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

Swale Borough Council

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LAQM Annual Status Report 2023

Executive Summary: Air Quality in Our Area

Air Quality in Swale

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

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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

Swale Borough Council

Swale Borough Council is committed to improving air quality, specifically to reduce exposure to its residents to improve and protect the health and amenity of current and future generations. We have developed actions and measures which can be categorised under the following topics:

- Air Quality standards within new Local Plan and Guidance;
- Encourage alternative modes to car use to reduce congestion and pollution;
- Initiatives that inform and protect local residents;
- Promoting Low Emission Transport;
- Anti-idling enforcement.
- Local LEV car-club;
- Procuring alternative refuelling infrastructure to promote Low Emission Vehicles and EV recharging.

To improve air quality in our six air quality management areas (AQMAs) and across the whole borough, various actions have continued through 2023. As part of the MidKent Partnership, funding has been secured via Defra's Air Quality Grant for a 5-year project to develop a digital training resource for Health Care Practitioners across Kent and Medway to enable practitioners to advise patients with cardio-vascular disease or respiratory diseases on how to reduce their exposure to air pollution.

Following on from the success and regular usage of the Faversham car club, a second car club has been launched in Sittingbourne, with three hybrid vehicles. Stage 1 of the Local Cycling and Walking Infrastructure Plans (LCWIP) has been completed. The anti-idling campaign continues with additional enforcement patrols completed at hotspot locations. The Council also continues to promote and raise awareness of KentAir alert messaging, air quality impacts and solutions through KentAir week, Clean Air Day and the Green Schools Forum.

There are current challenges in reducing car use within the Borough through improving public transport service and infrastructure. The Air Quality Action Plan (AQAP) 2023 -2028 includes thirteen measures in pursuit of improving local air quality over the next five years. The type of measure and the progress Swale Borough Council have made during the reporting year of 2023 are presented in table 2.2. Included is one measure to review traffic management options in the Air Quality Management Areas (AQMAs) and another to support public transport providers in a lobbing role for improvements to infrastructure and service improvement. Other challenges anticipated in 2024 could include resource and funding opportunities for some measures, for example Swale's Local Walking and

Infrastructure Plan (LCWIP) funding resources to complete Stages 3 (network planning) and 4 (prioritisation of measures) could delay completion and funding for future anti-idling patrols.

The AQAP 2023 – 2028 can be found on the Swale Borough Council[3] and DEFRA (best practice examples)[4] websites. In developing the Air Quality Action Plan, the Council followed the relevant Technical Guidance and Policy Guidance from DEFRA (TG22 and PG22) and set up a steering group of relevant stakeholders to develop a list of actions prior to public consultation. The Steering Group is composed of Swale and KCC officers from key service areas, able to influence and impact air quality improvements. The Steering group will continue to meet quarterly throughout the lifetime of the action plan. Task and finish sub-groups, responsible for implementing and delivering specific measures, will meet more regularly and report back to the steering group.

Swale Borough Council continues to work with our partners, through the Kent and Medway Air Quality Partnership Group which includes regular engagement from group members, collaborative working, and collective contracts. Kent County Council and UK Health Security Agency (UKHSA) representatives also attend and contribute to meetings and projects.

Effective partnership working with Kent County Council is essential for delivering mitigation measures. There remains some uncertainty over the level of commitment, both financial and staffing for some projects by KCC. Swale Borough Council is committed in continuing to liaise with our county partner to improve and bridge the gap in responsibility for solutions to poor air quality, as this should be shared across local government.

Swale Borough Council manages the local air quality network through monitoring, auditing, and implementing measures as part of the AQAP. We continue to use an extensive passive monitoring network to report pollutant levels, also adding stations where concentrations are deemed to be a risk.

As a direct result of Swale Borough Council's extensive air quality monitoring, six AQMAs have been identified and declared to date. These AQMAs are located where the levels of air pollution, specifically nitrogen dioxide (NO_2) has historically exceeded the UK's air quality objectives. In addition, St Paul's Street AQMA was amended in 2020 for

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[3] https://swale.gov.uk/bins-littering-and-the-environment/air-quality/monitoring#h2

[4] https://laqm.defra.gov.uk/air-quality/action-planning/examples-of-good-practice/

exceedances of the 24-hour mean objective for particulate matter 10 (PM_{10}). The six AQMAs currently within Swale Borough are shown in Table 2.1.

AQMAs 1, 2/6, 3, 5 and 7 are situated on the A2 which is a major transport corridor through Swale, with AQMA 4 located within Sittingbourne urban centre.

Swale Borough Council has a monitoring network for NO_2 and particulate matter (PM). Throughout 2023, this included measurements by automatic analysers at three locations and 86 passive monitoring tubes covering 76 locations within the district. Triplicate passive monitoring sites at four locations are positioned strategically to increase the accuracy of our monitoring data, as well a set of three tubes at different heights to see if a change in concentration exists (not classed as a triplicate).

Within 2023, the following 6 sites were removed:

- SW117 (Land adj to Orchard, Canterbury Road, Faversham); SW169 (Ospringe Primary, Water Lane, Ospringe);
- SW119 (Flats, The Mount, Ospringe);
- SW125 (Fox & Goose, The Street, Bapchild);
- SW149 (Balmoral Terrace/Kings Head, London Road, Sittingbourne);
- SW85 (Sheerness College 2, Bridge Road, Sheerness).

Sites (except Isle of Sheppey) were removed as they were below 32 $\mu g/m^3$ for (more than) > 2 years. The Isle of Sheppey sites are removed if they fell below 20 $\mu g/m^3$ for (more than) > 2 years. This because it is a developing area, and all sites are currently low.

The following 6 new sites were added:

- SW169 (Lampost o/s 11 Nettle Way, Thistle Hill Estate, Minster);
- SW170 (Lampost 132 Minster Road, Minster); SW173 (Lampost o/s 35 Home View Terrace, Tonge Road, Murston);
- SW173 (Lampost o/s 35 Home View Terrace, Tonge Road, Murston)
- SW174 (Lampost O/s 1c Ruins Barn Road, Sittingbourne);
- SW172 (Lampost o/s 25 Murston Road, Murston); SW174 (Lampost O/s 1c Ruins Barn Road, Sittingbourne) and;
- SW171 (Lamp post outside 14 Water Lane, Ospringe).

New sites were added based on evidence from traffic congestion data outlined in Swale Transport model[5] and congested areas where future development is planned. Traffic flow, receptors near the road and topography of the area were also reviewed. Tube deployments are in line with the Defra Calendar and Local Air Quality Management Technical Guidance (TG22).

The latest monitoring data trends show that air quality has improved over the last five years. All automatic and 86 diffusion tubes during 2023 have not exceeded the National Air Quality Objective for the annual mean NO_2 concentration (40 µg/m³).

NO_2 concentrations measured by three automatic monitoring stations remain below annual Air Quality Standard (AQS) objective mean concentration in 2023. ZW3 (Ospringe) decreased by 15%, ZW8 (St Paul's Street) decreased by 11% and ZW10 (Newington) decreased by 9% since 2022. ZW3 and ZW8 have decreased continuously over the last five years. ZW10 has decreased continuously over three years. Further to this, there were no exceedances of the hourly mean AQS objective at the three sites in 2023.

During 2023, the highest non-automatic NO_2 annual mean concentrations recorded were at Keycol Hill AQMA, with SW124 site at 32.8µg/m³, SW130 at 32.1 µg/m³, SW131 µg/m³ at 31.8 µg/m³ and SW154 at 32.9 µg/m³. All sites are below the Air Quality Standard.

No exceedances were reported for the PM_{10} annual mean AQS objective for all three automatic sites, ZW3 in Ospringe AQMA (2/3), ZW8 in St Paul's Street AQMA (4) and ZW10 in Newington AQMA (1). Since 2022, ZW3 (Ospringe) decreased by 17%, ZW8 (St Paul's Street) decreased by 12% and ZW10 (Newington) decreased by 7 % since 2022. ZW3 and ZW8 have decreased continuously over the last five years. ZW8 was within the 10% of the AQS (36 µg/m³) during years 2021 and 2022, which has now in 2023 decreased to 33 µg/m³.

There has been a significant improvement in air pollution locally which also reflects national trends currently being observed[6]. As advised by DEFRA these air quality improvements are predominantly due to the replacement of older vehicles in the vehicle fleet with newer vehicles that meet stricter emissions standards, and more recently, the uptake of electric vehicles[7].

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[5] https://swale.gov.uk/planning-and-regeneration/local-plans/local-plan-review-evidence/infrastructure

[6] https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-nitrogen-oxides-nox

[7] https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-nitrogen-oxides-nox

The 24hr mean objective for PM_{10} (50 µg/m^3) is that it is not to be exceeded more than 35 times a year). Since 2019, the number of 24 – Hour exceedances at ZW8 (St Paul's Street) increased continuously with 62 exceedances during 2022. This has now decreased to 42, though still more than the AQS objective of the 35 exceedances. ZW8 has been non-compliant to the 24 – Hour PM_{10} AQS objective for five consecutive years.

There have been no exceedances of the annual AQS objective for $PM_{2.5}$ observed at ZW10 or ZW8. There was a slight increase at ZW8 and decrease at ZW10 since 2022.

In relation to the PM_{10} exceedances at St Paul's Street, site visits took place in 2023 which noted aggregate material deposited along St Paul's Street (B2006), Mill Way and Gas Road. A Dust Management Agreement is being created by Swale Borough Council with the aim to maximise remedial mitigation and reduce fugitive emissions, such as mud and dust being deposited on the highway (St Paul's Street) from operator vehicles. This will include but not be limited to a 'Deep Clean', additional 'sweeping' along the St Paul's Street and wider monitoring of mitigation measures being undertaken to improve particulate air quality. The Council and Environment Agency will also review operator permits with a view to improve dust mitigation measures and to introduce or update 'Dust Management Plans' in line with the Pollution Prevention and Control (PPC) regime.

Regarding AQMAs there has been compliance of the AQS Annual Mean NO_2 concentration (40µg/m^3) at Newington (AQMA1), Ospringe Street (AQMA 2/6) and St Paul's Street (AQMA 4) for four consecutive years. East Street (AQMA 3) has been compliant for five consecutive years with one of those years being within 10% (36µg/m^3) of the annual mean NO_2 objective. Teynham (AQMA 5) has been compliant for the past six consecutive years with one of those years being within 10% (36µg/m^3). Keycol Hill has been compliant for one year.

As advised by DEFRA AQMAs should identify areas where air quality objectives are not being met or are likely to be at risk of exceedance. Keeping AQMAs in place longer than required risks diluting their meaning and impacting public trust in Local Air Quality Management. Further information on Defra's Guidance for the revocation of an AQMA is provided in section 2.

The Council have previously considered revoking AQMAs 3 and 5 as part of the 2022 ASR results. However, given monitoring results from 2020 were likely to be anomalous due to the COVID-19 pandemic and associated travel restrictions, the Council decided to continue monitoring for another year. The Council also wanted to provide better

confidence in the data, as well as, considering national trends in emissions and local factors that may affect the AQMAs This decision was supported by DEFRA.

DEFRA's appraisal in the 2023 ASR recommended AQMAs 3 and 5 should be revoked as soon as possible as they have been compliant for four and five consecutive years respectively.

In line with the 2023 ASR report (2022 data) and DEFRA guidance, officers have prepared a report for Swale BC Environment Committee (March 2024) recommending the revocation of AQMA 3 (East Street, Sittingbourne) and AQMA 5 (Teynham) for Nitrogen Dioxide, based on data from the previous four and five years which demonstrated compliance with the Air Quality Standard. The outcome of this will be explained in next year's 2025 ASR.

Swale Borough Council will review data for another year for the compliant AQMAs (1, 2/6 and 4). This will provide better confidence in the data, as well as, considering national trends in emissions and local factors that may affect the AQMAs and including measures introduced as part of our Air Quality Action Plan update (2023 – 2028). Should these AQMAs continue to remain compliant they should be revoked following next year's 2025 ASR (2024 data).

If revocation happens the next steps include updating the Air Quality Action Plan to reflect the status of the AQMAs and outline the continued air quality monitoring relevant to these sensitive locations. There is a continuing commitment to ensure Swale can respond quickly should there be any deterioration in air quality across a range of pollutants. Monitoring results would continue to be published and reported to DEFRA in the usual way.

Actions to Improve Air Quality

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

The Environmental Improvement Plan[8] 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 of most harmful to human health. The Air Quality Strategy[9] 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[10] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel, and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

The unified Air Quality Action Plan (AQAP) developed in 2018, considers measures strategically, as well as measures specific to individual AQMAs. The AQAP[11] concluded in December 2022, and the Council created a new plan for the next five years (2023 to 2028). Thirteen measures are included in the updated AQAP which align with key priority themes, such as:

1. Public Health and Wellbeing (Health Promotion, Public information, Behaviour change/modal shift,)
2. Active Travel, Public Transport and Low Emission Vehicles
3. Transport, Transport Planning and Traffic Management
4. Local Planning Policy and Development Management

In developing the Air Quality Action Plan, the Council followed the relevant Technical and Policy Guidance from DEFRA (TG22 and PG22). The steering group considered the

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8 Defra. Environmental Improvement Plan 2023, January 2023

9 Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

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

11 https://swale.gov.uk/bins-littering-and-the-environment/air-quality/monitoring#h2

viability of measures and used cost benefit analysis to prioritise measures relative to the cost effectiveness, air quality and non- air quality benefits.

The Steering Group will exist for the lifetime of the action plan to monitor the progress of measures. The group is composed of Swale and KCC officers from key service areas that can influence and impact air quality improvements. A series of 'Task & Finish' groups are responsible for setting milestones and undertaking detailed work on the measures will be reported on through the Councils Annual Status Reports (ASRs).

Core actions that were completed in 2023:

- The anti-idling campaign continued through 2023 with more idling hotspot locations being identified. The Council commissioned enforcement patrols through external contactors to further raise awareness in drivers and reduce pollution at the idling hotspot locations.

- Green School Forum was re-established by the Council to engage with schools on range of schemes related to air quality and climate action. This includes Youth Climate Project Competitions funded by the Council.

- In 2023 the MidKent Partnership received funding for a 5-year project to develop a digital training resource for Health Care Practitioners across Kent and Medway to enable practitioners to advise patients with cardio-vascular disease or respiratory diseases on how to reduce their exposure to air pollution.

- Traffic management options are being considered for the B2006 road along St Paul's Street located off the A2 corridor. A feasibility study is being completed to support any future decisions. The outcome for this will be reported on the 2025 ASR.

- A Dust Management Agreement is being created by Swale Borough Council and should be finalised by the end of 2024. This agreement aims to reduce fugitive emissions, such as mud and dust being deposited on the highway (St Paul's Street) from operator vehicles and provide a mechanism for a voluntary multiagency approach to maximise remedial mitigation measures. The outcome for this will be reported on the 2025 ASR.

There is an ongoing partnership working between Swale Borough Council departments and KCC to achieve delivery of actions throughout 2023 and to provide information to the public with the aim raise awareness and to improve air quality across Swale. The Kent and Medway Air Quality Partnership also continue to meet to discuss air quality issues and provide a co-ordinated approach for dealing with air quality across the County.

Conclusions and Priorities

All monitoring sites within the district reported compliance against the NO_2 AQS objectives during 2023. The over-all long-term trend over the last five years shows air quality is improving in the AQMAs.

The Council has been cautious when reviewing results given the potential COVID – 19 pandemic impacts on traffic movements during 2020, whereby there was a significant decrease in road and vehicle use nationally, especially in urban areas. The year 2021 may have also been affected due a behaviour changes in response to the pandemic, for example, more people working from home and shopping online. However, the last two years (2022 and 2023) have shown a significant improvement which is also reflected in national trends.

Officers will be recommending the revocation of AQMA 3 (East Street, Sittingbourne) and AQMA 5 (Teynham) for Nitrogen Dioxide, based on 2023 ASR data from the previous four and five years which demonstrated compliance with the Air Quality Standard. Based on this year's monitoring results, officers will review data for another year for the compliant AQMAs (1, 2/6 and 4). If compliant next year, then a recommendation to revoke will be made in 2025 ASR (2024 data). Reports will be made to Committee recommending revocation.

The St Paul's Street area is still an area of concern, irrespective of the reported decrease from 62 to 42 PM_{10} exceedances observed in 2023 (AQS objective of the 35 exceedances), we are still seeing exceedances continue over the last five years.

The Council plans to maximise remedial mitigation measures as part of a Dust Management Agreement aimed to improve PM_{10} concentrations observed at the St Paul's Street AQMA 4, for example, 'Deep Cleans' and additional 'road sweeping'. The measures aim to reduce aggregate material deposited along the road at St Paul's Street. The Council and Environment Agency will also review operator permits with a view to improve dust mitigation measures and to introduce or update 'Dust Management Plans' in line with the Pollution Prevention and Control (PPC) regime.

The Swale Borough Council's Air Quality Action Plan (AQAP) 2023 – 2028 has now been completed and approved by DEFRA. The Councils priority in addressing air pollution is to progress on delivering measures outlined in the AQAP to support further compliance with Air Quality Standards within the AQMAs and improve air quality within the district as

whole. Some of these measures include completing the Traffic Management Project to review traffic management options at St Paul's Street AQMA; continue anti-idling patrols and raising awareness of the anti-idling campaign and Swale's Green School Forum; to review and update the Air Quality and Planning Technical Guidance and the Air Quality policy (DM 33); Commission a Sittingbourne & Iwade Active Travel Connectivity Feasibility Study. To also liaise with Medway Council to discuss transboundary impacts and mitigation options, working towards lowering NO_2 emissions in Newington and Keycol Hill AQMAs.

Challenges anticipated include funding resources to complete key stages of Swale's Local Walking and Infrastructure Plan (LCWIP) which could delay completion and future funding for anti-idling patrols.

Local Engagement and How to get Involved

Swale Borough Council cannot achieve air quality improvements alone. There was a continuation of work with all stakeholders throughout 2023, to provide information to the general public. The following provides more information:

- Residents can stay informed by visiting the Kent Air website (http://www.kentair.org.uk/) to learn more about air pollution and local air quality or contact the Environmental Protection Team on 01622 602460 or ehadmin@midkent.gov.uk or https://swale.gov.uk/bins-littering-and-the-environment/air-quality
- Canterbury City Council and the Mid Kent Environmental Health Partnership have created the free interactive website called 'Pollution Patrol' through 2021 Defra funding.
    - Sign up https://pollutionpatrol.org.uk/ - Pollution Patrol is a free interactive website for primary schools, children and their families developed to help raise awareness of air pollution, the damage it can cause and ways that individuals can help to reduce their impact by changing behaviours. The website includes games, an immersive 360º story mode, curriculum-linked teaching resources and a school assembly plan amongst other elements.
- Sign up to the Green Schools Forum at climate@swale.gov.uk
    - The forum provides a platform for primary and secondary schools to discuss issues and projects such as air quality, tree planting and other ecological

initiatives. The forum also provides a platform to engage with schools in relation to KCC Smarter Travel scheme which helps schools optimise their travel plans and promote active travel.

- Take action - Walk, wheel, or use public transport to reduce your exposure and contribution to air pollution. Check out Clean Air Day resources to celebrate Clean Air Day.

Swale Borough Council continues to engage with stakeholders and working groups:

- ○ SBC have continued to engage with schools, parish councils and members regarding anti idling hotspots, with idling patrols taking place during 2023.
- ○ Kent and Medway Air Quality Partnership Group provides a platform to share information and provide updates on priorities. Partners includes Kent local authorities and KCC, with guests in academia and Public Health England. Kent local authorities and Medway Council have been working together to integrate air quality data and information exchange for many years, including the provision of a website http://www.kentair.org.uk/ to disseminate the data to all. The website can be used by many people for the purposes outlined below:
  - ▪ For use by local authority and County for local air quality management work;
  - ▪ For consultants to enable detailed air quality assessments and modelling to be undertaken; and
  - ▪ For educational institutions to support research and for public health including forecast and alerts.
  - ▪ For Swale residents Kentair website can be used for free air pollution alerts and information. Emails are issued whenever air quality is forecast to be Moderate or above for the following day. The email includes DEFRA's recommended actions and health advice.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Swale Borough Council with the support and agreement of the following officers and departments:

SBC Mid Kent GIS

SBC Mid Kent Environmental Health Team

SBC Planning Policy Team

SBC Active Travel and Climate Officers

This ASR has been approved by:

Timings preclude our ASRs being approved by Councillors prior to submission to DEFRA as it didn't fit into the committee cycle for when the template and data was available.

