2025 Air Quality Annual Status Report (ASR)

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

Date: June, 2025

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Local Responsibilities and Commitment

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

Steven Saxbee – Environment Officer

This ASR has been approved by:

Dr Anjan Ghosh, Director of Public Health, KCC, on 16 June 2025.

This ASR has been signed off by a Director of Public Health.

This ASR has been signed off by Director of Planning, Housing & Environmental Health.

If you have any comments on this ASR please send them to Environment Protection at above address

Executive Summary: Air Quality in Our Area

Air Quality in Tonbridge & Malling Borough Council

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

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

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.

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. Building on from the anti-idling schools project that completed last year, anti-

idling signs have now been put up around the vicinity of the majority of schools in the borough to try to improve air quality for children walking outside schools and residents living close by.

Conclusions and Priorities

No exceedances were identified for nitrogen dioxide in or outside of AQMA areas in Tonbrough and Malling borough council area. Overall most of the AQMAs and site locations across the borough were only slightly down on previous years results by between 1 or 2 $\mu g/m^3$.

In 2025 we will be proposing to revoke all our remaining AQMAs except for Wateringbury (AQMA 4).

PM_{10} exceeded the 24hr mean of $50\mu g/m^3$ on 6 occasions in 2024 but this is well within the permitted 35 occasion limit as per government regulations.

The priority measures that will be worked on for the coming year will be to expand the anti-idling campaign across the borough with signs up around most schools, to complete the role out of EV charging points in carparks and to see if its viable to set up a car club for Tonbridge town centre.

There are new developments along Hermitage Lane that may impact on air quality moving forward. Once development along this road and the new link road connecting Hermitage Lane through to the Poppy Field roundabout go live the impacts will be better understood

by the diffusion tube monitoring in the area. At present no AQMA is required but this will be kept under review.

There are no plans to update the Air Quality Action Plan formally adopted in early 2022, as work will be starting on the next 5 year plan soon, for when the current plan expires in early 2027.

How to get Involved

With road transport being the main source of air pollution within Tonbridge & Malling, the public can get involved in helping reduce the release of air pollution and thus improving air quality within the Borough by looking at alternative means of travel. The following are possible alternatives to private travel that would contribute to improving air quality within the Borough:

- Use public transport where available – This reduces the number of private vehicles in operation reducing pollutant concentration through the number of vehicles and reducing congestion.
- Walk or cycle if your journey allows – From choosing to walk or cycle for your journey the number of vehicles is reduced and also there is the added benefit of keeping fit and healthy.
- Car/lift sharing – Where a number of individuals are making similar journeys, such as travelling to work or to school car sharing reduces the number of vehicles on the road and therefore the amount of emissions being released. This can be promoted via travel plans through the workplace and within schools.
- Alternative fuel / more efficient vehicles – Choosing a vehicle that meets the specific needs of the owner, fully electric, hybrid fuel and more fuel-efficient cars are available and all have different levels benefits by reducing the amount of emissions being released.

Further information about air quality including all Tonbridge & Malling monitoring data, details on the main pollutants associated with air quality and an emissions calculator for travel options is included on the Kent Air website - http://www.kentair.org.uk

Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Tonbridge & Malling Borough Council during 2024. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Tonbridge & Malling 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 Tonbridge & Malling Borough Council can be found in Table 2.1. The table presents a description of the 5 AQMAs that are currently designated within Tonbridge & Malling 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

In 2025 Councillors will be asked to approve revocation of the AQMAs in Tonbridge (AQMA 3), Aylesford (AQMA 5), Larkfield (AQMA 6) and Borough Green (AQMA 7) (see figures A1.2-1.7), as these AQMAs meet the criteria for revocation within TG(22).

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
Tonbridge High Street AQMA 3	Jun-05	NO2 Annual Mean	An area incorporating the High Street between Botany and the High Street/Vale Road roundabout, Tonbridge.	NO	53.3	N/A	6	Tonbridge and Malling Borough Council Air Quality Action Plan June 2011	Read about our air quality initiatives – Tonbridge and Malling Borough Council (tmbc.gov.uk)
Wateringbury AQMA 4	Jun-05	NO2 Annual Mean	An area incorporating the Red Hill/Tonbridge Road A26 crossroads in the Parish of Wateringbury.	NO	45.2	N/A	2	Tonbridge and Malling Borough Council Air Quality Action Plan June 2012	Read about our air quality initiatives – Tonbridge and Malling Borough Council (tmbc.gov.uk)

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
Aylesford AQMA 5	Oct - 08 amended 30/10/2020	NO2 Annual Mean	An area encompassing the A20 London Road with the junction with Hall Road and Mills Road in Aylesford.	NO	48	N/A	5	Tonbridge and Malling Borough Council Air Quality Action Plan June 2013	Read about our air quality initiatives – Tonbridge and Malling Borough Council (tmbc.gov.uk)
Larkfield AQMA 6	Oct - 08 amended 30/10/2020	NO2 Annual Mean	An area encompassing the A20 London Road in East Malling, Larkfield and Ditton, including the junction with New Hythe Lane.	NO	39	N/A	5	Tonbridge and Malling Borough Council Air Quality Action Plan June 2014	Read about our air quality initiatives – Tonbridge and Malling Borough Council (tmbc.gov.uk)
Borough Green AQMA 7	April-2013 Amended 30/10/2020	NO2 Annual Mean	Parts of Sevenoaks Road A25, Western Road and the High Street in Borough Green.	NO	46	N/A	6	Tonbridge and Malling Borough Council Air Quality Action Plan June 2015	Read about our air quality initiatives – Tonbridge and Malling Borough Council (tmbc.gov.uk)

☒ **Tonbridge & Malling Borough Council confirm the information on UK-Air regarding their AQMAs is up to date.**

☒ **Tonbridge & Malling Borough Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Tonbridge & Malling Borough Council

Defra's appraisal of last year's ASR concluded

1. Extensive trend graphs and analysis have been provided for all monitoring data including diffusion tubes, which is commended.-This is continued in this report.
2. It is encouraging to see the council considered the comments made during the previous appraisal and actively made an effort to address all of these actions for this year's ASR. - This is continued in this report.
3. The council is commended for their review of their current monitoring regime, specifically the removal of several non-automatic monitoring sites (diffusion tubes) across the region moving into 2024, following successive years of low NO2 concentrations. The Council is also encouraged to consider using one of their automatic monitoring locations for a co-location study in future reporting years to enable a local bias adjustment factor to be calculated.-We have continued at review diffusion tube locations.
4. In Table B.1, the national bias factor selected for 2023 has not been included in the heading of the 17th Column. This should be added in future. -This has been added.
5. There are few minor formatting errors throughout the report. The phrase "Error! Bookmark not defined" appears in several places and there are a few places where a different font and colour has been used. In Tables A.5, A.6 and A.7 values should not be bold as this indicates an exceedance as per the explanatory text, which is not the case. The Council is encouraged to correct this in future reports. -. – font of values has been checked in this report.
6. The Council have provided good mapping of all monitoring locations within the district. However, the Council are highly encouraged to update some of the labels in Figure D1-D6 to improve readability.
7. The SOCOTEC laboratory used for the analysis of the diffusion tubes have two sites around the U.K (Glasglow and Didcot). When referring to a laboratory in the QA/QC section of the report, please ensure that the name of the location of the laboratory is included in the text.- Corrected for this report

Tonbridge & Malling Borough Council has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 14 measures are included within Table 2.2, with the type of measure and the progress Tonbridge & Malling Borough Council have made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans such as the Climate change strategy Actions to tackle climate change – Tonbridge and Malling Borough Council. Key completed measures are:

Completion of phase 1 of EV charging in 2023. Phase 2 is near completion with all EV chargers installed but not yet live.

Tonbridge & Malling Borough Council expects the following measures to be completed over the course of the next reporting year: EV charging in car parks expected to be completed with all chargers operational in 2025. Tonbridge & Malling Borough Council's priorities for the coming year are creation of a car club for Tonbridge town centre.

Tonbridge & Malling Borough Council worked to implement these measures in partnership with the following stakeholders during 2024:

- Kent County Council

The principal challenges and barriers to implementation that Tonbridge & Malling Borough Council anticipates facing are due to funding difficulties.

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

1-Establish/Join a Quality Bus Partnership to help upgrade Bus Fleet is slow due to KCC which control the partnership only receiving a fraction of the required funding from central government needed to implement this.

2- Review Taxi/Private Hire Vehicle Policy and license fees, implement a strategy to encourage a switch to low emission vehicles taking longer than expected due to not being able to find suitable location for charging stations close to the taxi ranks in the borough.

11- Local Cycling and Walking Infrastructure Plan due to delays in developing active travel strategy and local plan.

Tonbridge & Malling Borough Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in AQMAs 3,5,6,7.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Tonbridge & Malling Borough Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of AQMA 4 at Wateringbury.

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	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
5	Create Anti-idling zone at Tonbridge taxi rank Develop and enforce a borough wide anti-idling campaign	Traffic Management	Anti-idling enforcement	2021	2025	Local Authority Environmental Health	N/A	Not Funded	< £10k	Implementation	Measure is more an awareness raising tool, however it is also a useful measure to prevent vehicles idling and causing congestion in specific locations, which is a significant cause of emissions.	KPI measured via an annual review of the number of fixed penalty fines and number of complaints received. After an initial year of results the % change in penalty fines and complaints can be quantified.	completed at Tonbridge Taxi rank	
10	Installation of electric charging points within Council car parks throughout the borough	Transport Planning and Infrastructure	Other	2021	2024	Local Authority Parking & Environmental Health	N/A	Not Funded	£50k - £100k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 based upon a low to medium uptake.	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 based upon a low to medium uptake.	Phase one completed phase 2 underway	
6	Pilot a Car Club within the Council for individuals use in local communities	Alternatives to private vehicle use	Car Clubs	2021	2023	Local Authority Environmental Health	N/A	Not Funded	£10k - 50k	Implementation	NOx emission reduction achieved by the Council will be able to be calculated annually.	The introduction of pool cars can result in a reduction of approximately 20% in business mileage. KPI relating to usage at the Council can be measurements of reduction in annual mileage undertaken per team.	Plans on going	
1	Establish/Join a Quality Bus Partnership to help upgrade Bus Fleet	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport.	2021	2023	Local Authority Environmental Health, Local bus companies	N/A	Not Funded	< £10k	Planning	In areas of high bus usage, such as within the Tonbridge High Street AQMA an NO2, in conjunction with other measures a reduction of	KPI measured via the % of buses meeting a set EURO standard.	After award of BSIP funding to KCC which they are now engaged in developing enhanced partnership structure	Establish or extend neighbouring QBP(s) to help drive up the quality and emissions performance of the local bus fleet. Engage with KCC public transport and neighbouring

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
											between 1 – 3µg/m3 is to be aimed for.			authorities. Pursue funding opportunities from DfT, Defra and elsewhere as appropriate. To make sure cleaner buses are used on all routes, especially those operating through AQMAs.
2	Review Taxi/Private Hire Vehicle Policy and license fees, implement a strategy to encourage a switch to low emission vehicles	Promoting Low Emission Transport	Taxi Licensing conditions	2021	2030	Local Authority Environmental Health, Local Authority Licencing dept	N/A	Not Funded	< £10k	Implementation	To be confirmed once full fleet information is available – use of the Emissions Factor Toolkit (EFT) to define NOx emission reductions for changes within the fleet per annum.	KPI measured via the % of taxis and private hire vehicles meeting a set EURO standard.	Plans on going	
3	Explore opportunities to reduce emissions from local delivery HGV's/LGV's possibly through the formations of a Freight Quality Partnership	Freight and Delivery Management	Freight Partnerships for city centre deliveries	2021	2022	Local Authority Environmental Health, Local Authority Businesses Dept.	N/A	Not Funded	£10k - 50k	Planning	To be confirmed once fleet information is available – use of the EFT to define NOx emission reductions for changes within a fleet.	KPI measured via the % vehicles meeting a set EURO standard, and/or by the % of business participation in recognition schemes.	Plans on going	
4	Develop and implement a borough-wide school transport scheme	Promoting Travel Alternatives	School Travel Plans	2021	2022	KCC & Local Authority Environmental Health	N/A	Not Funded	£10k - 50k	Planning	Measure has the potential to have a medium to high impact upon short term NO2 concentrations close to schools depending on the uptake of the schemes across the borough. On a borough wide scale a lesser impact upon on concentrations would be realised.	KPIs may include the following: % reduction of children travelling to school in cars, % of children cycling or walking to school. Number of schools implementing individual school travel plans.	Plans on going	

