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: June 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Spelthorne

Breathing in polluted air affects our health and costs the National Health Service (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[1].

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[2].

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

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_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.

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

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

Air Quality Assessment and Management Areas in Spelthorne

Pollutants in Spelthorne

The principal air pollutant of concern within Spelthorne is Nitrogen Dioxide (NO_2) predominantly from the burning of fuel in cars, trucks, and buses. It is recognised that Particulate Matter (PM_{10} and $PM_{2.5}$) has significant health impacts, and that the World Health Organisation (WHO) Global Air Quality Guideline levels (WHO AQG) are not met in Spelthorne in line with the wider region. In 2021, Spelthorne Borough Council passed a motion to advocate for and work towards meeting the WHO Global Air Quality Guidelines.

Previous assessments of local air quality in Spelthorne have enabled the Council to conclude that concentrations of carbon monoxide, benzene, 1,3-butadiene, lead, sulphur dioxide and PM_{10} are compliant with the relevant national objectives outlined Appendix E.

A borough wide Air Quality Management Area (AQMA) was declared in 2003 for NO_2 air pollution in relation to traffic and an Air Quality Action Plan (AQAP) was published in 2005, to bring about improvements in concentrations of NO_2 within the Spelthorne AQMA. Most of the borough is already compliant with national objectives therefore in line with the Defra TG22 Local Air Quality Management Guidance the Council has adjusted the coverage of the AQMA to better reflect the status of air quality within the borough. The AQMA was reduced in size in 2024 because of these sustained improvements in local air quality. The relevant order, which came into effect from 1 April 2024 is appended to this report (Appendix F). This work has form part of the process of producing an updated Air Quality Action Plan in consultation with key stakeholders including the Transport Authority which is Surrey County Council (SCC), and National Highways who control the strategic road network within Spelthorne.

Source of Air pollution in Spelthorne

Air quality in Spelthorne is predominantly influenced by transport emissions. This annual status report has not identified any significant new emissions sources within the Spelthorne Borough Council area in the reported monitoring year of 2023.

SCC Transport Authority advised that vehicle volumes on local roads across the county (excluding motorways and trunk roads) were 8% lower in March 2023 than prior to the pandemic. A reduction of 7-8% was sustained since the pandemic. In 2023, the profile for average traffic volumes throughout the day and week was similar to 2019, in terms of the durations of the morning and evening peaks in traffic volume.

In February/March 2024, average weekly flows (i.e. across all 7 days of the week) in Surrey were 6% lower compared with the equivalent period pre-pandemic. Therefore, flows are now closer to pre-pandemic levels than they were in February/March 2023. The morning peak is about the same level but tends to have a steeper shoulder into the inter-peak period. The evening peak commences earlier and is both longer and flatter while volumes on an average weekday may be slightly lower than pre-pandemic, vehicle flows on Saturdays are higher.

Vehicle volumes on locally managed roads in Surrey (i.e. excluding motorways & trunk roads) indicate there is not much traffic growth on many roads. Flows on weekdays are now lower than they were 10 years ago.

SBC Priority Actions to Deal with Air Pollution

Some of the key priorities of SBC to deal with air pollution include but are not limited to: -

- Maintain and expand Air Quality Monitoring network - to understand, where pollution is more acute for appropriate management.
- Effective collaboration with all stakeholders for better air quality management.
- Public awareness & Behavioural Change - SBC to continue to provide a service to residents and those who wish to receive an alert when local air quality is predicted to deteriorate. Reducing the use of private vehicles for journeys to school will be necessary to improve air quality and tackle climate change because journeys to school are a significant proportion of vehicle trips in the morning peak across Surrey.
- Climate Change & Air Quality. The primary local air pollution source that is contributing to elevated nitrogen dioxide concentrations at the roadside within the Air Quality Management Area is traffic.
- Implementation of traffic programs, interventions & management schemes, then promoting of sustainable travel to reduce emission from traffic.
- Expansion of Smoke Control Areas: Spelthorne will start the process to expand the coverage of Smoke Control Areas to cover the whole borough subject to approval via the Council's Political Committees.

Air Quality Monitoring in Spelthorne

Our monitoring network looks at pollutants which are of greatest concern in Spelthorne, these are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$).

There are currently two(2no) automatic monitoring sites in Spelthorne. (i.e. one Council owned automatic monitoring station located at The Haven, Sunbury Cross and another station owned by a third party and located at Heathrow Oaks Road. There was a third station also owned by a third party located at Haslett Road which has been shut down and dismantled). Alongside these, SBC has Fifty-one (51no) O_2 non-automatic diffusion tubes across the borough including two triplicate locations. In 2023, measurements of PM_{10}, $PM_{2.5}$, and NO_2 were taken at the three automatic monitoring locations.

Trends of Pollutants Since 2004

Simple linear regression plots showing general NO_2 trends since 2004 for example (Appendix F) revealed that Air quality in Spelthorne has significantly improved and is generally good when compared with national air quality objectives.

Pollutant Concentrations & National Air Quality Objectives

Whilst the requirements of national legislation are met, addressing local sources of particulate pollution remains an important component of air quality management given the health impacts of particulate pollution.

The air quality in Spelthorne in 2023 remained below the limit values set of 40 µg/m^3 for the protection of human health within the Air Quality Standards Regulations 2010 compared to 2021/22, where there was an exceedance of air quality objective in Stanwell Moor Road as detailed in the 2023 Annual Status Report available on the Council's website.

Concentrations of PM_{10} also remained below the annual mean objective of 40 µg/m^3 and the 24-hour mean of 50 µg/m^3 not to be exceeded more than 35 times a year.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 set two $PM_{2.5}$ targets into law as set out in the Environmental Improvement Plan 2023[3], to reduce population exposure to $PM_{2.5}$ by 35% in 2040 compared to 2018 levels, with a new interim target to reduce by 22% by the end of January 2028, and a target to require a maximum annual mean concentration of 10 micrograms of $PM_{2.5}$ per cubic metre (µg/m^3) by the end of 2040, with a new interim target of 12 µg/m^3 by the end of January 2028.

In Spelthorne, the minimum annual Mean $PM_{2.5}$ was 7.2 µg/m^3 (i.e.at Oaks Road) and the maximum was 9.3µg/m^3 (at Haslett Road). These concentrations are all below the new interim target of 12 µg/m^3.

Pollutant Concentrations & WHO AQG

In reflection of the Council motion to advocate for the WHO AQG, a comparison is given between the monitored air pollutant concentrations and the Guidelines. It should be noted that the WHO AQG's are not legally adopted in England, the WHO recommends that before adopting the WHO guideline values as legally based standards, governments should consider their unique, local conditions[4]. SBC and partners will continue to work toward meeting the WHO AQG across the borough with time.

The WHO AQG, for NO_2 is an annual mean concentration of 10 µg/m^3, none of the monitoring locations in Spelthorne met the guideline in 2022 and 2023, monitoring shows that urban background levels are above 10 µg/m^3 in Spelthorne.

At the automatic monitoring stations, Annual Mean PM_{10} was 12.1 µg/m^3 (i.e.at Oaks Road) to 17.7µg/m^3 at Haslett Road). The WHO AQG for PM_{10} is an annual mean concentration of 15µg/m^3, this was only exceeded at the Haslett Road automatic monitoring station in 2023.

At the automatic monitoring stations, the $PM_{2.5}$ annual mean concentration was 7.2µg/m^3 at Oaks Road and 9.3 µg/m^3 at Haslett Road. The concentration was 8.0µg/m^3 at Sunbury

[3] Defra, 2023, HM Government, Environmental Improvement Plan 2023, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf

[4] World Health Organisation 2021. What are the WHO Air quality guidelines webpage available at: https://www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines

cross. The WHO AQG, for $PM_{2.5}$ is an annual mean concentration of 5µg/m^3, this was exceeded at all the automatic monitoring stations in 2023.

Spelthorne Borough Council and Partnership Working

Spelthorne Borough Council are working with partners in line with the National Air Quality Strategy towards improving local air quality. Partners within the Surrey Air Alliance technical working group include the Transport Authority Surrey County Council who are responsible for traffic management and infrastructure in Spelthorne, Surrey County Council's Public Health and Safer Travel Teams, the other Surrey districts and boroughs, Surrey Heartland's NHS Integrated Care Board, and National Highways.

Regular collaborative working between other districts and boroughs, including the London Boroughs neighbouring Heathrow Airport, takes place via the Heathrow Strategic Planning Group. Spelthorne Borough Council also work with the Environment Agency regarding nuisance complaints in relation to Environment Agency regulated sites, and regarding Heathrow Airport through the Council for Independent Scrutiny of Heathrow Airport - Air Quality Working Group.

Heathrow Airport Ltd is the owner and operator of Heathrow Airport, which is located immediately to the north of Spelthorne. Whilst the airport is not within the boundaries of the Council, the operation of the airport, particularly in terms of surface access transportation, does impact on the Borough. Heathrow Airport will be making alterations to runway operations in response to end of the Cranfield Agreement, and the need for runway resurfacing in addition to upcoming consultations on changes to airspace management in the UK led by the Civil Aviation Authority (CAA). The airport is a destination for traffic regionally that is utilising the local road network close to the airport, and it remains to be seen as to whether there will be potential changes to traffic behaviour. The planning authority is expected to be the London Borough of Hillingdon with Spelthorne as a consultee to Hillingdon amongst other local authorities surrounding the airport.

The consultations regarding airspace changes are still ongoing. The information relevant to version 5 of the CAP 1616[5] (civil aviation publication) airspace change process, which came into force on 2 January 2024 is presented on the consultation page[6]. It is likely that the Heathrow Strategic Planning Group (HSPG) Environment and Airspace Group will make a joint response to any CAA consultation.

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.

[5] is the document which explains the CAA's regulatory process for changes to airspace design.

[6] https://airspacechange.caa.co.uk/having-your-say/

The Environmental Improvement Plan[7] 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[8] 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[9] details the Government's approach to reduce exhaust emissions from road transport through several mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel, and most of the Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

The levels of air pollution that residents are exposed to come from pollution generated within the borough and 'background' regional pollution from outside of the borough. For particulate matter (PM_{10} and $PM_{2.5}$), the largest contribution to levels monitored in the borough comes from background sources, rather than sources within the borough. This presents a particular challenge for Spelthorne Borough Council to impact and influence local levels of air pollution.

The highways authority for the Spelthorne area is Surrey County Council (SCC). The SCC Local Transport Plan (LTP4)[10] includes an objective to improve health and wellbeing through cleaner air within the Planning for Place policy area[11] which can be viewed on their website.

The SCC LTP4 is complemented by the Surrey Climate Change Strategy[12]. In addition, Spelthorne Borough Council have published a Climate Change Strategy 2022-2030[13] which can be viewed on the Council's website.

The Spelthorne Borough Council Climate Change Strategy identifies that Council vehicles are the predominant source of the organisation's emissions. A key action is to transition the Council fleet to electric. The Council is committed to converting 50% of its fleet to electric or hydrogen by 2028, and developed and adopted its Electric Vehicle Infrastructure Strategy

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

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

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

[10] Surrey County Council. 2022. Surrey Transport Plan (LTP4). Available at: https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan

[11] Planning for Place policy area. Available at https://www.surreycc.gov.uk/roads-and-transport/policies-plans-consultations/transport-plan/policy-areas/planning-for-place

[12] Surrey County Council. 2020. Surrey's Climate Change Strategy. Available at: https://www.surreycc.gov.uk/community/climate-change/what-are-we-doing/climate-change-strategy/2020

[13] Climate Change Strategy 2022 - 2030 - Spelthorne Borough Council. Available at: https://www.spelthorne.gov.uk/article/21048/Climate-Change-Strategy-2022-2030

The 2023 – 2030 SBC Electric Vehicle Infrastructure Strategy [14] was adopted in September 2023. The strategy aims to increase the number of chargers in the Borough, to promote and aid the transition to EVs. Residents and businesses will be able to transition to EVs without the fear of not being able to charge them, therefore not hindering their life or business.

Procurement is currently in process to replace one of the five community Spelride minibuses with an electric minibus. The strategy also contains actions to promote residential development that is sustainably located with access to existing services and transport hubs. This reflects the vision of Surrey County Council to encourage the creation of 20-minute neighbourhoods, where daily services can be accessed within a 20-minute walk.

Active travel has co-benefits for health and in reducing air pollutant emissions. The Fingertips public health data profile[15] for Spelthorne indicates that levels of physical inactivity and obesity are high in Spelthorne, in 2022/23 data 38.4% (Worst/ Lowest) of adults were classified as overweight or obese. The Spelthorne Health and Wellbeing Strategy[16] is available on the Council's webpage and includes actions to increase awareness of the relationship between poor air quality and health, and to encourage active travel.

Spelthorne Borough Council and Partners: Surrey Air Alliance

The Surrey Air Alliance (SAA) group is made up of officer representatives from all eleven Surrey District and Borough Councils, Surrey County Council's (SCC) Highways, and SCC's Public Health services. The group is also attended by representatives from National Highways.

Spelthorne Borough Council are an active member of the Surrey Air Alliance (SAA) and assist in the delivery of the SAA workplan. Key actions within the workplan include:

- Improving communication so that people who live and work in Surrey have an increased awareness of the health impact of poor air quality.
- Promoting behavioural change to encourage people who live and work in Surrey change their current behaviour to improve air quality.
- Monitoring and modelling air quality across Surrey through joint working across districts and boroughs to enable targeted action and provide a baseline to measure success of interventions.

[14] https://democracy.spelthorne.gov.uk/ieDecisionDetails.aspx?ID=1958

[15] Office for Health Improvement & Disparities 2023. Available at Public Health Outcomes Framework - Data - OHID (phe.org.uk)

[16] Health and Wellbeing Strategy - Spelthorne Borough Council. Available at https://www.spelthorne.gov.uk/article/17592/Health-and-Wellbeing-Strategy

- Promoting to development planners the need to consider the impact of planning applications on air quality, including measures to improve air quality.
- To encourage and facilitate the involvement of Environmental Health Officers in Transport Development Planning.
- To increase the use of low emission vehicles in Surrey.
- To increase the use of alternative means of travel to the private car.
- To support and undertake research as opportunities arise to facilitate research into local air quality and air pollutants and to understand how climate change links to local air quality management.

Spelthorne Borough Council and Partners: Public Health

Through the Surrey Air Alliance Officers Group Spelthorne are still working with the Surrey Heartlands Health and Care Partnership between Surrey County Council and the NHS, who are undertaking a project to improve the health outcomes for children and young people diagnosed with asthma in Surrey. Poor air quality can be a trigger for asthma and Spelthorne promotes air pollution alert services that will send a message when air quality is predicted to deteriorate. Air pollution alert services have been promoted to medical professionals so that patients with health conditions that are exasperated by poor air quality can be made aware of the option to register for alert messages.

Information on areas of poor air quality is being shared by the Surrey Air Alliance with Surrey Heartlands to enable the project to consider areas where poor air quality spatially correlates with medical data in relation to asthma care, and to identify schools in areas of potentially poor air quality. The Surrey Air Alliance group also attended several 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.

Healthy Surrey have produced an online asthma toolkit which gives advice for parent/carers, schools, and medical professionals.

The Asthma Toolkit by Healthy Surrey[17] provides information about asthma management for children, young people, parents and carers and information for schools on becoming an Asthma Friendly School can be found on Healthy Surrey webpage.

In June 2023 SBC attended NHS training to provide information about air pollution alert services.

SBC supports Clean Air Day and Clean Air Night; a bid was made to the Defra Air Quality Fund 2023-24 by Surrey Trading Standards and the Surrey Air Alliance in cooperation with a wider group of Local Authorities for funding to carry out activities to promote Clean Air

[17] Asthma Toolkit by Healthy Surrey; Available at https://www.healthysurrey.org.uk/children-and-families/asthma-toolkit

Night more widely. Unfortunately, the bid was not successful. SBC and partners will continue to search for funding to implement similar projects in future.

Spelthorne Borough Council and Partners: Transport/Highways/Heathrow Ltd 2023-2030 Electric Vehicle(EV) Infrastructure Strategy

Spelthorne Borough Council amended the taxi and private hire vehicle licencing policy to accommodate fully electric vehicles in 2022. The policy was also amended to allow electric London Style cabs or those with Euro 6 standard engines to operate in Spelthorne to improve accessibility of the taxi fleet for disabled customers.

One of the strategic objectives within the Spelthorne Borough Council adopted Electric Vehicle Infrastructure Strategy 2023 to 2030[18] is to: *"Improve the air quality through reducing harmful pollutants attributed to internal combustion vehicles, nitrous oxide* [sic]*, and particulate matter."*

SBC have set several objectives to achieve transition to EVs, including as a local authority and employer, as a taxi licensing authority, in accordance with Building Regulations and as a landowner, car park operator and landlord.

The Surrey Air Alliance applied for a DEFRA 2020/21 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. Taxis were selected as the target vehicles given the high mileage and multiple trips the vehicles make within Surreys Air Quality Management Areas 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. Following delays due to various reasons, Defra approval to continue the project was granted in March 2023. The project team have drafted details of the contracts and procurement specifications needed. They are with Guildford Borough Council's legal/procurement team to take forward. It is intended the grants will be awarded by Autumn 2024 for completion of trials Autumn 2025. Further details on this project were reported in the 2023 ASR. The project was delayed by the impacts of the Covid-19 pandemic upon the taxi and private hire trade and suppliers. Further delays were caused by changes to state subsidy control legislation which required a legal opinion and further Defra approval.

Encouraging Uptake of Sustainable Travel Modes

Table 2.2 within this report details measures that will improve cycling and walking opportunities within Spelthorne. Measures include infrastructure improvements to facilitate improved cycle paths and shared walking and cycle paths, with improved crossing points across the A308.

[18] https://www.spelthorne.gov.uk/article/21504/Electric-Vehicle-Infrastructure-Strategy-2023-2030

Spelthorne Borough Council offer guided walking and cycling activities to encourage residents to enjoy the borough whilst getting active and to increase confidence in walking and cycling as an alternative means of travel to using a car.

Surrey County Council has introduced the Surreys Greener Future Better Points campaign until March 2024, to help local people to adopt more active and sustainable travel habits for both work and leisure. In return for using public transport, walking, or cycling the app users collect points which can be donated to charity or saved towards vouchers. More than 560,000 active and sustainable journeys were recorded during the campaign's first year, with approximately 344,000 directly replacing single-occupancy car trips.

Hybrid Working Policy which supports a degree of home working is in place, a salary sacrifice scheme for EVs and bicycles already in place. SCC offer the Better Points App[19] to all residents, and this could be promoted to staff, Councillors and residents as part of this action (accrue points on the app towards vouchers or charity donations for choosing active travel, or public transport over car use).

Extension of the London Ultra Low Emission Zone

The ULEZ expansion has led to some improvements to transport for staff to and from Heathrow Airport, which is now situated within the charging zone, in order that staff with non-compliant vehicles can still get to work without using their vehicles. These include a coach service for staff from Basingstoke that will run along the M3, a new H21 Bedfont bus, increased frequency on the 442 service via Stanwell and Ashford, and reintroduction of the X442 service from Staines Railway Station. These measures could reduce the volume of non ULEZ compliant vehicles travelling through Spelthorne, by providing an alternative to getting to Heathrow on public transport.

However, there has been an increase in airport related taxi and private hire vehicles waiting in Stanwell and Stanwell Moor. This could be because they are non ULEZ compliant vehicles. Spelthorne has recently consulted on a Public Space Protection Order[20] containing measures to help address this.

In time, it is likely that residents and businesses in Spelthorne, by virtue of the proximity of London and the need to travel in and out of the ULEZ charging zone, will upgrade to ULEZ compliant vehicles. This will accelerate the fleet turnover to newer vehicles with lower emissions which will benefit local air quality. Vehicles traveling from London to Spelthorne benefit from the TfL scrappage scheme, which may improve the fleet travelling out of London.

Now that the ULEZ is in place the offset between any re-routing, and fleet improvements can be monitored. It is difficult to isolate the effects of the expanded ULEZ on air quality monitoring data due to many policies to improve air quality being implemented

[19] https://surrey.betterpoints.app/

[20] https://spelthorne.inconsult.uk/PSPOmisuseofland/consultationHome

simultaneously, in combination with other elements affecting concentrations such as the weather. However, the London-wide Ultra Low Emission Zone First Month Report[21] does indicate some improvements to the fleet because of the ULEZ. Vehicle compliance in the expanded outer London area is now 95.2%, up from 85.1% in May 2022 when the consultation on proposals to expand the ULEZ London-wide launched, and from 90.9% in June 2023.

Generally, London's air quality is improving, as set out in the report Air Quality in London 2016-2024[22]. Preliminary figures indicate that annual average concentrations of NO_2 in London dropped to the lowest levels ever recorded in 2023, lower even than the first year of COVID-19 lockdowns. 2023 was also the first year since records began when annual mean particulate matter ($PM_{2.5}$) concentrations did not exceed the latest interim World Health Organization (WHO) air quality target across London's active air quality monitoring sites.

Heathrow Airport Ltd is a private company and not a public body, and hence the obligations upon them are not the same as other organisations that Spelthorne collaborates with to improve air quality. Nevertheless, the company is committed to reducing the impact of its operations and published its Sustainable Growth Strategy – Heathrow 2.0 (Heathrow Ltd, 2022) in 2022. Its Net zero goals will have associated reductions in air pollutants, but the strategy has a specific goal for air quality including an airside ULEZ in place by 2025.

A3 Guildford scheme to encourage uptake of EV

National Highways, Guildford Borough Council and Surrey County Council are working on measures to reduce air pollutant emissions and concentrations in relation to the A3 in relation to exceedance on a Pollution Climate Mapping mode link. This will include measures targeting commercial vehicles. Via the Surrey Air Alliance knowledge gained through this work will be shared with boroughs and districts across Surrey including Spelthorne.

Guildford Borough Council undertook analysis of the traffic using the Guildford section of the A3 and proposed initiatives to improve emissions[23]. Although the proposed initiatives are targeted at Guildford, they will provide useful experience that can be applied across Surrey in the future and the resulting increased number of electric vans on the road is likely to benefit Surrey more widely, both in giving confidence of appropriate charging infrastructure across the county and that vehicles will travel more widely than Guildford.

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[21] https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/environment-and-climate-change-publications/london-wide-ultra-low-emission-zone-first-month-report

[22] https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/environment-and-climate-change-publications/air-quality-london-2016-2024

[23] https://www.guildford.gov.uk/article/26606/%20Working-to-improve-air-quality-on-the-A3-%20in-Guildford

The work has identified that:

- most vehicles using the Guildford A3 section are making journeys which do not start or end in Guildford.
- 80% of the NOx emissions are from diesel vans and cars; and
- vans make up 15% of traffic but account for 45% of emissions.

These findings suggest that just targeting local vehicle users will not lead to the required improvements to air quality around the A3. As a result, an A3 EV grant funding programme is run by Surrey County Council[24].

Liveable Neighbourhood Zone and Laleham

In 2022, the Transport Authority SCC published a notice under the Highways Act to introduce a series of traffic calming features at Shepperton Road (B376) Shepperton/Laleham, Staines Road (B376) Laleham, The Broadway (B376)/(B377) Laleham and Ashford Road (B377) Laleham. This involves road tables and speed cushions and a 20-mph speed limit which is being reduced from 40 mph. The reduced speed may make crossing the road easier and the reduction in the speed of passing traffic could encourage cycling.

Sunbury Cross is a priority area covered by Liveable Neighbourhood Zone SP7, SP6 and SP1 and a Local Cycling and Walking Plan Phase 1 Core Walking Zone and Phase 1 Cycle Route. There are 27 Liveable Neighbourhood Zones across Sunbury-on-Thames, Staines-upon-Thames, Shepperton and Stanwell, 3 Local Cycling and Walking Plan Phase 1 Core Walking Zones, and a Cycle Routes extending from Sunbury on Thames Green Street and Nursery Road through Sunbury Cross, along the A308 to Ashford Hospital and Laleham with routes extending into Staines-upon-Thames. On 11 March 2024: West Sunbury Local Street Improvements currently being consulted[25].

Smoke Control Areas: Domestic Burning of Wood

Domestic wood burning as a lifestyle choice is increasing and has been identified as a significant contributor to local air pollution, accounting for 25% of all $PM_{2.5}$ emissions.

Relevant Work is ongoing with Surrey County Council and Global Action Plan on the ‘Clean Air Night’ project and public information campaign[26].

The Surrey Air Alliance have produced online materials regarding wood burning stove emissions and SBC is running information campaigns regarding domestic burning and engine idling.

SBC will keep up to date with emerging technologies such as hydrogen as a fuel source.

[24] https://www.surreycc.gov.uk/community/climate-change/businesses/grant-programmes/a3-ev-grant
[25] https://www.spelthorne.gov.uk/article/21674/West-Sunbury-improvements
[26] https://www.actionforcleanair.org.uk/campaigns/clean-air-night

SBC will continue to provide an air quality alert service that residents can sign up to aimed at residents with health conditions that are affected by episodes of poor air quality.

Leading by Example

Spelthorne Borough Council has initiated Carbon Literacy Training for staff which encourages staff and Councillors to consider their emissions and travel as an aspect of that. This training gives staff an understanding of the causes and effects of climate change as well as the knowledge and motivation to reduce carbon emissions in their personal and work lives. Each member of staff that attends training makes 2-pledges about how they will reduce carbon emissions at work helping to reduce the councils' emissions. Actions that the Council is undertaking in relation to the Climate Emergency have co benefits for reducing emissions of air pollutants, and the training has raised awareness of the Councils electric pool vehicles, electric bicycles, and the benefits of active travel.

More information about climate and environmental initiatives in Spelthorne can be found on the climate change and environmental news website[27].

This training supported by the Carbon Literacy Trust requires participants to identify emission reduction actions that they will undertake as part of their role. As of March 2024, 86 employees have undertaken the training.

Hybrid Working Policy which supports a degree of home working is in place, a salary sacrifice scheme for EVs and bicycles already in place. The electric pool vehicles including cars and bikes are promoted to staff regularly and staff are encouraged to use them for site visits/attending meetings where possible.

Conclusions and Priorities

No exceedance was noted in 2023. The Council remain aware that there may be areas adjacent to the strategic road network where exceedances may still occur without the presence of monitoring. This is based on a borough wide air pollutant dispersion modelling study undertaken in 2017 which showed predicted exceedances along the motorways and strategic roads in Spelthorne (see Figure F.1).

A comprehensive air quality monitoring protocol will continue as there may be areas that return to exceedance of the NO_2 annual mean objective, should traffic volumes increase at some point in time. The Council will continue to take measurements at major/strategic roads to monitor for changes in roadside NO_2 concentrations.

It is considered that the ULEZ may change the traffic flows and characteristics, if the use of the road by non ULEZ complaint diesel vans decrease and congestion improves, then that may be reflected in improved air quality.

[27] Climate and Environmental News - Spelthorne Borough Council[27]

The Council are taking action to reduce particulate emissions given the known health impacts.

- Actions have included public health campaigns concerning burning and bonfires, and targeting resources to respond to construction dust complaints, and to incorporate signposting to best practice regarding construction dust into planning.
- assessment scoping responses and at pre application meetings regarding developments.
- Stakeholder engagement remains a priority: The Council's draft Air Quality Action Plan was completed and submitted to DEFRA for review in April 2024. In developing this AQAP, SBC has worked with Surrey County Council, National Highways, Heathrow Airport Ltd, other local authorities (through the Surrey Air Alliance), and the local community to improve local air quality.

  Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies including The Secretary of State, The Environment Agency, the highways authority, all neighbouring local authorities, other public authorities as appropriate, such as Public Health officials, bodies representing local business interests and other organisations as appropriate. A six -week consultation on the draft 2024-2029 AQAP is planned between 20 May 2024 to 30 June 2024 and the results of the consultation response will be used to shape the proposed measures to improve air quality across the borough.

The principal air quality officer attended the following meetings in 2023:

- Quarterly Surrey Air Alliance meetings, these meetings include National Highways, Surrey County Councils Safer Travel, Public Health and Transport Teams and the Surrey Heartlands NHS Trust.
- The CISHA Air Quality Working Group Air Quality — CISHA[28]
- The Heathrow Strategic Planning Environment and Airspace Change Group
- The Defra Local Air Quality Symposium in September 2023

Local Engagement and How to get Involved.

Spelthorne residents and Councillors understand the issue of areas of poor air quality in Spelthorne. The presence of the AQMA and Smoke Control Areas as well as the nearby Heathrow Airport and the waste gasifier situated within Spelthorne in combination with the level of new development taking place which in 2022/23 has included a large expansion project at Shepperton Studios has increased awareness of air quality issues.

[28] https://www.cisha.org/air-quality

The introduction of the ULEZ extension to the three neighbouring London boroughs in 2023 has further increased awareness.

Information on local air quality is provided via the Councils website here: Monitoring in Spelthorne - Spelthorne Borough Council and automatic air quality monitoring data can be viewed in real time here: Spelthorne Borough Council - Air Quality monitoring service (airqualityengland.co.uk)

More information about what the Council is doing to respond to the development schemes discussed here can be found on our website:

- Proposed Heathrow Expansion: Heathrow - Spelthorne Borough Council
- Southampton to London Pipeline: Southampton to London Pipeline Project - Spelthorne Borough Council
- River Thames Scheme. Information about the project is available from the scheme sponsors including Spelthorne Borough Council and Surrey County Council here: River Thames Scheme

The Pollution Control Team are participants in the recently established Heathrow Air Quality Working Group (HAQWG) part of the Council for the Independent Scrutiny of Heathrow Airport, the Airport Consultative Committee as set out in Section 35 of the Civil Aviation Act to ensure constructive and effective engagement between Heathrow Airport and those who are impacted by the airport. Further information about HAQWG can be found here: Heathrow Air Quality Working Group (HAQWG) — CISHA. SBC holds regular internal meetings with the Council leadership regarding activities at Heathrow Airport.

Whilst awareness of increases in emissions in relation to developments, the airport, and industrial sources is high, the contribution that we all make as individuals to local air pollution, and the measures that can be taken regarding health and air quality does not have the same level of awareness. Data from Public Health England indicates that the borough has high levels of obesity and physical inactivity. There are opportunities to benefit the health of residents by encouraging more active travel, which has the co benefit of reducing air pollutant emissions by reducing the use of cars for short journeys.

As most air pollution of concern in the borough is related to traffic, there are some easy changes we can each make personally to reduce emissions and improve local air quality for our community:

- **Do you need to take the car?**

Consider alternatives to using your car; public transport, walking or cycling will help reduce emissions. For timetables, guides and maps visit the Travel Smart in Surrey website Buses and other transport - Surrey County Council (surreycc.gov.uk). Travel Smart Surrey also provides information there on car sharing and car clubs. Research has indicated that levels of air quality pollutants inside vehicles, even with the windows shut, can lead to higher exposure than pedestrians and cyclists receive on the same streets. So, by walking or cycling you could reduce your exposure and improve your fitness and health.

