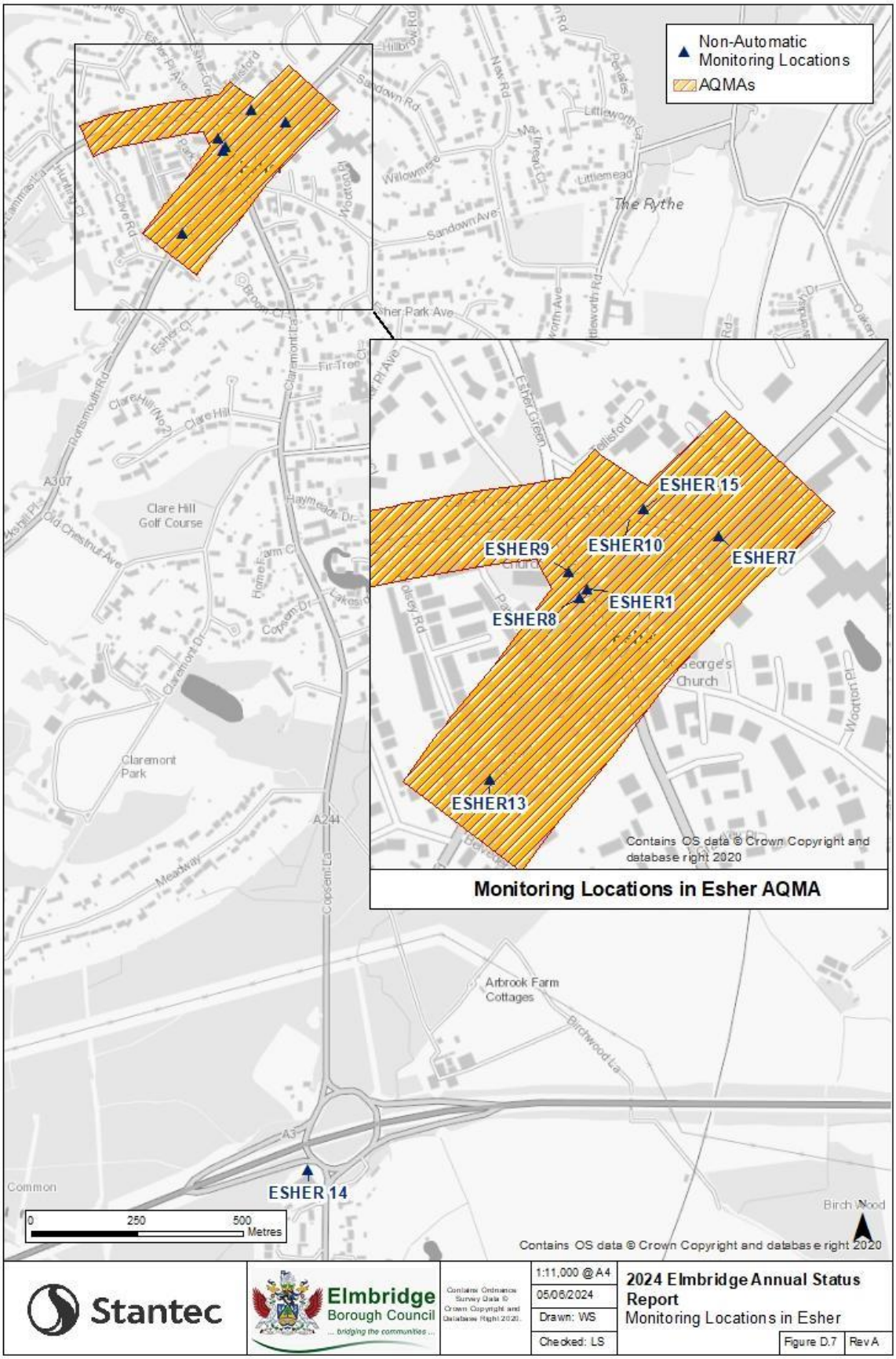


Figure D.8 - Monitoring Locations in Cobham

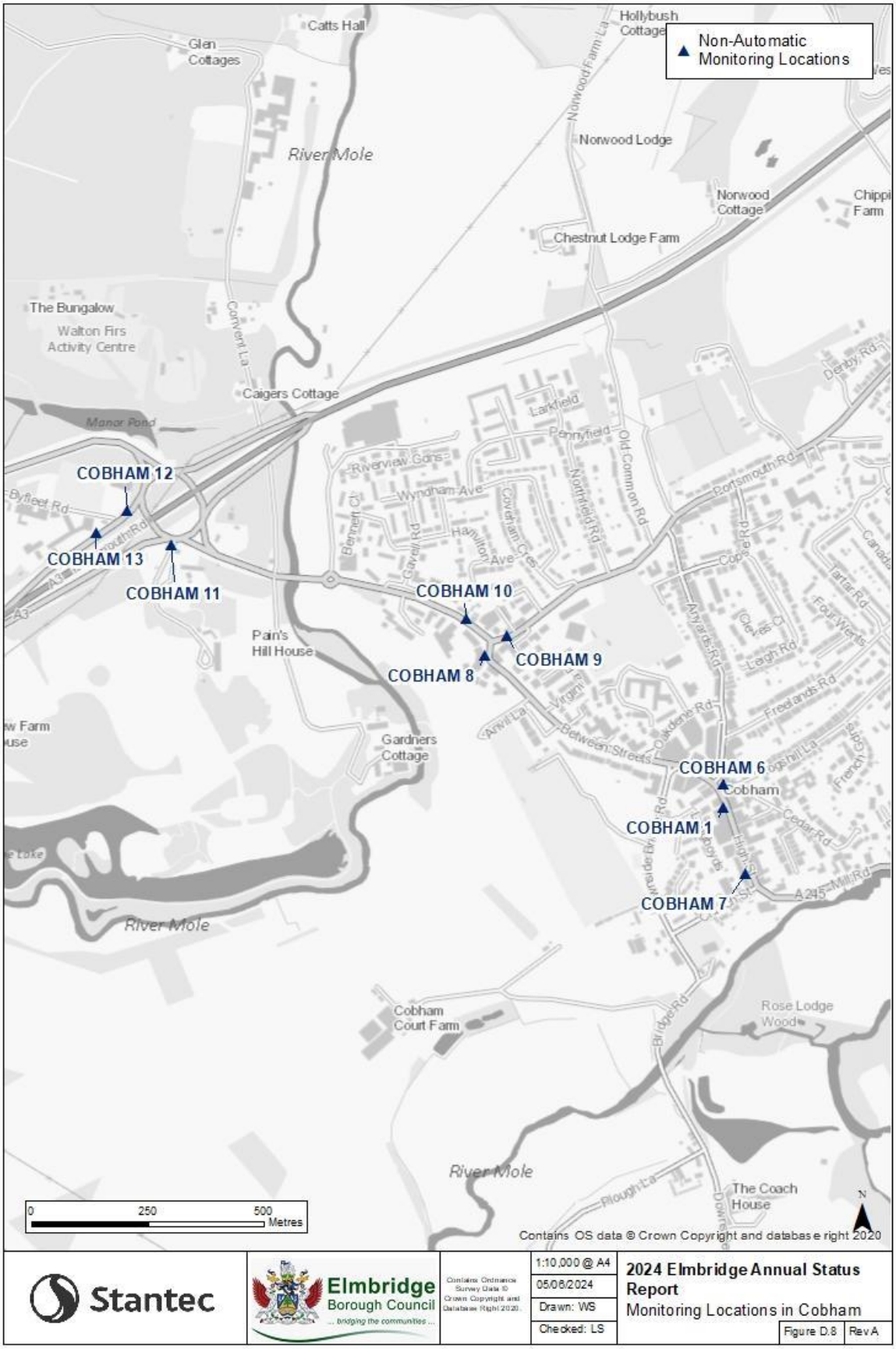
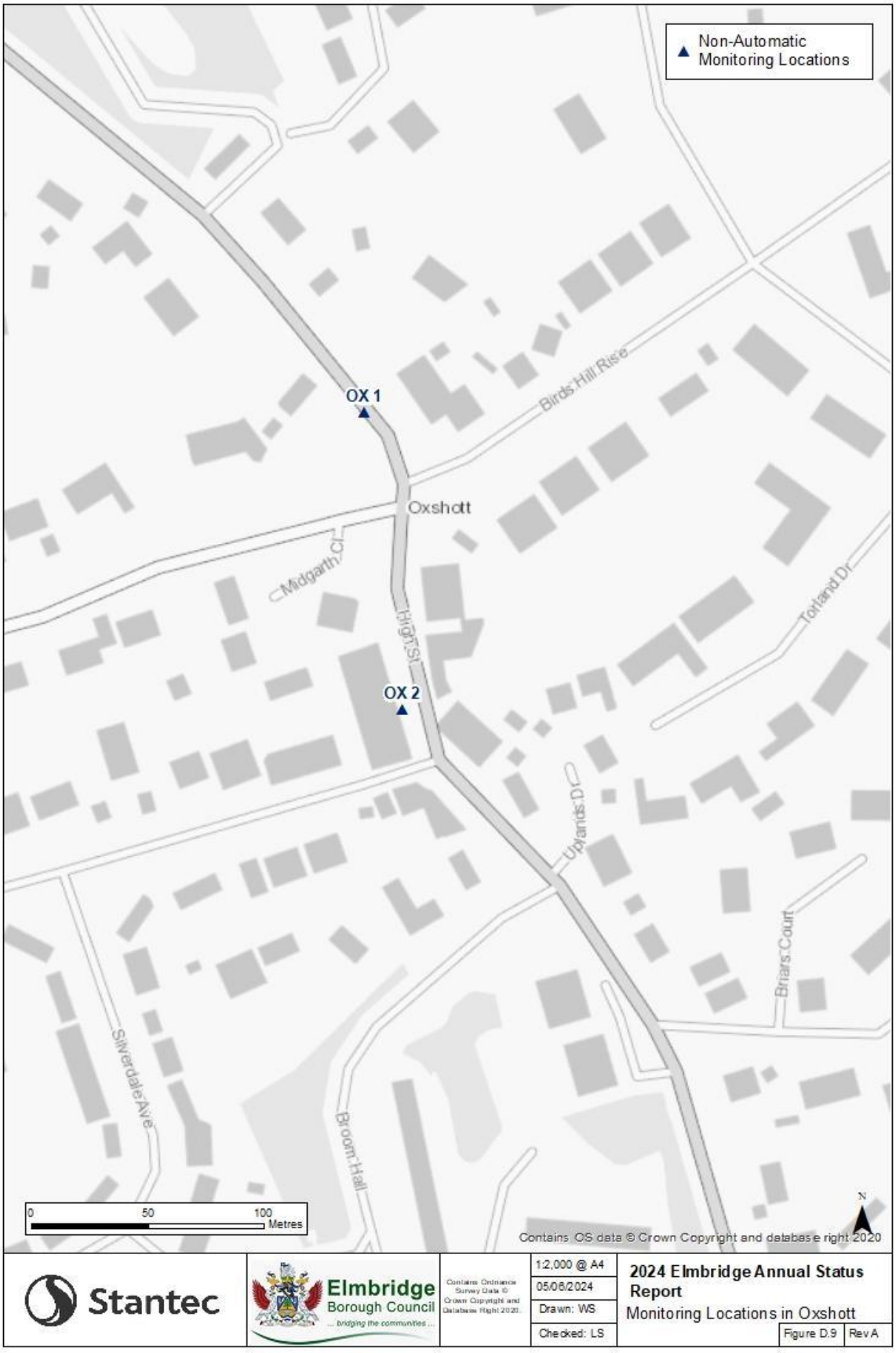


Figure D.9 - Monitoring Locations in Oxshott



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[28]

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

[28] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

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
CERC	Cambridge Environmental Research Consultants
CIL	Community Infrastructure Levy
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EBC	Elmbridge Borough Council
EU	European Union
FDMS	Filter Dynamics Measurement System
GAP	Global Action Plan
GBC	Guildford Borough Council
GFT	Greener Futures Team
HCC	Hertfordshire County Council
ICMDM	Individual Cabinet Member Decision Making
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Infrastructure Plan
LDS	Local Development Scheme
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
SAA	Surrey Air Quality Alliance

Abbreviation	Description
SO_2	Sulphur Dioxide
SSC	Surrey County Council
The Council	Elmbridge Borough Council
WHO	World Health Organisation

References

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