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
7	Continue to explore traffic improvement options at Wateringbury crossroads, emphasis on looking at capacity and flow	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2021	2024	KCC Highways & Local Authority Environmental Health	N/A	Not Funded	< £10k	Implementation	An improvement to the Wateringbury crossroads would aim to reduce NO2 concentrations by between 1 – 5µg/m3.	KPI to be formulated once option has been developed, to be based around vehicle turning counts and/or queuing statistics.	On going but one report summitted by KCC	May be too costly to implement ideal solution & lack of adequate space
8	Encourage companies to allow home working at least one day a week	Promoting Travel Alternatives	Encourage / Facilitate home-working	2021	2031	Local Authority Environmental Health & Business department	N/A	Not Funded	< £10k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 5µg/m3. Based on small uptake	Small impact upon NO2 concentrations from measure individually, estimated to be less than 5µg/m3. Based on small uptake	On going. Many companies continue to allow home working after pandemic.	To promote on website multimedia and targeted adds campaigns to local office based companies using momentum from for home working from Covid restrictions
9	Explore the process for possible standardising Section 106 agreement funding from development for AQ improvements	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021	2023	Local Authority Planning & Environmental Health	N/A	Not Funded	< £10k	Implementation	N/A	N/A	Plans on going	Standardising the process for securing S106 agreements for AQ to be linked with planning department to ensure harmonious implementation. Conditions to be more specific in planning decisions regarding green energy, low emission vehicle and EV parking (policy compliant).
11	Installation of green walls and increased vegetation across the borough	Other	Other	2021	2024	Local Authority Environmental Health & street scene	N/A	Not Funded	£10k - 50k	Implementation	N/A	N/A	Plans on going	Investigate areas like Wateringbury where results are close to hourly mean or increasing vegetation can made a difference. To be installed as a physical barrier to increase distances between the road and pedestrians.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
12	Raise public awareness through the launch of a Travel Choices Campaign	Public Information	Via the Internet	2021	2022	Local Authority Environmental Health & KCC	N/A	Not Funded	£10k - 50k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3.	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3.	Plans on going	Possibility of partnership with 'Step Ahead of the Rest' KCC Active travel programme. Social Media advertising. Community projects.
13	Prepare a new Local Cycling and Walking Infrastructure plan (LCWIP)	Transport Planning and Infrastructure	Cycle network	2021	2022	Local Authority Planning & Environmental Health	N/A	Not Funded	< £10k	Implementation	N/A	N/A	Plans on going	Identify if there any specific routes that can be improved upon or require the introduction of new routes.
13b	Delivery of identified cycling and walking schemes	Transport Planning and Infrastructure	Cycle network	2021	2030	KCC & Local Authority Planning & Environmental Health	N/A	Not Funded	£10k - 50k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3 based upon a low to medium uptake	KPIs to include: Usage of rental schemes. Numbers of cycle to work schemes. Implementation of new routes per annum. Obtain figures from use of new cycle hub and Tonbridge station	Plans on going	Following the completion of the LCWIP, the identified cycling and walking routes will be improved / new routes are to be introduced. In addition cycle to work schemes are to be encouraged and supported through local campaigns, events and planning negotiations. Active travel to be promoted in partnership with KCC – Kent Connected. Tie in with 11.
14	Education and encouragement in terms of air quality across the borough: public workshops, leaflet campaigns, advertising, approaching schools, businesses, community centres	Public Information	Via leaflets	2021	2023	Local Authority Environmental Health	N/A	Not Funded	£10k - 50k	Implementation	Small impact upon NO2 concentrations from measure individually, estimated to be less than 1µg/m3.	Usage statistics for public transport and zero emission transport options (walking and cycling) across the borough per annum. Most of the individual parts to this measure can be developed immediately, again it may be beneficial to	Plans on going.	Available AQ information, current issues, what the council is doing paired with what the public can do as a bottom up approach. Provision of workshops, physical and digital leaflets, drop in sessions, dedicated phone-line etc. Social media visibility is a key element with potential to link to other KES/ELES communications.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
												have a KPI relating to implementation time.		Community Champions / case studies

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[1], 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.

Tonbridge & Malling Borough Council is taking the following measures to address $PM_{2.5}$: A PM_{10} monitor is installed at Borough Green from which $PM_{2.5}$ can be calculated. A figure of 6.0 has been used for the nation factor for a roadside site and this has been deducted from our PM_{10} yearly average of 18.9µg/m^3 to give a $PM_{2.5}$ yearly average of 14.0µg/m^3.

Anti-idling signs at Tonbridge Taxi rank will help reduce $PM_{2.5}$ particles and plans are already near completion to reduce anti idling around schools across the borough (measure 5). Although not specifically aimed at reducing $PM_{2.5}$ particles many of the measures aimed at reducing NO_2 from traffic will also help to reduce $PM_{2.5}$ particles. Measure 10 to increase charging point across the borough will also help increase the uptake of electric vehicles and reduce $PM_{2.5}$ particles generated from exhaust fumes.

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

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Tonbridge & Malling Borough Council undertook automatic (continuous) monitoring at Tonbridge & Borough Green sites during 2024. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The Kent and Medway Air Quality page presents automatic monitoring results for Tonbridge & Malling Borough Council, with automatic monitoring results also available through the UK-Air website.

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

3.1.2 Non-Automatic Monitoring Sites

Tonbridge & Malling Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 37 sites during 2024. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full most recent year of data 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.

No sites recorded an annual mean of 60µg/m^3 so therefore no 1-hour mean objective was exceeded at the sites. All AQMAs are within the 40 µg/m^3 limit with AQMA 4 Wateringbury being the only one remaining within 10% of the objective as it was also in 2023. Overall most of the AQMAs and site locations across the borough were only slightly down on previous years results by between 1 µg/m^3 or 2µg/m^3. The triplicate in Borough Green AQMA was up by 2µg/m^3 on last year but this could be due to roadworks causing queuing traffic at this location.

In 2025 we will be asking Councillors to approve revocation of the remaining AQMAs with the exception of AQMA 4 at Wateringbury.

Some diffusion tube sites will be repositioned across the road from (or nearby) their previous locations to check that air pollution is not at a level of concern before being considered to be removed entirely from that area at start of 2026.

3.2.2 Particulate Matter (PM_{10})

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

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

PM_{10} did not exceed annual mean objective of 40µg/m^3 in 2024 in AQMA 7 Borough Green. It only exceeded the 24hr mean objective of 50 µg/m^3 on 6 occasions so this is below the 35-day maximum.

3.2.3 Particulate Matter ($PM_{2.5}$)

$PM_{2.5}$ is based on a calculation from the monitored PM_{10} results. Using a national factor of 6.0, this is taken away from the PM10 annual average of 20µg/m^3 to give 14µg/m^3.

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? (1)	Monitoring Technique	Distance to Relevant Exposure (m) (2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
ZT8	Borough Green	Roadside	560583	157337	NO_2	YES	AQMA 7	Chemiluminescent	15.93	2.42	1.72
ZT8	Borough Green	Roadside	560583	157337	PM_{10}	YES	AQMA 7	Beta Attenuation	15.75	2.6	1.69
ZT9	Tonbridge High Street	Urban Centre	558890	146203	NO_2	YES	AQMA 3	Chemiluminescent	15	6m	6.2

Notes:

(1) N/A if not applicable

(2) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

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)
TN5a	131 Hall Road, Aylesford	Roadside	572611	158545	NO2	No	0.0	26.7	No	2.4
TN10	Offham Road, West Malling	Suburban	567617	157635	NO2	No	12.5	1.7	No	2.1

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
TN18	Wilson Road, Tonbridge	Suburban	560263	148509	NO2	No	6.3	2.0	No	3.0
TN33	Tonbridge Road, Wateringbury (Red Hill Corner)	Roadside	569201	153486	NO2	AQMA 4	0.0	1.3	No	2.8
TN35	High Street, Tonbridge (no 35, WH Smith)	Roadside	558948	146277	NO2	No	0.0	3.8	No	2.5
TN43	Tonbridge Road, Wateringbury (Red Hill)	Roadside	569187	153498	NO2	AQMA 4	0.0	2.6	No	2.6
TN44	High Street, Tonbridge(no 46a)	Roadside	558929	146271	NO2	No	0.0	3.3	No	2.4
TN47	London Road, Ditton (nos 516)	Urban Background	571399	158375	NO2	No	0.0	23.0	No	1.8
TN 70, TN72, TN73	55, Sevenoaks Road, Borough Green	Roadside	560567	157328	NO2	AQMA 7	0.0	2.5	No	1.9
TN45, TN74, TN75	High Street, Tonbridge (no 10)	Roadside	558864	146166	NO2	AQMA 3	0.0	2.3	No	2.5
TN42, TN76, TN77	Tonbridge Road, Wateringbury (Opposite Garage)	Roadside	569226	153475	NO2	AQMA 4	0.0	1.3	No	2.4
TN80b	218 Station Road, Aylesford	Roadside	572124	158627	NO2	No	0.0	35.8	No	2.0
TN93	16 Sevenoaks Road	Roadside	560717	157266	NO2	No	11.3	1.5	No	2.3

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
TN95	Harrison Road	Suburban	560831	157004	NO2	No	7.8	1.7	No	2.3
TN96	1 Bordyke, Tonbridge	Roadside	559148	146889	NO2	No	0.0	3.5	No	2.0
TN83, TN98, TN99	424 New Hythe Lane	Roadside	570740	159667	NO2	No	0.0	4.1	No	2.4
TN102	39 Whitepost Wood La	Roadside	572768	157186	NO2	No	2.6	14.5	No	2.4
TN109	St Augustines, Quarry Hill, Tonbridge	Roadside	558743	145922	NO2	No	0.0	4.0	No	2.2
TN118	1a Marion Cottages, Maidstone Road, Wrotham Heath	Roadside	563209	157995	NO2	No	0.0	4.4	No	2.0
TN119	66 High Street, Aylesford	Kerbside	572924	158986	NO2	No	0.0	0.7	No	2.0
TN122	Post office 192-194 Tonbridge road Wateringbury	Roadside	569168	153501	NO2	AQMA 4	0.0	1.4	No	2.1
TN123	11 Rochester Road	Roadside	573130	159010	NO2	No	0.0	1.8	No	2.0
TN137	Robin Hood Lane M2	Roadside	575090	162364	NO2	No	22.0	9.1	No	1.8
TN138	16 Common Road	Roadside	574511	162156	NO2	No	0.0	22.0	No	2.1

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Tube Co-located with a Continuous Analyser?	Tube Height (m)
TN139	456 Maidstone Road Chatham	Roadside	574651	162613	NO2	No	9.0	34.0	No	2.2
TN141	Monitor	Roadside	560583	157337	NO2	AQMA 7	16.0	2.4	No	1.5
TN145	1 Chapel Street, East Malling	Kerbside	570165	156874	NO2	No	0.0	0.9	No	2.2
TN147	13 Eaton Place, New Hythe	Roadside	570718	159593	NO2	No	0.0	22.5	No	1.9
TN106, TN150, TN151	794 London Rd, Larkfield	Roadside	570193	158327	NO2	AQMA 6	0.0	2.3	No	2.2
TN154	No 159 Castle Way	Roadside	569232	159801	NO2	No	0.0	22.5	No	1.9
TN156, TN157, TN158	Lamp post By RBL on Hermitage La	Roadside	572750	157567	NO2	No	5.0	1.7	No	2.4
TN144, TN159, TN160	40 High Street, East Malling	Roadside	570161	156966	NO2	No	0.0	2.1	No	2.1
TN161	5 Castle Terrace Hadlow rd A26	Roadside	563371	149770	NO2	No	0.0	4.0	No	2.0
TN136, TN162, TN163	205 Holborough Road	Roadside	570430	162502	NO2	No	0.0	3.3	No	2.6
TN164	56 High Street West Malling	Roadside	568042	157818	NO2	No	0.0	1.5	No	2.5
TN165, TN166, TN167	London Road, Aylesford	Roadside	570161	156966	NO2	AQMA 5	2.3	1.3	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
	(Lamppost outside no 290)									
TN168, TN169, TN170	Lamppost outside 156 London Rd (near Hermitage Lane)	Roadside	572976	157726	NO2	No	6.0	1.3	No	2.5

Notes:

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

(2) N/A if not applicable.