Global Action Plan and Imperial College London have published an air quality footprint calculator which can be used to show what areas of your lifestyle are generating air pollution. The calculator can be accessed here: Air Pollution Calculator (cleanairhub.org.uk)

The Better Points app which rewards you with points for undertaking travel by active means or on public transport can be downloaded here: https://surrey.betterpoints.app/

It is recognised that public transport connectivity and costs within Spelthorne are an issue of concern. SBC are supportive of the need to have Spelthorne incorporated into London Travel Zone 6 which would reduce the fares for travel by public transport. Zone 6 fares are already applied to some areas outside of the London boroughs such as Epsom Downs, and stations in Ewell in Surrey which is an issue of inequality. Surrey County Council who are an air quality partner to SBC in accordance with the National Air Quality Strategy are responsible for public transport provision as the Transport Authority. Residents can find their Surrey County Council representative Councillor here: Find Councillor - Surrey County Council (surreycc.gov.uk) and can write the MP here; Parliamentary career for Kwasi Kwarteng - MPs and Lords - UK Parliament

- **Need to take the car?**

Think about how you drive. Small changes improving your driving style can save lots of fuel, significantly reduce wear and tear, and improve the life of your vehicle:

- Regular maintenance improves fuel efficiency by as much as 10%[29], plus underinflated tyres increase rolling resistance, further increasing fuel consumption.

- Reduce excess weight and wind resistance (caused by roof racks, open windows, and boot clutter).

- Reduce engine idling – a modern engine is designed to be used 'from cold.' Warming up an engine whilst stationary wastes fuel and leads to undue engine wear and emissions.

- Stopped at a level crossing? Turn off your engine to cut pollution. Engines should be turned off for waits of more than one minute, and can be turned on again without the accelerator, using almost no fuel in the process.

- Avoid aggressive acceleration and braking. A aggressive driving can raise fuel consumption by 37%.

- Change up gears as soon as possible.

[29] RAC Foundation, 2012. Easy on the Gas the Effectiveness of Eco-driving. Available at:https://www.racfoundation.org/assets/rac_foundation/content/downloadables/easy_on_the_gas-wengraf-aug2012.pdf

- Review trip data after a journey to learn how to improve driving style, or to reinforce eco-driving lessons already learnt. There are several apps and satnavs that can help with this. Only use such tools when it is safe and legal to do so.

- **about changing your car or van?**

Consider an ultra-low emission vehicle such as a plug-in electric or hybrid vehicle. More options are becoming available each year, technology is improving the range of vehicles, running and servicing costs are much lower. With the adjacent extension of the London ULEZ consider replacing your vehicle with a ULEZ compliant vehicle.

- **Suffer from asthma, chronic obstructive pulmonary disease (COPD) or a respiratory condition?**

Sign-up for free air pollution alerts, to help those with respiratory conditions manage their health when air quality is poor. While air pollution levels in Spelthorne are generally low, on 20 to 30 days per year pollution levels are reached that can cause short term health symptoms for people with pre-existing respiratory conditions.

Defra provide pollution forecasts and alerts by email. You can subscribe for the alerts here: Subscribe to mailing list and bulletins - Defra, UK

The uBreathe app developed by Ricardo allows you to receive the latest Air Pollution levels on your phone: uBreathe (ricardo.com)

People who register for the free services receive an email, or alert message, informing them of an expected elevation of air pollution regionally. This enables them to make choices about what they do and how they manage their medication, so they can stay in control of their own health.

- **Be aware of non-traffic sources of air pollution.**

In addition to air pollution from traffic there are further sources of air pollution that residents and businesses can help to reduce. As an uncontrolled combustion process bonfires are a source of particulate pollution and cause discomfort and distress to residents with respiratory illnesses, including those who are recovering from Covid-19. The Council offer waste disposal for domestic garden plant waste at the Shepperton Community Recycling Centre, Charlton Lane, Shepperton, TW17 8QA.

Residents can subscribe to the garden waste collection service for disposal of garden plant waste see Garden waste collections - Spelthorne Borough Council.

It is better for the health and wellbeing of the community and for local air quality, to use these facilities rather than burning waste on a bonfire. Due to weather and atmospheric conditions air pollution is often more severe during the winter months, when long range transportation of air pollution leads to circulation of air polluted with $PM_{2.5}$ from the continent. Long range transport, together with pollution from local sources, can result in short term episodes of high pollution coinciding with the increased use of domestic boilers for heating and with the use of wood burners and solid fuel appliances which produce air pollution. In addition to these primary emission sources $PM_{2.5}$ can also be formed from the

chemical reactions of gases such as sulphur dioxide (SO_2) and nitrogen oxides (NO_x: nitric oxide, NO plus NO_2); forming secondary particles. In November there is an increase in air pollution levels related to celebrations around November 5th and winter festivals when fireworks are used, and bonfires take place. Air Quality monitoring data also shows poor air quality around the New Year's celebrations. Residents can help to reduce poor air quality during this period by minimising the use of fireworks, bonfires and solid fuel burning devices at home.

Although wood burners and solid fuel fires and stoves are considered visually attractive, they can be a source of air pollution both within the home in which they are situated and to the atmosphere leading to poor air quality. There are actions that can be taken to minimise the pollution that they cause by following the advice issued by Defra which applies to smoke control areas here: Smoke control areas: the rules - GOV.UK (www.gov.uk) and by understanding the new restrictions on the sale of coal and wet wood for home burning: Restrictions on sale of coal and wet wood for home burning begin - GOV.UK (www.gov.uk)

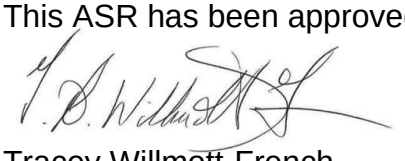
- **Consider indoor air quality.**

There is increasing scientific evidence that exposure to poor air quality with a potential to affect health takes place in the home. We spend a great deal of our time indoors both at work and in our homes. Consider how your indoor space is ventilated, are ventilation systems being correctly maintained. When using an air purifier, it is important to select one of an adequate capacity for the size for the room and with a high Clean Air Delivery Rating (CADR). The CADR rating indicates the unit's ability to clean the air in each space, units with HEPA filtration typically achieve a higher CADR rating but they must be maintained and used in accordance with the manufacturer's instructions to be effective. Consider which windows you open for ventilation; do you have the option to open windows that do not face heavily trafficked roads. When cooking on a stove use the extraction hood, this minimises the build-up of substance from gas combustion including carbon monoxide, carbon dioxide and particulates in the air, and helps prevent damp and mould. Consider increasing ventilation when using candles and air fresheners or avoiding these products which contribute to indoor air pollution. Consider the use of low VOC paints when redecorating and low VOC cleaning products. Smoking endangers health of both the smoker and loved ones who are exposed to smoking related chemicals in the home and in vehicles. Seek help to give up smoking and do not smoke indoors and in confirmed spaces such as vehicles. Be aware that tobacco smoke persists in the home or vehicle furnishings long after the cigarette is extinguished.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Spelthorne Borough Council with the support of the Climate Change and Sustainability Team at Spelthorne Borough Council, the Strategic Planning Team at Spelthorne Borough Council, the Strategic Transport Team at Surrey County Council, and the Public Health Team at Surrey County Council.

This ASR has been approved by:



Tracey Willmott-French
Senior Environmental Health Manager

This ASR has been signed off by the most senior Environmental Health specialist within Spelthorne Borough Council, who is a Chartered Environmental Health Practitioner.

The ASR has also been approved by the Head of Regulatory Service.

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 the Pollution Control Team at:

Address: Spelthorne Borough Council
Council Offices
Knowle Green
Staines-upon-Thames
TW18 1XB

Telephone: 01784 444 213
Email: pollution.control@spelthorne.gov.uk

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Figures

1 Local Air Quality Management

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

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by Spelthorne Borough Council can be found in Table 2.1. The table presents a description of the single borough wide AQMA that is currently designated within Spelthorne.

Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of the AQMA and the air quality monitoring locations within the AQMA. The air quality objectives pertinent to the current AQMA designation are as follows:

- NO_2 annual mean

The AQMA was reduced in size in 2024 because of sustained improvements in local air quality and the new order with the description of the area and maps is attached to this report (Appendix F).

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
Spelthorne AQMA	Declared 01/12/2000	NO_2 Annual Mean	An area encompassing the whole Borough including the majority of Staines, Shepperton, Ashford and Sunbury-on-Thames extending from M25 in the northwest to the River Thames in the south east	YES	up to 80 µg/m^3	No exceedance recorded in 2023 monitoring year.	1	Spelthorne Action Plan 2005	http://aqma.defra.gov.uk/action-plans/SpBC%20AQAP%202005.pdf

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

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

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

Defra's appraisal of last year's ASR concluded:

The report is well structured, detailed, and provides the information specified in the Guidance. The following comments made by DEFRA were designed to help inform future reports:

Comment Made by DEFRA	Spelthorne's Response
1. The completion of the AQAP updates was delayed by the Council due to additional modelling work requested by the Environment and Sustainability Committee. Also, the lack of distributional information on impacts of the ULEZ expansion outside London boundaries has introduced uncertainty in relation to the updating of the AQAP. The Council should adopt a revised AQAP in the next reporting year	The Draft AQAP has been completed and it was uploaded on Defra's portal on 26/04/2024. The Diversity and Equalities Risk Assessment was also attached to the submission.
2. Only one area of exceedance was identified within the borough wide AQMA in 2022. The Council should consider whether the relocation of some of the monitoring sites would be beneficial. Council also considers reviewing the coverage of the AQMA, which is welcomed	A feasibility study is being undertaken to assess the need to decommission, relocation, refurbish, or deploy the automatic monitoring sites. The borough wide AQMA was revised and reduced as detailed in Spelthorne Borough Council Order 2024 appended to this report with effect from 1st April 2024.
3. The Council have robust QA/QC procedures, which were applied appropriately and accurately to the 2022 automatic and non-automatic monitoring data.	Comment noted.

Comment Made by DEFRA	Spelthorne's Response
4. All graphs and maps are well presented and are clear to read. The Council have also provided a detailed discussion of the trends.	Comment noted.
5. In Figure A.7, 2021 and 2022 annual mean NO_2 concentration data were not included (pages 59). Same for annual mean $PM_{2.5}$ concentrations in Figure A.11 (page 67).	Noted and amended in this report. Figure A.11 – Trends in Annual Mean $PM_{2.5}$ concentrations included.
6. A local bias adjustment factor has been determined by the SBC. The details of the calculation have been provided, which is welcomed. A screenshot of the tool would also be beneficial, as well as a more detailed comparison to the national factor	A screenshot of the tool provided, as well as a more detailed comparison to the national factor.
7. Comments from last year's ASR have been mentioned and addressed, which is welcomed.	Comment noted.
8. Overall, the report is detailed, concise and provides a good insight into the work that the Council are doing and all the current and future measures to improve local air quality. The Council should continue their good and thorough work.	This comment has been appreciated.

Spelthorne and the relevant air quality partners have 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.

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 some measures can be found in their respective Action Plans Heathrow 2.0 Sustainability Strategy, the Spelthorne Local Transport Strategy and forward programme, the Spelthorne Climate Change Strategy 2022-2030, the Surrey County Council Climate Change Strategy, Surrey County Councils Air Quality Strategy within the Surrey County Council LTP4 Transport Plan.

Key completed measures are:

- Spelthorne Borough Council has adopted an Electric Vehicle (EV) Infrastructure Strategy 2023 to 2030, in response to the Climate Change Strategy which outlined a key action to further improve EV infrastructure throughout the borough and develop an EV infrastructure strategy. One of the strategic objectives within the EV strategy is to: *"Improve the air quality through reducing harmful pollutants attributed to internal combustion vehicles, nitrous oxide, and particulate matter."*
- SBC have set several objectives to achieve transition to EVs, including as a local authority and employer, as a taxi licensing authority, in accordance with Building Regulations and as a landowner, car park operator and landlord.
- Planning applicants are asked to commit to electric car clubs through agreed planning conditions. A working group is being established to investigate the provision of Rapid Charging Hubs in Spelthorne. On-street EV trial with SCC. SBC are investigating the business case feasibility of providing initial EV rapid hub charging to two Council owned car parks. SCC has established a contract with Connected Kerb to deliver EV charge points between now and 2030.
- This new Climate Change Adaptation and Resilience Strategy adopted in 2023 set out Surrey's collective approach with the Boroughs and Districts to reducing greenhouse gas emissions and adapting to climate change. This is known as "Surrey Adapt" helps us to understand where we are in our response and what is still required to achieve a more climate resilient and positive future in the face of a changing climate.
- Spelthorne borders three London Boroughs; Hounslow, Hillingdon, and Richmond upon Thames. As such the expansion of the ULEZ in June 2023 to the London Boundary has potentially affect air quality in Spelthorne, both in terms of re-routing of traffic and fleet changes. The real impact is yet to be monitored accurately. The ULEZ expansion has led to some improvements to transport for staff to and from Heathrow Airport, which is now situated within the charging zone, in order that staff with non-compliant vehicles can still get to work without using their vehicles. These include a coach service for staff from Basingstoke that will run along the M3, a new H21 Bedfont bus, increased frequency on the 442 service via Stanwell and Ashford, and reintroduction of the X442 service from Staines Railway Station. These measures could reduce the volume of non ULEZ compliant vehicles travelling through Spelthorne, by providing an alternative to getting to Heathrow on public transport.

  However, there has been an increase in airport related taxi and private hire vehicles waiting in Stanwell and Stanwell Moor. This could be because they are non ULEZ compliant vehicles.
- Solar Together Surrey is a group-buying scheme that leverages homeowners' collective purchasing power to access quality installations of solar photovoltaic (PV)

panels at discounted prices[30]. Phase 2 of Solar Together Surrey launched in 2023 and is managed by SCC in partnership with independent experts, iChoosr, who will administer and deliver the scheme. The scheme is currently closed to new applications at the present time[31].

- In 2023 the Council took on an electric minibus as one of the Spelride service vehicles that provide community transport services in Spelthorne.
  2 EV pool cars, 2 EV vans, 2 EV mopeds are already utilised in the SBC fleet.
- A pilot study of the baseline emissions for the refuse vehicles in the fleet was undertaken in 2023 by the Surrey Environment Partnership. Weekly mileage data is collected by Neighbourhood Services which could be used for further studies.
- The Council's Pollution Control Team have in 2023 hosted the Environmental Diagnosis and Management Masters students from Royal Holloway University to share knowledge about Local Air Quality. In June 2023 SBC attended NHS training to provide information about air pollution alert services[32].
- Scheme in operation with regular guided cycle rides and route suggestions for independent rides[33]. In 2023 there were 123 attendees across 33 rides. SBC are establishing a Coordinated Approach to Cycling Officer group led by the Leisure Service Team to support and promote cycling facilities within the borough. This initiative includes joint working with SCC and a community group Talking Tree, both of which are currently running schemes in Spelthorne to encourage reconditioning of bicycles. SCC have arrangements for reconditioned bicycles to be sold at low cost in the re-use shop at the Community Recycling Centre.
- Ongoing campaign materials to raise awareness of activities that are detrimental to local air quality have been established, see the 2022/23 ASRs for details of the Stop Before you Burn and Engines Off Spelthorne campaigns. The digital materials continue to be circulated regularly on the Councils social media platform channels and the no idling banners are in use in the borough's parks and near the children's play areas.

[30] The more people that participate, the better the price that can be secured and the more renewable energy generated by Surrey residents. Participants receive support throughout the process, with clear and objective communication at every stage. The offer is a complete solar PV system, including survey, installation, monitoring, and warranties. Additionally, the scheme only collaborates with certified solar PV installers to ensure high-quality installations with insurance-backed guarantees.

[31] The 1st Phase in 2021 featured approximately 1,400 installations, with 5.6MW of installed capacity. This will deliver over 28,000 tonnes of carbon savings over 25 years.

[32] The Spelthorne Principal Pollution Control Officer attended a training event held by Surrey Heartlands for NHS staff, school nurses and pharmacists to improve outcomes of children and young people with asthma. The Officer was in attendance on behalf of the Surrey Air Alliance to provide information about air pollution alert services and the Defra Air Quality Index forecasts to the attending medical professionals.

[33] There are around 41km of cycle facility in Spelthorne – cycle paths, cycle lanes and advisory routes.

- SBC Draft 2024-2027 AQAP has been updated and the consultation[34] was ongoing at the time of submitting this report.

[34] https://www.spelthorne.gov.uk/article/21746

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
1	Prevention of air pollution from new development [35]	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2012	2032	Spelthorne Borough Council Environmental Health, Spelthorne Borough Council Development Planning, Spelthorne Borough Council Building Control, Surrey County Council Transport Strategic Transport Team	Each department and organisation have officers in post funded by the respective Council budgets	NO	Fully funded	£100k - £500k	Implementation	Reduced vehicle emissions, heat and energy plant emissions and construction dust emissions.	Measured concentration of NO_2 at diffusion tube monitoring locations.	Ongoing implementation through regulatory and planning and development functions. Required amount of EV charging is now stipulated in Part S of the Building Control Regulations (2022) – conditions no longer required. Both Spelthorne and SCC have new guidance with air quality benefits[36]. .	2023 Emerging Local Plan examination hearings are still currently paused[37]. The Emerging Local Plan includes updated planning policy regarding air quality that will not be effective until the Plan is adopted. Planning conditions relating to air quality cannot be applied to some change of use applications and permitted developments.
2	Reduce emissions from road vehicles used around Heathrow	Promoting Low Emission Transport	Other	2017	2026	Heathrow Airport Limited	Heathrow Airport Limited	NO	Funded	-	Implementation	The current Surface Access Strategy does not include a NO_X or PM target however a carbon reduction target is included, and the associated transport measures will bring about reductions in air pollution from surface transport. Reduce surface access carbon emissions by 49% by 2030 (compared to a 2021	At least 45% of passengers to use public transport by 2026. Achieve a colleague single occupancy car mode share of 57% by 2026 (compared to a 2017 baseline of 62%) Expand the catchment area to bring 25% more people within a 1.5-hour public transport journey time of Heathrow, and to increase the 3-hour catchment population by 12% – both by 2026.	Implementation on-going. Key deliverables are to increase the passenger public transport mode share, reduce colleague single-occupancy-car mode share, reduce carbon emissions, and increase the public transport catchment. The 2023 Sustainable Travel Zone (STZ) Annual Report[38], providing, a summary of all the improvements led by Heathrow, with the purpose of encouraging more passengers and colleagues to travel to and around the airport more sustainably. There was 102% Increase in the total number of passengers boarding services 7, 8, 102, 442/X442, 703 and A4 at Heathrow In August 2022 Heathrow released a Surface Access Strategy (SAS) for 2022 to 2026 to transform journeys to and from Heathrow by making them faster, easier, more reliable, and more sustainable by driving modal shift and supporting the transition to zero emission vehicles. The SAS can be viewed here: https://www.heathrow.com/company/about-heathrow/heathrow-2-0-sustainability-strategy/reports-and-futher-reading We have continued collaboration with Heathrow Airport Ltd to reduce emissions arising from the operation of Heathrow Airport. Heathrow is actively involved in improving public transport including capital measures to support rail connectivity, subsidised public transport for colleagues and other measures as set out in its Surface Access Strategy.	Feasibility studies are ongoing. Heathrow Airport Ltd does not own all the vehicles and buildings that operate at the airport, and as such it does not have direct control over many of the emission sources associated with the airport operation. However, the company is committed to reducing carbon and NOx emissions (see Heathrow 2.0) and working with the surrounding Local Authorities on potential measures and information sharing.

[35] The working of this category has been changed in the Draft AQAP to "Work within the structure of the planning system to reduce emissions of pollutants from new development. This will include implementing any new requirements for reducing PM2.5 through planning which are likely to be in place within the timeframe of this plan".

[36] Surrey County Council have updated the Vehicular, electric vehicle and cycle parking guidance for new developments which is now available online here: https://www.surreycc.gov.uk/roads-and- transport/parking/strategy-and- guidance/development-parking-guidance. Spelthorne Borough Council have adopted a Supplementary Planning Document which is designed to complement planning policy regarding climate change and emissions reduction. Some of the measures within the document will have co benefits for air quality.

[37] 2023 Emerging Local Plan examination hearings were suspended for 3 months at the request of Councillors. The examination was due to resume in September 2023 however Members voted to extend the pause in the examination timetable until the proposed changes to the National Planning Policy Framework were published in December 2023, before determining the next steps and taking legal advice to confirm the validity of the minister's directive to intervene in the Local Plan process under section 27 of the Planning and Compulsory Purchase Act 2004. On the 29th of February 2024 the Spelthorne Environment and Sustainability Committee voted to propose to the Inspector to remove all Green Belt allocations from the Local Plan with the exception of the two allocations that meet the need for Gypsy, Traveller and Travelling Show people. The Committee resolved to propose to the Inspector to keep all proposed flood risk sites but remove those at high risk of flooding and move some higher risk sites to later in the Plan period (11-15 years) to allow the River Thames Scheme to be operational and effective, the design code to be completed, and subject to no resolution objection from the Environment Agency and to propose to the Inspector to withdraw the Staines Development Framework as a core document. These decisions will allow the resumption of examination of the Local Plan in due course, subject to consultation with the Inspector and the Environment Agency.

[38] The 2023 Sustainable Travel Zone (STZ) Annual Report: https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/futher-reading/STZ-2023-annual-report.pdf

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
												baseline of 747,879 tCO2)			
3	Reduce emissions from Heathrow related freight traffic.	Vehicle Fleet Efficiency	Other	2022	2032	Heathrow Airport Limited, CISHA Air Quality Working Group and CISHA Heathrow Area Transport	Heathrow Airport Limited, suppliers to Heathrow Airport Limited and wider business community around Heathrow.	NO	Partially Funded	-	Implementation	Reduced vehicle emissions	Progress against Heathrow 2.0 policy performance indicators.	Implementation on-going Supplier net zero targets. Area of development for future work to engage wider freight community around Heathrow.	Work by Heathrow Airport Limited is still ongoing.
4	Reducing Road Emissions – Staines Bridge Widening	Traffic Management	Strategic highway improvements, Re-prioritising Road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	-	-	Surrey County Council, Spelthorne Borough Council and Runnymede Borough Council	Surrey County Council, funding has been sought from Local Enterprise Partnership LEP bids historically	NO	Not Funded	-	Planning	A reduction in NO_x and particulate pollution from traffic congestion. Improved journey times and reliability for buses.	Reduced congestion on Staines Bridge & approaches, reduced journey times and reduced emissions.	Following the refurbishment of the Iron Bridge by Network Rail in 2022, Surrey County Council wanted to improve the area, as it is a key feature at the entrance to the town. The northern pavement underneath the bridge has been widened and resurfaced, to improve safety and access for pedestrians. To complement this work, and to enhance the area, an artist was appointed to design murals[39] for the walls underneath the bridge to brighten the area, as it is a key location at the entrance to the town. Funding for further works was not secured.	Expression of interest previously made to Local Enterprise Partnership (LEP) but no funding yet secured. No update available from Surrey County Council
5	Improvements to signalling at Sunbury Cross Roundabout Capacity and cycle safety improvement.	Traffic Management	Strategic highway improvements, Re-prioritising Road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2019	2027	National Highways and Surrey County Council	National Highways	NO	Not Funded	-	Planning	A reduction in NOx and particulate pollution from traffic congestion. Improved journey times and reliability for buses.	Reduced congestion at Sunbury Cross & approaches, reduced journey times and reduced emissions.	Funding not secured however measures being undertaken by Surrey County Council regarding Liveable Neighbourhood Zones may contribute to improvements in cycle safety.	National Highways undertake regular audits of PCM link 28076 which is on the A613 the London side of the Sunbury Cross Junction. National Highways are yet to identify suitable measures to advance NO_2 reductions on this road link, they have considered specialist electric van centre, traffic management, speed limit management, bus retrofits, and HGV retrofits, barriers, canopies, tunnels, bypasses, rerouting footpaths, and low friction road surfacing.
6	Improving traffic flows and pedestrian/ cycle access to Staines-upon-Thames town centre from the surrounding residential areas and the train station and wider improvements	Transport Planning and Infrastructure	Other	2017	2026	Surrey County Council, Spelthorne Borough Council	Surrey County Council, Spelthorne Borough Council, developers via the Planning regime	NO	Partially Funded	> £10 million	Planning	Improvements to active travel infrastructure facilitating more non car journeys.	Reduced congestion on A308 into Staines town centre, reduced journey times, reduced emissions, and improved active travel facilities.	The Staines Development Framework went to public consultation in May 2021 and again in June 2022. It received a high level of interest and response, with feedback directly informing the draft Development Framework. The associated analysis highlighted poor connectivity between Staines-upon-Thames train station and the town centre and recommends that widening and re-configurement options are considered for vehicle traffic and pedestrian/cycle movements through Iron Bridge and that better connectivity is provided between the bus station, shopping areas and train station. Surrey County Council have established a Major Road Scheme to introduce junction, highway, and active travel improvements to the A308 to remodel key junctions and introduce smart. technology to improve traffic flow and reduce occurrences of incidents that result in injury or disruption, as well as improving journey time reliability and air quality.	Spelthorne Borough Council will continue to advocate for improvements to better facilitate walking and cycling at the location of the Highstreet passing under the Iron Bridge/railway bridge. Future developments in Staines-upon-Thames may present an opportunity to fund and introduce improvements recommended by the Development Framework.

[39] Read about the new murals under Iron Bridge in Staines-upon-Thames at https://news.surreycc.gov.uk/2023/05/11/surrey-county-council-reveals-new-murals-under-iron-bridge-in-staines-upon-thames/.

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	to the A308 corridor.													The scheme proposes the installation and modernisation of crossings at Black Dog (construction began in July 2023.) and The Shears junctions across both the A308 and the associated side roads. Smart technology - Intelligent, adaptive, linked traffic signals will be installed to improve traffic flow, with bus priority and the potential for connection to Highways England signals at Sunbury Cross and Crooked Billet through a collaborative traffic management approach. Active and sustainable travel improvements to include cycle facilities and enhanced walking provision along the A308. Improvement to bus stops and cycle parking are proposed. The scheme will help to facilitate easier bus travel. Reducing air pollution by reducing congestion but also by encouraging short journeys to be made on foot or by bicycle.	
7	Reducing Emissions – AQAP action 6.1 Promote the use of "cleaner technology and fuels" within Spelthorne	Vehicle Fleet Efficiency	Other	2020	2024	Surrey County Council, Spelthorne Borough Council, Elmbridge Borough Council, Woking Borough Council, Epsom and Ewell Borough Council, Reigate and Banstead Borough Council, Guildford Borough Council, Waverley Borough Council	Defra, match funding from Surrey County Council and a small contribution from Environmental Health budget at some of the participating Local Authorities	YES	Partially Funded	£100k - £500k	Planning	A reduction in NOx and particulate pollution from taxi and private hire vehicles.	Increased number of licensed EV taxi and private hire vehicles.	Spelthorne Borough Council amended the taxi and private hire vehicle licencing policy to accommodate fully electric vehicles in 2022. The policy was also amended to allow electric London Style cabs or those with Euro 6 standard engines to operate in Spelthorne to improve accessibility of the taxi fleet for disabled customers. The council taxi and private hire policy is currently under review following the ULEZ extension. The Defra Project delayed by the impacts of the Covid-19 pandemic upon the taxi and private hire trade and suppliers. Further delays were caused by changes to state subsidy control legislation which required a legal opinion and further Defra approval. Defra approval to continue was granted in March 2023. By this time, the match funding source LoCase has expired, and new match funding has been allocated however it is less finance than originally committed, although still meeting the criteria of the original grant therefore further approval to continue will be sought from Defra.	Lack of legal resource in local authorities to support the procurement process has led to repeated delays. The amended project plan was approved by Defra The project involves a consortium of Surrey boroughs, and the procurement is to be delivered by Guildford Borough Council. Current approach is to fund via Guildford using their procurement and legal teams and to cover their costs using Public Health funds transferred to Guildford.
8	Reducing Emissions – AQAP action 6.1 Promote the use of "cleaner technology and fuels" within Spelthorne[40]	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019	2025	Surrey County Council and Spelthorne Borough Council (via Surrey Air Alliance)	Enterprise M3 Local Enterprise Partnership &Spelthorne Borough Council (including S.106)	NO	Partially Funded	-	Implementation	A reduction in NOx and particulate pollution from traffic.	Suitable Charging Locations identified, and Preferred Supplier selected	Feasibility study of Electric Vehicle Rapid Charging Network is ongoing. Commonplace location suggestions for EV chargers, were submitted to a consultation run by SCC which indicated 82 suggested locations in Spelthorne, 45 on street and 37 off-street. These are being used to guide the installation of further phases. Ten charge points have installed as part of Phase 1 of the Joint Project with SCC - summer 2022. Spelthorne took an EV Charging Strategy to committee in September 2023 to increase the provision of public charging facilities in the Borough. The Strategy if approved will initially focus on areas that are close to the strategic road network.	Future developments in Staines-upon-Thames may present an opportunity to fund and introduce improvements recommended by the Development Framework. There is not suitable Spelthorne Borough Council owned land around the Borough closest to Heathrow Airport and Stanwell Moor Road where the 2022 NO_2 exceedance occurred to facilitate off road charging. Increasing on road charging facilities in that area requires resource from Surrey County Council.
9	Reducing Emissions – 6.1 Promote the use of "cleaner technology and fuels" within Surrey	Promoting Low Emission Transport	Public Vehicle Procurement -Prioritising uptake of low emission vehicles	2022	2024	National Highways, Surrey County Council and Guildford Borough Council	National Highways	NO	Funded	> £10 million	Planning	A reduction in NOx and particulate pollution from traffic.	Increased number of electric commercial vehicles on roads in Surrey	The A3 Guildford report can be viewed here: https://www.guildford.gov.uk/article/26606/Working-to-improve-air-quality-on-the-A3-in-Guildford The work has identified that: - most vehicles using Guildford A3 section are making journeys which do not start or end in Guildford - 80% of the Nitrous Oxides (NOx) emissions are from diesel vans and cars - vans make up 15% of traffic but account for 45% of emissions	Measures are at the planning stage. The project in Guildford will provide knowledge to be shared with other Surrey districts and boroughs via the Surrey Air Alliance as the project is implemented.

[40] Measure eleven in the draft AQAP "Promote the use of "cleaner technology and fuels" within Spelthorne."

