Winchester City Council

2026 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: 26 June 2026

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Local Responsibilities and Commitment

This ASR was prepared by the Public Protection and Environmental Health Departments of Winchester City Council with the support and agreement of the following officers and departments:

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This ASR has been approved by:

Cllr Steve Cramoysan - Cabinet Member for Recycling and Public Protection

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

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Executive Summary: Air Quality in Our Area

Air Quality in Winchester City 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.

The Council continually promote and encourage the use of more sustainable travel not only for staff, but for workplaces and schools around the City of Winchester. These are just some of the ways Winchester City Council (WCC) is actively trying to reduce air pollution and improve air quality.

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.

WCC's administrative area is comprised of the city of Winchester and surrounding wards. The main source of air pollution in the borough can be attributed to emissions from road traffic on major roads, including the M3, A34, A31 and A303. Other pollution sources, including commercial, industrial and domestic sources, also make a contribution to background pollution concentrations.

The main pollutant of concern in Winchester is nitrogen dioxide (NO_2), which has historically exceeded the annual mean air quality objective near to the city centre. In 2003, an Air Quality Management Area (AQMA) was declared for exceedances of the annual mean NO_2 objective and 24-hour mean Particulate Matter under 10 micrometres (PM_{10}) objective. The 24-hour PM_{10} AQMA was later revoked in 2013 after measured concentrations demonstrated consistent compliance with the objective. The Winchester Town Centre AQMA declared for the annual mean NO_2 objective has also been revoked in 2025 due to continued compliance with the annual mean NO_2 objective over the last five years.

WCC currently undertake NO_2 monitoring via a network of automatic (continuous) monitoring units, and non-automatic (passive) diffusion tubes. Monitoring results across the network have demonstrated compliance with the annual mean objective for NO_2 at all monitoring locations in 2025, with the highest concentration being 30.7 µg/m^3 at Site 25, Romsey Road (Opp West End Terrace) Uphill, which provides further support to the revocation of the AQMA.

Between 2021-2024, a decreasing trend in NO_2 concentrations has generally been observed at all monitoring locations, however there was a slight increase in concentration between 2024 and 2025 at the majority of monitoring locations across all pollutants. Year-to-year variations in concentrations are likely due to meteorological influences outside of pandemic affected years. Concentrations in 2021 were relatively low due to the lasting impacts of the COVID-19 pandemic. Concentrations increased slightly in 2022 compared to 2021 at some sites but decreased between 2022 and 2024. Concentrations have now increased again between 2024 and 2025 but still remain below 10% of the annual mean NO_2 Air Quality Objective (AQO).

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 Winchester Town Centre AQMA was revoked following detailed analysis of 2024 monitoring data to ensure five consecutive years of compliance with the applicable AQO was achieved. As compliance had been achieved between 2020 and 2024, Winchester City Council (WCC) proceeded with the AQMA's revocation on 7th November 2025, with Defra's approval.

With the revocation of the AQMA, WCC's Air Quality Action Plan (AQAP) is no longer considered the key document for actions to improve air quality within the district. This document was last updated in 2017 and following correspondence with Defra, an updated AQAP is not intended due to the revocation of the AQMA. Actions to improve air quality throughout the district of Winchester are now driven by Winchester's Air Quality Strategy (AQS) which was adopted in early 2025 and is available at https://www.winchester.gov.uk/environment/air-quality. This AQS looks to adopt aspirational air quality targets for 2030 for both Particulate Matter under 2.5 micrometres ($PM_{2.5}$) and NO_2, going beyond current UK national standards. The AQS will commit to the development of further work programmes in identified strategic areas to further improve air quality.

WCC has also taken forward a number of direct measures during the current reporting year of 2025 in pursuit of improving local air quality. This includes the maintenance of ongoing measures that were described in the 2017 AQAP, many of which are stated in the 2025 AQS. Details of all measures completed, in progress or planned are set out Table 1.1.

Defra's Environmental Improvement Plan[1] 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 now of most harm to human health. The Air Quality Strategy[2] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

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

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

The Road to Zero[3] 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.

Conclusions and Priorities

All monitoring locations met the annual mean air quality objective of 40 µg/m^3 in 2025, however there is one site (Site 25, Romsey Road (Opp West End Terrace) Uphill) that has yet to meet the WCC AQS target of 30 µg/m^3 by 2030. NO_2 concentrations increased in 2025 at most of the monitoring locations compared to 2024, however the majority of 2025 concentrations remain below pre-pandemic, 2019 levels.

Since the last ASR report (2025), WCC has worked on the following actions to improve air quality:

- Maintenance and implementation of ongoing AQS measures;
- Improvement of web-based access to all WCC air quality data; and

WCC's priorities for the coming year are focused on the implementation of the 13 measures committed to within the AQS

How to get Involved

WCC is committed to continued improvements in local air quality through its new AQS which was adopted early 2025. The AQS details the actions it will take to achieve aspirational local air quality targets for both NO_2 and $PM_{2.5}$ by the year 2030. It identifies a series of work programmes that will be developed and implemented at differing timeframes within this period. This will include a revised public engagement strategy that will build upon engagement work already ongoing through implementation of the 2025 AQS. In 2025, WCC improved the ease of public access to its air quality data through an improved website[4].

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

[4] Winchester County Council, Air Quality, 2025. Available at: Air quality - Winchester City Council

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Local Air Quality Management

This report provides an overview of air quality in Winchester City Council (WCC) during 2025. 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 WCC 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.

1 Actions to Improve Air Quality

1.1 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 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.

WCC have recently revoked The Winchester Town Centre AQMA as of 7th November 2025 after 5 consecutive years of compliance (2020-2024). A local Air Quality Strategy is in place to prevent and reduce polluting activities and further improve air quality. The Local Air Quality Strategy covers the period up to 2030 and is available at: https://www.winchester.gov.uk/environment/air-quality/winchester-s-air-quality-strategy.

1.2 Progress and Impact of Measures to address Air Quality in Winchester City Council

Defra's appraisal of last year's ASR concluded the below points and a review of how these have been addressed this year has been included below:

- The ASR states that the PM_{10} element of the AQMA was revoked on 1st December 2013, which is inconsistent with information presented on the LAQM Portal and UK AIR. It is noted that the AQMA will be fully revoked in 2025. WCC should ensure this information is consistent and up to date everywhere.
    - *This has been taken on board and we will ensure that all information is consistent and up to date.*
- WCC are currently exploring ideas to improve local engagement with the public through the AQS. The ASR states that an update on progress will be provided in next year's ASR.
    - *We have released a new website for air quality which has improved the ease for the public to access air quality data and information.*
- The ASR should confirm if there have been any changes to the monitoring network in the reporting year.
    - *This recommendation has been taken on board in the 2026 ASR in Section 2.1.*
- A detailed Air Quality Strategy for the entirety of the district has been adopted in early 2025, which is welcomed.
    - *This comment is gratefully received.*
- An additional appendix presenting data from an AQ mesh monitor in Twyford has been included, which is welcomed. The data shows continued compliance with the objectives for NO_2, PM_{10} and $PM_{2.5}$.
    - *This comment is welcomed, no additional monitoring has been undertaken for 2025, but 5 new Zephyr monitors have been set up within the district as of 2026, details on these monitors will be reported on in next year's ASR.*
- An assessment of the evidence relied upon by the Council to revoke the AQMA has also been included in appendix, which provides further confidence in the decision. Inclusion of this assessment is commended.
    - *This information has also been included in the 2026 ASR.*
- The ASR has been signed off by a Director of Public Health which is welcomed.

    - *This comment is welcomed, and the 2026 ASR follows suit.*
- Trends of annual mean NO_2 concentrations are clearly presented in detail and discussed and a robust comparison with air quality objectives is provided.
    - *This comment is welcomed.*
- Maps of the diffusion tube network are clear and comprehensive, showing the AQMA boundaries and monitoring undertaken in this area.
    - *This comment is welcomed.*
- Comments from last year's appraisal have been responded to and addressed. Specifically, further information on the calculation of the local adjustment factor have been provided. The Council also states that an additional triplicate site will be included in next year's ASR, providing further confidence in the factor.
    - *Full calculations for the local bias adjustment factor have been provided in the 2026 ASR. An additional triplicate co-location site at Romsey Road automatic monitor using triplicate diffusion tubes Site 29, Site 33 and Site 34 was commissioned in January 2025.*

WCC has taken forward a number of direct measures during the current reporting year of 2025 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 1.1. 13 measures are included within Table 1.1, with the type of measure and the progress WCC have made during the reporting year of 2025 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 1.1.

More detail on these measures can be found in the WCC AQS. Key completed measures are:

- Commissioning of an atmospheric inventory for all of Hampshire, led by Hampshire County Council (HCC) public health (model outputs due 2026).
- Implementation of a network of 5 Earth sense Zephyrs across the area covered by WCC to give better spatial coverage.
- Development of Clean Air South which is now set up and running, available at: Clean Air South | Wessex Health Partners.

Generally, WCC's main priority has been to continue working on ongoing measures as part of the existing AQS, adopted in early 2025.

WCC worked to implement these measures in partnership with the following stakeholders during 2025:

- HCC, public health and sustainable transport teams;
- The Environment Centre;
- Adjoining local authorities – In particular Eastleigh Borough Council (EBC), Southampton City Council (SCC) and New Forest District Council (NFDC);
- Southampton University; and
- Clean Air South | Wessex Health Partners.
- Hampshire Regional Air Quality Group. Working collaboratively with neighbouring local authorities and partner organisations to share knowledge, discuss current air quality issues, and identify opportunities for coordinated action. During the reporting year, this included discussion of regional engagement initiatives, support on air quality strategy development, exchange of technical and policy updates, and exploration of collaborative approaches to public engagement, including actions for Clean Air Day and wider partnership working. This ongoing network helps strengthen local air quality management across the region and supports the sharing of good practice between partners".

The principal challenges and barriers to implementation that WCC anticipates facing are ongoing and remain the same as previously reported in the 2025 ASR, specifically concerning reduced funding and resources due to the withdrawal of Defra air quality grants. There are also additional barriers in 2026 due to Local Government Reorganisation (LGR). WCC will become part of a larger mid Hampshire Unitary Authority in April 2028, which presents considerable challenges and opportunities in merging and taking forward the strategies and positions of what is currently four different Local authorities. This could lead to a temporary pause in strategic implementation. Currently WCC will continue with delivery of actions as detailed in the adopted AQS but the long term is currently unknown. In particular, if any air quality duties of a strategic nature will transfer to the Hampshire mayoral authority that is also to be implemented.

Table 1.1 – 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
Priority Air Quality Actions														
1	Conduct a detailed atmospheric source inventory for NO2 and PM2.5 pollution in Winchester District to identify the extent to which different key emission sources contribute to pollutant concentrations	Public Information	Other	2025	2025	HCC (plus all Hampshire authorities)	Hampshire County Council (HCC) - Public Health	Funded	£115k	Implementation	Informs other actions to target measures effectively	Reduction in NO2 and PM2.5 emissions	An atmospheric inventory is now being developed for all of Hampshire (HCC public health leading on this). WCC active member on panel and contractor now appointed with initial conceptual model to be developed in 2026	Local Government Reorganisation (LGR)
2	Expand the air quality monitoring network across the wider Winchester district, including increased $PM_{2.5}$ measurements using sensor measurements, citizen engagements and indicative monitoring	Public Information	Other	2025	2026	WCC	Winchester City Council (WCC)	Funded	£20k	Completed (maintenance of system on going)	Informs other actions to target measures effectively	Reduction in PM2.5 concentrations	A network of 5 Earth sense Zephyrs set up across the area covered by WCC to give better spatial coverage. Improved web-based access to all WCC air quality data	Ongoing Funding to maintain increased network
3	Develop a new and active participation in, a multi-disciplinary Regional Air Quality Network across Hampshire.	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2025	Ongoing to at least 2030	Hampshire Local authorities, Southampton University Sustainability and Resilience Institute, DoPH	None	Funded	£25-50K	Clean Air South Network	Informs other actions to target measures effectively Greater efficiently through Collaborative working	Establish Network Annual Progress reports	Network set up with launch and engagement events run	Ongoing funding through Southampton University grants not guaranteed
4	Conduct a study to identify and deliver measures at sensitive locations, such as schools/nurseries, playgrounds, or areas where air quality previously failed to meet national air quality objectives.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2025	2028	WCC	WCC	Funded (from general air quality budget)	£10k	Planning	Reduces potential peak exposures not emissions	Report to cabinet and adoption of identified actions	Initial Scoping study complete	Staffing/funding
5	Adopt an anti-idling enforcement policy to educate residents and encourage behavioural change of motorists	Traffic Management	Anti-idling enforcement	2025	2027	WCC	WCC	unfunded	Unknown range from £10K to £100K	Initial options report drafted for Cabinet consideration - costs depends on option(s) progressed	Reduces potential peak exposures Emission reduction not estimated until options decided	Report to cabinet and adoption of identified actions	Initial report drafted with potential options	Staffing/funding

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
6	Lobby and identify capabilities to deliver the Local Cycling and Walking Infrastructure Plan (LCWIP) for Winchester City and District	Promoting Travel Alternatives	Promotion of cycling	2025	2028	HCC	HCC	unknown	£10k - £50k	Carried through from AQAP action plan	unknown	Adoption of a new Plan	Drafting of new plan ongoing	Funding and LGR
7	To support the Hampshire County Council Local Transport Plan, Winchester City Council commit to investigate and support traffic reduction policies to reduce car use by 10% by 2030 compared to 2024 levels	Traffic Management	UTC, Congestion management, traffic reduction	2025	2028	WCC/HCC	WCC (to support) HCC (to implement)	Funded (from general air quality budget)	< £10k (WCC support only) HCC costs unknown	Planning	Unknown	Traffic reduction in line with measure	None	Funding and LGR
8	To support Hampshire County Council Local Transport Plan measures that will increase the uptake and use of Public Transport across the district and improve connectivity with the wider region	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2025	2030	WCC/HCC	WCC (to support) HCC (to implement)	Support Funded (from general air quality budget)	<10k (WCC Support only) HCC costs unknown	Planning	Unknown	Uptake and use of public transport	None	Funding and LGR
9	Develop an educational and advisory policy on an effective coordinated response to domestic combustion concerns.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2025	2027	WCC	WCC	Funded (from general air quality budget)	£10k - £50k	Planning	Unknown	Adoption and promotion of agreed plan	None	Funding and LGR
10	Explore the feasibility of adopting a Smoke Control Area and associated enforcement policy to cover the Winchester District	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2025	2028	WCC	WCC	Study - Funded (from general air quality budget) Implementation unfunded	< £10k (feasibility study only)	Planning	Unknown (depends on options progressed)	Decision on adoption of a SCA	Initial scoping assessment complete, options with costs and barriers identified Initial draft report complete	Funding and LGR Public /trade resistance
11	Develop an educational and advisory policy on an effective coordinated response to indoor air quality concerns,	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2025	2028	WCC	WCC	Funded (from general air quality budget)	£10k - £50k	Planning	Unknown – exposure reduction	Adoption of agreed policy	None	Funding and LGR

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
	including mould and bio aerosols.													
12	Strengthen the Council's Local Plan 2020 to 2040 (emerging) to widen the principles of the current Air Quality Supplementary Planning Document (SPD) through the development if a separate informative Technical Guidance Note.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2025	2029	WCC	WCC	Funded (from general air quality budget	£10k - £50k	Planning	Unknown	Adoption of a new planning air quality guide	Local plan supporting text strengthened prior to adoption to strengthen support to air quality guidance – Local plan now adopted Drafting commenced on planning air quality guide	LGR
13	Investigate how, as part of the subsequent review of the Local Plan, we can improve air quality and enhance the uptake and continued use of active and sustainable modes of travel	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2025	2030	WCC	WCC	Funded (from general air quality budget)	< £10k	Planning	Unknown	Increased air quality measures/policy in new plan	Initial scoping meeting held with Strategic Planning (in line with proposed chapter 17 of NPPF Consultation and PM2.5 policy	LGR

1.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[5], 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.