This ASR has been signed off by the Director of Public Health for Kent with the recognition of its limitations due to the resources Local Authorities have to enforce restrictions and reduce pollution as highlighted by the Association of Directors of Public Health Consultation Response to the National Air Quality Strategy.

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

Address: Swale Borough Council Swale House East, Street Sittingbourne Kent ME10 3HT

Telephone: 01622 602450

Email: ehadmin@midkent.gov.uk

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LAQM Annual Status Report 2024

1 Local Air Quality Management

This report provides an overview of air quality in Swale Borough Council 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 Swale 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 Swale Borough Council can be found in

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Table 2.1. The table presents a description of the 6 AQMA(s) that are currently designated within Swale Borough Council. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- <NO_2 annual mean;>

- <PM_{10} 24-hour mean; >

Table A4 (non-automatic) and Table A3 (automatic monitoring) provides a review of the Annual Mean NO_2 Monitoring Results between years 2019 to 2023. It shows there has been compliance of the annual mean NO_2 concentrations being lower than 36µg/m^3 (i.e., lower than 10% of the annual mean NO_2 objective) at all AQMAs (AQMA 1: Newington; AQMA 2/6: Ospringe Street; AQMA 3: East Street; AQMA 4: St Paul's Street; AQMA 5: Teynham; AQMA 7: Keycol Hill) during 2023.

AQMA compliance outline:

- Newington, Ospringe Street and St Paul's Street has been compliant for four consecutive years.
- East Street has been compliant for five consecutive years with one of those years being within 10% of the annual mean NO_2 objective.
- Teynham has been compliant for the past six consecutive years with one of those years being within 10% of the annual mean NO_2 objective.
- Keycol Hill has been compliant for one year.

In relation to the revocation of AQMAs DEFRA Local Air Quality Management Technical Guidance advises:

Paragraph 3.54: "*It is not advisable for the revocation of an AQMA to be based solely upon compliance in a year not representative of long-term trends. For example, compliance being reached in 2020 may not be representative of long-term trends in pollutant concentrations due to the change in activity observed across the UK as a result of COVID-19 and associated lock down measures. Where 2020 is one of many consecutive years of compliance, this may be considered for revocation*".

Paragraph 3.57: "*The revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as evidenced through*

monitoring. Where NO$_2$ monitoring is completed using diffusion tubes, to account for the inherent uncertainty associated with the monitoring method, it is recommended that revocation of an AQMA should be considered following three consecutive years of annual mean NO$_2$ concentrations being lower than 36µg/m^3 (i.e., within 10% of the annual mean NO$_2$ objective). There should not be any declared AQMAs for which compliance with the relevant objective has been achieved for a consecutive five-year period".

In line with the 2023 ASR report (2022 data) and DEFRA guidance, Swale officers have prepared a report for Swale Borough Council Environment Committee for March 2024 recommending the revocation of AQMA 3 (East Street, Sittingbourne) and AQMA 5 (Teynham) for Nitrogen Dioxide, based on data from the previous four and five years which demonstrated compliance, with one of those years being within 10% of the annual mean NO$_2$ Air Quality Standard. The outcome will be reported on in next year's ASR.

Swale Borough Council will review data for another year for the compliant AQMAs (1, 2/6 and 4). This will provide better confidence in the data, as well as, considering national trends in emissions and local factors that may affect the AQMAs and the inclusion of measures introduced as part of our Air Quality Action Plan update (2023 – 2028). Should these AQMAs continue to remain compliant they should be revoked following next year's ASR.

As advised by DEFRA AQMAs should identify areas where air quality objectives are not being met or are likely to be at risk of exceeding. Keeping AQMAs in place longer than required risks diluting their meaning and impacting public trust in Local Air Quality Management.

St Paul's Street AQMA 4 continues to exceed the 24 – Hour PM$_{10}$ AQS objective with 42 exceedances reported during 2023. The exceedances have reduced from last year's 62 exceedances. However, is still more than the AQS objective of the 35 exceedances. AQMA 4 has been non-compliant to the 24 – Hour PM$_{10}$ AQS objective for five years.

Site visits took place in 2023 which noted aggregate material deposited along St Paul's Street (B2006), Mill Way and Gas Road. Following this a Dust Management Agreement is being created by Swale Borough Council with the aim to reduce fugitive emissions, such as mud and dust being deposited on the highway (St Paul's Street) from operator vehicles. The Council and Environment Agency will also review operator permits with a view to

improve dust mitigation measures and to introduce or update 'Dust Management Plans' in line with the Pollution prevention and control (PPC) regime.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 1: Newington	Declared 2009	NO$_2$ Annual Mean	An area encompassing A2 and Newington High Street	No	50µg/m^3	30.6 µg/m^3	Four	Strategic AQAP 2023	swale.gov.uk/aqap
AQMA 2/6: Ospringe Street	Declared as AQMA 2 in 2011, extended in 2016, consolidated as AQMA 6 in 2017	NO$_2$ Annual Mean	Area incorporating all of Ospringe Street near Faversham (A2/Ospringe).	No	48µg/m^3	31 µg/m^3	Four	Strategic AQAP 2023	swale.gov.uk/aqap
AQMA 3: East Street, Sittingbourne	Declared 2013	NO$_2$ Annual Mean	Area incorporating East Street, Sittingbourne (A2/Canterbury Road).	No	41µg/m^3	27.9 µg/m^3	Five	Strategic AQAP 2023	swale.gov.uk/aqap

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AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 4: St Paul's Street, Milton, Sittingbourne.	NO_2 Declared 2013	NO_2 Annual Mean	Area incorporating St Paul's Street, Sittingbourne (B2006)	No	62µg/m^3	29.3 µg/m^3	Four	Strategic AQAP 2023	swale.gov.uk/aqap
AQMA 4: St Paul's Street, Milton, Sittingbourne.	PM_{10} declared 2020	PM_{10} 24 Hour Mean			42 Exceedances of 50µg/m^3	42 Exceedances of 50µg/m^3	Zero	Strategic AQAP 2023	swale.gov.uk/aqap
AQMA 5: Teynham	Declared 2015	NO_2 Annual Mean	Area incorporating Teynham (A2/ London Road)	No	39µg/m^3	23.3 µg/m^3	Six	Strategic AQAP 2023	swale.gov.uk/aqap
AQMA 7: Keycol Hill	Declared 2020	NO_2 Annual Mean	Area incorporating Keycol Hill, Sittingbourne (A2)	No	36µg/m^3	32.9 µg/m^3	One	Strategic AQAP 2023	swale.gov.uk/aqap

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

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

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

DEFRA's appraisal comments designed to help inform future reports have been addressed for this year's ASR:

1. *SBC have included the Public Health Outcomes Framework D01 indicator within their report, as well as a comparison to England and the South-East region. This is an example of good practice and helps provide context for measures that tackle $PM_{2.5}$. However, Defra recommends that Directors of Public Health approve draft ASRs. Sign off is not a requirement, however collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all. Please bear this in mind for the next annual reporting process.*

2. *QA/QC procedures are appropriate and stated clearly. The methodology for calculation of the combined local bias adjustment factor should be included for clarification which be stated as in line with the LAQM.TG(22) guidance. The national bias adjustment factor has been provided for comparison but discussion as to the choice of adjustment factor used is lacking. It would also be good to provide a screenshot of the national bias adjustment factors spreadsheet for clarity.*

3. *The trends presented in Appendix A are formatted in a way that is clear and easy to understand, it is also helpful that figures have been grouped by location to allow for ease of comparison. The Council also provide discussion of trends for each separate figure to allow for more focused research into trends for each district. Moving forward the Council should ensure that AQS objectives extend across the whole figure. The colour palette used for the chart could also be more pronounced to clarify each year of monitoring.*

4. *Table B.1 should also include the Bias adjustment factor used.*

5. *The council should use proper formatting when addressing pollutants ensuring subscripts are applied where necessary.*

Swale Borough Council

Swale Borough Council has taken forward several 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. Thirteen measures are included within Table 2.2, with the type of measure and the progress Swale Borough Council have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans (2023 – 2028). Key completed measures are:

- MidKent Partnership was successful for funding via DEFRA Air Quality Grant for a 5 -year project to develop a digital training resource for Health Care Practitioners across Kent and Medway to enable practitioners to advise patients with cardio-vascular disease or respiratory diseases on how to reduce their exposure to air pollution.

- Further engagement with schools through Swale's Green School Forum continues, providing holistic engagement on both air quality, ecological and climate actions.

- Local Cycling and Walking Infrastructure Plans (LCWIP) - Stage 1 completed.

- In March 2022 Swale launched a three-year trial of a car club in the town of Faversham which consisted of two hybrid vehicles and one electric vehicle. Building on the success of this, in March 2023 a second car club was launched in Sittingbourne, this time with three hybrid vehicles. Both have demonstrated success, with regular usage throughout 2023.

- Anti-idling campaign – additional enforcement patrols completed at hotspot locations.

- Traffic Management Project commissioned by the Council to review traffic management options at St Paul's Street AQMA. Results will be provided in February 2024. This included a site visit at St Paul's Street, Gas Road and nearby operator sites. A Dust Management Agreement is being created, aimed to reduce fugitive emissions, such as mud and dust being deposited on the highway (St Paul's Street) from operator vehicles. The outcome for this will be reported on the 2025 ASR.

Swale Borough Council

- The Council continue to promote and raise awareness of KentAir alert messaging, air quality impacts and solutions through KentAir week, Clean Air Day and the Green Schools Forum.
- Additional real time measurements are being conducted in other locations within the St Paul's Street AQMA to better understand the spatial extent of the particulate emissions. Results shall be available February 2024.

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

- Complete the Traffic Management Project to review traffic management options at St Paul's Street AQMA
- Provide final report and findings for the additional real time measurements using the Praxis Cube sensor at St Paul's Street
- Complete additional real time monitoring using the Praxis Cube sensor in Teynham AQMA. This will complete a full 12-months monitoring within the Teynham AQMA, allowing a rounded assessment of PM and NO_2 concentrations taking into consideration seasonal variations which may skew the data. Local concerns over Particulate Matter (PM) concentrations in the AQMA have been raised and in response, Swale Borough Council have requested Ricardo's assistance in carrying out a PM monitoring survey to assess whether there are potential PM exceedances.
- Continue anti-idling patrols and raising awareness of the anti-idling campaign in hotspot locations.
- Continue the Swale's Green School Forum to support air quality and climate initiatives.
- Review and update the Air Quality and Planning Technical Guidance and the Air Quality policy (DM 33)
- Commission a Sittingbourne & Iwade Active Travel Connectivity Feasibility Study. This project is to provide town level detail to augment the LCWIP, complementing the Faversham LCWIP and Sheppey Towns Connectivity study.
- Liaise with Medway Council to discuss transboundary impacts and mitigation options. Working towards lowering NO_2 emissions in Newington and Keycol Hill AQMAs.

Swale Borough Council

Swale Borough Council's priorities for the coming year are to ensure AQAP 'task and finish' group continue to work on milestones for measures and complete the above projects. To also review the revocation of AQMAs that fall below the national air quality objectives.

Swale Borough Council worked to implement the AQAP measures in partnership with the following stakeholders during 2023:

- Kent County Council (KCC)

- Neighbouring local authorities through the Kent and Medway Air Quality Partnership

The principal challenges and barriers to implementation that Swale Borough Council anticipates facing are funding measures for example, further stages of the LCWIP, funding for the anti-idling patrols and the level of support provided by KCC due to difference in priorities.

Progress on the following measures has been slower than expected due to:

- Pollution Patrol digital resource – engagement from schools using the resource. In March 2023 the Council offered schools the opportunity to win £100 towards school supplies if they sign up to Pollution Patrol. Not many schools engaged with the offer.
- Swale's Green School Forum – funding opportunities to support school projects.
- LCWIP for the district – funding to complete Stages 3 and 4 could delay completion.
- Continue to improve and develop the EV infrastructure within the district - Difference in strategy between SBC and KCC could be a barrier. Distribution Network Operator (DNO) costs and grid capacity also is a barrier.

Swale Borough Council anticipates that the measures stated above and in Table 2.2 will achieve compliance for NO_2 annual exceedance in all AQMAs.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Swale Borough Council anticipates that further additional measures not yet prescribed might be required in subsequent years to achieve compliance and enable the revocation of St Paul's Street AQMA 4 for particulates (PM_{10}).

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	Continue to develop Air Quality standards within Local Plan. Review and KCC development control policies	Policy Guidance and Development Control	Local Plan Review; Air Quality Policy and other policies; Air Quality Planning and Policy Guidance; Low Emissions Strategy	2023	2028	SBC and KCC planning policy	Staff costs	NO	Funded	< £10k	Implementation	Lower NOx and PM$_{10}$ emissions - Air Quality standards to reduce district-wide emissions	Implementation of policy and planning responses	SBC Parking Standards SPD includes requirements for Parking for Ultra Low Emission Vehicles with the objective of improving air quality. Air Quality and Planning Technical Guidance document (2021) will be updated as policies and guidance evolves	Air Quality will be considered in the site selection for allocations. The emerging Local Plan will include a policy on Air Quality. Air Quality policy (DM 33)
2	Complete a Local Cycling and Walking Infrastructure Plan (LCWIP) for the district and work with KCC to improve of Swale's walking and cycling infrastructure	Transport Planning and Infrastructure	Cycle network	2023	2034	SBC (Active Travel; GIS and Planning) and KCC (PRW, Highways)	Developers & highway infrastructure funding.	NO	Partially Funded	£10k - 50k	Implementation	Lower NOx and PM$_{10}$ emissions	Completion of improved walking and cycling routes	Managed by the Active Travel Co-ordinator. The plan has completed Stage 1, with Stage 2 to 4 still to be completed.	Funding resources to complete Stages 3 (network planning) & 4 (prioritisation of measures) could delay completion. Need LCWIP to apply for future funding of measures.
3	Air pollution alerts, information to raise awareness on impacts and solutions	Public Information	Via the Internet, leaflets and other mechanisms	2016	Ongoing	MidKent Partnership and Kent and Medway Authorities	SBC budget for website and data management	NO	Funded	< £10k	Implementation	Lower NOx and PM$_{10}$ emissions	Number of (vulnerable) people using the alert service in Swale	Kentair website has free air pollution alerts and information. Emails are issued whenever air quality is forecast to be moderate or above for the following day. The email includes Defra's recommended actions and health advice. There are currently 336 registered users for the email service. Through match funding DEFRA AQ Grant - SBC now provides a digital education package 'Pollution Patrol'. This resource is aimed at children aged 5-11 (and their parents).	Kent and Medway local authorities have been awarded a DEFRA AQ Grant funding to deliver an online tool for health professionals to use to assist patients with CHD/COPD in navigating air quality information.
4	To apply for Defra Air Quality Grant scheme to facilitate funding for the most suitable AQAP measures	Other	Other	2023	2028	SBC	Defra and SBC match funding	NO	Partially Funded	< £10k	Completed	Lower NOx and PM10 emissions in AQMA(s) and public health benefits	Number of successful Defra bids	As above two successful Defra bids through match funding: 1. digital education package 'Pollution Patrol' and 2. Online tool for health professionals to use to assist patients with CHD/COPD in navigating air quality information.	Match funding affordability
5	To reduce emissions from activities with Environmental Permits	Environmental Permits	Measures to reduce pollution through IPPC Permits going beyond BAT	2023	2028	SBC	SBC staff cost	NO	Funded	< £10k	Implementation	Lower NOx and PM$_{10}$ emissions in AQMA(s)	Number of measures and performance monitoring data	SBC currently review a case load of installations	St Paul's Street (AQMA 4): Dust Management Agreement is under

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
															review and will be rolled out in 2024/25
6	"20 is plenty" zones - to be monitored and reviewed for AQMAs	Traffic Management	Reduction of speed limits, 20mph zones	2022	2024	KCC and SBC	SBC staff costs	NO	Funded	< £10k	Implementation	Lower NOx and PM10 emissions - impact unknown - being viewed	Smoothing Traffic flow to reduce emissions plus encourage more people to walk and cycle	Faversham town centre and Newington (including A2 - AQMA) now has 20 mph speed limit	Air quality will be assessed through continuous monitoring to assess long-term air quality changes within the AQMA
7	Continue to improve and develop the EV infrastructure within the district	Promoting Low Emission Transport	Other	2022	2030	SBC and KCC Network Innovations	OZEV (ORCS & LEVI); SBC; Private Investment	NO	Partially Funded	£50k - £100k	Implementation	Lower NOx and PM10 emissions	No. charge points/ No. charge points per population	18 new charging spaces by Sep 22 (+ 18 existing spaces from 2022 works)	Difference in strategy between SBC & KCC could be a barrier. DNO costs and grid capacity also is a barrier
8	Explore AQMA specific traffic management options	Traffic Management	Strategic highway improvements	2023	2028	SBC and KCC highways	S106 available for St Paul's Street.	NO	Partially Funded	£50k - £100k	Planning	Lower NOx and PM10 emissions in AQMA(s)	Number of measures and performance monitoring data	SBC are undertaking a scoping assessment with external transport consultants to assist KCC in reviewing traffic management measures. Traffic management options are being considered for St Paul's Street AQMA	Cost for future transport assessments is a barrier
9	Continue anti-idling enforcement, signage and educational campaign	Other	Anti-idling enforcement	2022	2028	Environmental Response Team (SBC)	SBC budget and S106	NO	Partially Funded	< £10k	Implementation	Lower NOx and PM10 emissions at hotspot areas	Monitoring complaints and idling patrols feedback	43 signs installed in 2021 and 27 new locations in 2023 with additional enforcement patrols at hotspot locations. Mainly around schools. Working with some schools to engage with parents	Staffing and funding resources for enforcement patrols on a focused needs basis at hotspot locations. Uncertainty for future funding
10	Car clubs and EV bike hire schemes on development and public spaces in line with SBC EV Strategy, CEE plan.	Alternatives to private vehicle use	Public car and cycle hire	2022	2025	SBC	SBC (e.g., I&R); S106; new Active Travel Fund?	NO	Partially Funded	£10k - 50k	Completed	Lower NOx and PM10 emissions	Scheme utilisation and statistics from KCC through the Kent and Medway Energy and Low Emissions Strategy (ELES)	Faversham and Sittingbourne Car Clubs launched successfully. Car clubs encouraged in developments. Isle Sheppey options are being reviewed.	Two car clubs fully funded through S106 contributions and I & R funding. Future funding uncertain. Reliant on developer contributions and popularity relative to location
11	Work in partnership with Medway Council and KCC to agree mitigation and mechanism to manage transboundary impacts from development on air quality between Newington and Rainham.	Policy Guidance and Development Control	Other policy	2023	2028	SBC, Medway District Council and KCC highways	S106 contributions and SBC staff costs	NO	Partially Funded	< £10k	Implementation	Lower NOx and PM10 emissions in Newington and Keycol Hill AQMAs	Implementation of actions	Initial discussions taking place with MBC and SBC. Independent air quality assessment is being completed as part of the decision-making process	Cross boundary barriers exist. An agreement between both districts needs to be made for collaborative measures and funding
12	Explore opportunities for EV charge points at AQMA's: Newington (Village Hall), Ospringe (SBC car park), East Street	Promoting Low Emission Transport	EV recharging	2023	2028	SBC	OZEV (ORCS & LEVI); SBC; Private Investment;	NO	Partially Funded	£50k - £100k	Planning	Lower NOx and PM10 emissions	No. charge points/ No. charge points per population	Ospringe site being reviewed as part of funding bid	Difference in strategy between SBC & KCC. DNO costs and grid capacity.

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
	(Tesco car park or nearby schools) St Paul's Street (businesses nearby)						S106 contributions								
13	Public transport improvements to bus infrastructure/service	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2025	2028	SBC and KCC	No current funding sources. SBC revenue for staff costs	NO	Not Funded	£500k - £1 million	Planning	Lower NOx and PM_{10} emissions	Greater uptake of usage	Recommendations made with planning responses and S106 contributions to improve bus services. Climate team engaged with community rail partnership but project work yet to commence	Support public transport providers in a lobbing role for improvements to infrastructure and service improvement

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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[12], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM$_{2.5}$). There is clear evidence that PM$_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Public Health Outcomes Framework[13] data tool compiled by Public Health England show the fraction of mortality attributable to particulate air pollution (new method) in 2023 for Swale as 5.6%, the Southeast Region as 5.7% and 5.8% nationally.