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														These findings suggest that just targeting local vehicle users will not lead to the required improvements to air quality around the A3. A list of measures to help improve air quality including: - encouraging more electric vehicles on the roads - re-routing the cycle network away from the A3 - promoting sustainable transport initiatives Although the proposed initiatives are targeted at Guildford they will provide useful knowledge that can be applied across Surrey in the future and the measures to increase the number of electric vehicles on the road including vans is likely to benefit Surrey more widely in giving more confidence of appropriate charging infrastructure across the county further from London and in that vehicles from one borough are likely to travel across Surrey Boroughs. Information about the A3 EV grant funding programme can be found here; https://www.surreycc.gov.uk/community/climate-change/businesses/grant-programmes/a3-ev-grant/about#:~:text=Surrey%20County%20Council%2C%20Guildford%20Borough%20Council%20and%20National,level%20of%20air%20pollution%20on%20this%20road%20section	
10	Introducing infrastructure to support electric car sharing clubs across the borough	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2016	2025	Surrey County Council, Spelthorne Borough Council, planning applicants and developers	Developers via the Planning regime	NO	Partially Funded	£10k - 50k	Planning	A reduction in NOx pollution from traffic through the uptake of low emission vehicles and reduced private car ownership	Provision of car club vehicles at new developments in Spelthorne	Spelthorne are asking planning applicants to commit to electric car clubs through agreed planning conditions where developments include car club facilities. A working group is being established to be led by Spelthorne Borough Council to investigate the provision of Rapid Charging Hubs to support EV vehicles in Spelthorne. Both Spelthorne and SCC have new guidance with air quality benefits[41].	The working group approach is being taken to draw on expertise from Officers working across different teams including Sustainability, Planning and Development and Pollution Control. Measures that arise from the working group may be subject to political approval at committee to progress.
11	Junction improvements to increase capacity and improve road layouts linked to new developments	Transport Planning and Infrastructure	Other	2020	2025	Surrey County Council, planning applicants and developers	Developers via the Planning regime	NO	Funded	£500k - £1 million	Implementation	Reduced congestion and vehicle idling. Improved space prioritisation and safety improvements for Active Travel.	Reduced congestion on Borough roads reduced journey times, reduced emissions	At scheme identification stage and costed. Junction works associated with Shepperton Studios have been completed to replace a roundabout that had poor visibility with traffic lights at the junction of Charlton Road with Ashford Road. Junction works on the Laleham/Shepperton Road (B376), to accommodate the entrance to the Shepperton Studios southern expansion are in progress at the time of writing.	There are several concurrent roadworkes taking place across the borough which collectively cause temporary traffic congestion, longer journey times, and interrupt public transport such as bus routes.
12	Promoting Alternative Travel – Delivery of bus priority measures, cycle parking and interchange opportunities	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2016	2030	Surrey County Council	Surrey County Council	NO	Partially Funded	-	Planning	Improved connectivity of public transport and active travel to allow easier interchanges	Increased uptake in public transport journeys	Some bus routes in Spelthorne have participated in the Governments £2 single fare cap scheme to help with the cost of living. Surrey County Council have a dedicated webpage summarising the travel discounts available in Surrey here: https://www.surreycc.gov.uk/roads-and-transport/buses-and-other-transport/tickets-and-discounts#:~:text=%C2%A32%20bus%20fare%20cap%20From%201%20January%202023,%C2%A32.50%20on%20those%20bus%20routes%20in%20the%20scheme. This web page gives details of which services are applying the capped fares.	The fare cap scheme will eventually come to an end and unfortunately to date the campaign to get Spelthorne included in transport zone 6 which would substantially reduce public transport fares and allow to implement the Oyster scheme in Spelthorne has not yet been successful. Spelthorne Borough Council are supportive of this campaign as is the Spelthorne MP. Spelthorne has written to Surrey County Council and the Department for Transport regarding the need for lower cost public transport and better public transport connectivity with west London employment areas and Heathrow in line with neighbouring London Boroughs, in light of the proposed London Ultra Low Emission Zone extension which will have economic impacts in neighbouring Spelthorne. It has been hoped that this would be an ideal measure to lessen the economic impact of the ULEZ expansion upon the community, but the Department for Transport and Transport for London have not accommodated this measure which is unfortunate as it would be a way to reduce air pollutant and greenhouse gas emissions.

[41] Surrey County Council have updated the Vehicular, electric vehicle and cycle parking guidance for new developments which is now available online here: https://www.surreycc.gov.uk/roads-and- transport/parking/strategy-and- guidance/development-parking-guidance. Spelthorne Borough Council have adopted a Supplementary Planning Document which is designed to complement planning policy regarding climate change and emissions reduction. Some of the measures within the document will have co benefits for air quality.

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13	Liveable Neighbourhoods Spelthorne Borough[42]	Traffic Management	Strategic highway improvements, Re-prioritising Road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2022	2024	Surrey County Council	Surrey County Council	NO	Not Funded	-	Planning	Improved facilities for walking and cycling	Improved public health indicators, improved facilities for walking and cycling	Tranche 1A is the first batch of Liveable Neighbourhood zone proposals as an authorised funded work package of the Transport Improvement Programme to be designed in 2023/23. Sunbury Cross is a priority area covered by Liveable Neighbourhood Zone SP7, SP6 and SP1 and a Local Cycling and Walking Plan Phase 1 Core Walking Zone and Phase 1 Cycle Route. There are 27 Liveable Neighbourhood Zones across Sunbury-on-Thames, Staines-upon-Thames, Shepperton and Stanwell, 3 Local Cycling and Walking Plan Phase 1 Core Walking Zones, and a Cycle Routes extending from Sunbury on Thames Green Street and Nursery Road through Sunbury Cross, along the A308 to Ashford Hospital and Laleham with routes extending into Staines-upon-Thames.	Currently at the design stage. Subject to funding bids and allocations.
14	Laleham Speed Limit Reduction to 20mph	Traffic Management	Reduction of speed limits, 20mph zones	2020	2024	Surrey County Council	Surrey County Council	NO	Funded	-	Planning	Improved environment for walking and cycling	Safety improvements, and improved public realm	"Surrey County Council partnered with Surrey Police, Surrey Fire and Rescue, and National Highways are consulting on a new road safety policy Vision Zero Surrey, to reduce deaths and injuries on Surrey's roads. The consultation can be found here: https://visionzerosurrey.commonplace.is/ Surrey has some of the highest numbers of pedestrian and cycling road casualties of any local authority in Great Britain and the policy aims to provide a flexible approach to implementing 20 mph speed limits that are supported by local people and are focussed on residential areas, town centres and schools. Slower motor vehicle speeds will support more walking, wheeling, and cycling. The approach to safer speeds will focus on setting appropriate speed limits and improving compliance with speed limits. Plans include a reduced 20mph speed limit with street furniture to slow traffic. Whilst a reduction from 30mph to 20mph does not improve vehicle emissions the slower traffic will improve access by giving more priority by active travel to both a primary school and a park.	Works delayed due to the Esso Southampton to London Pipeline DCO construction works. The Southampton to London Pipeline (SLP) project has replaced an existing underground fuel pipeline between Boorley Green, Hampshire and the West London Terminal storage facility in Hounslow. Construction works to install the replacement pipeline began in late 2021 and were completed in November 2023.
15	London ULEZ extension	Traffic Management	Road User Charging (RUC)/ Congestion charging	2021	2023	Transport for London	Transport for London	NO	Funded	-	Implementation	A reduction in non ULEZ compliant vehicle journeys into London	Improvements in measured air quality in outer London	Spelthorne borders 3no London boroughs of Hounslow, Hillingdon, and Richmond upon Thames. Data on the impacts of the ULEZ on traffic flows and therefore air quality in Spelthorne on a spatial level has not been provided by Transport for London. The ULEZ extension has led to some improvements to transport to and from Heathrow Airport which is situated within the charging zone, including a coach service for staff from Basingstoke that will run along the M3, a new H21 Bedfont bus, increased frequency on the 442 service via Stanwell and Ashford and reintroduction of the X442 service from Staines Railway Station. Some of these measures could reduce the volume of non ULEZ complaint vehicles travelling through Spelthorne. There is concern that there could be parking of non-complaint vehicles in Spelthorne so it remains to be seen as to what the impacts will be. Surrey County Council are responsible for parking enforcement and concerns have been raised to them regarding this issue. Heathrow are utilising the long stay 4 car park close to Stanwell for an initial 12-month period for staff with non ULEZ compliant vehicles. In time it is likely that residents and businesses in Spelthorne by virtue of the proximity of London and the need to travel in and out of the ULEZ charging zone regularly will increasingly opt for ULEZ complaint vehicles and that the fleet turnover to newer vehicles with lower emissions may be accelerated which could benefit local air quality. It should be recognised that vehicles from London also travel out into Spelthorne and the scrappage scheme would apply in that case to a vehicle registered in London and so there could still be some degree of improvement from scrappage. Now that the ULEZ is in force it is hoped from an air quality perspective that the offset between any re-routing, and the fleet improvements that the policy may	Unfortunately, the scrappage scheme and support for London residents has not at the time of writing been extended to cover neighbouring boroughs outside London and no public transport cost-based mitigation has been offered outside of London. This was disappointing from an air quality perspective as extending the support would have improved outcomes in outer London as well as locally given Spelthorne residents need to travel into the neighbouring boroughs in daily life. Transport for London have not provided information that was requested at consultation by Surrey County Council or Spelthorne Borough Council including requests for distributional analysis to determine how traffic flows may be impacted by any re-routing traffic at the edge of the charging zone. From an air quality perspective signage in the right places has the potential to improve what was the only exceedance recorded for 2022 in the Spelthorne AQMA, on Stanwell Moor Road as that road leads directly to the ULEZ charging area. Spelthorne will continue to pursue information from Transport for London via Surrey County Council and National Highways as the relevant Transport Authorities to inform LAQM.

[42] Measure sixteen in the Draft AQAP "Implement further Liveable Neighbourhoods, or similar schemes."

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														introduce could be favourable as non ULEZ complaint vehicles are replaced over time. There is uncertainty over what the outcomes will be for Spelthorne both in terms of strategic and local roads that route to London and regarding the M25 which is exempt from the charge and runs through the borough. Given the ULEZ has been introduced part way through the monitoring calendar year it will be sometime before air quality monitoring data and traffic data to understand the impacts will be available to inform LAQM activities such as future updates to the Air Quality Action Plan.	
16	Cycling for Health	Promoting Travel Alternatives	Promotion of cycling	2016	2032	Spelthorne Borough Council and Surrey County Council	Spelthorne Borough Council	NO	Funded	-	Implementation	Reduced congestion and car distance travelled due to use of alternative modes of active travel. Improved health.	Increased uptake in active travel and local leisure opportunities	Scheme in operation with regular guided cycle rides and route suggestions for independent rides.	Volunteer led scheme which depends on the community kindly giving their time to run the guided cycle rides
17	Walking for Health	Promoting Travel Alternatives	Promotion of walking	2016	2032	Spelthorne Borough Council and Surrey County Council	Spelthorne Borough Council	NO	Funded	-	Implementation	Reduced congestion and car distance travelled due to use of alternative modes of active travel. Improved health.	Increased uptake in active travel and local leisure opportunities	The Spelthorne Walking for Health Scheme, supported by The Ramblers Association, has run for 16 years. Walks are at least three times per week and average 20 participants per walk.	Volunteer led scheme which depends on the community kindly giving their time to run the guided walks.
18	Reducing Emissions AQAP measure 7.3 School and Business Travel Plans	Promoting Travel Alternatives	School Travel Plans	2012	2032	Surrey County Council	Surrey County Council Greener Futures and the Surrey Air Alliance	NO	Funded	-	Implementation	Reduce NO_x and PM_{10} emissions and traffic congestion from school related journeys	100% of schools to implement travel plans	Surrey County Council are supporting schools to reduce their emissions through 3 schemes. The Eco Schools Green Flag scheme, the Mode Shift Stars Travel Plan scheme and Let's Go Zero. Schools sign up to a Memorandum of Understanding to get funding to implement a Mode Shift Stars Travel Plan or an Eco Schools Green Flag. Initial work with schools was Defra funded from the Air Quality Fund, this has developed into a larger programme led by the Surrey County Council Safter Travel Team. Digital materials from the original grant funded programme are made available to schools in Surrey. Details of the schemes can be found here: https://www.surreycc.gov.uk/roads-and-transport/road-safety/outside-schools Currently 3 schools in Spelthorne are signed up to the Let's Go Zero Surrey scheme. Across Surrey there are 73 Green Flag Eco-Schools with 232 schools involved with the program. There are 68 accredited Modeshift STARS Travel Plans in place for schools across Surrey. The Surrey County Council Safet Travel Team have completed 170 site assessments of Road Safety Outside Schools. In 2022, £3 million was assigned by Surrey County Council to deliver infrastructural improvements outside schools in Surrey, with the aim to instal new infrastructure outside 50 schools over the next 3 years.	Most schools opt to use the funding via the Memorandum of Understanding to improve scooter and cycle parking facilities for the pupils. Engagement with private schools has improved compared with prior to the pandemic. Private schools can have very large catchment areas for pupils
19	Promoting Alternative Travel – Bikeability School Cycling Proficiency training and Feet First Walking Training	Promoting Travel Alternatives	Promotion of cycling	2012	2032	Surrey County Council	Surrey County Council	NO	Funded	-	Implementation	Reduce NO_x and PM_{10} emissions and traffic congestion from school related journeys. Improved confidence in cycling as an	Increased uptake in cycle and walking journeys made to schools	There are around 41km of cycle facility in Spelthorne – cycle paths, cycle lanes and advisory routes. The County Council offers subsidised Bikeability cycle training to all year 2, year 5 and year 6 pupils in the Borough and offers customised cycle training for all ages. Across Surrey 4,500 pupils have been trained at Bikeability Level 1 (Year 4, 8-9-year-olds) and 6,100 pupils at Bikeability Level 2 (Year 6, 10-11-year-olds) in the 2022/23 academic year. Walking Instructors have taught nearly 5,100 primary school pupils in nearly 90 schools across the county in the 2022/23 academic year. Next academic year, 40 schools have booked Feet First: Walking Training across Surrey.	Charged for service paid for by school or parents/carers. Details of how schools can request training can be found here; https://www.surreycc.gov.uk/roads-and-transport/road-safety/schools/primary/cycle-training

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												alternative to car use giving health and air quality benefits.			
20	Surrey-wide Air Quality Modelling[43]	Policy Guidance and Development Control	Other policy	2017	2026	Surrey County Council, Surrey Public Health, and Spelthorne Borough Council (via Surrey Air Alliance)	Surrey County Council, Surrey Public Health, and Spelthorne Borough Council (via Surrey Air Alliance)	NO	Not Funded	-	Planning	Scientific information to inform policy to reduce traffic related emissions	Receipt of updated Surrey-wide air quality modelling of NO_x, PM_{10} and $PM_{2.5}$	Modelling outputs delivered. These have been utilised in reviewing and updating the Spelthorne Borough Council Air Quality Action Plan which is ongoing work. The Surrey Air Alliance have agreed to repeat the exercise using updated traffic data when suitable post pandemic traffic data is available. This action is now completed, and the draft AQAP have been produced. The AQAP consultation is running from 20 May to 30 June 2024.	No direct impact on reducing emissions, but will be valuable in public, stakeholder and political engagement going forwards. Repeating the exercise using updated traffic data when suitable post pandemic traffic data is available will require new funding. Securing funding has become a longer process at Spelthorne Borough Council as the Council has switched to a committee system and funding must be achieved through either a growth bid that can be made once a year, or via approval by two separate committees, a process which takes several months as the committees are scheduled according to statute several months ahead so do not match grant funding timescales. Action depends on suitable traffic data being available from SCC and funding being available from SBC in a timely manner to join in with the wider modelling exercise.
21	Raising awareness of poor air quality and the associated health implications. NHS Ask About Asthma campaign	Public Information	Via other mechanisms	2022	2025	Surrey and Heartlands Health and Care partnership, Surrey County Council and Spelthorne Borough Council (via the Surrey Air Alliance)	NHS	NO	Funded	-	Implementation	Raise awareness of the links between poor outdoor and indoor air quality and poor housing conditions with asthma and to raise awareness of better management of asthma.	Training of healthcare professionals including GPs and Pharmacists	Surrey Heartlands Health and Care Partnership have worked with the Surrey Air Alliance to understand where there are schools located in areas of potential poor air quality and to understand how the air pollution forecasts can help asthma patients prepare for deteriorating air quality to help best manage their health condition. More information about the Ask About Asthma initiative can be found here: https://surreyeducationservices.surreycc.gov.uk/Article/1 Healthy Surrey have produced an online asthma toolkit which gives advice for parent/carers, schools, and medical professionals. The toolkit can be accessed here:https://www.healthysurrey.org.uk/children-and-families/asthma-toolkit In June 2023, the Spelthorne Principal Pollution Control Officer attended a training event held by Surrey Heartlands for NHS staff, school nurses and pharmacists to improve outcomes of children and young people with asthma. The Officer was in attendance on behalf of the Surrey Air Alliance to provide information about air pollution alert services and the Defra Air Quality Index forecasts to the attending medical professionals.	The project has highlighted that rehousing requirements do not capture individuals who have respiratory conditions very well. Due to the common nature of asthma as a health condition it would not be possible to rehouse patients to new accommodation in areas of better air quality in Surrey. Overcrowding assessments cannot consider health conditions and that can be a challenge in making a case for changing a family's housing when there may be a health need to do so. The NHS funding is of a limited timescale, but the project will leave a legacy of online resources and staff training.
22	Health and Wellbeing Strategy	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2020	2032	Surrey County Council and Spelthorne Borough Council	Surrey County Council and Spelthorne Borough Council	NO	Funded	-	Implementation	Reduce NO_x and PM_{10} emissions from traffic	Increased activity levels in the borough incorporating active travel, a reduction in obesity Increased awareness of the air pollution alert services.	The Health and Wellbeing Strategy has been adopted by Members at Committee. Active travel will be encouraged to support people's physical health but also positively contribute to reducing air pollution	
23	Local Walking and Cycling Infrastructure Plan	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2020	2032	Surrey County Council and Spelthorne Borough Council	Surrey County Council and Spelthorne Borough Council	NO	Funded	-	Implementation	Reduce NO_x and PM_{10} emissions from traffic	Increased activity levels in the borough incorporating active travel, a reduction in obesity	Active travel will be encouraged to support people's physical health but also positively contribute to reducing air pollution walking/plans https://www.surreycc.gov.uk/roads-and-transport/cyclingand-walking/plans	
24	Low-cost sensor air quality monitoring for public awareness	Public Information	Via the Internet	2020	2024	Spelthorne Borough Council, Buckinghamshire re Council, Ricardo Energy and Environment PLC and Heathrow	Defra	YES	Funded	£100k - £500k	Implementation	Low-cost sensor testing to enhance the Councils air quality monitoring network and to improve understanding of the accuracy of	Low-cost sensor data that is web hosted for the duration of the project	An initial project has been completed in 2021 to deploy low-cost sensors across Spelthorne and Buckinghamshire. The data for Spelthorne is hosted here see Shepperton, Squires Bridge Road, Staines Bus Station, and Knowle Green Council Offices: https://www.airqualityengland.co.uk/local-authority/?la_id=333 A second project is being implemented to offer low-cost sensors to local schools and Scout groups to raise awareness of air pollution. To date a senor has been installed at St Ignatius School in Sunbury on Thames.	Uptake from schools in Spelthorne has been very limited, with a low level of interest.

[43] Changed to "Update the Surrey-wide Air Quality Modelling which was completed in 2019 to incorporate up to date input data" in the draft AQAP (Measure 3).

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
						Airport Limited. Surrey County Council Safer Travel Team						the sensors for use in local air quality management			
25	Supporting air quality research and providing public information regarding air quality	Public Information	Other	2021	2023	Spelthorne Borough Council, Surrey Air Alliance and CISHA Air Quality Working Group	Project dependant	NO	Not Funded	-	Implementation	Input to air quality related research	Data available to the Council and other parties in projects	Initial project completed August 2022 co-supervising a student from the Earth Science Department at Royal Holloway University of London. The student project provided mobile vehicle and buggy mounted spot measurements of NO_2, CO_2 and methane around the borough. Through membership of the Council for the Independent Scrutiny of Heathrow Airport (CISHA) Air Quality Working Group Spelthorne have a role in helping to facilitate research into local air quality and air quality in relation to aviation and related sources of emissions. Spelthorne have facilitated a meeting between the CISHA Air Quality Working Group Chair and a local university in autumn 2023 to explore potential synergies in areas of research interest. The Surrey Air Alliance have produced online materials regarding wood burning stove emissions and Spelthorne Borough Council have run information campaigns regarding domestic burning and engine idling. The digital materials are available online.	Maintaining a collaborative relationship with the local University helps to train future air quality professionals and scientists, whilst enhancing knowledge about local air quality.
26[44]	Establishment of a Climate Change Working Group	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021	2032	Spelthorne Borough Council	Spelthorne Borough Council	NO	Funded	-	Implementation	Reductions in greenhouse gas emissions which have associated air pollutant emissions reductions	Strategies to reduce emissions within the borough	The Council has made a declaration in recognising the climate change emergency. Establishing funding sources for projects to reduce emissions such as the Green Initiative Fund. Introducing a Climate Change focussed Supplementary Planning Document subject to Member approval. Rolling out Carbon Literacy training for Councillors and Staff. Identifying synergies between achieving greenhouse gas emissions and reductions in air pollutant emissions. Spelthorne has been directly impacted by fluvial and groundwater flooding. Frequently the highest national temperatures are recorded at the meteorological station at Heathrow Airport very close to Spelthorne. In summer 2022 the borough experienced smoke from wildfires on common land in Surrey and the prolonged dry weather presented a fire risk to the borough's parks and open spaces. Working Group STILL meets every 2 months to track progress of actions.	The River Thames Scheme Development Consent Order is a project to create additional flood capacity along the River Thames in Spelthorne and neighbouring boroughs which is required due to climate change. The Environmental Health team are a regulatory consultee to this DCO and the DCO process is expected to take significant resource to respond to from the Pollution Control team, who manage the Councils LAQM duties.

***Note:** that where funded measures are under the jurisdiction of organisations other than Spelthorne Borough Council, financial information is not always provided with each organisation's updates to the Council for publication in the ASR. For example, Heathrow Airport Limited are not obliged to provide this information. Measures may be at the planning and feasibility stage therefore estimated costs are not yet known. Some measures such as working groups are delivered through existing staff resource and therefore are not separately budgeted. All costs are an estimation in line with the ranges given in the ASR template.

[44] This measure in noted as measure two in the draft AQAP.

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[45], 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.

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

- Continuing to fund the measurement of $PM_{2.5}$ in Spelthorne and investigating the accuracy of small/low-cost sensors for particulate measurement through a joint project with Buckinghamshire (Table 2.2, measure 24). Consideration is being made to relocate some of the sensors near the Sunbury Cross automatic station where the cabin is faulty.
- Offering a green waste disposal collection service at the kerbside via a low-cost subscription[46]. The Surrey Environment Partnership offer a low-cost garden composter that residents can order online[47]. These measures help to reduce the burning of garden waste.
- The Council requires developments that trigger an Air Quality Assessment to assess the impact of construction dust emissions. The Local Planning Authority applies planning conditions to the developments requiring the developer to follow best practice guidance from the Institute of Air Quality Management to mitigate particulate impacts.
- Working with Heathrow Airport through the CISHA Air Quality Working Group to scrutinise Heathrow Airport related air quality policy, monitoring provisions and modelling studies.
- Participating in the Heathrow Strategic Planning Group, an independently chaired group which provides collective consultee feedback to planning proposals and policy initiatives from Heathrow Airport on behalf of Local Authorities.
- Supporting active travel measures to reduce the miles driven by car to access places of work, leisure, and education to reduce tyre wear, road surface wear and exhaust emissions that produce $PM_{2.5}$. Spelthorne have been working with Surrey County

[45] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023
[46] Spelthorne Borough Council 2023. Garden Waste Collections web pages available at: https://www.spelthorne.gov.uk/gardenwaste
[47] Surrey Environment Partnership 2023. Home Composting web pages available at: https://www.surreyep.org.uk/reduce-reuse-recycle/garden-waste/composting/ and https://www.surreyep.org.uk/reduce-reuse-recycle/garden-waste/composting/compost-bin-sales/

Council to improve the boroughs cycle lanes and pedestrian facilities such as crossings through the Local Walking and Cycling Infrastructure Plan[48].

- Through the Surrey Air Alliance Spelthorne have participated in joint working to raise awareness of air pollution and the benefits of active travel with schools via the Surrey County Council Safer Travel Team.
- Publicising anti engine idling messaging within the borough through a digital and poster campaign. Engine idling creates unnecessary emissions often in particularly sensitive locations such as outside schools, nurseries, and medical facilities.
- Most of the borough is covered by 13 Smoke Control Areas where the burning of unauthorised fuel in non-exempt appliances and production of smoke from a chimney (a source of $PM_{2.5}$), is subject to enforcement action where it can be sufficiently evidenced. Enforcement policy in relation to Smoke Control Area's is being updated following changes to Schedule 1A of the Clean Air Act as amended by the Environment Act 2021. The Surrey Air Alliance share intelligence with Surrey County Council Trading Standards regarding fuel retailers.
- The Council will investigate and take enforcement action where open burning of commercial waste as a source of $PM_{2.5}$ is sufficiently evidenced. Environmental Health is currently working with SBC legal team to introduce enforcement policy which should allow the application of the most recent smoke control legislation. An enforcement procedure for Smoke Control Area and Smoke Control Policy for Fixed Penalty Notices that sets the levels of fine in accordance with the legal advice received is being written by the Pollution Control team. The Council is still investigating and will take enforcement action where dust emissions can be sufficiently evidenced as to constitute a statutory nuisance.
- Working with the Planning Department to create guidance for kitchen extraction applicants. The Pollution Control team are a consultee on kitchen extraction and apply the principles of the EMAQ Control of Odour and Noise from Commercial Kitchen Exhaust Systems guidance[49]. The guidance is now published.
- Continuation of the promotion of air pollution alert services to provide air quality information for residents with health conditions that are impacted by poor air quality.
- Environmental Health continue to emphasize the health issues related to burning when investigating complaints of nuisance arising from burning or investigating complaints about bonfires.
- Defra application for Clean Air Night project funding: In September 2023 a second consortium (including SCC and District and Borough Councils) application was submitted; led by Hertfordshire County Council (HCC), for DEFRA air quality grant

[48] Surrey County Council 2023. Spelthorne Local Cycling and Walking Infrastructure Plan. Available at: https://www.surreycc.gov.uk/roads-and-transport/cycling-and-walking/plans

[49] Ricardo EMAQ, 2018. Control of Odour and Noise from Commercial Kitchen Exhaust Systems Available from Ricardo EMAQ https://emaq.ricardo.com/

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 Surrey Air Alliance 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.

- Quarterly meetings are still ongoing for Officers to share knowledge regarding local air quality. The group is attended by a representative for each of the Surrey Borough Environmental Health Teams, Surrey County Council Transport Planners, SCC Safer Travel Team, SCC Public Health, National Highways, Surrey Heartlands NHS Trust, and regular guest speakers.
- Defra Funded EV Taxi Project: Defra confirmed at the end of March 2023 that they agreed to the revised project. Unfortunately, the original grant to be provided by Surrey County Council's (SCC) Greener Futures Team to help match fund the project was no longer available. Defra confirmed we could not use any grant funds awarded to pay SCC's revenue costs. Fortunately, SCC's Public Health Team secured a £25k Public Health grant to help provide match funding to take the project forward. However, the Greener Futures Team were not able to undertake the work needed to administer the project including drafting the required legal contracts and procurement work within this budget. Guildford Borough Council agreed to take on this work within the £25k budget which meant we had secured all the funding needed to take this project forward. The project team have drafted details of the contracts and procurement specifications needed. They are with Guildford Borough Council's legal/procurement team to take forward. It is intended the grants will be awarded by Autumn 2024 for completion of trials Autumn 2025.
- In partnership with the Surrey Air Alliance an Officer from Spelthorne co presented to the Surrey Public Health team on the need to address building sites as a source of $PM_{2.5}$, and a proposal to adopt London Construction Guidance across Surrey was presented to the Development Planning working group for Surrey, unfortunately no agreement was reached to adopt the guidance.
- The Environmental Health team have taken a proactive approach to undertaking ongoing spot checks at large construction sites where observations of poor practice that is generating dust have been made by officers or where the public have reported this to the Council.

Through the Planning system the Environmental Health team recommend that conditions are applied to planning permissions for construction sites in line with the IAQM guidance on the assessment of dust from demolition and construction[50] classifications, requiring

[50] Institute of Air Quality Management, 2023. Guidance on the assessment of dust from demolition and construction. Available at: https://iaqm.co.uk/guidance/

large or high-risk construction sites to submit a Construction Management Plan incorporating dust management measure. Where there are sensitive receptors located adjacent to high-risk construction and demolition sites the Council requests continuous dust monitoring with an appropriate trigger level to notify the site management when dust is arising enabling them to take action to improve dust suppression. The Council discourages the use of Heras fencing with debris netting only, as this is ineffective in preventing dust migration off site when compared with a solid boundary hoarding.

A barrier to installing a solid hoarding can be the need for a licence. Spelthorne Borough Council endeavour to notify applicants of the licence requirement[51] at pre application meetings where these have been arranged.

The level of development in the borough and the number of construction projects taking place concurrently remains a challenge for Spelthorne. These include not only large developments such as the Shepperton Studios Expansion, but also nationally significant infrastructure granted planning permission via the Development Consent Order process such as the Esso Southampton to London Pipeline.

The borough has a very high assessed housing need which leads to concurrent construction projects that alongside the minerals and waste sites across the borough generate heavy duty vehicle traffic on the local roads that are both a source of particulates and mobilise particulates from the road surface. Council road sweepers are regularly deployed along the borough highways to routinely control road dust. The larger developments and minerals and waste sites have their own road sweepers and wheel washing facilities.

Environmental Health endeavour to contact sites as soon as any track out to the highway is observed. The pollution implications of resuspended dust are emphasised to the site and should the dust arising from the site constitute a statutory nuisance enforcement applies. Resources are prioritised to the most high-risk sites and to those that have received complaints of potential nuisance against them. Where a planning condition is in place requiring dust management, Environmental Health will work alongside Planning Enforcement to achieve compliance with conditions from the site. Where a site is subject to regulation by another body such as the Environment Agency or Surrey County Council Environmental Health will pass evidence that is gathered or submitted to them for investigation.

The popularity of wood burners is a challenge for Spelthorne. When the Council are contacted for advice regarding the installation of wood burners residents are reminded that even a perfectly installed device will still lead to some emissions in the home where it is installed, which can have health implications. Marketing of woodburning devices is strong

[51] Surrey County Council, 2023. Requirements for a hoarding license. Available at: https://www.surreycc.gov.uk/roads-and-transport/permits-and-licences/scaffolding-and-hoarding#:~:text=A%20scaffolding%20and%20hoarding%20licence%20is%20required%20for,building%20materials%20licences%20to%20be%20issued%20by%20them.

in Surrey where they are sold as part of a nature friendly sustainable lifestyle and cosy addition to the home, despite the devices are contributing to poor air quality.

The Ask About Asthma campaign with the Surrey Heartlands Health and Care partnership, and the Surrey Air Alliance (see measure 21 in Table 2.2), working in collaboration aims to improve public health outcomes regarding asthma in line with the Public Health Outcomes Framework. In summer 2023 the Spelthorne Principal Pollution Control Officer attended an NHS Surrey Heartlands Integrated Care Board training event to promote online air pollution alert services to medical professional who work with young people who have asthma.

The Spelthorne Borough Council Health and Wellbeing Strategy and LCWIP (measures 22 and 23 in Table 2.2), also aims to improve health outcomes in line with the Public Health Outcomes Framework. The Fingertips data[14] provided by the Public Health Outcomes Framework indicates that Spelthorne has some of the lowest activity levels and highest obesity levels in Surrey. Spelthorne is the least economically affluent borough in Surrey, and therefore faces the challenge of poor health outcomes mixed with economic challenges, which could be exasperated by the cost-of-living crisis.