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
ZT8	157337	560583	Roadside	94	100		22.9	24.2	21.8	18.9
ZT9	146203	558890	Urban Centre	100	100			22.5	24.8	23.5

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

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

☒ **Where exceedances of the NO_2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2024.**

Notes:

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

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

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
TN5a	572611	158545	Roadside	100.0	100.0	24.3	22.4	21.5	21.2	20.0
TN10	567617	157635	Suburban	100.0	100.0	11.4	11.0	11.3	9.8	9.8
TN18	560263	148509	Suburban	100.0	100.0	11.1	10.3	10.4	8.7	8.3
TN33	569201	153486	Roadside	100.0	100.0	**42.1**	39.5	36.8	33.8	30.0
TN35	558948	146277	Roadside	100.0	100.0	28.3	29.3	25.4	25.2	23.2
TN43	569187	153498	Roadside	100.0	100.0	27.4	27.7	28.2	23.4	21.7
TN44	558929	146271	Roadside	100.0	100.0	26.8	27.1	22.1	25.9	23.6
TN47	571399	158375	Urban Background	100.0	100.0	14.7	14.4	14.1	12.6	11.5
TN 70, TN72, TN73	560567	157328	Roadside	100.0	100.0	29.8	30.6	30.4	25.0	27.7
TN45, TN74, TN75	558864	146166	Roadside	100.0	100.0	28.8	29.7	28.4	22.8	23.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
TN42, TN76, TN77	569226	153475	Roadside	100.0	90.6	**44.8**	**46.5**	**44.8**	38.9	37.2
TN80b	572124	158627	Roadside	100.0	100.0	23.0	23.3	24.0	21.3	19.1
TN93	560717	157266	Roadside	100.0	100.0	24.9	22.6	19.6	21.8	18.9
TN95	560831	157004	Suburban	100.0	100.0	10.5	12.3	10.1	8.8	8.5
TN96	559148	146889	Roadside	100.0	100.0	20.6	23.6	23.1	20.1	18.8
TN83, TN98, TN99	570740	159667	Roadside	100.0	100.0	27.4	26.8	27.1	25.0	22.8
TN102	572768	157186	Roadside	100.0	100.0	14.5	15.7	14.8	12.1	10.7
TN109	558743	145922	Roadside	100.0	100.0	26.2	26.5	23.9	22.4	22.4
TN118	563209	157995	Roadside	100.0	100.0	25.7	21.0	24.7	21.7	19.7
TN119	572924	158986	Kerbside	100.0	100.0	21.9	23.6	20.9	19.3	18.5
TN122	569168	153501	Roadside	100.0	100.0	27.0	28.2	24.9	22.9	20.4
TN123	573130	159010	Roadside	100.0	100.0	23.4	23.2	23.8	21.0	20.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
TN137	575090	162364	Roadside	100.0	100.0		31.7	30.2	28.7	25.7
TN138	574511	162156	Roadside	100.0	100.0		17.8	19.8	16.8	16.2
TN139	574651	162613	Roadside	100.0	92.5		20.4	18.6	16.8	13.7
TN141	560583	157337	Roadside	100.0	100.0		21.5	23.4	20.1	18.5
TN145	570165	156874	Kerbside	100.0	92.5			24.9	22.0	20.0
TN147	570718	159593	Roadside	100.0	100.0			19.0	18.7	19.3
TN106, TN150, TN151	570193	158327	Roadside	100.0	100.0	31*	34.7*	33.3	28.8	27.7
TN154	569232	159801	Roadside	100.0	100.0				15.8	14.4
TN156, TN157, TN158	572750	157567	Roadside	100.0	100.0				29.3	27.0
TN144, TN159, TN160	570161	156966	Roadside	100.0	100.0			29.3	25.2	24.0
TN161	563371	149770	Roadside	100.0	100.0					15.8
TN136, TN162, TN163	570430	162502	Roadside	100.0	100.0		33.1	23.5	16.9	17.7

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
TN164	568042	157818	Roadside	100.0	67.9					18.9
TN165, TN166, TN167	570161	156966	Roadside	100.0	100.0					33.4
TN168, TN169, TN170	572976	157726	Roadside	100.0	100.0					34.2

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

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

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

Notes:

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

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

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

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

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

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

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

* Denotes single tube used for these years only

Figure A.1 – Trends in Annual Mean NO_2 Concentrations M20

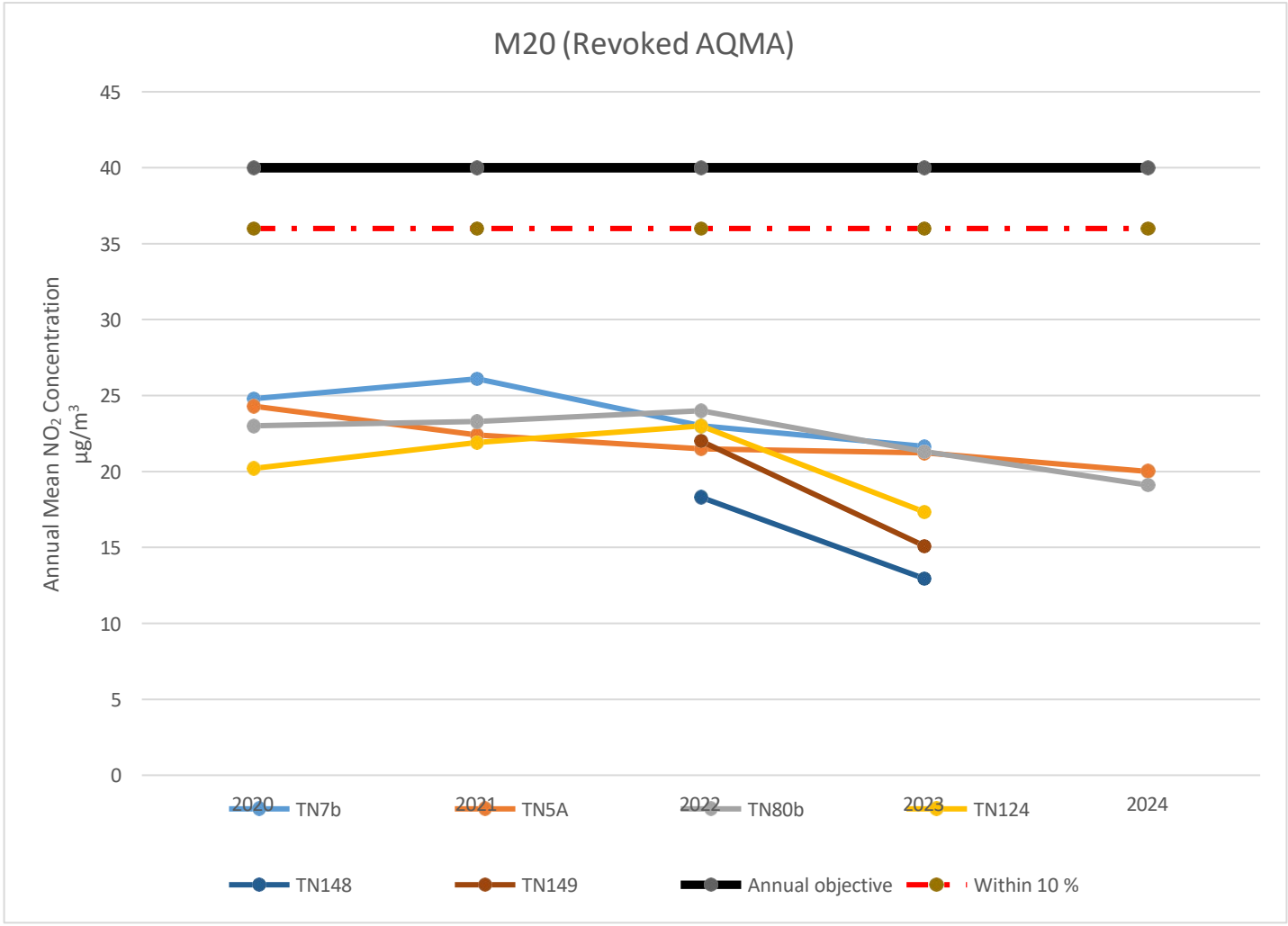


Figure A.1.2 – Trends in Annual Mean NO2 Concentrations AQMA 3 Tonbridge High Street

