



Winchester
City Council

2025 Air Quality Annual Status Report (ASR)

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

Date: June 2025

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Local Responsibilities and Commitment

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

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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. In a study completed by the UK Health Forum and Imperial College London, in collaboration with Public Health England (PHE), it is estimated that a 1 µg/m³ reduction in fine particulate air pollution in England could prevent around 50,900 cases of coronary heart disease, 16,500 strokes, 9,300 cases of asthma and 4,200 lung cancers over an 18-year period¹. The Committee on the Medical Effects of Air Pollution produced a study in 2009² that showed that air pollution was estimated to cause 29,000 to 43,000 deaths a year in the UK.

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. It is continuing to strengthen ties with Public Health professionals to further promote the link between poor health and air quality with an emphasis on targeted interventions for identified vulnerable populations.

¹ Health matters: air pollution, Public Health England, November 2028. Available at:

<https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution#how-air-pollution-harms-health>

² Long-Term Exposure to Air Pollution: Effect on Mortality, Committee on the Medical Effects of Air Pollutants (COMEAP), 2009. Available at:

https://assets.publishing.service.gov.uk/media/5a7480c4ed915d0e8bf18d05/COMEAP_long_term_exposure_to_air_pollution.pdf

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. PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.

Winchester City Council (WCC)'s administrative area is comprised of the city of Winchester. 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 (NO₂), 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 NO₂ objective and 24-hour mean Particulate Matter under 10 micrometres (PM₁₀) objective. The 24-hour PM₁₀ 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 NO₂ objective will also be revoked in 2025 due to continued compliance with the annual mean NO₂ objective over the last five years. Details relating to the revocation are in [Appendix G: Revocation Assessment of Winchester AQMA](#). Details of these AQMAs are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=314.

WCC currently undertake NO₂ 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 NO₂ within the

AQMA at all monitoring locations in 2024, with the highest concentration being 31.1 $\mu\text{g}/\text{m}^3$ at Site 25, Romsey Road (Opp West End Terrace) Uphill. It should be noted that no recorded concentrations are within 10% of the NO_2 annual mean objective ($>36 \mu\text{g}/\text{m}^3$), which demonstrates continued AQMA compliance in 2024 and supports the decision for revocation.

Between 2020-2024, a decreasing trend in NO_2 concentrations has generally been observed at all monitoring locations. There are some year-to-year variations in concentrations, which are likely due to meteorological influences outside of pandemic affected years. Due largely to the COVID-19 pandemic and the associated lockdowns, a significant decrease in monitored concentrations was also observed in 2020. In 2021, concentrations typically slightly increased compared to 2020 levels (albeit not back to pre-pandemic levels) largely due to the phased easing of national and local travel restrictions. Concentrations increased slightly again in 2022 compared to 2021 at some sites but decreased between 2022 and 2023. However, all 2024 concentrations were below the pre-pandemic 2019 concentrations.

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.

Before pursuing the revocation of the Winchester AQMA, 2024 data was analysed to ensure there was five consecutive years of compliance with the applicable air quality objective (AQO). Compliance with the annual mean NO_2 objective across the Winchester Town Centre AQMA has been achieved since 2020 but traffic patterns were potentially unrepresentative of longer-term trends due to Covid lockdowns of 2020 and 2021. Compliance was achieved in 2024 and the revocation process is now underway with expected implementation in 2025, subject to Defra's approval.

The Air Quality Action Plan (AQAP) for the AQMA was updated in 2017, which is more than five years ago. However, following correspondence with Defra, an updated AQAP is not intended due to the revocation of the remaining (Winchester Town Centre) AQMA. Work has instead concentrated on the development of a detailed Air Quality Strategy (AQS) for the entirety of the District of Winchester, accessible at <https://www.winchester.gov.uk/environment/air-quality>. This was adopted in early 2025. This AQS will look to adopt aspirational air quality targets for 2030 for both Particulate

Matter under 2.5 micrometres (PM_{2.5}) and NO₂ and 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 2024 in pursuit of improving local air quality. This includes the maintenance of ongoing measures described in the AQAP, many of which are stated in the 2025 AQS. Details of all measures completed, in progress or planned are set out in Table 2-2.2. WCC has also continued its involvement in the Burn Better Defra air quality grant funded project.

Defra's Environmental Improvement Plan³ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM_{2.5}), the pollutant of most harmful to human health. The Air Quality Strategy⁴ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁵ details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of AQMAs are designated due to elevated concentrations heavily influenced by transport emissions.

Conclusions and Priorities

All monitoring locations met the annual mean air quality objective of 40 µg/m³ in 2024. NO₂ concentrations decreased in 2024 at most of the monitoring locations compared to 2023. Furthermore, the majority of 2024 concentrations remain below pre-pandemic, 2019 levels.

Since the last ASR report (2024), WCC has worked on the following actions to improve air quality:

- Adoption of the new AQS for the District of Winchester;
- Maintenance of ongoing AQAP measures; and

³ Defra. Environmental Improvement Plan 2023, January 2023

⁴ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

⁵ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

- Ongoing work on the Burn Better project.
- Strengthen ties with public health professionals both at Hampshire County Council and Southampton University to further promote the wider understanding of the link between poor health and air quality including health inequalities.

WCC's priorities for the coming year include:

- Continued compliance with annual mean NO₂ objective across whole of the Winchester district;
- Assessment of local PM_{2.5} and PM₁₀ concentrations, including the development of a network of iMCERTS certified monitoring locations across the district
- Development and implementation of the 13 measures committed to within the AQS. Importantly this involves increased collaborative working with a wider and strengthen network of health and academic professionals

How to get Involved

WCC is committed to continued improvements in local air quality through its new AQS in early 2025. The AQS details the actions it will take to achieve aspirational local air quality targets for both NO₂ 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.

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1 Local Air Quality Management

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

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by 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.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMA declared by WCC can be found in Table 2-1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Winchester Town Centre AQMA	14/11/2003	NO2 Annual Mean	Area surrounded by the town centre one way system and the town centre end of the major roads feeding into it.	NO	Level of Exceedance was 58.4 µg/m3 in 2003	No exceedances. Highest level is 31.1 µg/m3	5 (2020, 2021, 2022, 2023, 2024)	Winchester City Council Air Quality Action Plan, May 2017	https://www.winchester.gov.uk/environment/air-quality/historical-air-quality-reports-for-government

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

☒ Winchester City Council confirm that all current AQAPs have been submitted to Defra.

. The table presents a description of the one AQMA that is currently designated within WCC. Appendix D provides maps of AQMA and also the air quality monitoring locations in

relation to the AQMA. The air quality objectives pertinent to the current AQMA designation are as follows:

- NO₂ annual mean

Compliance with the annual mean NO₂ annual mean objective across the AQMA has been achieved since 2020 but traffic patterns were potentially unrepresentative of longer-term trends due to Covid lockdowns of 2020 and 2021. Defra recommended that WCC wait for the data from 2024 before ensuring there is 5 years of acceptable compliance data. This compliance has now been achieved. Subsequently, WCC have pursued the revocation of this AQMA, which is anticipated to be completed in 2025. Detailed justification of the revocation is provided in **Appendix G: Revocation Assessment of Winchester AQMA**.

WCC adopted its new local AQS in early 2025 to prevent and reduce polluting activities and further improve air quality. This local AQS covers the period up to 2030 can be accessed at: <https://www.winchester.gov.uk/environment/air-quality>

Table 2-1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Winchester Town Centre AQMA	14/11/2003	NO ₂ Annual Mean	Area surrounded by the town centre one way system and the town centre end of the major roads feeding into it.	NO	Level of Exceedance was 58.4 µg/m ³ in 2003	No exceedances. Highest level is 31.1 µg/m ³	5 (2020, 2021, 2022,2023, 2024)	Winchester City Council Air Quality Action Plan, May 2017	https://www.winchester.gov.uk/environment/air-quality/historical-air-quality-reports-for-government

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

☒ Winchester City Council confirm that all current AQAPs have been submitted to Defra.

2.2 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 an induction on how these have been addressed this year have been included:

- There is limited evidence of an appropriate co-location study provided in the ASR. As such, it is not clear in Appendix C whether the appropriate methodology for calculating the local bias adjustment factor has been applied. Amendments to the bias adjustment factor utilised will impact all monitoring data for 2023. This should be reviewed immediately and further details included within Appendix C. Should there be a requirement to utilise the national bias adjustment factor, Site 23 – Romsey Road would be within 10% of the annual mean AQO for NO₂ and represent non-compliance within the AQMA. - *The Council have provided further clarification on the use of a local bias adjustment factor and the location of the triplicate monitoring site co-located with St Georges Street automatic monitor.*
 - *This recommendation has been taken on board in the 2025 ASR and has been included within the QA/QC section.*
- Minimal Funding Status and costing information is included within Table 2.2. Please add more information in future ASRs where possible.
 - *This recommendation has been taken on board in the 2025 ASR. WCC have chosen to prioritise developing their new local AQS in 2024, which will supersede the existing AQAP and measures in Table 2.2.*
- Measures to address PM_{2.5} are detailed within the ASR. Links are discussed in regard to the Public Health Outcomes Framework and fraction of mortality attributable to PM_{2.5} emissions. Comparisons to the national average as well as a trend analysis over time is included. This is welcomed and is encouraged to be included in all future reports.
 - *This recommendation has been taken on board in the 2025 ASR in Section 2.3.*
- The Local Authority are encouraged to include details of Local Engagement and how the public can get involved with managing air quality in future ASRs.

- *This recommendation has been taken on board in the 2025 ASR. WCC are currently exploring ideas to improve local engagement with the public through the AQS. An update on progress will be provided in next year's ASR.*
- The ASR Table Template spreadsheet has not been completed. This should be completed for future ASRs to ensure consistency.
 - *This recommendation has been taken on board in the 2025 ASR. The updated ADES and DTDES spreadsheets have been completed alongside the ASR.*
- Information regarding monitoring locations has not been provided in full in Tables A.1 and A.2. Including distance to kerb, distance to relevant exposure and diffusion tube height. All diffusion tube inputs should be reviewed in future ASRs to ensure consistency and adherence to the siting requirements for LAQM purposes.
- Trends of annual mean NO₂ concentrations are clearly presented in detail and discussed and a robust comparison with air quality objectives is provided.
- Maps of the diffusion tube network are clear and comprehensive, showing the AQMA boundaries and monitoring undertaken in this area.

WCC has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2-2.

Generally, WCC's main priority has been to continue working on ongoing measures as part of the existing AQS and transitioning these actions so they are deemed relevant and supported by the updated AQS- adopted in early 2025.

Eighteen measures are included within Table 2-2, with the type of measure and the progress WCC has made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2-2. More detail on these measures can be found in the AQAP.

Key completed measures are:

- Continued employment of a dedicated Sustainable Travel Planning Officer;
- Continuation of the Winchester Travel Planners Forum to help inform policies to assist major employers in the development of sustainable travel policies;

- Continued use of differential car parking charges based on zoning;
- Development of an updated AQS, formally adopted by the Council in March 2025.

Since these measures are now out of date, there is no significant progress to note from the reporting year as WCC's main priority was to proceed with the development of their new local AQS and revocation of their AQMA. However, actions with ongoing commitment developed in accordance with the AQAP have been supported in the AQS adopted by the Council in March 25. For more information see the action plan in Appendix 1 to the AQS that summarises the 13 proposed actions and timescales.

Due to the proposed revocation of Winchester Town Centre AQMA, the AQAP priorities will are not being taken forward into 2025, and the newly published AQS will set out new priorities for air quality in WCC in coming years. These include:

- Continued compliance with annual mean NO₂ objective across the whole of the Winchester district,
- Assessment of local PM_{2.5} and PM₁₀ concentrations including the development of a network of iMCERTS certified monitoring locations across the district, and,
- Revocation of the Winchester Town Centre AQMA.

WCC worked to implement these measures in partnership with the following stakeholders during 2024:

- Hampshire County Council; and
- Neighbouring local authorities, including Southampton, New Forest and Eastleigh,
- Local businesses and academic institutes through new developing networks such as Clean Air South (<https://wessexhealthpartners.org.uk/our-work/our-programmes/5/clean-air-south-network>).

The principal challenges and barriers to implementation that WCC anticipates facing are concerns around reduced funding and resources due to the withdrawal of current Defra air quality grants. In addition, the current devolution process within Hampshire currently presents challenges to long term strategic planning.

The top three measures are displayed in Table 2-2, in yellow. These are primarily aligned with the priorities of the AQS and have been determined in part due to their likelihood of implementation.