Although there are no specific measures to address PM$_{2.5}$ concentrations in place at present, it is recognised that measures to reduce NO$_2$ and PM$_{10}$ should also have a beneficial effect on PM$_{2.5}$ concentrations. The following is a list of measures Swale Borough Council is undertaking to reduce PM$_{10}$ and NOx which should have a beneficial impact on PM$_{2.5}$:

Swale Borough Council are taking the following measures to address PM$_{2.5}$:

- Measure 1: Continue to develop Air Quality standards within Local Plan. Review and KCC development control policies.

- Measure 2: Complete a Local Cycling and Walking Infrastructure Plan (LCWIP) for the district and work with KCC to improve of Swale's walking and cycling infrastructure.

- Measure 3: Air pollution alerts, information to raise awareness on impacts and solutions.

- Measure 9: Continue anti-idling enforcement, signage and educational campaign.

- Measure 10: Car clubs and EV bike hire schemes on development and public spaces in line with SBC EV Strategy and CEE plan.

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12 Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

13 https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/1/gid/1000043/pat/6/par/E12000008/ati/301/are/E07000113/yrr/3/cid/4/tbm/1

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

This section sets out the monitoring undertaken within 2023 by Swale Borough Council 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

Swale Borough Council undertook automatic (continuous) monitoring at ZW3 (Ospringe), ZW8 (St Paul's Street) and ZW10 (Newington) sites during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites.

The Kentair[14] website presents automatic monitoring results for Swale Borough Council, with automatic monitoring results also available through the UK-Air website[15].

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.

NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem.

3.1.2 Non-Automatic Monitoring Sites

Swale Borough Council undertook non- automatic (i.e., passive) monitoring of NO_2 using 86 tubes covering 76 locations during 2023. Table A.2 in Appendix A presents the details of the non-automatic sites.

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[14] https://www.kentair.org.uk/

[15] https://uk-air.defra.gov.uk/data/data_selector_service?q=7979067&s=st&l=1#mid

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.

The following sites were closed:

- SW117 (Land adj to Orchard, Canterbury Road, Faversham);
- SW169 (Ospringe Primary, Water Lane, Ospringe);
- SW119 (Flats, The Mount, Ospringe);
- SW125 (Fox & Goose, The Street, Bapchild);
- SW149 (Balmoral Terrace/Kings Head, London Road, Sittingbourne) and
- SW85 (Sheerness College 2, Bridge Road, Sheerness).

Sites (except Isle of Sheppey) were removed if they are below 32 µg/m^3 for (more than) > 2 years. The Isle of Sheppey sites are removed if they are below 20 µg/m^3 for (more than) > 2 years. This because it is a developing area, and all sites are currently low. Relocation for sites was considered.

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%). 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. There are no passive monitoring sites where the NO$_2$ annual mean is greater than 60µg/m^3, therefore in accordance with DEFRA LAQM.TG(22) there are no sites likely to be at risk of exceeding the 1-hour mean AQS objective.

Table A3 shows there has been compliance of the Annual Mean NO$_2$ Concentrations (40µg/m^3) at all automatic monitoring stations during 2023. In 2023 the ZW3 (Ospringe) automatic station recorded the annual mean concentration as 21 µg/m^3 and has been compliant 5 years. ZW8 (St Paul's Street) automatic station recorded the 2023 annual mean concentration as 27 µg/m^3 and has been compliant 5 years with one year being within 10% of the air quality objective. Installed in 2021, ZW10 (Newington) automatic station recorded the 2023 annual mean concentration as 20 µg/m^3 and has been compliant for 3 years.

During 2023, all 86 passive monitoring sites recorded concentrations well below the air quality objective for NO$_2$ annual mean (table A4). All passive monitoring sites have shown a decrease in NO$_2$ annual mean concentrations over the last five years (figures A2 to A11). Triplicate passive monitoring sites are at four locations are positioned strategically to

increase the accuracy of our monitoring data, as well as one triplicate set with different heights to see the concentration difference.

The triplicate set of diffusion tubes with different heights at Keycol Hill has showed no significant difference in NO_2 concentration at monitoring sites over the last five years. The recorded concentrations in 2023 were: 32.8 µg/m3 (SW124), 32.1 µg/m3 (SW130), 31.8 µg/m3 (SW131). Therefore, two of the tubes shall be removed and relocated as part of next year's tube audit.

Six new diffusion tube sites were added in 2023 which also have shown no exceedances: SW169 (13.7 µg/ m³); SW170 (20.7 µg/ m³); SW173 (19 µg/ m³); SW172 (17.7 µg/ m³); SW174 (12.2 µg/ m³); SW171 (9.3 µg/ m³). As part of our annual audit which removes, adds or relocates tubes relative to our prescribed criteria. New sites are evidence-based relative to traffic congestion data outlined in Swale Transport model with predicted congested areas and where future development is planned. Each site is also reviewed relative to topography and relevant receptors. Environmental Health Team plan to reduce monitoring sites for 2024 data collection. These will be assessed as part of the 2023/24 tube audit.

Regarding the AQMAs, Keycol Hill AQMA tube site SW130 presented in table A4 showed a decrease from 40.9 µg/m^3 (2022) to 32.1 µg/m^3 (2023). Three other passive tube sites at Keycol Hill were within 10% of the AQO in 2022 and have decreased since then in the 2023 results at sites SW124 (32.8 µg/ m³), SW131 (31.8 µg/ m³) and SW154 (32.9 µg/ m³). Diffusion tubes at Keycol Hill AQMA (figure A. 7) have been compliant for one year. Diffusion tubes located at Newington AQMA (figure A.2), Ospringe Street AQMA (figure A.3) and St Paul's Street AQMA (figure A.5) have been compliant for <u>four consecutive years</u>. Tubes at East Street AQMA (figure A.4) have been compliant for <u>five consecutive years</u> with one of those years being within 10% of the annual mean NO_2 objective. Diffusion tubes at Teynham AQMA (figure A.6) have been compliant for the past <u>six consecutive years</u> with one of those years being within 10% of the annual mean NO_2 objective (SW80) outlined in the 2023 ASR. Trends over the last five years are shown in figures A1 to A7.

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. During 2023 there were no exceedances of the annual mean PM$_{10}$ objective at all three automatic monitoring sites. Recorded concentrations were: 20 µg/m^3 at ZW3 (Ospringe – AQMA 3/6), 33 µg/m^3 at ZW8 (St Paul's Street – AQMA 4), 17 µg/m^3 at ZW10 (Newington – AQMA 1).

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. Since 2019 ZW3 (Ospringe) has shown a decreasing trend in the daily number of exceedances of the 24-hour mean greater the 50µg/m^3, with no exceedances over the last five years and reported zero exceedances during 2023.

Since 2019 ZW8 (St Paul's Street) in AQMA 4 the number of exceedances has increased continuously up to 2022 and has now decreased from 62 to 42 exceedances during 2023. This still is more than the AQS objective of the 35 exceedances. ZW8 has been non-compliant for the 24 – Hour PM$_{10}$ AQS objective for <u>five years</u>. As discussed in section 2.1 work is ongoing to understand better the reasons for these exceedances. Mitigation in the form a 'deep clean' of the road and additional road sweeping to reduce non-tail pipe emissions will take place during 2024. Results from this will be reported on in the next 2025 ASR.

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.

Monitoring for PM$_{2.5}$ was undertaken at existing site ZW8 (St Paul's Street) and new site ZW10 (Newington) started in 2021. Sites ZW8 (12 µg/m^3) and ZW10 (µg/m^3) have slightly increased since 2022 but do not exceed 20 µg/m^3 annual objective for PM$_{2.5}$.

Swale Borough Council

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Inlet Height (m)
ZW3	Swale Ospringe	Roadside	600360	160869	NO$_2$, PM$_{10}$	Y – AQMA: No.2/6	Chemiluminescent	0.5	1.7	2
ZW8	St Paul's Street	Roadside	590264	164396	NO2, PM$_{10}$, PM$_{2.5}$	Y – AQMA No.4	Chemiluminescent BAM x 2	9	2.5	3.2
ZW10	Newington	Roadside	585970	164787	NO$_2$, PM$_{10}$, PM$_{2.5}$	Y – AQMA No.1	Chemiluminescent BAM x 2	2.6	3.3	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.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)
Isle of Sheppey										
SW86	Swale Foyer, Bridge Road, Sheerness	Roadside	591726	175018	NO2	No		2.4	No	2.1
SW127	Lamp post o/s 14 Halfway, Halfway	Roadside	593151	172962	NO2	No	9.0	2.5	No	2.1
SW128	Lampost o/s 12a Queenborough Road, Halfway	Roadside	593092	172870	NO2	No	3.0	1.5	No	2.1
SW133	159/161 High Street, Sheerness	Roadside	592208	174596	NO2	No	0.5	1.5	No	2.0
SW164	Lamp post o/s 45 Minster Road, Halfway	Roadside	593292	172897	NO2	No	4.0	1.1	No	1.9
SW165	Lamp Post o/s Post Office, Main Road, Queenborough	Kerbside	591396	172070	NO2	No	10.0	0.4	No	2.1
SW166	Lower Road, Minster Nr Barton Hill Roundabout	Roadside	594021	171626	NO2	No	20.0	1.5	No	2.0
SW170	Minster Road (132) Minster	Roadside	593822	172812	NO2	No	1.6	2.0	No	
SW169	Nettle Way, Thistle Hill Estate, Minster	Roadside	594599	171996	NO2	No	1.9	2.0	No	

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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)
Newington										
SW19	5 High Street, Newington	Roadside	585904	164794	NO2	Yes - AQMA 1	0.0		No	2.1
SW37	A2 Newington O/S 32/34 High Street, Newington	Roadside	585868	164803	NO2	Yes - AQMA 1	4.0	1.9	No	2.1
SW42.1, SW42.2, SW42.3	A2 Newington opposite Church Lane	Roadside	585935	164787	NO2	Yes - AQMA 1	0.0	1.3	No	2.2
SW45	64/66 High Street, Newington	Roadside	585989	164774	NO2	Yes - AQMA 1	2.9	1.2	No	2.2
SW66	A2 Newington O/S 94 High Street, Newington	Roadside	586080	164746	NO2	Yes - AQMA 1	0.0	1.1	No	2.3
SW78	55-57 High Street, Newington	Roadside	585951	164792	NO2	Yes - AQMA 1	0.0	2.2	No	1.9
SW167.1, SW167.2, SW167.3	Newington Air Quality Station	Roadside	585970	164788	NO2	Yes - AQMA 1	4.0	3.2	Yes	1.0
St Paul's Street and Sittingbourne										
SW51	O/S 14/16 St Pauls Street, Sittingbourne	Roadside	590236	164408	NO2	Yes - AQMA 4	0.5	2.0	No	2.0
SW71	O/S 8 Staple Close,	Roadside	590098	164455	NO2	No	4.4	3.3	No	1.8

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co located with a Continuous Analyser?	Tube Height (m)
	Staplehurst Road, Sittingbourne									
SW89.1, SW89.2, SW89.3	St Pauls AQ Station, St Pauls Street, Milton	Roadside	590252	164397	NO2	Yes - AQMA 4	11.1	1.9	Yes	2.3
SW140	Lamp post 36/38 Chalkwell Road, Sittingbourne	Roadside	590079	164367	NO2	No	0.0	1.1	No	2.0
SW141	Drainpipe 37/39 Chalkwell Road, Sittingbourne	Roadside	590071	164375	NO2	No	0.0	1.6	No	2.1
SW142	Lamp post opp Stumble Inn, St Pauls Street, Sittingbourne	Roadside	590139	164406	NO2	Yes - AQMA 4	20.0	1.6	No	2.1
SW162	Lamp post 1 Staplehurst Road, Sittingbourne B2006 Staplehurst Link Road	Roadside	590093	164438	NO2	No	7.0	1.5	No	2.1
SW62	Lampost 13 Key Street, Sittingbourne	Roadside	588178	164236	NO2	No	15.0	1.9	No	2.0
SW112	56 Key Street, Sittingbourne	Roadside	588329	164188	NO2	No	5.5	2.1	No	2.2

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co located with a Continuous Analyser?	Tube Height (m)
SW122	13 Keystreet, Sittingbourne façade	Roadside	588184	164250	NO2	No	0.0	18.0	No	1.9
SW123	12 Keystreet, Sittingbourne	Roadside	588153	164227	NO2	No	0.0	3.7	No	1.2
Keycol Hill and Sittingbourne										
SW121	Squirrel Cottage, Keycol Hill façade	Roadside	587936	164267	NO2	Yes - AQMA 7	0.0	9.3	No	2.1
SW124	31/33 Keycol Hill, Sittingbourne (Highest point)	Roadside	587775	164320	NO2	Yes - AQMA 7	0.0	1.5	No	1.8
SW130	31/33 Keycol Hill, Sittingbourne (Mid Point)	Roadside	587775	164320	NO2	Yes - AQMA 7	0.0	1.5	No	2.0
SW131	31/33 Keycol Hill, Sittingbourne (Lowest point)	Roadside	587775	164320	NO2	Yes - AQMA 7	0.0	1.5	No	1.4
SW143	Lamp post 49 Key Street, Sittingbourne	Roadside	588383	164190	NO2	Yes - AQMA 7	5.0	2.0	No	0.8
SW144	3/5 Keycol Hill, Sittingbourne	Roadside	587917	164277	NO2	Yes - AQMA 7	0.0	4.8	No	2.0
SW145	Lamp post 40 Keycol Hill, Sittingbourne	Roadside	587694	164355	NO2	Yes - AQMA 7	40.0	1.5	No	1.9
SW146	Fox Cottage, Chestnut Street, Borden	Roadside	587513	163885	NO2	No	7.0	1.8	No	2.1

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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)
SW154	Bus stop o/s 9/11 Keycol Hill, Sittingbourne	Roadside	587874	164292	NO2	No	9.0	1.5	No	2.2
SW155	Grovehurst Road, Iwade Bound side between roundabout & Iwade Village	Roadside	590292	166977	NO2	No		2.9	No	2.1
SW156	Lamp post o/s 96 Grovehurst Road, Sittingbourne	Roadside	590525	166298	NO2	No	3.0	0.4	No	2.0
SW157	Lamp post o/s 139 Grovehurst Road, Sittingbourne	Roadside	590428	166438	NO2	No	7.0	2.9	No	2.0
SW158	Lamp post o/s Sanctuary Homes (Milton Pipes) Site Mill Way, Sittingbourne	Roadside	590494	164416	NO2	No	12.0	2.9	No	2.0
SW159	Lamp post jct Gas Road & Mill Way, Sittingbourne	Roadside	590567	164439	NO2	No	40.0	1.8	No	2.0
SW160	Lamp post o/s 41/43 Saffron Way, Sittingbourne B2005	Roadside	590904	165192	NO2	No	10.0	1.5	No	1.9
SW161	Lamp post Garnet House Flats, B2006	Roadside	589167	164747	NO2	No	8.0	8.0	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co located with a Continuous Analyser?	Tube Height (m)
	Staplehurst Link Road									
SW163	Lamp post Opp Regent Park, Eurolink Way, Sittingbourne	Roadside	590850	163852	NO2	No	30.0	2.2	No	2.1
SW132	Fountain Street, Sittingbourne	Roadside	590508	163850	NO2	No	5.0	3.0	No	2.3
SW77	Kemsley Fields, Swale Way, Kemsley, Sittingbourne	Roadside	591040	166519	NO2	No	13.6	6.0	No	2.1
SW147	Flats 1-20 St Michaels Road, Sittingbourne	Roadside	590370	163877	NO2	No	1.0	4.0	No	2.0
SW148	158/160 London Road, Sittingbourne	Roadside	589163	164011	NO2	No	4.0	1.5	No	2.1
SW172	Murston Road (25) Murston, Sittingbourne	Roadside	591800	163523	NO2	No	7.0	2.9	No	2.1
SW173	Tonge Road (Homeview) Murston, Sittingbourne	Roadside	591878	163841	NO2	No	3.0	1.1	No	2.0
SW174	Ruins Barn Road, Tunstall, Sittingbourne	Roadside	590257	161893	NO2	No	6.2	1.7	No	2.0
East Street, Sittingbourne and Bapchild										

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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)
SW56	126 East Street, Sittingbourne	Roadside	591453	163465	NO2	Yes - AQMA 3	0.0	3.1	No	2.0
SW76	155 Canterbury Road, Sittingbourne	Roadside	592209	163302	NO2	No	3.5	1.7	No	1.8
SW151	Lamp post outside Beatrice Lodge, London Road, Sittingbourne	Roadside	591515	163451	NO2	No	6.0	1.6	No	2.0
SW152	Lamp post o/s 157/159 East Street, Sittingbourne	Roadside	591423	163484	NO2	Yes - AQMA 3	4.0	1.8	No	2.0
SW126	16/18 The Street, Bapchild	Roadside	592867	163131	NO2	No	1.0	1.0	No	2.0
Teynham										
SW80	LTR Supplies, 107, London Road, Teynham	Roadside	595155	162472	NO2	Yes - AQMA 5	0.6	1.5	No	2.1
SW91	Adj to 72 London Road, Teynham	Roadside	595150	162461	NO2	Yes - AQMA 5	0.0	2.4	No	1.8
SW92	F J Williams London Road, Teynham	Roadside	595195	162446	NO2	Yes - AQMA 5	1.0	3.4	No	1.8
SW153	Lamp post o/s 190/192 London Road, Teynham	Roadside	594748	162602	NO2	No	1.5	1.5	No	1.9

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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)
Ospringe and Faversham										
SW28	Mayors Arms, Ospringe Street, Faversham	Roadside	600225	160887	NO2	Yes - AQMA 2/6	0.0	1.5	No	2.1
SW29	43 Ospringe Street, Faversham	Roadside	600286	160868	NO2	Yes - AQMA 2/6	0.0	2.4	No	2.4
SW30.1, SW30.2, SW30.3	Ospringe AQ Station	Roadside	600363	160869	NO2	Yes - AQMA 2/6	1.7	2.5	Yes	2.1
SW31	4 Ospringe Street, Faversham	Roadside	600444	160848	NO2	Yes - AQMA 2/6	0.0	1.5	No	2.5
SW32	11 Ospringe Street, Faversham	Roadside	600422	160843	NO2	Yes - AQMA 2/6	0.0	2.0	No	2.5
SW96	Maison Dieu, Ospringe Street	Roadside	600358	160859	NO2	Yes - AQMA 2/6	0.0	1.5	No	2.3
SW171	Water Lane, Ospringe	Roadside	600338	160805	NO2	No	1.7	2.0	No	2.3
SW120	1-3 Ospringe Street, Ospringe, Faversham	Roadside	600456	160836	NO2	Yes - AQMA 2/6	0.0	1.4	No	2.3
SW135	Lamp post outside 31/33 Ospringe Street, Ospringe	Roadside	600326	160860	NO2	No	0.5	2.5	No	2.0
SW98	Canterbury Road Preston	Roadside	601818	160474	NO2	No	2.0	0.4	No	2.0

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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)
	Faversham (Lavender Cottage)									
SW136	A2 Jct Preston Grove, Faversham	Roadside	601491	160570	NO2	No	20.0	2.2	No	2.0
SW137	A251 Fire Station, Ashford Road	Roadside	601443	160486	NO2	No	6.0	1.4	No	1.9
SW138	17 East Street, Faversham	Roadside	601706	161338	NO2	No	0.0	1.3	No	2.1
SW139	14 Crescent Road, Faversham	Roadside	601706	161338	NO2	No	10.0	1.1	No	2.1
SW168	Western Link Road - Davington Fields Roundabout	Roadside	600001	161622	NO2	No	12.0	1.7	No	2.1
Rural and Urban background										
SW07	Capel Hill Farm, Harty	Rural	600758	169576	NO2	No	5.0		No	1.7
SW34	Hernhill Village Hall, Hernhill	Rural	606624	161108	NO2	No	0.0		No	2.1
SW88	Sonora Way, Sittingbourne	Urban Background	589318	165045	NO2	No	5.8	1.8	No	2.0

Notes:

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

(2) N/A if not applicable.

The following tubes were removed (6):

SW117 (Land adj to Orchard, Canterbury Road, Faversham); SW169 (Ospringe Primary, Water Lane, Ospringe); SW119 (Flats, The Mount, Ospringe); SW125 (Fox & Goose, The Street, Bapchild); SW149 (Balmoral Terrace/Kings Head, London Road, Sittingbourne) and SW85 (Sheerness College 2, Bridge Road, Sheerness).