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

This section sets out the monitoring undertaken within 2023 by Spelthorne 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 Air Quality England page presents automatic monitoring results for Spelthorne, with automatic monitoring results also available through the UK-Air website.

Spelthorne undertook automatic (continuous) monitoring at three sites during 2023. Table A.1 in Appendix A also shows the details of the automatic monitoring sites. 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.

Spelthorne does not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. National monitoring results are available: For carbon dioxide and lead at https://uk-air.defra.gov.uk/networks/network-info?view=aurn; For hydrocarbons including 1,3 butadiene and benzene at https://uk-air.defra.gov.uk/networks/network-info?view=hc

3.1.2 Non-Automatic Monitoring Sites

Spelthorne undertook non- automatic (i.e. passive) monitoring of NO_2 at 51 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.

Figure A.1 in Appendix A shows the long-term trend in NO_2 annual mean levels at the continuous monitoring station at Oaks Road (BAA Oaks) and the other continuous monitoring stations (Sunbury Cross (SUN_01) and Haslett Road (SCC_ECO)). The long-term trend at Oaks Road indicates a downward trend in background levels from the peak in the early 2000's.

The polar plot for NO_2 at Oaks Road during 2023 (Figure F3) from the Air Quality at Heathrow Airport 2023 (Ricardo Report EULA)[52], shows high emissions from both local sources, indicated by low wind speeds, and sources further afield brought in by moderate to high wind speeds. Oaks Road shows elevated concentrations coming from the northeast quadrant, the direction of the Southern Perimeter Road and the Cargo Centre and main runway. Part of this NO_2 may also be created by the reaction between airport emissions of NO with ozone, travelling at increased wind speeds to create a faster reaction.

Figure 1 shows that after falling from a peak in 2005, annual mean NO_2 at key roadside monitoring locations in Spelthorne did not mirror the downward trend in UK background NO_2 levels over the next decade[53]. Results between 2014 and 2018 had suggested a possible downward trend starting to emerge, however in 2019 concentrations increased. In 2020 the measures to address the Covid-19 pandemic led to a significant reduction in NO_2 concentrations and it remains to be seen how much of the reduction will remain in future post pandemic conditions. SP60 Stanwell Moor Road shows an increase from 2020 to 2022, this may be reflective of the increase in passenger numbers at Heathrow Airport as the number of passenger flights has recovered as travel has increased again following the Covid-19 pandemic. SP60 is situated adjacent to Stanwell Moor Road enroute to the

[52] http://www.heathrowairwatch.org.uk/documents/Heathrow_2023_Annual_Report.html

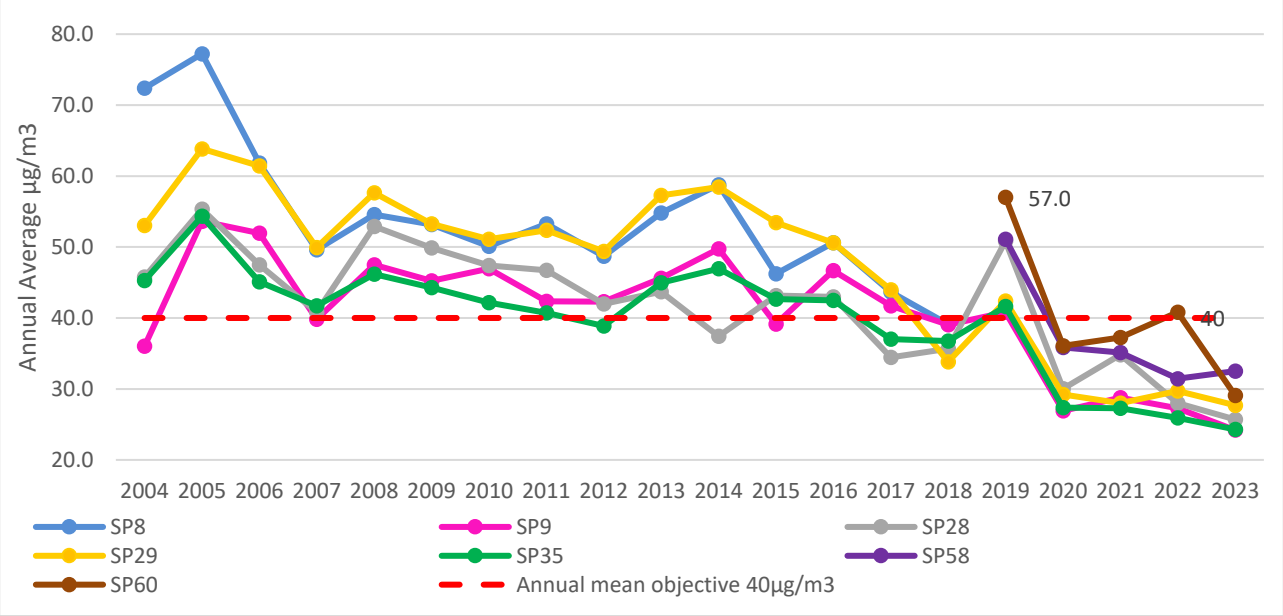
[53] Defra 2023. National statistics Nitrogen dioxide (NO_2) as updated April 2023. Available here: https://www.gov.uk/government/statistics/air-quality-statistics/ntrogen-dioxide

roundabout junction with Airport Way from the M25, and the Southern Perimeter Road close to Heathrow Terminal 5 at Heathrow Airport.

In 2023, apart from SP58 where NO_2 concentration increased, a decrease of NO_2 concentrations can be noted at all other locations.

Since 2020 there has been only 1 monitoring location (SP60) recorded in 2022 where the annual average NO_2 levels slightly exceeded the national air quality objective of 40µg/m^3. This location is adjacent to a heavily trafficked road leading up to the Heathrow Southern Perimeter Road, Terminal 5 and the M25. In 2020 the measures to address the Covid-19 pandemic led to a significant reduction in NO_2 concentrations, including at urban background locations and it remains to be seen how much of the reduction will remain in future post pandemic conditions.

Figure 1 – Trends in Annual Mean NO_2 at Key Roadside Diffusion Tube Monitoring Locations



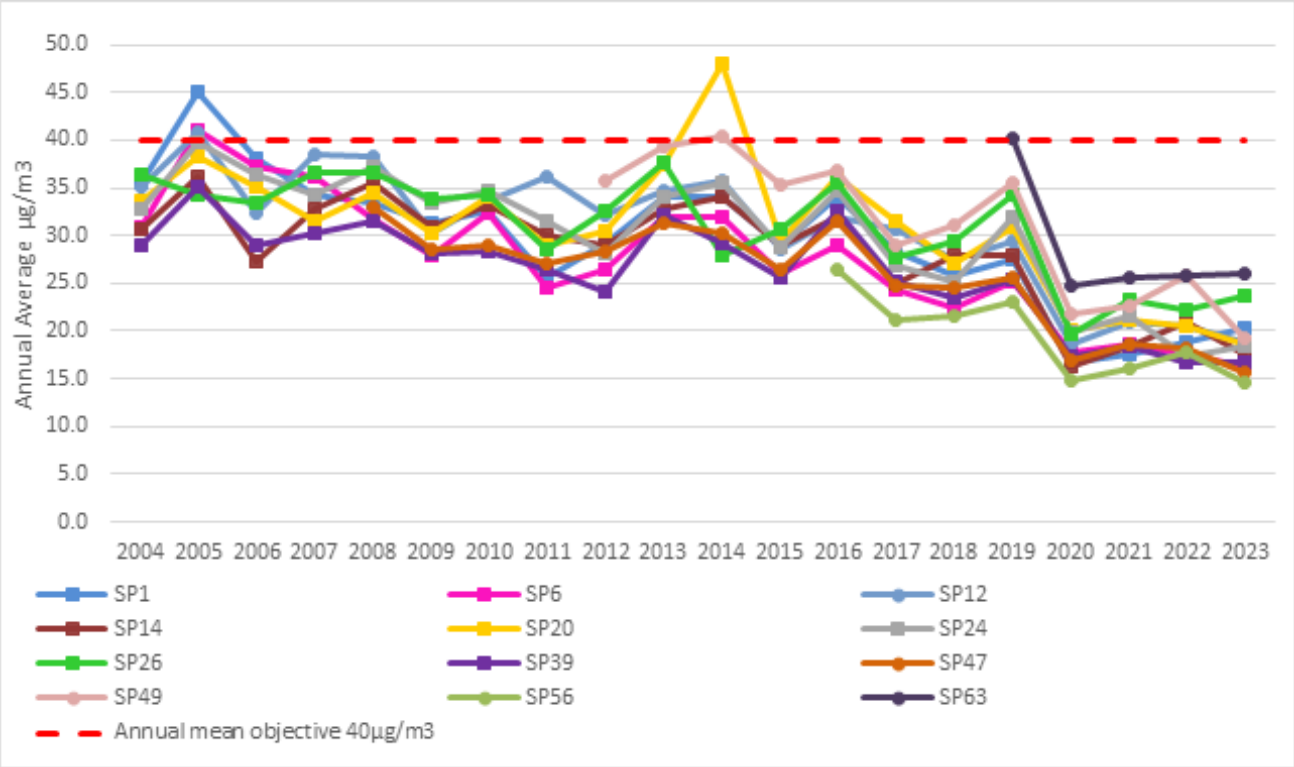
*Diffusion Tube SP8 was relocated in 2007 – taking it about 70m further from the Sunbury Cross junction but halving the distance from the kerb of the A308 Staines Road West. SP8 results for 2017 and 2018 annualised due to less than 75% data capture.

^SP58 was introduced in 2019 to replace the discontinued SP8. SP58 is now located on the Sunbury Cross (east side) roundabout.

Figure 2 shows that urban background NO_2 concentrations at key urban background monitoring locations in Spelthorne have been variable since 2004. The influence of the extensive strategic road network coverage within the borough may be a factor in this variability compared with the wider national dataset that reflects a downward trend in measurements from automatic analysers, and corresponding data from the automatic analyser in Spelthorne as presented in Figure A.1 which also demonstrates a downward trend for the automatic analyser Oaks Road, Stanwell which has the longest uninterrupted dataset.

In 2023, although a slight increase can be noted in some locations (e.g. SP1 and SP26), the concentrations of NO_2 have remained generally constant.

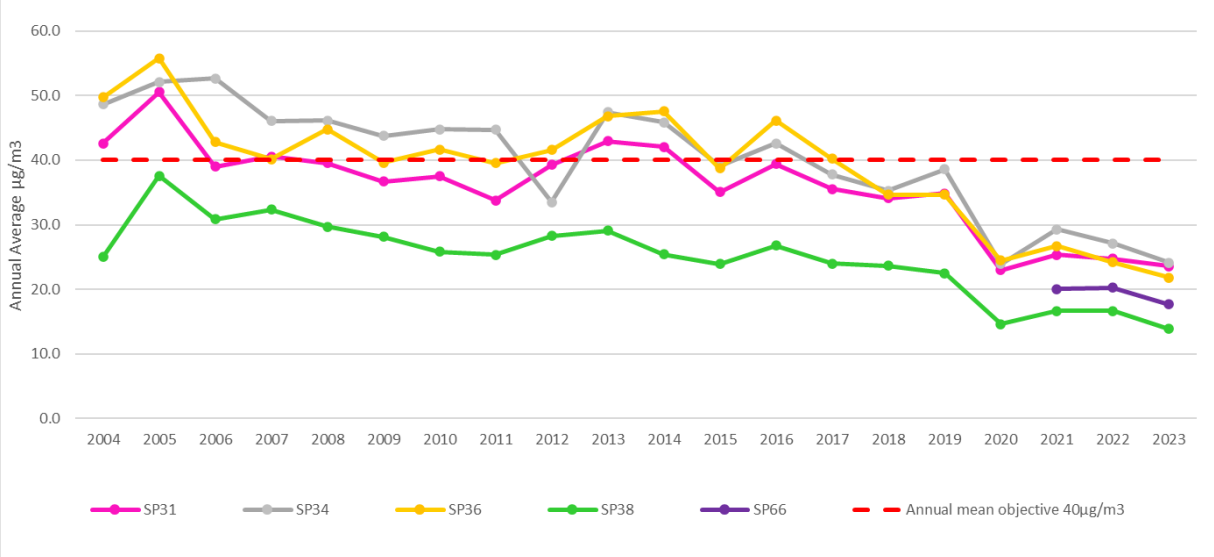
Figure 2 – Trends in Annual Mean NO_2 at Urban Background Diffusion Tube Monitoring Locations



- Diffusion Tube SP1 is situated in a pedestrianised shopping area.

Figure 3 illustrates the roadside monitoring locations that are close to schools or hospitals. From 2018 onwards there has not been exceedance of the annual mean NO_2 objective at these locations.

Figure 3 – Trends in Annual Mean NO_2 at Health and Education Diffusion Tube Monitoring Locations



The reduction in concentrations in 2020 and 2021 due the Covid-19 pandemic related restrictions can be seen and the sustained reduction in 2022 and 2023 that is likely to be due to traffic flow volume reductions that were maintained after travel restrictions were lifted in 2021 however longer term it will be important to consider a longer dataset to take into account potential meteorological factors that can influence pollutant concentrations year to year.

Across the borough wide dataset over a five-year period (which covers the 2020 and 2021 local and national Covid-19 lockdowns and restrictions), there has been large inter-annual variations in results – in 2018 there were no exceedances, whilst 2019 recorded 9 monitoring locations where concentrations recorded were greater than the 40µg/m^3 annual average objective.

Figure 4 shows the long-term trend in exceedances of the national air quality objective for NO_2 in Spelthorne.

Figure 4 – Trends in Exceedance of Annual Mean NO_2 at Diffusion Tube Monitoring Locations

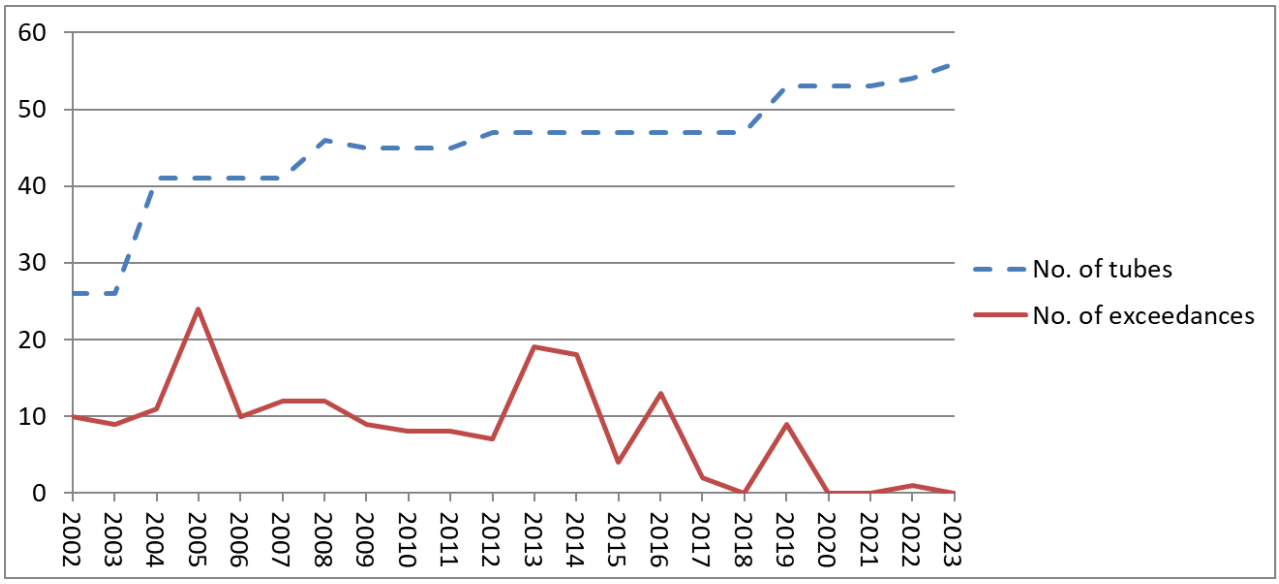


Table A.5 in Appendix A compares the ratified automatic monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year. There were no recorded exceedances of the NO_2 hourly mean objective during 2023, at any of the continuous monitoring stations. None of the diffusion tube locations on the regular Spelthorne network, nor the automatic analysers recorded annual means greater than 60µg/m^3, which indicates that an exceedance of the 1-hour mean objective is also unlikely at these sites.

In 2019 diffusion tube NO_2 monitoring for a 6-month period was deployed on behalf of National Highways on the Pollution Climate Mapping Road link 28076, at the kerbside on the A316. One triplicate monitoring site was established in each direction adjacent to the eastbound and westbound carriageway. An annualised annual mean NO_2 concentration for one of the tubes within the triplicate sample adjacent to the eastbound carriageway of

60.3 µg/m^3 was indicative of a potential exceedance of the 1-hour mean objective, and all the triplicates at both the east and westbound A316 sites exceeded the annual mean NO_2 objective. The results were published in the Spelthorne Borough Council 2020 ASR. On an annual basis National Highways coordinate with Spelthorne Borough Council and the Transport Authority Surrey County Council to obtain planning data for developments that may influence traffic flows on the A316 PCM link, which is reviewed by National Highways. National Highways publish audit reports in relation to PCM link 28076 online[54]. The most recently available National Highways Audit Summary Report predicts compliance with the annual mean NO_2 objective in 2026 and considers several mitigation measures which are stated as not being viable by National Highways. The measures considered and deemed unsuitable by National Highways include a specialist electric van centre, traffic management, speed limit management, bus and HGV retrofits, barriers, canopies, tunnels, bypasses, rerouting footpaths, and low friction road surfacing. The National Highways Audit Summary Report states that a workshop will be organised with local authorities to explore whether there are other viable options to consider. It should be noted that after the audit, the London ULEZ has been extended and applies at the next junction eastbound on the A316. Spelthorne Borough Council have highlighted this to National Highways.

Levels of NO_2 were monitored at the Oaks Road, Sunbury Cross and Haslett Road automatic analysers in 2023 with an annual average concentration of 20 µg/m^3, 19.6 µg/m^3 and 13.0 µg/m^3 respectively, all below the air quality objective of 40 µg/m^3.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

Results of monitoring over the past twenty-one years indicate that there has been a noticeable trend of reducing concentrations of particulate matter (as PM_{10}) as an annual average until 2016. The number of days per year where the mean concentration of PM_{10} was over 50µg/m^3 has reduced from the early 2000's however in recent years the number of days has been variable – see Figures A.10 and A.11 respectively in Appendix A.

There had been a decreasing trend in particulate concentrations from 2003 to 2010. From 2011 to 2016 measurements were only taken at Oaks Road where concentrations generally decreased until 2016. Since 2016 the particulate matter trend has been variable as an annual average.

[54] National Highways 2023. Audit Summary Report for PCM link 28076. Available at: https://nationalhighways.co.uk/our-work/environment/air-quality-and-noise/air-quality/air-quality-reports/

Levels of PM_{10} were monitored at the Oaks Road, Sunbury Cross, and Haslett Road automatic analysers in 2023 with an annual average concentration of 12.1µg/m^3, 13.8 µg/m^3 and 17.7µg/m^3 respectively, Table A.6.

The PM_{10} monitoring results indicates that the PM_{10} monitoring locations in Spelthorne were compliant with the 24 hour mean objective in 2023 for the number of days where the mean concentration of PM_{10} was over 50µg/m^3, not to be exceeded more than 35 times a year. See Appendix A, Table A.7.

The polar plot for PM_{10} at Oaks Road during 2023 (Figure F.4) from the Air Quality at Heathrow Airport 2023 (Ricardo Report EULA) shows high concentrations occurring under calm conditions. Further elevated levels can be seen from the northeast, east, southwest, and northwest directions. While some of this will be due to airport related activities, in contrast to the NO_2 plot it is mostly due to the impact of transboundary pollution events[55].

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

The Environmental Improvement Plan 2023 for England set interim targets that by January 2028 an annual average of 12 µg/m^3 for $PM_{2.5}$ is not exceeded. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 set an annual mean concentration target of 10µg/m³ to be achieved by the end of 31st December 2040.

Levels of $PM_{2.5}$ were monitored at the Oaks Road, Sunbury Cross, and Haslett Road automatic analysers in 2023 with an annual average concentration of 7.2 µg/m^3, 8.0 µg/m^3 and 9.3 µg/m^3 respectively.

Long-term levels at Oaks Road have declined since 2003 as illustrated in Appendix A (Figure A1.2), though this trend has been very much more moderated since 2010.

2023 data for Haslett Road indicates that the annual mean concentration of $PM_{2.5}$ was below both the 2040 target and the interim 2028 target.

At Oaks Road for example, the polar plot showing high $PM_{2.5}$ concentrations occurring under calm conditions and like PM_{10} concentrations. Further elevated levels can be seen from the east and southwest directions. While some of this will be due to airport related activities, in contrast to the NO and NO_2 plots it is mostly due to the impact of transboundary pollution events.

3.2.4 Conclusion of Heathrow Airport (Extract from the 2023 Annual report)

Oxides of nitrogen and particulate matter (as PM_{10} and $PM_{2.5}$) were monitored throughout 2023 at Oaks Road. The conclusions of the Heathrow Airport 2023 monitoring programme are summarised below.

[55] Ricardo Energy and Environment. 2023. Available at: Air Quality at Heathrow Airport 2023 (heathrowairwatch.org.uk)

- All pollutants achieved a data capture of at least 90%.
- No exceedances of the AQS objective of 200 µg/m^{-3} for hourly mean NO_2 more than the 18 permitted times per year during 2023.
- No exceedances of the annual mean, AQS objective of 40 µg/ m^{-3} for NO_2 in 2023.
- The annual mean of PM_{10} below the objective of 40 µg/ m^{-3} for PM_{10}.
- Seasonal variations in pollutant concentrations at all sites were like those observed in previous years and at other urban background sites. Both NO, NO_2 and BC exhibited higher concentrations during the winter months. PM_{10} and $PM_{2.5}$, which have both primary and secondary components, showed a much less pronounced seasonal pattern. Ozone levels were highest during the spring and summer, as is typical.
- The diurnal patterns of concentrations of all pollutants were mostly typical of urban monitoring sites. Peak concentrations of NO, NO_2 and BC coincided with the morning and evening rush hour periods, and to lesser extent, particulates. Levels of ozone peaked in the afternoons.
- Several periods of elevated PM_{10}, $PM_{2.5}$ and Ozone concentrations (daily mean concentrations in the Defra “Moderate” band) occurred during January, February, June, and September 2023 around Heathrow airport. As in previous years, other urban background monitoring sites in London showed a similar pattern of elevated particulates concentrations during these periods. This indicates that the higher concentrations measured at Heathrow reflected regional variations in concentration, rather than any emission sources specific to the airport.
- The polar plots plotting hourly mean pollutant concentrations against the corresponding wind speed and wind direction shows significant source contribution from local traffic and the airport and potentially residential sources for NO_2, NO and BC. PM concentrations are heavily influenced by regional episodes as demonstrated by the by high concentrations from easterly directions.
- Mean annual concentrations of NO_2 at Oaks Road were comparable with those measured at other suburban and urban background monitoring sites in London. PM concentrations at the site was like other urban background monitoring sites in London.
- Long-term annual mean concentration data from this monitoring program show a gradual downward trajectory in levels of NO and NO_2 with some yearly variation. Covid-19 restrictions brought in in March 2020 heavily influenced NO_2 causing a 34% to 42% reduction in levels compared to 2019. All pollutants with the exception of O3 have remained lower than pre COVID-19 measures since the lifting of restrictions in 2021.
- Neither seasonal patterns, nor long-term trends, in pollutant concentration at the Heathrow sites showed any obvious relationship to annual aircraft transport movements. Although the airport is likely to be a contributor to local air pollution, ambient concentrations are also influenced by meteorological and other factors. Specifically, aircraft emissions contribute little to either ambient NO_2, PM_{10} or $PM_{2.5}$, these are influenced to a greater extent by local vehicle emissions.

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)
BAA_Oaks	Heathrow Oaks Road	Urban Background	505729	174496	NO_2; PM_{10}; $PM_{2.5}$	Yes Spelthorne AQMA	Chemiluminescent; FIDAS	25	1#	3.50
SUN_01	Sunbury Cross, The Haven	Urban Background	510063	170204	NO_2; PM_{10}; $PM_{2.5}$	Yes Spelthorne AQMA	Chemiluminescent; FIDAS	29	19	2.06
SCC_ECO	Haslett Road	Urban Background	509155	169228	NO_2; PM_{10}; $PM_{2.5}$	Yes Spelthorne AQMA	Chemiluminescent; BAM	3.5	5.5*	2.16

Notes:

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

(2) N/A if not applicable

This is not a 'main road', rather a suburban residential street. The nearest main road is the Southern Perimeter Road 205m to the north of the monitor.

*This is a residential minor road. The A244 is located 90m away. The M3 Motorway is located 140m northwest (upwind) of the site.

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)
SP1	Staines High Street	Urban Centre	503529	171619	NO_2	Yes, Spelthorne AQMA	0.0	n/a	No	2.4
SP3	Wraysbury Road	Kerbside	503097	171931	NO_2	As above sated	16.0	0.5	No	2.1
SP4	Benwell Centre, Sunbury	Roadside	510052	169843	NO_2	Yes, Spelthorne AQMA	9.8	0.8	No	2.2
SP5	Church Road, Ashford	Roadside	506967	171562	NO_2	Yes, Spelthorne AQMA	11.0	1.1	No	2.4
SP6	Goffs Road, Ashford Common	Urban Background	508763	170900	NO_2	Yes, Spelthorne AQMA	8.0	0.7	No	2.4
SP9	Staines Road West, Sunbury	Kerbside	509166	170260	NO_2	Yes, Spelthorne AQMA	12.4	1.8	No	2.3
SP10	Walton Bridge Road	Roadside	509125	166862	NO_2	Yes, Spelthorne AQMA	22.6	3.3	No	2.0
SP11	Halliford Bypass	Kerbside	509033	168146	NO_2	Yes, Spelthorne AQMA	14.8	1.4	No	2.3
SP12	Stanwell New Road, Stanwell North	Urban Background	504538	172318	NO_2	Yes, Spelthorne AQMA	7.0	1.4	No	2.3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SP14	Flintlock Close, Stanwell	Urban Background	504228	175098	NO_2	Yes, Spelthorne AQMA	12.0	1.6	No	2.3
SP16, SP17, SP18	Oaks Road, Stanwell	Urban Background	505729	174496	NO_2	Yes, Spelthorne AQMA	25.0	1.4	Yes	2.5
SP19	Bedfont Road, Stanwell	Roadside	506856	174247	NO_2	Yes, Spelthorne AQMA	21.0	1.9	No	2.3
SP20	Greenlands Rd, Staines	Urban Background	504334	171845	NO_2	Yes, Spelthorne AQMA	9.0	0.5	No	2.5
SP23	Greeno Crescent, Shepperton	Urban Background	507525	167662	NO_2	Yes, Spelthorne AQMA	22.0	2.7	No	2.4
SP24	Yeoveney Close, Staines	Urban Background	502577	172777	NO_2	Yes, Spelthorne AQMA	6.5	1.4	No	2.2
SP26	St Mary's Crescent, Staines	Urban Background	505635	173949	NO_2	Yes, Spelthorne AQMA	10.0	0.7	No	2.2
SP27	Church Street, Staines	Roadside	503287	171744	NO_2	Yes, Spelthorne AQMA	0.5	1.8	No	2.3
SP28	London Road, Staines	Roadside	504291	171926	NO_2	Yes, Spelthorne AQMA	12.4	2.3	No	2.3
SP29	London Road, Staines	Kerbside	504381	171975	NO_2	Yes, Spelthorne AQMA	7.9	1.4	No	2.1

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SP31	Ashford Hospital, Stanwell	Roadside	506265	172681	NO_2	Yes, Spelthorne AQMA	4.0	3.1	No	2.3
SP32	Feltham Road, Ashford	Kerbside	507349	171461	NO_2	Yes, Spelthorne AQMA	16.0	1.8	No	2.4
SP33	Ford Close, Ashford	Roadside	506340	170926	NO_2	Yes, Spelthorne AQMA	21.0	3.1	No	2.4
SP34	School Road, Ashford	Roadside	507936	170518	NO_2	Yes, Spelthorne AQMA	12.5	2.4	No	2.2
SP35	Vicarage Road, Sunbury	Roadside	510028	170200	NO_2	Yes, Spelthorne AQMA	17.4	0.6	No	2.2
SP36	St Ignatius School, Sunbury	Roadside	510104	169508	NO_2	Yes, Spelthorne AQMA	29.0	1.6	No	2.3
SP38	Laleham C of E Primary, Laleham	Roadside	505289	168995	NO_2	Yes, Spelthorne AQMA	17.0	2.8	No	2.0
SP39	Knowle Green, Staines	Urban Background	504508	171200	NO_2	Yes, Spelthorne AQMA	17.0	37.0	No	2.2
SP41	Green Street, Sunbury	Kerbside	510404	168675	NO_2	Yes, Spelthorne AQMA	4.0	0.5	No	2.2
SP43, SP44, SP45	The Haven, Sunbury	Urban Background	510063	170201	NO_2	Yes, Spelthorne AQMA	19.0	21.0	Yes	2.1

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SP46	South Street, Staines	Roadside	503759	171423	NO_2	Yes, Spelthorne AQMA	0.0	1.0	No	2.2
SP47	Hadrian Way, Stanwell	Urban Background	506194	173445	NO_2	Yes, Spelthorne AQMA	8.0	1.6	No	2.2
SP48	Riverside Road, Stanwell	Kerbside	506010	174516	NO_2	Yes, Spelthorne AQMA	16.0	0.2	No	2.2
SP49	Runnymede Cottages, Moor Lane, Staines	Urban Background	502605	173274	NO_2	Yes, Spelthorne AQMA	0.0	7.5	No	2.2
SP50	Waterside Close, Shepperton	Roadside	508364	169648	NO_2	Yes, Spelthorne AQMA	12.8	1.3	No	2.3
SP51	Fairfield Avenue, Staines	Roadside	504087	171832	NO_2	Yes, Spelthorne AQMA	0.0	4.6	No	2.0
SP52	Staines Road East, Sunbury	Roadside	510512	170012	NO_2	Yes, Spelthorne AQMA	22.0	1.7	No	2.2
SP53	Chertsey Bridge Road	Roadside	505791	166791	NO_2	Yes, Spelthorne AQMA	7.5	1.6	No	2.4
SP54	Russell Road, Shepperton	Kerbside	508493	166841	NO_2	Yes, Spelthorne AQMA	6.0	0.5	No	2.4
SP55	Green Lane, Shepperton	Kerbside	508994	167573	NO_2	Yes, Spelthorne AQMA	20.0	1.8	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SP56	Shepherds Close	Urban Background	507587	167445	NO_2	Yes, Spelthorne AQMA	7.5	1.6	No	2.3
SP58	Sunbury Cross (east)	Kerbside	510090	170100	NO_2	Yes, Spelthorne AQMA	N/A	2.4	No	2.4
SP59	High Street, Shepperton (Village Hall)	Roadside	508042	167239	NO_2	Yes, Spelthorne AQMA	9.1	0.6	No	2.4
SP60	Stanwell Moor Road	Roadside	504722	174545	NO_2	Yes, Spelthorne AQMA	N/A	2.2	No	2.2
SP61	Horton Road	Roadside	504426	174580	NO_2	Yes, Spelthorne AQMA	13.8	1.6	No	2.2
SP62	Park Road, Stanwell	Roadside	505397	174237	NO_2	Yes, Spelthorne AQMA	8.8	1.4	No	2.3
SP63	Northumberland Close	Urban Background	506442	174275	NO_2	Yes, Spelthorne AQMA	8.4	1.8	No	2.3
SP64	London Road (junction with Short Lane)	Roadside	506924	172968	NO_2	Yes, Spelthorne AQMA	N/A	3.6	No	2.3
SP65	Spout Lane	Kerbside	504469	175169	NO_2	Yes, Spelthorne AQMA	N/A	1.5	No	2.4
SP66	Springfields School, Nursery Road,	Roadside	509622	169438	NO_2	Yes, Spelthorne AQMA	18.0	5.9	No	2.3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SP67	Thames Street, Sunbury on Thames	Roadside	511004	168701	NO_2	Yes, Spelthorne AQMA	0.0	1.8	No	2.1
SP68	Laleham Road, Shepperton	Roadside	506679	168085	NO_2	Yes, Spelthorne AQMA	22	2.5	No	2.1
SP69	Squires Bridge Road	Roadside	507310	168695	NO_2	Yes, Spelthorne AQMA	10	2.1	No	2.1

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_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
BAA_Oaks	505729	174496	Urban Background	95	95	26.3	16.8	18.1	20.3	20
SUN_01	510063	170204	Urban Background	83	83	33.1	23	22.9	24.1	19.6
SCC_ECO	509155	169228	Urban Background	90	68	17.1	17.6	15.2	16.6	13.0(3)

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

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

☐ **Where exceedances of the NO_2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023.**

Notes:

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

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

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%).