Between 2011-2024, Winchester was below or equal to the national average for the Public Health Framework Indicator, 'Fraction of mortality attributable to particulate air pollution'. Between 2021 and 2022, the fraction for Winchester increased from 5.3% to 5.6%, which was below the national average of 5.5% in 2021 and 5.8% in 2022. In 2023 the fraction for Winchester then decreased down to 4.6% which was below the national average of 5.2% for 2023. This decreasing trend continued into 2024, where the fraction for Winchester was 4.5%, remaining below the National average of 5.3%. Between 2011 and 2018, Winchester's indicator remained below the national average expect for the years 2016 and 2017, using the old method. Using the new method, between 2018 and 2024, Winchester's indicator again remained below the national average except for the years 2018 and 2020.

WCC is taking the following measures to address $PM_{2.5}$:

- Improvements to the local monitoring network to implement 5 new Zephyr automatic monitors, data went live on 1st January 2026.
- Measures 9 and 10 in Table 1.1 contribute to reductions in $PM_{2.5}$ emissions within the district through developing policy on domestic combustion and consideration of Smoke Control Areas.
- The 2025 AQS includes aspirational $PM_{2.5}$ targets to be reached by 2030.

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

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

This section sets out the monitoring undertaken within 2025 by WCC and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2021 and 2025 to allow monitoring trends to be identified and discussed.

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

WCC undertook automatic (continuous) monitoring at two sites during 2025, at St George's Street and on Romsey Road. Both monitors undertake NO_2 monitoring, with the St George's Street also monitoring for PM_{10} and $PM_{2.5}$. This remains the same as last year's monitoring network. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The https://www.ukairquality.net page presents automatic monitoring results for WCC, with automatic monitoring results also available through the UK-Air website https://uk-air.defra.gov.uk/data/.

WCC also previously undertook monitoring of NO_2, PM_{10} and $PM_{2.5}$ using an indicative AQMesh monitor at Twyford. This monitor was decommissioned as of December 2024. A network of five automatic Zephyr monitors has been set up across the district as of January 2026, one of which is collocated at the St George's Street automatic monitor for data validation. All sites are under contract with Air Quality Data Management (AQDM) to undergo the same ratification services and reporting as per the real time air quality stations.

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.

2.1.2 Non-Automatic Monitoring Sites

WCC undertook non-automatic (i.e. passive) monitoring of NO_2 using 32 diffusion tubes across 28 sites (26 singles and 2 triplicate sites) during 2025. The locations remain the

same as last year's monitoring network, with the exception one of the triplicate sites being relocated to the Romsey Rd air quality stations (allowing 2 local Bias corrections to be determined). 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.

2.2 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.

3.21 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 40 µg/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 2025 dataset of monthly mean values is provided in Appendix B. None of the monitoring locations presented in Table B.1 required distance correction for 2025.

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 200 µg/m^3, not to be exceeded more than 18 times per year.

Across both continuous and passive monitoring sites, all locations met the annual mean objective of 40 µg/m^3. There was only one site which exceeded WCC's 2030 AQS target of 30 µg/m^3 at Site 25, Romsey Road (Opp West End Terrace) Uphill, located in the now revoked Winchester Town Centre AQMA. This was the highest monitored concentration in 2025 at 30.7 µg/m^3. The elevated concentrations experienced at this location relative to the rest of the survey are likely due to the geometry of the road, which is enclosed by

structures (including some domestic premises) and trees, forming a ‘canyon’ which limits the dispersion of pollutants emitted by road traffic. The road is also on a gradient, meaning vehicles are under load when travelling uphill, which affects the fuel burn and consequent emissions from traffic, particularly when congested.

Generally, concentrations show an overall decline across between 2021 and 2024, however most concentrations appear to increase slightly between 2024 and 2025, such that both automatic monitors and 23 of the 28 diffusion tube monitoring sites have increased in concentration between 2024 and 2025. The trends in NO_2 concentrations are demonstrated in Figure A.1 to Figure A.3. This indicates that the actions and measures laid out within the 2025 AQS and formerly used 2017 AQAP have a positive effect on local air quality, but additional work may be required to ensure that concentrations do not continue to increase. It is noted that concentrations in 2021 are also affected by the behavioural changes associated with the pandemic.

Between 2024 and 2025 the largest increase was 4.3 µg/m^3 at Site 22, St Cross Rd. The average change in concentrations between 2024 and 2025 was +1.0 µg/m^3.

There were no recorded instances at diffusion tube monitoring sites of annual means greater than 60 µg/m^3, which according to the empirical relationship stated in LAQM.TG(22) indicates that an exceedance of the 1-hour mean objective is also unlikely at these sites. 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 200 µg/m^3, not to be exceeded more than 18 times per year. There were no instances where the 1-hour mean was greater than 200 µg/m^3, and so this objective was therefore not exceeded.

3.22 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. The annual mean concentration for 2025 was 15.6 µg/m^3 at St George’s Street with 99.1% data capture. This is an increase from the 2024 concentration of 13.9 µg/m^3 by approximately 1.7 µg/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 50 µg/m^3, not to be exceeded more than 35 times per year. In 2025, the daily mean was greater than 50 µg/m^3 once at St George’s Street, which is within the number of days permitted by the Objective.

3.23 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.

Whilst no objective is presented for $PM_{2.5}$ in Table E.1, the Air Quality Limit Value (AQLV) for $PM_{2.5}$ is 20 µg/m^3, as well as this WCC have set a target of 10 µg/m^3 to be achieved by 2030 for $PM_{2.5}$ concentrations within their AQS. Table A.8 indicates that both the AQLV and the 2030 AQS target are being achieved within Winchester district. The annual mean concentration for 2025 was 8.9 µg/m^3 at St George's Street with 99.1% data capture. This represents a 0.4 µg/m^3 increase from the 2024 concentration of 8.5 µg/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) (1,2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
St George's Street	St George's Street	Roadside	448062	129537	NO_2, PM_{10}, $PM_{2.5}$	No	Winchester Town Centre AQMA (Revoked)	Chemiluminescent (NO_2) Palas Fidas 200 (PM_{10} and $PM_{2.5}$)	0.0	2.3	2.2
Romsey Road	Romsey Road	Roadside	447544	129543	NO_2	No	Winchester Town Centre AQMA (Revoked)	Chemiluminescent	0.0	2.5	2.1

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)
Site 1	10 Eastgate St	Roadside	448563	129391	NO_2	No	0.0	5.6	No	1.7
Site 2	Greyfriars	Roadside	448566	129560	NO_2	No	0.0	9.7	No	1.8
Site 3	Friarsgate	Roadside	448426	129523	NO_2	No	4.6	4.3	No	2.4
Site 4	Upper Brook St (Echo Office)	Roadside	448227	129504	NO_2	No	9.2	8.0	No	2.5
Site 5, Site 6, Site 7	Roadside Monitor (St Georges St)	Roadside	448063	129537	NO_2	No	0.0	3.0	Yes	1.6
Site 8	St Georges St (Bedshop)	Roadside	448106	129541	NO_2	No	0.0	4.1	No	2.5
Site 9	St Georges St (Bet Fred)	Roadside	448163	129512	NO_2	No	0.0	3.6	No	2.4
Site 10	Jewry St	Roadside	448046	129692	NO_2	No	0.0	4.1	No	2.4
Site 11	Southgate St (Hotel Du Vin)	Roadside	447918	129413	NO_2	No	0.0	3.7	No	2.6
Site 12	Sussex St	Roadside	447804	129741	NO_2	No	2.4	3.6	No	2.6
Site 13	City Road	Roadside	447963	129875	NO_2	No	0.0	6.6	No	3.0
Site 14	74 Northwalls	Roadside	448297	129789	NO_2	No	10.2	3.7	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)
Site 15	Wales St	Roadside	448842	129820	NO_2	No	0.0	1.7	No	2.5
Site 16	Alresford Rd (M3)	Other	449563	129439	NO_2	No	24.0	NA (M3)*	No	1.5
Site 17	Chesil St	Roadside	448679	129068	NO_2	No	0.0	1.3	No	2.6
Site 18	Stockbridge Rd	Roadside	447534	130006	NO_2	No	10.0	5.4	No	2.0
Site 19	Worthy Rd 1	Roadside	448092	130411	NO_2	No	3.7	2.2	No	2.5
Site 22	St Cross Rd	Roadside	447847	129053	NO_2	No	6.0	2.4	No	2.3
Site 23	Romsey Road (opp Clifton Rd) Uphill	Roadside	447605	129545	NO_2	No	0.0	1.7	No	2.2
Site 24	Romsey Road (opp Clifton Hill - Old site) Uphill	Roadside	447495	129511	NO_2	No	0.0	1.1	No	2.5
Site 25	Romsey Road (Opp West End Terrace) Uphill	Roadside	447444	129495	NO_2	No	2.3	1.7	No	2.2
Site 26	Romsey Road (opp Knights Quarter) Uphill	Roadside	447315	129454	NO_2	No	2.4	2.0	No	2.2
Site 27	Andover Rd	Roadside	447898	130065	NO_2	No	0.0	4.2	No	2.2
Site 28	Bus Station	Other	448427	129401	NO_2	No	NA**	NA***	No	2.4

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
Site 29, Site 33, Site 34	Romsey Rd (Air Quality Station) Downhill	Roadside	447519	129531	NO_2	No	NA	1.8	Yes	1.8
Site 30	Romsey Road (Clifton Terrace) Downhill	Roadside	447635	129565	NO_2	No	NA	2.4	No	2.4
Site 31	Romsey Road (Knights Quarter) Downhill	Roadside	447344	129476	NO_2	No	NA	1.4	No	2.1
Site 32	Kingsworthy (old district site)	Roadside	449653	132670	NO_2	No	NA	1.5	No	0.8

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.

Note: Sites 16 and 28 do not have distances as they are historic sites chosen to measure pollutant levels close to local significant sources i.e. the M3 at Winchester and the bus station. Therefore, no distance to kerb distances have been measured as there is no kerb as such. However, for reference the distance to the road and relevant exposure have been estimated below:

*The distance to the hard shoulder of the M3 is 26 m.