Table 2-2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Build on existing car park pricing differentiation strategy	Traffic Management	Other	2017	Ongoing	WCC - Engineering & Transport & Parking Services	Local Authority	N	N/A	NA	Planning	2% reduction in NOx emissions	Annual Mean NO ₂ ; Car park patronage; preferential responses	This measure has already been implemented since April 2018 and have since demonstrated strong trend toward an uptake in use of the P&R sites and a consequential freeing up of city centre parking capacity. All P&R sites are now at operating at near capacity during the week. Since Covid there has been a shift in parking patterns away from commuter traffic, affecting P&R and Park & Walk (P&W) occupancy rates, which are no longer at capacity. Conversely city centre car parks remain at or near capacity from short stay visitors accessing city amenities. In order to discourage parking within the AQMA, the Council has adopted a more robust differential pricing approach between the City Centre Car parks and the outer lying P&R and Park & Walk sites. The cost of parking in city centre car parks was increased in 2021 and will again be increased in July of 2023, whilst the P&R and P&W sites have had no corresponding increase in charges. Further, in October 2022, the first hour of parking in the P&W sites was made free, whilst the first 30 mins of city centre 'on street' parking now attracts a fee, when previously it was free. Sunday charges now reflect the same tariffs as the other days of the week, but some P&R and all P&W sites will be free all day. Work towards this measure continued in 2024.
2	Review enforcement of goods deliveries by time of day and enforce	Freight and Delivery Management	Quiet & out of hours delivery	2017	Ongoing	WCC - Parking services	Local Authority	N	N/A	NA	Planning	2% reduction in NOx emissions	Annual mean NO ₂ ; PCNs issued; Change in delivery hours	Adopted to encourage a smooth traffic flow through the one-way system during peak periods. After an initial targeted data gathering and enforcement programme by the CEOs several parking tickets have been served. These waiting restrictions are actively enforced by the Council's Civil Parking Enforcement Officers. In 2019 we issued 56 Penalty Charge Notices (PCNs) to all class of vehicles contravening the loading/unloading restrictions in the city centre. In 2020 it was 48. 2021/22 data shows an increase in PCN's being issued, between 1/4/2021 and 31/3/2022 we issued 68 PCNs. Work towards this measure continued in 2024.
3	Introduce a Park and Ride site in the north of Winchester	Alternatives to private vehicle use	Bus based Park & Ride	2017	TBC	WCC but informed by City of Winchester Movement Strategy	Local Authority	N	N/A	NA	Planning	3% reduction in NOx emissions	Bus patronage; Traffic flow; Use and satisfaction of P&R	The Winchester Movement Strategy was adopted by WCC on 25 March 2019 see: https://www.hants.gov.uk/transport/transport schemes/winchester-movement-strategy. The opportunity to implement such a scheme is currently being assessed as part of a proposed major redevelopment to the North of the City. The developing local plan is looking to provide potential policy support for a park and ride site to the North of Winchester. Consultation on the draft Regulation 18 Local Plan was carried out in November 2022 – January 2023. Meanwhile, the City Council has completed an extension to the East Park and ride site having opened a new multi-storey car park in May 2022, providing an additional 287 spaces and additional 16 EV charging points Work towards this measure continued in 2024.
4	Introduce new parking charges/incentives to reduce diesel car parking and high pollution petrol cars (older than Euro 4) from parking in central car	Traffic Management	Emission based parking or permit charges	2017/18	N/A	WCC – Parking Services Engineering & Transport	Local Authority	N	N/A	NA	Planning	10% reduction in NOx emissions	Traffic flow and speed; Increase in petrol/ULEVs using car parks; Preferential responses	The Council has now introduced the 'Electric Vehicle Charging Strategy' as part of Measure 11 below but it also supports Measure 4. At the March 2022 Cabinet Meeting, Councillors agreed that changes to parking tariffs in Winchester Town be advertised and implemented in October 2022. The project seeks to adopt 'smart' ticket machine technology to implement differential charging tariffs for higher polluting vehicles, primarily diesels has been temporarily put on hold, with new parking tariffs being adopted to discourage parking within the AQMA. A 6-week consultation was undertaken in Summer 2022.

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									
	parks in favour of low emission vehicles													Full details of the Cabinet decision and associated documents can be found here . However, since the advent of the 'Cost of Living Crisis' members have decided not to action this measure and have instead pursued a different pricing strategy of increasing the pricing differential between city centre car parks and outer P&R/P&W parking as cited in Measure 1, above.									
5	'Investigate the feasibility of introducing a CAZ for heavy duty vehicles that enter the AQMA, which do not meet Euro VI Standards (amended)	Promoting Low Emission Transport	Low Emission Zone (LEZ)	2017	Ongoing, unlikely to be a CAZ option pursued	WCC	Local Authority	N	N/A	NA	Planning	10% reduction in NOx emissions	Annual mean NO ₂ ; Number of Euro VI entering AQMA; PCNs issued	It has now been determined that the WCC cannot 'ban' non Euro VI heavy duty vehicles from entering the city. Thus, the measure has been reworded from 'ensure' to 'investigate the feasibility of introducing a CAZ'. The feasibility of alternative measures, such as bus retrofitting, freight consolidation centres, restrictions on last mile HGV deliveries and the use of bus gates, are to be investigated as part of the Movement Strategy.									
6	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	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	2017	Completed	WCC	Local Authority	N	N/A	NA	Planning	2% reduction in NOx emissions	Low emission vehicles in fleet; Number of trips entering AQMAs	<table><tr><th>Vehicle type</th><th>Age on first licence</th><th>Max end of life age</th></tr><tr><td>Conventional</td><td><5 years</td><td>12 years</td></tr><tr><td>EV and Hybrid</td><td><8 years</td><td>15 years</td></tr></table> The Council no longer operates a staff car leasing scheme.	Vehicle type	Age on first licence	Max end of life age	Conventional	<5 years	12 years	EV and Hybrid	<8 years	15 years
Vehicle type	Age on first licence	Max end of life age																					
Conventional	<5 years	12 years																					
EV and Hybrid	<8 years	15 years																					
7	Development of air quality supplementary planning document (SPD)	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2017	Completed	WCC	Local Authority	N	N/A	NA	Planning	N/A	Annual Mean NO ₂ ; Planning applications showing regard for SPG	The Air Quality Supplementary Planning Document has now been adopted and is in use by the Planning Department. Key elements of this document are likely to be rolled out within the proposed air quality planning guidance as part of the proposed AQS and new local plan. This is a key priority that was taken forward in the AQS.									
8	Continue to work with and lobby Hampshire County Council to identify projects to improve air quality	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2017	Ongoing	WCC/HCC	Local and County Authority	N	N/A	NA	Planning	N/A	Annual Mean NO ₂	The Winchester Movement Strategy was adopted by WCC on 25 March 2019 see: https://www.hants.gov.uk/transport/transport schemes/winchester-movement-strategy. Which consider air quality and a regional SPD (if appropriate. This action is ongoing through the Winchester Movement Strategy mechanism. Improvement to walking and cycling have been consulted on – see https://www.hants.gov.uk/transport/transport schemes/atfwinchesterimprovements Work towards this measure continued in 2024.									
9	Monitor the performance of the action plan and reassess whether additional measures are required to	Public Information	Other	2017	Ongoing	WCC	Local Authority	N	N/A	NA	Planning	See Core Actions	Annual mean NO ₂ ; Modelling of actual emissions reductions	To be undertaken as part of annual reporting requirements and data from monitoring at static monitoring sites Although the 2017 AQAP is now beyond its 5 Year term, the 2020 – 2023 air quality data sets strongly indicate full compliance with national standards across the AQMA. Winchester has sought Defra's approval to defer its decision to Spring of 2025, on whether to revoke the AQMA or adopt a new AQAP, after having another year's worth of data.									

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
	meet the objective													As of early 2025, the updated AQS has been adopted and the revocation of Winchester Town Centre AQMA is proceeding as planned.
Additional Measures														
10	Work with authorities towards adoption of a regional LES	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2017	Ongoing, but unlikely to be implemented	WCC with SCC, EBC	Local Authority	Y - Clean Burn project	Phase 1 - In Place	Clean Burn Project approx. £200,000- across the 4 local authorities	Planning	N/A	Adoption of strategy	WCC currently chairs the Hampshire Air Quality Group a collective of air quality regulators across the County, including PHE, Local authorities and Hampshire County Council (health, transport and travel planning). WCC continues to work with other local authorities on the promotion of a Domestic Clean Burn Project (targeting solid fuel combustion and bonfires) funded by Defra. This is led by Southampton City Council but involves partners in Eastleigh, New Forest and Winchester Councils and is being delivered by the Southampton Environment Centre. See https://environmentcentre.com/wood-burning-engagement-launch/
11	Seek to commit to introduce more electric vehicle charging points within car parks	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2017	Completed	Local Authority	Number of points installed	N	N/A	N/a	Implemented	N/A	Number of points installed	In March 2020, Winchester City Council allocated a budget of £120k to implement in the part JoJu's feasibility study to part fund 30 fast 22kWh chargers and for JoJu to fully fund 2 rapid 50kWh chargers. Full programme of electric charging points (mainly in council car parks across the district) has now been delivered. To date, 33 EVCPs across WCC Public Car Parks, including 1 Rapid charger have been installed. Work is proposed as part of the Carbon reduction programme to apply for Government LEVI funding for EVCPs in Parish Council and Community Hall car parks in the rural parishes.
12	Ensure that air quality is a standard consideration as part of procurement practice and is reflected in the Council's Procurement Policy	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2017	Completed	WCC	Local Authority	N	N/A	N/a	Planning	See Core Action 6	Adoption of procurement policy; Uptake of LEVs (as per core action)	A new 2020-2025 Procurement Strategy has been adopted to include Social and Environmental considerations when procuring services. In response to the Climate Emergency declaration in June 2019, one of the aims of the strategy will be to require social and environmental factors to be considered in all procurements.
13	Continue 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.	Public Information	Via other mechanisms	2017	Ongoing	WCC/HCC	Local Authority	N	N/A	NA	Planning	N/A	Utilisation of central car parks	Currently in Winchester city centre, Hampshire County Council manages the ROMANSE system (https://www.romanse.org.uk/winchester.htm) which also includes digital signs which denote specific car parks and the number of available spaces therein. Due to technological improvements, further measures could include the introduction of individual bay sensors which are available from multiple suppliers such as: https://www.clearview-intelligence.com/products/m300-bay-occupancy-system . Work towards this measure continued in 2024.
14	To continue to work on the delivery and promotion of car club schemes operating in the city	Alternatives to private vehicle use	Car Clubs	Completed	Completed	WCC	Local Authority	N	N/A	NA	Implemented	N/A	Number of car club members	WCC now has a Car Club Scheme in city centre provided by Enterprise Car Club.

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
15	Consider the introduction and promotion of additional cycle stands, in consultation with local cycling groups, as part of planned developments in the AQMA	Promoting Travel Alternatives	Promotion of cycling	Ongoing	Ongoing	WCC	Local Authority	N	N/A	NA	Planning	N/A	Number of cycle parking; Number of cyclists as a modal share (through surveys)	This measure is part of the Parking and Access Strategy for the city centre. Measure has been impacted by potential road infrastructure changes coming out of detailed studies driven by the Winchester Movement Strategy. WCC has ordered lockers for the leisure park, and agreement is sought for the city centre locations. Trying to get a range of provision including secure /sheltered / can accommodate cycle trailer etc. Work towards this measure continued in 2024.
16	Work with stakeholder organisations and maintain a programme of regular communication to encourage behavioural change	Promoting Travel Alternatives	Other	Ongoing	Ongoing	WCC	Local Authority	N	N/A	NA	Planning	N/A	TBC	The City Council's Lead for Public protection currently organises and chairs the Hampshire Air Quality Action Group, which consists of various air quality officers from across the County and two Unitaries, as well as representatives from Public Health England, HCC Public Health Team, HCC Highways, HCC School Travel Planners. Work towards this measure continued in 2024.
17	Review and refresh the Council Travel Plan to promote more sustainable travel for staff	Promoting Travel Alternatives	Workplace Travel Planning	2017	2024	WCC	Local Authority	N	N/A	NA	Planning	N/A	Number of staff travelling to work by car (surveys)	WCC has set up a new Winchester Travel Planners Forum initially targeted at the major employers within Winchester, which includes WCC, HCC, Winchester University, Winchester Hospital and the Prison all of whom have members on the forum. In addition, we have members from Southampton University and links with the Southampton Travel Planners Network for a cross regional approach. The group has a Terms of Reference and is working towards a consistent collation of staff travel data to inform policies to assist major employers in the development of sustainable travel policies. Proposed to review Winchester's travel plan in 2023 as the legacy impacts of COVID driven changes in work practices become clearer (in particular level of home working). WCC has employed a new Travel Planning Officer and this review will form part of their remit.
18	Provide web based information and sign posting to resources that will assist and encourage workplaces and schools in the City to adopt Travel Plans	Promoting Travel Alternatives	Workplace Travel Planning	2017	Completed	WCC	Local Authority	N	N/A	NA	Planning	N/A	Number of travel plans adopted	My Journey Hampshire has already been established and provides a body of useful information. The Winchester Travel Planners Forum will work with this site to ensure that it provides the right advice for travel planning for individuals and businesses in Winchester and wider district. WCC employed a Sustainable Transport Officer in 2022.