Sites (except Isle of Sheppey) were removed if below 32 µg/m^3 for (more than) > 2 years. The Isle of Sheppey sites are removed if they are below 20 µg/m^3 for (more than) > 2 years. This because it is a developing area, and all sites are currently low. Relocation for sites was considered.

New tube sites added (6):

SW169: (Lampost o/s 11 Nettle Way, Thistle Hill Estate, Minster); SW170 (Lampost 132 Minster Road, Minster); SW173 (Lampost o/s 35 Home View Terrace, Tonge Road, Murston); SW172 (Lampost o/s 25 Murston Road, Murston); SW174 (Lampost O/s 1c Ruins Barn Road, Sittingbourne); SW171 (Lamp post outside 14 Water Lane, Ospringe). New sites added from evidence-based traffic congestion data outlined in Swale Transport model and congested areas where future development is planned. Traffic flow, receptors near the road and topography of the area are also reviewed.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
ZW3	600363	160869	Roadside	98.3	98.3	31.4	25.1	23.5	24.8	21
ZW8	590252	164397	Roadside	95.4	95.4	39.1	31.6	30.6	30.4	27
ZW10	585970	164788	Roadside	99.1	99.1	-	-	22.6	21.9	20

☒ 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 NO₂ 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/m³.

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

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
Isle Of Sheppey										
SW86	591726	175018	Roadside	92.3	92.3	28.3	21.5	23.1	24.0	21.1
SW127	593151	172962	Roadside	100.0	100.0	31.0	22.4	23.4	23.7	22.7
SW128	593092	172870	Roadside	100.0	100.0	37.4	27.0	27.4	25.2	23.4
SW133	592208	174596	Roadside	42.3	42.3	30.4	22.5	25.0	25.2	21.6
SW164	593292	172897	Roadside	90.4	90.4	-	-	21.6	19.2	19.5
SW165	591396	172070	Kerbside	75.0	75.0	-	-	17.5	17.8	14.9
SW166	594021	171626	Roadside	92.3	92.3	-	-	-	23.1	20.4
SW170	593822	172812	Roadside	100.0	100.0	-	-	-	-	20.7
SW169	594599	171996	Roadside	100.0	100.0	-	-	-	-	13.7
Newington										
SW19	585904	164794	Roadside	100.0	100.0	36.8	27.0	27.9	29.3	27.1
SW37	585868	164803	Roadside	100.0	100.0	32.6	23.1	24.3	25.2	21.2

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
SW42.1, SW42.2, SW42.3	585935	164787	Roadside	100.0	100.0	**43.9**	31.5	33.1	35.8	30.6
SW45	585989	164774	Roadside	90.4	90.4	31.8	27.4	28.6	32.2	24.0
SW66	586080	164746	Roadside	92.3	92.3	33.7	26.9	26.4	26.9	25.3
SW78	585951	164792	Roadside	100.0	100.0	34.1	25.4	26.9	30.1	24.3
SW167.1, SW167.2, SW167.3	585970	164788	Roadside	100.0	100.0	-	-	-	19.9	17.8
St Paul's Street and Sittingbourne										
SW51	590236	164408	Roadside	100.0	100.0	**40.5**	32.4	34.4	32.7	29.3
SW71	590098	164455	Roadside	92.3	92.3	36.1	27.6	28.9	29.4	25.8
SW89.1, SW89.2, SW89.3	590252	164397	Roadside	100.0	100.0	**40.1**	32.3	31.9	31.7	26.6
SW140	590079	164367	Roadside	100.0	100.0	-	26.1	31.8	31.6	28.9
SW141	590071	164375	Roadside	90.4	90.4	-	27.0	27.9	29.9	30.0
SW142	590139	164406	Roadside	75.0	75.0	-	24.2	27.6	26.3	22.1
SW162	590093	164438	Roadside	100.0	100.0	-	-	29.4	27.1	26.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
SW62	588178	164236	Roadside	100.0	100.0	33.7	26.4	26.1	26.5	20.1
SW112	588329	164188	Roadside	100.0	100.0	33.4	25.8	26.0	27.5	23.5
Keycol Hill and Sittingbourne										
SW121	587936	164267	Roadside	100.0	100.0	**42.7**	33.9	34.6	34.4	30.0
SW122	588184	164250	Roadside	100.0	100.0	21.2	16.9	16.9	17.1	19.6
SW123	588153	164227	Roadside	90.4	90.4	27.3	21.8	22.7	23.8	20.4
SW124	587775	164320	Roadside	100.0	100.0	**52.3**	34.8	36.9	39.1	32.8
SW130	587775	164320	Roadside	100.0	100.0	**55.5**	35.8	34.8	**40.9**	32.1
SW131	587775	164320	Roadside	100.0	100.0	**55.0**	35.0	35.8	39.6	31.8
SW143	588383	164190	Roadside	100.0	100.0	-	20.7	22.4	22.1	23.2
SW144	587917	164277	Roadside	100.0	100.0	-	32.9	33.7	34.6	28.1
SW145	587694	164355	Roadside	82.7	82.7	-	22.3	24.1	24.6	21.7
SW146	587513	163885	Roadside	100.0	100.0	-	17.8	17.7	19.6	16.1
SW154	587874	164292	Roadside	100.0	100.0	-	34.0	34.7	36.5	32.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
SW155	590292	166977	Roadside	75.0	75.0	-	-	18.9	19.5	14.7
SW156	590525	166298	Roadside	100.0	100.0	-	-	19.5	19.5	16.4
SW157	590428	166438	Roadside	92.3	92.3	-	-	26.8	24.6	20.9
SW158	590494	164416	Roadside	51.9	51.9	-	-	33.8	34.1	31.3
SW159	590567	164439	Roadside	92.3	92.3	-	-	30.3	30.6	27.5
SW160	590904	165192	Roadside	100.0	100.0	-	-	23.7	23.1	19.8
SW161	589167	164747	Roadside	90.4	90.4	-	-	24.4	20.4	17.4
SW163	590850	163852	Roadside	90.4	90.4	-	-	27.1	26.7	24.7
SW132	590508	163850	Roadside	100.0	100.0	31.4	25.9	28.2	28.9	23.2
SW77	591040	166519	Roadside	100.0	100.0	29.6	24.6	26.0	24.7	21.5
SW147	590370	163877	Roadside	90.4	90.4	-	26.4	27.7	26.8	23.7
SW148	589163	164011	Roadside	84.6	84.6	-	19.5	20.8	25.5	16.9
SW172	591800	163523	Roadside	57.7	57.7	-	-	-	-	17.7
SW173	591878	163841	Roadside	82.7	82.7	-	-	-	-	19.0

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
SW174	590257	161893	Roadside	100.0	100.0	-	-	-	-	12.2
East Street, Sittingbourne and Bapchild										
SW56	591453	163465	Roadside	100.0	100.0	37.7	27.6	30.0	30.8	27.9
SW76	592209	163302	Roadside	92.3	92.3	33.5	22.2	26.0	26.8	23.7
SW151	591515	163451	Roadside	100.0	100.0	-	19.0	20.9	23.9	17.9
SW152	591423	163484	Roadside	92.3	92.3	-	23.9	25.6	23.3	21.3
SW126	592867	163131	Roadside	90.4	90.4	37.2	24.0	24.6	27.3	20.2
Teynham										
SW80	595155	162472	Roadside	65.4	65.4	32.8	26.1	25.3	26.7	20.3
SW91	595150	162461	Roadside	90.4	90.4	33.4	23.7	24.7	28.3	23.3
SW92	595195	162446	Roadside	80.8	80.8	31.9	23.5	22.6	24.7	20.4
SW153	594748	162602	Roadside	75.0	75.0	-	23.8	21.5	23.9	21.7
Ospringe and Faversham										
SW28	600225	160887	Roadside	90.4	90.4	**43.0**	34.0	34.3	38.1	31.0

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
SW29	600286	160868	Roadside	90.4	90.4	**40.9**	30.4	29.0	32.7	28.6
SW30.1, SW30.2, SW30.3	600363	160869	Roadside	90.4	90.4	31.1	22.3	23.0	25.7	23.0
SW31	600444	160848	Roadside	90.4	90.4	37.9	27.8	30.0	32.4	26.6
SW32	600422	160843	Roadside	90.4	90.4	36.9	25.0	24.5	29.2	23.5
SW96	600358	160859	Roadside	90.4	90.4	36.6	27.9	26.7	32.8	25.4
SW171	600338	160805	Roadside	82.7	82.7	-	-	-	-	9.3
SW120	600456	160836	Roadside	90.4	90.4	39.9	29.9	29.4	32.8	27.4
SW135	600326	160860	Roadside	90.4	90.4	-	31.6	30.6	35.3	30.4
SW98	601818	160474	Roadside	90.4	90.4	33.5	23.4	22.7	24.7	19.8
SW136	601491	160570	Roadside	42.3	42.3	-	26.4	27.3	28.4	26.6
SW137	601443	160486	Roadside	90.4	90.4	-	35.7	24.7	26.0	23.2
SW138	601706	161338	Roadside	90.4	90.4	-	24.9	25.8	24.0	22.0
SW139	601706	161338	Roadside	90.4	90.4	-	21.5	23.8	24.1	21.3

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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
SW168	600001	161622	Roadside	90.4	90.4	-	-	-	23.7	19.0
Rural and Urban Background										
SW88	589318	165045	Urban Background	92.3	92.3	21.1	14.6	16.3	16.5	14.3
SW34	606624	161108	Rural	90.4	90.4	9.8	8.0	7.3	8.5	7.5
SW07	600758	169576	Rural	100.0	100.0	11.3	8.3	7.7	8.0	7.3

☒ 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 $\mu g/m^3$.

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in bold.

NO_2 annual means exceeding $60\mu g/m^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in <u>bold and underlined</u>.

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.

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

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

Figure A.1 – Trends in Annual Mean NO₂ Concentration at automatic monitoring sites
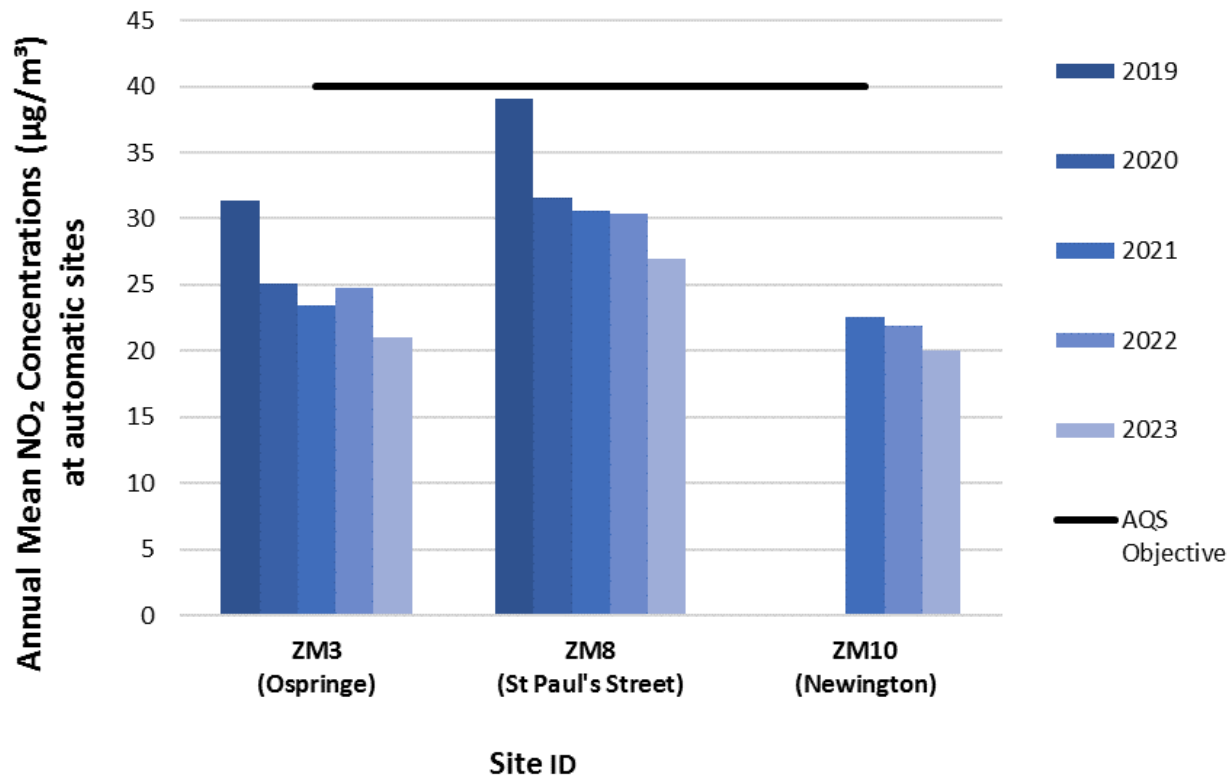

Figure A.1 presents NO₂ annual mean concentrations for sites ZW3, ZW8 and ZW10 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

Figure A.1- Trends in Annual Mean NO₂ Concentrations within AQMA 1 (Newington
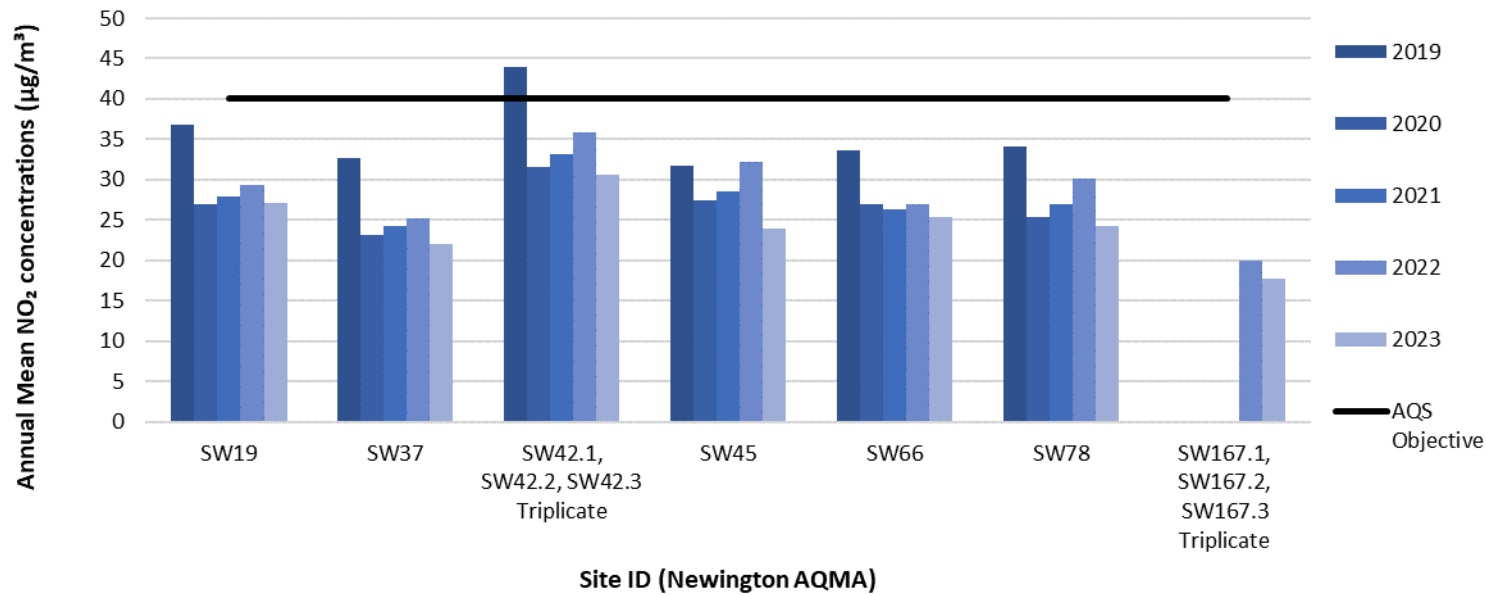

Figure A.2 presents the NO₂ annual mean concentrations for sites SW19, SW37, SW42 triplicates, SW45, SW66, SW78 and SW167 triplicates between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

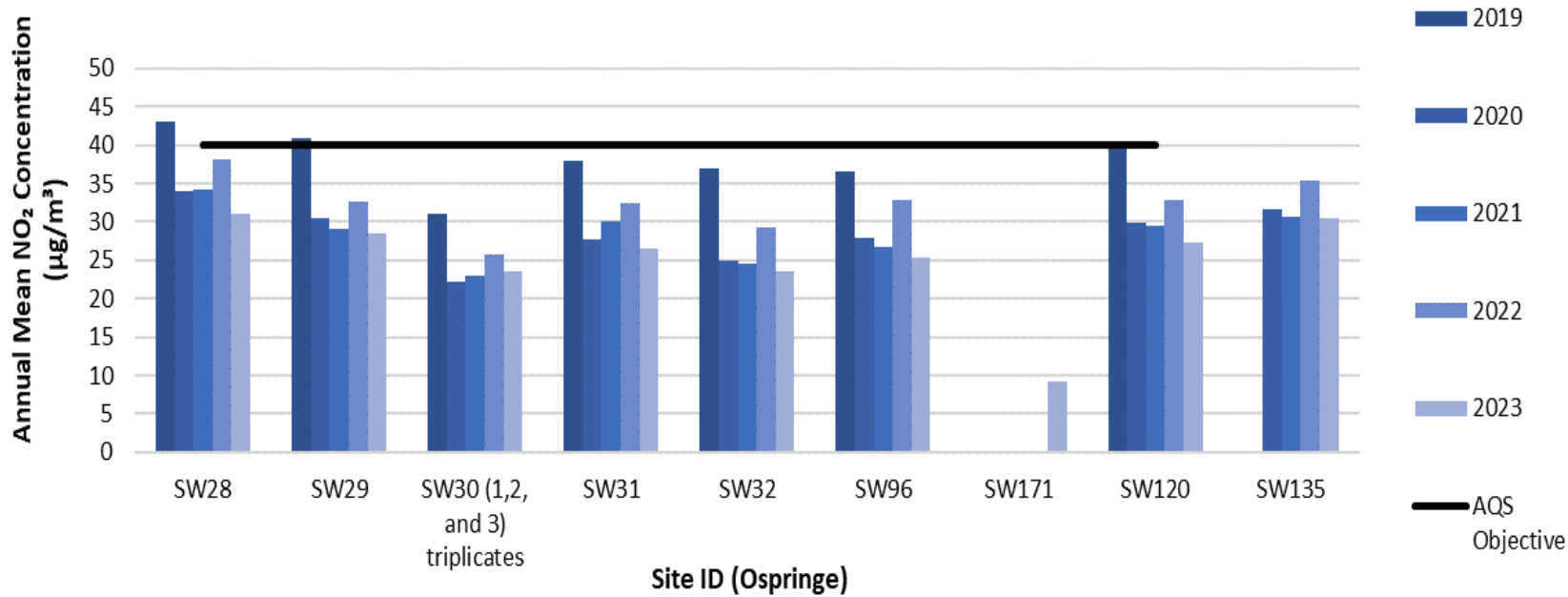**Figure A.3- Trends in Annual Mean NO₂ Concentrations within AQMA No. 2/6 Ospringe**

Figure A.3 presents the NO₂ annual mean concentrations for sites SW28, SW29, SW30 (1,2, and 3) triplicates, SW31, SW32, SW96, SW171, SW120 and SW135 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