** The distance to the nearest bus stop at the bus station is 12 m.

***The distance to the nearest residential curtilage is 13.4 m.

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 2025 (%) (2)	2021	2022	2023	2024	2025
St George's Street	448062	129537	Roadside	98.3	98.3	27.0	28.5	27.0	24.6	25.7
Romsey Road	447544	129543	Roadside	97.5	97.5	32.0	21.0	19.0	15.9	16.3

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

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

☒ **Where exceedances of the NO_2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2025.**

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 2025 (%) (2)	2021	2022	2023	2024	2025
Site 1	448563	129391	Roadside	100.0	100.0	20.0	20.3	18.4	17.1	18.1
Site 2	448566	129560	Roadside	100.0	100.0	18.9	19.0	16.5	15.6	16.4
Site 3	448426	129523	Roadside	100.0	100.0	17.1	16.7	15.1	13.5	15.1
Site 4	448227	129504	Roadside	100.0	100.0	21.3	26.0	19.9	18.3	18.4
Site 5, Site 6, Site 7	448063	129537	Roadside	100.0	100.0	27.2	29.2	26.9	24.8	25.7
Site 8	448106	129541	Roadside	100.0	100.0	30.8	30.7	28.5	27.1	26.9
Site 9	448163	129512	Roadside	100.0	100.0	28.5	28.7	27.6	25.2	25.6
Site 10	448046	129692	Roadside	100.0	100.0	24.2	24.8	18.1	18.4	17.7
Site 11	447918	129413	Roadside	100.0	100.0	20.1	21.7	22.0	20.8	22.3
Site 12	447804	129741	Roadside	100.0	100.0	21.7	22.3	19.9	17.9	19.4
Site 13	447963	129875	Roadside	100.0	100.0	21.0	21.9	19.6	18.9	20.1
Site 14	448297	129789	Roadside	100.0	100.0	17.6	17.6	16.7	15.7	16.1

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 2025 (%) (2)	2021	2022	2023	2024	2025
Site 15	448842	129820	Roadside	67.1	67.1	18.3	20.8	18.0	16.6	17.3
Site 16	449563	129439	Other	91.2	91.2	22.8	23.8	18.9	18.8	20.0
Site 17	448679	129068	Roadside	100.0	100.0	29.5	28.2	23.8	21.9	22.4
Site 18	447534	130006	Roadside	90.4	90.4	13.2	13.7	12.2	11.1	13.6
Site 19	448092	130411	Roadside	100.0	100.0	15.5	15.9	14.4	13.0	14.3
Site 22	447847	129053	Roadside	92.1	92.1	16.4	18.9	18.8	16.3	20.6
Site 23	447605	129545	Roadside	100.0	100.0	32.2	27.8	34.7	28.6	29.7
Site 24	447495	129511	Roadside	100.0	100.0	30.9	33.0	27.8	27.2	26.7
Site 25	447444	129495	Roadside	93.2	93.2	36.5	38.1	33.3	31.1	30.7
Site 26	447315	129454	Roadside	100.0	100.0	30.4	31.2	29.3	25.9	27.5
Site 27	447898	130065	Roadside	100.0	100.0	22.0	21.1	19.2	17.9	19.6
Site 28	448427	129401	Other	90.1	90.1	15.6	15.1	13.0	15.7	16.4
Site 29, Site 33, Site 34	447519	129531	Roadside	75.0	75.0	-	-	17.7	16.2	18.0

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 2025 (%) (2)	2021	2022	2023	2024	2025
Site 30	447635	129565	Roadside	100.0	100.0	-	-	20.4	18.3	19.6
Site 31	447344	129476	Roadside	100.0	100.0	-	-	18.7	16.7	18.1
Site 32	449653	132670	Roadside	92.6	92.6	-	-	22.8	21.3	21.2

☒ **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%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations (1)

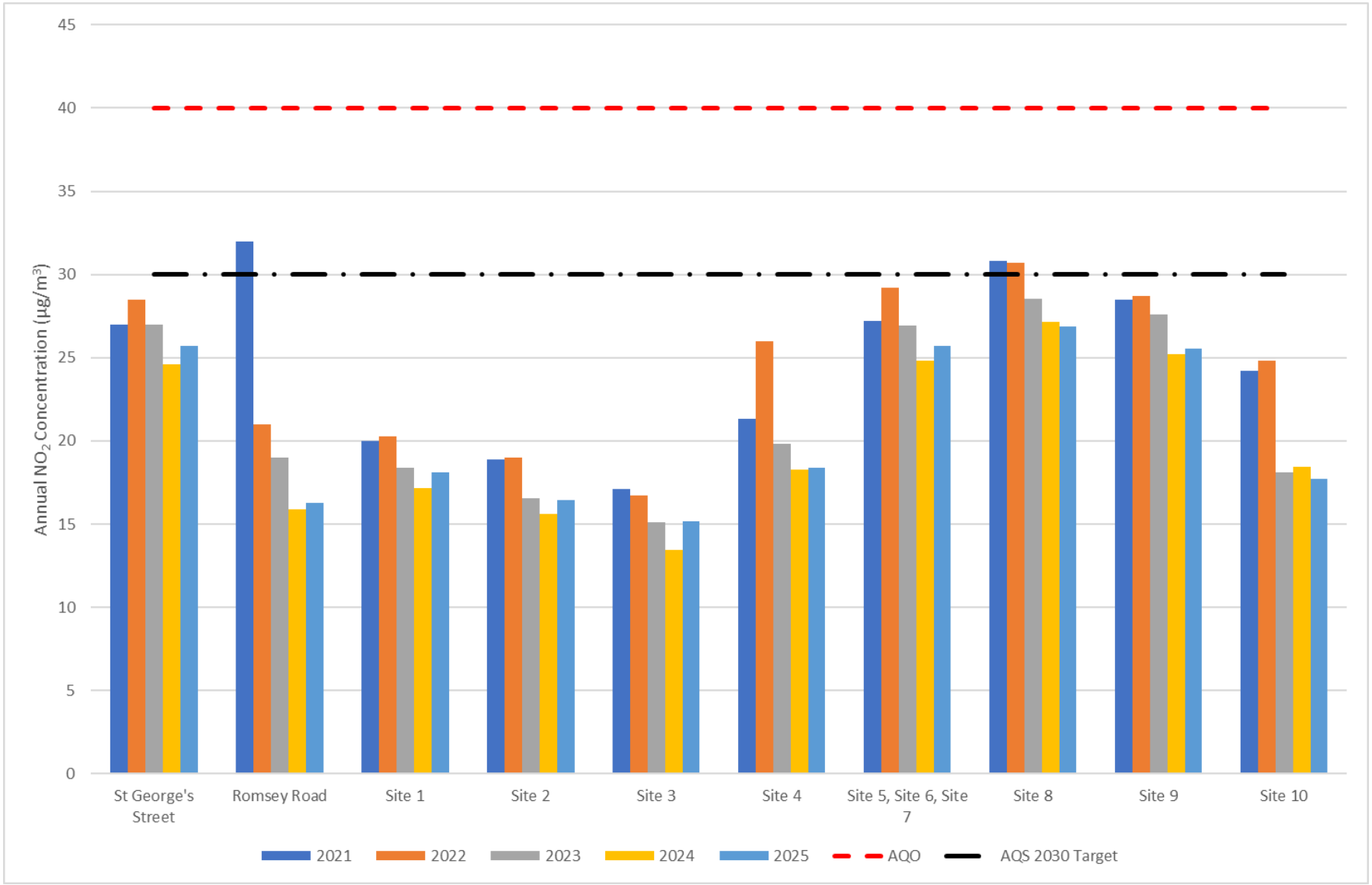


Figure A.2 – Trends in Annual Mean NO_2 Concentrations (2)

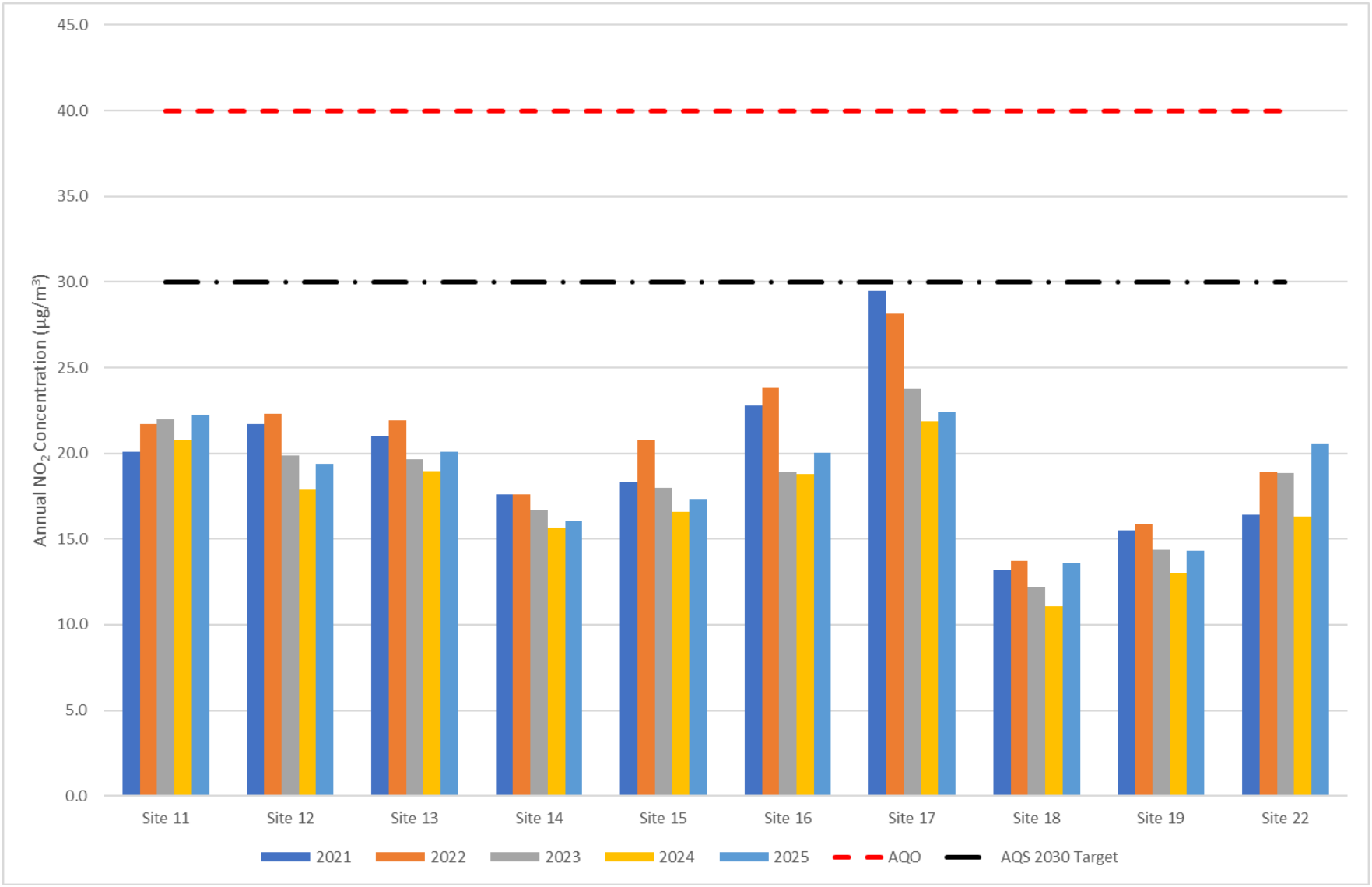


Figure A.3 – Trends in Annual Mean NO_2 Concentrations (3)

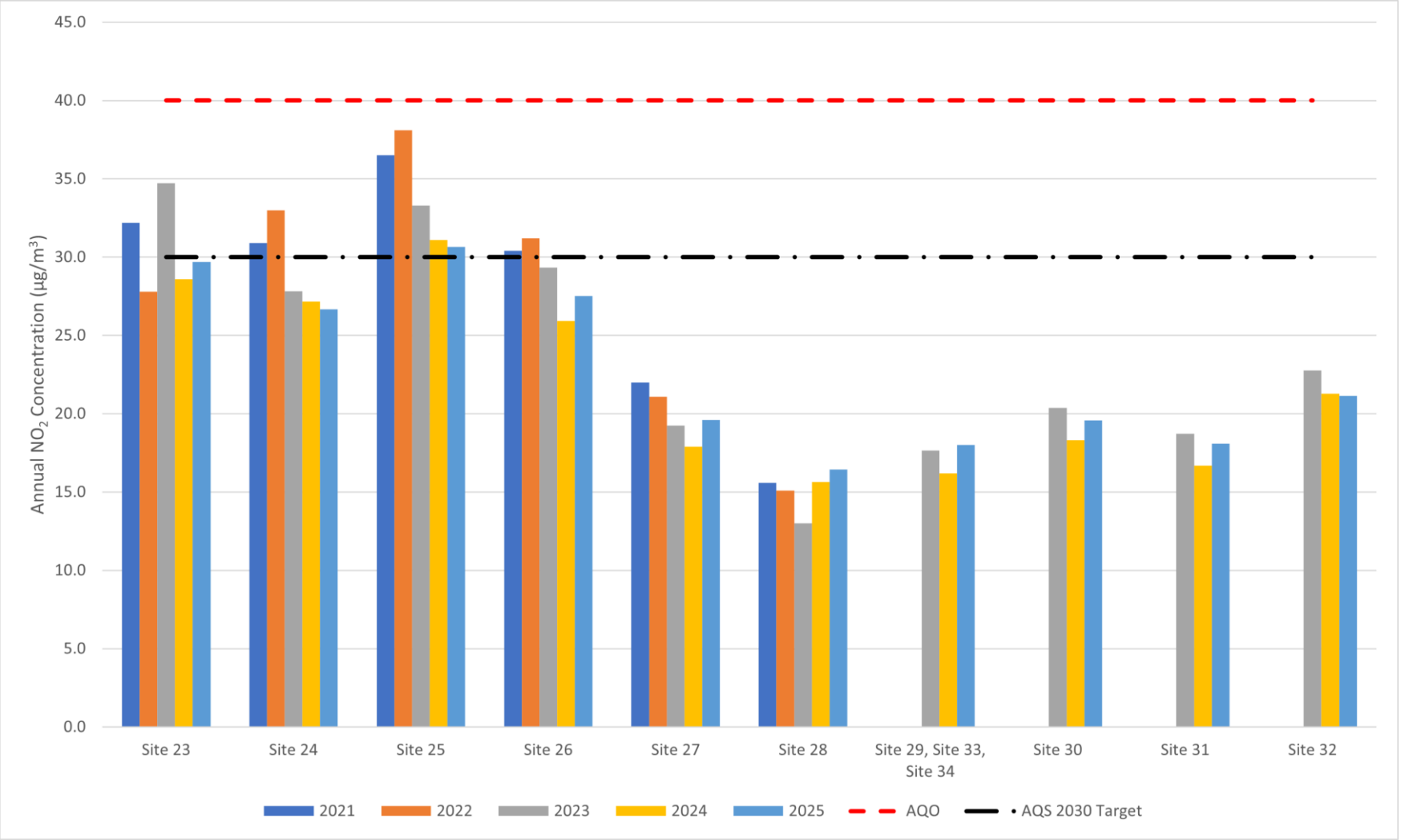


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2025 (%) (2)	2021	2022	2023	2024	2025
St George's Street	448062	129537	Roadside	98.3	98.3	0	0	0	0	0
Romsey Road	447544	129543	Roadside	97.5	97.5	0	0	0	0	0

Notes:

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

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 2025 (%) (2)	2021	2022	2023	2024	2025
St George's Street	448062	129537	Roadside	99.1	99.1	15.0	16.3	15.1	13.9	15.6

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

Notes:

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

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

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

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

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

Figure A.4 – Trends in Annual Mean PM_{10} Concentrations

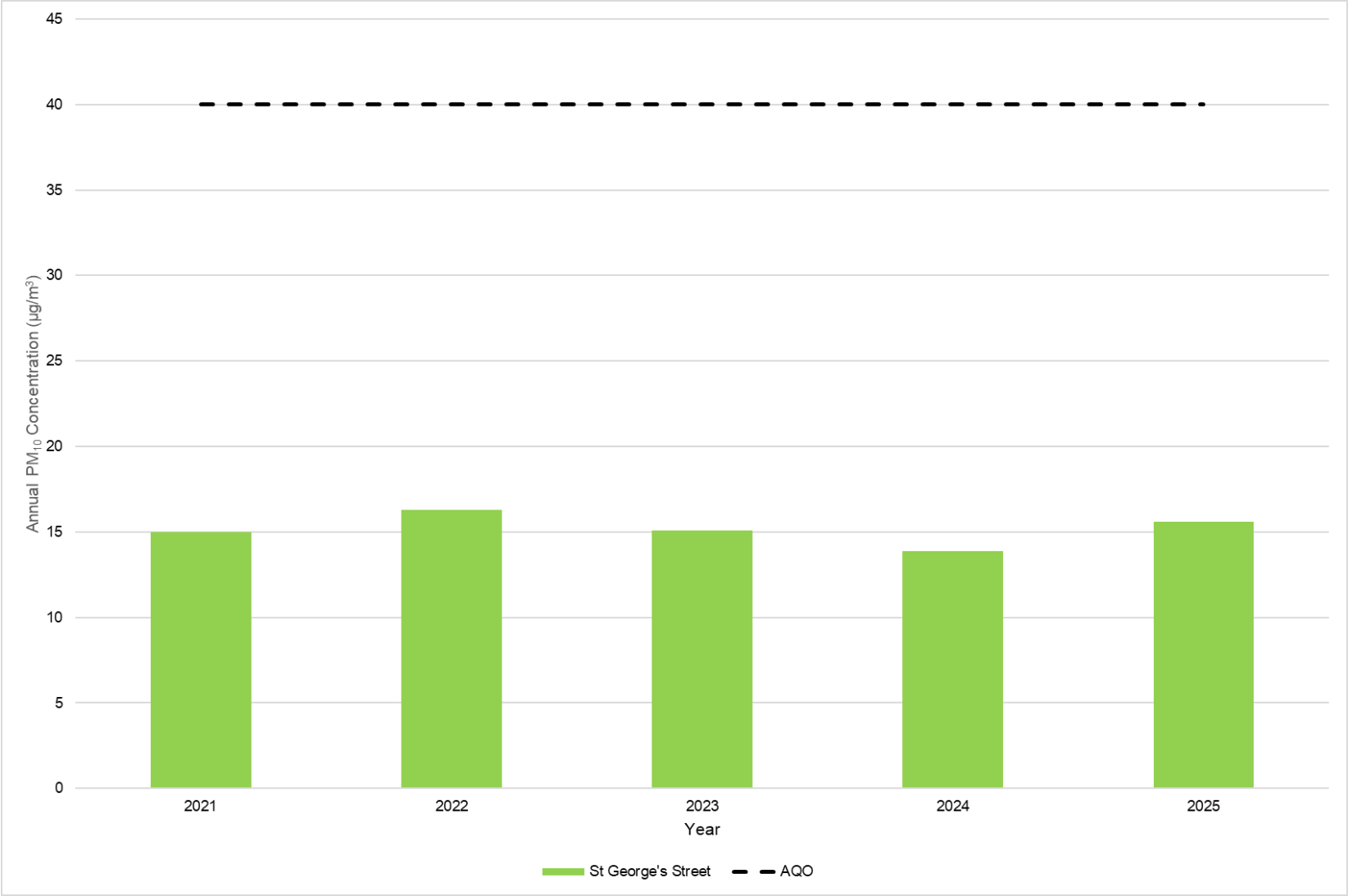


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2025 (%) (2)	2021	2022	2023	2024	2025
St George's Street	448062	129537	Roadside	99.1	99.1	1	0	0	1	1

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%).

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 2025 (%) (2)	2021	2022	2023	2024	2025
St George's Street	448062	129537	Roadside	99.1	99.1	9.0	10.3	8.8	8.5	8.9

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

Notes:

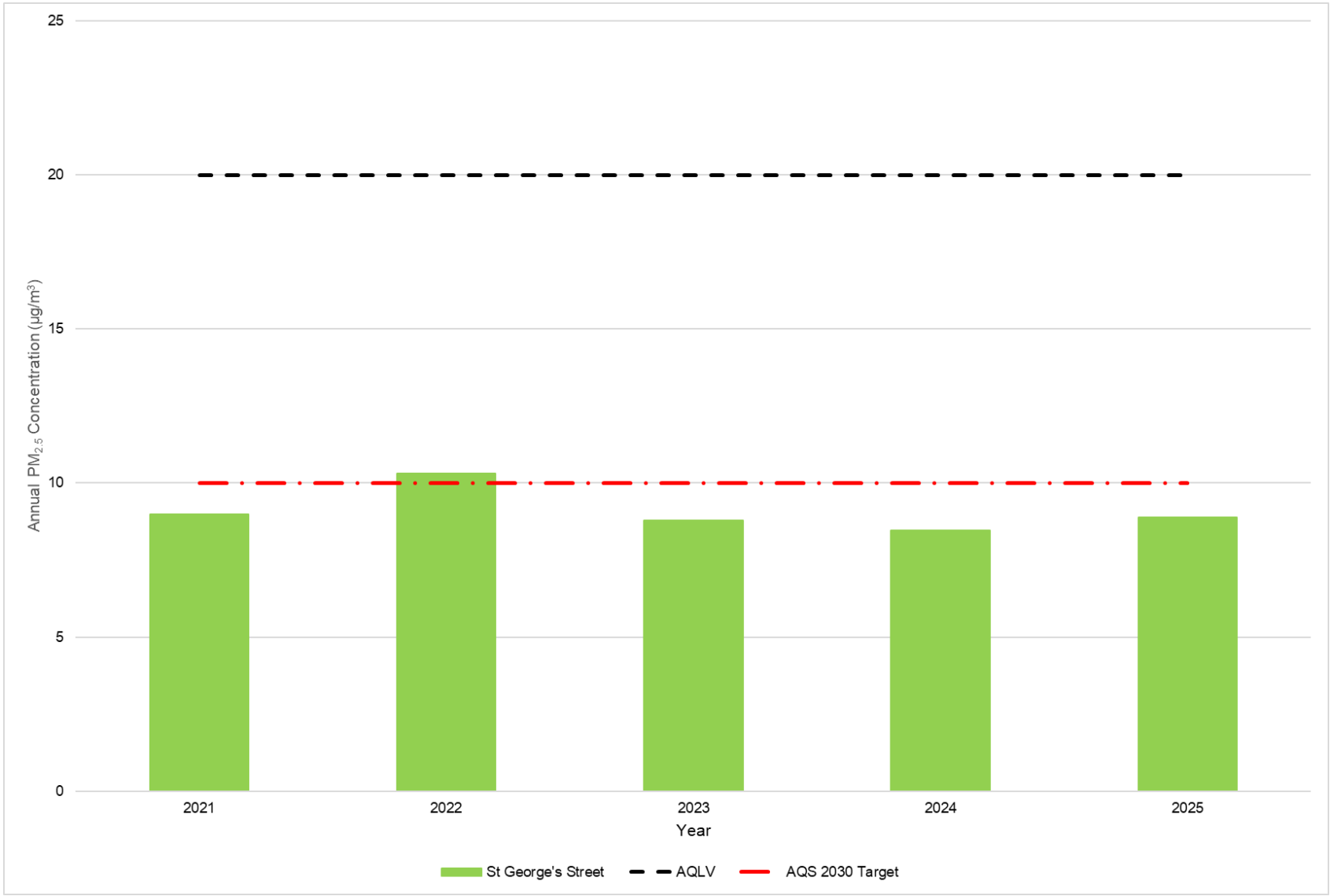
The annual mean concentrations are presented as µg/m^3.

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



Appendix B: Full Monthly Diffusion Tube Results for 2025

Table B.1 – NO_2 2025 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.86	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Site 1	448563	129391	29.2	22.6	24.6	19.1	16.6	15.9	18.3	17.6	19.7	20.1	26.1	23.0	21.1	18.1	-	
Site 2	448566	129560	28.2	21.8	22.3	19.0	14.4	14.2	14.7	15.1	17.2	18.9	21.8	22.3	19.1	16.4	-	
Site 3	448426	129523	26.0	21.1	20.4	18.0	11.8	13.7	12.5	15.6	15.7	16.6	20.4	19.9	17.6	15.1	-	
Site 4	448227	129504	31.0	23.4	23.6	22.1	17.1	16.6	19.2	18.5	19.3	19.9	23.8	22.9	21.4	18.4	-	
Site 5	448063	129537	37.5	32.2	32.6	30.7	23.6	28.6	25.0	28.4	28.2	26.2	35.1	28.7	-	-	-	Triplicate Site with Site 5, Site 6 and Site 7 - Annual data provided for Site 7 only
Site 6	448063	129537	37.5	31.4	30.9	32.0	22.8	28.6	26.8	28.9	27.5	28.2	33.4	31.0	-	-	-	Triplicate Site with Site 5, Site 6 and Site 7 - Annual data provided for Site 7 only
Site 7	448063	129537	39.6	33.2	32.4	32.4	24.7	28.8	26.3	27.3	25.6	27.0	34.3	30.1	29.9	25.7	-	Triplicate Site with Site 5, Site 6 and Site 7 - Annual data provided for Site 7 only
Site 8	448106	129541	40.9	37.1	39.2	36.2	30.7	27.7	28.6	28.7	27.6	22.9	32.7	23.4	31.3	26.9	-	
Site 9	448163	129512	38.1	29.7	29.9	30.2	26.3	29.5	26.2	29.5	28.2	28.6	29.7	31.7	29.8	25.6	-	
Site 10	448046	129692	27.7	23.7	23.0	22.4	18.6	15.7	19.9	19.0	18.2	18.7	21.7	19.4	20.7	17.7	-	
Site 11	447918	129413	38.1	29.4	26.9	28.4	18.5	19.4	19.7	24.3	26.6	23.4	28.3	28.2	25.9	22.3	-	
Site 12	447804	129741	33.4	24.6	27.2	25.2	20.2	16.6	17.3	19.8	21.4	18.8	23.3	22.9	22.6	19.4	-	
Site 13	447963	129875	34.7	26.3	22.2	23.0	16.1	24.2	19.8	21.8	22.1	22.6	24.0	23.7	23.4	20.1	-	
Site 14	448297	129789	26.6	22.0	21.8	16.4	11.4	17.1	16.8	16.7	15.8	15.6	22.4	21.9	18.7	16.1	-	
Site 15	448842	129820	27.9	27.1	24.6	22.1	17.0	14.7	16.0			18.4			21.0	17.3	-	
Site 16	449563	129439	32.1	24.6	22.8	28.0		19.7	20.1	23.4	20.7	19.2	22.4	23.5	23.3	20.0	-	
Site 17	448679	129068	32.8	29.6	28.6	17.2	21.8	22.2	22.1	25.4	26.2	25.6	31.2	30.3	26.1	22.4	-	
Site 18	447534	130006	24.6	20.1	19.0	15.9	12.2	8.8		12.0	12.1	14.0	16.9	18.7	15.8	13.6	-	

Site 19	448092	130411	24.7	19.6	18.4	18.4	10.7	12.5	12.0	13.6	14.7	15.4	19.5	20.6	16.7	14.3	-	
Site 33	447519	129531	29.8	23.3	22.2	23.8	15.7	16.5				16.8	20.1	21.9	-	-	-	Triplicate Site with Site 33, Site 34 and Site 29 - Annual data provided for Site 29 only
Site 34	447519	129531	29.7	22.0	22.7	20.9	15.4	17.2				16.8	20.0	21.8	-	-	-	Triplicate Site with Site 33, Site 34 and Site 29 - Annual data provided for Site 29 only
Site 22	447847	129053	31.6	23.1	24.7	22.7	15.7		20.5	22.7	23.9	23.6	27.0	28.3	24.0	20.6	-	
Site 23	447605	129545	45.9	37.7	37.4	39.8	29.9	33.5	30.1	32.8	30.4	30.3	35.3	31.9	34.6	29.7	-	
Site 24	447495	129511	42.3	34.9	36.1	38.2	22.2	28.1	27.8	29.3	26.0	28.2	28.7	30.9	31.1	26.7	-	
Site 25	447444	129495	46.0	35.8	35.7	34.5	31.0	36.6	34.7	35.2		32.1	35.2	36.1	35.7	30.7	-	
Site 26	447315	129454	44.3	36.7	35.2	32.8	29.0	26.4	24.0	30.0	29.3	31.4	35.0	30.9	32.1	27.5	-	
Site 27	447898	130065	33.0	26.1	24.7	22.0	16.7	20.7	17.0	21.0	20.8	20.1	25.4	26.3	22.8	19.6	-	
Site 28	448427	129401	27.1	23.6	22.6	21.1	16.8	13.6	15.5	13.2	16.5	19.1	21.7		19.2	16.4	-	
Site 29	447519	129531	26.5	23.9	22.8	22.4	16.3	16.3				18.0	21.4	22.3	21.0	18.0	-	Triplicate Site with Site 33, Site 34 and Site 29 - Annual data provided for Site 29 only
Site 30	447635	129565	32.5	26.1	26.8	23.4	19.4	17.3	20.3	20.8	19.1	20.3	24.9	22.9	22.8	19.6	-	
Site 31	447344	129476	32.8	27.2	26.9	26.3	20.3	13.8	13.8	15.8	16.1	17.4	20.6	22.0	21.1	18.1	-	
Site 32	449653	132670		26.3	26.3	26.2	22.1	24.8	24.3	24.6	23.9	24.1	24.7	23.9	24.6	21.2	-	

☒ **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.**

☒ **WCC confirm that all 2025 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 WCC During 2025

WCC has not identified any new sources relating to air quality within the reporting year of 2025.

Additional Air Quality Works Undertaken by WCC During 2025

WCC has not completed any additional works within the reporting year of 2025.