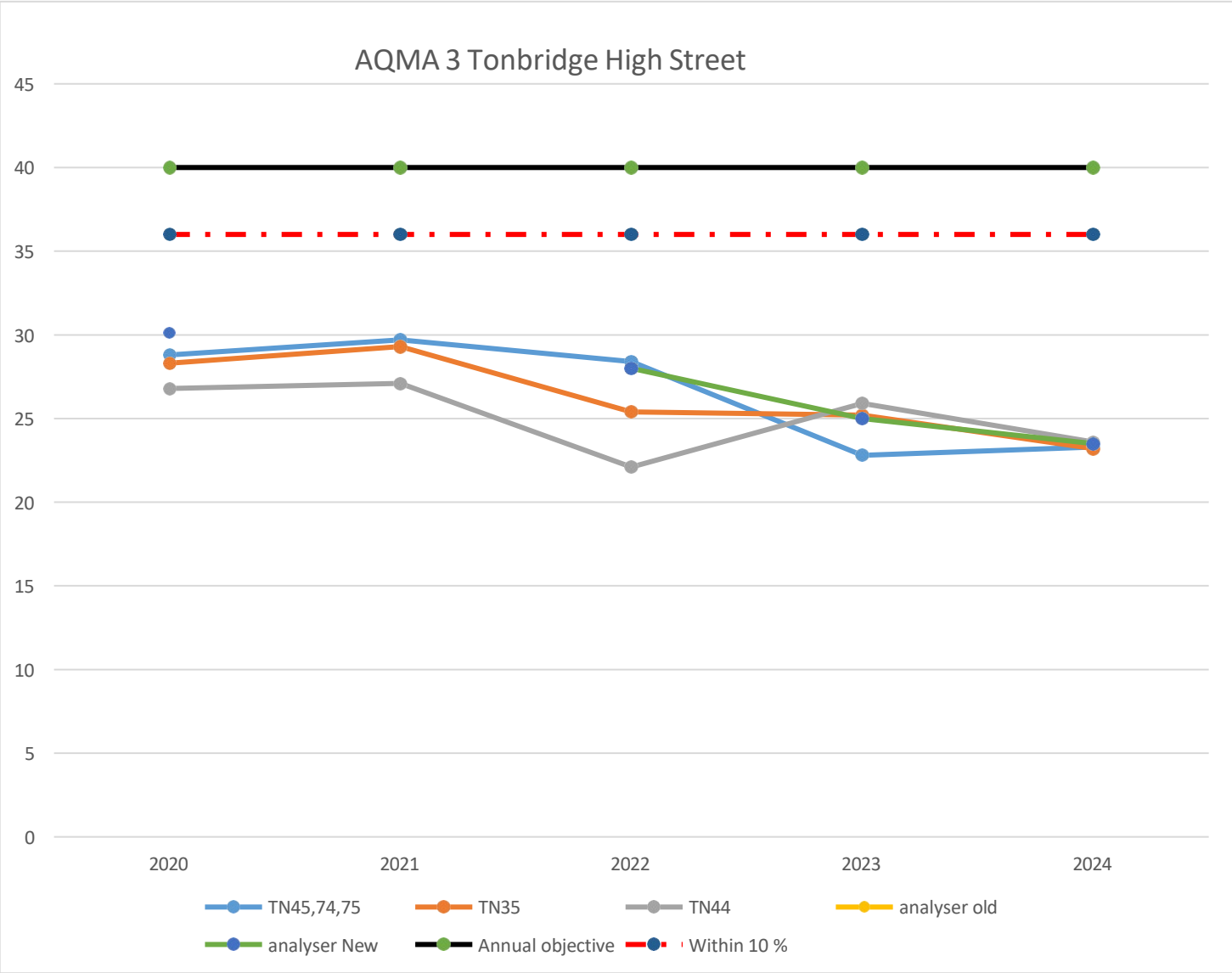


Figure A.1.3 – Trends in Annual Mean NO2 Concentrations AQMA 4 Wateringbury

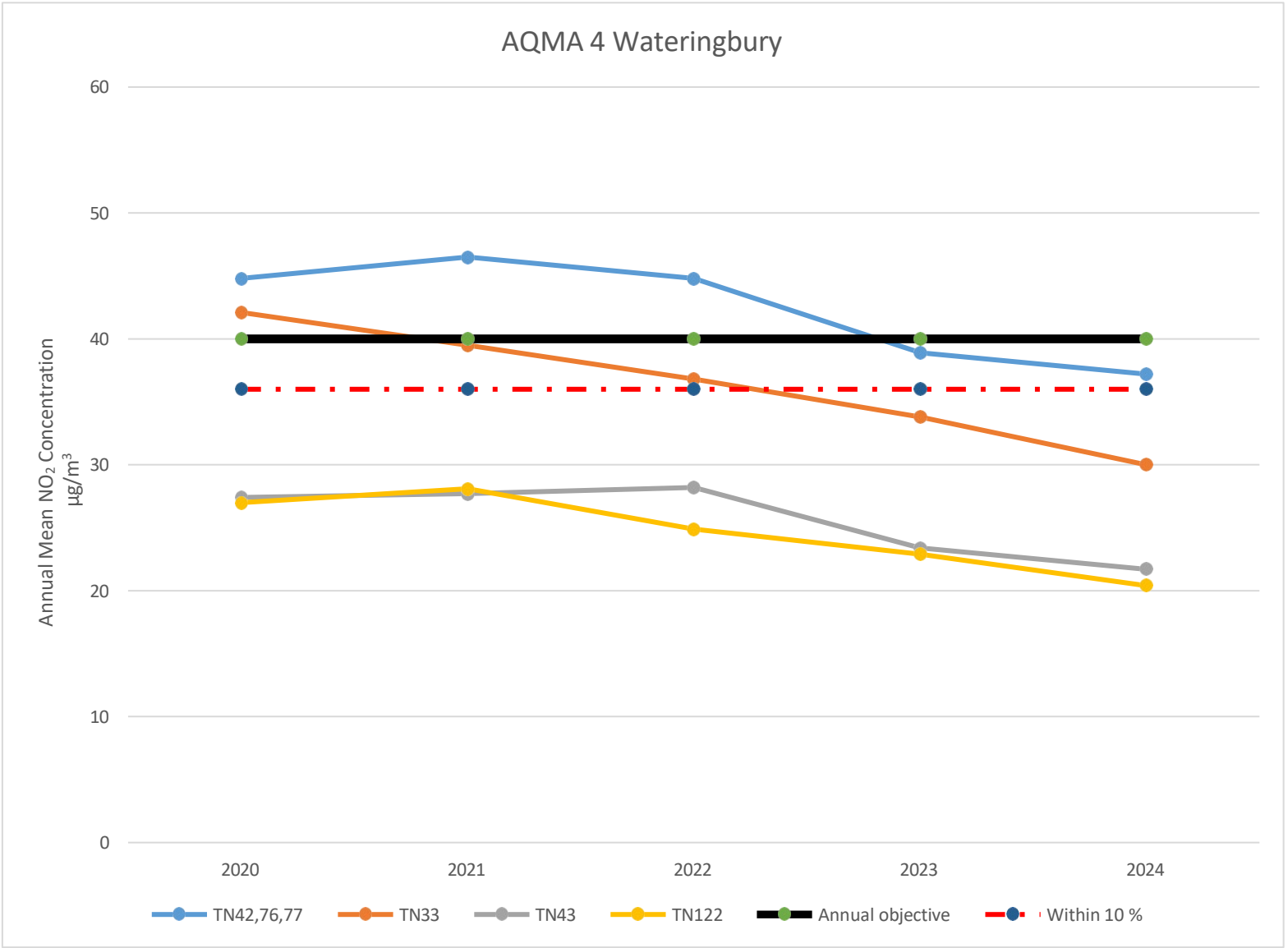


Figure A.1.4 – Trends in Annual Mean NO2 Concentrations AQMA 5 Aylesford

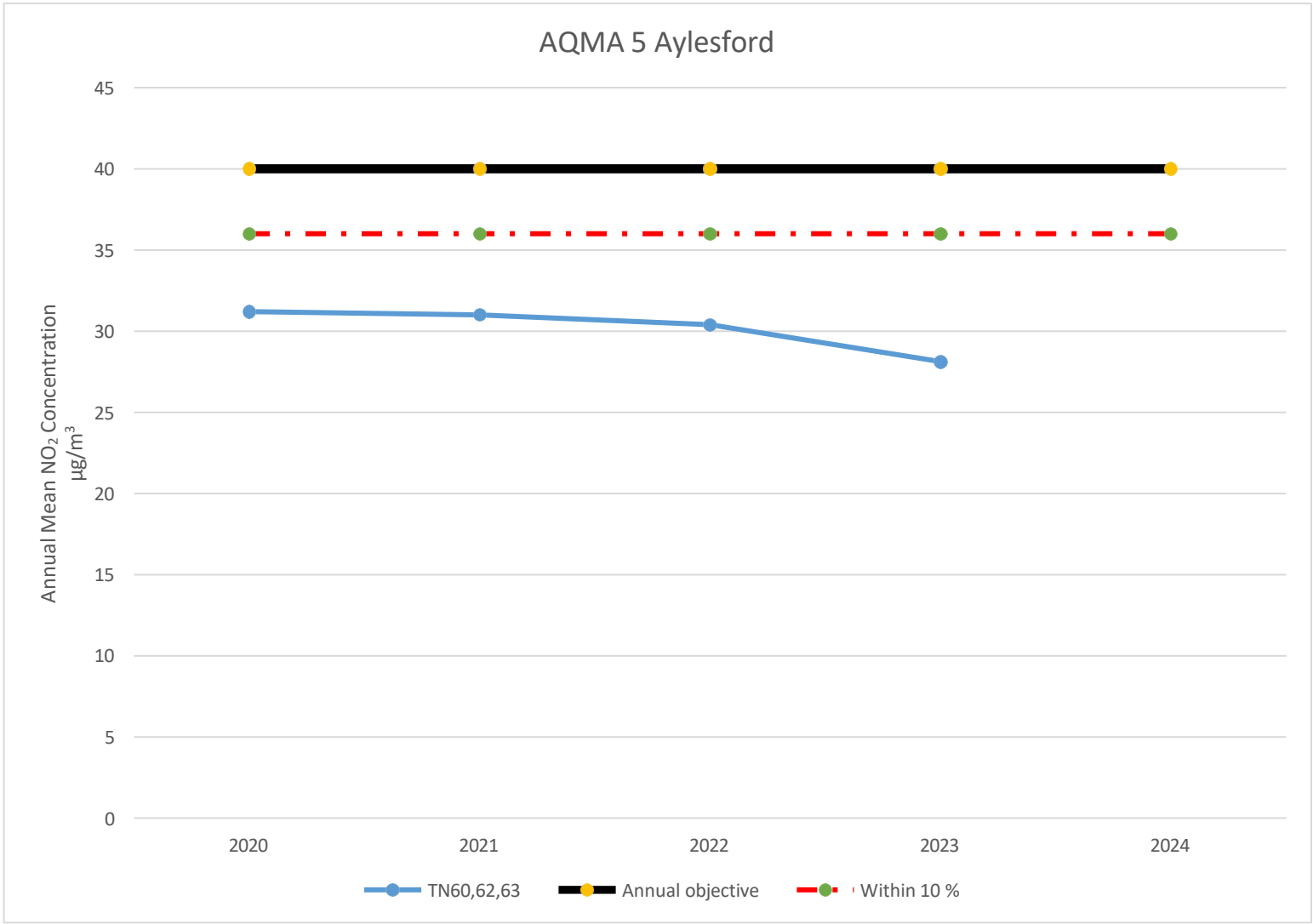


Figure A.1.5 – Trends in Annual Mean NO2 Concentrations AQMA 6 Larkfield

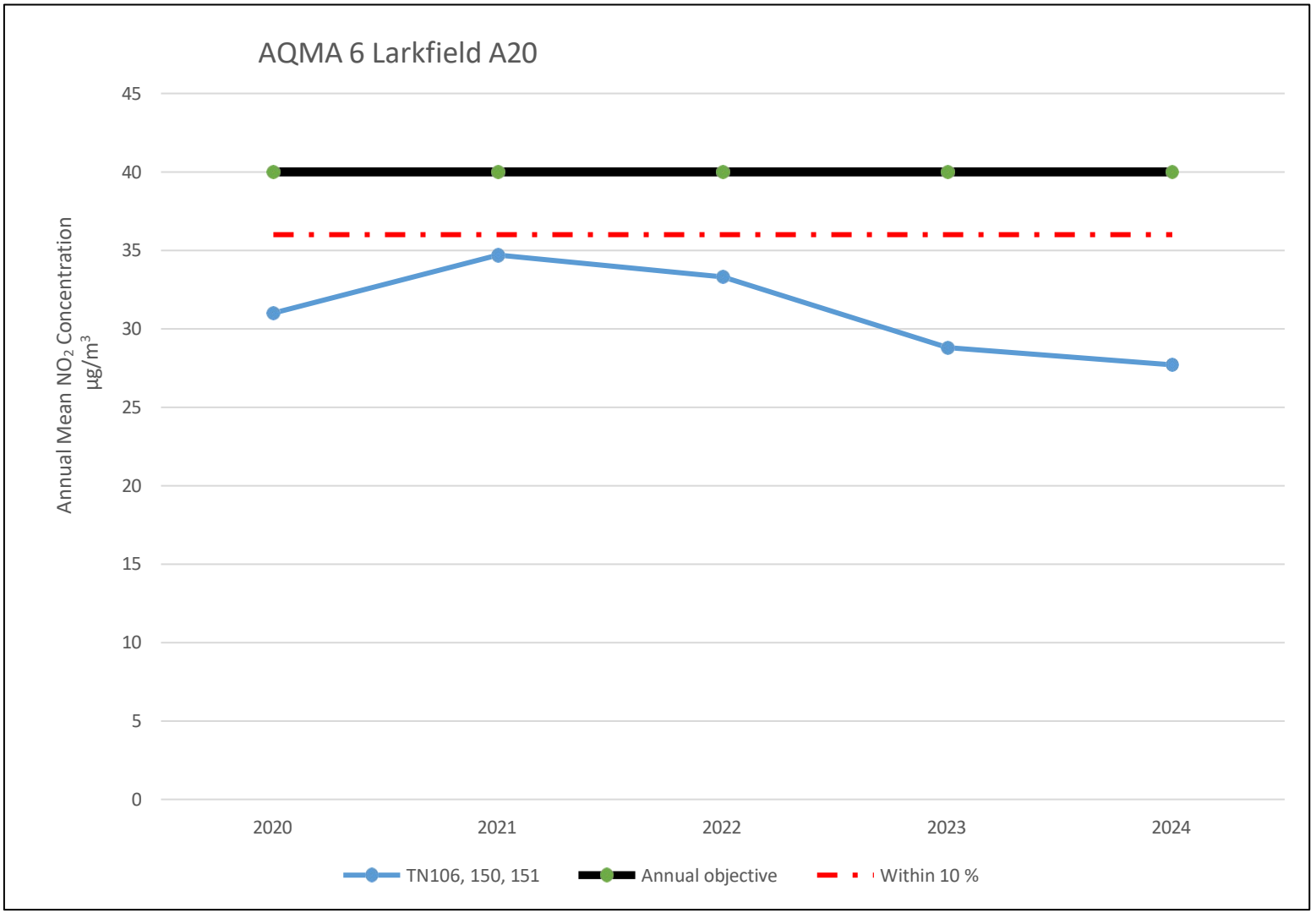


Figure A.1.6 – Trends in Annual Mean NO2 Concentrations AQMA 7 Borough Green

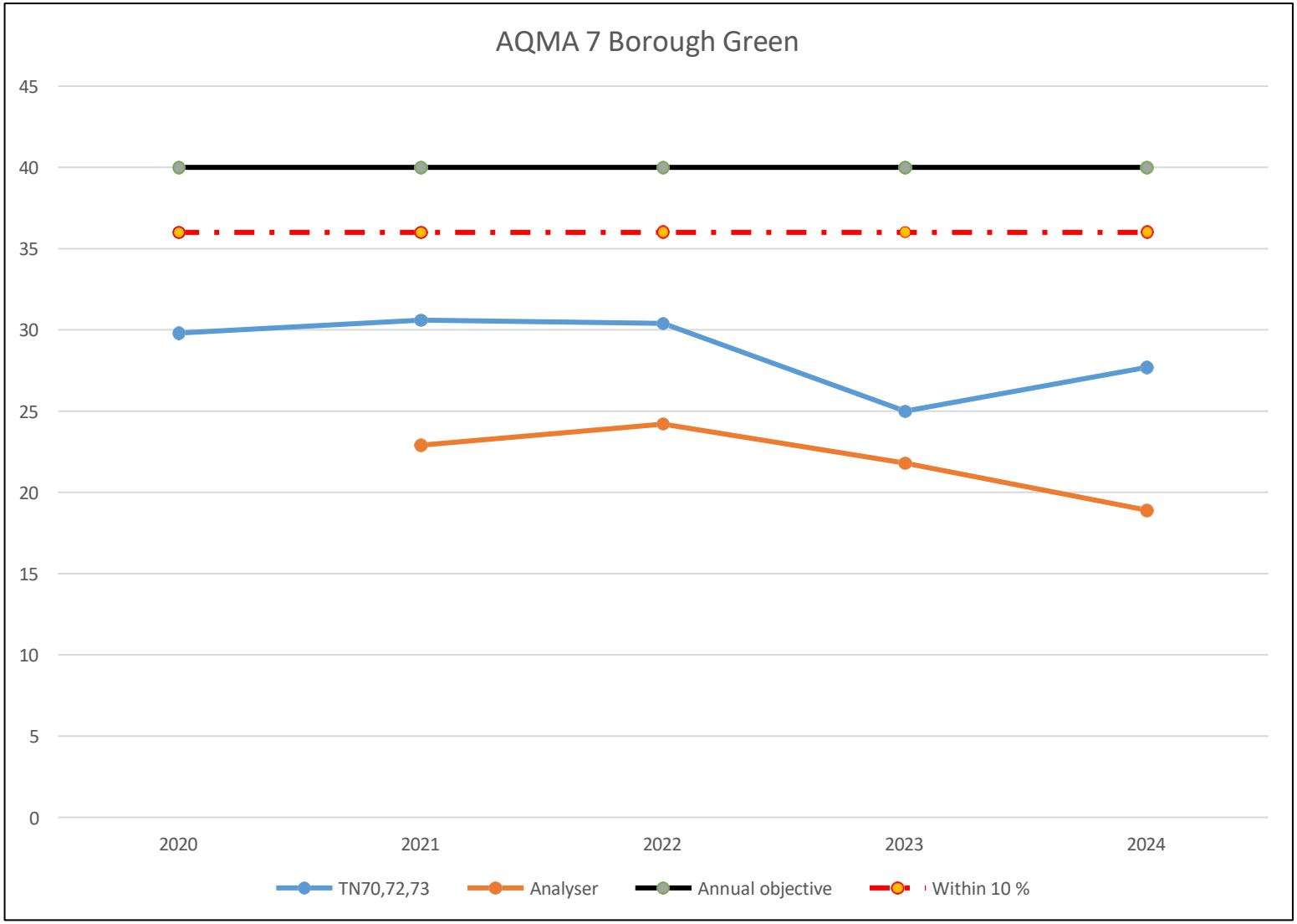


Figure A.1.7 – Trends in Annual Mean NO2 Concentrations Backgrounds Sites

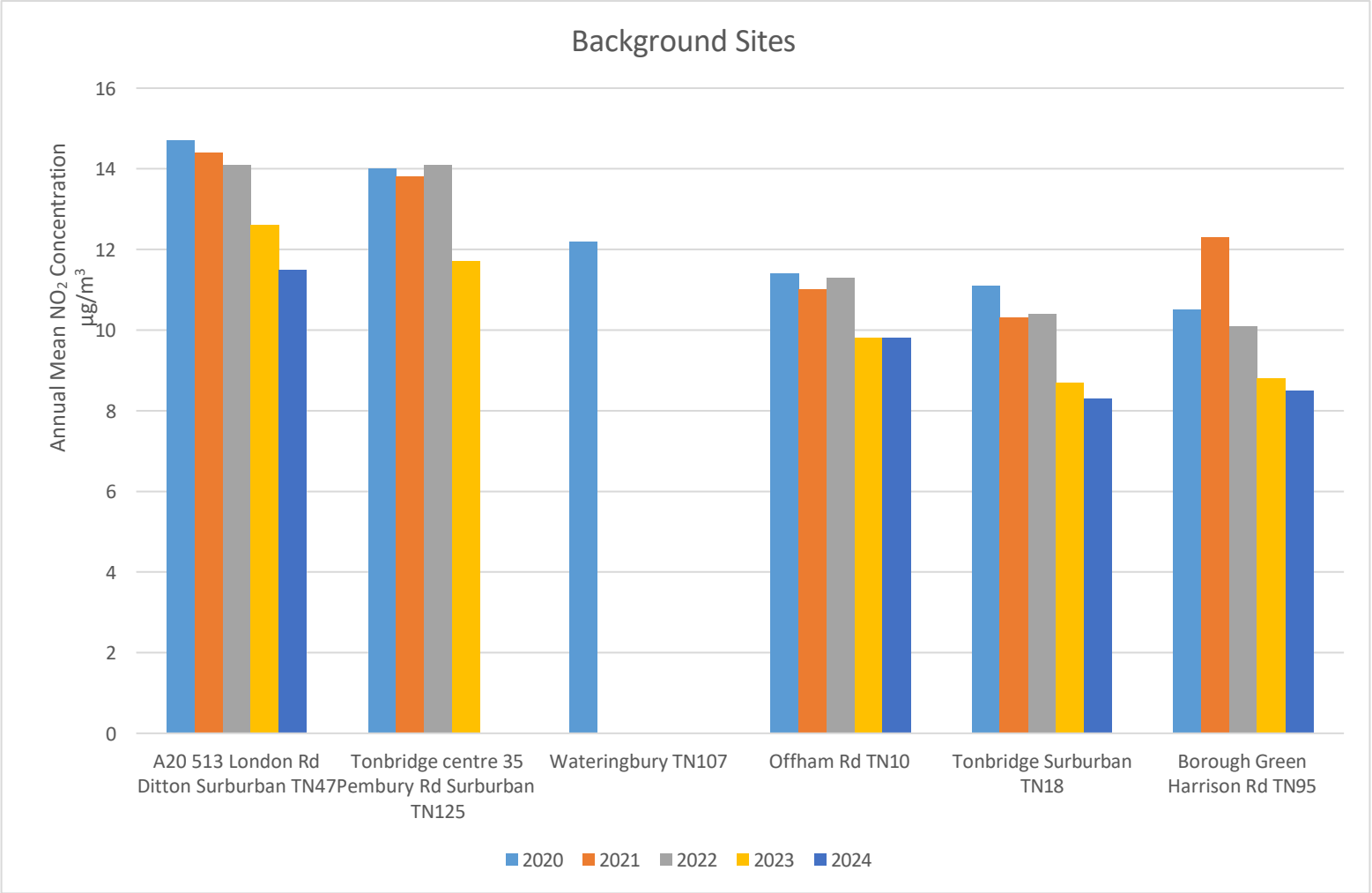


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
ZT8	560583	157337	Roadside	92	100	N/A	0	0	0 (87.9)	0
ZT9	558890	146203	Urban Centre	100	100	N/A	N/A	0	0	0
ZT5	558877	146185	Urban Centre	N/A	N/A	0 (119)	N/A	N/A	N/A	N/A
ZT7	569165	153493	Roadside	N/A	N/A	0	0	N/A	N/A	N/A

Notes:

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

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

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

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

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