Figure A.4- Trends in Annual Mean NO₂ Concentrations within AQMA 3 East Street
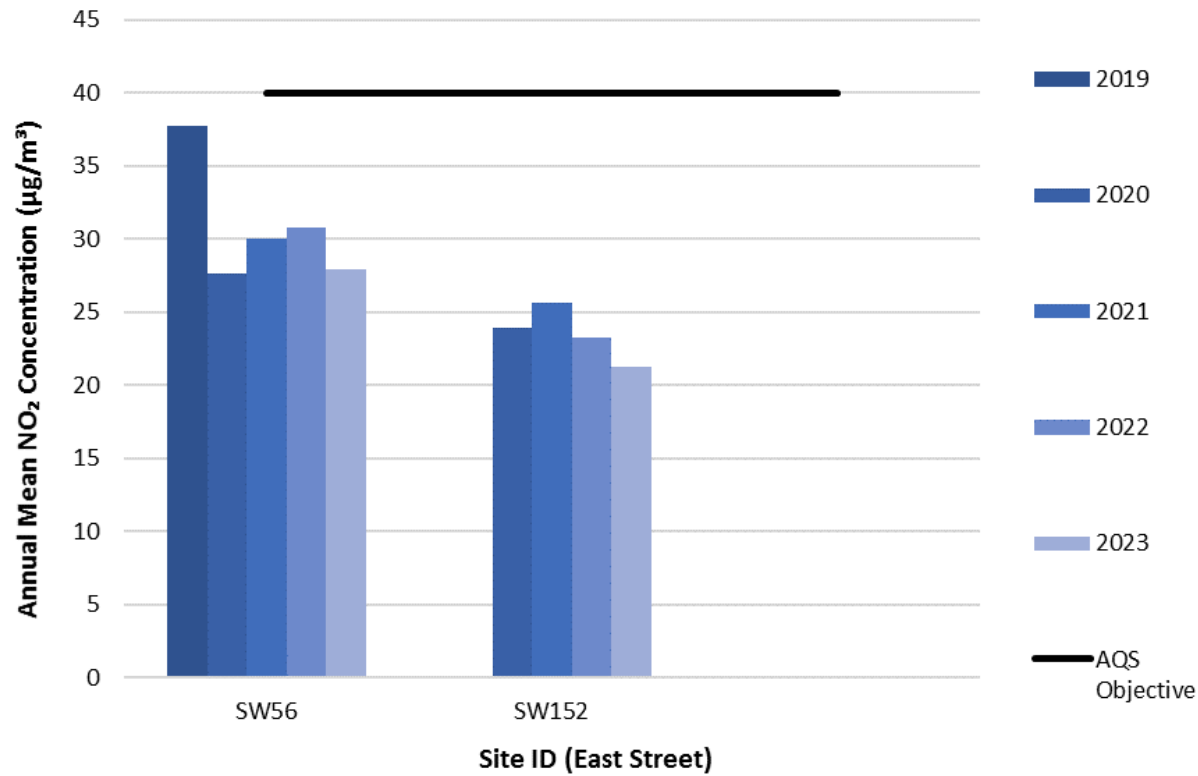

Figure A.4 presents the NO₂ annual mean concentrations for sites SW56 and SW152 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

Figure A.5- Trends in Annual Mean NO₂ Concentrations within AQMA 4 St Paul's Street

Figure A.5 presents the NO₂ annual mean concentrations for sites SW51, SW89 (1,2, and 3) triplicates and SW142 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

Figure A.6- Trends in Annual Mean NO₂ Concentrations within AQMA 5 Teynham

Figure A.6 presents the NO₂ annual mean concentrations for sites SW80, SW91 and SW92 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

Figure A.7- Trends in Annual Mean NO₂ Concentrations within AQMA 7 Keycol Hill

Figure A.7 presents the NO₂ annual mean concentrations for sites SW121, SW124, SW130, SW131, SW143, SW144, SW145 and SW154 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

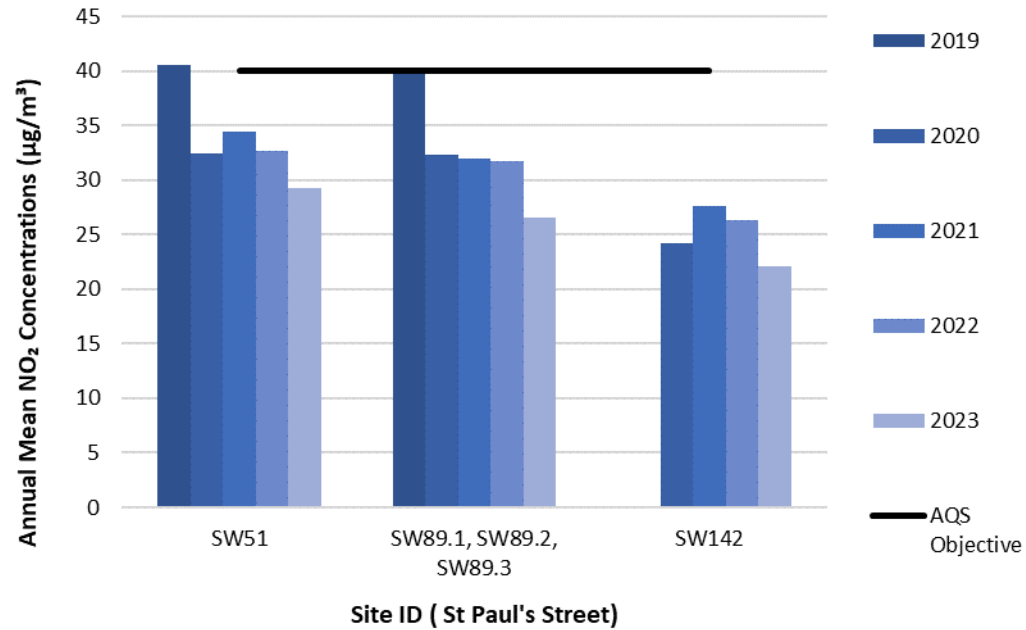**Figure A.8- Trends in Annual Mean NO₂ Concentrations within Faversham**

Figure A.8 presents the NO₂ annual mean concentrations for sites SW98, SW136, SW137, SW138, SW139 and SW168 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

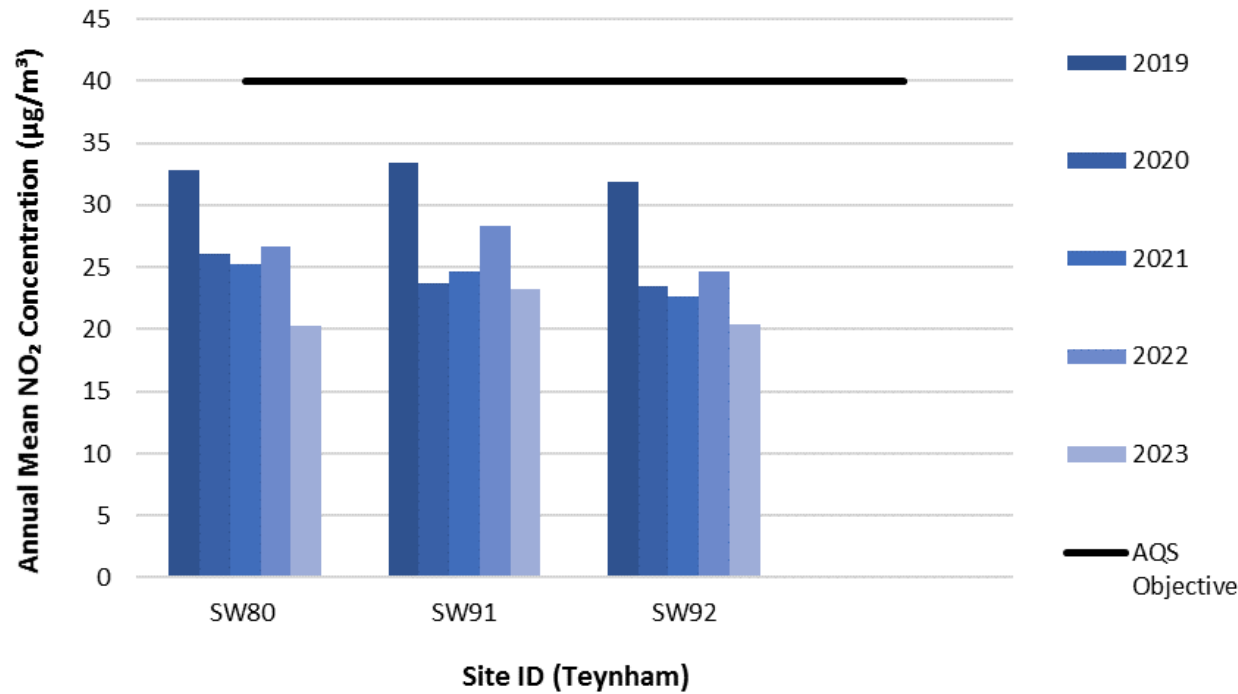**Figure A.9- Trends in Annual Mean NO₂ Concentrations within Sittingbourne West**

Site ID (Sittingbourne West)
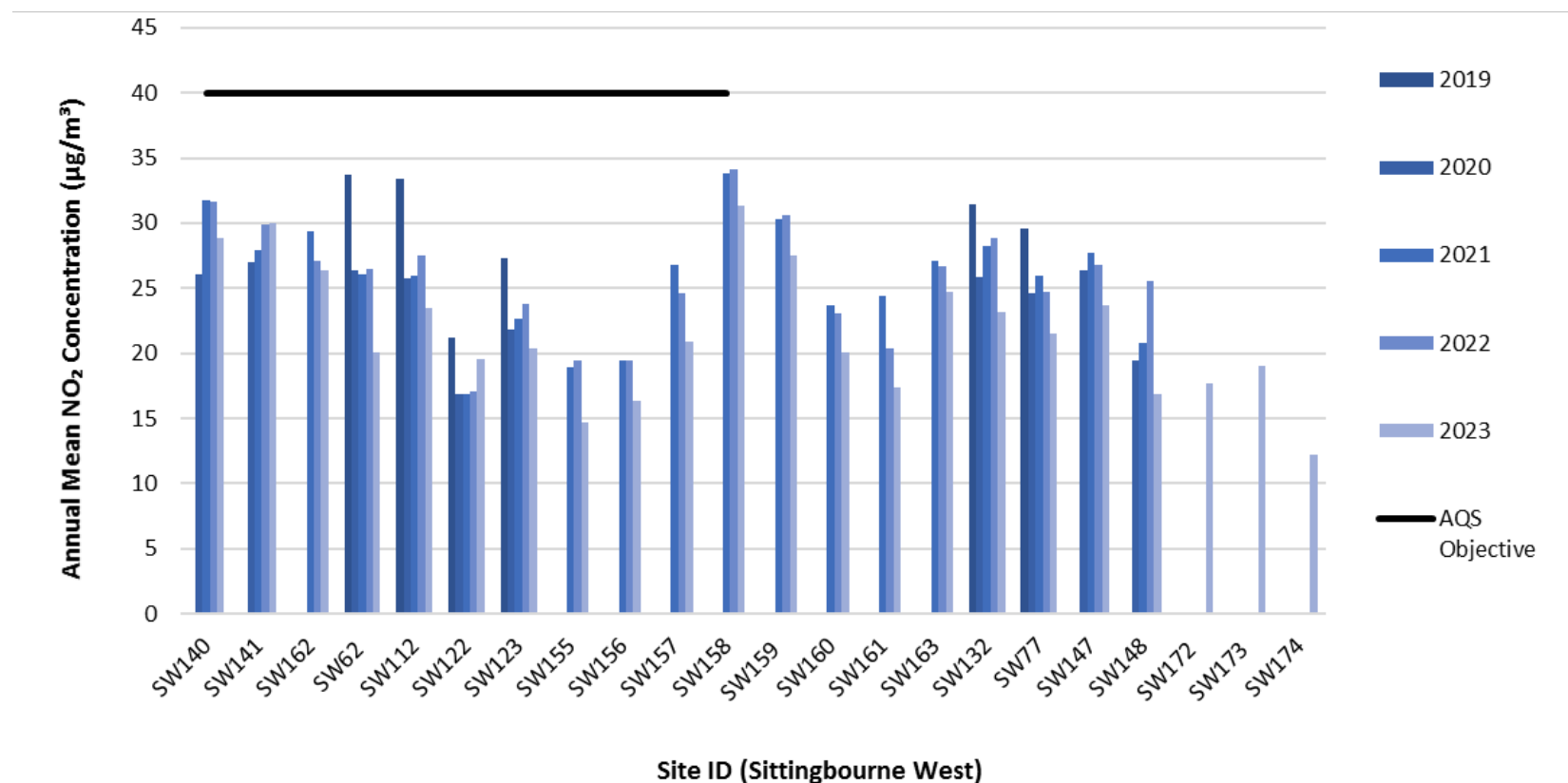
Figure A.9 presents the NO₂ annual mean concentrations for sites SW140, SW141, SW162, SW62 SW112, SW122, SW123, SW155, SW156, SW157, SW158, SW159, SW160, SW161, SW163, SW132, SW77, SW147, SW148, SW172, SW173, SW174 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

Figure A.10- Trends in Annual Mean NO₂ Concentrations within Sittingbourne, London Road and Canterbury Road
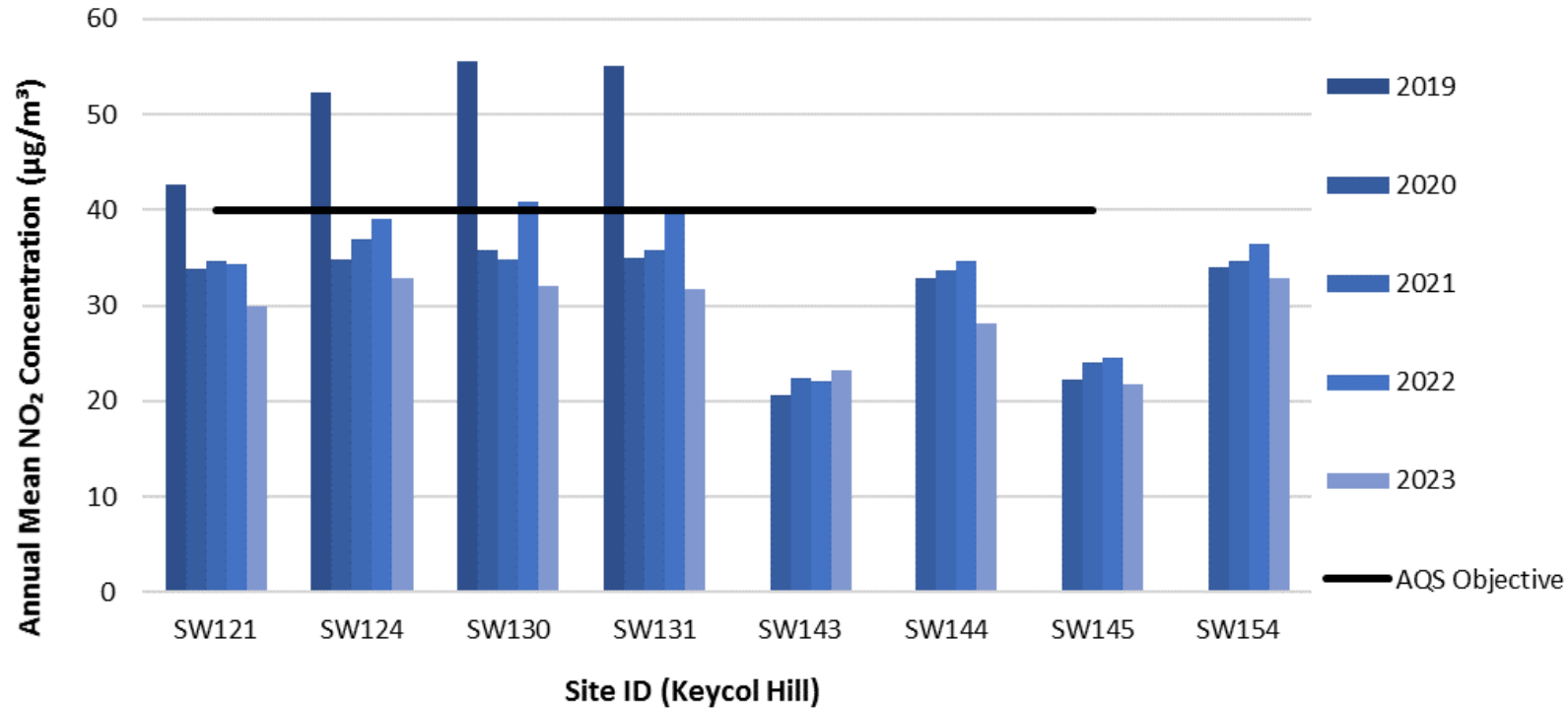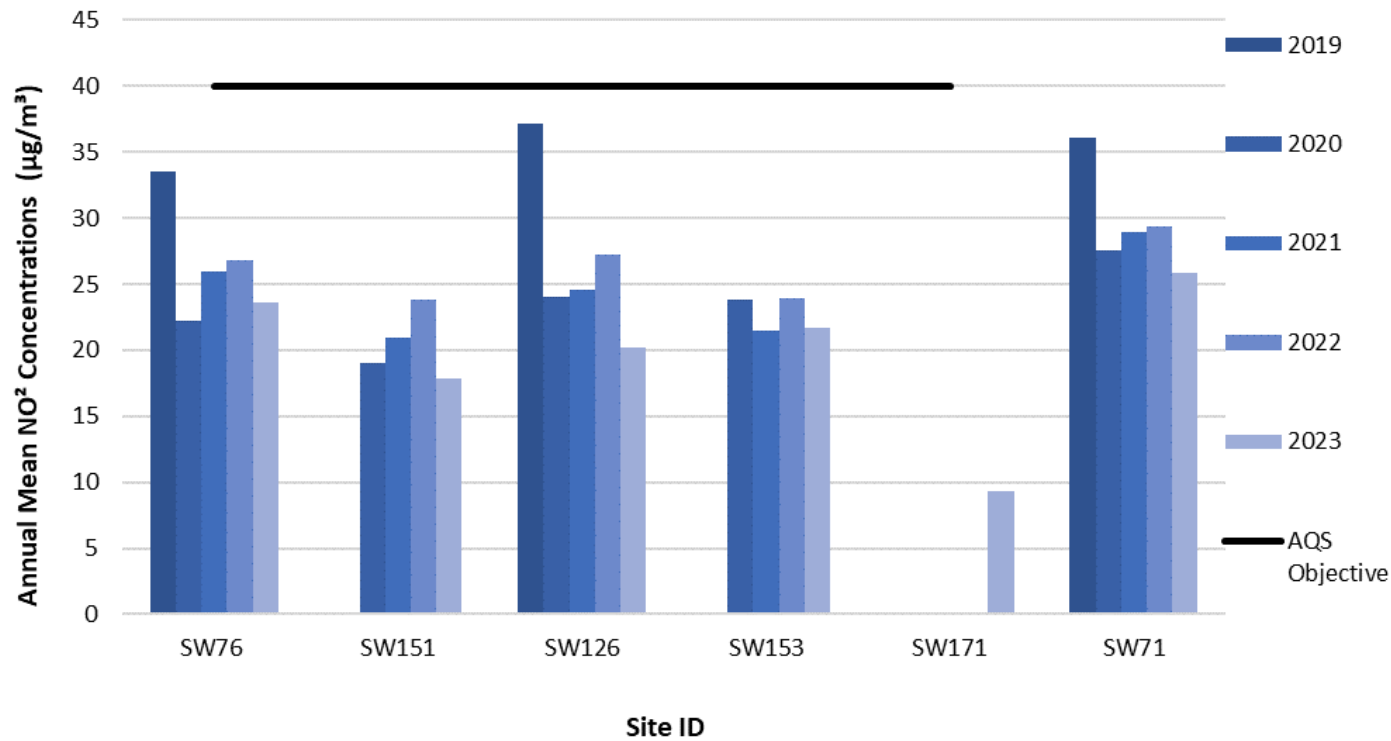

Figure A.10 presents the NO₂ annual mean concentrations for sites SW76, SW151, SW126, SW153, SW171 and SW71 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