QA/QC of Diffusion Tube Monitoring

All diffusion tubes were from Gradko and used a mixture of 20% TEA in water preparation method. Gradko International Ltd is a UKAS accredited laboratory. Gradko participates in the AIR Proficiency Testing (PT) scheme for diffusion tubes, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL), which provides a Quality Assurance / Quality Control (QA/QC) framework for local authorities carrying out diffusion tube monitoring as a part of their local air quality management process. The latest AIR-PT results were as follows:

- AIR-PT AR062 (January – February 2024) – 100%
- AIR-PT AR063 (April – June 2024) – 100%
- AIR-PT AR065 (July – August 2024) – 100%
- AIR-PT AR066 (September – October 2024) – 100%
- AIR-PT AR068 (January – February 2025) – 50%
- AIR-PT AR069 (April – June 2025) – 75%
- AIR-PT AR071 (July – September 2025) – 100%
- AIR-PT AR072 (October – December 2025) – 100%
- AIR-PT AR074 (January – February 2026) – 100%

Diffusion Tubes were deployed in line with the Defra NO_2 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

Only one site recorded a data capture between 25% and 75% in 2025, Site 15 which had a data capture of 67.1%. All other sites recorded data captures greater than or equal to 75% for 2025.

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

Site ID	Annualisation Factor Chilbolton Observatory	Annualisation Factor Southampton Centre	Annualisation Factor Portsmouth	Annualisation Factor Bournemouth	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
Site 15	0.9103	1.0048	1.0023	0.9342	0.9629	21.0	20.2

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2026 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.

A national and local bias adjustment calculator have been calculated for 2025. The national bias adjustment factor was calculated as 0.89 and the local bias adjustment was calculated as 0.86.

The local bias adjustment factor was calculated using both automatic monitoring sites at St George's Street and Romsey Road. The automatic monitors both had very good data capture for 2025 (all months had a data capture > 90% at St George's Street, and only one month, June, had a data capture below 90% at Romsey Road) and both had low overall coefficients of variation (3.1% and 3.8% at St George's Street and Romsey Road respectively, both are below 5% showing good precision). However, the collocated diffusion tubes at Romsey Road had data captures of 75% for 2025 as such only 8 of the 12 months were appropriate to use for calculation of a local bias adjustment factor at this location. This colocation study is still considered appropriate to use due to the good overall precision and that it produces a similar local bias adjustment factor to the St George's

Street co location study (0.85 and 0.87 respectively) giving confidence in the overall local bias adjustment factor.

- WCC have applied a local bias adjustment factor of 0.86 to the 2025 monitoring data. There is only a slight difference between the national and local bias adjustment factors, though the national bias adjustment factor is more conservative, the local bias adjustment factor is considered more representative of the local area and has therefore been used for the 2025 monitoring data. The local bias adjustment factor has also been chosen for the following reasons in line with LAQM TG.22 Box 7-13:
  "Tubes in a similar setting to the colocation site (open/shelter, height etc)" – The local bias correction has been derived from sites in Central Winchester, where most of the tubes are located. As both sites are near to other such tubes it is affected by comparable sources and in particular comparable road traffic types/ages. The colocation studies in Winchester City are on a hill with narrow roads providing an urban street canyon effect, which is considered representative of local geographic and spatial impacts.
- *"For co-location sites with "good precision" for the diffusion tubes and with high quality chemiluminescence results i.e. to national AURN standards"* – There was excellent data capture for the chemiluminescent real time data at St George's Street and the associated diffusion tubes returned excellent precision. All individual data periods at this site had a coefficient of variation of less than 5 percent. In addition, each data period had a matching automatic analyser data capture of greater than 90 percent. Similar trends were found at the Romsey Road monitor such that only two data periods reported coefficients of variation greater than 5% (as they were still less than 10% they still returned "good precision") and only one data period had a matching automatic analyser data capture of less than 90 percent.

Though not specifically mentioned in the guidance the following reason has also been considered:

- There have been no changes in the last 5 years to the instrument/tubes used in terms of either operational methodology or location at St George's Street and the Romsey Road colocation follows the same methodology. The collocated tubes at both sites are located within 50cm of the automatic monitoring sample inlet at the same inlet height and at the same distance from the roadside.

A summary of bias adjustment factors used by WCC over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2025	Local	-	0.86
2024	Local	-	0.80
2023	Local	-	0.77
2022	Local	-	0.82
2021	Local	-	0.81

Figure C.1 – National Bias Adjustment Calculation

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/26

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

This spreadsheet will be updated at the end of June 2026
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)
Gradko	20% TEA in water	2025	R	Liverpool City Council	11	32	26	24.0%	G	**0.81**
Gradko	20% TEA in water	2025	KS	Liverpool City Council	10	46	40	15.9%	G	**0.86**
Gradko	20% TEA in water	2025	R	Nottingham City Council	10	25	24	3.3%	G	**0.97**
Gradko	20% TEA in water	2025	R	Belfast City Council	12	40	34	17.2%	G	**0.85**
Gradko	20% TEA in water	2025	R	Belfast City Council	12	33	31	6.5%	G	**0.94**
Gradko	20% TEA in water	2025	R	Wychavon District Council	12	27	26	5.5%	G	**0.95**
Gradko	20% TEA in water	2025	R	Worcestershire	12	12	13	-6.6%	G	**1.07**
Gradko	20% TEA in water	2025	KS	Brighton & Hove City Council	10	37	29	28.0%	G	**0.78**
Gradko	20% TEA in water	2025		**Overall Factor[3] (28 studies)**				**Use**		**0.89**

Table C.3 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	12	8			
Bias Factor A	0.87 (0.83 - 0.91)	0.85 (0.82 - 0.87)			
Bias Factor B	15% (10% - 21%)	18% (15% - 22%)			
Diffusion Tube Mean (µg/m³)	29.9	21.5			
Mean CV (Precision)	3.1%	3.8%			
Automatic Mean (µg/m³)	25.9	18.2			
Data Capture	98%	98%			
Adjusted Tube Mean (µg/m³)	26 (25 – 27)	18 (18 - 19)			

Notes:

A combined local bias adjustment factor of 0.86 has been used to bias adjust the 2025 diffusion tube results.

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 NO_2 monitoring locations within WCC required distance correction during 2025.

QA/QC of Automatic Monitoring

All results at reference analysers have been zero and span corrected with readings taken approximately every 2 weeks in accordance with Defra guidance for roadside locations. All gases used for calibration have been independently certified. All instruments were fully serviced every six months by external contractors (Matts Monitors and Acoem). All real-time data was polled and ratified by an external air quality consultant (AQDM).

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

The data reported for the Palas Fidas 200 is in accordance with paragraph 7.174 of TG22 using the inbuilt method 11 approved algorithm. It does not require the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within WCC 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 automatic monitoring locations within WCC required distance correction during 2025.

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

Figure D.1 – Map of Non-Automatic Monitoring Site

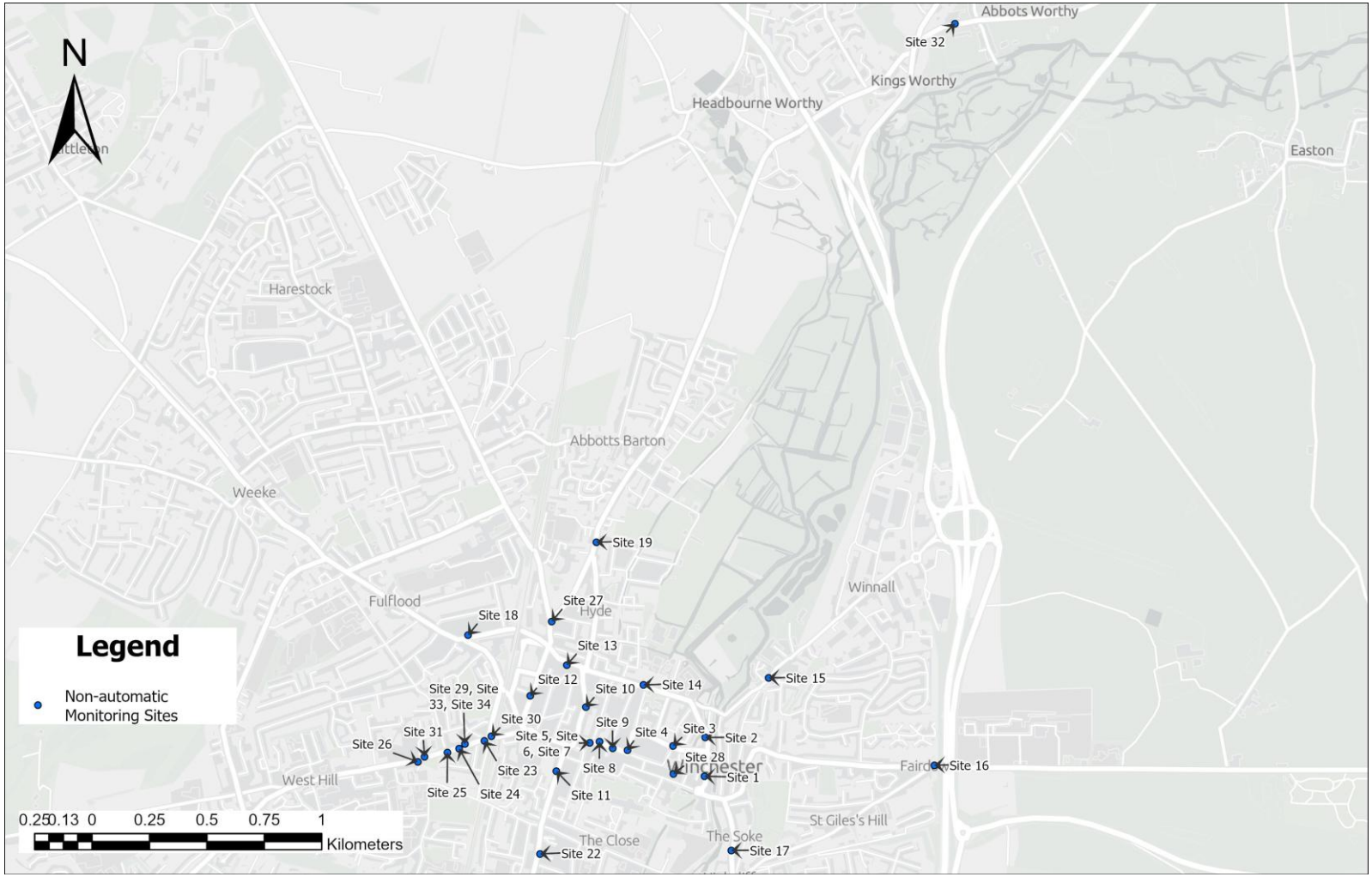
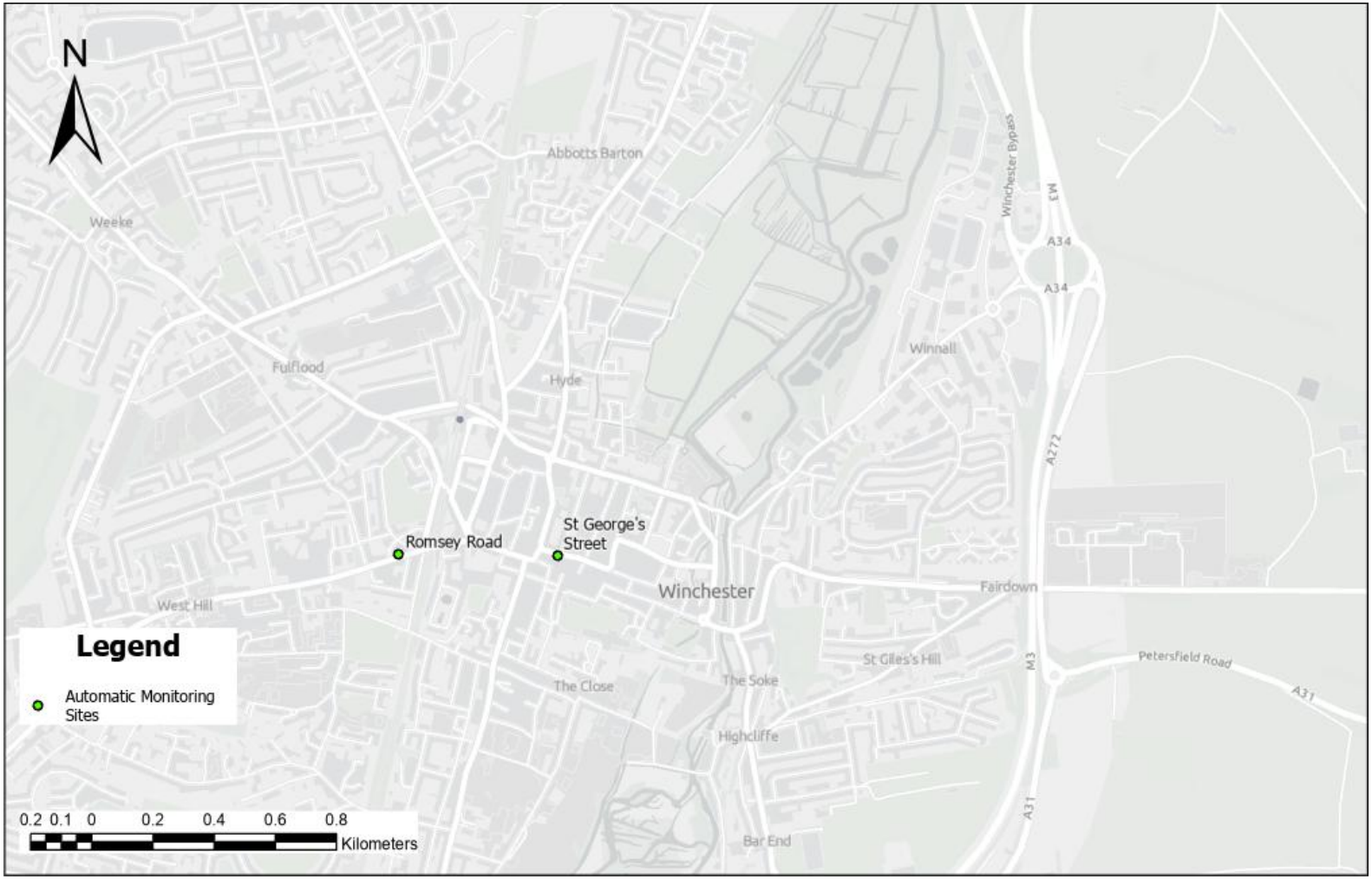


Figure D.2 – Map of Automatic Monitoring Site



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[6]

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

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

Appendix F: Revocation Assessment of Winchester AQMA

Introduction

This screening assessment sets out the evidence relied upon by Winchester City Council ("the Council") as it seeks to revoke the Winchester Town Centre AQMA ("AQMA"). Consideration will be given to:

- The monitoring data obtained over a number of years within the AQMA;
- The projected roadside NO_2 concentration;
- Local and national trends in NO_2 emissions; and
- Local and regional factors that may impact on the AQMA.