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy⁶, 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 2011-2022, 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. Between 2011 and 2022, 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 2022, Winchester's indicator again remained below the national average expect for the years 2018 and 2020.

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

- Measures include working with Public Health colleagues, adopting transport initiatives included in The Local Transport Plan for Hampshire and local planning policies supporting the implementation of the Winchester AQAP.
- WCC is also involved in the Defra grant funded Better Burn project that is led by Southampton City Council but includes Eastleigh, Winchester, and New Forest Councils. As part of the Better Burn campaign, WCC has engaged with Southampton University air quality experts, led by Dr Christina Vanderwel, to analyse the data sets obtained from low-cost sensors, such as Earthsense Zephyrs®, to establish robust scientific learnings and public engagement messaging (completed in summer 2024).
- WCC regularly collaborates with the Director of Public Health and representatives from the Hampshire-wide air quality group to tackle air quality on a more regional basis, with specific reference to transboundary pollutants such as PM_{2.5}.

⁶ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

Separately, the Clean Air South network⁷ operates in parallel to the Hampshire air quality group and provides an additional platform for regional coordination on air quality issues.

- The AQS was adopted in early 2025. The AQS has associated work programmes in place to reach the aspirational PM_{2.5} target for 2030.

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

WCC undertook automatic (continuous) monitoring at two sites during 2024. All sites included NO₂ monitoring, with St George's Street additionally monitoring for PM₁₀ and PM_{2.5}. 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 at <https://uk-air.defra.gov.uk/data/>.

WCC also commissioned an indicative AQMesh monitor on 23rd December 2021, see Appendix F: Indicative Monitoring for more details on indicative monitoring completed in WCC. This was decommissioned on 31 December 2024 and will be replaced by a network of iMERTS analysers towards the end of 2025.

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.

⁷ Accessible at: <https://wessexhealthpartners.org.uk/our-work/our-programmes/5/clean-air-south-network>

3.1.2 Non-Automatic Monitoring Sites

WCC undertook non- automatic (i.e. passive) monitoring of NO₂ at 32 sites during 2024 in line with the Defra's 2024 Diffusion Tube Monitoring Calendar⁸. Table A.2 in Appendix A: Monitoring Results presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D: Map(s) of Monitoring Locations and AQMAs. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustment and any other adjustments applied (e.g. annualisation and distance correction), are included in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 and Table A.4 in Appendix A: Monitoring Results compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. 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 2024 dataset of monthly mean values is provided in Appendix B: Full Monthly Diffusion Tube Results for 2024. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A: Monitoring Results compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

⁸ <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-monitoring-calendar/>

Across both continuous and passive monitoring sites, all locations met the annual mean objective of $40 \mu\text{g}/\text{m}^3$. The highest monitored concentration in 2024 was $31.1 \mu\text{g}/\text{m}^3$ at Site 25, Romsey Road (Opp West End Terrace) Uphill. This site is within the existing Winchester Town Centre AQMA (due to be revoked in 2025) shown in Appendix D. The elevated concentrations at this location are thought to be related 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, across the City studies over the last five years, concentrations are declining overall, as demonstrated in Figure A.1. This tends to indicate that the actions and measures within the existing AQAP are having a positive effect, alongside behavioural change associated with the pandemic. At all of the monitoring locations, the 2024 concentrations were below the pre-pandemic 2019 concentrations, indicating there is a continuing long-term declining trend in concentrations.

At most sites, concentrations decreased between 2023 and 2024 with the exception of Site 10 (Jewry St) where concentrations increased marginally by $0.3 \mu\text{g}/\text{m}^3$ from 2023 to 2024, and at Site 28, Bus Station, where an increase of $2.7 \mu\text{g}/\text{m}^3$ from $13.0 \mu\text{g}/\text{m}^3$ to $15.7 \mu\text{g}/\text{m}^3$ was recorded.

There were no recorded instances at diffusion tube monitoring sites of annual means greater than $60 \mu\text{g}/\text{m}^3$, 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.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of $200 \mu\text{g}/\text{m}^3$, not to be exceeded more than 18 times per year. There were no instances where the 1-hour mean was greater than $200 \mu\text{g}/\text{m}^3$, and so this objective was therefore not exceeded.

See Table F.2 and Table F.3 for details on the NO_2 results at the indicative monitor, Twyford AQMesh.

3.2.2 Particulate Matter (PM_{10})

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

40µg/m³, with results indicating this objective has consistently been met. The annual mean concentration for 2024 was 13.9 µg/m³ at St George's Street with 99.2% data capture.

Table A.7 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past five years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year. In 2024, the daily mean was greater than 50 µg/m³ once at St George's Street, which well within the number of days permitted by the objective.

See Table F.4 and Table F.5 for details on the PM₁₀ results at the indicative monitor, Twyford AQMesh, though conclusions around compliance should not be derived from these data.

3.2.3 Particulate Matter (PM_{2.5})

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

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/m³, Table A.8 indicates this is being achieved within Winchester district. The annual mean concentration for 2024 was 8.5 µg/m³ at St George's Street with 99.9% data capture.

The data captured would indicate that the new Environmental Target for PM_{2.5} of 10 µg/m³ is already being met at St George's Street, against the target date of 2040.

See Table F.6 for details on the PM_{2.5} results at the indicative monitor, Twyford AQMesh, though conclusions around compliance should not be derived from these data.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? ⁽¹⁾	Monitoring Technique	Distance to Relevant Exposure (m) ⁽²⁾	Distance to kerb of nearest road (m) ⁽¹⁾	Inlet Height (m)
St George's Street	St George's Street	Roadside	448062	129537	NO ₂ , PM ₁₀ , PM _{2.5}	YES	Winchester Town Centre AQMA	Chemiluminescent	0.0	2.3	2.2
Romsey Road	Romsey Road	Roadside	447544	129543	NO ₂	YES	Winchester Town Centre AQMA	Electrochemical	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	Yes	0.0	5.6	No	1.7
Site 2	Greyfriars	Roadside	448566	129560	NO ₂	Yes	0.0	9.7	No	1.8
Site 3	Friarsgate	Roadside	448426	129523	NO ₂	Yes	4.6	4.3	No	2.4
Site 4	Upper Brook St (Echo Office)	Roadside	448227	129504	NO ₂	Yes	9.2	8.0	No	2.5
Site 5, Site 6, Site 7	Roadside Monitor (St Georges St)	Roadside	448063	129537	NO ₂	Yes	0.0	3.0	Yes	1.6
Site 8	St Georges St (Bedshop)	Roadside	448106	129541	NO ₂	Yes	0.0	4.1	No	2.5
Site 9	St Georges St (Bet Fred)	Roadside	448163	129512	NO ₂	Yes	0.0	3.6	No	2.4
Site 10	Jewry St	Roadside	448046	129692	NO ₂	Yes	0.0	4.1	No	2.4
Site 11	Southgate St (Hotel Du Vin)	Roadside	447918	129413	NO ₂	Yes	0.0	3.7	No	2.6
Site 12	Sussex St	Roadside	447804	129741	NO ₂	Yes	2.4	3.6	No	2.6
Site 13	City Road	Roadside	447963	129875	NO ₂	Yes	0.0	6.6	No	3.0
Site 14	74 Northwalls	Roadside	448297	129789	NO ₂	Yes	10.2	3.7	No	2.3
Site 15	Wales St	Roadside	448842	129820	NO ₂	Yes	0.0	1.7	No	2.5
Site 16	Alresford Rd (M3)	Other	449563	129439	NO ₂	Yes	24.0	NA (M3)*	No	1.5
Site 17	Chesil St	Roadside	448679	129068	NO ₂	Yes	0.0	1.3	No	2.6
Site 18	Stockbridge Rd	Roadside	447534	130006	NO ₂	Yes	10.0	5.4	No	2.0
Site 19, Site 20, Site 21	Worthy Rd 3	Roadside	448092	130411	NO ₂	Yes	3.7	2.2	No	2.5
Site 22	St Cross Rd	Roadside	447847	129053	NO ₂	Yes	6.0	2.4	No	2.1

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
Site 23	Romsey Road (opp Clifton Rd) Uphill	Roadside	447605	129545	NO ₂	Yes	0.0	1.7	No	2.2
Site 24	Romsey Road (opp Clifton Hill - Old site) Uphill	Roadside	447495	129511	NO ₂	Yes	0.0	1.1	No	2.5
Site 25	Romsey Road (Opp West End Terrace) Uphill	Roadside	447444	129495	NO ₂	Yes	2.3	1.7	No	2.2
Site 26	Romsey Road (opp Knights Quarter) Uphill	Roadside	447315	129454	NO ₂	Yes	2.4	2.0	No	2.2
Site 27	Andover Rd	Roadside	447898	130065	NO ₂	Yes	0.0	4.2	No	2.2
Site 28	Bus Station	Other	448427	129401	NO ₂	Yes	NA**	NA***	No	2.4
Site 29	Romsey Rd (Air Quality Station) Downhill	Roadside	447519	129531	NO ₂	Yes	NA	1.8	No	1.8
Site 30	Romsey Road (Clifton Terrace) Downhill	Roadside	447635	129565	NO ₂	Yes	NA	2.4	No	2.4
Site 31	Romsey Road (Knights Quarter) Downhill	Roadside	447344	129476	NO ₂	Yes	NA	1.4	No	2.1
Site 32	Kingsworthy (old district site)	Roadside	449653	132670	NO ₂	Yes	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 26m.

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

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

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
St George's Street	448062	129537	Roadside	96.9	96.9	26.9	27.0	28.5	27.0	24.6
Romsey Road	447544	129543	Roadside	99.7	99.7	32.0	32.0	21.0	19.0	15.9

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

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

☒ Where exceedances of the NO₂ annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2024.

Notes:

The annual mean concentrations are presented as µg/m³.

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

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

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

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

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

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
Site 1	448563	129391	Roadside	83.0	83.0	19.6	20.0	20.3	18.4	17.1
Site 2	448566	129560	Roadside	99.7	99.7	18.8	18.9	19.0	16.5	15.6
Site 3	448426	129523	Roadside	99.7	99.7	15.8	17.1	16.7	15.1	13.5
Site 4	448227	129504	Roadside	99.7	99.7	20.6	21.3	26.0	19.9	18.3
Site 5, Site 6, Site 7	448063	129537	Roadside	92.5	92.5	25.9	27.2	29.2	26.9	24.8
Site 8	448106	129541	Roadside	92.5	92.5	29.2	30.8	30.7	28.5	27.1
Site 9	448163	129512	Roadside	99.7	99.7	29.3	28.5	28.7	27.6	25.2
Site 10	448046	129692	Roadside	99.7	99.7	22.7	24.2	24.8	18.1	18.4
Site 11	447918	129413	Roadside	90.0	90.0	21.2	20.1	21.7	22.0	20.8
Site 12	447804	129741	Roadside	99.7	99.7	18.9	21.7	22.3	19.9	17.9
Site 13	447963	129875	Roadside	99.7	99.7	21.0	21.0	21.9	19.6	18.9
Site 14	448297	129789	Roadside	92.2	92.2	17.8	17.6	17.6	16.7	15.7
Site 15	448842	129820	Roadside	99.7	99.7	18.7	18.3	20.8	18.0	16.6
Site 16	449563	129439	Other	99.7	99.7	21.5	22.8	23.8	18.9	18.8
Site 17	448679	129068	Roadside	99.7	99.7	23.7	29.5	28.2	23.8	21.9
Site 18	447534	130006	Roadside	90.3	90.3	13.1	13.2	13.7	12.2	11.1
Site 19, Site 20, Site 21	448092	130411	Roadside	99.7	99.7	15.4	15.5	15.9	14.4	13.0
Site 22	447847	129053	Roadside	90.0	90.0	14.4	16.4	18.9	18.8	16.3
Site 23	447605	129545	Roadside	89.8	89.8	33.6	32.2	27.8	34.7	28.6
Site 24	447495	129511	Roadside	99.7	99.7	30.9	30.9	33.0	27.8	27.2
Site 25	447444	129495	Roadside	92.2	92.2	40.8	36.5	38.1	33.3	31.1
Site 26	447315	129454	Roadside	92.2	92.2	30.3	30.4	31.2	29.3	25.9
Site 27	447898	130065	Roadside	90.0	90.0	20.8	22.0	21.1	19.2	17.9
Site 28	448427	129401	Other	75.0	75.0	15.2	15.6	15.1	13.0	15.7
Site 29	447519	129531	Roadside	99.7	99.7	-	-	-	17.7	16.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
Site 30	447635	129565	Roadside	89.8	89.8	-	-	-	20.4	18.3
Site 31	447344	129476	Roadside	99.7	99.7	-	-	-	18.7	16.7
Site 32	449653	132670	Roadside	99.7	99.7	-	-	-	22.8	21.3

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

☒ Diffusion tube data has been bias adjusted.