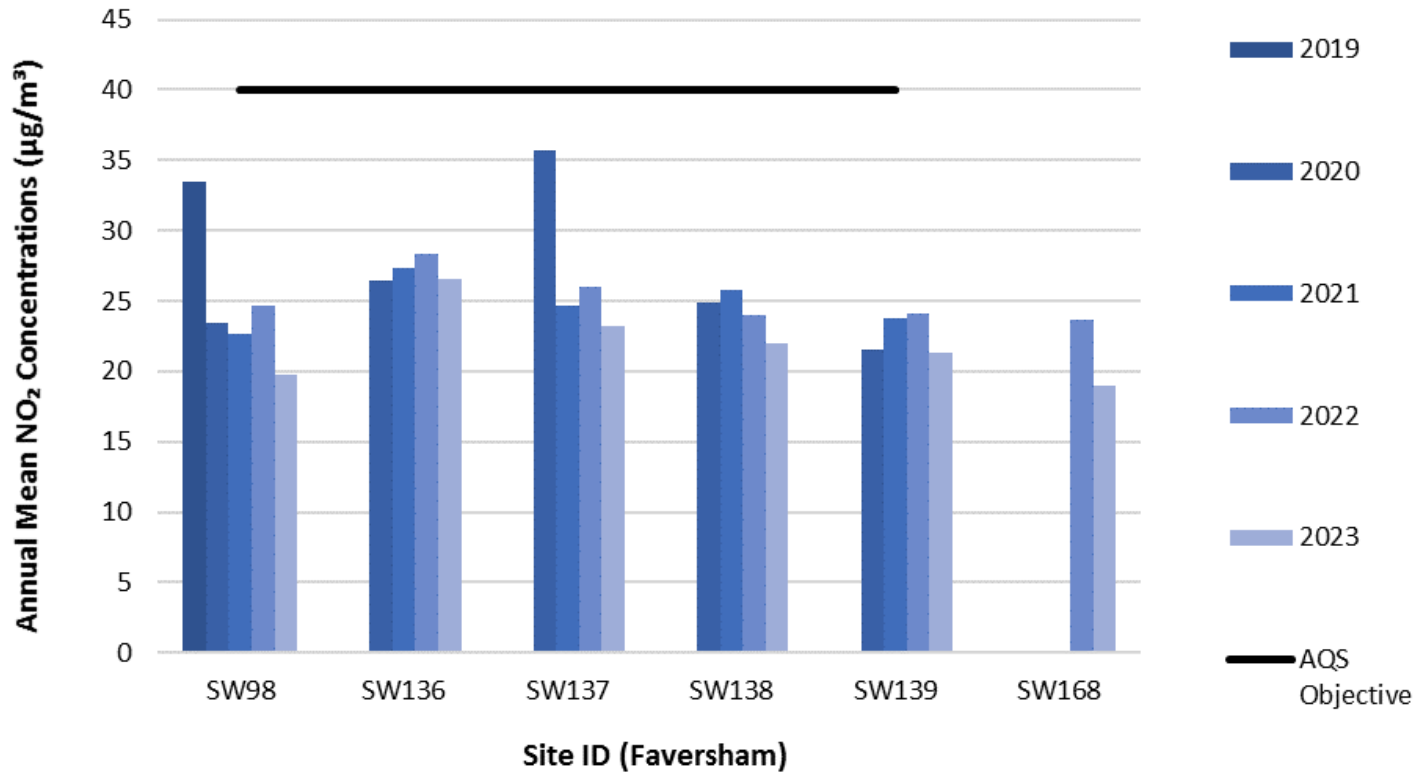**Figure A.11- Trends in Annual Mean NO₂ Concentrations within Isle of Sheppey**
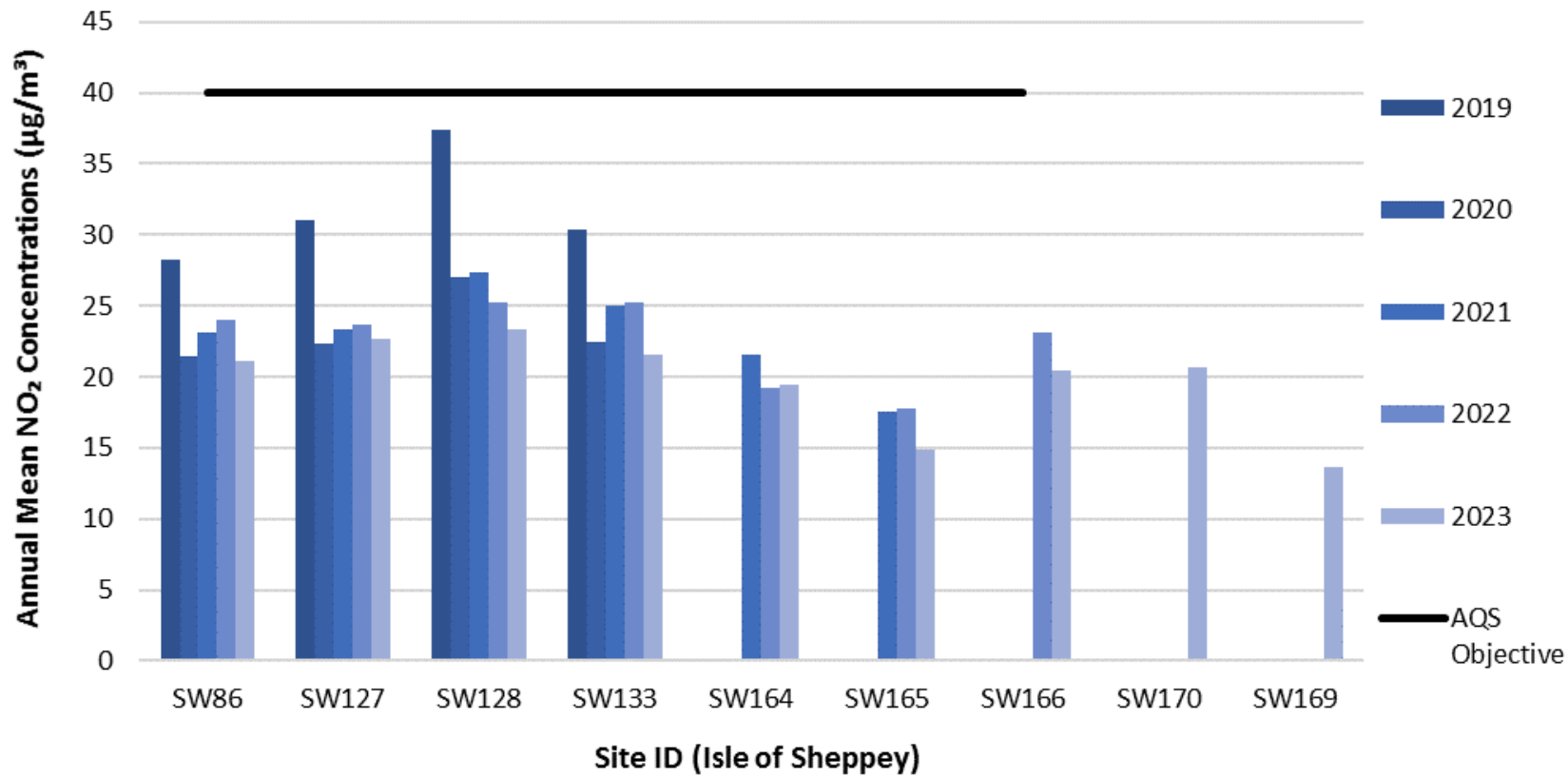
Figure A.11 presents the NO₂ annual mean concentrations for sites SW86,SW127, SW128, SW133, SW164, SW165, SW166, SW170 and SW169 between years 2019 to 2023. There are no exceedances of the annual mean objective in 2023 and there is a general trend of reduction experienced across the sites**.**

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
ZW3	600363	160869	Roadside	98.3	98.3	0	0	1	0	0
ZW8	590252	164397	Roadside	95.4	95.4	0	0	0	0	0
ZW10	585970	164788	Roadside	99.1	99.1	-	-	0	0	0

Notes:

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

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

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

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

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

Table A.5 shows no exceedances of the 1-Hour Means > 200µg/m³ during 2023 for all automatic sites. ZW3 has had one exceedance in 2021. ZW8 has not exceeded the 1-Hour Mean objective over the last five years and ZW10 over the last three years at the new site.

Table A.6 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
ZM3	600363	160869	Roadside	98.3	98.3	24.8	22.2	23.3	24.4	20
ZM8	590252	164397	Roadside	95.4	95.4	28.1	31.5	37.1	37.5	33
ZM10	585970	164788	Roadside	99.1	99.1	-	-	17.1	18.2	17

☒ 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/m³.

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in bold.

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

(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.12 – Trends in Annual Mean PM₁₀ Concentrations
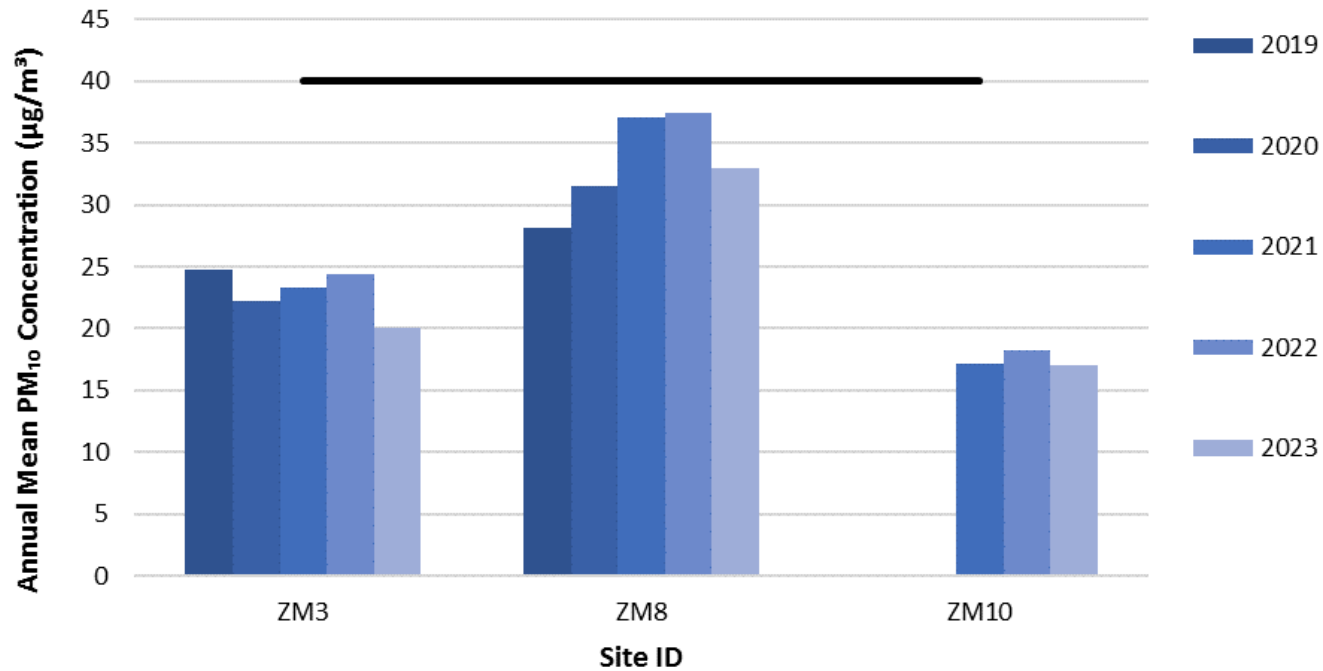
Figure A.12 presents the PM₁₀ annual mean concentrations for sites ZW3, ZW8 and ZW10 between years 2019 to 2023. There are no exceedances of the PM₁₀ annual mean objective in 2023 and there is a general trend of reduction experienced across the sites.

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Table A.7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
ZW3	600363	160869	Roadside	98.3	98.3	15	13	12	11	0
ZW8	590252	164397	Roadside	95.4	95.4	42	59	59	62	42
ZW10	585970	164788	Roadside	99.1	99.1	-	-	0	5	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ 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%).

Figure A.13 – Trends in Number of 24-Hour Mean PM$_{10}$ Results > 50µg/m^3
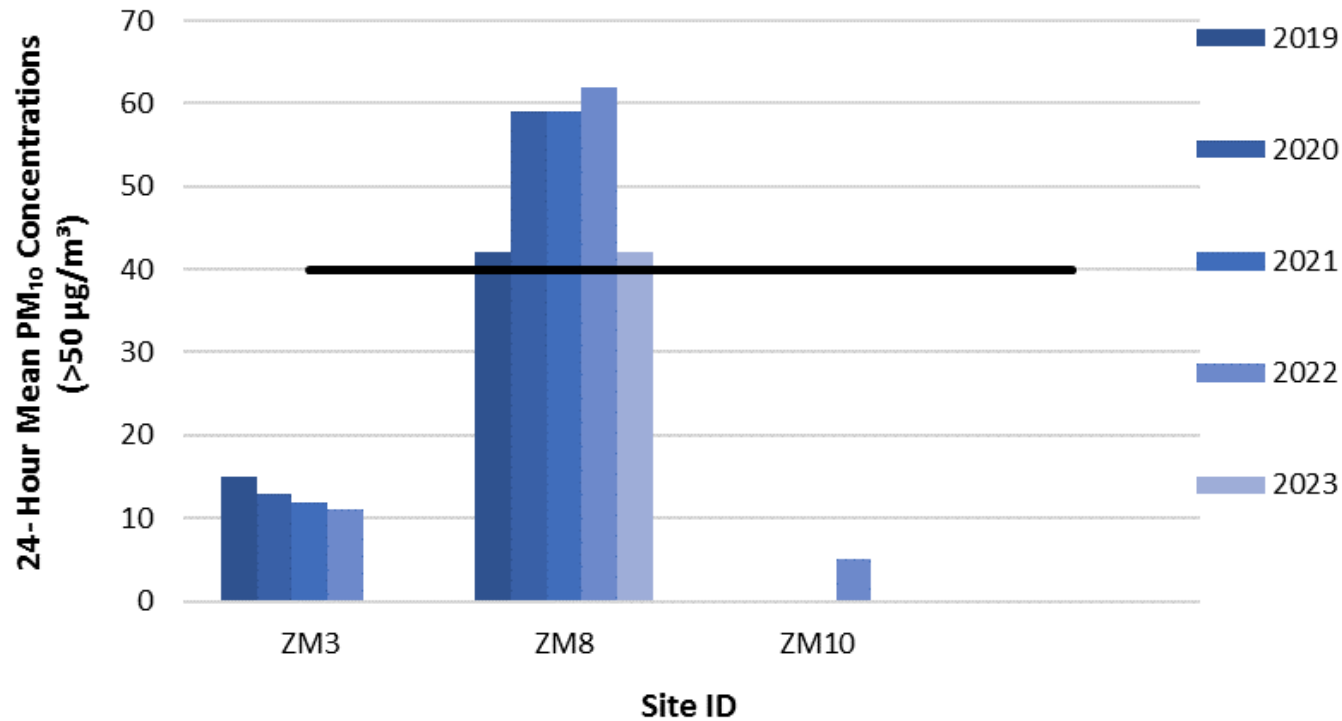

Figure A.13 presents the number of PM$_{10}$ 24-Hour Means above 50µg/m3 for sites ZW3 (Ospringe), ZW8 (St Paul's Street) and ZW10 (Newington) between years 2019 to 2023. ZW3 site has showed a continuous decrease from 2019 to 2023 with no exceedances recorded in 2023. ZW8 has decreased from 62 to 42 exceedances between 2022 and 2023. All five years ZW8 has exceeded the PM$_{10}$ 24-Hour Means above 50µg/m^3 with the highest concentrations in years between 2020 and 2022.

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
ZM8	590252	164397	Roadside	95.4	95.4	-	13.1	11.3	11.5	12
ZM10	585970	164787	Roadside	99.1	99.1	-	-	11.8	12.4	12

☒ 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%).

Figure A.14 – Trends in Annual Mean PM₂.₅ Concentrations
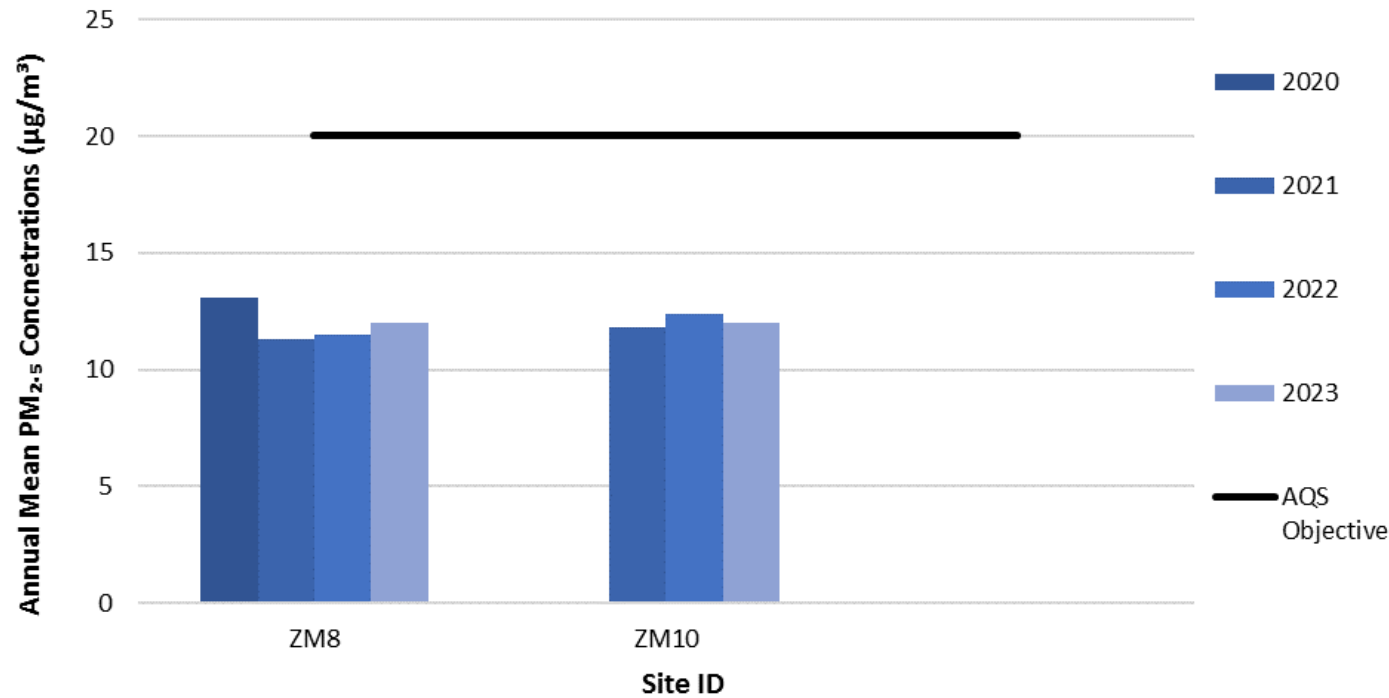
Figure A.14 presents the trends in the annual mean PM$_{2.5}$ concentrations for sites ZW8 (St Paul's Street) and ZW10 (Newington) between years 2019 to 2023. Both sites are well below 20 µg/m^3 PM$_{2.5}$ annual mean objective over 4 years at ZM8 and 3 years at ZW10 automatic sites. Site ZW8 shows a slight increase from 11.5 µg/m^3 to 12 µg/m^3 between 2022 and 2023. Site ZW10 shows a slight decrease from 12.4 µg/m^3 to 12 µg/m^3 between 2022 and 2023.