(3) Annual mean has been adjusted with Local continuous monitoring for nitrogen dioxide (i.e. Heathrow Oaks Road, Hounslow Feltham, Hounslow Hatton Cross, and Spelthorne Sunbury Cross)- Average Ratio (Ra) was 1.013.

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
SP1	503529	171619	Urban Centre	75	75	27.5	16.8	17.5	18.9	20.3
SP3	503097	171931	Kerbside	90.4	90.4	30.4	21.2	23.6	21.8	-
SP4	510052	169843	Roadside	83	83	26.3	19.5	20.9	20.7	23.3
SP5	506967	171562	Roadside	100	100	**40.7**	27.2	27.6	26.7	23.8
SP6	508763	170900	Urban Background	100	100	25.2	17.8	18.6	17.5	16.2
SP9	509166	170260	Kerbside	100	100	**40.8**	26.9	28.8	27.3	24.2
SP10	509125	166862	Roadside	100	100	37.4	24.5	28.7	27.9	22.8
SP11	509033	168146	Kerbside	100	100	34.0	23.6	25.4	25.2	23.5
SP12	504538	172318	Urban Background	100	100	29.4	18.6	20.9	20.5	18.8
SP14	504228	175098	Urban Background	100	100	28.0	16.2	18.3	21.0	17.6
SP16, SP17, SP18	505729	174496	Urban Background	100	100	29.2	17.4	18.5	20.3	19.7
SP19	506856	174247	Roadside	50	50	35.8	22.6	23.1	24.7	21.8
SP20	504334	171845	Urban Background	100	100	30.9	20.0	21.1	20.6	18.6
SP23	507525	167662	Urban Background	100	100	25.9	16.6	17.0	19.1	14.9
SP24	502577	172777	Urban Background	92	92	28.1	17.7	18.6	17.3	18.3
SP26	505635	173949	Urban Background	83	83	31.9	19.9	21.5	22.3	23.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
SP27	503287	171744	Roadside	100	100	34.2	19.7	23.4	21.9	22.4
SP28	504291	171926	Roadside	92	92	**42.4**	29.2	28.0	28.0	25.7
SP29	504381	171975	Kerbside	100	100	**50.8**	30.1	34.8	29.7	27.7
SP31	506265	172681	Roadside	100	100	34.8	23.0	25.3	24.8	23.6
SP32	507349	171461	Kerbside	100	100	31.0	21.8	22.4	22.5	19.2
SP33	506340	170926	Roadside	83	83	31.9	22.7	22.7	24.1	21.1
SP34	507936	170518	Roadside	92	92	38.6	23.9	29.1	27.1	24.1
SP35	510028	170200	Roadside	92	92	**41.6**	27.4	27.3	25.9	24.3
SP36	510104	169508	Roadside	92	92	34.6	24.4	26.7	24.2	21.8
SP38	505289	168995	Roadside	100	100	22.5	14.6	16.7	16.7	13.9
SP39	504508	171200	Urban Background	83	83	25.3	17.4	18.4	16.7	16.7
SP41	510404	168675	Kerbside	100	100	29.6	20.7	21.4	20.2	18.3
SP43, SP44, SP45	510063	170201	Urban Background	92	92	33.4	22.7	22.4	23.5	20.2
SP46	503759	171423	Roadside	100	100	32.9	23.2	22.6	23.1	21.3
SP47	506194	173445	Urban Background	100	100	25.7	16.8	18.5	18.2	15.6
SP48	506010	174516	Kerbside	92	92	35.5	21.3	23.0	24.1	25.3
SP49	502605	173274	Urban Background	92	92	35.6	21.8	22.6	25.8	19.3

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
SP50	508364	169648	Roadside	75	75	37.4	24.6	25.1	29.8	18.4
SP51	504087	171832	Roadside	50	50	**41.0**	26.1	30.1	30.3	26.2
SP52	510512	170012	Roadside	100	100	37.3	24.1	24.5	25.0	23.1
SP53	505791	166791	Roadside	83	83	34.7	23.4	23.6	23.5	21.3
SP54	508493	166841	Kerbside	100	100	31.0	20.0	21.4	25.3	19.1
SP55	508994	167573	Kerbside	100	100	38.8	25.2	25.9	27.0	25.3
SP56	507587	167445	Urban Background	100	100	23.0	14.9	16.0	17.8	14.5
SP58	510090	170100	Kerbside	100	100	**51.1**	35.8	35.1	31.4	32.5
SP59	508042	167239	Roadside	100	100	27.9	20.4	20.5	20.5	24.7
SP60	504722	174545	Roadside	100	100	**57.0**	36.1	37.2	**40.8**	29.1
SP61	504426	174580	Roadside	100	100	31.2	18.9	19.6	20.4	16.7
SP62	505397	174237	Roadside	100	100	29.7	18.2	20.0	22.2	20.6
SP63	506442	174275	Urban Background	100	100	**40.2**	24.7	25.5	25.8	26.0
SP64	506924	172968	Roadside	100	100	32.3	23.5	23.2	23.4	19.7
SP65	504469	175169	Kerbside	100	100	34.6	21.2	22.5	23.4	22.5
SP66	509622	169438	Roadside	92	92	-	-	20.0	20.2	17.7
SP67	511004	168701	Roadside	67	67	-	-	-	-	22.0
SP68	506679	168085	Roadside	83	83	-	-	-	-	18.2

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
SP69	507310	168695	Roadside	75	75	-	-	-	-	18.3

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

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

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

Notes:

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

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

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

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

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

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

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

Figure A. 1– Trends in Annual Mean NO_2 Concentrations

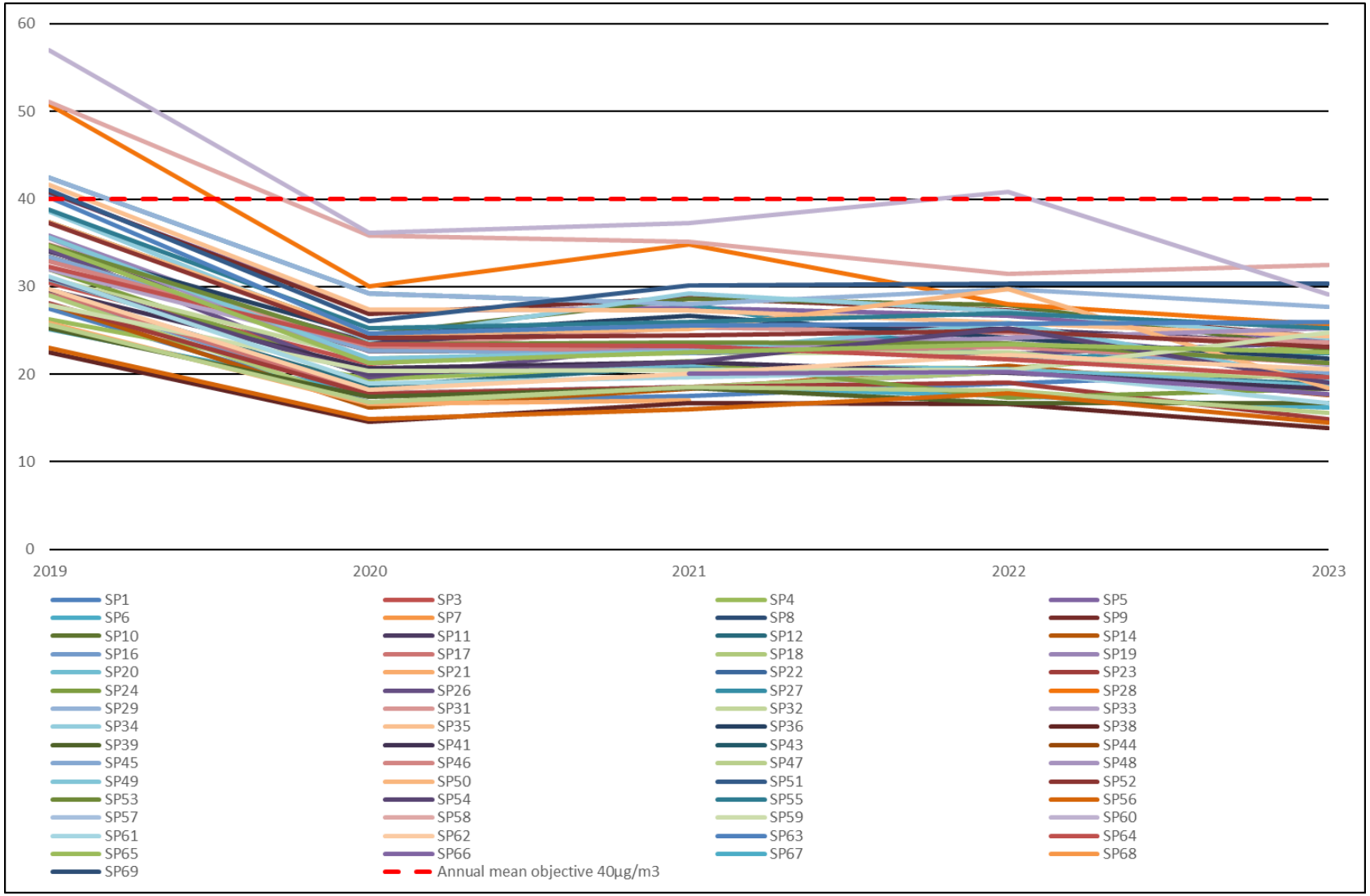


Figure A. 2 – Trends in Exceedance of Annual Mean PM_{10}

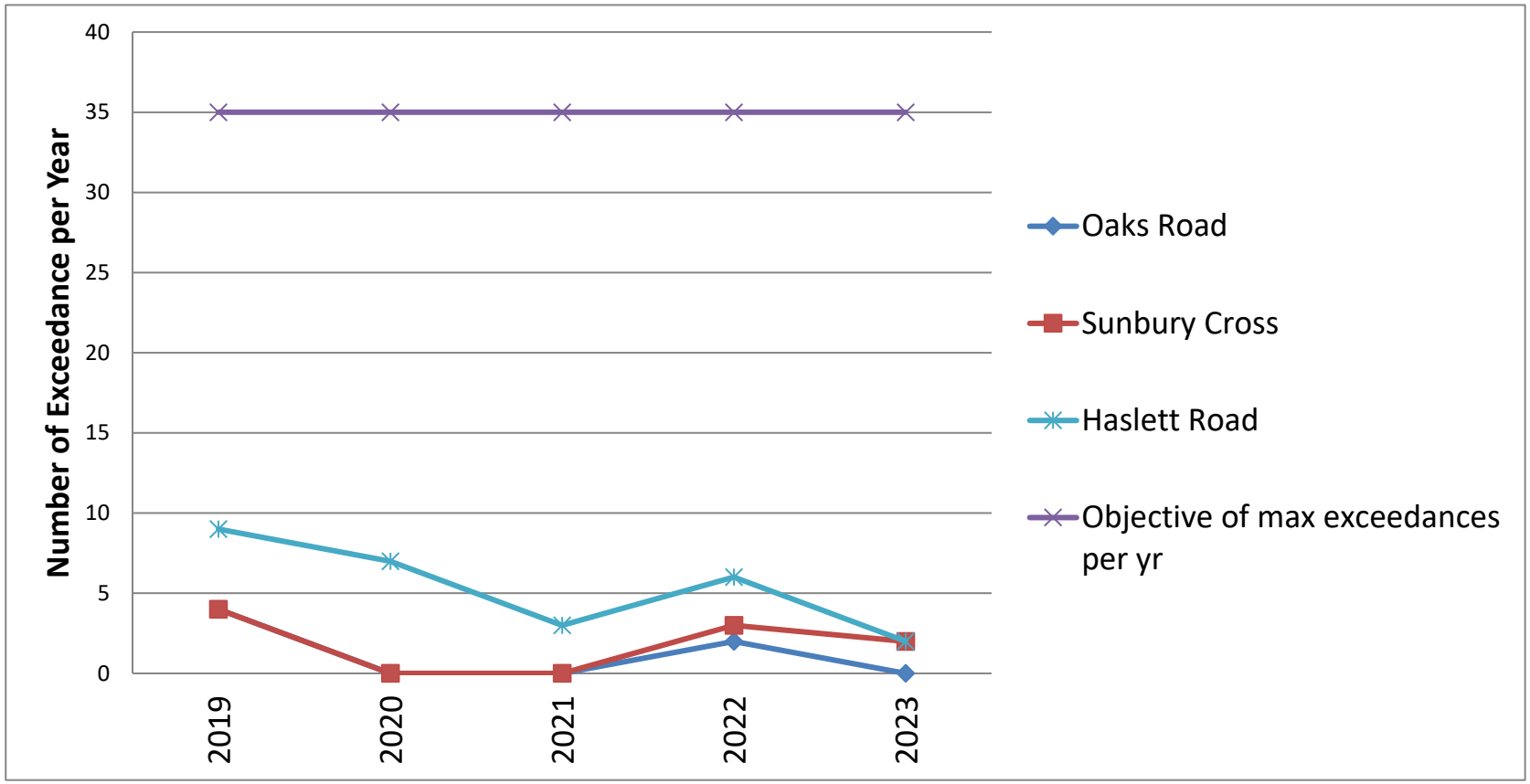


Figure A. 3– Trends in Annual Mean NO_2 Concentrations Non-Automatic Monitoring Sites in Ashford

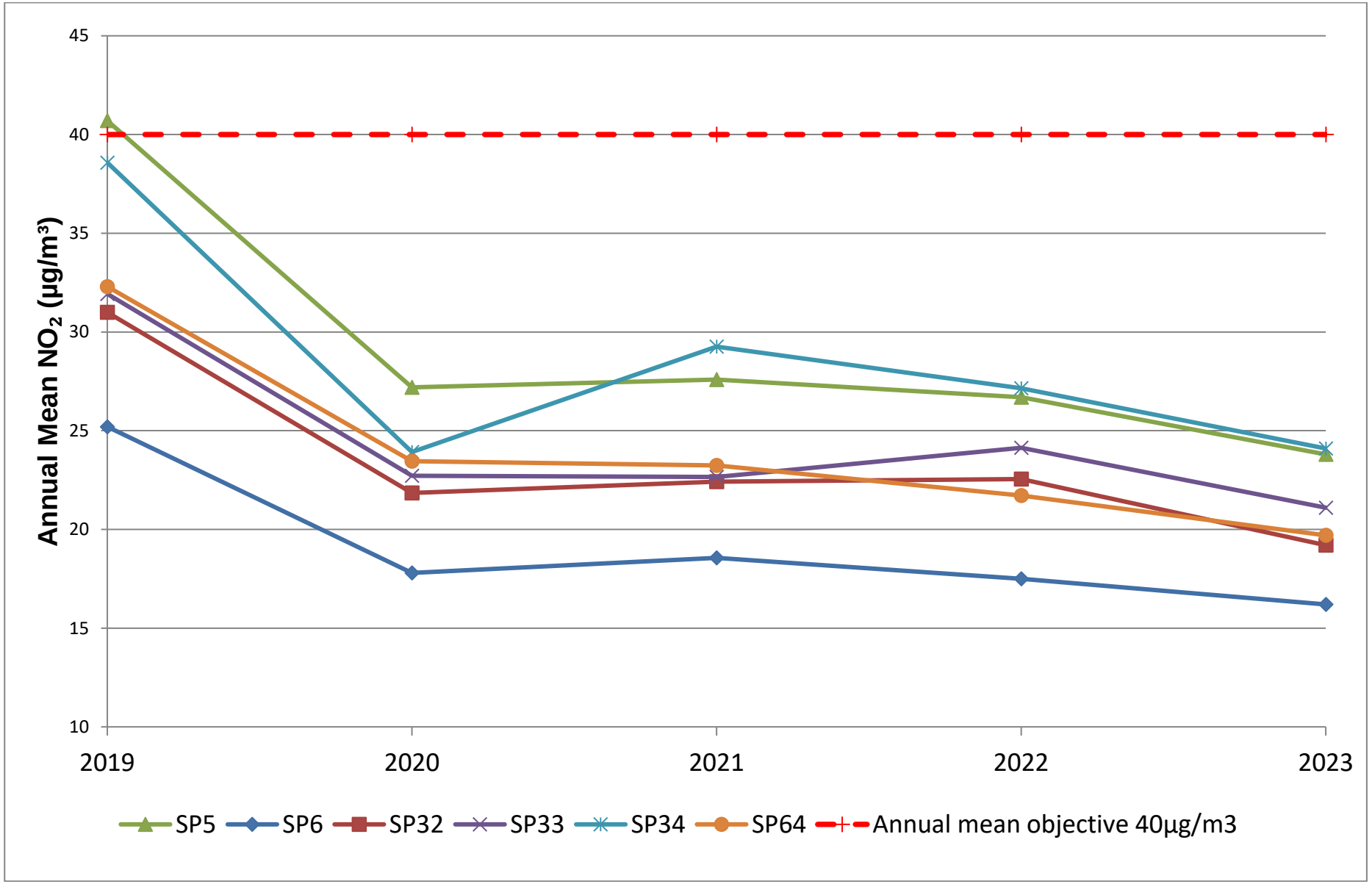


Figure A. 4– Trends in Annual Mean NO_2 Concentrations Non-Automatic Monitoring Sites in Shepperton

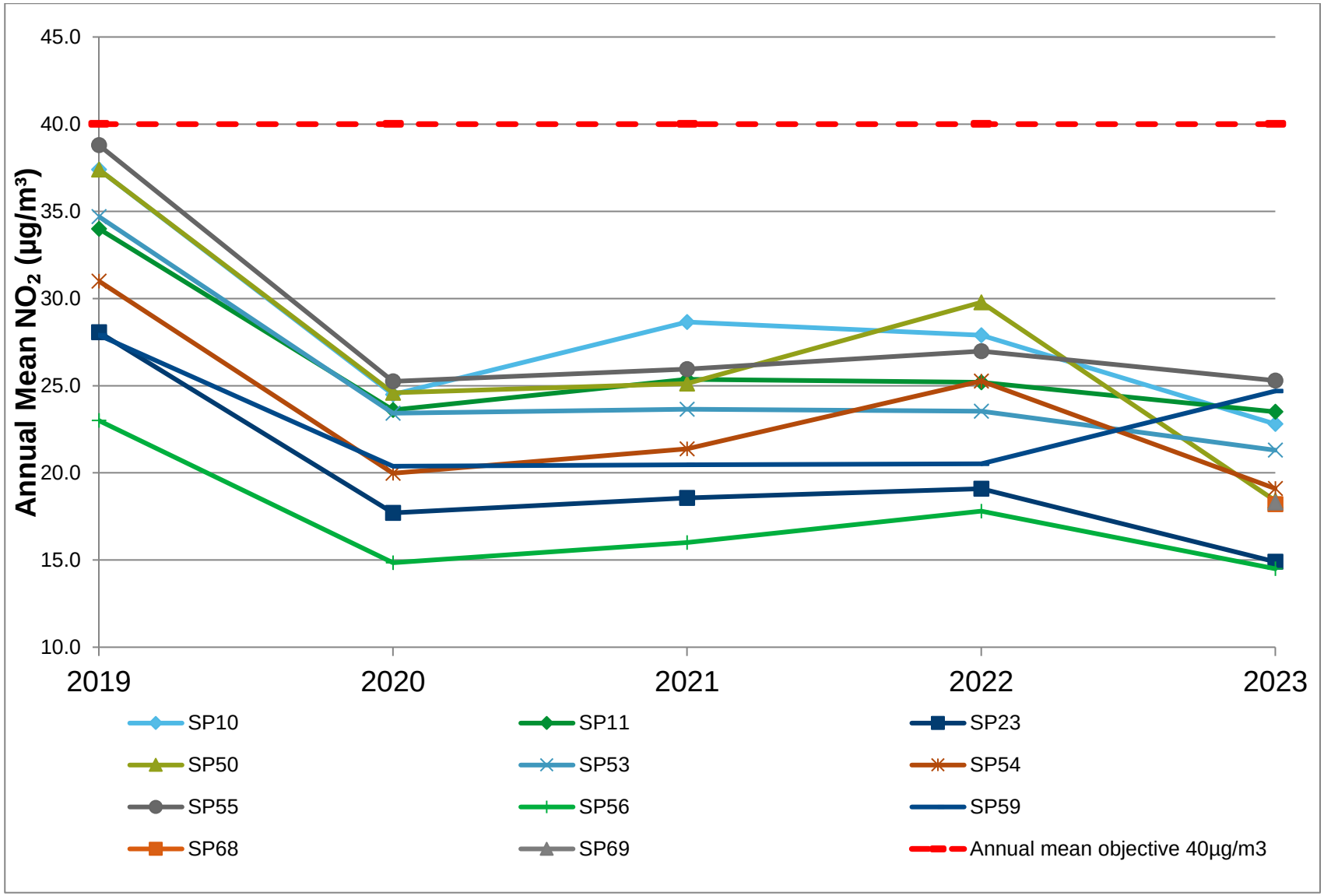


Figure A. 5 – Trends in Annual Mean NO_2 Concentrations Non-Automatic Monitoring Sites in Staines-upon-Thames

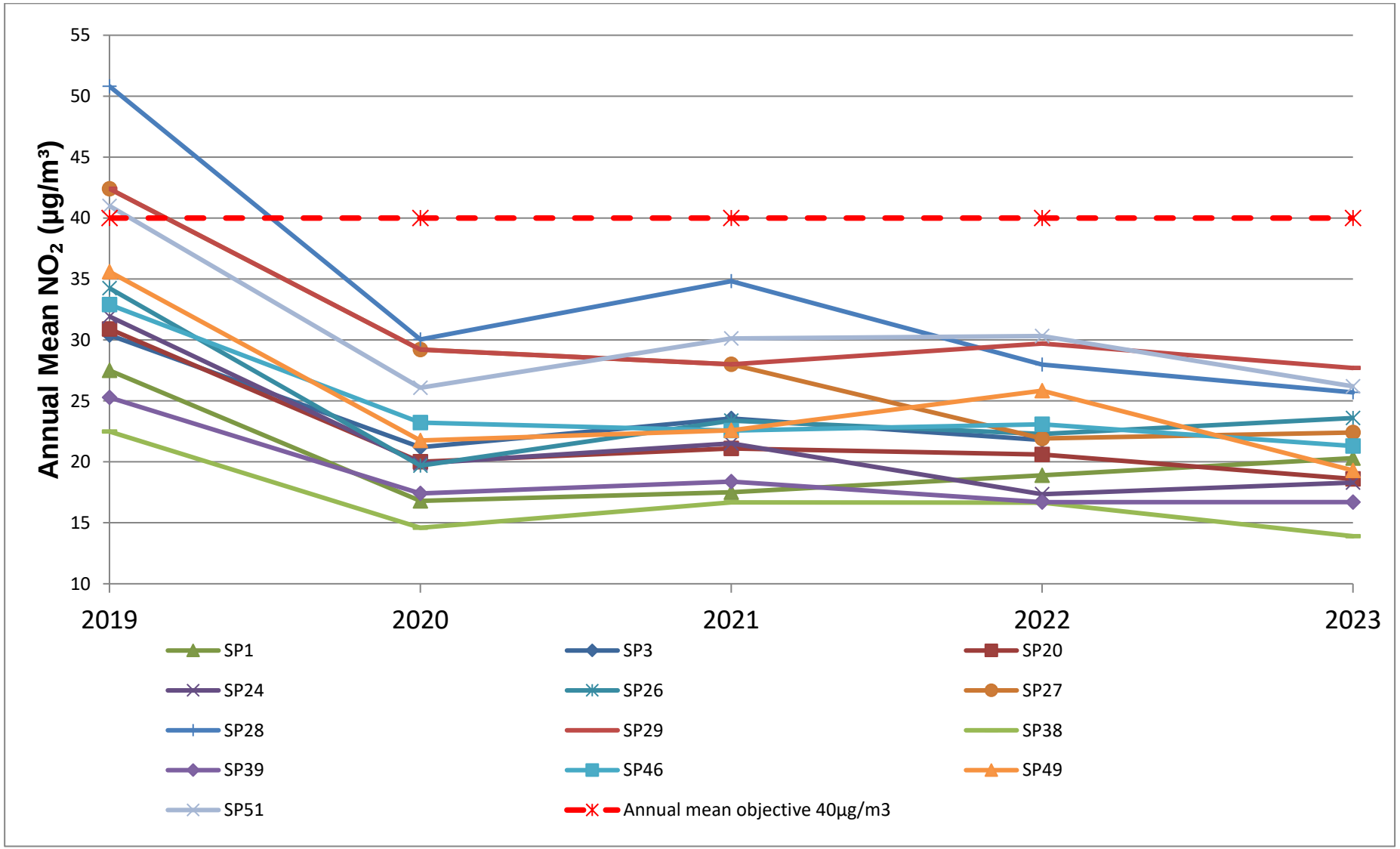


Figure A. 6 – Trends in Annual Mean NO_2 Concentrations Non-Automatic Monitoring Sites in Sunbury on Thames

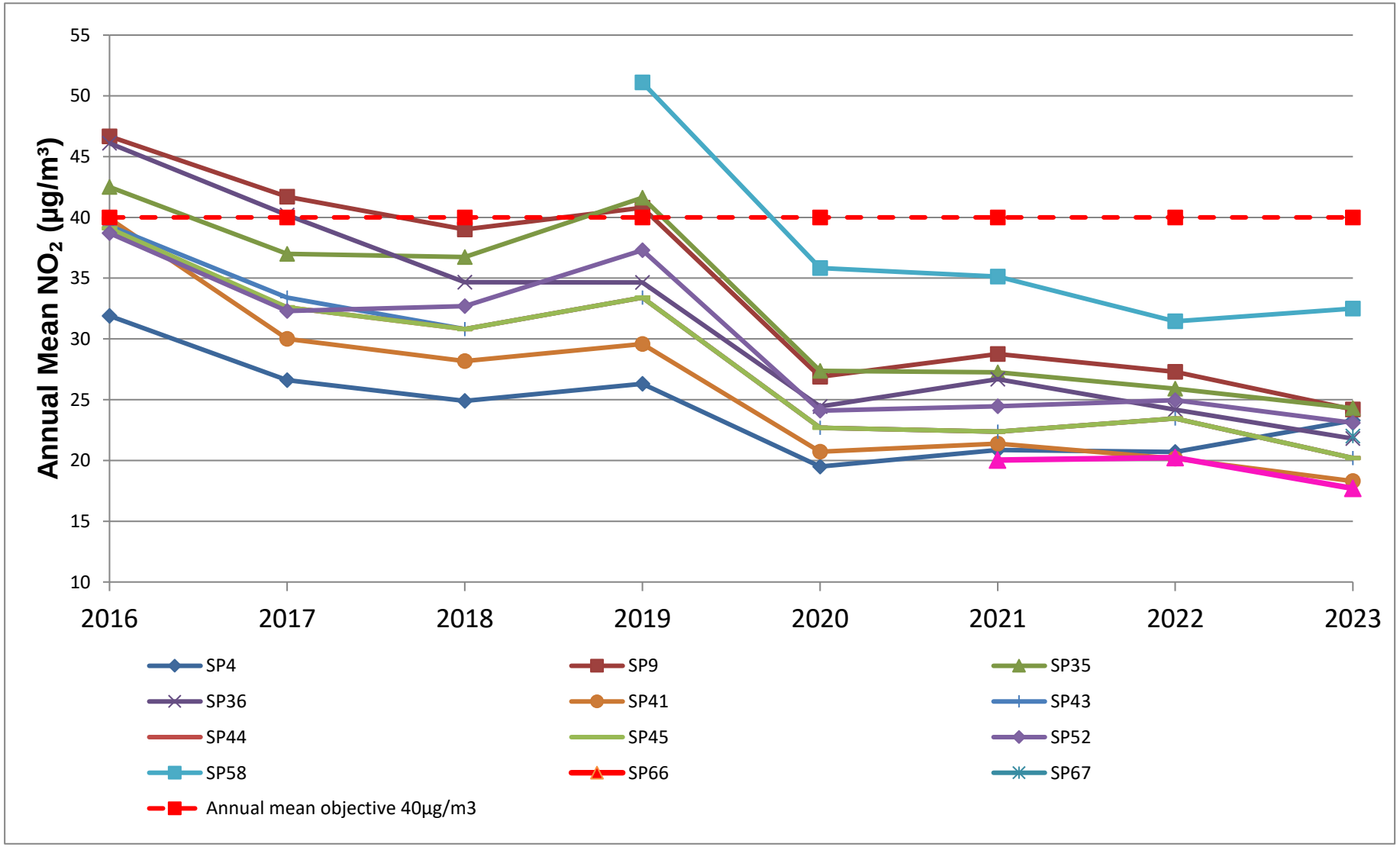


Figure A. 7– Trends in Annual Mean NO_2 Concentrations Non-Automatic Monitoring Sites in Stanwell and Stanwell Moor