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
ZT8	560583	157337	Roadside	97	100	N/A	24	25	21.7	20

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

Notes:

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

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

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

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

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

Figure A.2 – Trends in Annual Mean PM10 Concentrations

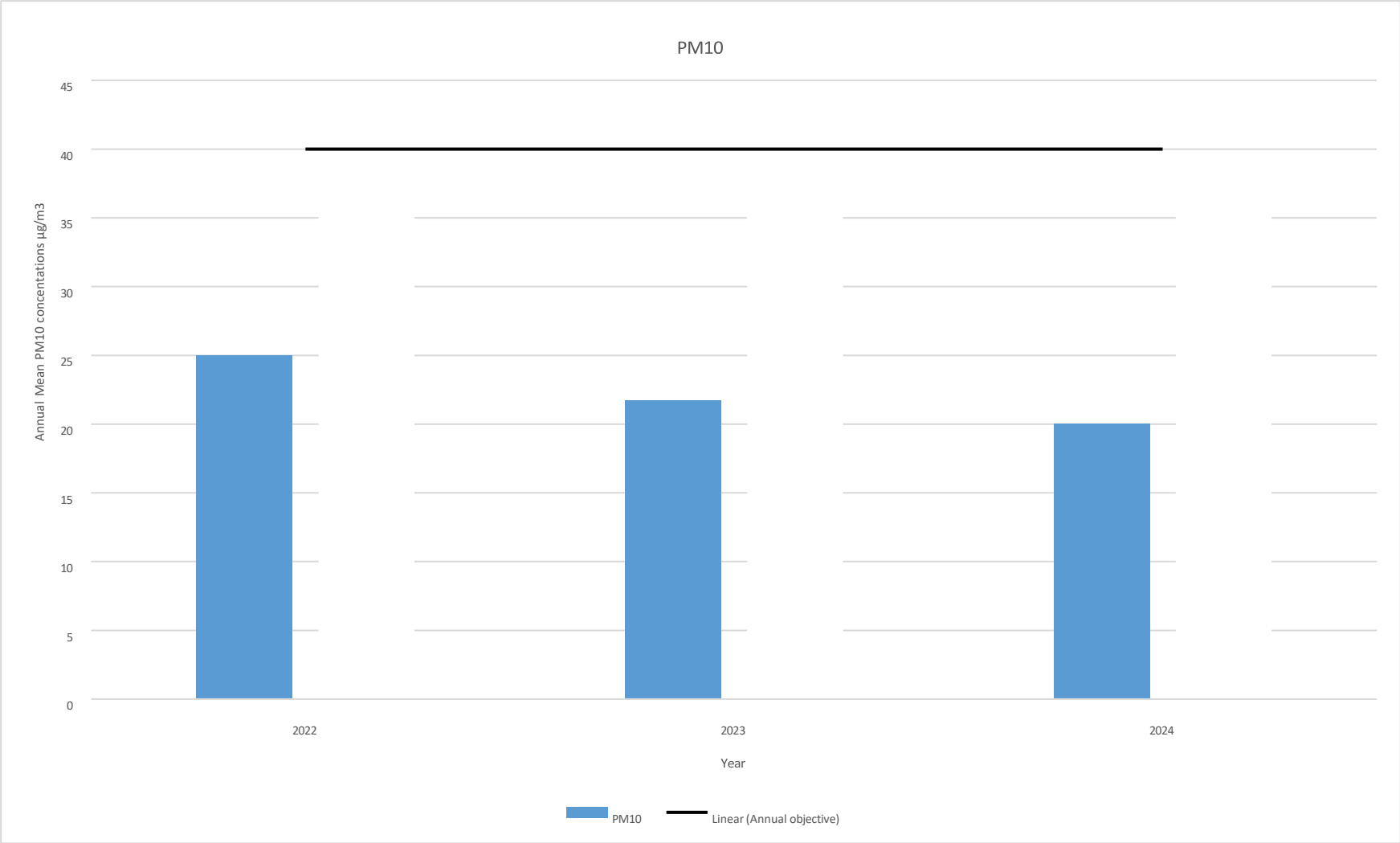


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
ZT8	560583	157337	Roadside	97	100	N/A	6	12	3	6

Notes:

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

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

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

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

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

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

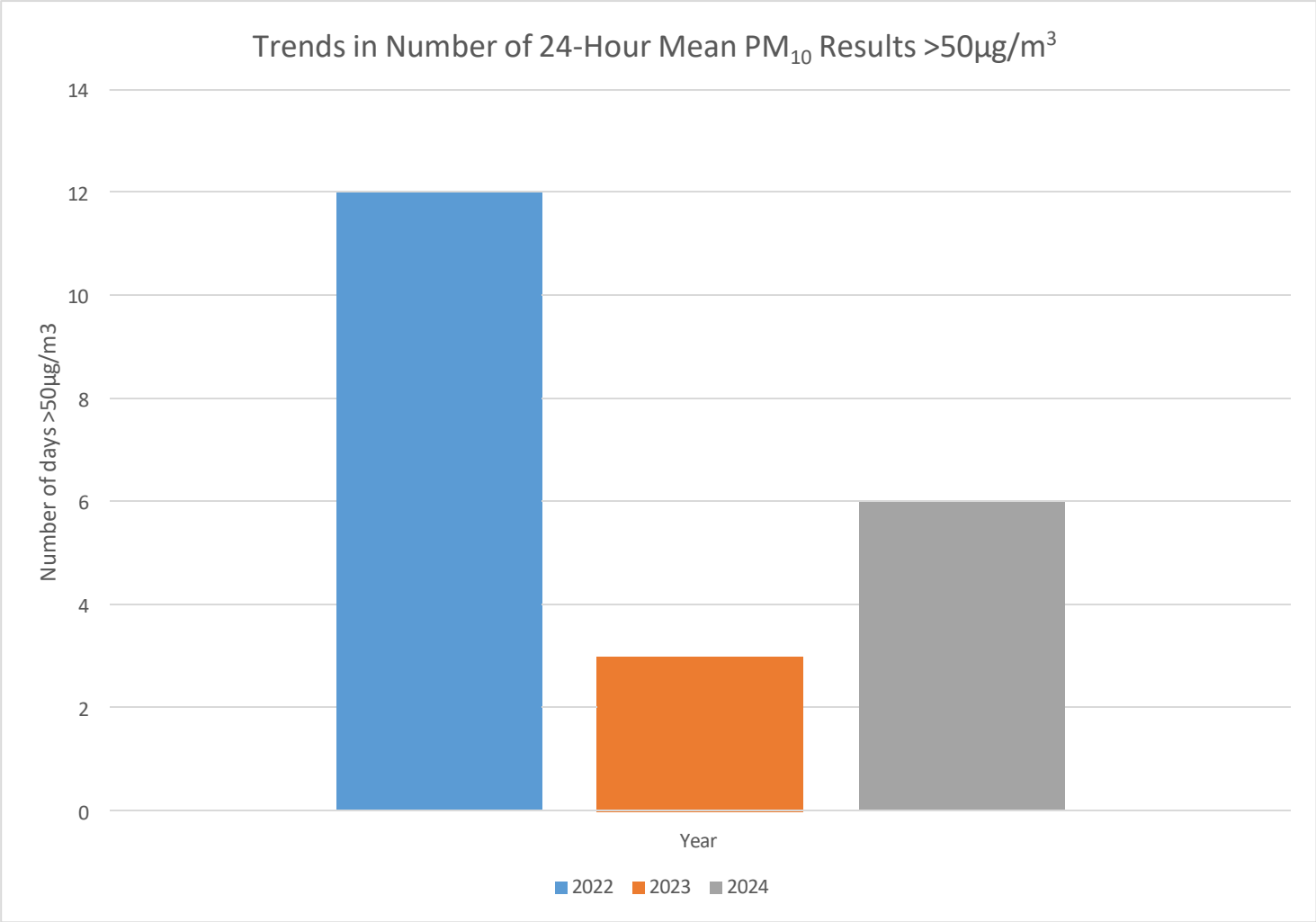


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
ZT8	560583	157337	Roadside	97	100	n/a	n/a	18.6	15.8	14.0

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

Notes:

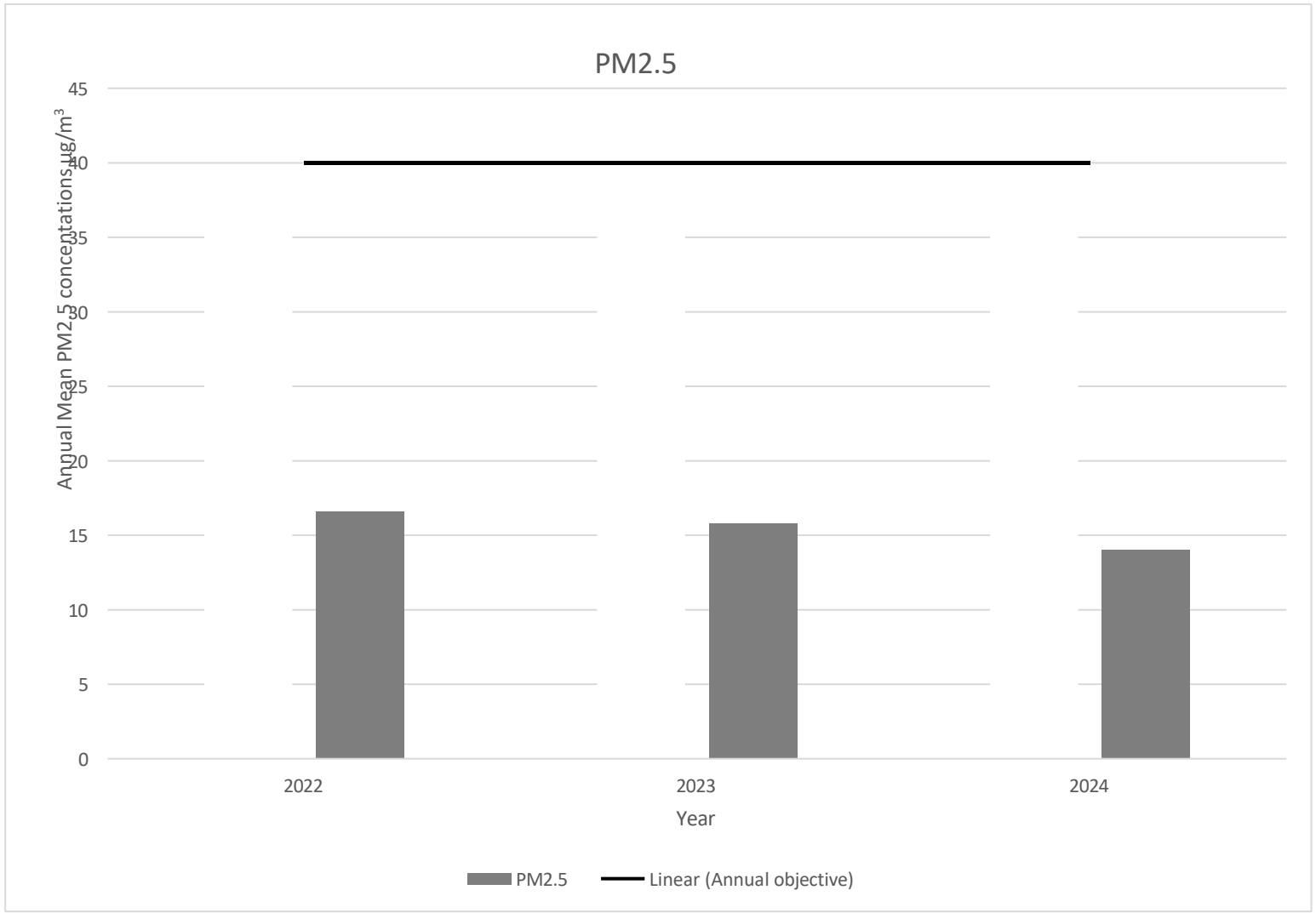
The annual mean concentrations are presented as $\mu g/m^3$.

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.4 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO_2 2024 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.80)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
TN5a	572611	158545	28.2	32.7	28.3	21.7	18.9	24.0	24.6	22.0	19.9	27.7	29.1	23.6	25.1	20.0	-	
TN10	567617	157635	17.0	15.2	12.2	8.4	10.7	9.3	9.0	9.2	10.7	13.7	18.3	13.0	12.2	9.8	-	
TN18	560263	148509	15.8	12.0	10.8	7.5	7.6	7.3	6.8	7.2	9.4	12.6	14.9	12.4	10.4	8.3	-	
TN33	569201	153486	45.1	47.9	29.0	32.5	40.3	38.0	32.3	35.9	38.1	41.7	29.0	39.8	37.5	30.0	-	
TN35	558948	146277	34.3	32.4	29.4	24.3	27.2	28.8	24.4	24.3	32.5	34.6	29.0	27.2	29.0	23.2	-	
TN42	569226	153475	53.7	47.7	43.5		44.5	43.7	41.1	42.5	50.5	50.1	53.7		-	-	-	Triplicate Site with TN42, TN76 and TN77 - Annual data provided for TN77 only
TN43	569187	153498	28.6	32.5	22.3	26.1	26.8	22.3	22.1	26.7	29.1	27.1	35.4	27.1	27.2	21.7	-	
TN44	558929	146271	33.8	39.8	30.3	27.8	27.4	27.8	21.3	25.5	29.4	28.3	34.5	28.8	29.6	23.6	-	
TN45	558864	146166	32.3	32.4	29.2	25.9	27.7	31.3	25.6	27.4	16.3	32.8	39.6	30.7	-	-	-	Triplicate Site with TN45, TN74 and TN75 - Annual data provided for TN75 only
TN47	571399	158375	19.7	17.4	13.8	11.3	13.0	12.0	10.9	10.7	14.0	17.0	19.2	13.9	14.4	11.5	-	
TN 70	560567	157328	38.9	44.1	40.8	23.3	33.5	33.7	26.4	33.2	33.2	36.0	31.2	31.9	-	-	-	Triplicate Site with TN 70, TN72 and TN73 - Annual data provided for TN73 only
TN72	560567	157328	38.9	43.0	38.3	33.4	34.3	34.6	28.1	32.2	34.6	36.5	39.6	29.9	-	-	-	Triplicate Site with TN 70, TN72 and TN73 - Annual data provided for TN73 only
TN73	560567	157328	35.3	43.8	42.2	33.1	33.7	33.0	31.6	29.9	31.5	35.5	37.0	31.9	34.7	27.7	-	Triplicate Site with TN 70, TN72 and TN73 - Annual data provided for TN73 only
TN74	558864	146166	37.2	32.6	28.7	20.5	29.6		27.6	28.5	29.8	29.5	32.8	21.6	-	-	-	Triplicate Site with TN45, TN74 and TN75 - Annual data provided for TN75 only
TN75	558864	146166	34.4	35.4	26.3	18.7		30.7	27.8	28.4	28.3		33.4	24.6	29.1	23.3	-	Triplicate Site with TN45, TN74 and TN75 - Annual data provided for TN75 only
TN76	569226	153475	51.6	47.3	42.9	39.8	43.9	42.2	31.8	42.1	51.7	52.4	60.9		-	-	-	Triplicate Site with TN42, TN76 and TN77 - Annual data provided for TN77 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 <(0.80)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
TN77	569226	153475	44.8	50.7	39.6	43.6	48.1	44.6	39.9	45.1	49.1	52.4	58.8		46.5	37.2	-	Triplicate Site with TN42, TN76 and TN77 - Annual data provided for TN77 only
TN80b	572124	158627	29.3	33.8	28.9	20.7	22.7	22.0	16.4	17.7	22.0	15.9	30.8	26.1	23.9	19.1	-	
TN83	570740	159667	33.8	33.3	29.1	26.2	24.9	28.3	26.8	30.1	18.0	20.3	36.1	23.4	-	-	-	Triplicate Site with TN83, TN98 and TN99 - Annual data provided for TN99 only
TN93	560717	157266	23.6	29.0	20.8	22.1	27.7	21.8	20.4	19.7	25.6	20.9	30.6	21.1	23.6	18.9	-	
TN95	560831	157004	15.2	12.2	11.5	8.1	8.6	8.0	6.9	7.7	9.4	13.8	14.1	12.2	10.6	8.5	-	
TN96	559148	146889	27.5	24.5	23.7	19.2	24.6	20.1	17.5	18.3	26.5	28.5	30.4	20.7	23.5	18.8	-	
TN98	570740	159667	25.8	35.7	31.2	27.4	26.7	26.5	27.6	28.7	25.3	29.0	35.6	26.9	-	-	-	Triplicate Site with TN83, TN98 and TN99 - Annual data provided for TN99 only
TN99	570740	159667	31.7	33.5	30.0	28.9	26.2	27.2	25.7	29.4	26.2	31.0	32.8	25.3	28.5	22.8	-	Triplicate Site with TN83, TN98 and TN99 - Annual data provided for TN99 only
TN102	572768	157186	19.8	15.7	13.8	10.5	14.5	7.2	10.1	9.3	15.1	17.7	14.0	12.5	13.4	10.7	-	
TN106	570193	158327	37.6	34.7	32.5	22.4	39.9	34.8	27.8	33.7	34.5	38.5	40.9	31.7	-	-	-	Triplicate Site with TN106, TN150 and TN151 - Annual data provided for TN151 only
TN109	558743	145922	28.3	35.5	34.0	15.8	27.4	24.9	25.2	23.9	29.1	34.0	36.9	21.1	28.0	22.4	-	
TN118	563209	157995	25.5	28.2	24.7	24.6	26.8	24.6	23.1	20.3	23.3	28.0	30.8	15.0	24.6	19.7	-	
TN119	572924	158986	26.2	28.7	25.1	16.0	23.7	19.4	18.3	19.4	23.5	28.2	26.6	21.8	23.1	18.5	-	
TN122	569168	153501	33.0	28.7	26.4	17.6	20.1	19.4	22.1	22.2	27.4	30.0	34.1	24.7	25.5	20.4	-	
TN123	573130	159010	32.1	31.0	32.4	13.7	21.5	22.6	20.9	22.3	21.2	32.5	30.4	23.7	25.4	20.3	-	
TN136	570430	162502	29.8	28.9	23.8	16.6	21.3	21.4	20.0	19.6	22.3	28.9	29.5	17.4	-	-	-	Triplicate Site with TN136, TN162 and TN163 - Annual data provided for TN163 only
TN137	575090	162364	34.4	43.0	34.5	18.5	37.2	36.6	29.7	26.9	35.0	33.8	24.3	32.2	32.2	25.7	-	
TN138	574511	162156	18.1	27.7	23.0	17.5	16.7	22.1	19.3	20.3	16.9	19.1	23.9	18.0	20.2	16.2	-	
TN139	574651	162613	21.1	18.1	22.5	15.4	19.0		14.1	14.4	14.7	18.0	26.3	4.7	17.1	13.7	-	
TN141	560583	157337	26.1	26.8	23.0	20.5	22.7	22.7	18.9	19.0	24.3	23.7	28.8	20.9	23.1	18.5	-	