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.76)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Isle Of Sheppey																		
SW86	591726	175018		40.6	22.2	31.3	27.5	27.8	19.2	27.7	33.0	31.2	27.2	17.8	27.8	21.1		
SW127	593151	172962	37.3	42.3	31.2	32.2	30.1	30.6	20.6	26.5	32.5	27.5	27.4	20.8	29.9	22.7		
SW128	593092	172870	42.4	44.3	29.8	29.0	34.1	35.5	21.8	30.4	34.8	31.2	14.1	21.7	30.8	23.4		
SW133	592208	174596	34.7						23.4	24.7	30.5		33.1		29.3	21.6		
SW164	593292	172897	29.8	33.0		20.6	19.3	21.2	22.3	26.0	24.4	31.4	26.4	27.8	25.7	19.5		
SW165	591396	172070	28.6	31.3	17.7	16.6		0.6	15.7	18.9			26.3	20.5	19.6	14.9		
SW166	594021	171626	30.8	24.1	28.0	7.3		25.9	23.2	30.8	34.6	31.6	29.3	29.5	26.8	20.4		
SW170	593822	172812	33.0	39.9	22.4	25.7	24.1	25.7	18.7	25.4	29.2	28.2	33.0	21.2	27.2	20.7		
SW169	594599	171996	22.3	25.0	11.2	15.2	14.1	17.1	13.1	16.8	19.8	20.4	24.4	17.2	18.1	13.7		
Newington																		
SW19	585904	164794	40.9	43.9	33.9	37.4	33.5	33.2	31.5	32.4	44.4	37.1	30.2	29.3	35.6	27.1		
SW37	585868	164803	32.9	39.7	14.2	31.1	31.1	29.6	19.3	26.3	35.3	30.8	28.4		29.0	22.0		
SW42.1	585935	164787	47.5	54.5	40.7	40.0	35.5	34.0	34.2	37.5	49.4	45.3	33.8		-	-		Duplicate Site with SW42.1 and SW42.2 - Annual data provided for SW42.2 only
SW42.2	585935	164787	45.8	36.3	39.7	43.2	34.7	37.2	33.6	37.2	57.7	46.5	35.9		40.9	31.1		Duplicate Site with SW42.1 and SW42.2 - Annual data provided for SW42.2 only
SW42.3	585935	164787	45.2	51.7	33.8	42.5	38.3	40.7	33.0	35.3	53.7	48.2	40.1		42.0	31.9		
SW45	585989	164774	42.9	32.4	29.3	13.5	33.0	31.7	27.7	29.0	45.1	39.1		23.6	31.6	24.0		
SW66	586080	164746	42.4	45.9	31.0		25.0	25.7	26.8	27.3	39.5	37.0	37.5	28.4	33.3	25.3		
SW78	585951	164792	36.8	45.2	30.6	33.6	38.5	35.2	21.9	29.7	39.7	27.9	27.9	17.4	32.0	24.3		
SW167.1	585970	164788	28.4	32.6	17.6	25.2	21.0	20.8	17.7	20.6	27.0	27.2	28.1	13.1	-	-		Triplicate Site with SW167.1, SW167.2 and SW167.3 - Annual data provided for SW167.3 only
SW167.2	585970	164788	26.8	32.0	22.9	24.1	21.7	20.1	18.7	21.5	29.8	19.8	21.3	19.0	-	-		Triplicate Site with SW167.1, SW167.2 and SW167.3 - Annual data provided for SW167.3 only
SW167.3	585970	164788	28.1	35.4	19.6	23.3	21.5	21.2	17.1	19.2	30.7	27.3	25.5	18.2	23.4	17.8		Triplicate Site with SW167.1, SW167.2 and SW167.3 - Annual data provided for SW167.3 only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.76)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
St Paul's Street and Sittingbourne																		
SW51	590236	164408	40.8	46.6	37.5	39.2	42.1	47.0	25.1	36.9	42.7	42.0	43.5	19.6	38.6	29.3		
SW71	590098	164455	41.1	47.7	33.6	19.0	28.0	25.8		32.0	39.4	35.9	40.9	30.8	34.0	25.8		
SW89.1	590252	164397	37.4	42.4	39.2	32.7		0.7	26.4	35.1	40.5		36.8	29.5	-	-		Triplicate Site with SW89.1, SW89.2 and SW89.3 - Annual data provided for SW89.3 only
SW89.2	590252	164397	38.9	41.7	34.6	40.3	34.1	36.7	28.7	34.3	41.7	39.5	36.7	31.0	-	-		Triplicate Site with SW89.1, SW89.2 and SW89.3 - Annual data provided for SW89.3 only
SW89.3	590252	164397	34.3	43.4	37.1	34.6	33.1	35.5	26.0	33.0	39.2	42.3		29.9	35.0	26.6		Triplicate Site with SW89.1, SW89.2 and SW89.3 - Annual data provided for SW89.3 only
SW140	590079	164367	37.3	34.2	43.3	37.7	37.0	40.3	28.4	34.6	47.4	48.8	41.9	25.5	38.0	28.9		
SW141	590071	164375	43.4	44.8	38.2	31.9	36.3		58.3	33.5	41.5	37.9	36.1	32.9	39.5	30.0		
SW142	590139	164406	34.8	36.0		22.7	32.1			26.8	31.2	28.6	28.8	20.6	29.1	22.1		
SW162	590093	164438	38.3	41.4	34.0	37.4	32.7	32.0	25.9	30.3	37.7	40.7	34.7	32.0	34.8	26.4		
SW62	588178	164236	40.3	45.4	25.2	27.3	25.8	28.4	25.0	17.9	21.2	20.9	25.5	14.7	26.5	20.1		
SW112	588329	164188	38.1	40.9	32.0	33.7	28.5	25.5	22.4	26.2	35.8	28.6	35.7	23.2	30.9	23.5		
SW121	587936	164267	42.4	42.9	41.9	30.7	42.7	41.6	28.8	35.3	52.3	41.4	37.2	36.2	39.5	30.0		
SW122	588184	164250	22.5	29.7	20.2	27.3	16.5	17.8	15.3	28.4	35.9	37.7	35.4	23.1	25.8	19.6		
SW123	588153	164227	32.0	34.2	29.8	16.3	23.8	27.7	23.4		32.1	31.3	25.0	19.3	26.8	20.4		
Keycol Hill and Sittingbourne																		
SW124	587775	164320	50.3	48.1	34.3	36.6	36.5	42.5	39.8	42.1	63.3	56.0	34.8	34.6	43.2	32.8		
SW130	587775	164320	50.8	51.5	39.5	12.8	37.7	41.7	38.5	42.1	58.0	54.3	48.2	32.6	42.3	32.1		
SW131	587775	164320	41.8	52.4	40.0	44.4	37.6	34.5	33.7	35.0	66.9	49.5	39.3	28.0	41.9	31.8		
SW143	588383	164190	35.7	39.8	28.2	21.0	26.2	23.8	19.6	35.8	33.5	28.3	35.2	39.8	30.6	23.2		
SW144	587917	164277	27.4	39.5	40.3	41.4	42.2	48.2	33.7	38.5	53.9	45.4	7.6	25.3	37.0	28.1		
SW145	587694	164355	35.3	32.7	31.2	29.6	29.5	28.3	16.7			37.3	30.4	14.3	28.5	21.7		
SW146	587513	163885	31.6	35.4	14.5	23.7	22.3	20.2	13.1	19.3	20.6	9.9	18.8	24.3	21.1	16.1		
SW154	587874	164292	41.5	49.3	41.0	58.9	53.0	50.8	27.7	40.7	54.6	42.8	34.8	25.4	43.4	32.9		
SW155	590292	166977	21.8		19.6	20.0	19.1		12.3	17.5	24.5	25.3		13.6	19.3	14.7		
SW156	590525	166298	28.0	28.9	24.3	20.9	19.7	20.5	12.1	19.1	22.5	21.1	25.1	17.2	21.6	16.4		
SW157	590428	166438	34.4	41.0	31.6	31.4	23.7	25.6	18.3	23.7	28.2		24.7	20.6	27.6	20.9		
SW158	590494	164416					40.3	40.9		36.6		42.6	36.9	35.0	38.7	31.3		
SW159	590567	164439	33.2	45.0	32.3	34.6	34.8	35.1		36.8	38.3	40.2	40.6	28.0	36.3	27.5		
SW160	590904	165192	32.5	30.6	23.9	26.4	26.7	24.7	17.8	25.0	27.0	30.3	29.1	23.1	26.4	20.1		
SW161	589167	164747	30.1	25.2	22.3	17.7	16.8	22.5	18.4	23.0	25.7	27.4		23.4	23.0	17.4		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.76)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SW163	590850	163852	35.1	36.0		31.2	31.1	36.8	29.4	34.8	39.8	39.8	32.1	11.0	32.5	24.7		
SW132	590508	163850	38.8	36.6	36.4	21.6	25.9	30.5	25.1	29.1	29.4	34.9	32.7	26.3	30.6	23.2		
SW77	591040	166519	33.5	36.2	26.4	32.9	29.5	30.1	19.3	27.7	28.8	28.2	28.8	18.5	28.3	21.5		
SW147	590370	163877	34.2	41.7	33.2	36.0	26.3		29.8	31.8	17.8	32.0	31.5	29.1	31.2	23.7		
SW148	589163	164011		25.5	20.9	20.4	26.1	20.9		20.4	23.4	24.4	26.6	14.3	22.3	16.9		
SW172	591800	163523				21.5			16.5	21.2	23.9	25.9	27.4	18.1	22.1	17.7		
SW173	591878	163841	32.6	32.5	27.3	23.5	20.2	19.3	16.6	22.7	28.2	27.5			25.0	19.0		
SW174	590257	161893	24.6	20.6	17.0	9.5	14.4	15.3	11.3	14.2	19.1	16.7	20.2	10.5	16.1	12.2		
East Street, Sittingbourne and Bapchild																		
SW56	591453	163465	41.4	42.7	38.9	35.5	29.2	31.9	33.1	38.9	38.1	44.4	39.5	26.7	36.7	27.9		
SW76	592209	163302	41.8	25.4	24.4	25.8	22.3	27.4	27.7	32.9	35.9	38.6	40.5		31.2	23.7		
SW151	591515	163451	30.5	29.5	24.7	31.1	22.2	21.2	14.7	23.1	26.4	26.6	19.6	12.9	23.5	17.9		
SW152	591423	163484	35.6	32.8	28.4	36.5		32.5	16.7	26.8	31.1	28.7	22.1	16.9	28.0	21.3		
SW126	592867	163131	40.3	30.2	22.2	7.9	21.0		26.1	31.3	34.5	32.3	18.6	28.6	26.6	20.2		
Teynham																		
SW80	595155	162472	41.1	33.8	2.8	37.8	39.6		20.3				26.3	22.8	28.1	20.3		
SW91	595150	162461	38.0	38.8	23.9	31.8	24.3		27.7	31.5	35.4	42.1	17.6	27.0	30.7	23.3		
SW92	595195	162446	36.3	33.3	25.6	8.3	24.0		26.8	28.5	27.3	32.6		25.3	26.8	20.4		
SW153	594748	162602	34.2	38.4	25.6		23.4		21.3	27.4	38.5		31.2	17.0	28.6	21.7		
Ospringe and Faversham																		
SW28	600225	160887	47.2	49.2	37.6	35.6	47.7		34.7	46.7	52.2	43.8	37.1	16.6	40.8	31.0		
SW29	600286	160868	40.5	44.4	34.4	31.9	33.1		33.9	40.7	45.9	47.5	34.9	27.1	37.7	28.6		
SW30.1	600363	160869	36.7	41.4	24.1	27.4	32.3		23.1	29.6	35.8	32.4	28.7	24.2	-	-		Duplicate Site with SW30.1 and SW30.3 - Annual data provided for SW30.3 only
SW30.2	600363	160869	39.3	41.3	30.0	29.7	32.7		22.4	28.0	35.7	32.0	29.4		32.1	24.3		
SW30.3	600363	160869	37.4	39.7	20.5	28.6	31.4		21.4	28.5	34.2	33.3	31.6	17.4	30.0	22.8		Duplicate Site with SW30.1 and SW30.3 - Annual data provided for SW30.3 only
SW31	600444	160848	36.7	44.0	32.6	28.4	45.0		24.3	36.9	44.3	35.8	37.0	20.5	35.0	26.6		
SW32	600422	160843	37.8	24.3	30.1	26.6	25.7		27.6	34.7	38.0	38.2	34.2	23.7	31.0	23.5		
SW96	600358	160859	41.1	23.1	34.6	11.2	27.4		32.6	37.1	42.6	44.9	34.5	39.5	33.5	25.4		
SW171	600338	160805		17.7	11.5	10.6	14.2		8.0	10.1	14.1	13.5	12.9	10.3	12.3	9.3		
SW120	600456	160836	40.6	44.9	40.0	16.7	30.6		35.6	38.6	42.1	42.4	36.8	28.9	36.1	27.4		
SW135	600326	160860	44.9	48.3	39.5	37.9	30.7		39.6	43.4	47.9	47.4	26.5	33.5	40.0	30.4		

Swale Borough Council

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.76)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SW98	601818	160474	30.8	29.8	24.9	19.1	26.1		23.5	26.1	32.4	31.9	25.3	17.2	26.1	19.8		
SW136	601491	160570							23.4	34.2		39.6	36.2	30.5	32.8	26.6		
SW137	601443	160486	30.5	31.6	30.2	21.7	36.8		27.3	33.7	35.1	35.4	30.7	23.0	30.5	23.2		
SW138	601706	161338	33.1	34.7	28.9	31.6	32.8		18.5	27.0	31.3	29.9	29.4	21.6	29.0	22.0		
SW139	601706	161338	30.1	37.2	27.8	23.4	26.1		34.1	23.4	29.0	30.1	31.9	14.7	28.0	21.3		
SW168	600001	161622	35.2	34.2	24.5	24.8	23.6		21.2	25.2	28.0	26.9	6.1	25.9	25.1	19.0		
Rural and Urban Background																		
SW07	600758	169576	15.6	15.2	8.8	7.1	8.1	9.7	6.0	8.4	9.1	9.8	10.1	7.5	9.6	7.3		
SW88	589318	165045	26.6	26.0	18.4	12.2	14.6	16.2	12.9	15.8	18.7	20.7	24.7		18.8	14.3		
SW34	606624	161108	13.9	13.6	8.9	10.0	9.4		5.2	7.6	9.9	10.2	11.6	7.8	9.8	7.5		

☒ All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.

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

☒ Local bias adjustment factor used (0.76).

☐ National bias adjustment factor used.

☒ Where applicable, data has been distance corrected for relevant exposure in the final column. The distance correction has not been required as all monitoring locations did not exceed or were within 10% of the NO₂ annual objective of 40µg/m³ (i.e., above 36µg/m³).

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

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

In 2023 the annual mean concentrations of nitrogen dioxide (NO_2) at East Street and Teynham Air Quality Management Areas (AQMA) were consistently below the government Air Quality Objective (AQO) for four and five years respectively.

To ensure any decisions made were on robust evidence, Swale Borough Council continued to monitor air quality for an additional year (2023) and commissioned a detailed assessment of NO_2 concentrations in these AQMAs. The detailed assessment quantified the public exposure to concentrations of NO_2 across East Street, Sittingbourne and Teynham. The study assessed the years 2022 and 2028 and considered the impact of future committed developments, that could adversely impact concentrations of NO_2 in the AQMAs. A sensitivity test was also completed, to address possible fleet renewal delays in Swale relative to national projections. The assessment was robust in determining future compliance.

The detailed assessment demonstrated that Air Quality Objectives are being met and will continue to do so. The modelling results in the detailed assessment indicated that the AQMAs in Teynham and East Street Sittingbourne can be revoked without risk of future exceedances for NO_2. Officers have prepared a report which will include the detailed assessment for the Environment Committee in March 2024. The outcome of this will be provided in the 2025 ASR reporting on the year 2024.

Due to concerns raised about particulates Swale Borough Council plans to use new indicative technology to monitor particulates at Teynham during in 2024. NO_2 monitoring will also continue at both AQMAs.

New or Changed Sources Identified Within Swale Borough Council During 2023

In relation to the PM_{10} exceedances at St Paul's Street, site visits took place in 2023 which noted aggregate material deposited along St Paul's Street (B2006), Mill Way and Gas Road. This was after heavy and persistent rainfall which may have exacerbated movement and excessive build-up of particulates, plus other localised factors may have contributed to the build-up e.g., topography and drainage. The observations on the site visits identified significant links to the deposited material along St Paul' s Street with nearby operator sites.

As explained in the previous ASR various projects have been completed by the Council to understand why St Paul's Street is showing high PM_{10} concentrations and what the potential sources are. The results suggest that the source is more localised, specific to St Paul's Street and not just from vehicle emissions.

A Dust Management Agreement is being created by the Council with the aim to maximise remedial mitigation and reduce fugitive emissions, such as mud and dust being deposited on the highway (St Paul's Street) from operator vehicles and to agree a multi-agency approach in managing particulates along St Paul's Street, Mill Way and Gas Road. This will include but not limited to a 'Deep Clean', additional 'sweeping' along the St Paul's Street and wider monitoring of mitigation measures.

The Council and Environment Agency will also review operator permits with a view to improve dust mitigation measures and to introduce or update 'Dust Management Plans' in line with the Pollution Prevention and Control (PPC) regime.

Additional Air Quality Works Undertaken by Swale Borough Council During 2023

Swale Borough Council has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

The diffusion tubes for the year 2023 were supplied and analysed by SOCOTEC Didcot, the tubes were prepared using the 50% Triethanolamine (TEA) in acetone preparation method. All results have been bias adjusted and annualised where required before being presented in Table A.4.

SOCOTEC participates in the AIR-PT scheme which is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL).

DEFRA and the Devolved Administrations advise that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the AIR-PT scheme. Laboratory performance in AIR-PT is also assessed, by the National Physical Laboratory (NPL), alongside laboratory data from the monthly NPL Field Intercomparison Exercise carried out at Marylebone Road, central London. A laboratory is assessed and given a 'z' score. A score of 2 or less indicates satisfactory laboratory performance.

Additionally, the precision of the NO_2 diffusion tubes supplied by SOCOTEC have been classified as 'good' for all observations during 2023. This precision reflects the laboratory's performance and consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Precision summary results are available from the LAQM website.

All tubes are sited in line with LAQM (TG22) guidelines.

Swale Borough Council

Diffusion Tube Annualisation

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

Site ID	Annualisation Factor <Canterbury>	Annualisation Factor <Thurrock >	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
SW133	0.9756	0.9629	0.9692	29.3	28.4
SW158	1.1011	1.0293	1.0652	38.7	41.2
SW172	1.0857	1.0218	1.0537	22.1	23.3
SW80	0.9465	0.9560	0.9512	28.1	26.7
SW136	1.1366	0.9963	1.0664	32.8	35.0

Annualisation is required for any site with data capture less than 75% but greater than 25%. Annualisation was required at sites listed in table C.1

Diffusion Tube Bias Adjustment Factors

Swale Borough Council have three triplicate colocation tubes located at the continuous monitoring stations (Newington – ZW10, St Paul's Street – ZW8 and Ospringe – ZW3). The bias represents an estimate of the difference between diffusion tube concentrations and continuous monitoring, the latter assumed to be a more accurate method of monitoring. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring.

Triplicate co-location studies are 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.

Swale Borough Council have applied a local bias adjustment factor of 0.76 to the 2023 monitoring data. A summary of bias adjustment factors used by Swale Borough Council over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Swale Borough Council

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	Local		0.76
2022	Local		0.77
2021	Local		0.77
2020	Local		0.78
2019	Local		0.77

Table C.3 – Local Bias Adjustment Calculation

	STEP 3a Local Bias Adjustment Input 1	STEP 3b Local Bias Adjustment Input 2	STEP 3c Local Bias Adjustment Input 3
Periods used to calculate bias	12	10	11
Bias Adjustment Factor A	0.87 (0.79 - 0.97)	0.68 (0.62 - 0.76)	0.75 (0.71 - 0.8)
Diffusion Tube Bias B	15% (3% - 27%)	47% (31% - 62%)	33% (25% - 41%)
Diffusion Tube Mean (µg/m3)	23.4	31.3	35.9
Mean CV (Precision)	8.1%	4.8%	4.3%
Automatic Mean (µg/m3)	20.4	21.3	27.0
Data Capture	99%	100%	99%
Adjusted Tube Mean (µg/m3)	20 (19 - 23)	21 (19 - 24)	27 (26 - 29)
Overall Diffusion Tube Precision	Good Overall Precision	Good Overall Precision	Good Overall Precision
Overall Continuous Monitor Data Capture	Good Overall Data Capture	Good Overall Data Capture	Good Overall Data Capture

Notes:

A combined local bias adjustment factor of 0.76 has been used to bias adjust the 2023 diffusion tube results.

Regarding the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG 22 recommends the use of a local bias adjustment factor as a preference, where available as they are more representative of the local air quality monitoring.

As the local bias adjustment factor is representative of Swale's local monitoring network with a good data capture, the preferred local adjustment factor was used. On this occasion it would not make a significant different to use the national bias adjustment (0.77) factor.

DEFRA's Diffusion Tube Data Processing Tool has been used to calculate the local bias 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 corrected for distance are presented in Table B.1.

Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36μg/m^3 and the monitoring site is not located at a point of relevant exposure. As diffusion tube NO$_2$ monitoring locations within Swale Borough Council measured a NO$_2$ concentration greater than 36 μg m^3 no distance correction during 2023 was required.

QA/QC of Automatic Monitoring

In 2022 the QA/QC of the automatic data were managed by Air Quality Management, Ricardo Energy & Environment.

The instrumentation was calibrated every two weeks with two services this year. Live and historic data are available through the Kent Air Website: https://kentair.org.uk/

All automatic monitoring locations within Swale Borough Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data or use percentiles.

Datasets are ratified following AURN standard QA/QC and ratification processes, within TG(22) guidelines, on a quarterly basis. Data will be processed and scaled using all available manual and automatic calibrations. Data for 2023 are ratified.

PM$_{10}$ and PM$_{2.5}$ Monitoring Adjustment

The Volatile Correction Model (VCM) was used for the TEOM in line with correction factors detailed within LAQM.TG22 Chapter 7: Particulate Matter Monitoring.

The correction of the slope was used by dividing the data by 1.035 used PM$_{10}$ BAM instruments and PM$_{2.5}$ BAM instrument did not require a correction factor as advised in LAQM.TG22 Chapter 7: Particulate Matter Monitoring.

Automatic Monitoring Annualisation

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

NO$_2$ 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. Where appropriate, non-automatic annual mean NO$_2$ concentrations corrected for distance are presented in Table B.1.

Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure. As no automatic NO$_2$ monitoring locations within Swale Borough Council measured a NO$_2$ concentration greater than 36 µg m^3 no distance correction during 2023 was required.