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

Notes:

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

Exceedances of the NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 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%).

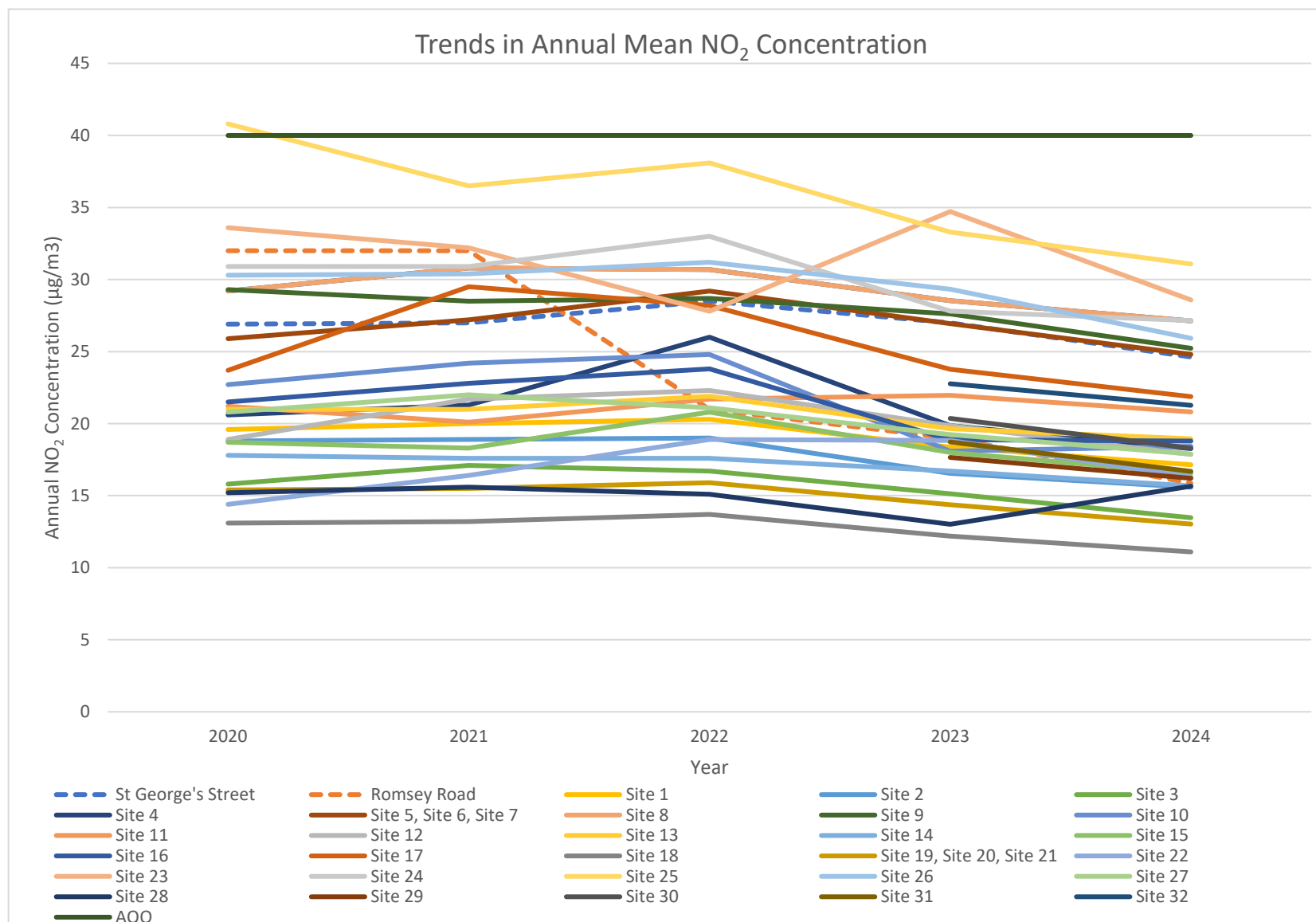
Figure A.1 – Trends in Annual Mean NO₂ Concentrations

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
St George's Street	448062	129537	Roadside	96.9	96.9	0	0	0	0	0
Romsey Road	447544	129543	Roadside	99.7	99.7	0	0	0	0	0

Notes:

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

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

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

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

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

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
St George's Street	448062	129537	Roadside	99.2	99.2	14.2	15.0	16.3	15.1	13.9

☒ **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/m³.

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

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

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

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

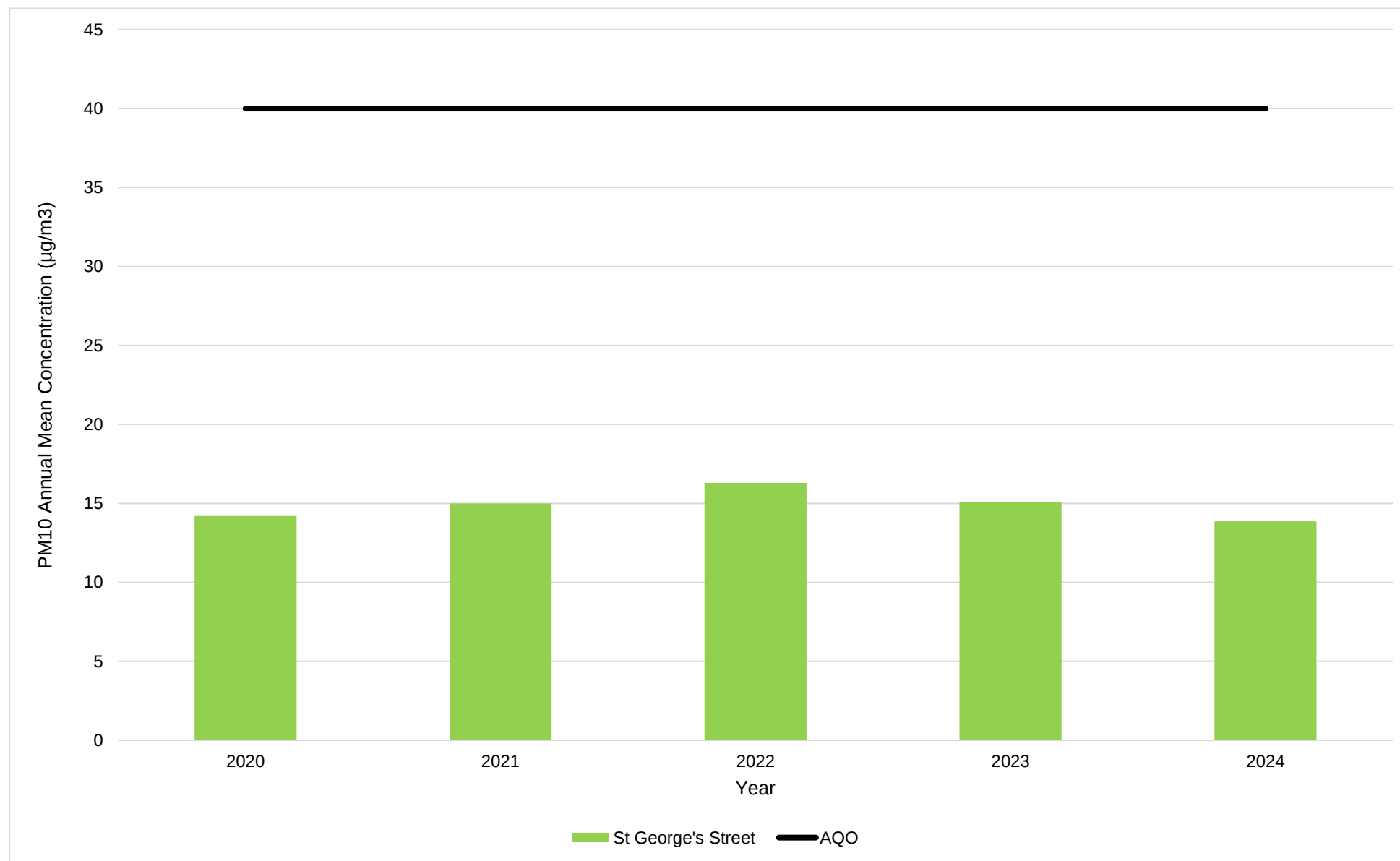
Figure A.2 – Trends in Annual Mean PM₁₀ Concentrations

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
St George's Street	448062	129537	Roadside	99.2	99.2	0	1	0	0	1

Notes:

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

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

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

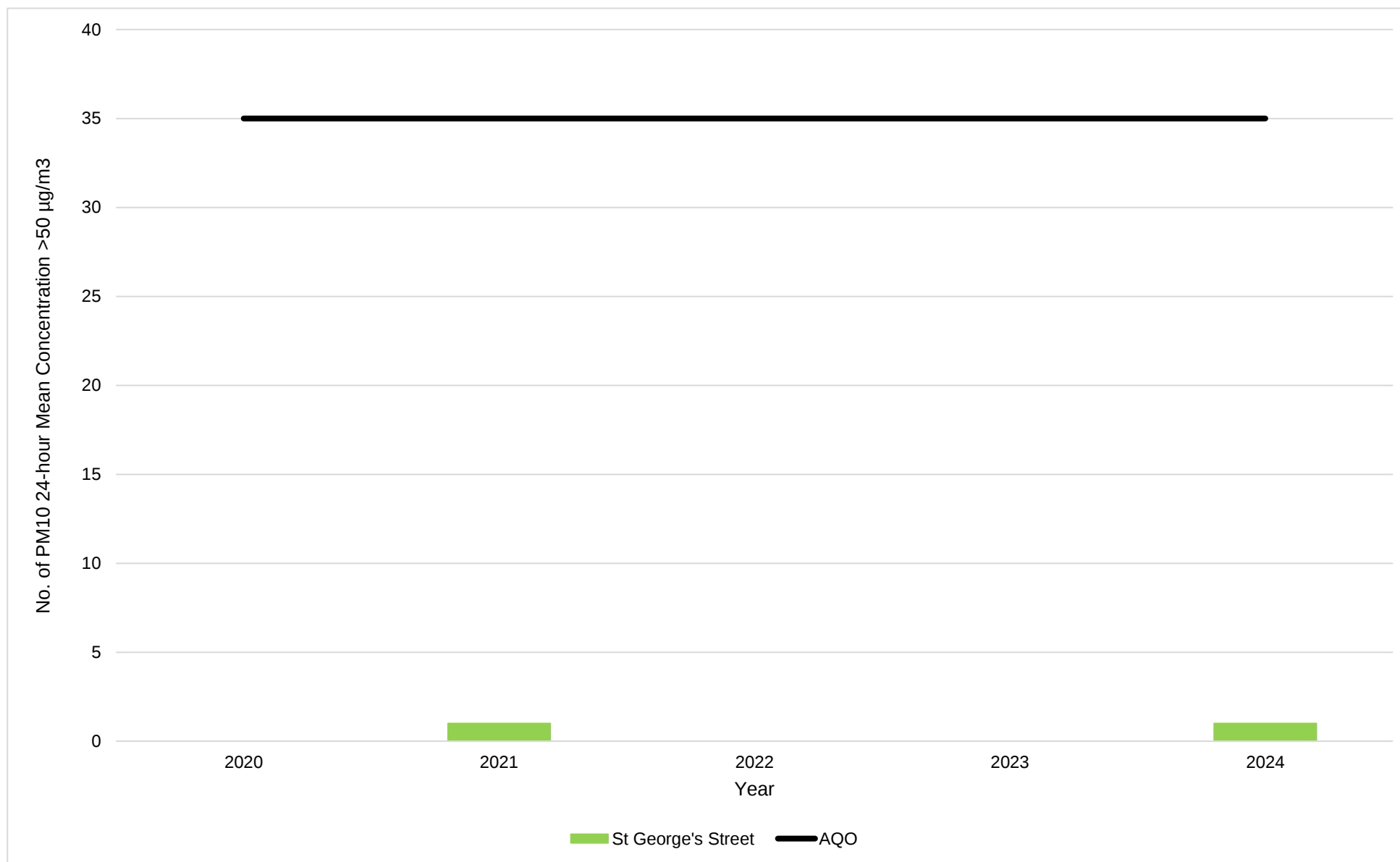
Figure A.3 – Trends in Number of 24-Hour Mean PM₁₀ Results > 50µg/m³