Part IV of the Environment Act 1995 (as amended 2021) requires Local Authorities to review air quality in its area and assess whether national objective levels will be achieved. Where it has been shown that the objectives will not be achieved Local Authorities must declare an AQMA and put an Air Quality Action Plan in place to bring air quality within acceptable levels.

Where it can be subsequently demonstrated that air quality objectives are being and will continue to be met a Local Authority can revoke an AQMA by Order under the Environment Act 1995 (as amended 2021).

The Winchester Town Centre AQMA was declared in 2003 following exceedance of the annual mean nitrogen dioxide (NO_2) AQO linked to emissions from road traffic. Since that time, monitoring has shown a continued reduction in pollutant concentrations, which have now been consistently below the national objectives for 5 years.

National, regional and local policies have influenced the reduction in polluting emissions within the AQMA and it is reasonable to expect that further reductions will be achieved through the increasing use of ultra-low and zero emission vehicles.

- In line with LAQM TG(22), "in the instance that compelling evidence exists, detailed modelling to support the decision to amend/revoke an AQMA may not be necessary and an AQMA may be amended or revoked following a screening

assessment or on the basis of robust monitoring evidence." Having considered the historical monitoring data at sites within the Council, national trends in emissions and any likely impacts on the air quality within the AQMA, the Council is satisfied that the AQMA can be revoked.

Review & Assessment

Part IV of the Environment Act 1995 (as amended 2021) (the Act) introduced the Local Air Quality Management regime that places a legal duty on local authorities to regularly review and assess air quality in their areas against Air Quality Standards (AQS) objectives. The AQS objectives for England are set out in the Air Quality (England) Regulations 2000 and the Air Quality (England) (Amendment) Regulations 2002 and are shown in Table E.1 of the Winchester City Council 2025 Annual Status Report (ASR).

Local authorities must declare an AQMA where any of the AQS objectives are exceeded and subsequently set out the measures they intend to put in place to secure compliance with the AQS objectives under an Air Quality Action Plan (AQAP). With effective implementation of the Action Plan and national policies aimed at reducing the emission of pollutants it is expected that the air quality within AQMAs should improve to a point that concentrations will remain below the AQS objectives. Revocation of an AQMA can be formally declared by Order under section 83 of the Environment Act.

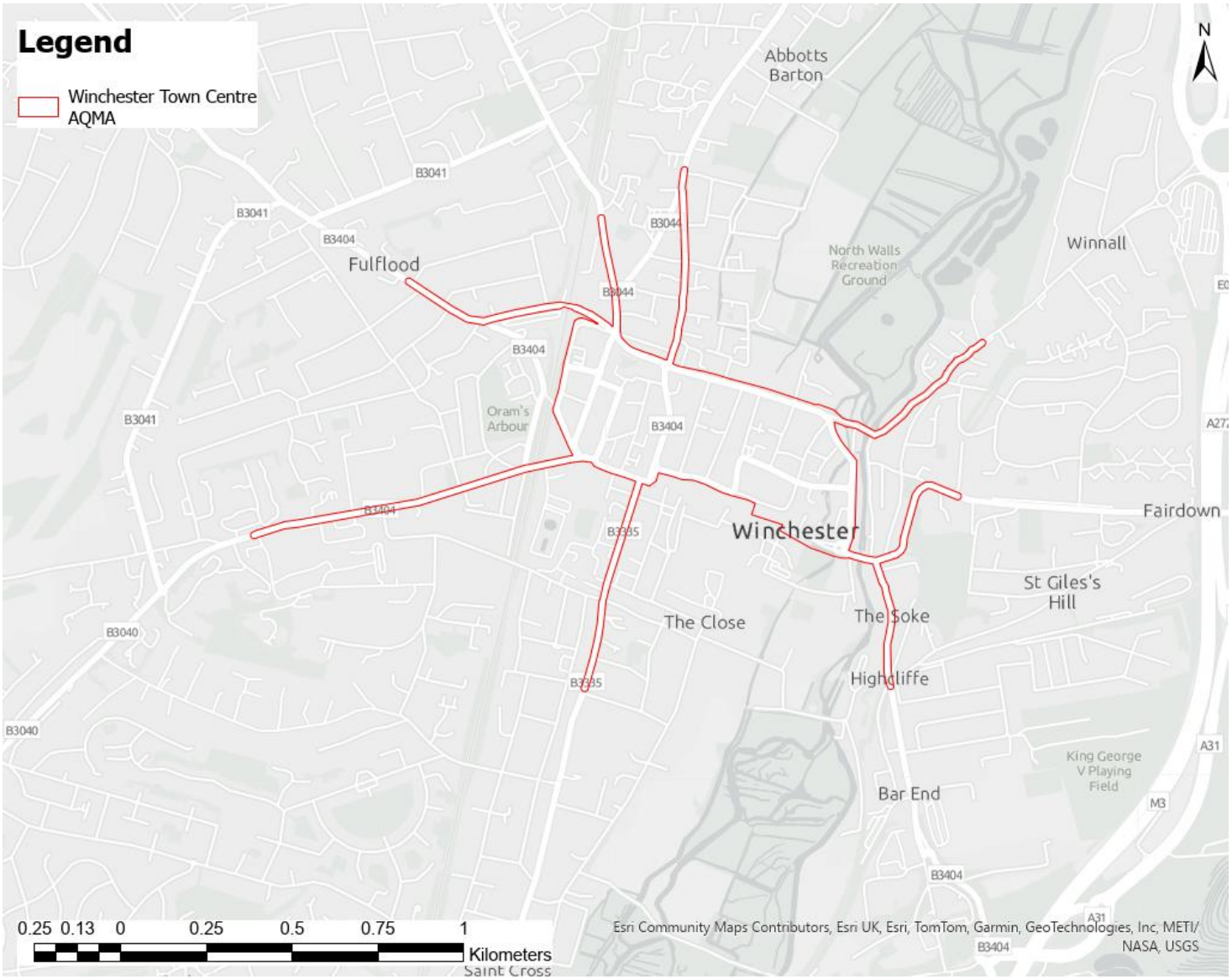
Each year an ASR must be prepared by local authorities detailing the strategies employed to improve air quality and any progress that has been made. Comments made by Defra in relation to the 2024 ASR support the Council's plans to revoke the Winchester Town Centre AQMA, due to continual compliance with the NO_2 annual mean AQS objective. Consultation with Defra and communications with the LAQM Helpdesk also support this revocation.

Winchester Town Centre AQMA

The Winchester Town Centre Council AQMA was declared in 2003 to address traffic related NO_2 concentrations in excess of the annual mean AQS objective. The AQMA encompasses the main city centre and the major roads that go out from it, including Romsey Road, Stockbridge Road, Andover Road, Hyde Street, St Cross Road,

Eastern Lane, Magdalen Hill and Chesil Street. The extent of the AQMA, as declared under the original order, is demonstrated in Figure G.1.

Figure G.1– Winchester Town Centre AQMA



Revoking an AQMA: The Legal Framework & Guidance

2.2.1 The Environment Act 1995 (as amended 2021)

Section 83 (2b) of the Environment Act (1995) states that an AQMA:

"…..may, as a result of a subsequent air quality review, be revoked by such an order, if it appears on that subsequent air quality review that the air quality standards and objectives are being achieved, and are likely throughout the relevant period to be achieved, within the designated area".

2.2.2 Statutory Guidance

Guidance on the requirements for revoking an AQMA are set out in statutory guidance LAQM PG 22 and LAQM TG 22.

PG 22 states that:

- *"Authorities wishing to revoke or reduce an AQMA can do so following review. For revocation this should demonstrate that air quality objectives are being met and will continue to do so. In other words they should have confidence that the improvements will be sustained. Further information is provided in the Technical Guidance, but typically this is after three years or more compliance. 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. Where 2020 is one of many consecutive years of compliance, this may be considered for revocation. If authorities wish to make any changes to AQMAs, whether declaration, amendment or revocation, based upon 2020 data, please contact the LAQM helpdesk to discuss your approach.*
- *Where an Order is revised, a copy of the revocation or amendment Order should be submitted to Defra via the LAQM portal and other statutory consultees and made publicly available to ensure the public and local businesses are aware of the situation. It is expected that the local authority will take the relevant action imposed by the Order within four months following receipt of comments from Defra.*
- *Following a revocation, from 2023 (where this would result in that local authority no longer having any AQMA) the local authority should put in place a local air quality*

strategy (paragraph 2.15) to ensure air quality remains a high profile issue and to ensure it is able to respond quickly should there be any deterioration in condition."

TG 22 goes on to state that:

- *"In most cases the decision to amend or revoke an AQMA should only be taken following a detailed study, to be appended to the ASR/APR as additional supporting technical information. A modelling study may allow compliance to be assessed over a wider geographical area than when compared to monitoring alone. This should set out in detail all the available information used to reach the decision, with the same degree of confidence as was provided for the original declaration. If the conclusions of the study are suitably robust to allow an assessment of compliance to be determined, either an amendment or revocation can be taken forward. Due to the inherent uncertainties of dispersion modelling, consideration should be given to predicted concentrations being 10% below the relevant objective before an amendment or revocation of an AQMA is completed.*
- *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.*
- *However, in some instances if compelling evidence exists, detailed modelling to support the decision to amend/revoke an AQMA may not be necessary and an AQMA may be amended or revoked following a screening assessment or on the basis of robust monitoring evidence.*
- *However, pollutant concentrations may vary significantly from one year to the next, due to the influence of meteorological conditions, and it is important that authorities avoid cycling between declaring, revoking and declaring again, due simply to these variations. Therefore, before revoking an AQMA on the basis of measured pollutant concentrations, the authority therefore needs to be reasonably certain that any future exceedances (that might occur in more adverse meteorological conditions) are unlikely. For this reason, it is expected that authorities will need to consider measurements carried out over several years or more, national trends in emissions, as well as local factors that may affect the*

AQMA, including measures introduced as part of an Air Quality Action Plan, together with information from national monitoring on high and low pollution years.

- *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 36 µg/m³ (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."*

Therefore, where compelling evidence exists, an AQMA can be revoked following at least three consecutive years of compliance with the objective without the need for detailed modelling as would traditionally have been required under the technical guidance. That is to say that NO_2 concentrations monitored using diffusion tubes should have been lower than 36 µg/m^3 to account for the uncertainty inherent with the method for a period of three years or more, acknowledging wider trends or new sources that might impact continued compliance (Paragraph 3.57 in LAQM TG(22)).

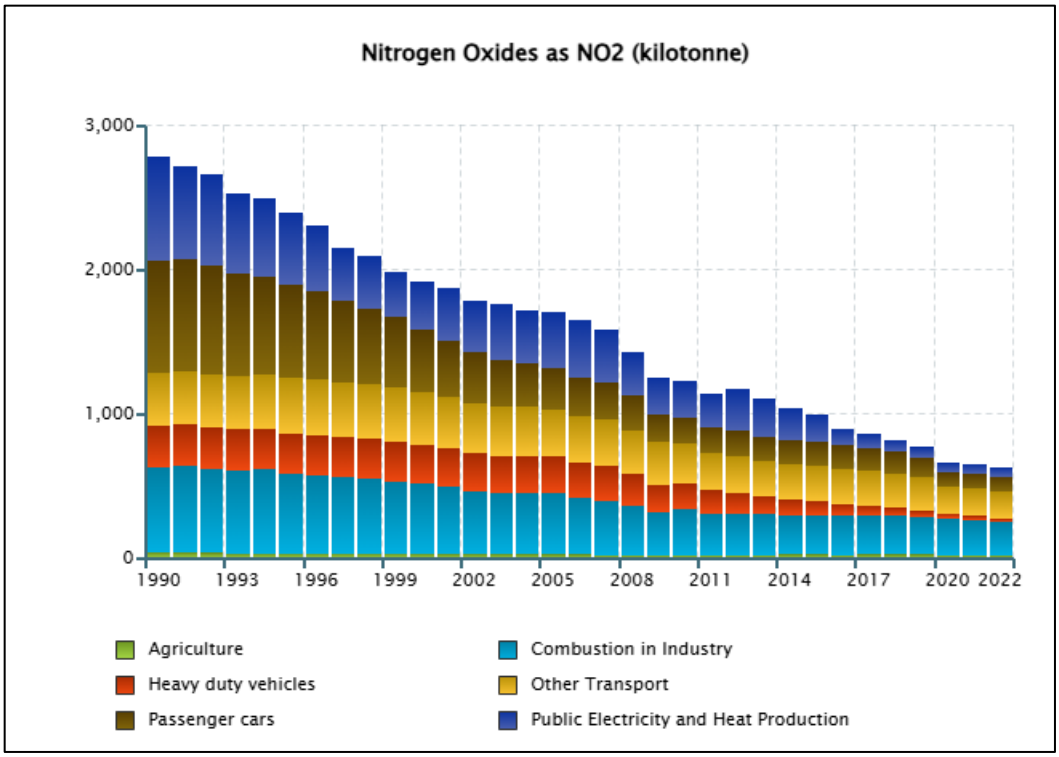
This report compiles the evidence required to revoke the Winchester Town Centre AQMA.

National Influence

National strategies, policies and plans have and will continue to influence local polluting emissions. Total UK emissions of NO_x fell by over 66% between 1990 and 2021. Figure G-1 – shows that total NO_x emissions have decreased substantially over this period and are now less than one third of the total emissions in 1990. Emissions from several specific sources, notably public energy and heat production, passenger cars and heavy-duty vehicles, have also shown substantial decreases over the same period[7].