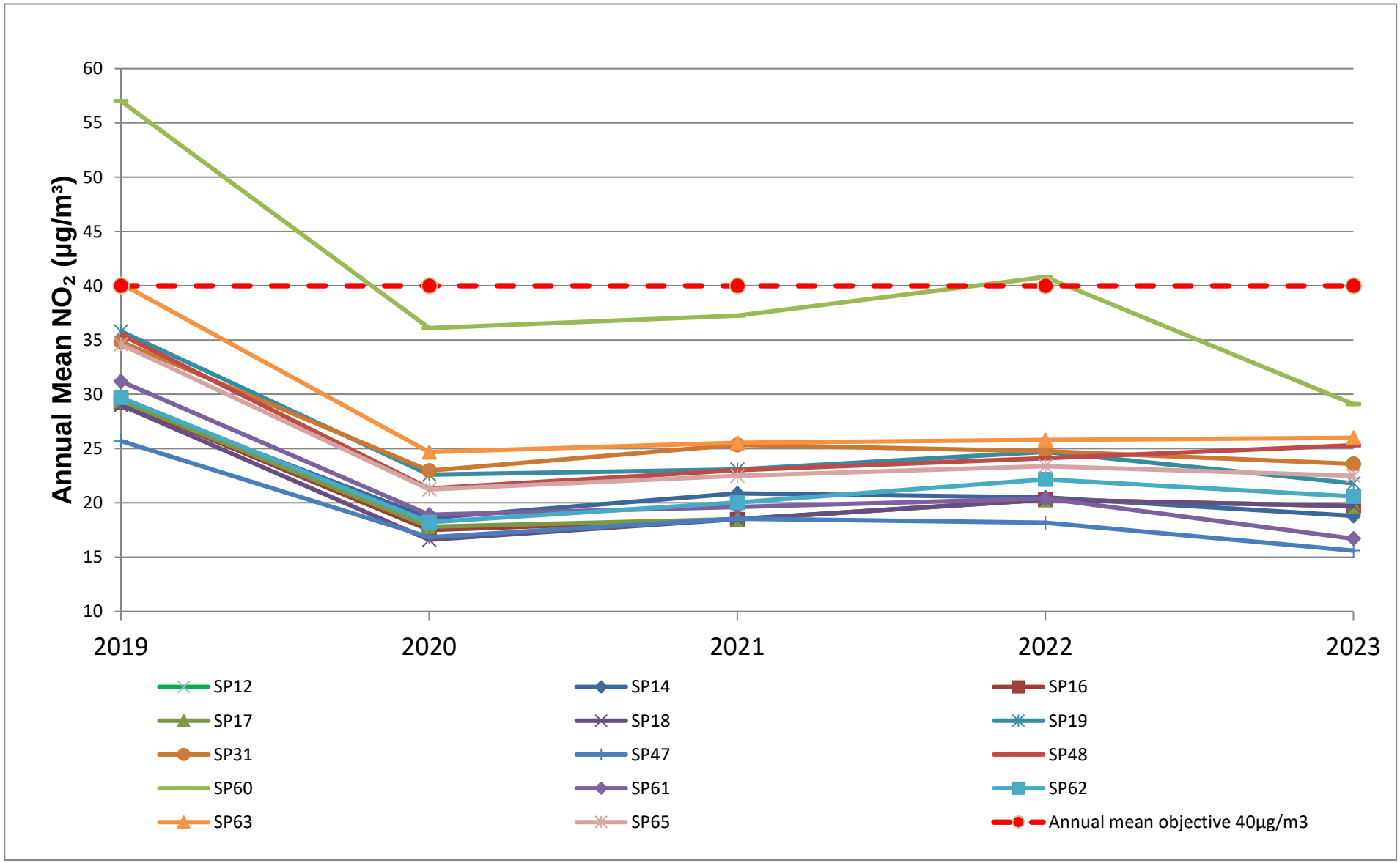


Figure A. 8 – Trends in Annual Mean NO_2 Concentrations Automatic Monitoring Stations

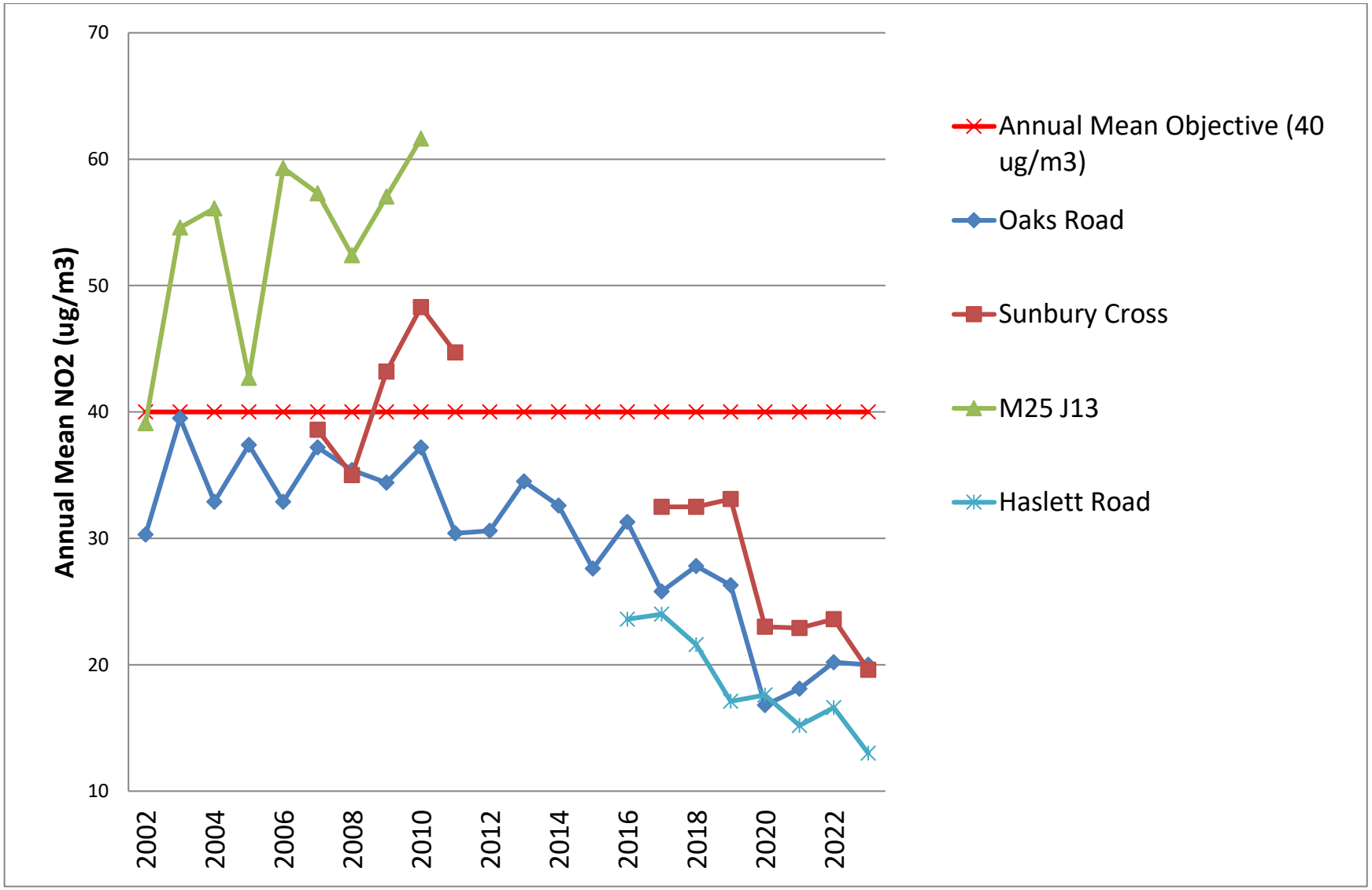


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

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
BAA_Oaks	505729	174496	Urban Background	95	95	0	0	0	0	0
SUN_01	510063	170204	Urban Background	83	83	0	0	0	0	0
SCC_ECO	509155	169228	Urban Background	90	68	2	1	0	7	0

Notes:

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

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

(3) BAA_Oaks and SUN_01 data is collected on a FIDAS instrument, SCC_ECO data is collected on a BAM instrument.

Figure A. 9 – Trends in Number of NO_2 1-Hour Means > 200µg/m^3

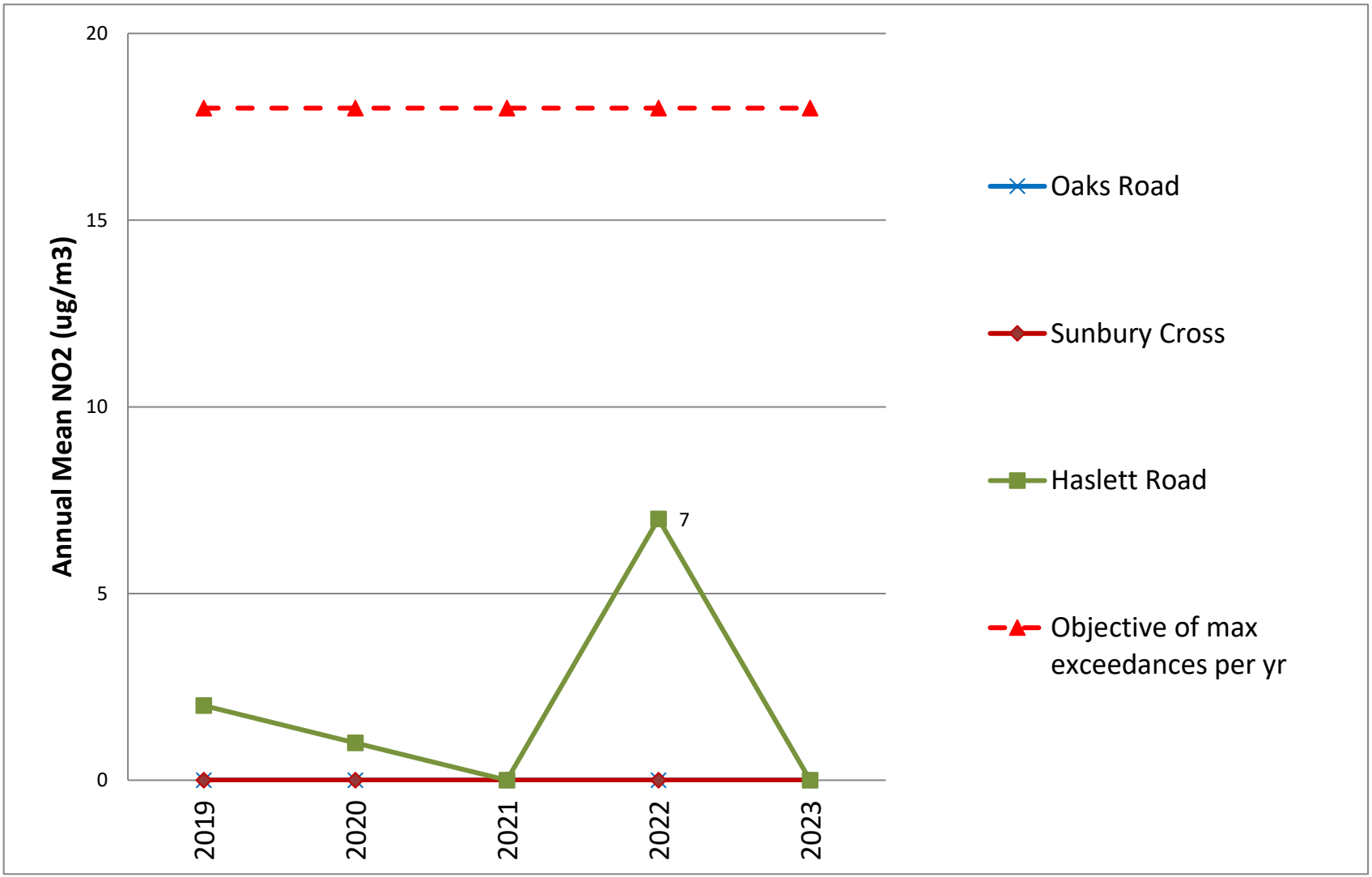


Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

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
BAA_Oaks	505729	174496	Urban Background	99	99	14.9	12.7	12.3	13.2	12.1
SUN_01	510063	170204	Urban Background	79	79	15.7	14.2	13.2	15.7	13.9
SCC_ECO	509155	169228	Urban Background	96	72	24.6	20.7	19.2	23.8	17.7(3)

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

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

Exceedances of the PM_{10} annual mean objective of $40\mu g/m^3$ are shown in **bold**.

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

(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%).

(3) BAA_Oaks and SUN_01 data is collected on a FIDAS instrument, SCC_ECO data is collected on a BAM instrument. Annual mean has been adjusted using Local continuous monitoring (i.e. Heathrow Oaks Road, Hounslow Feltham, Hounslow Hatton Cross, and Spelthorne Sunbury Cross)- Average Ratio (Ra) was 0.971.

Figure A. 10 – Trends in Annual Mean PM_{10} Concentrations

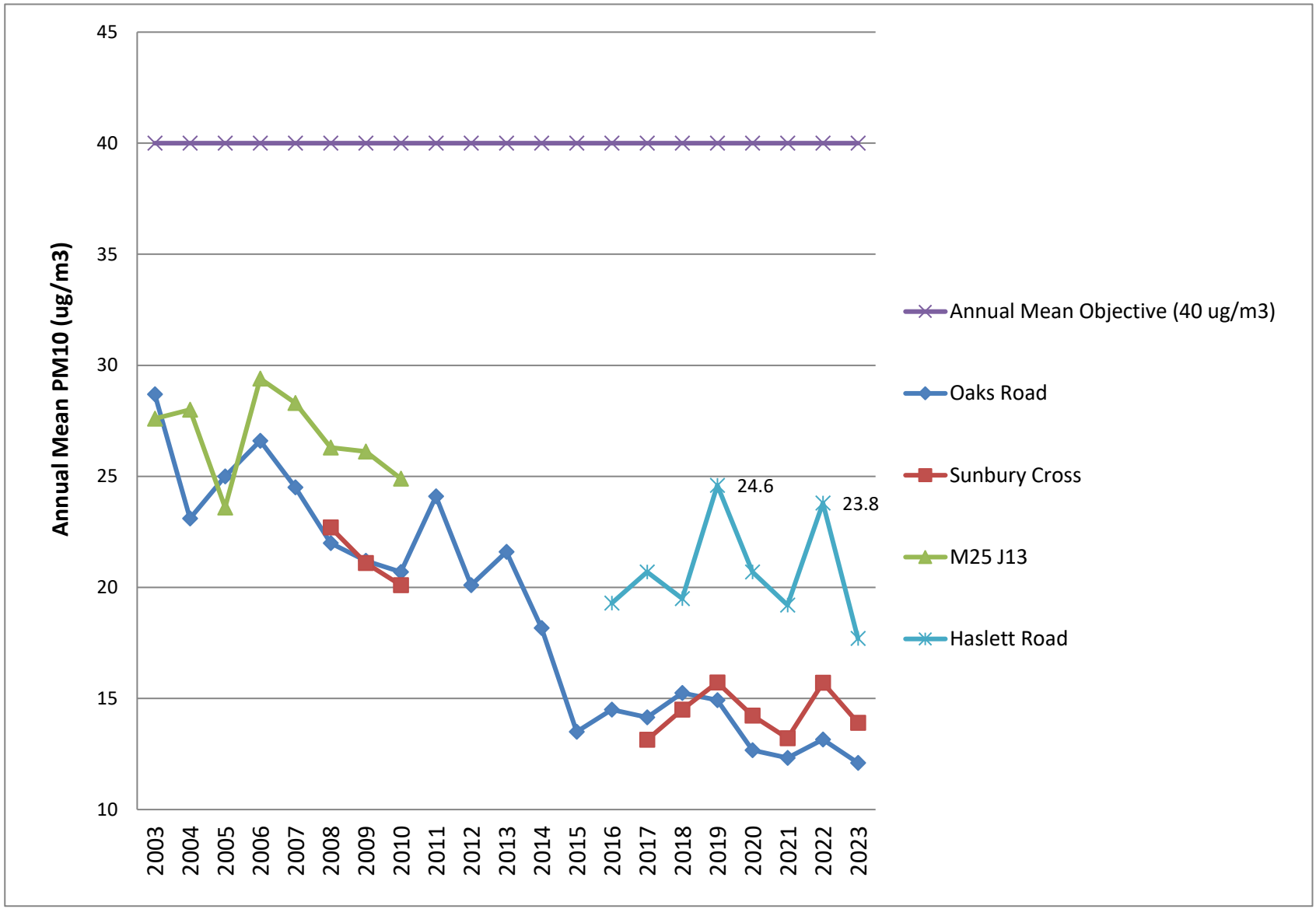


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

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
BAA_Oaks	505729	174496	Urban Background	99	99	4	0	0	2	0
SUN_01	510063	170204	Urban Background	79	79	4	1	0	3	2
SCC_ECO	509155	169228	Urban Background	96	72	9	7	3	6	2

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

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

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

(3) BAA_Oaks and SUN_01 data is collected on a FIDAS instrument, SCC_ECO data is collected on a BAM instrument.

Figure A. 11– Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m^3

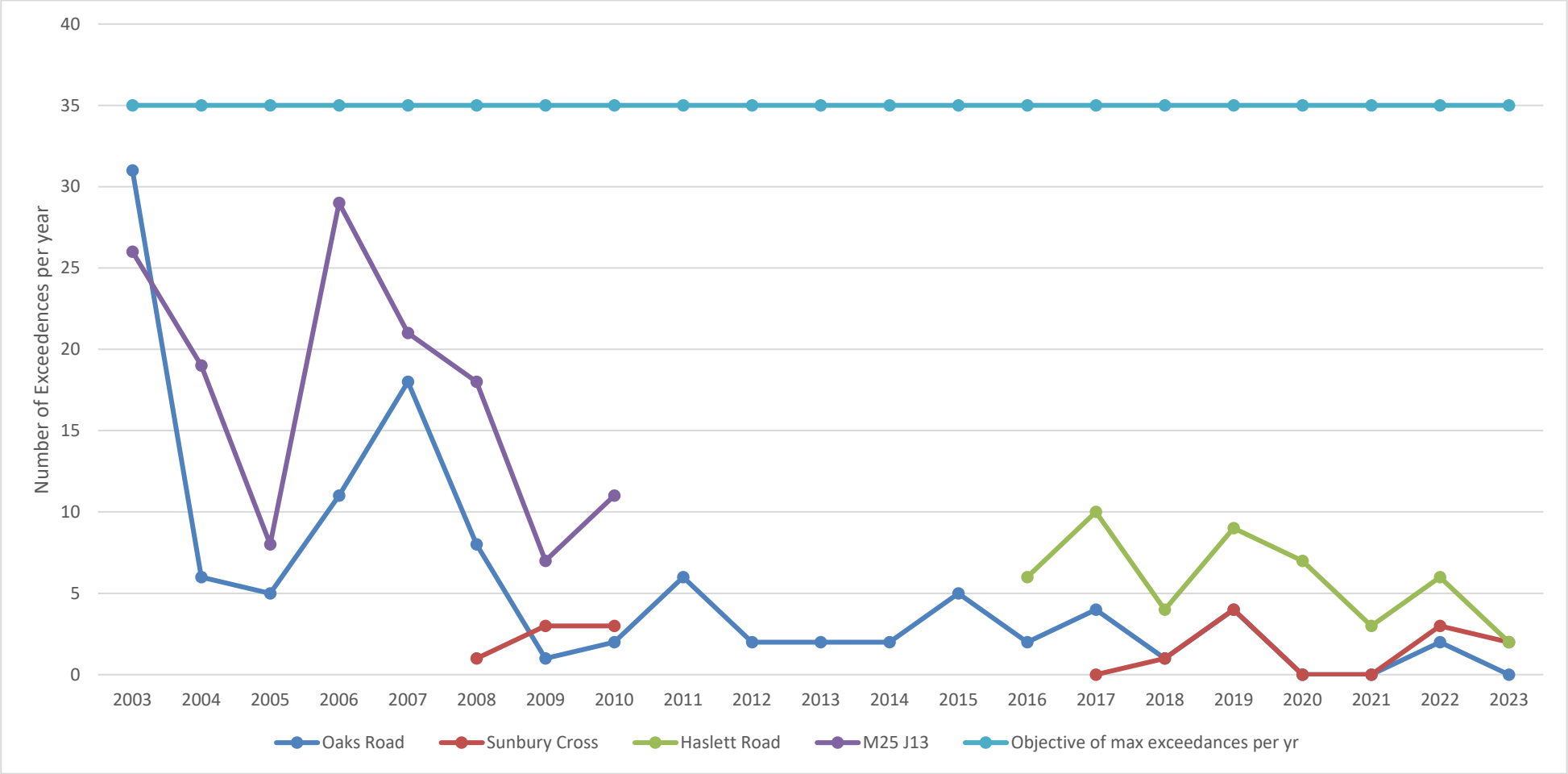


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

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
BAA_Oaks	505729	174496	Urban Background	99	99	9.5	7.2	7.5	7.8	7.2
SUN_01	510063	170204	Urban Background	79	79	9.9	8.3	8.1	9.2	8.0
SCC_ECO	509155	169228	Urban Background	94	71	12.9	12.2	11	12.4	9.3 (4)

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

Notes:

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

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.

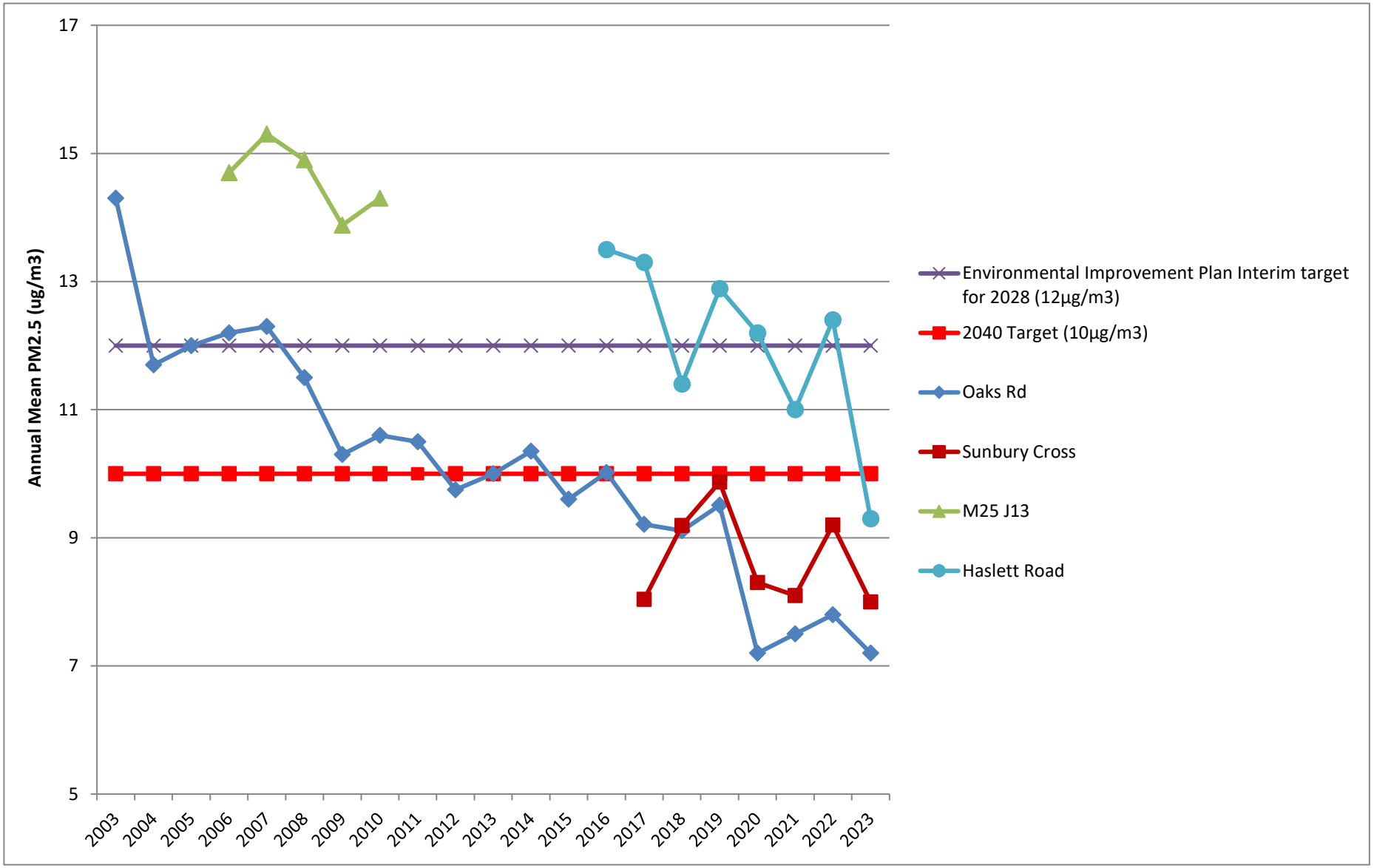
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(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%).

(3) BAA_Oaks and SUN_01 data is collected on a FIDAS instrument, SCC_ECO data is collected on a BAM instrument.

(4) Annual mean has been adjusted using Local continuous monitoring (i.e. Heathrow Oaks Road and Spelthorne Sunbury Cross)-Average Ratio (Ra) was 0.973).

Figure A. 12 – Trends in Annual Mean $PM_{2.5}$ Concentrations.



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.84)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SP1	503529	171619	30.0	32.0	22.0	25.0		18.0	15.0	24.0	29.0	23.0			24.2	20.3		
SP4	510032	169802	29.0	36.0	29.0	32.0	26.0	28.0	21.0	20.0			33.0	25.0	27.9	23.3		
SP5	506967	171562	36.0	35.0	29.0	32.0	25.0	18.0	20.0	23.0	35.0	31.0	32.0	26.0	28.5	23.8		
SP6	508763	170900	25.0	24.0	19.0	20.0	16.0	17.0	16.0	13.0	21.0	20.0	24.0	17.0	19.3	16.2		
SP9	509166	170260	31.0	36.0	27.0	32.0	29.0	25.0	20.0	23.0	32.0	32.0	35.0	25.0	28.9	24.2		
SP10	509125	166862	31.0	26.0	30.0	33.0	30.0	25.0	19.0	23.0	28.0	31.0	28.0	23.0	27.3	22.8		
SP11	509033	168146	33.0	37.0	28.0	27.0	27.0	25.0	20.0	23.0	32.0	30.0	32.0	23.0	28.1	23.5		
SP12	504538	172318	27.0	30.0	22.0	23.0	23.0	21.0	16.0	15.0	25.0	24.0	27.0	17.0	22.5	18.8		
SP14	504228	175098	18.0	23.0	21.0	18.0	20.0	24.0	19.0	22.0	25.0	24.0	22.0	16.0	21.0	17.6		
SP16	505729	174496	26.0	30.0	24.0	28.0	21.0	29.0	21.0	19.0	23.0		25.0	11.0	23.4	19.6		Triplicate co-located at Oaks Road, Stanwell
SP17	505729	174496	23.0	28.0	22.0	27.0	31.0	26.0	19.0	22.0	23.0	29.0	24.0	12.0	23.8	20.0		Triplicate co-located at Oaks Road, Stanwell
SP18	505729	174496	20.0	29.0	20.0	22.0	32.0	26.0	20.0	18.0	23.0	25.0	26.0	16.0	23.1	19.4		Triplicate co-located at Oaks Road, Stanwell
SP19	506856	174247		31.0		30.0				22.0	23.0	27.0		19.0	25.3	21.8		Poor data capture noted at Sunbury Cross
SP20	504334	171845	23.0	27.0	23.0	24.0	23.0	23.0	19.0	17.0	25.0	22.0	26.0	15.0	22.3	18.6		
SP23	507525	167662	23.0	21.0	18.0	18.0	12.0	18.0	16.0	12.0	18.0	19.0	22.0	16.0	17.8	14.9		
SP24	502577	172777	28.0		34.0	22.0	19.0	17.0	18.0	13.0	23.0	22.0	26.0	18.0	21.8	18.3		
SP26	505635	173949	28.0	33.0		31.0	44.0	28.0	21.0	16.0	26.0	25.0	30.0		28.2	23.6		
SP27	503287	171744	30.0	32.0	26.0	24.0	26.0	27.0	23.0	24.0	30.0	31.0	29.0	19.0	26.8	22.4		
SP28	504291	171926	31.0	39.0	33.0	33.0	40.0	27.0	21.0	26.0	31.0		36.0	21.0	30.7	25.7		
SP29	504381	171975	40.0	42.0	32.0	25.0	28.0	33.0	23.0	24.0	39.0	48.0	35.0	28.0	33.1	27.7		
SP31	506265	172681	38.0	37.0	28.0	31.0	25.0	27.0	20.0	17.0	28.0	28.0	35.0	25.0	28.3	23.6		
SP32	507349	171461	31.0	26.0	23.0	19.0	26.0	22.0	16.0	19.0	25.0	25.0	26.0	18.0	23.0	19.2		
SP33	506340	170926	31.0	33.0	25.0	17.0	24.0			19.0	30.0	26.0	28.0	19.0	25.2	21.1		
SP34	507936	170518	32.0	34.0	26.0	28.0	25.0	18.0	22.0	18.0	30.0	33.0		51.0	28.8	24.1		
SP35	510028	170200	36.0	33.0	31.0	30.0	23.0	25.0	21.0	21.0	33.0	33.0	33.0	SP1	29.0	24.3		
SP36	510104	169508		32.0	28.0	27.0	22.0	28.0	20.0	21.0	30.0	28.0	30.0	21.0	26.1	21.8		
SP38	505289	168995	20.0	19.0	15.0	17.0	18.0	16.0	15.0	12.0	19.0	17.0	21.0	10.0	16.6	13.9		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.84)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SP39	504508	171200	29.0	27.0	20.0	21.0		11.0		15.0	18.0	21.0	23.0	15.0	20.0	16.7		
SP41	510404	168675	23.0	23.0	22.0	22.0	17.0	21.0	17.0	19.0	27.0	27.0	25.0	20.0	21.9	18.3		
SP43	510063	170201	30.0		21.0	24.0	19.0	21.0	19.0	20.0	29.0	28.0	26.0	12.0	22.6	19.0		Triplicate co-located at The Haven, Sunbury Cross
SP44	510063	170201	23.0		25.0	27.0	21.0	27.0	22.0	18.0	29.0	27.0	26.0	53.0	27.1	22.8		Triplicate co-located at The Haven, Sunbury Cross
SP45	510063	170201	25.0		20.0	24.0	20.0	20.0	17.0	20.0	29.0	27.0	28.0	20.0	22.7	19.1		Triplicate co-located at The Haven, Sunbury Cross
SP46	503759	171423	29.0	33.0	24.0	23.0	26.0	26.0	17.0	21.0	28.0	30.0	29.0	20.0	25.5	21.3		
SP47	506194	173445	27.0	21.0	20.0	20.0	17.0	18.0	13.0	13.0	20.0	17.0	23.0	15.0	18.7	15.6		
SP48	506010	174516	31.0	33.0	30.0	31.0	40.0	35.0	26.0	24.0	25.0	29.0	28.0		30.2	25.3		
SP49	504722	174545	21.0	23.0	23.0	28.0	28.0	22.0	15.0	15.0	27.0	29.0	23.0		23.1	19.3		
SP50	508364	169648			19.0	20.0	30.0	23.0	17.0	21.0	28.0	23.0		17.0	22.0	18.4		
SP51	504087	171832	37.0	42.0	26.0	39.0	40.0	33.0							36.2	26.2		Poor data capture noted at Sunbury Cross
SP52	510512	170012	40.0	33.0	26.0	29.0	24.0	21.0	27.0	16.0	31.0	29.0	29.0	26.0	27.6	23.1		
SP53	505791	166791	29.0	30.0	22.0	24.0			22.0	18.0	33.0	28.0	30.0	18.0	25.4	21.3		
SP54	508493	166841	23.0	28.0	23.0	26.0	21.0	21.0	19.0	24.0	24.0	22.0	24.0	19.0	22.8	19.1		
SP55	508994	167573	31.0	28.0	29.0	38.0	30.0	34.0	26.0	28.0	36.0	31.0	30.0	22.0	30.3	25.3		
SP56	507587	167445	24.0	25.0	17.0	18.0	18.0	14.0	12.0	13.0	15.0	18.0	21.0	13.0	17.3	14.5		
SP58	510090	170100	51.0	48.0	38.0	41.0	29.0	36.0	36.0	31.0	33.0	43.0	40.0	40.0	38.8	32.5		
SP59	508007	167444	37.0	34.0	25.0	30.0	32.0	28.0	22.0	30.0	29.0	32.0	34.0	21.0	29.5	24.7		
SP60	504736	174338	32.0	41.0	36.0	45.0	48.0	44.0	26.0	30.0	40.0	31.0	28.0	16.0	34.8	29.1		
SP61	504426	174580	19.0	24.0	23.0	22.0	14.0	22.0	18.0	17.0	18.0	23.0	24.0	15.0	19.9	16.7		
SP62	505397	174237	32.0	26.0	25.0	28.0	32.0	25.0	20.0	18.0	22.0	24.0	28.0	15.0	24.6	20.6		
SP63	506442	174275	32.0	36.0	34.0	36.0	34.0	34.0	26.0	25.0	32.0	33.0	32.0	19.0	31.1	26.0		
SP64	506924	172968	25.0	26.0	26.0	27.0	25.0	19.0	17.0	20.0	25.0	26.0	31.0	16.0	23.6	19.7		
SP65	504469	175169	24.0	29.0	26.0	35.0	30.0	32.0	27.0	26.0	27.0	27.0	26.0	14.0	26.9	22.5		
SP66	509622	169438	26.0	26.0	19.0	21.0	19.0	21.0		14.0	23.0	22.0	26.0	16.0	21.2	17.7		
SP67	511004	168701			22.0	25.0	19.0			27.0	27.0	34.0	28.0	20.0	25.3	22.0		Poor data capture noted at Sunbury Cross
SP68	506679	168085			22.0	24.0	22.0	23.0	20.0	17.0	22.0	23.0	26.0	18.0	21.7	18.2		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.84)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SP69	507310	168695			25.0	25.0	27.0		19.0	15.0	24.0	16.0	27.0	19.0	21.9	18.3		

☒ **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.**

☒ **Local bias adjustment factor used.**

☐ **National bias adjustment factor used.**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

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

Notes:

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

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Spelthorne During 2023

Spelthorne Borough Council has not identified changes in sources relating to air quality within the reporting year 2023.