Table A.8 – Annual Mean PM_{2.5} Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
St George's Street	448062	129537	Roadside	99.9	99.9	9.0	9.0	10.3	8.8	8.5

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

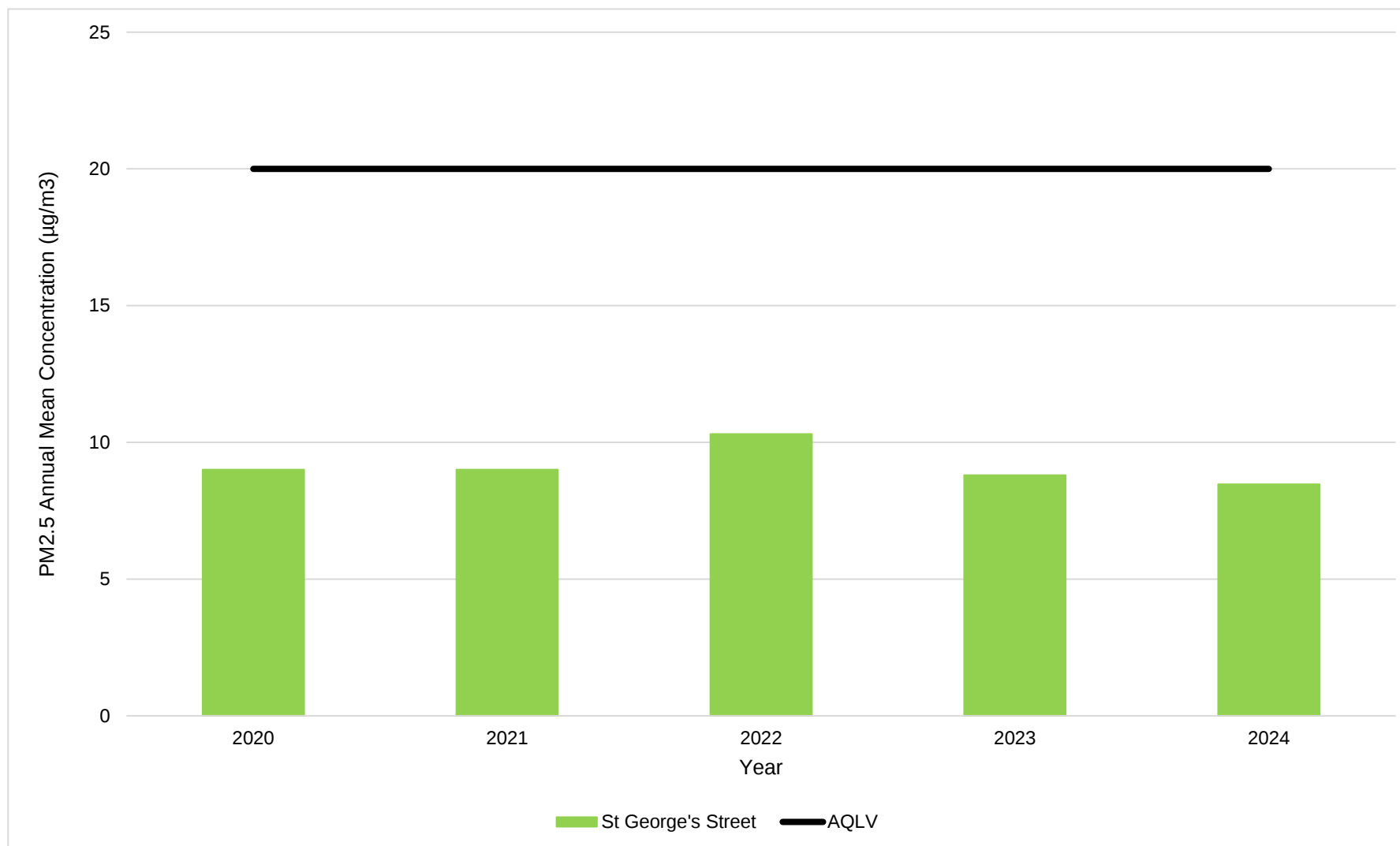
Notes:

The annual mean concentrations are presented as µg/m³.

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

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

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO₂ 2024 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.80)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Site 1	448563	129391	27.9	22.8	18.7			20.0	18.2	17.6	21.9	21.8	24.1	21.2	21.4	17.1		
Site 2	448566	129560	27.3	23.7	20.1	17.2	16.2	14.3	16.5	15.9	17.9	21.0	24.9	18.8	19.5	15.6		
Site 3	448426	129523	23.1	19.9	18.8	13.8	15.7	12.7	15.5	14.7	15.6	18.9	17.2	16.2	16.8	13.5		
Site 4	448227	129504	31.4	24.3	22.0	21.2	22.1	19.4	19.9	18.8	23.6	22.6	25.8	22.9	22.8	18.3		
Site 5, Site 6, Site 7	448063	129537	32.9	34.3	30.9	28.6	31.1	27.2	31.2	29.4		32.7	33.8	26.6	31.0	24.8		
Site 8	448106	129541	39.7	31.6	31.2		36.2	33.2	28.3	31.5	37.2	35.9	36.7	31.6	33.9	27.1		
Site 9	448163	129512	34.0	35.0	35.1	29.0	30.7	27.7	30.9	31.0	32.5	29.3	33.6	29.6	31.5	25.2		
Site 10	448046	129692	32.1	24.7	22.4	21.9	20.7	20.8	18.1	19.3	23.4	23.3	28.9	20.5	23.0	18.4		
Site 11	447918	129413	29.3	27.7	26.9	23.4	26.2	21.6	24.5	22.5	23.5	28.5	32.0		26.0	20.8		
Site 12	447804	129741	28.2	23.8	21.9	21.7	21.2	18.3	19.8	17.4	22.1	25.1	27.8	20.6	22.3	17.9		
Site 13	447963	129875	27.6	27.5	25.6	21.7	21.0	21.5	21.1	22.6	21.3	24.4	25.6	24.4	23.7	18.9		
Site 14	448297	129789	23.9	24.2	20.5	15.5	17.1		18.3	16.4	16.4	21.0	22.3	20.0	19.6	15.7		
Site 15	448842	129820	27.9	23.1	21.0	18.9	19.7	16.4	18.3	17.2	19.5	21.8	27.5	17.0	20.7	16.6		
Site 16	449563	129439	27.7	25.3	24.4	20.5	25.9	22.6	23.9	21.1	23.1	23.2	26.9	17.2	23.5	18.8		
Site 17	448679	129068	32.3	28.2	27.1	24.1	26.8	24.8	25.4	25.2	27.9	26.9	32.4	27.0	27.3	21.9		
Site 18	447534	130006	22.0	15.9	12.8	11.9	13.0	10.1	11.1	10.3	14.9		17.0	13.6	13.9	11.1		
Site 19, Site 20, Site 21	448092	130411	24.0	21.5	17.7	12.9	13.6	11.6	14.4	13.8	15.0	18.1	19.0	16.3	16.3	13.0		
Site 22	447847	129053	27.6	25.2	22.3	18.3	19.6	16.0	17.4	14.9	19.0	21.2	22.7		20.4	16.3		
Site 23	447605	129545	38.3		36.4	36.3	37.5	37.2	36.3	32.4	35.3	33.8	37.7	31.8	35.7	28.6		
Site 24	447495	129511	39.3	33.5	36.5	30.8	35.4	31.4	32.6	30.4	35.5	39.5	34.0	28.5	33.9	27.2		
Site 25	447444	129495	41.5	42.8		40.2	35.1	41.7	39.6	37.9	36.0	39.5	38.3	34.8	38.9	31.1		
Site 26	447315	129454	38.1	36.8		30.8	32.7	26.8	30.8	27.6	33.3	35.4	33.3	30.9	32.4	25.9		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.80)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
Site 27	447898	130065	28.5	25.6	25.1	18.8	21.1	17.3	20.3	18.5	21.3	25.6	24.0		22.4	17.9		
Site 28	448427	129401	24.7	20.7	18.4	17.8	17.1			15.3		20.7	23.9	17.7	19.6	15.7		
Site 29	447519	129531	27.5	23.0	22.6	19.1	17.5	16.2	17.0	17.1	17.5	20.8	22.5	22.2	20.3	16.2		
Site 30	447635	129565	31.6		22.7	23.2	21.1	20.8	20.3	19.9	21.0	24.2	24.4	22.5	22.9	18.3		
Site 31	447344	129476	30.2	21.8	21.4	18.7	21.5	15.4	16.1	14.7	21.1	21.4	27.8	20.3	20.9	16.7		
Site 32	449653	132670	31.4	26.9	24.4	24.2	25.3	28.9	27.0	27.0	27.6	25.3	26.6	24.4	26.6	21.3		

- ☒ All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.
- ☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.
- ☒ Local bias adjustment factor used.
- ☐ National bias adjustment factor used.
- ☒ Where applicable, data has been distance corrected for relevant exposure in the final column.
- ☒ WCC confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Winchester City Council During 2024

WCC has not identified any new sources relating to air quality within the reporting year of 2024.

Additional Air Quality Works Undertaken by Winchester City Council During 2024

WCC has not completed any additional works within the reporting year of 2024. The two exceptions are development work on the newly adopted local AQS and work towards revoking the Winchester Town Centre AQMA, following five consecutive years of AQMA compliance.

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 AR056 (May – June 2023) – 100%
- AIR-PT AR058 (July – August 2023) – 100%
- AIR-PT AR059 (September – October 2023) – 100%
- AIR-PT AR062 (January – February 2024) – 100%
- AIR-PT AR063 (April – June 2024) – 100%

All tubes were collected and stored in a fridge and subsequently analysed by Gradko within the advised shelf life of the tube.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within WCC recorded data capture of 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method, shown in Figure C-1.

Figure C-1 National Diffusion Tube Bias Adjustment Factor Spreadsheet v03/25

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 03/25				
Follow the steps below in the correct order to show the results of relevant co-location studies										
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.										
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:		Step 2:		Step 3:		Step 4:				
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List		Select a Year from the Drop-Down List		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 ⁵ shown in blue at the foot of the final column.				
If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.		If a year is not shown, we have no data ³		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 ² To undo your selection, choose (All) from the pop-up list	Year ³ To undo your selection, choose (All)	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m ³)	Automatic Monitor Mean Conc. (Cm) (µg/m ³)	Bias (B)	Tube Precision ⁴	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2024	R	Plymouth City Council	12	31	23	33.4%	S	0.75
Gradko	20% TEA in water	2024	R	Monmouthshire County Council	12	29	24	19.4%	G	0.84
Gradko	20% TEA in water	2024	KS	Marylebone Road Intercomparison	11	41	36	16.1%	G	0.86
Gradko	20% TEA in water	2024	R	Lisburn & Castlereagh City Council	12	24	19	27.8%	G	0.78
Gradko	20% TEA in water	2024	R	Ardara North Down Borough Council	11	28	20	44.5%	G	0.69
Gradko	20% TEA in water	2024	R	Eastleigh Borough Council	12	29	24	20.3%	G	0.83
Gradko	20% TEA in water	2024	UB	Eastleigh Borough Council	12	19	17	12.4%	G	0.89
Gradko	20% TEA in water	2024	R	Eastleigh Borough Council	12	19	17	12.0%	G	0.89
Gradko	20% TEA in water	2024	R	Gateshead Council	12	20	18	13.3%	G	0.88
Gradko	20% TEA in water	2024	R	Gateshead Council	11	20	17	19.7%	G	0.84
Gradko	20% TEA in water	2024	R	Gateshead Council	12	24	20	21.7%	G	0.82
Gradko	20% TEA in water	2024	R	Gateshead Council	12	27	23	19.0%	G	0.84
Gradko	20% TEA in water	2024	R	Gateshead Council	12	28	30	-6.0%	G	1.06
Gradko	20% TEA in water	2024	R	Brighton & Hove City Council	11	34	27	26.3%	G	0.79
Gradko	20% TEA in water	2024	R	Liverpool City Council	12	34	25	35.7%	G	0.74
Gradko	20% TEA in water	2024	KS	Liverpool City Council	10	52	47	10.2%	G	0.91
Gradko	20% TEA in water	2024	R	Nottingham City Council	10	29	26	12.2%	G	0.89
Gradko	20% TEA in water	2024	R	Wychavon District Council	10	29	26	14.7%	G	0.87
Gradko	20% TEA in water	2024	R	Worcestershire	12	12	12	-3.4%	G	1.04
Gradko	20% TEA in water	2024	Overall Factor ⁵ (27 studies)					Use		0.84