Figure G-1 – Estimated Annual UK Emissions of Nitrogen Oxides (kt), 1990 – 2021 (Source: NAEI 2024)

[7] Defra, September 2023, 'Air Pollution in the UK 2022 Report'



Future influence on emissions is considered in a revised Clean Air Strategy[8] with a major transport emission objective that states:

"*We will end the sale of new conventional petrol and diesel cars and vans by 2040. We will position the UK as the best place in the world to develop, manufacture and use zero exhaust emissions vehicles and, during the transition, we will ensure that the cleanest conventional vehicles are driven on our roads*"".

This transition to ultra-low and zero emission vehicles presents the largest potential for the reduction of future road traffic emissions in this AQMA. Department for Transport (DfT) road traffic forecasts[9] provide future numbers, compositions and emissions across the UK based on seven scenarios (to account for the broad range of possibilities and uncertainties in predicting up to 2060) linked to changing population, economic and social well-being and technological changes. The findings include:

- From 2025, traffic is projected to grow between 8% and 54% by 2060;
- Traffic on minor roads and A-roads is expected to grow by 21% and 20% respectively, while motorway traffic is projected to increase by 27% between 2025 and 2060;

[8] Department for Transport (DfT), January 2019, 'Clean Air Strategy 2019'

[9] Department for Transport (DfT), December 2022, 'National Road Traffic Projections 2022'

- Between 2025 and 2050 NO_x emissions are projected to reduce by 65%, driven by the uptake of Euro 6 engines. However, as the uptake of Euro 6 engines flattens off the impact of greater travel increases NO_x by 1% between 2050 and 2060;
- Heavy Goods Vehicles (HGV) traffic is projected to have a moderate increase from 16 Billion (Bn) vehicle miles in 2025 to 18 Bn vehicle miles in 2060;
- Light Goods Vehicles (LGV) growth is stronger starting at 57 Bn vehicle miles in 2025 rising to 77 Bn by 2060; and
- Congestion (measured in delay per mile) is also projected to increase, with the average delay per mile projected to increase around 27% between 2025 and 2060.

The national transport model (NTM) produces forecasts of emissions of Carbon Dioxide (CO_2), NO_x and PM_{10} measured at the tailpipe (though this does not capture any upstream emissions produced) as shown in Figure G-2. A set of seven scenarios which explore uncertainties in demography, economic growth, regional redistribution, behavioural change, emerging technologies, and decarbonisation, have been developed for use in modelling and appraisal. The projections illustrate that a wide range of traffic growth is possible in the long term, with the scenarios suggesting an 8% to 54% increase in distance driven between 2025 and 2060, though in this context the uncertainty in these figures should be noted.

Even if this nationally predicted increase in traffic growth is realised at the local level within Winchester City Council, associated NO_x emissions are also projected to reduce by between 61% (in the High Economy Scenario) and 98% (in the Mode-balanced Decarbonisation Scenario) between 2025 and 2060, primarily due to fleet turnover and transition away from internal combustion engine vehicles.

Figure G-2 – Forecast NO_x Road Traffic Emissions (kt) for England & Wales (Source: Department for Transport)

As highlighted in previous years ASRs, COVID-19 had notable impacts on NO_2 concentrations in 2020. The Air Quality Expert Group (AQEG) has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK, reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which represents an absolute reduction of between 10 to 20 $\mu g/m^3$ if expressed relative to annual

mean averages[10]. Local monitoring has demonstrated that decreases in concentrations have continued post pandemic and have not returned to pre-pandemic concentrations.

The above considered, it is therefore likely that despite uncertainty in predicting such trends, the nationally projected reductions in overall NOx emissions will continue to contribute toward reducing concentrations within the AQMA, below their current level.

Regional Influence

2.2.3 Local Plan

The Winchester District Local Plan (WDLP) sets out a vision for the communities of the former Winchester District area up to 2040. The National Institute for Health and Care Excellence (NICE) encourages Local Authorities to address the issue of air pollution in their Local Plan. The WDLP seeks to improve air quality not only in AQMAs but across the plan area and elsewhere. In particular, development proposals are expected to minimise and mitigate air pollution and to contribute towards the achievement of air quality objectives.

The WDLP area comprises both urban and rural settlements and within certain parts there are limited public transport opportunities, resulting in a heavy reliance on private cars as a form of transport. Due to this, there has been a focus on sustainable transport mechanisms in the WDLP. This complements the Local Transport Plan (LTP), identifying changes that will secure an improved transport network and contributing to the shared priority of improving air quality.

Strategic Policy T.1: Sustainable Transport, impacts on air quality by regulating developments to ensure they encourage and facilitate the use of sustainable transport options where possible and support the efficient use of existing transport networks.

Planning applications for development that would increase travel must be supported by a transport assessment to quantify the amount and type of travel and should prioritise:

- A genuine choice of sustainable and active transport modes of travel; prioritising walking, wheeling, cycling and public transport, followed by car clubs, electric/hydrogen vehicles and lastly private fossil-fuelled vehicles;

[10] Air Quality Expert Group (AQEG), June 2020, 'Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK'.

- Development so that it reduces the number of trips made by private motor vehicle as well as maximising opportunities to walk and cycle in compliance with the Hampshire Movement and Place Framework and Healthy Streets approach as set out in the adopted LTP4;
- The concept of 20 minute neighbourhoods;
- Integrating sustainable and active travel routes into the layout with connections to the wider network and where appropriate integrated with the green / blue infrastructure networks, which must be made available and usable at all stages of development particularly on large or phased sites; Strategic Policy T1 Sustainable and Active Transport and Travel
- Safe, attractive, secure and convenient ways that encourage all users, including those with disabilities and reduced mobility, to use more sustainable forms of transport such as walking, wheeling, cycling or buses, at every stage of the development;
- The continued safe and efficient operation of the strategic and local road networks; vii. New accesses and intensified use of existing accesses onto the road network that can demonstrate that they will not result in reduced highway safety or significant congestion/delays; and
- Proposals which include new or refurbished employment development will need to provide where appropriate measures such as showers, changing areas and lockers/storage to cater for employees wishing to engage in active travel.

Other specific policies relevant to the improvement of air quality include Strategic Policy SP2, which requires development proposals to address the environment and minimise all forms of pollution where possible, including air pollution.

2.2.4 Local Transport Plan (LTP)

The Hampshire County Council LTP 4 (2024) also provides a strategy for transport management until 2030. The plan prioritises the growth of business, reducing the demand for car travel, making efficient use of transport networks and improving infrastructure, which should all help to ensure continued compliance within the Winchester Town Centre AQMA.

LTP4 [11] responds to the long-term transport opportunities and challenges facing Hampshire and the UK as a whole. Air Quality is a constituent part of LTP4, as follows, further ensuring improvements to emissions to air from road traffic are part of local policy in future:

"C8: Managing the harmful effects of poor air quality and noise."

2.2.5 Air Quality Action Plan

The AQAP for the AQMA received Defra approval in March 2017 and consists of nine core actions. The main priority for Winchester City Council in 2024 was to produce a new local AQS and achieve continued compliance on the remaining AQMA in order to proceed with the revocation process in 2025.

Other measures that are ongoing include:

- Introduce new parking charges/incentives to reduce diesel car parking and high pollution petrol cars (older than Euro 4) from parking in central car parks in favour of low emission vehicles;
- 'Investigate the feasibility of introducing a CAZ for heavy duty vehicles that enter the AQMA, which do not meet Euro VI standards;
- Ensure that all Council-owned, leased, contracted or influence vehicles that enter the AQMA meet the OLEV standards for ULEVs and are not diesel fuelled by 2020
- Continuing to work with and lobby Hampshire County Council to identify projects to improve air quality;
- Monitoring the performance of the action plan and reassess whether additional measures are required to meet the objective;
- Continuing to improve public access to live parking information and signage and better signage to encourage drivers to use the car park best suited to their journey; and
- Considering the introduction and promotion of additional cycle stands, in consultation with local cycling groups, as part of planned developments in the AQMA.

[11]Hampshire County Council, Local Transport Plan 4 (2024-2030). Available at: https://documents.hants.gov.uk/transport/hampshire-local-transport-plan-4-2024.pdf

2.2.6 Air Quality Strategy

- In early 2025, Winchester City Council published its new local AQS, which aims to:

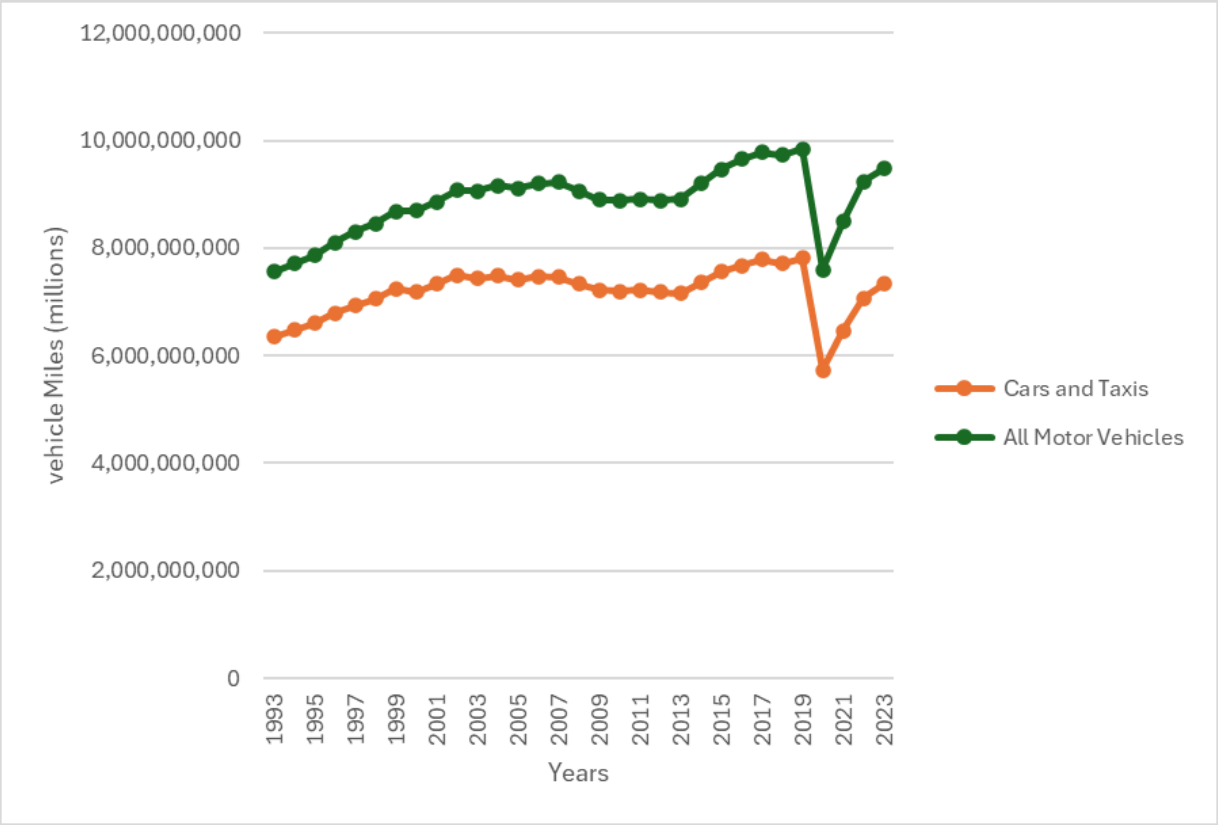
1. Develop a new and active participation in, a multi-disciplinary Regional Air Quality Network across Hampshire. Develop a new and active participation in, a multi-disciplinary Regional Air Quality Network across Hampshire.
2. Expand the air quality monitoring network across the wider Winchester district, including increased $PM_{2.5}$ measurements using sensor measurements, citizen engagements and indicative monitoring.
3. Conduct a detailed atmospheric source inventory for NO_2 and $PM_{2.5}$ pollution in the Winchester District to identify the extent to which different key emission sources contribute to pollutant concentrations.
4. Conduct a study to identify and deliver measures at sensitive locations, such as schools/nurseries, playgrounds, or areas where air quality previously failed to meet national air quality objective.

This is the main mechanism by which WCC will ensure compliance and continued improvement of air quality in their jurisdiction when their AQMA is revoked.

Air Quality within Winchester AQMA and wider Hampshire

As displayed in Figure G.3, vehicle miles fell in 2020 during the pandemic but increased again in 2021. They continued to increase in 2022 and 2023 but are lower than pre pandemic miles in 2019. It is likely that despite small increases in traffic flow, air quality has continued to improve due to fleet emissions reductions, as older vehicles are replaced with newer, cleaner ones.

Figure G.3 – Annual Traffic by Vehicle Type in Hampshire from 1993 to 2023



A comparison of the annual mean AQS objective for NO_2 against the long-term monitoring results between 2018 and 2024 from diffusion tubes located within Winchester Town Centre AQMA can be seen in Figure G.4.