Additional Air Quality Works Undertaken by Spelthorne During 2023

Research

No research work was undertaken in 2023.

Source Apportionment to inform updates to the Air Quality Action Plan

The draft AQAP plus the ongoing consultation pack is available on our website[56].

QA/QC of Diffusion Tube Monitoring

All tubes used by Spelthorne Borough Council are prepared using 50% TEA in acetone and are supplied and analysed by Lambeth Scientific Services Ltd. Diffusion tubes were changed over each month within +/- 2 days of the Defra diffusion tube changeover calendar dates. As Spelthorne have a comprehensive diffusion tube network the changeover process takes 2 calendar days.

Lambeth participates in the AIR Proficiency Testing (PT) external proficiency testing scheme run by the Government[57]. Four spiked diffusion tubes are distributed to participating laboratories on a quarterly basis to assess the analytical performance of those laboratories supplying diffusion tubes to Local Authorities for use in the context of LAQM.

Table C.1 shows the results of the most recent 9 rounds of proficiency testing under AIR-PT. The table gives the % of samples where results returned by the laboratory were considered satisfactory – i.e., 1 out of 4 = 25%, and 4 out of 4 = 100%. The guidance specifies that a single round is a snapshot in time, and thus it is more informative to consider performance over several rounds. It is further stated that over a rolling five round

[56] https://spelthorne.inconsult.uk/AQAP/consultationHome

[57] Defra, 2023, QA QC Framework information available at: https://laqm.defra.gov.uk/air-quality/air-quality-assessment/qa-qc-framework/

AIRPT window, 95% of results (i.e., 19 out of 20 samples) should be considered satisfactory.

An enquiry was sent to Lambeth Scientific Services Ltd on 13 May 2024 by a third-party local authority about their AIRPT window. The laboratory confirmed on 20 May 2024, that their analytical procedures are in accordance with DEFRA guidance and remained unchanged. After reviewing the results in February 2024, additional batch were purchased from LGC. Further evaluation found results to be satisfactory. Continued quality assurance exercises are undertaken throughout the laboratory testing protocol to correct any errors noted.

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Table C.1 – Rolling average percentage of satisfactory samples in AIR-PT

Laboratory	Rolling average over 5 rounds								
	AR046	AR049	AR050	AR052	AR053	AR055	AR056	AR058	AR059
Lambeth Scientific Services	90	80	75	75	70	69	75	69	58
Gradko	80	85	100	100	100	100	100	100	100
Staffordshire County Council	90	100	100	100	100	100	100	100	100

Figure C.1 lists those UK laboratories undertaking LAQM activities that have participated in recent AIR NO2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be satisfactory based upon a z-score of ≤ ± 2 as defined above.

Figure C. 1– Screenshot of Laboratory summary performance for AIR NO2 PT rounds AR46 – AR59 (Defra, October 2023)

AIR PT Round	AIR PT AR046	AIR PT AR049	AIR PT AR050	AIR PT AR052	AIR PT AR053	AIR PT AR055	AIR PT AR056	AIR PT AR058	AIR PT AR059
Round conducted in the period	September – October 2021	January – February 2022	May – June 2022	July – August 2022	September – October 2022	January – February 2023	May – June 2023	July – August 2023	September – October 2023
Aberdeen Scientific Services	100 %	100 %	100 %	100 %	100 %	0 %	100 %	100 %	75 %
Cardiff Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Edinburgh Scientific Services	75 %	NR [2]	50 %	100 %	100 %	100 %	75 %	100 %	50 %
SOCOTEC	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]	100 % [1]
Exova (formerly Clyde Analytical)	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Glasgow Scientific Services	NR [2]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Gradko International	100 %	100 %	100 % [1]	100 %	100 %	100 %	100 %	100 %	100 %
Kent Scientific Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Kirklees MBC	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Lambeth Scientific Services	75 %	50 %	75 %	100 %	50 %	0 %	75 %	50 %	0 %
Milton Keynes Council	100 %	75 %	100 %	100 %	100 %	50 %	75 %	100 %	100 %
Northampton Borough Council	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]
Somerset Scientific Services	100 %	75 %	100 %	75 %	100 %	100 %	75 %	100 %	100 %
South Yorkshire Air Quality Samplers	100 %	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]	NR [2]
Staffordshire County Council, Scientific Services	100 %	100 %	100 %	0 %	100 %	100 %	100 %	100 %	100 %
Tayside Scientific Services (formerly Dundee CC)	100 %	NR [2]	NR [2]	100 %	100 %	NR [2]	100 %	NR [2]	NR [2]
West Yorkshire Analytical Services	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]	NR [3]

[1] Participant subscribed to two sets of test results (2 x 4 test samples) in each AIR PT round.
[2] NR, No results reported.
[3] Cardiff Scientific Services, Exova (formerly Clyde Analytical), Kent Scientific Services, Kirklees MBC, Northampton Borough Council and West Yorkshire Analytical Services; no longer carry out NO2 diffusion tube monitoring and therefore did not submit results.

Diffusion Tube Annualisation

In accordance with LAQM TG (22) annualisation was required at SP19, SP51 and SP67 due to data capture below 75% but greater than 25%. The calculation method undertaken is provided in Table C.3. Data capture at Sunbury's Cross was less than 75% therefore not suitable for the annualization process. The review has identified continuous analysers within the distances stated within the LAQM.TG (22) guidance and which are classed as background sites. The annulisation was therefore undertaken using Oaks Road, Hounslow - Feltham, Hounslow - Hatton Cross continuous analysers. These nearby, long-term, continuous monitoring sites had data capture for each of these sites of at least 85%.

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

Site ID	Annualisation Factor Oaks Road	Annualisation Factor Hounslow - Feltham	Annualisation Factor Hounslow - Hatton Cross	Raw Data Annual Mean	Annualised Annual Mean
SP19	1.0299	1.0555	1.0026	25.3	26.1
SP51	0.8166	0.8620	0.9169	36.2	31.3
SP67	1.0179	1.0616	1.0400	25.3	26.3

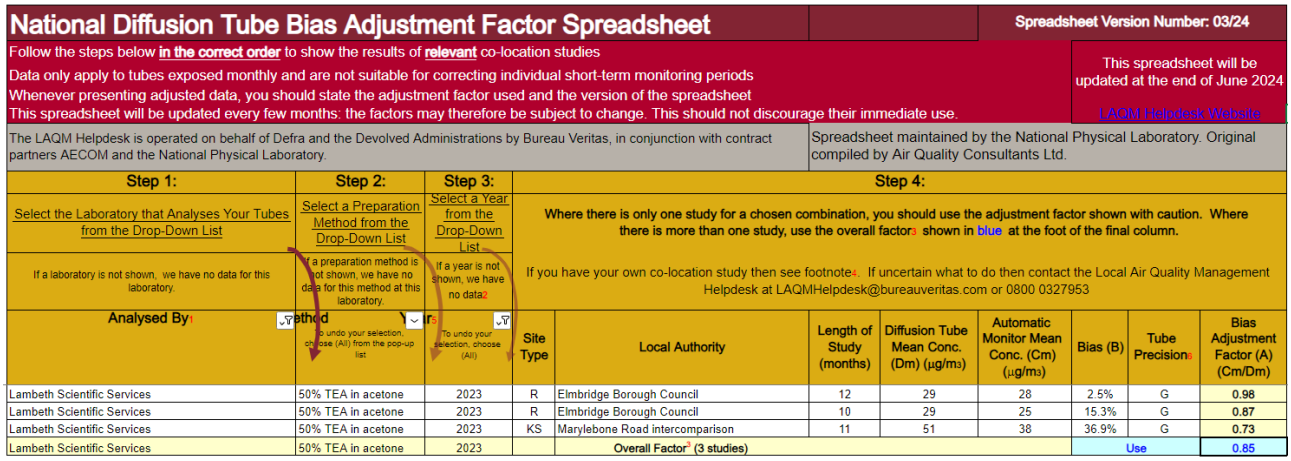
Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR has 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.

2023 National Bias Adjustment Factor:

The national bias adjustment factor for 2023 is available from the Defra website. The results of multiple co-location studies are collated, and the average bias adjustment factor is taken for studies using the 50% TEA/acetone preparation method, analysed by Lambeth Scientific. The national bias adjustment factor for 2023 (Figure C.2) is 0.85, based on 3 studies only.

Figure C. 2– National bias adjustment factor (Screenshot)



National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/24

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2024

LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data2

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor3 shown in blue at the foot of the final column.

If you have your own co-location study then see footnote4. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

Analysed By1	Method	Year5	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m3)	Automatic Monitor Mean Conc. (Cm) (µg/m3)	Bias (B)	Tube Precision6	Bias Adjustment Factor (A) (Cm/Dm)
Lambeth Scientific Services	50% TEA in acetone	2023	R	Elmbridge Borough Council	12	29	28	2.5%	G	0.98
Lambeth Scientific Services	50% TEA in acetone	2023	R	Elmbridge Borough Council	10	29	25	15.3%	G	0.87
Lambeth Scientific Services	50% TEA in acetone	2023	KS	Marylebone Road intercomparison	11	51	38	36.9%	G	0.73
Lambeth Scientific Services	50% TEA in acetone	2023		Overall Factor3 (3 studies)				Use		0.85

Bias Adjustment Factor from Local Co-location Studies: Spelthorne Borough Council has one co-location site at Sunbury Cross where triplicate diffusion tubes are co-located adjacent to the inlet of the continuous monitor, so that diffusion tube concentrations can be adjusted for bias by comparing to the more accurate continuous monitoring dataset. A spreadsheet tool for calculating the locally derived bias adjustment factor for triplicate tubes co-located at a continuous monitor is available from the Defra website.

The local bias adjustment factor for 2023 was 0.84.

Table C.4 – Local Bias Adjustment Calculation

	Local Bias Adjustment Oaks Road	Local Bias Adjustment Sunbury Cross
Periods used to calculate bias	10	8
Bias Factor A	0.82 (0.66 – 1.07)	0.85 (0.76 – 0.97)
Bias Factor B	22% (-7% - 51%)	17% (3% - 31%)
Diffusion Tube Mean (µg/m³)	24.1	23.6
Mean CV (Precision)	7.5%	9.2%
Automatic Mean (µg/m³)	19.8	20.2
Data Capture	100%	97%
Adjusted Tube Mean (µg/m³)	20 (16 – 26)	20 (18 – 23)

Discussion of Choice of Factor to Use: A query was raised with the LAQM helpdesk regarding the approach of using a locally derived factor and Spelthorne was advised to include the reasoning for using a local factor within the ASR.

Table C.5 details both the local and national bias adjustment factors for this and previous years in SBC and includes the choice of factor used.

Table C.5 – Bias Adjustment Factor

Monitoring Year	Local	National Factor	Factor Used
2023	0.84	0.85 *	Local
2022	0.90	0.86	Local
2021	0.99	0.84	Local
2020	1.04	0.91	Local
2019	1.03	1.04	Local

Note: * based on 3 suitable studies (with none in Spelthorne) only.

LAQM TG (22), box 7-13 sets out the reasoning as to when it is appropriate to use a local bias adjustment factor. The national factor was not chosen in this ASR. In the past five years, local bias adjustment factor has been used to reflect the local conditions.

The following points apply to Spelthorne.

If the co-location site is unusual in some way: for example, affected by specific large NO_X sources other than road traffic, such as local industrial installations. (This is a strong indication in favour of using a locally derived factor). There are industrial NO_X sources present in Spelthorne (Heathrow Airport and a waste gasifier),

- Where the Review and Assessment Helpdesk spreadsheet contains data from fewer than five other studies using the same laboratory and preparation. There are only 3 data sets within the national factor spreadsheet for the applicable laboratory and analysis method (Lambeth Scientific Services 50% TEA in acetone), none of which are datasets from within Spelthorne.
- For co-location sites with “good” precision for the diffusion tubes and with high quality chemiluminescence results, i.e. to national AURN standards. The Oaks Road and Sunbury Cross automatic analysers are calibrated and serviced to AURN standards by the same specialist contractor.

LAQM TG (22) advises that care should be taken to avoid applying a bias adjustment factor derived from a local co-location study carried out for concentrations that are very different to those being measured in the wider survey. In other words, co-location results from a low concentration site (typically a background site) should not be used to derive a bias adjustment factor for survey results from high concentration sites (typically roadside sites).

Spelthorne have applied a local bias adjustment factor of 0.84 to the 2023 monitoring data derived from the Oaks Road and Sunbury Cross automatic analyser co location data. For comparison, the national bias adjustment factor from version 03/24 of the national spreadsheet was 0.85 for Lambeth Scientific Services 50% TEA in acetone. This national bias adjustment factor was higher (considered more conservative approach in reporting annual mean NO_2 concentrations and resulting in greater uncertainty in the locally derived

bias factor) than the local bias adjustment factor. It should be noted that the application of the national bias adjustment factor does not increase the number of exceedances or the number of locations within 10% of the annual mean objective for NO_2 in comparison to use of the local bias adjustment factor.

Distance Correction: NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations are also corrected for distance.

No diffusion tube NO_2 monitoring locations within Spelthorne required distance correction during 2023.

QA/QC of Automatic Monitoring

The automatic monitoring sites are all “Urban Background”, all measure NO_2; PM_{10}; $PM_{2.5}$, using Chemiluminescent monitoring technique for NO_2 and all located within Spelthorne AQMA. The following table summarised the operating of the QA/QC for the monitoring sites. Reference should be made to SBC 2023 ASR available online for more information about Site Operation/ Local Site Operator (LSO), calibration and data ratification. The 2023 data sets were ratified following AURN standard QA/QC and ratification processes, within LAQM TG (22) guidelines, on a quarterly basis. 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 Table C6.

Table C.6 – Automatic Monitoring Stations Maintenance & Calibration

Site Name	Purpose	Site Management	Data Management and Local Site Operator (LSO)	Status	Calibration and Data Ratification	PM_{10} and $PM_{2.5}$ Monitoring technique	PM_{10} and $PM_{2.5}$ Adjustment
Heathrow Oaks Road, Stanwell	Established in 2001 as part of the Terminal 5, Heathrow development[58]	Heathrow Airport Limited	Ricardo Energy and Environment	Ongoing	Subject to routine zero and span check calibrations every 4 weeks and servicing every 6 months. Independent QA/QC audits conducted annually to AURN standards. Historic/ live data hosted online on the Air Quality England website [59]	Palas Fidas 200 according to the certified Method	No correction applied to measurements other than a correction for slope by a division of 1.06 in accordance with LAQM TG (22) paragraph 7.174. Data sets are ratified following AURN standard QA/QC and ratification processes, within LAQM TG (22) guidelines, on a quarterly basis. Data is processed and scaled using all available manual and automatic calibrations.
Sunbury Cross The Haven	Established In January 2017 – having previously been decommissioned in April 2012.	SBC- investment being made to replace the housing for the monitoring station and the associated air conditioning unit that maintains a suitable temperature for the instrumentation	Ricardo Energy and Environment.	Ongoing (with some limitations).			
Haslett Road	Established In March 2016, down prevailing wind direction of the EcoPark incinerator development to help to predict high levels.	Suez, who operate the nearby Eco Park waste management facility on behalf of Surrey County Council[60]	TRL on behalf SCC[61] It is maintained by TRL and managed by Fichtner Consulting Engineers Ltd.	Ceased end of September 2023 (Q1-Q3).	Daily data inspections are undertaken by TRL. Procedures are presented in our 2023 ASR available on our website.	PM_{10} and $PM_{2.5}$ are measured using the Met One PM_{10} Unheated BAM 1020 and the Met One PM2.5 Smart Heated BAM 1020 respectively.	Underwent correction for slope by dividing the data by 1.2 (or multiplied by 0.833) as per paragraph 7.168 of LAQM TG (22).

[58] The black carbon instrumentation at Oaks Road ceased to function as replacement parts were not available following a breakage.

[59] Data located at https://www.airqualityengland.co.uk/site/latest?site_id=SBC01 and https://www.airqualityengland.co.uk/site/latest?site_id=T54.

[60] The Eco Park waste management facility includes a gasification plant, an anaerobic digestion plant, a recyclable bulking facility and a community recycling centre.

[61] TRL conduct the QA/QC for Fichtner, which in return have been commissioned by Suez (as developer of the nearby Eco Park gasifier) on behalf of Surrey County Council

The Status of SBC Monitoring Network

At the time of submitting this report a feasibility study was being commissioned to a third-party consultant, to assess the planning, socio-economical-political and legal impacts/requirements, and cost analysis of options considered for SBC monitoring network, which will be considered by the relevant SBC decision-making committees before implementation. Any chosen option will depend on the availability of funding, both locally at the government level.

Haslett Road continuous monitoring site

At a Community Liaison meeting on the 9th of November 2022, it was stated that the Haslett Road monitor would continue to operate for 2023 but that it may cease to be operated. The monitoring period for this monitor has been extended multiple times however, the requirement to continue the monitoring has ceased and the monitoring equipment has been removed by TRL during Q4 in 2023. Therefore, the current monitoring period ran until the end of September 2023 (Q1-Q3).

This decision is on the basis that the monitor does not give facility specific data, the Eco Park facility has a Continuous Emissions Monitoring System in place that measures emissions in the gasifier stack, and that the original monitoring period agreed by Surrey County Council had expired.

Sunbury Cross continuous monitoring site

The running of the monitor is challenging because the land belongs to Thames Water, and it is subject to security measures as its part of a water treatment works. The electricity meter also needs to be moved which will require the power supply to be temporarily isolated from the nearest substation.

In March 2024, the NO_x monitor broke down due to a failure of the air conditioning unit which damaged the pump for the monitor.

The cabin housing the equipment needs to be replaced and new air conditioning installed before the NOx sensor can be repaired and restarted.

Using continuous monitoring via Low-cost sensors only

There are three small sensors on district, they are Praxis Cubes and are currently not running as the Defra funding has expired, there are also 3 Airly monitors that are in the same situation. They do need a power supply and the lampposts are rented to Surrey County Council by a third party who would need to agree on any placement and electrical works, they may charge for inspections. Their commissioning will depend on funding availability.

Automatic Monitoring Annualisation

Where full set of annual data is not available for 2023 due to completion of the monitoring or any other reason, annualisation of the data should be conducted in line with the methodology set out in Box 7-9 of LAQM.TG (22). The methodology is as follows:

Table C.7 – Automatic Monitoring Stations Annualisation Methodology

Step	Description
1	Identify two to four nearby, long-term, continuous monitoring sites with data capture for each of these sites of at least 85%. These sites should be background (Urban Background, Suburban or Rural) sites to avoid any very local effects that may occur at Urban Centre, Roadside or Kerbside sites, and should, wherever possible lie within a radius of about 50 miles.
2	Obtain the annual means (A_m) for the calendar year for these sites.
3	Work out the period means (P_m) for the period of interest (Q1-Q3 2023)
4	Calculate the ratio, R, of the annual mean to the period mean (Am/Pm) for each of the sites
5	Calculate the average of these ratios (R_a). This is the annualisation factor.
6	Multiply the measured period mean concentration M by this annualisation factor R_a to give the estimate of the annual mean for 2023.

- **Heathrow Oaks Road, Monitoring data Annualisation**

This automatic monitoring location located within Spelthorne recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

- **Sunbury Cross, Monitoring data Annualisation**

This automatic monitoring location located within Spelthorne recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

- **Haslett Road site Monitoring data Annualisation (Fichtner, 24 May 2024)**

This work is presented in the Ambient Air Quality Monitoring Report ref. 1253-0400-0081MJC, Revision R1, by Fichtner compiled on 06 June 2024 and available upon request.

The requirement to continue the monitoring has ceased and the monitoring equipment has been removed by TRL during Q4 2023. Therefore, the current monitoring period is until the end of September 2023 (Q1-Q3). A review undertaken identified continuous analysers within the distances stated within the LAQM and presented in the 2023 Fichtner annual report available upon request.

Local continuous monitoring for pollutants annualizations are as follows (in Table 1,2 & 3, reproduced and shown in Table C8) Note: Period mean calculated from 01/01/2023 at 00:00 to 30/09/23 at 23:00.

Distance correction: NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website.

None of the automatic or diffusion tube monitoring locations within Spelthorne required distance correction.

Table C.8 – Automatic Monitoring Stations Data Annualisation Results

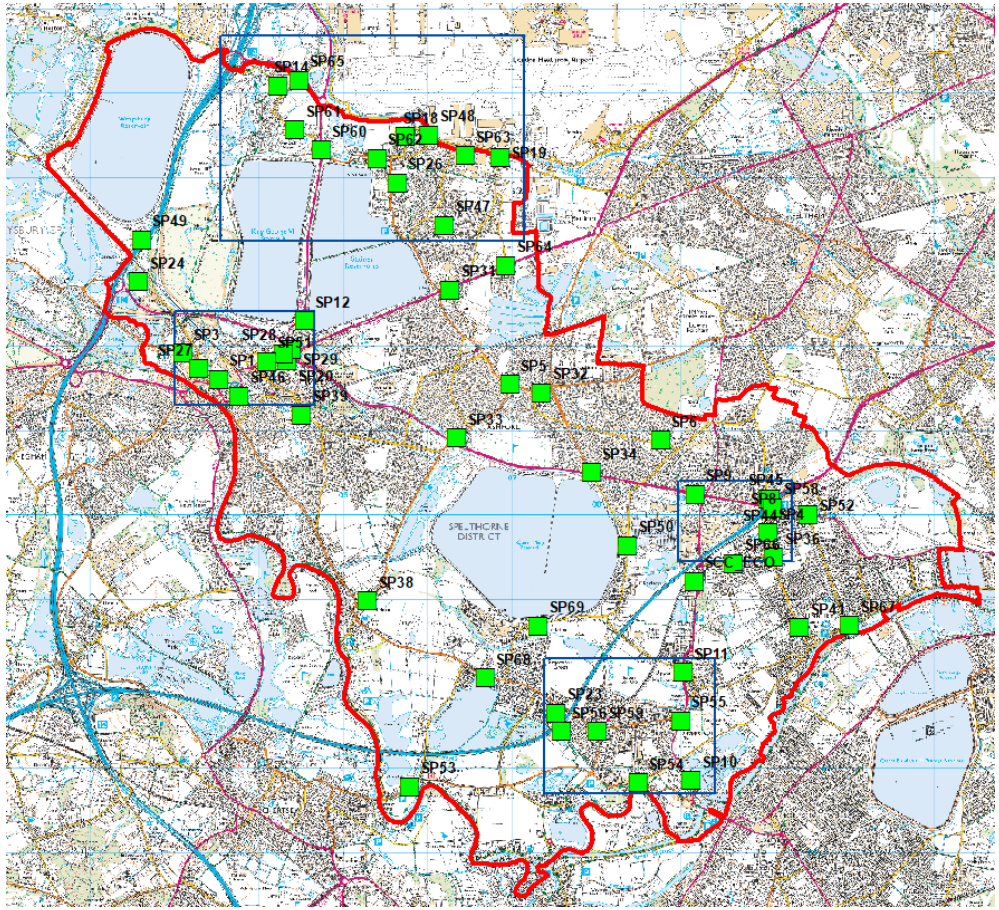
	Site name	Classification	Data Capture	Annual Mean (A_m)	Period Mean (P_m)	Ratio (R)
NO_2	Heathrow Oaks Road	Urban Background	95.4%	20.0	20.7	0.967
	Hounslow Feltham	Suburban	92.3%	37.8	36.3	1.041
	Hounslow Hatton Cross	Urban Background	99.3%	19.2	19.0	1.010
	Spelthorne Sunbury Cross	Urban Background	95.2%	23.6	22.8	1.035
					Average Ratio (Ra)	**1.013**
PM_{10}	Heathrow Oaks Road	Urban Background	99.6%	12.1	12.9	0.944
	Hounslow Feltham	Suburban	95.5%	18.3	19.0	0.964
	Hounslow Hatton Cross	Urban Background	93.8%	19.9	20.5	0.969
	Spelthorne Sunbury Cross	Urban Background	89.9%	15.7	15.6	1.005
					Average Ratio (Ra)	**0.971**
$PM_{2.5}$	Heathrow Oaks Road	Urban Background	98.3%	7.2	7.7	0.942

	Site name	Classification	Data Capture	Annual Mean (A_m)	Period Mean (P_m)	Ratio (R)
	Spelthorne Sunbury Cross	Urban Background	89.6%	9.2	9.1	1.003
					Average Ratio (Ra)	**0.973**

Note: Period mean calculated from 01/01/2023 at 00:00 to 30/09/23 at 23:00.

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

Figure D. 1 – Plan of AQMA and Air Quality Monitoring Sites in Spelthorne 2023



Note: No NO_2 exceedances of the AQ standard of 40 µg/m^3 noted during the 2023 monitoring round.