WCC have applied a local bias adjustment factor of 0.80 to the 2024 monitoring data and calculated a national bias adjustment factor of 0.84 as shown in Figure 4-1. The automatic monitoring site at St George's Street, was used to calculate the local bias adjustment factor. Further details are presented in Table C.2. The automatic monitor at St George's

Street had very good data capture for 2024 (11 out of 12 months had a data capture > 90%) and a low overall co-efficient of variation (good precision). It was decided on this basis that the local bias adjustment factor would be considered most representative of local conditions and hence was applied to the 2024 data. A summary of bias adjustment factors used by WCC over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	Local	-	0.80
2023	Local	-	0.77
2022	Local	-	0.82
2021	Local	-	0.81
2020	Local	-	0.84

Table C.2 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1
Periods used to calculate bias	11
Bias Factor A	0.8 (0.74 - 0.86)
Bias Factor B	25% (16% - 35%)
Diffusion Tube Mean ($\mu\text{g}/\text{m}^3$)	31.0
Mean CV (Precision)	2.4%
Automatic Mean ($\mu\text{g}/\text{m}^3$)	24.7
Data Capture	95%
Adjusted Tube Mean ($\mu\text{g}/\text{m}^3$)	25 (23 - 27)

Notes:

A single local bias adjustment factor has been used to bias adjust the 2024 diffusion tube results. Following DEFRA comment. An additional triplicate sample was located on the Chesil St real time site commencing Jan 2025 so two local bias adjustment factors will be derived for the 2025 data (ASR26). This should provide additional confidence on the use of a local bias correction over the national bias correction. Additional comment was provided in the revised 2024 ASR dated September 2024 and these observations and justification apply equally to the use of the local Bias correction for the 2024 diffusion tube data set.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO₂ monitoring locations within WCC required distance correction during 2024.

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 (Matt's Monitors and Acoem). All real-time data was polled and ratified by an external air quality consultant (AQDM).

PM₁₀ 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. In addition, any sites with a data capture below 25% do not require annualisation. See Table F.1 for details about Twyford AQMesh.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO₂ concentrations corrected for distance are presented in Table A.3.

No automatic monitoring locations within WCC required distance correction during 2024.

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

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

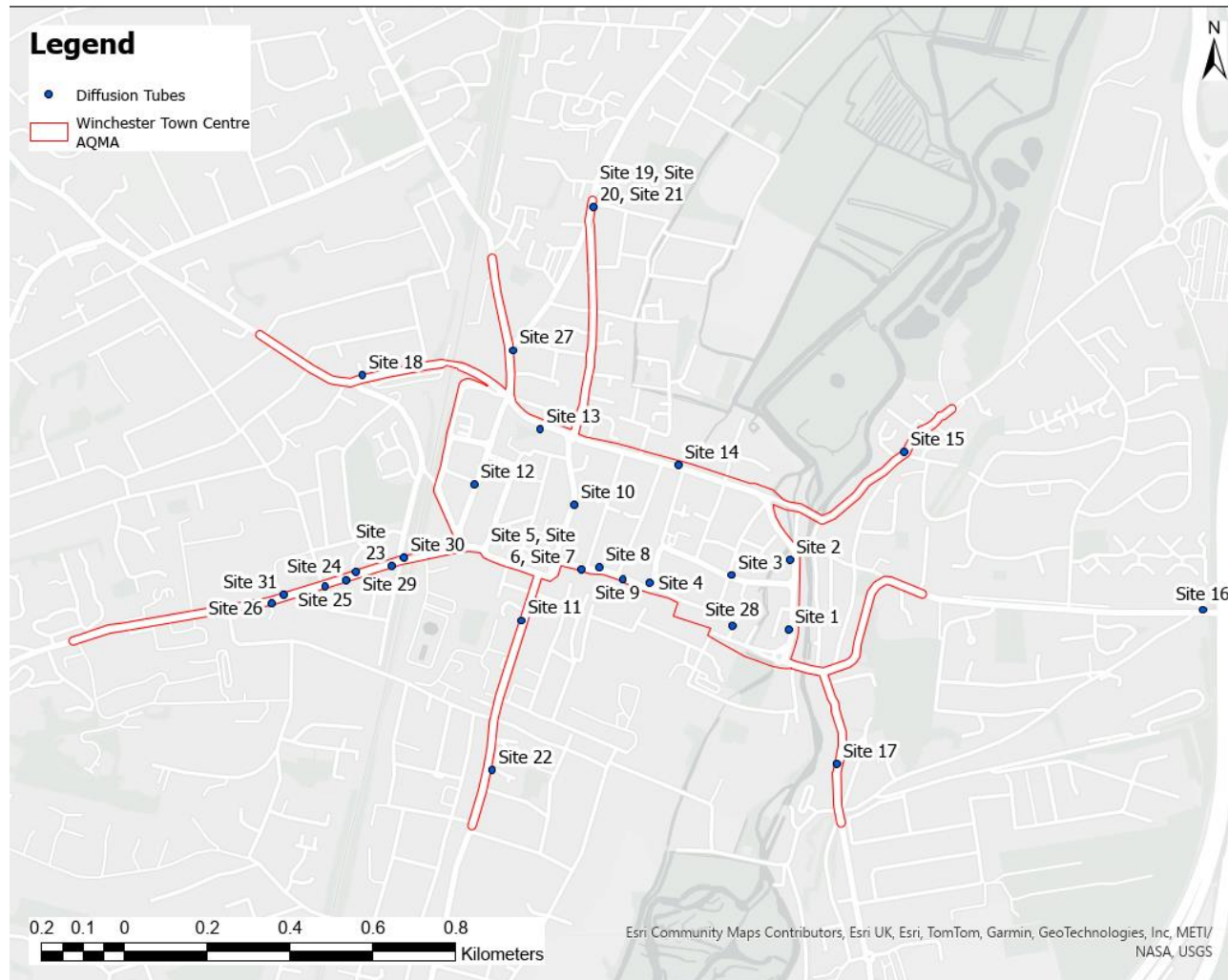
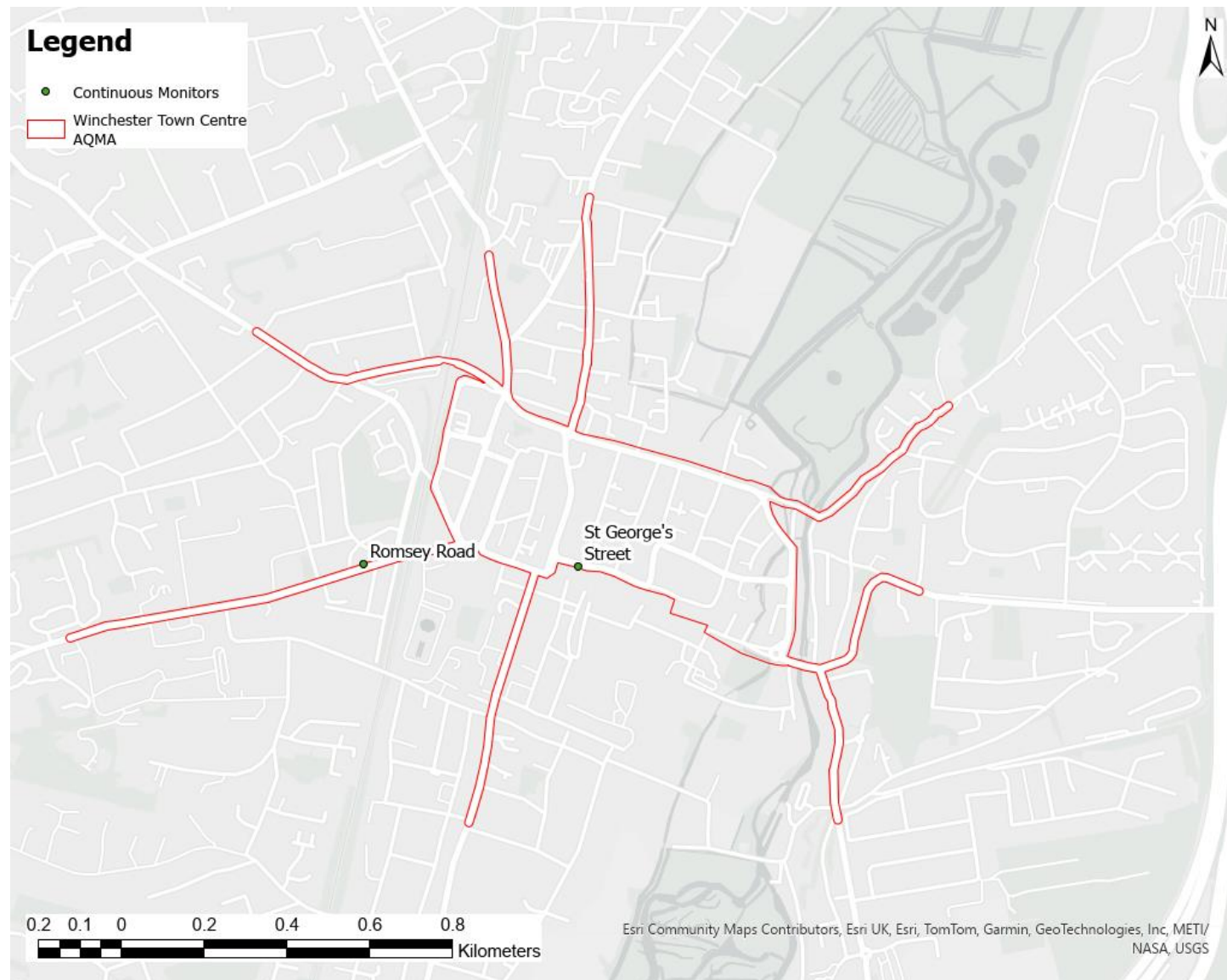


Figure D.2 – Map of Winchester City Council Continuous Monitoring Sites

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁹

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

⁹ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Appendix F: Indicative Monitoring

WCC commissioned an AQMesh monitor on 23rd December 2021. This monitor is not MCerts certified and is therefore considered to provide indicative data only. Results of this monitoring is presented below.

The AQMESH “raw” data is automatically adjusted by the service provider (Acoem Ltd) using algorithms based on the analysers performance against the service providers own collocated sites and overall network performance. As part of data ratification, a contractor (AQDM) checks these values against comparable reference sites. No further corrections were deemed necessary in 2024.

Table F.1– Details of Indicative Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? ⁽¹⁾	Monitoring Technique	Distance to Relevant Exposure (m) ⁽²⁾	Distance to kerb of nearest road (m) ⁽¹⁾	Height (m)
Twyford	Twyford	Roadside	448161	124619	NO ₂ , PM ₁₀ , PM _{2.5}	NO	NO	Optical (AQMesh)	7	4.4	1.9

Notes:

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

(2) N/A if not applicable

Table F.2– Annual Mean NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
Twyford	448161	124619	Roadside	98.9	98.9	-	-	25.0	28.3	30.8

☒ 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

Notes:

The annual mean concentrations are presented as µg/m³.

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

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

Table F.3– 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
Twyford	448161	124619	Roadside	98.9	98.9	-	-	0	0	0

Notes:

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

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

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

Table F.4– Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
Twyford	448161	124619	Roadside	98.9	98.9	-	-	11.0	9.7	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/m³.