Figure G.4 – Trends in annual mean NO_2 concentrations at diffusion tube sites in Winchester City Council (2018 to 2024)

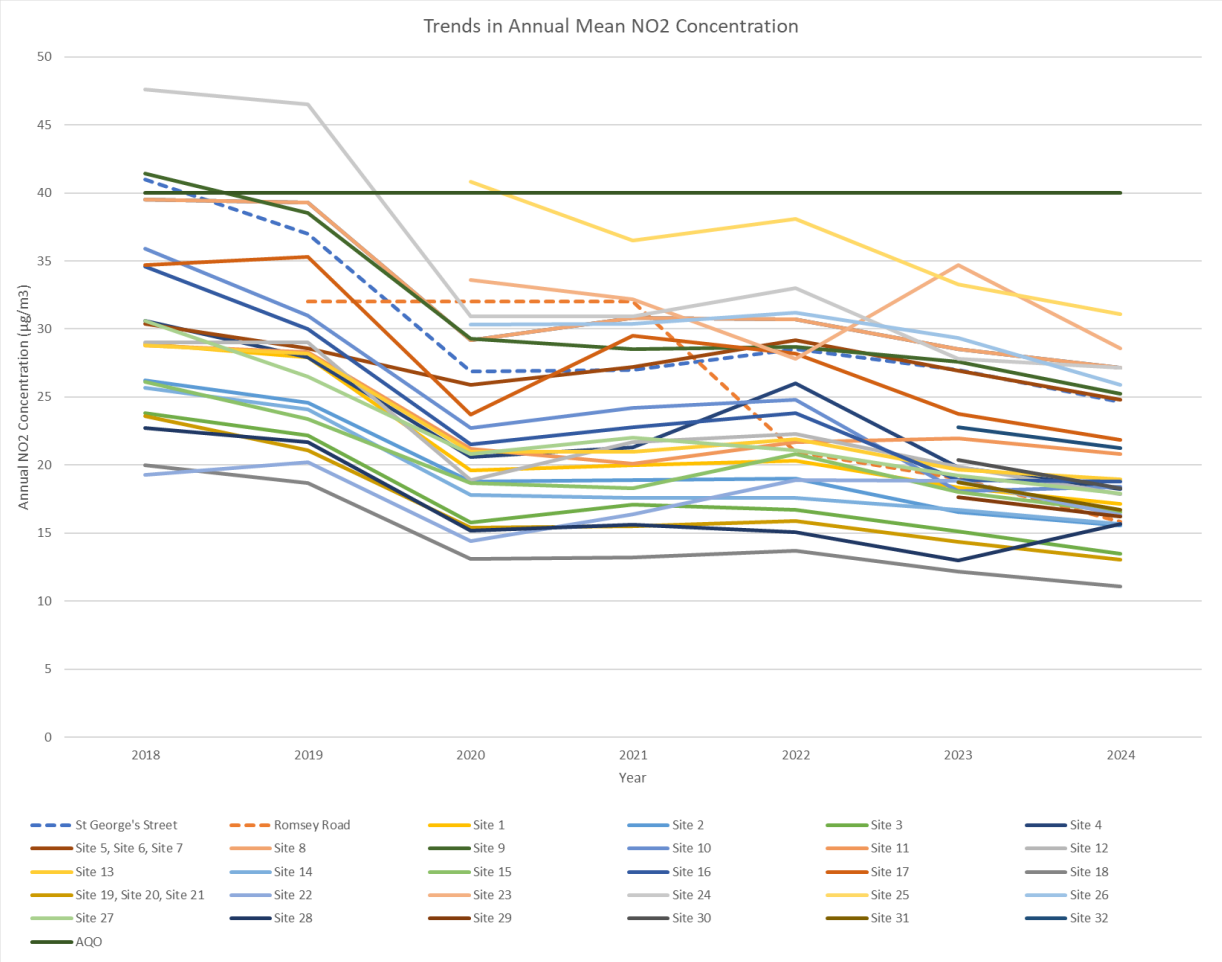


Figure G.4 – shows that all monitoring locations within Winchester City Council, recorded NO_2 concentrations that have been consistently below the annual mean AQS objective of 40 µg/m³ for five years (since 2020).

The AQMA last saw exceedances of the annual mean NO_2 objective in 2020, at site Site 25, measuring 40.8 µg/m^3, however after distance correction to relevant exposure this changed to 35.5 µg/m^3, no longer exceeding the threshold. NO_2 concentrations fell each year thereafter for 4 years until 2024. Measurements in 2020 across all monitoring sites were expected to be low due to the impacts of the Covid-19 lockdowns reducing traffic flows using this route (see Figure G.3). The maximum annual mean NO_2 concentration recorded in 2024 was 31.1 µg/m^3 at site Site 25. These have been decreasing since 2022.

The Defra helpdesk was consulted in 2023 and recommended that WCC wait for the data from 2024 to ensure there has been 5 years of acceptable compliance data. This was advised due to the fact the NO_2 monitoring is completed using diffusion tubes (as within this AQMA), and that there is an inherent uncertainty associated with the monitoring method.

Section 3.54 of LAQM TG.22 states that:

"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".

Since receiving the 2024 data, WCC believe compliance has now been met for 5 consecutive years and that the revocation now has the support of Defra.

Predicted Trends

To provide confidence that compliance with the objective will continue, Defra's Roadside NO_2 Projection factors(Table G.1 and G.2) have been used. The 2024 monitored concentrations have been projected forward five years (2025-2029) to demonstrate concentrations are expected to remain below the AQS objective. The adjustment factors applied for Winchester were the 'Rest of UK HDV=<10%'. The projected results for the diffusion tube locations within Winchester and its Winchester Town Centre AQMA are presented in Table G.1 and G.2.

Table G.1 - Defra's Roadside NO_2 Projection Factors

Roadside NO_2 Projection Factors

Year	Central London	Inner London	Outer London	Rest of UK (HDV = <10%)	Rest of UK (HDV >10%)
2021	1.000	1.000	1.000	1.000	1.000
2022	0.945	0.961	0.897	0.967	0.965
2023	0.890	0.831	0.793	0.934	0.930
2024	0.851	0.779	0.735	0.880	0.874
2025	0.818	0.736	0.684	0.828	0.819
2026	0.791	0.699	0.637	0.782	0.775
2027	0.769	0.666	0.597	0.733	0.729
2028	0.752	0.641	0.570	0.682	0.684
2029	0.741	0.624	0.547	0.632	0.641
2030	0.732	0.609	0.527	0.575	0.592
2031	0.720	0.593	0.510	0.539	0.562
2032	0.709	0.579	0.494	0.506	0.534
2033	0.692	0.560	0.473	0.477	0.511
2034	0.689	0.555	0.466	0.452	0.491
2035	0.689	0.555	0.464	0.434	0.474
2036	0.689	0.553	0.461	0.426	0.468
2037	0.688	0.551	0.458	0.419	0.461
2038	0.687	0.549	0.454	0.411	0.455
2039	0.687	0.547	0.451	0.404	0.448
2040	0.686	0.545	0.448	0.396	0.442

Table G.2 – 2024-based Projected Annual NO_2 Mean Concentrations – Winchester

Site	Within Winchester Town Centre AQMA?	Monitored Annual NO_2 mean concentration (µg/m³)	Projected Annual NO_2 mean concentration (µg/m³)				
		2024	2025	2026	2027	2028	2029
Site 1	Yes	17.1	14.2	13.4	12.5	11.7	10.8
Site 2	Yes	15.6	12.9	12.2	11.4	10.6	9.9

Site	Within Winchester Town Centre AQMA?	Monitored Annual NO_2 mean concentration (µg/m³)	Projected Annual NO_2 mean concentration (µg/m³)				
		2024	2025	2026	2027	2028	2029
Site 3	Yes	13.5	11.2	10.6	9.9	9.2	8.5
Site 4	Yes	18.3	15.2	14.3	13.4	12.5	11.6
Site 5, Site 6, Site 7	Yes	24.8	20.5	19.4	18.2	16.9	15.7
Site 8	Yes	27.1	22.4	21.2	19.9	18.5	17.1
Site 9	Yes	25.2	20.9	19.7	18.5	17.2	15.9
Site 10	Yes	18.4	15.2	14.4	13.5	12.5	11.6
Site 11	Yes	20.8	17.2	16.3	15.2	14.2	13.1
Site 12	Yes	17.9	14.8	14.0	13.1	12.2	11.3
Site 13	Yes	18.9	15.6	14.8	13.9	12.9	11.9
Site 14	Yes	15.7	13.0	12.3	11.5	10.7	9.9
Site 15	Yes	16.6	13.7	13.0	12.2	11.3	10.5
Site 16	Yes	18.8	15.6	14.7	13.8	12.8	11.9
Site 17	Yes	21.9	18.1	17.1	16.1	14.9	13.8
Site 18	Yes	11.1	9.2	8.7	8.1	7.6	7.0
Site 19, Site 20, Site 21	Yes	13	10.8	10.2	9.5	8.9	8.2
Site 22	Yes	16.3	13.5	12.7	11.9	11.1	10.3
Site 23	Yes	28.6	23.7	22.4	21.0	19.5	18.1
Site 24	Yes	27.2	22.5	21.3	19.9	18.6	17.2
Site 25	Yes	31.1	25.8	24.3	22.8	21.2	19.7
Site 26	Yes	25.9	21.4	20.3	19.0	17.7	16.4
Site 27	Yes	17.9	14.8	14.0	13.1	12.2	11.3
Site 28	Yes	15.7	13.0	12.3	11.5	10.7	9.9
Site 29	Yes	16.2	13.4	12.7	11.9	11.0	10.2
Site 30	Yes	18.3	15.2	14.3	13.4	12.5	11.6
Site 31	Yes	16.7	13.8	13.1	12.2	11.4	10.6
Site 32	Yes	21.3	17.6	16.7	15.6	14.5	13.5

Table G.2 shows that the concentrations of NO_2 are predicted to decrease over the five-year period from 2024 to 2029 and remain well below the AQS objective. The Government's commitment to net zero[12] emissions by 2050 and the adoption of the Road to Zero[13] transport strategy are expected to deliver significant further reductions in emissions from road transport. In its publication 'National Road Traffic Projections 2022'[9] the DfT has projected that NO_x emissions will decline by 64% from 2025 to 2060. In turn, this provides

[12] HM Government, October 2021, 'Net Zero Strategy: Build Back Greener'

[13] Department for Transport, July 2018, 'The Road to Zero'

confidence that the AQMA can be revoked without concern that the objective will be exceeded, unless significant new sources arise, at which point the NO_2 concentrations will be assessed again. The Council intend to continue with a monitoring regime in order to observe this.

Local Development

There is one local development which has the potential to significantly impact air quality in the coming years. The proposed M3 Junction 9 Improvement works are located adjacent to Winnal industrial estate, north of Alresford Road B3404 in Winchester. The Winchester Town Centre AQMA is located within the Affected Road Network (ARN) of the proposed development. An air quality assessment for the M3 junction 9 improvement works were completed in conjunction with the National Highways Environmental Statement in 2023[14].

The outcome of the assessment determined that during both the construction and operational phases of the development, that the maximum modelled change in annual mean NO_2 concentrations at any of the modelled receptors was an increase in 2.5 µg/m³ at R41[15]. Comparing this projected concentration in Table G.2, the total annual average NO_2 concentrations do not currently, and will not, exceed the AQO in the future. This considers the worst-case impact and the worst-case receptor and shows that the AQO will not exceed at any location.

The same is predicted for PM_{10} and $PM_{2.5}$ concentrations, where the maximum modelled annual mean change in concentrations at modelled receptors where 0.7 µg/m³ for both. Again, taking a worst case approach the AQO does not currently, and will not exceed in the future.

[14] National Highways, August 2023. M3 Junction 9 Improvement Scheme Number: TR010055 6.1 Environmental Statement Chapter 5 Air Quality. Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/TR010055-000838-M3J9_6.1_ES%20Chapter%205%20Air%20Quality%20(Rev%202)%20(clean).pdf

[15] National Highways, November 2022. M3 Junction 9 Improvement Scheme Number: TR010055 6.1 Environmental Statement Appendix 5.2. Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/TR010055-000314-M3J9_6-3_ES_Appendix_5-2.pdf

Overall, the proposed scheme of works is not predicted to result in a significant effect on Air Quality and hence are not considered further in this revocation assessment.

Appendix G: Revocation Order of Winchester AQMA

Winchester City Council Order 2025

Environment Act 1995 Part IV Section 83(2)(b)

Order Revoking an Air Quality Management Area

Winchester City Council, in exercise of the powers conferred on it by Section 83(2)(b) of the Environment Act 1995 hereby makes the following order:

1. This Order shall revoke the area known as Winchester Town Centre AQMA (as shown in the attached map) declared for the Nitrogen dioxide (NO_2) - Annual Mean on 14/11/2003.
2. This Order shall come into force on 07 November 2025.

The Common Seal of Winchester City Council

Was hereunto affixed

In the presence of:

NO. IN SEAL REGISTER: 12884

WINCHESTER CITY COUNCIL

AUTHORISED OFFICER

Dated: 6th November 2025

Summary, Conclusion and Recommendation

This assessment sets out the evidence relied upon by Winchester City Council in seeking to revoke the Winchester Town Centre AQMA Order.

Part IV of the Environment Act 1995 (as amended 2021) requires Local Authorities to review air quality in its area and assess whether AQS objectives will be achieved. Where it has been shown that the AQS objectives will not be achieved Local Authorities must declare an AQMA and put an AQAP in place to bring air quality within acceptable levels.

Where it can be subsequently demonstrated that AQS objectives are being and will continue to be met a Local Authority can revoke an AQMA by Order under the Environment Act 1995 (as amended 2021).

The Winchester Town Centre AQMA was designated in 2003 to address exceedances of traffic related NO_2 concentrations. Since 2003, monitoring has shown a continued reduction in pollutant concentrations, with recorded values having fallen below the AQS consistently for several years, since 2020.

National, regional and local policies have influenced the reduction in polluting emissions within the AQMA alongside WCC's AQAP, and it is reasonable to expect that further reductions will be achieved through the increasing use of ultra-low and zero emission vehicles in the coming years.

Having considered the historical monitoring data associated with Winchester Town Centre AQMA, national trends in emissions and any likely local impacts on the air quality within the AQMA, the Council is satisfied that the AQMA can be revoked. Whilst NO_2 concentrations within the AQMA have been consistently below the AQS objective for five years, it has also been demonstrated that this is likely to continue.

It is therefore recommended that the Winchester Town Centre AQMA be revoked at the earliest opportunity, subject to Defra approval. A draft Revocation Order is presented in **Error! Reference source not found.**. As per paragraph 4.12 of LAQM.PG(22), the Council's recently published Air Quality Strategy will effectively supersede local action planning work in the event of revocation, ensuring continued air quality improvements beyond statutory designations.

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'
AQDM	Air Quality Data Management
AQLV	Air Quality Limit Value
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
EBC	Eastleigh Borough Council
HCC	Hampshire County Council
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Infrastructure Plan
NFDC	New Forrest District Council
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
SCC	Southampton City Council
SO_2	Sulphur Dioxide
WCC	Winchester City Council

References

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