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

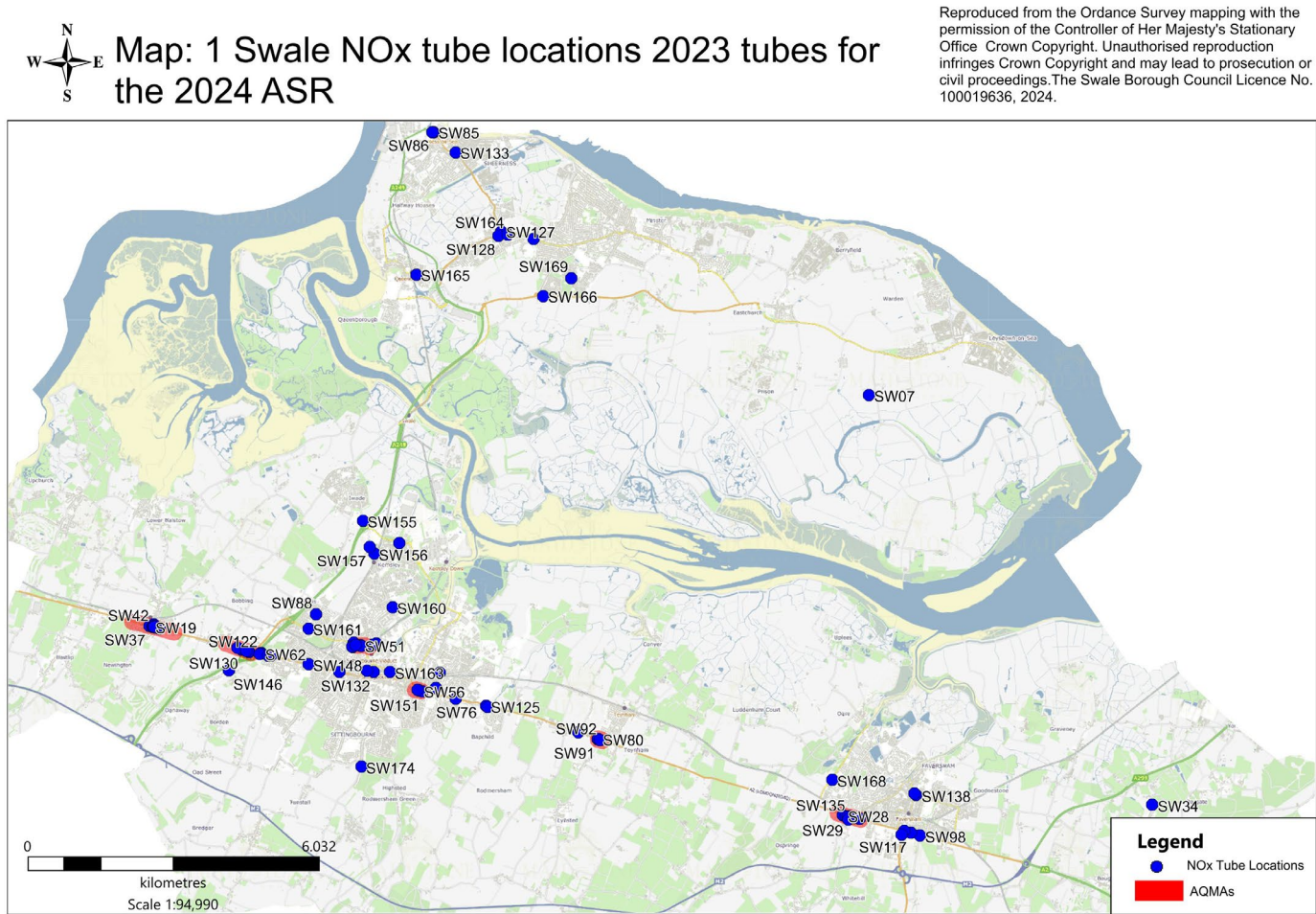## Figure D.2 – Map of all Non-Automatic Monitoring Sites and AQMAs

Map: 1 Swale NOx tube locations 2023 tubes for the 2024 ASR

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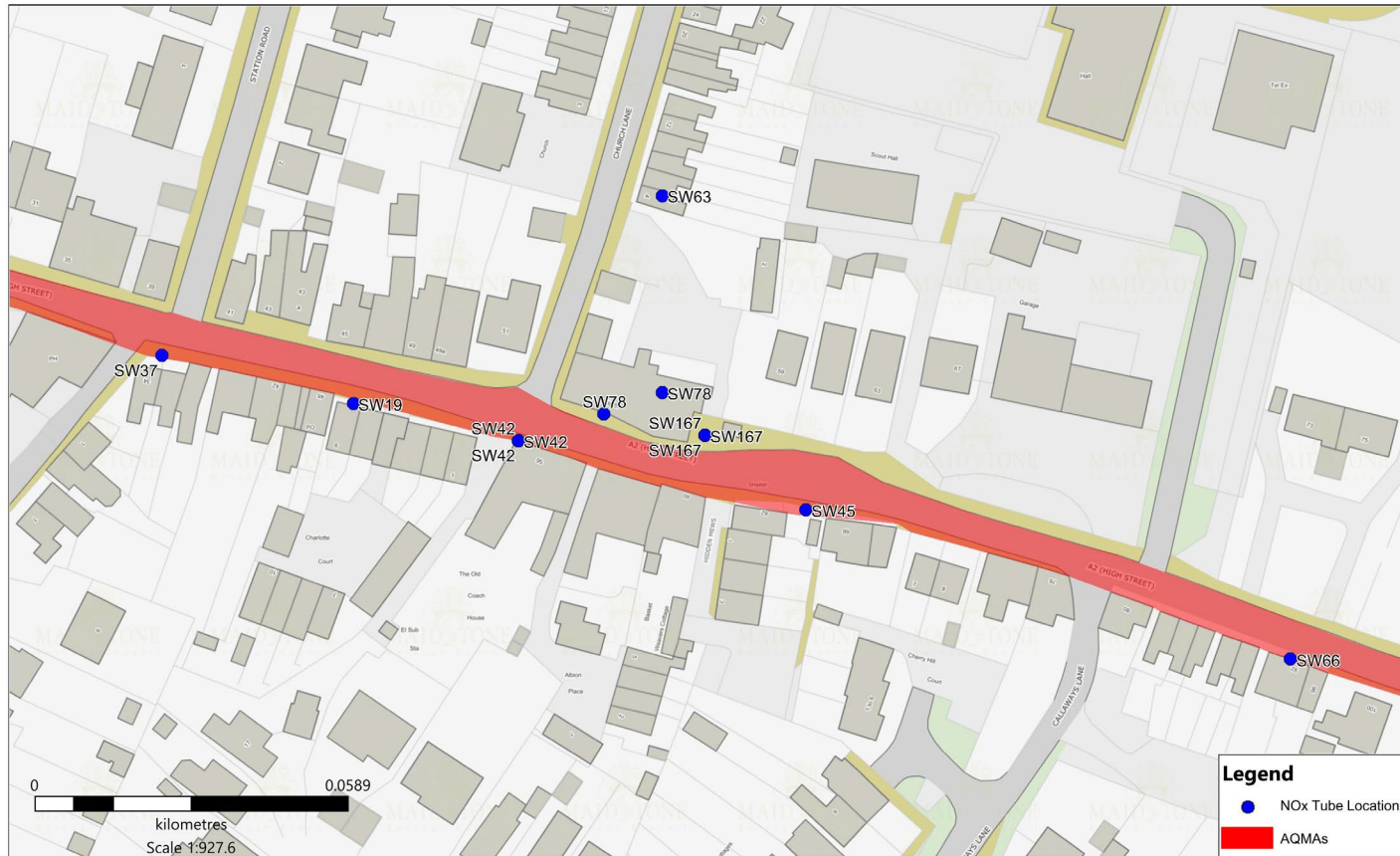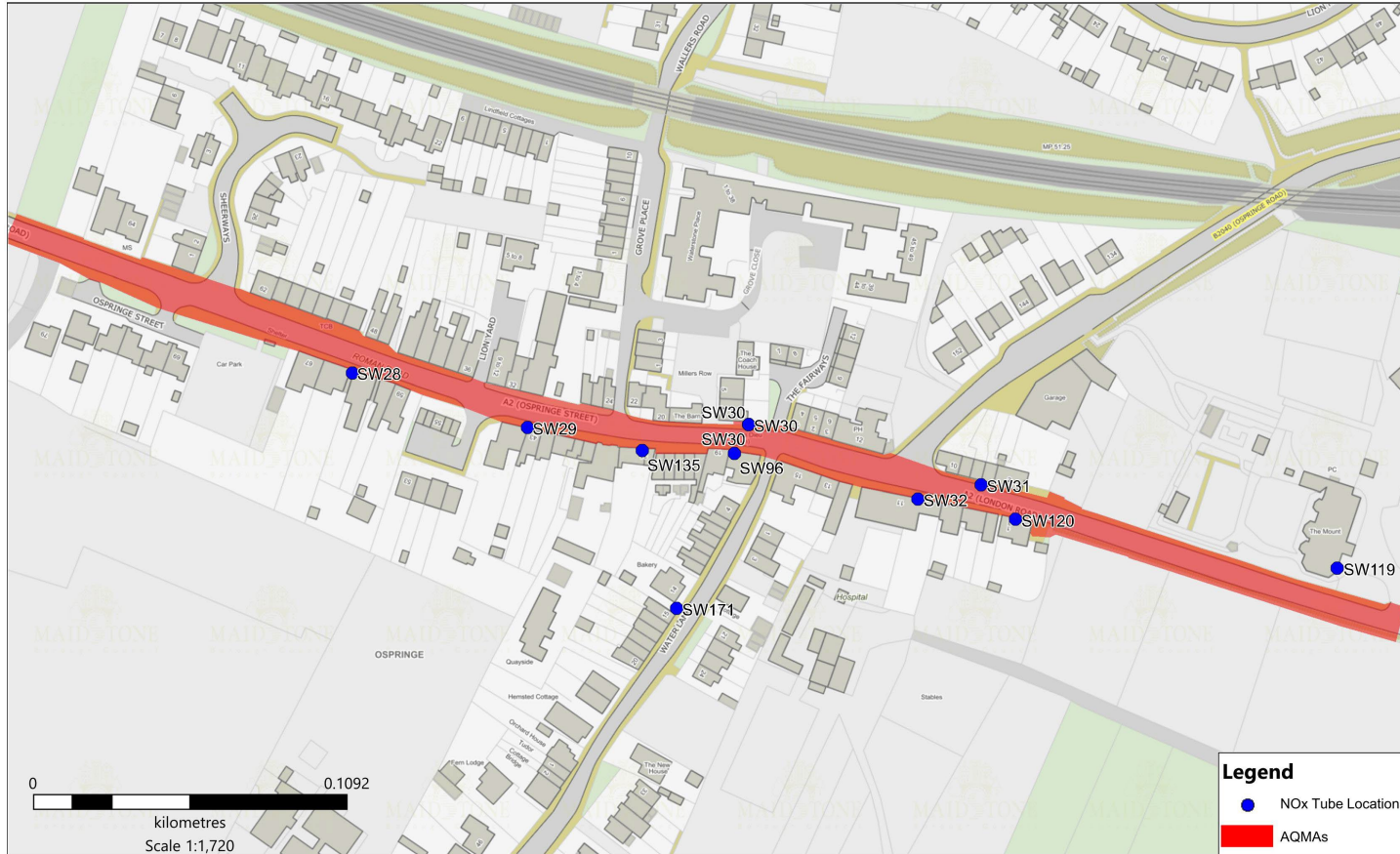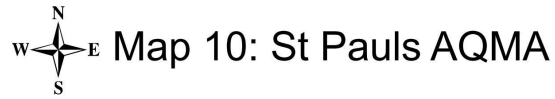
Swale Borough Council

Figure D.2 – Map of Non-Automatic Monitoring Sites in AQMA 1

Map 8: Newington NOx Tube Locations

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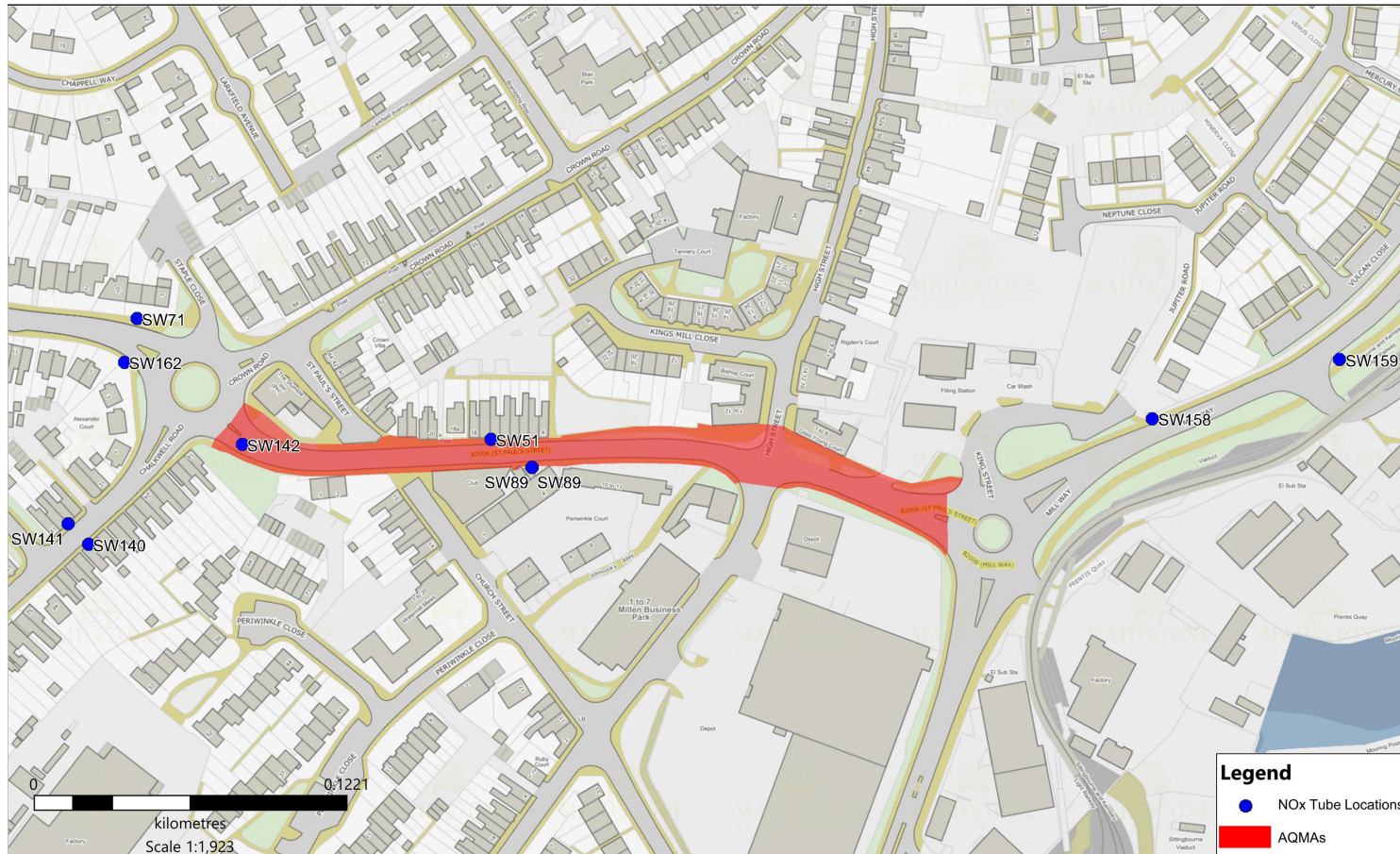
Figure D.3 – Map of Non-Automatic Monitoring Sites in AQMA 2/6

Map 17: Ospringe AQMA

Figure D.4 – Map of Non-Automatic Monitoring Sites in AQMA 3

Map 13: East Street AQMA

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Figure D.5 – Map of Non-Automatic Monitoring Sites in AQMA 4

Figure D.6 – Map of Non-Automatic Monitoring Sites in AQMA 5

Map 16: Teynham AQMA

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Figure D.7 – Map of Non-Automatic Monitoring Sites in AQMA 7

Map 11: Keycol Hill AQMA
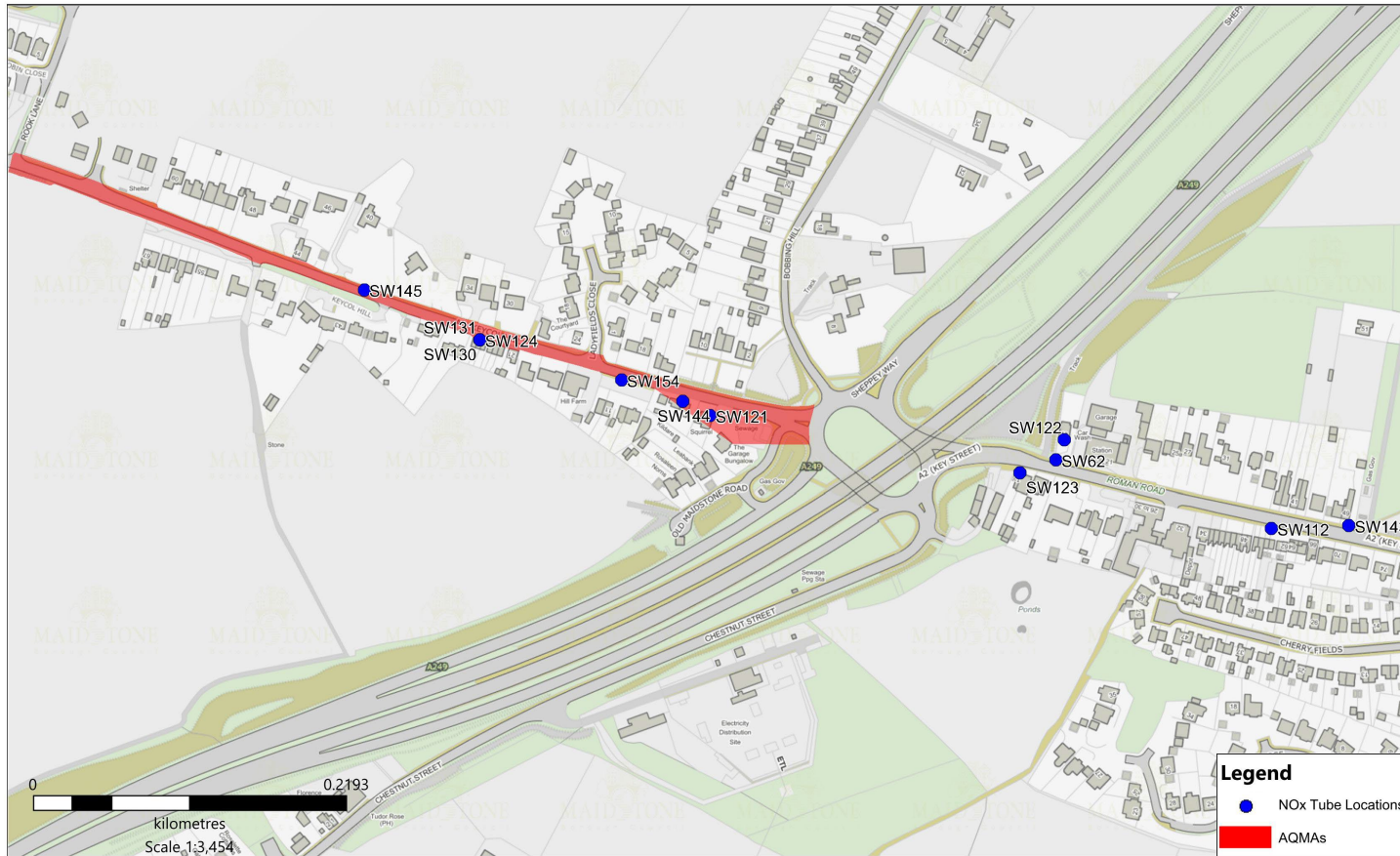
Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[16]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m³ not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m³	Annual mean
Particulate Matter (PM_{10})	50µg/m³, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m³	Annual mean
Sulphur Dioxide (SO_2)	350µg/m³, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m³, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m³, not to be exceeded more than 35 times a year	15-minute mean

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

Glossary of Terms

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

References

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

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

- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency

- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.

- Swale's Air Quality Action Plan 2023 – 2024 and previous ASRs can be found at https://swale.gov.uk/bins-littering-and-the- environment/air-quality