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

Table F.5– 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
Twyford	448161	124619	Roadside	98.9	98.9	-	-	1	0	0

Notes:

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

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

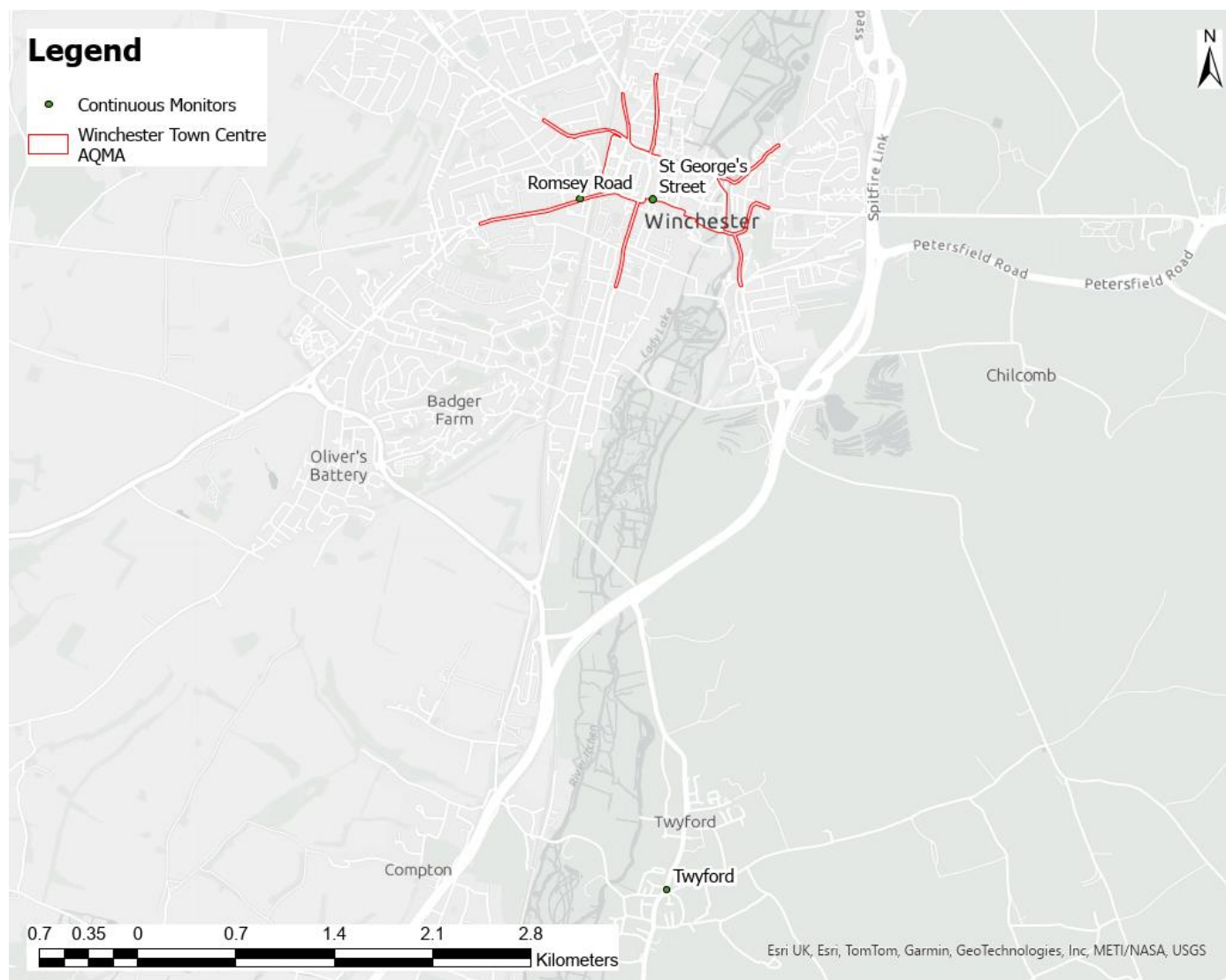
Table F.6— Annual Mean PM_{2.5} Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
Twyford	448161	124619	Roadside	98.9	98.9	-	-	8.0	6.3	6.0

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

Notes:

The annual mean concentrations are presented as µg/m³.

Figure F.1 – Map of Indicative Monitoring Sites

Appendix G: 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 NO₂ concentration;
- Local and national trends in NO₂ 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 (NO₂) 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.

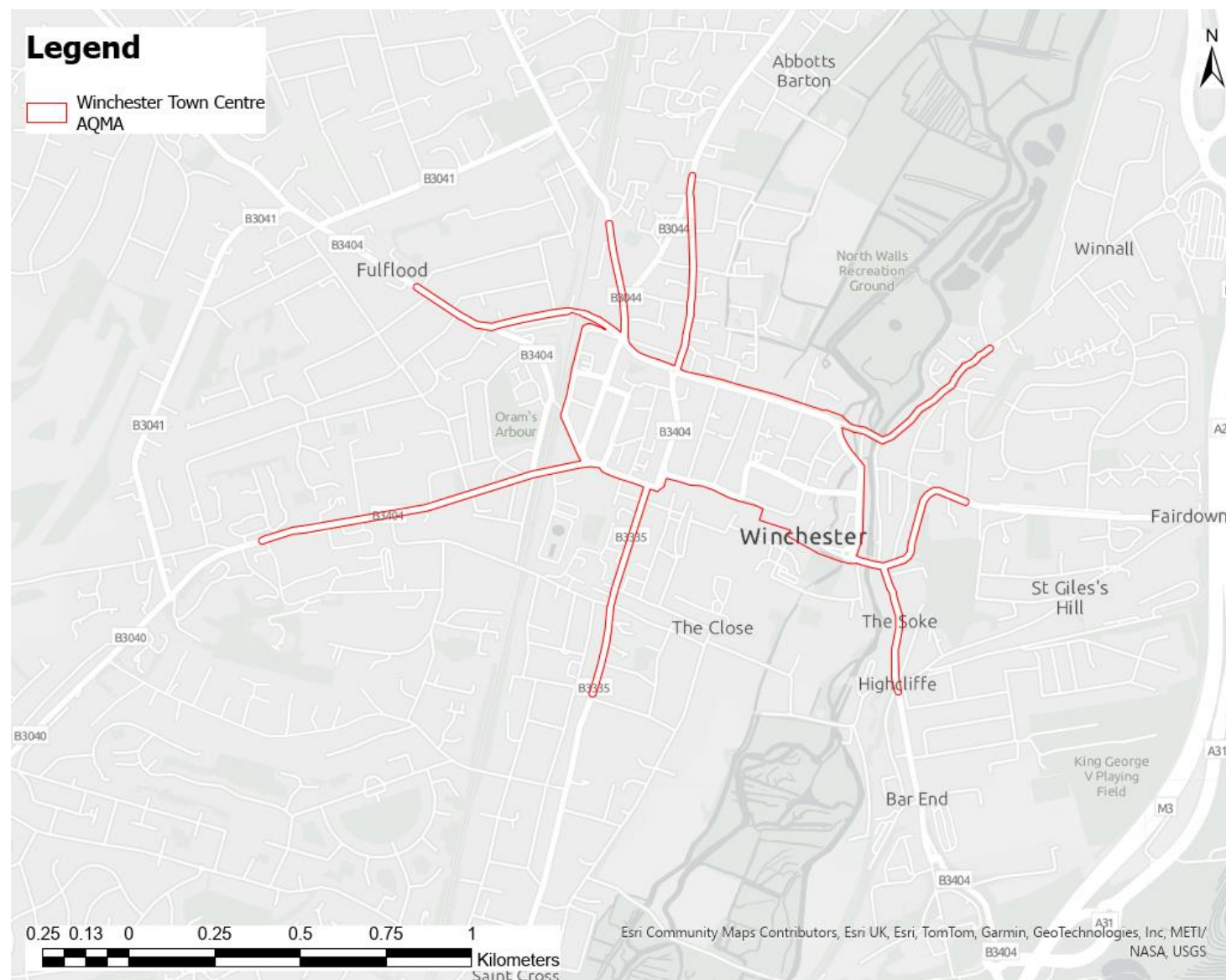
Each year an ASR must be prepared by local authorities detailing the strategies employed to improve air quality and any progress that has been made. Comments made by Defra in relation to the 2024 ASR support the Council's plans to revoke the Winchester Town Centre AQMA, due to continual compliance with the NO₂ 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 NO₂ 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

3.2.4 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”.

3.2.5 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 NO₂ 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 NO₂ concentrations being lower than 36 µg/m³ (i.e. within 10% of the annual mean NO₂ 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 NO₂ concentrations monitored using diffusion tubes should have been lower than 36 µg/m³ 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)).

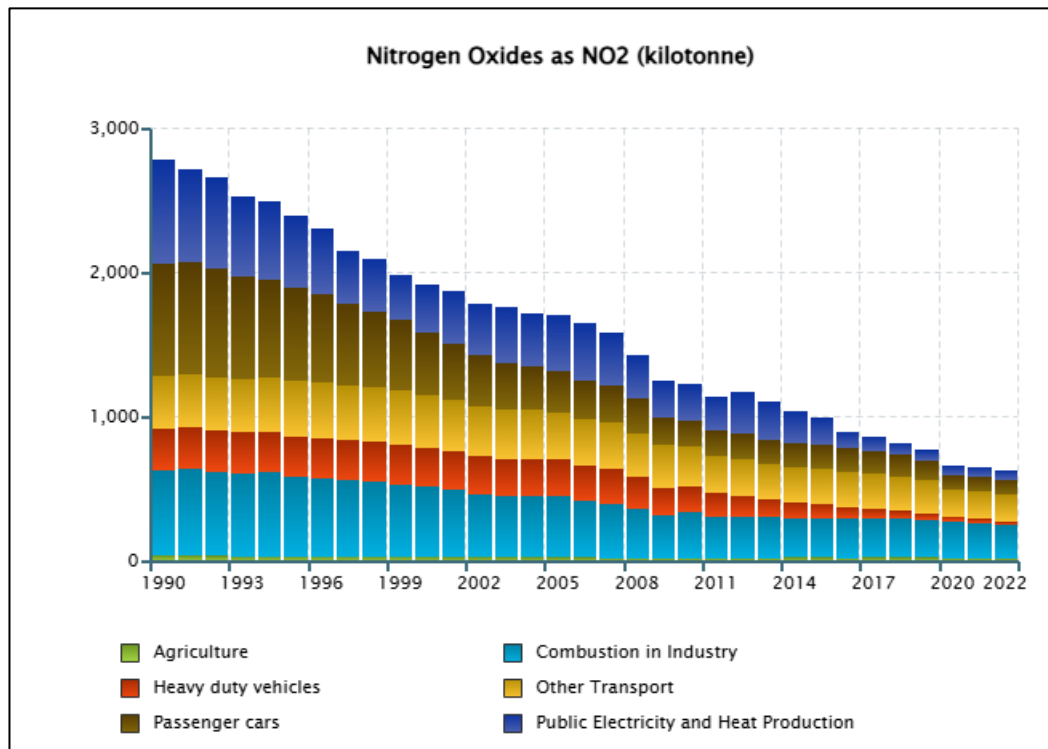
This report compiles the evidence required to revoke the Winchester Town Centre AQMA.

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 period¹⁰.