Legend

Diffusion_Tube_Monitoring Data

Result

- Above
- Below
- Borderline
- Borough Boundary

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Figure D. 2 – Plan of Non-Automatic Monitoring Sites in Sunbury

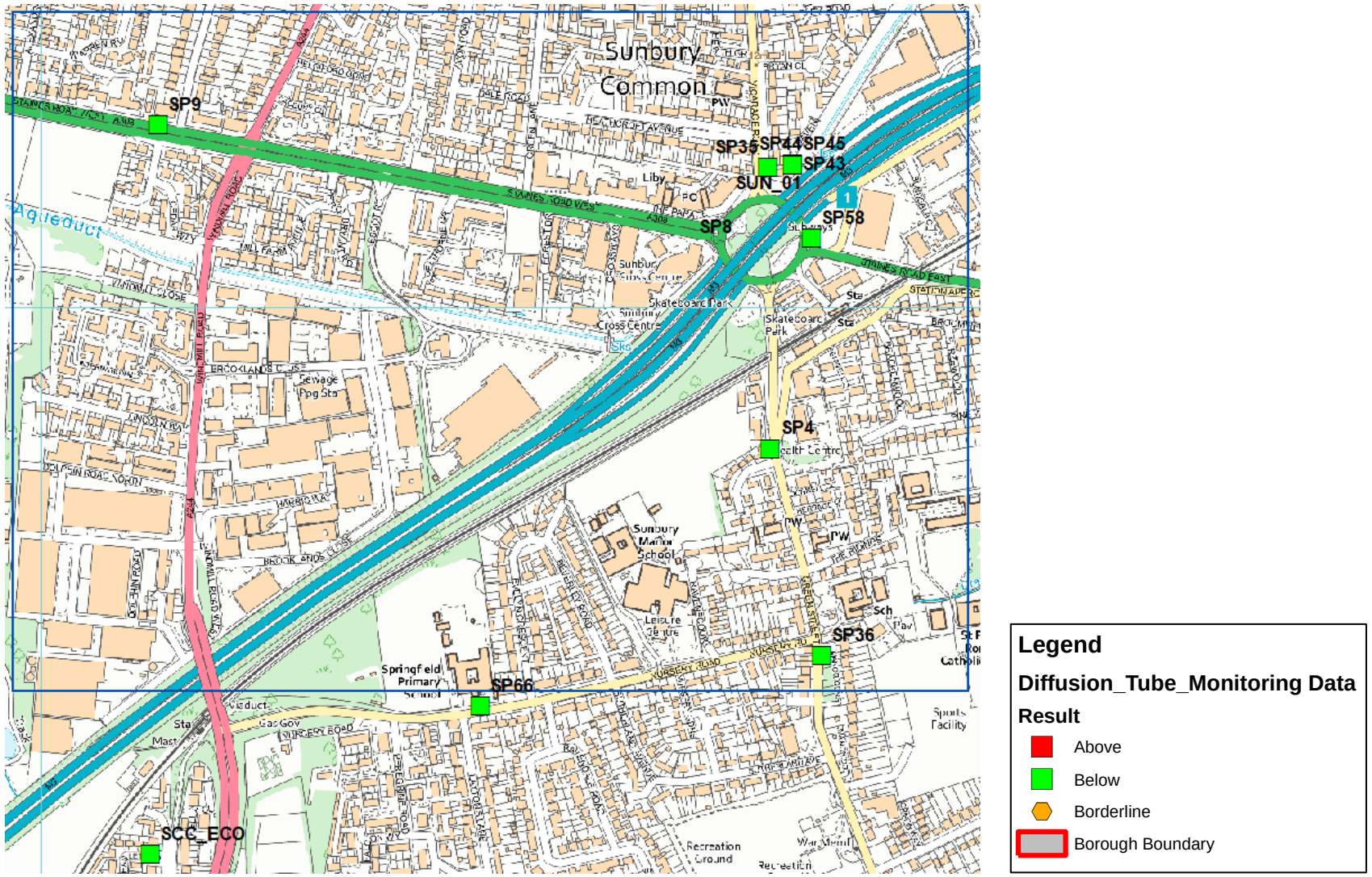

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Figure D. 3 – Plan of Non-Automatic Monitoring Sites in Shepperton

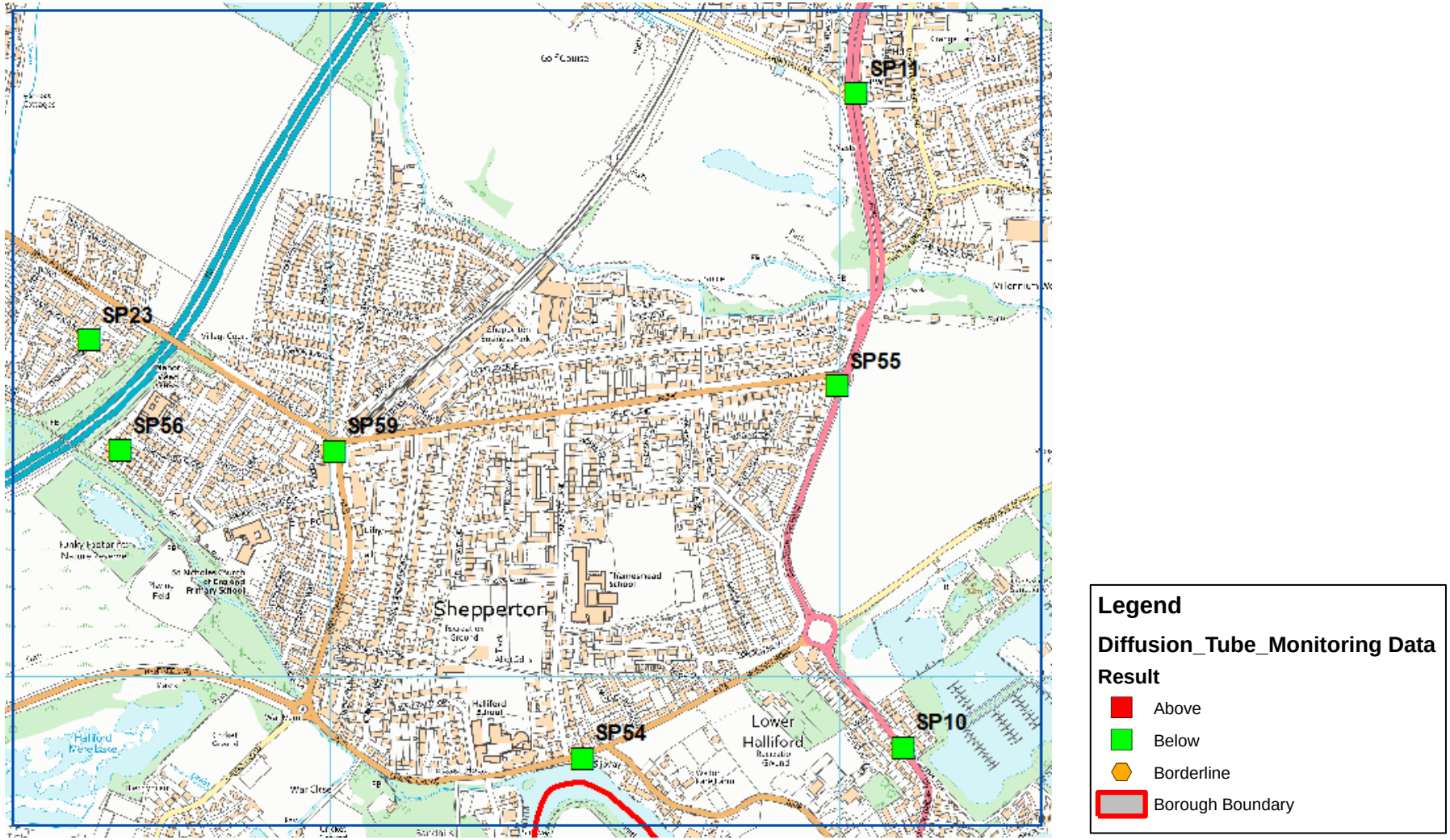


Figure D. 4 – Plan of Non-Automatic Monitoring Sites in Staines-Upon-Thames

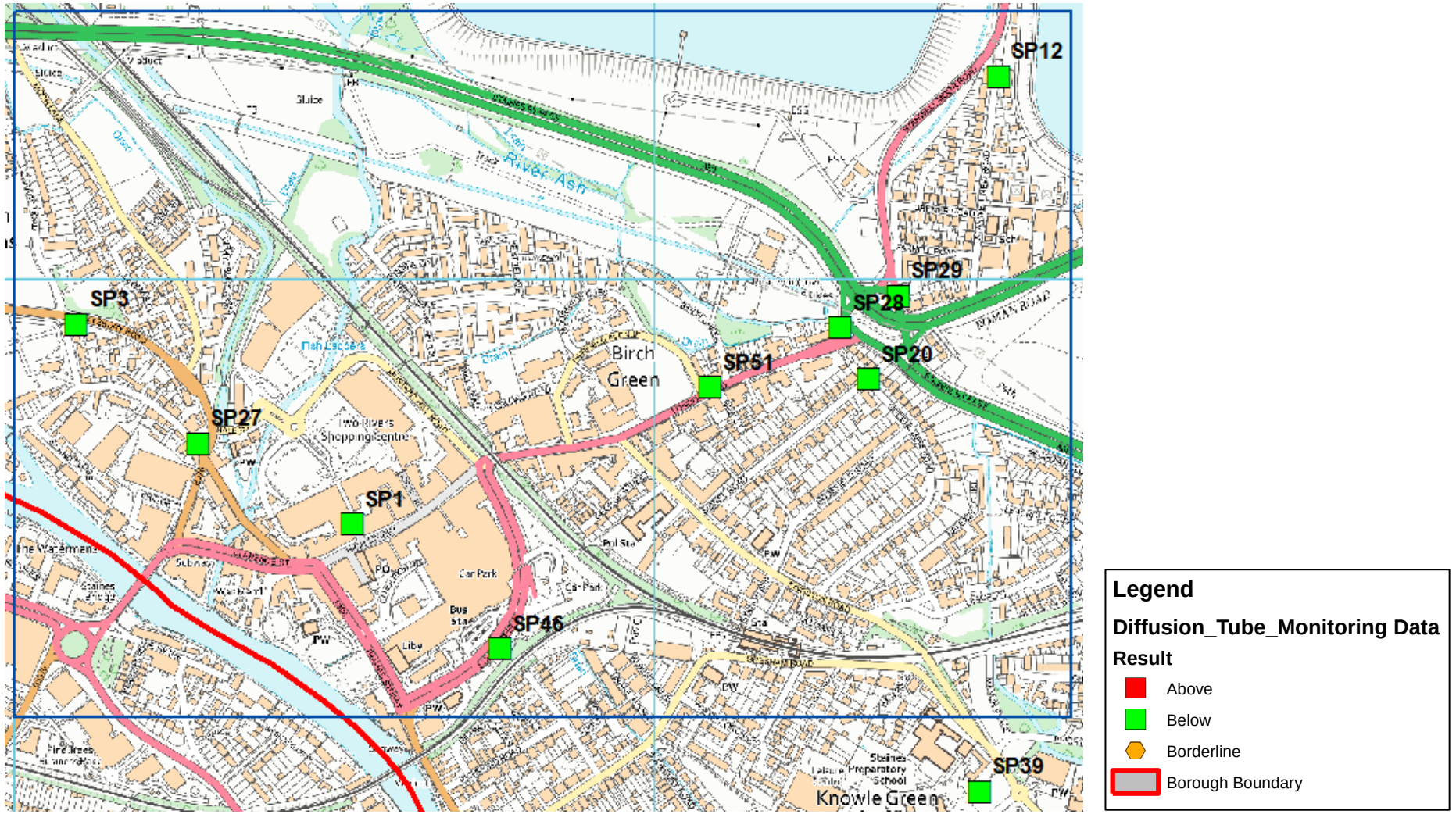
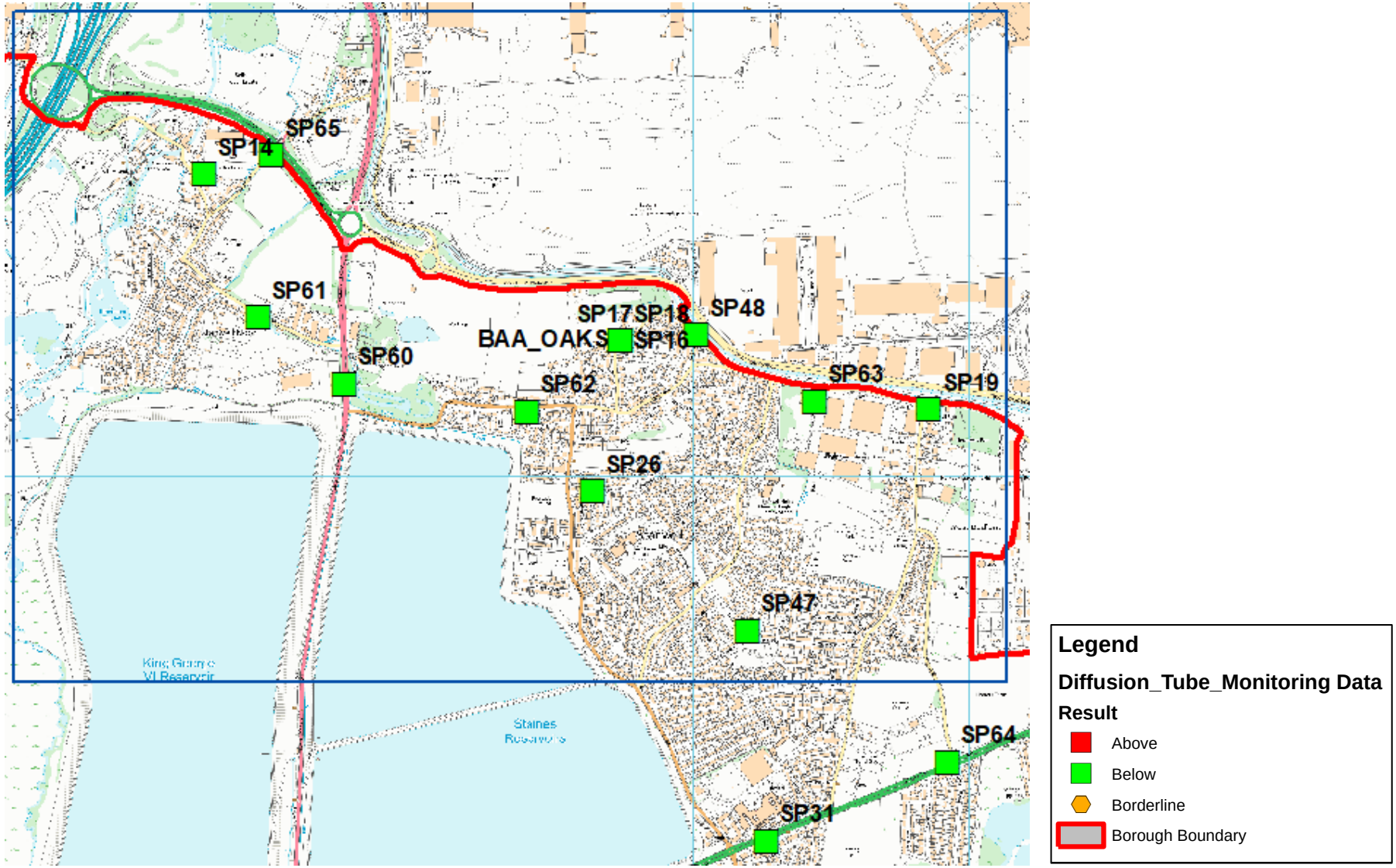


Figure D. 5 – Plan of Non-Automatic Monitoring Sites in Stanwell and Stanwell Moor



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[62]

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

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

Appendix F: Other Evidence

Figure F 1– Annual Mean Modelled NO_2 Concentrations for Spelthorne, 2017

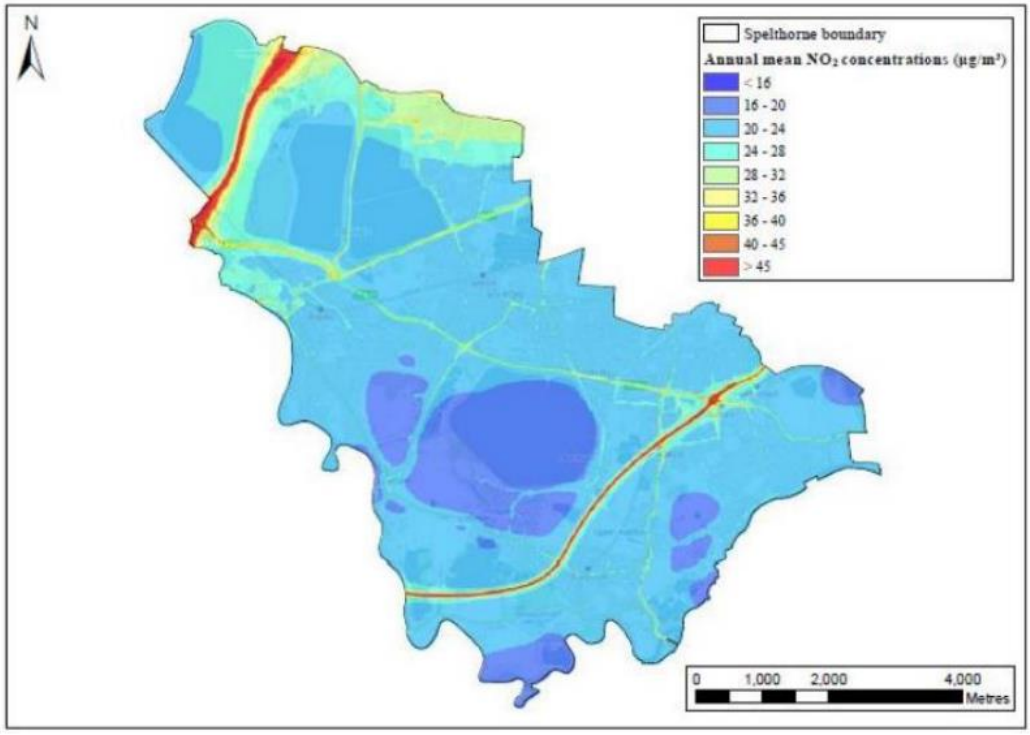
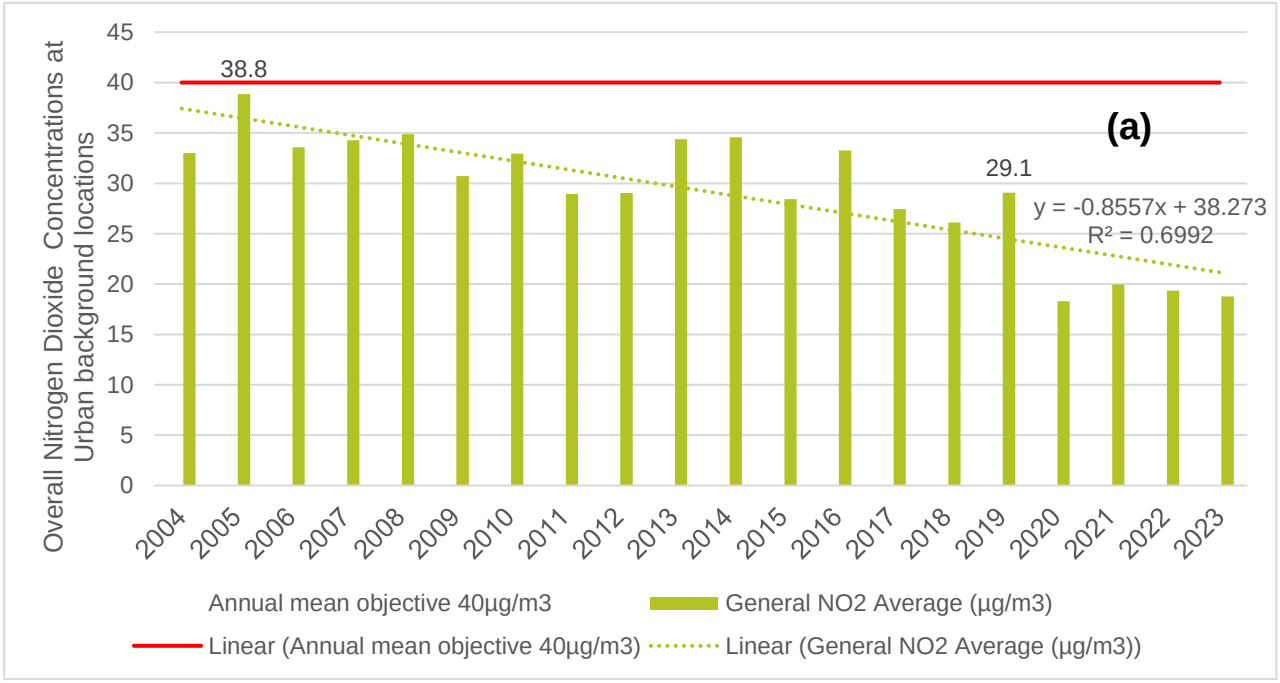
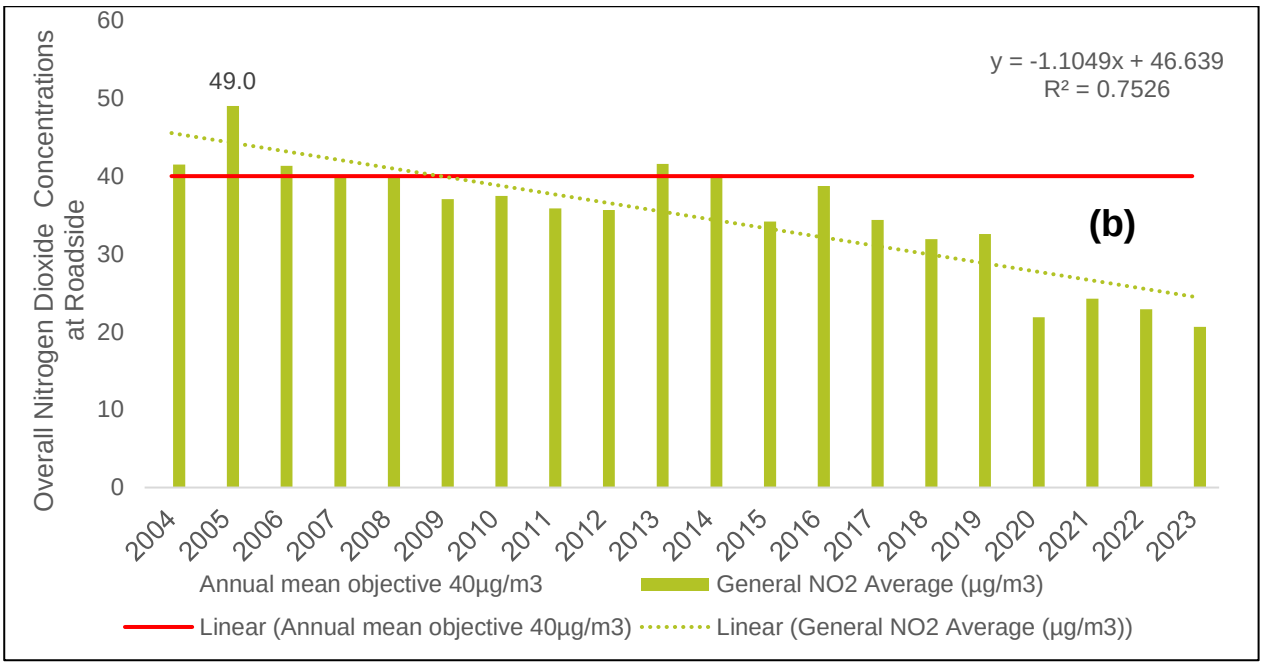


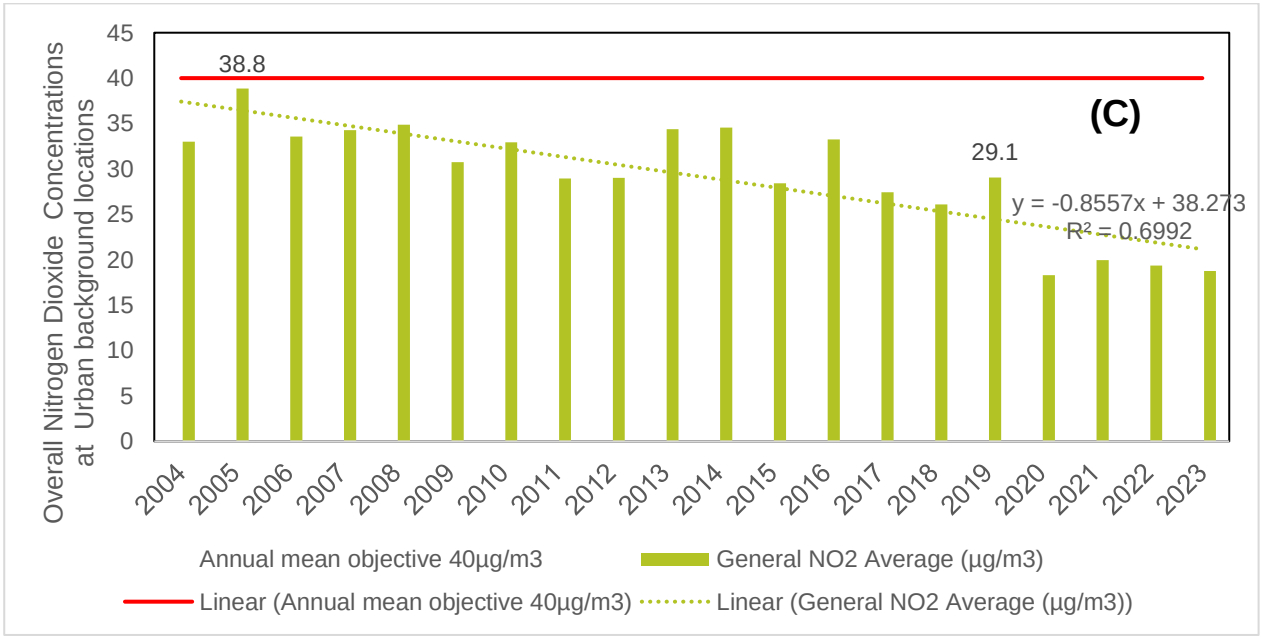
Figure F 2– Overall General reduction of Mean NO_2 concentration across the borough since 2004 (a- All data, b- Roadside & c- Background)



Note: *Based on 70 datapoints (diffusion tubes)*



Note: *Based on 5 datapoints (diffusion tubes)*



Note: *Based on 8 datapoints (diffusion tubes)*

Figure F 3– 2023 Oaks Road NO_2 Polar Plot

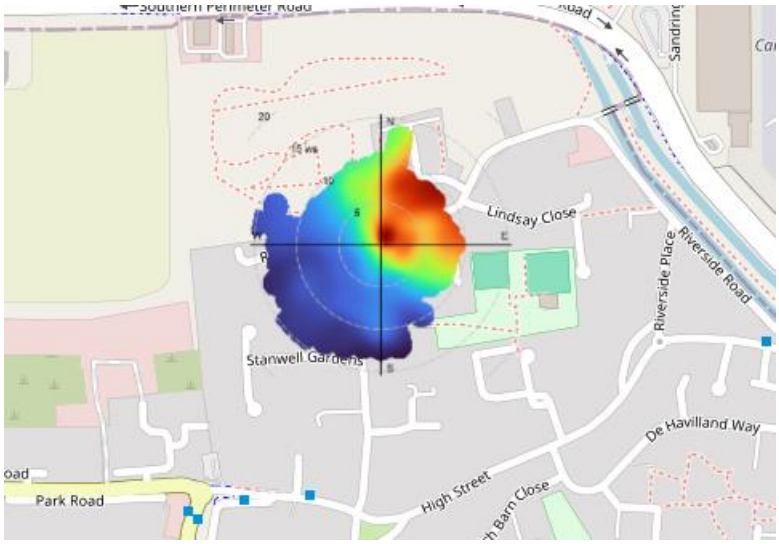


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Figure F 4– 2023 Oaks Road PM_{10} Polar Plot

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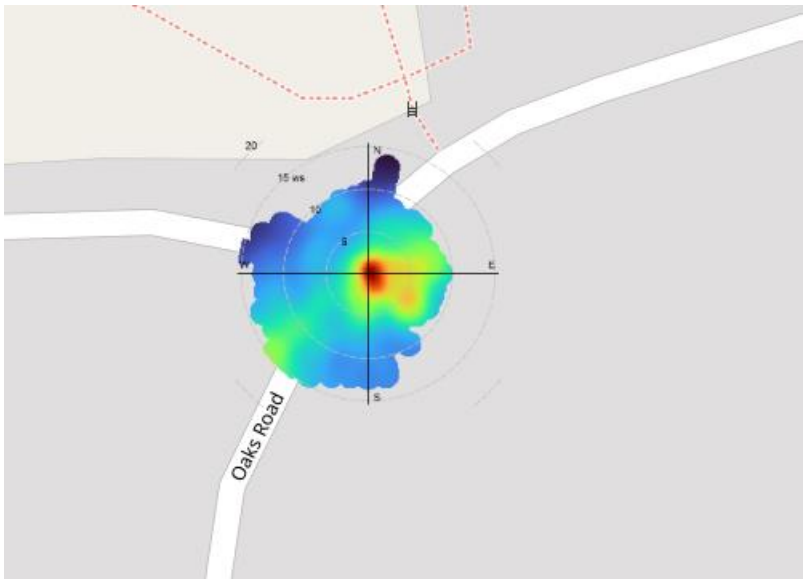
Figure F 5 – 2023 Oaks Road $PM_{2.5}$ Polar Plot



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SPELTHORNE BOROUGH COUNCIL
AQMA No. 1 Order 2024

Spelthorne Borough Council, in exercise of the powers conferred upon it by Section 83(1) of the Environment Act 1995, hereby makes the following Order.

This Order may be cited/referred to as the Spelthorne Borough Council Air Quality Management Area No1 Order 2024 and shall come into effect on 1st April 2024.

The area shown on the attached map in red is to be designated as an air quality management area (the designated area). The designated area incorporates an area encompassing the north of the borough and the strategic roads throughout the borough. The area extends south to sections of the B376 and B377 in Staines-upon-Thames, Shepperton and Laleham, including the boroughs highstreets and extending to Thames Street in Sunbury on Thames. The area covers the road network giving access to bridges over the River Thames.

This Area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Standards Regulations 2010.

This Order shall remain in force until it is varied or revoked by a subsequent order.

This Order revokes the Spelthorne Borough Council Air Quality Management Area Order made on 1st August 2003.

The Common Seal of
Spelthorne Borough Council
was hereto affixed on 14 March 2024
and signed in the presence of

LINDA HERON
LEGAL SERVICES MANAGER AND
DEPUTY MONITORING OFFICER

Authorised Signatory on behalf of said Council.

Seal Number: 12836

Figure F 6 AQMA Order 2024 and Map

Report on the Sensors and way forward with the monitoring Program.

The FIDAS and BAM automatic analysers are situated in urban background locations so are representative of exposure in settings that are not at the roadside.

To improve coverage of roadside monitoring Spelthorne tested small sensors as part of a Defra Air Quality Fund project with Buckinghamshire. Positioning the equipment at the roadside is challenging as the sensors require a power source. The regular lampposts are currently not suitable due to issues with timers affecting the power supply. The data from the small sensors is considered as experimental and indicative as at the time of installation the equipment was not MCERTS certified. A Praxis cube sensor was located at the roadside along Squires Bridge Road, the annual mean PM_{10} concentration for 2022 was 16 µg/m^3. A Praxis Cube sensor was also situated in the Staines Bus Garage as a location of short-term exposure location where diesel vehicles are frequently present, the annual mean PM_{10} concentration for 2022 was 21 µg/m^3. Any data from the small sensors is presented to the public together with the automatic analyser data on the Air Quality England website with the daily Air Quality Index information to inform public health[63].

Currently, the 3 Praxis Cubes are currently not running as the Defra funding has expired. The 3 Airly monitors are also not running due to lack of funding. Consideration is being made by the council to decommission the Praxis Cubes and to relocate these pending the availability of internal fund. They do require a power supply and the lampposts are rented to Surrey County Council by a third party who would need to agree on any placement and electrical works, they may charge for inspections.

The Heathrow Air Quality 2023 report[64] gives information on regional particulate episodes. Moderate particulate pollution was recorded at various points across the southeast of the UK between the 22nd and 24th January. The high PM was primarily caused by poor dispersion of local sources “trapped” by low wind speeds.

Spelthorne Borough Council are a member of the CISHA Heathrow Air Quality Working Group (HAQWG) and are not aware of any intentions to cease monitoring at the Oaks Road automatic analyser, which is funded by Heathrow Airport Limited and has provided particulate matter measurements in Spelthorne since 2003.

The monitored data does not support bringing particulate matter under the requirements of the borough wide AQMA as PM_{10} levels are complaint with the objectives set out in Air Quality Standards 2010. However, The Council consider particulate pollution of high importance, in the context of the WHO AQG’s and the health implications of particulate pollution.

Updates on SBC air quality monitoring protocols will be presented in our 2025 Air Quality Status Report.

[63] Ricardo Energy and Environment 2023, Air Quality England website Spelthorne Borough Council Monitoring Data pages available at https://www.airqualityengland.co.uk/local-authority/?la_id=333

[64] http://www.heathrowairwatch.org.uk/documents/Heathrow_2023_Annual_Report.html

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

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- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
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- Environmental Improvement Plan 2023. Published by Defra.
- National statistics Nitrogen dioxide (NO_2) 2023. Published by Defra.
- Guidance on the Assessment of dust from demolition and construction. 2023. Institute of Air Quality Management.
- The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy 2018. Published by the Department for Transport.
- Fichtner Consulting Engineers Limited 2024, Eco Park Surrey Ambient Air Quality Monitoring Report. Provided to Spelthorne Borough Council by Surrey County Council.
- Audit Summary Report for PCM Link 28076. 2023. Published by National Highways.
- Public Health Outcomes Framework. 2023. Published by the Office for Health Improvement and Disparities.
- Air Quality: A Briefing for Directors of Public Health, 2017. Published by Public Health England.
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- Control of Odour and Noise from Commercial Kitchen Exhaust Systems 2018. Published by Ricardo Energy and Environment.
- Spelthorne pages on the Air Quality England website 2023. Published by Ricardo Energy and Environment.
- Annual report on Air Quality at Heathrow Airport 2023. Published by Ricardo Energy and Environment.

- Spelthorne Local Walking and Cycling Infrastructure Plan 2023. Published by Surrey County Council.
- Surrey's Climate Change Strategy 2020. Published by Surrey County Council.
- Surrey Transport Plan (LTP4) 2022. Published by Surrey County Council.