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 <(0.80)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
TN144	570161	156966	35.8	36.1	27.3	26.6	30.7	28.5	24.8	27.9	28.2	31.6	36.6	28.1	-	-	-	Triplicate Site with TN144, TN159 and TN160 - Annual data provided for TN160 only
TN145	570165	156874	32.4	27.5	32.1	20.7	27.2	24.3	21.9	26.5	26.7	18.1		17.0	24.9	20.0	-	
TN147	570718	159593	30.1	29.3	22.8	18.4	23.9	22.1	20.6	20.3	24.5	25.9	28.6	22.5	24.1	19.3	-	
TN150	570193	158327	36.3	36.2	29.7	22.7	38.0	37.4	35.4	31.2	36.7	36.9	44.5	31.6	-	-	-	Triplicate Site with TN106, TN150 and TN151 - Annual data provided for TN151 only
TN151	570193	158327	39.8	35.4	34.9	19.0	37.9	38.2	34.4	31.7	43.4	36.2	40.2	30.6	34.6	27.7	-	Triplicate Site with TN106, TN150 and TN151 - Annual data provided for TN151 only
TN154	569232	159801	15.7	23.5	22.0	12.3	17.1	13.9	15.9	15.7	17.6	22.2	22.8	16.9	18.0	14.4	-	
TN156	572750	157567	39.4	47.0	37.3	30.1	32.0	32.6	31.8	30.1	31.4	34.2	39.9	28.9	-	-	-	Triplicate Site with TN156, TN157 and TN158 - Annual data provided for TN158 only
TN157	572750	157567	40.5	43.2	38.2	28.3	33.3	31.7	30.5	27.2	33.0	37.3	37.4	31.8	-	-	-	Triplicate Site with TN156, TN157 and TN158 - Annual data provided for TN158 only
TN158	572750	157567	36.9	38.6	34.6	28.1	31.1	31.6	26.7	32.4	32.6	34.0	28.1	32.3	33.7	27.0	-	Triplicate Site with TN156, TN157 and TN158 - Annual data provided for TN158 only
TN159	570161	156966	37.0	37.5	31.0	28.1	30.5	30.5	26.4	28.3	30.0	29.8	31.4	29.6	-	-	-	Triplicate Site with TN144, TN159 and TN160 - Annual data provided for TN160 only
TN160	570161	156966	35.9	28.3	29.4	26.8	29.5	28.6	28.5	28.3	23.3	29.0	30.2	31.8	30.1	24.0	-	Triplicate Site with TN144, TN159 and TN160 - Annual data provided for TN160 only
TN161	563371	149770	24.8	24.5	22.7	16.0	15.9	16.6	16.2	17.1	15.7	21.2	27.0	19.0	19.7	15.8	-	
TN162	570430	162502	27.3	25.1	27.9	9.3	23.6	19.8	21.4	20.9	23.5	28.5	10.9	21.8	-	-	-	Triplicate Site with TN136, TN162 and TN163 - Annual data provided for TN163 only
TN163	570430	162502	26.4	26.9	23.4	14.0	23.0	23.4	20.2	19.1	15.2	28.8	16.4	20.2	22.1	17.7	-	Triplicate Site with TN136, TN162 and TN163 - Annual data provided for TN163 only
TN164	568042	157818	29.1	27.9	22.0		23.1	19.4	19.0	21.3		25.6			23.4	18.7	-	
TN165	570161	156966	42.9	48.6	43.1	28.1	43.4	42.8	43.2	41.8	36.9	30.8	49.8	38.0	-	-	-	Triplicate Site with TN165, TN166 and TN167 - Annual data provided for TN167 only
TN166	570161	156966	50.1	48.7	43.1	38.4	40.4	44.7	40.7	37.4	45.9	46.6	41.1	39.1	-	-	-	Triplicate Site with TN165, TN166 and TN167 - Annual data provided for TN167 only
TN167	570161	156966	43.6	47.3	43.4	39.7	44.4	46.5	33.3	37.9	44.7	44.9	43.9	27.8	41.8	33.4	-	Triplicate Site with TN165, TN166 and TN167 - Annual data provided for TN167 only
TN168	572976	157726	52.3	50.1	45.6	26.5	47.2	39.8	44.1	36.6	33.9	47.0	52.4	34.6	-	-	-	Triplicate Site with TN168, TN169 and TN170 - Annual data provided for TN170 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 <(0.80)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
TN169	572976	157726	46.4	55.3	47.8	37.1	48.7	36.6	41.8	34.2	42.2	47.0	50.3	35.5	-	-	-	Triplicate Site with TN168, TN169 and TN170 - Annual data provided for TN170 only
TN170	572976	157726	38.6	50.0	43.6	37.8	50.0	43.1	41.8	34.8	35.1	42.0	50.2	36.8	42.7	34.2	-	Triplicate Site with TN168, TN169 and TN170 - Annual data provided for TN170 only

- **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**
- **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**
- **Local bias adjustment factor used.**
- **National bias adjustment factor used.**
- **Where applicable, data has been distance corrected for relevant exposure in the final column.**
- **Tonbridge & Malling Borough Council confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Tonbridge & Malling Borough Council During 2024

Tonbridge & Malling Borough Council has not identified any new sources relating to air quality within the reporting year of 2025.

Additional Air Quality Works Undertaken by Tonbridge & Malling Borough Council During 2024

Tonbridge & Malling Borough Council has not completed any additional works within the reporting year of 2025.

QA/QC of Diffusion Tube Monitoring

Tonbridge & Malling Borough Council uses Socotec Laboratory in Didcot which has UKAs accreditation and supplies diffusion tubes with 50% TEA in acetone. It takes part in the AIR-PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a Satisfactory laboratory.

All monitoring was completed in adherence with the 2024 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

Site TN164 was the only site that needed to undergo annualisation as the data capture was less than 75%. Our continuous sites at Borough Green, Tonbridge High street and the site at Stoke in Rochester from Medway Council were used in the annualisation of the tube results for TN164 using the diffusion tube processing tool v5.

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

Diffusion Tube ID	Annualisation Factor Tonbridge High Street	Annualisation Factor Borough Green	Annualisation Factor Rochester Stoke	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m³)	Annualised Data Simple Annual Mean (µg/m3)
TN164	1.0012	1.0170	1.0010		1.0064	23.4	23.6

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Tonbridge & Malling Borough Council have applied a national bias adjustment factor of 0.80 to the 2024 monitoring data taken from 3/25 version of the national spreadsheet. A summary of bias adjustment factors used by Tonbridge & Malling Borough Council over the past five years is presented in Table C.2.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/25

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies

This spreadsheet will be updated at the end of June 2025

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods

Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet

This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

LAQM Helpdesk Website

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

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

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data[2]

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

	Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[5] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
3426	Socotec Didcot	50% TEA in Acetone	2024	R	Leeds City Council	12	23	18	31.8%	G	0.76
3427	Socotec Didcot	50% TEA in Acetone	2024	UC	Leeds City Council	11	24	19	26.7%	G	0.79
3431	Socotec Didcot	50% TEA in Acetone	2024	R	Huntingdonshire District Council	11	28	23	21.3%	G	0.82
3832	SOCOTEC Didcot	50% TEA in acetone	2024		Overall Factor[3] (33 studies)				Use		0.80

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	3/25	0.80
2023	National	3/24	0.77
2022	National	03/23	0.76
2021	National	03/22	0.78
2020	National	03/21	0.77

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.

No diffusion tube NO2 monitoring locations within Tonbridge & Malling Borough Council required distance correction during 2024.

QA/QC of Automatic Monitoring

The Environment Officer performs the Local Site Operator duties for the automatic monitoring sites within Tonbridge & Malling Borough Council and Ricardo completes the data management for Tonbridge & Malling borough Council. Calibrations take place once a month with independent QA/QC audits are conducted annually to AURN standards by Ricardo Energy & Environment. Analysers are routinely serviced at 6 monthly intervals by a competent equipment support unit.

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 2024 is ratified.

Live & historic data is available through https://kentair.org.uk/data/data-selector.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

$PM_{2.5}$ was worked out from the PM_{10} monitored at Borough Green. A national correction factor of 6.0 was deducted from the PM_{10} result of 20µg/m^3 to give derived $PM_{2.5}$ value of 14µg/m^3.

Automatic Monitoring Annualisation

All automatic monitoring locations within Tonbridge & Malling Borough Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data.

NO_2 Fall-off with Distance from the Road

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, automatic annual mean NO_2 concentrations corrected for distance are presented in Table A.3. No distance correction was required for any of the diffusion tubes as those that are not located on resident's properties are below 40µg/m^3.

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

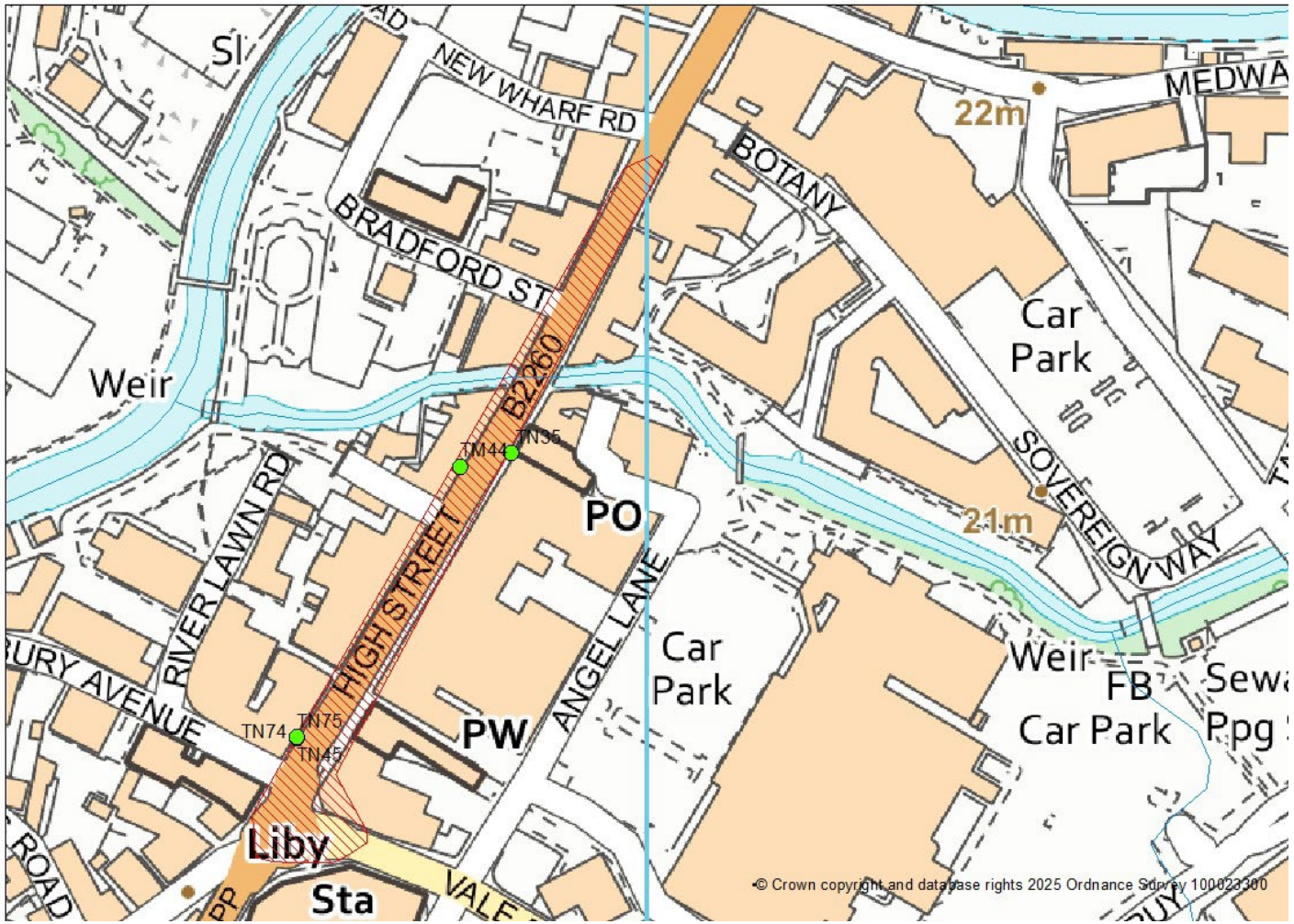


Figure D.1 – AQMA 3 Tonbridge High Street

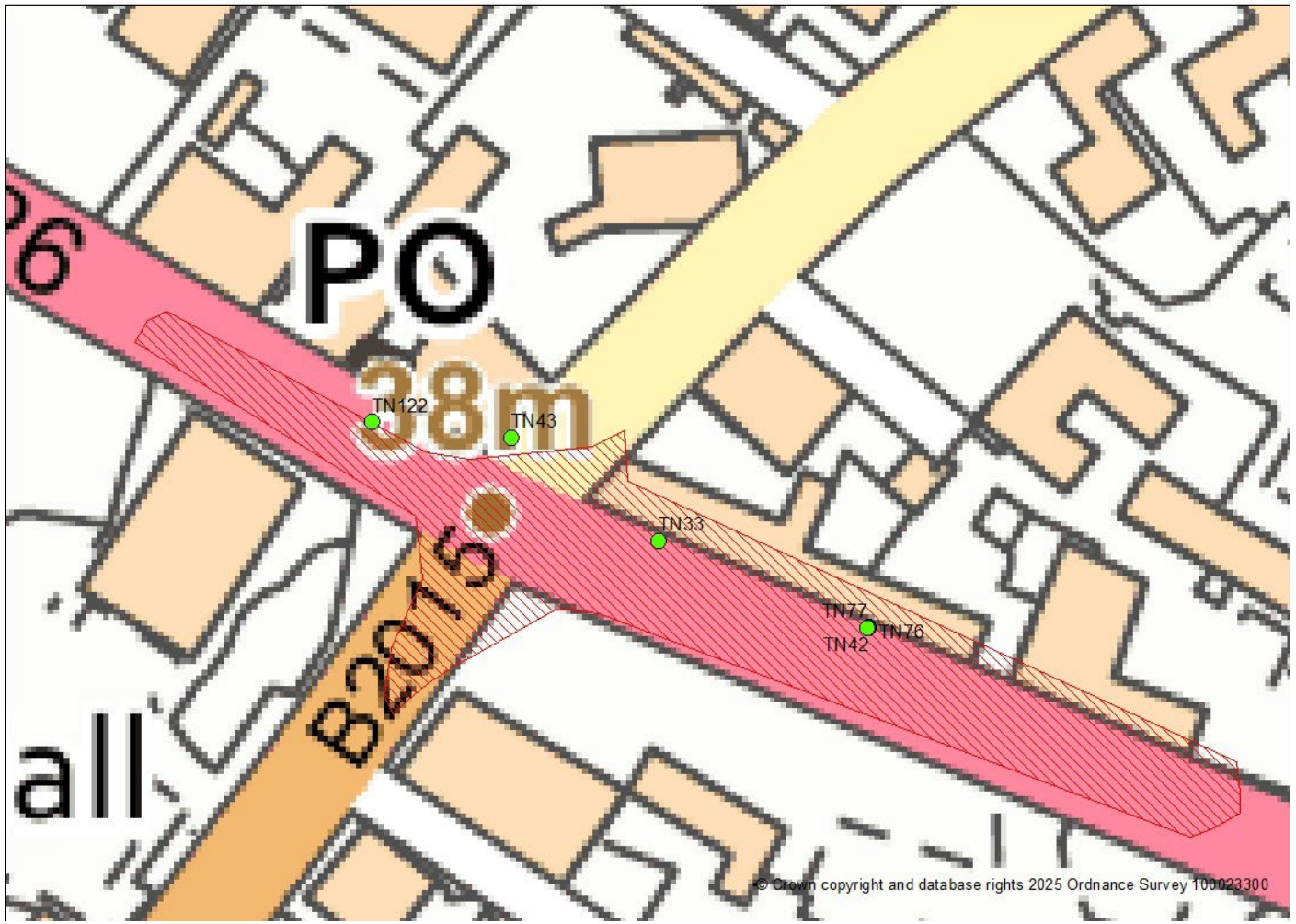


Figure D.2 – AQMA 4 Wateringbury

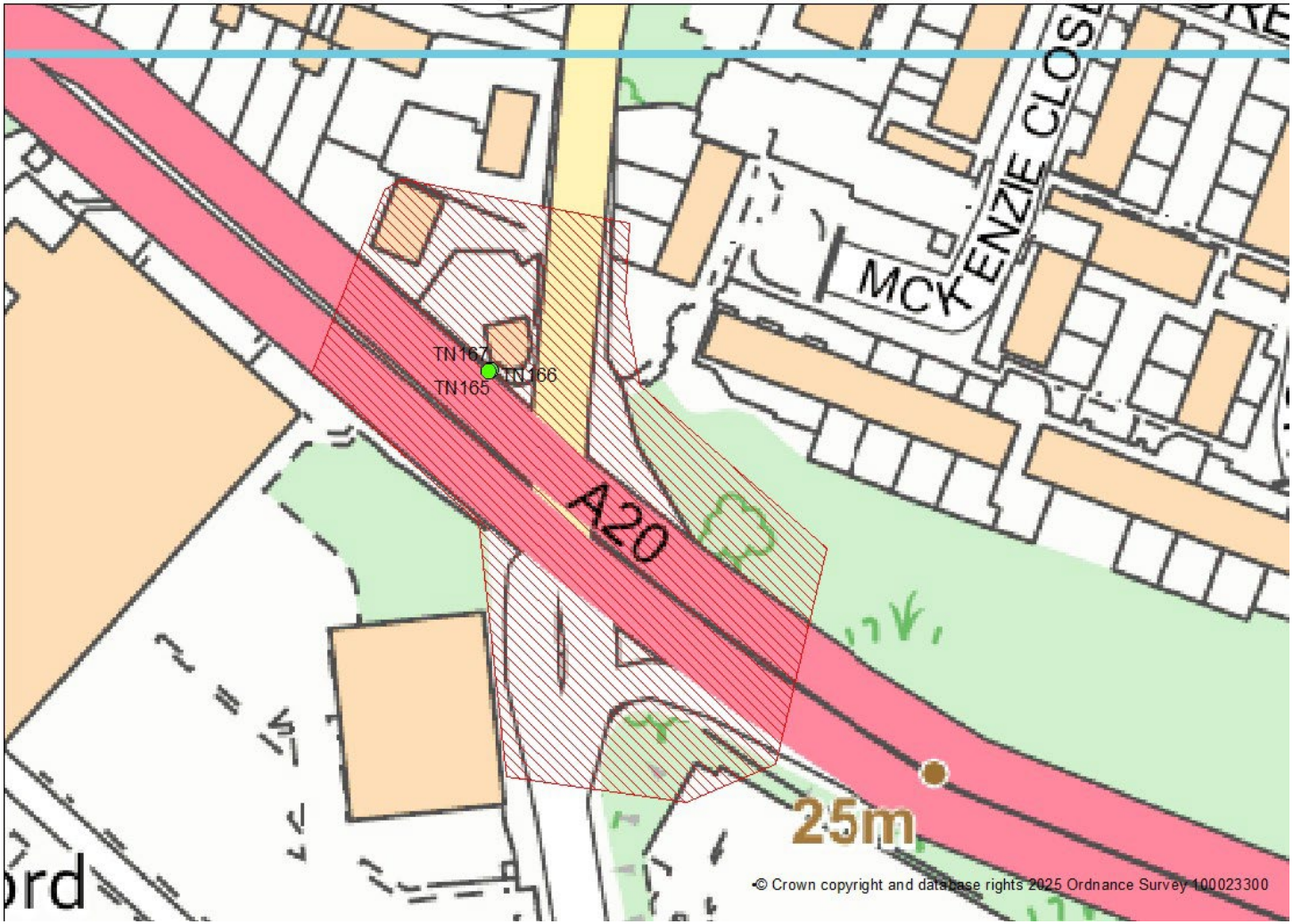


Figure D.3 – AQMA 5 Aylesford

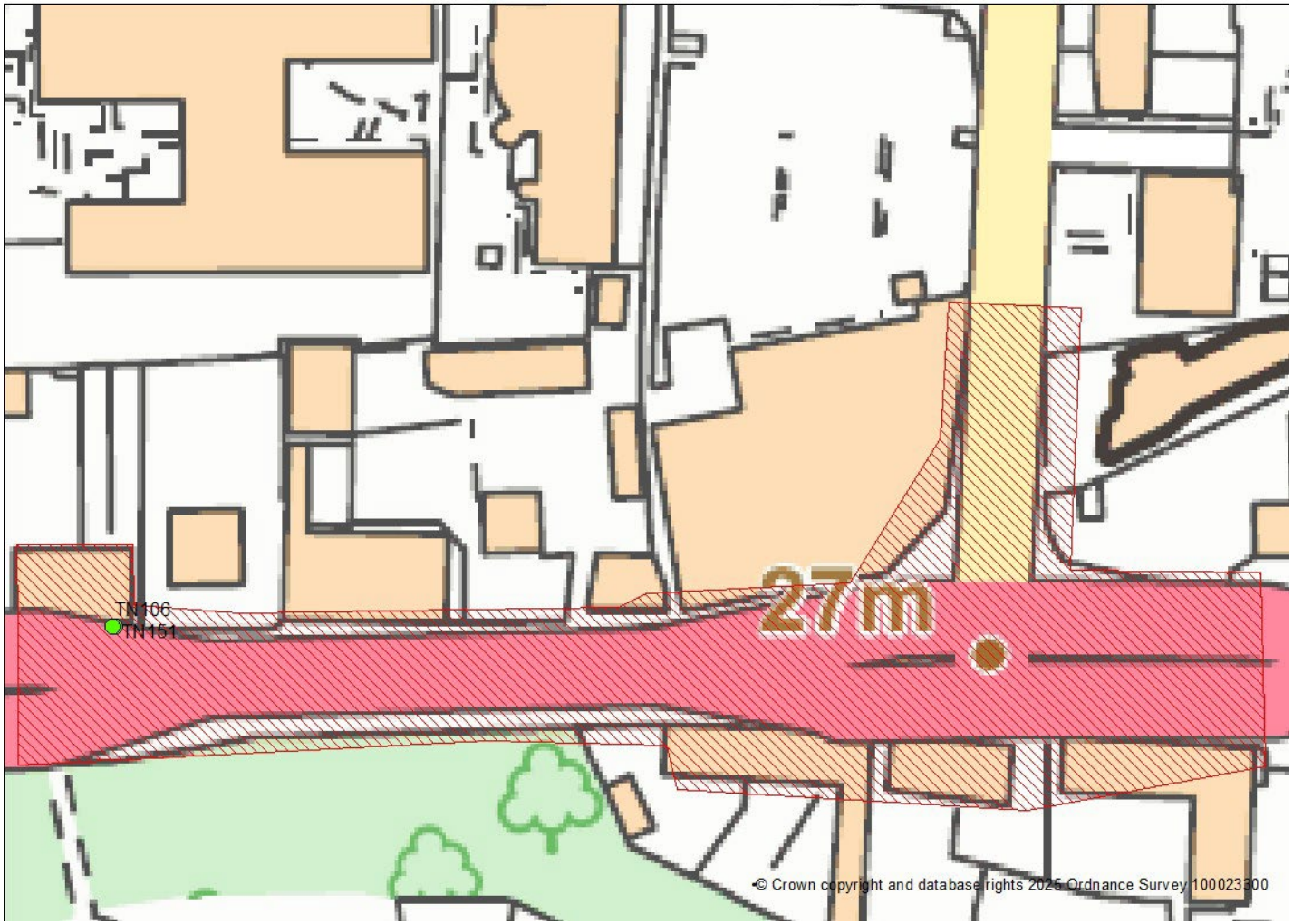


Figure D.4 – AQMA 6 Larkfield

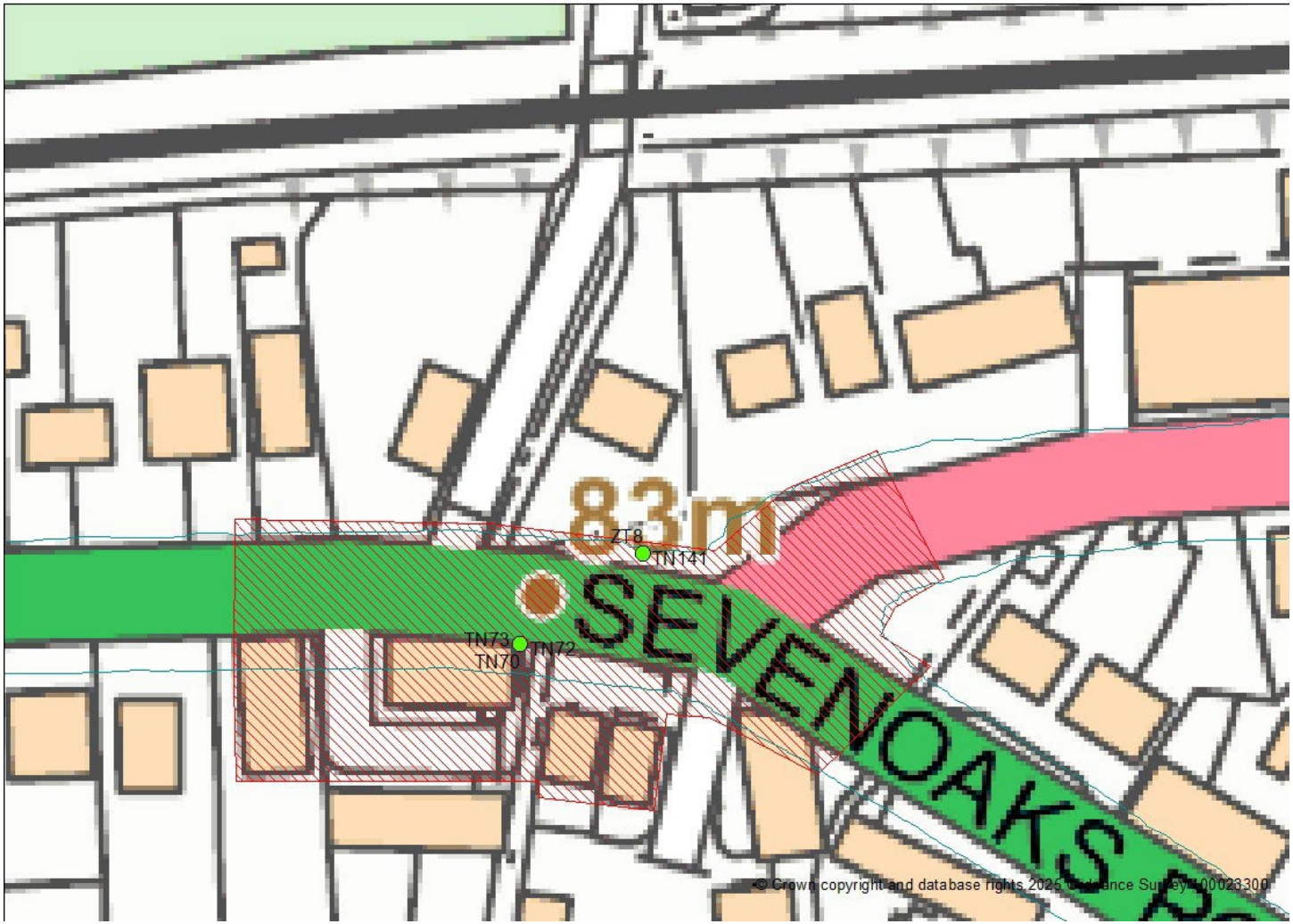


Figure D.5 –AQMA 7 Borough Green & Automatic monitor ZT8 Site

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[2]

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

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
LAQM	Local Air Quality Management
NO_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.