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



Future influence on emissions is considered in a revised Clean Air Strategy¹¹ 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 forecasts¹² provide future numbers, compositions and

¹⁰ Defra, September 2023, 'Air Pollution in the UK 2022 Report'

¹¹ Department for Transport (DfT), January 2019, 'Clean Air Strategy 2019'

¹² Department for Transport (DfT), December 2022, 'National Road Traffic Projections 2022'

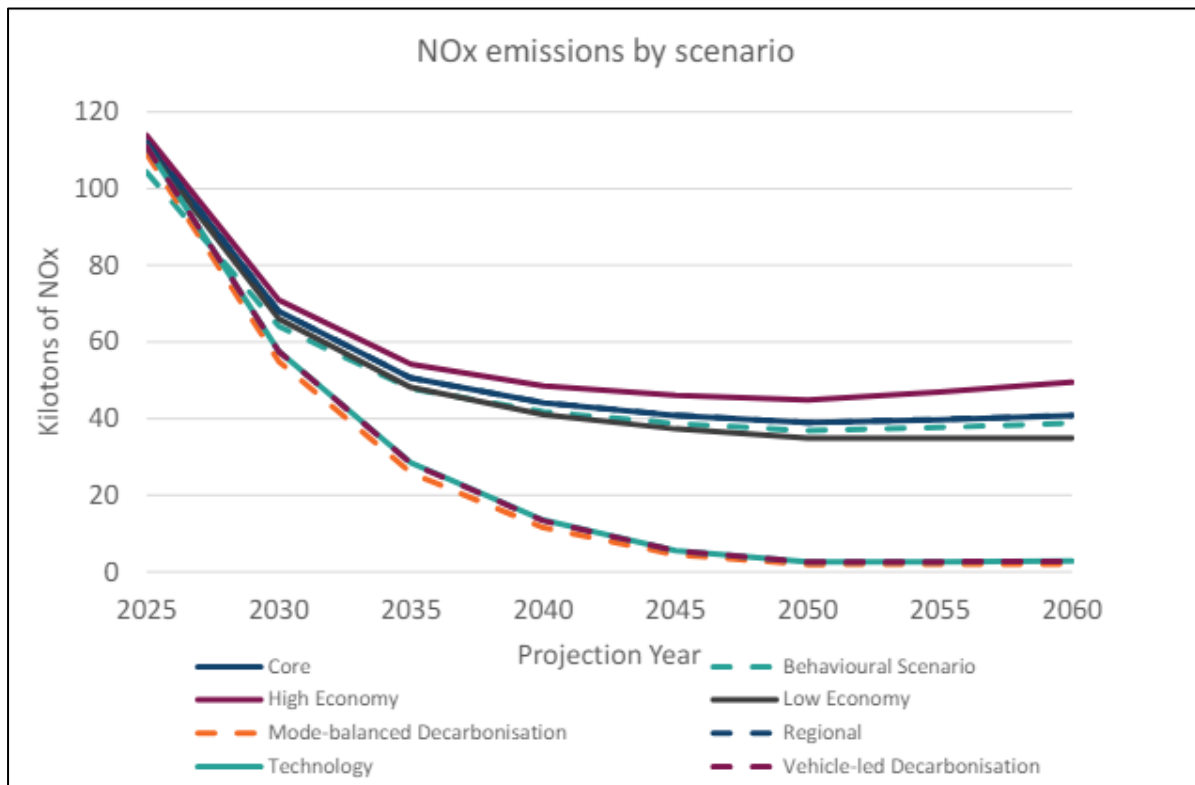
emissions across the UK based on seven scenarios (to account for the broad range of possibilities and uncertainties in predicting up to 2060) linked to changing population, economic and social well-being and technological changes. The findings include:

- 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;
- 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 (CO₂), NO_x and PM₁₀ 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 NO₂ 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 NO₂ annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which represents an absolute reduction of between 10 to 20 µg/m³ if expressed relative to annual mean averages¹³. 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 NO_x emissions will continue to contribute toward reducing concentrations within the AQMA, below their current level.

¹³ 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'.

Regional Influence

3.2.6 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;
- 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.

3.2.7 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.

LTP4¹⁴ 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:

¹⁴Hampshire County Council, Local Transport Plan 4 (2024-2030). Available at: <https://documents.hants.gov.uk/transport/hampshire-local-transport-plan-4-2024.pdf>

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

3.2.8 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.

3.2.9 Air Quality Strategy

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

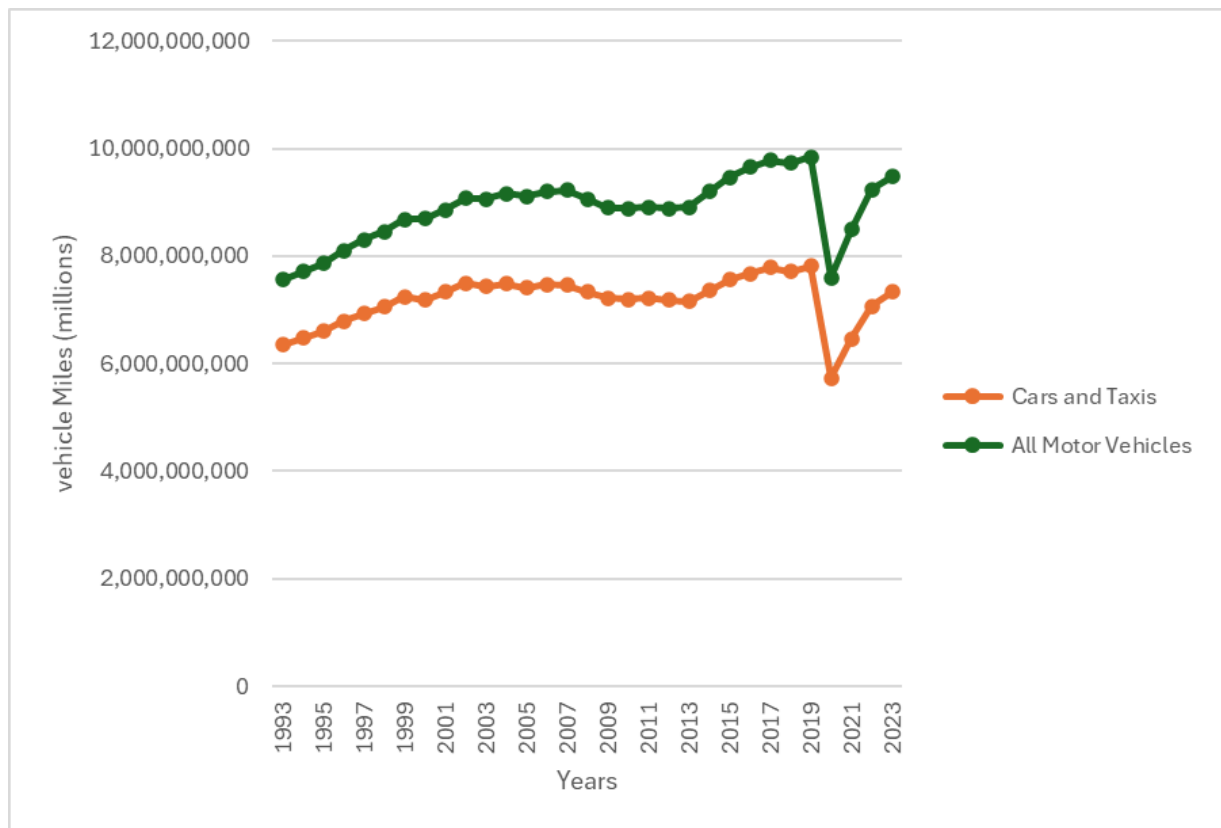
1. Develop a new and active participation in, a multi-disciplinary Regional Air Quality Network across Hampshire. Develop a new and active participation in, a multi-disciplinary Regional Air Quality Network across Hampshire.

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 NO₂ 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 NO₂ 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 NO₂ concentrations at diffusion tube sites in Winchester City Council (2018 to 2024)

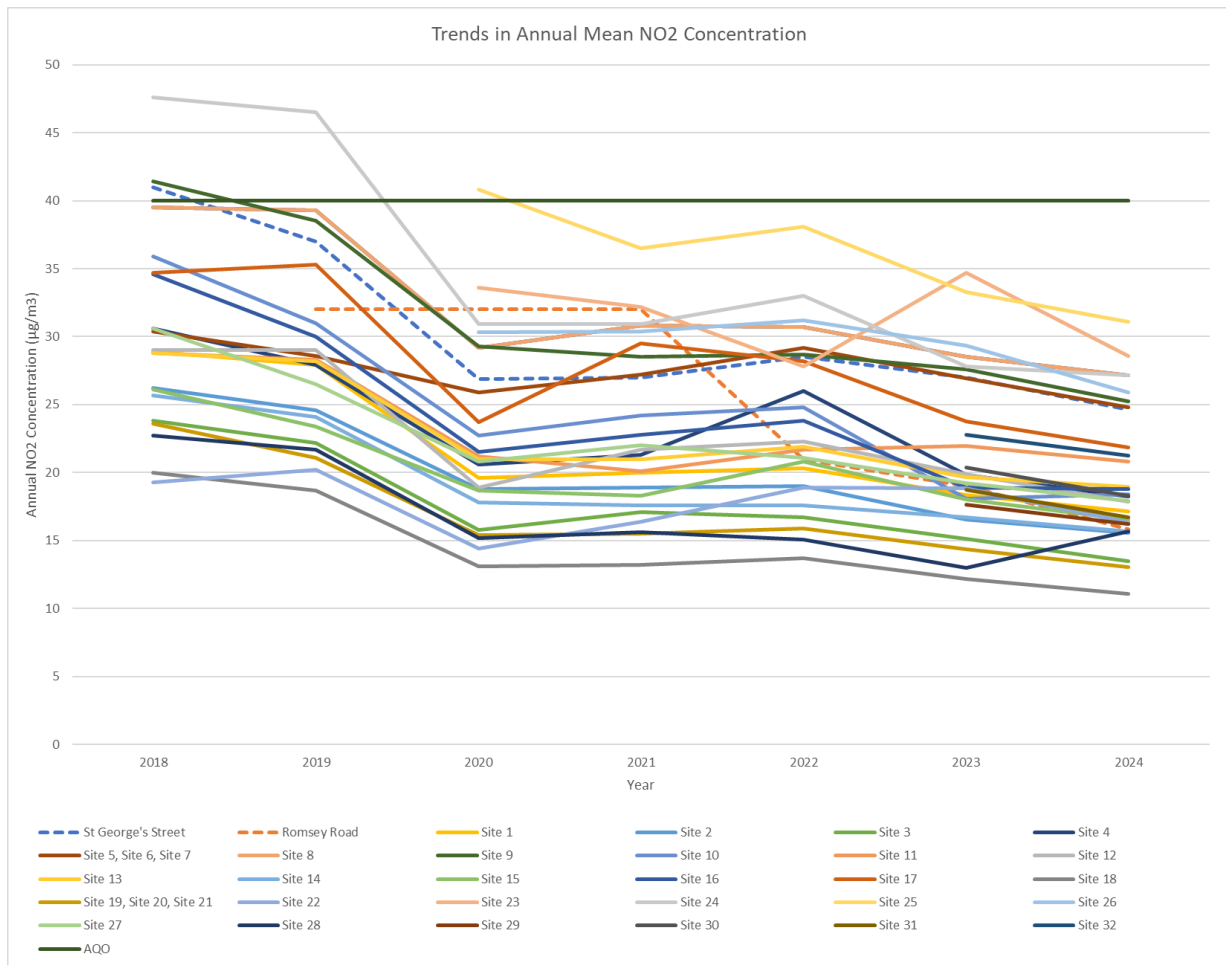


Figure G.4 – shows that all monitoring locations within Winchester City Council, recorded NO₂ concentrations that have been consistently below the annual mean AQS objective of 40 µg/m³ for five years (since 2020).

The AQMA last saw exceedances of the annual mean NO₂ objective in 2020, at site Site 25, measuring 40.8 µg/m³, however after distance correction to relevant exposure this changed to 35.5 µg/m³, no longer exceeding the threshold. NO₂ 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 NO₂ concentration recorded in 2024 was 31.1 µg/m³ 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 NO₂ 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 NO₂ Projection factors (Table G.1) 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.2

Table G.1 - Defra's Roadside NO₂ Projection Factors

Roadside NO₂ 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 NO₂ Mean Concentrations – Winchester

Site	Within Winchester Town Centre AQMA?	Monitored Annual NO ₂ mean concentration (µg/m ³)	Projected Annual NO ₂ mean concentration (µg/m ³)				
		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 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 NO₂ 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 zero¹⁵ emissions by 2050 and the adoption of the Road to Zero¹⁶ transport strategy are expected to deliver significant further reductions in emissions from road transport. In its publication 'National Road Traffic Projections 2022'¹² the DfT has projected that NO_x emissions will decline by 64% from 2025 to 2060. In turn, this provides confidence that the AQMA can be revoked without concern that the objective will be exceeded, unless significant new sources arise, at which point the NO₂ 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 2023¹⁷.

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 NO₂ concentrations at any of the modelled receptors was an increase in 2.5

¹⁵ HM Government, October 2021, 'Net Zero Strategy: Build Back Greener'

¹⁶ Department for Transport, July 2018, 'The Road to Zero'

¹⁷ 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\(R%20Rev%202022\)%20\(clean\).pdf](https://nsip-documents.planninginspectorate.gov.uk/published-documents/TR010055-000838-M3J9_6.1_ES%20Chapter%205%20Air%20Quality%20(R%20Rev%202022)%20(clean).pdf)

$\mu\text{g}/\text{m}^3$ at R41¹⁸. 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 $\text{PM}_{2.5}$ concentrations, where the maximum modelled annual mean change in concentrations at modelled receptors where $0.7 \mu\text{g}/\text{m}^3$ for both. Again, taking a worst case approach the AQO does not currently, and will not exceed in the future.

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.

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.

¹⁸ 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

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 NO₂ 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 Appendix H: Draft AQMA Revocation Order. 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.

Appendix H: Draft AQMA Revocation Order

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 (NO₂) - Annual Mean on 14/11/2003.
2. This Order shall come into force on (*Insert Date*).

The Common Seal of Winchester City Council

Was hereunto affixed

In the presence of:

.....

Dated:

.....

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQO	Air Quality Objectives
AQS	Air Quality Strategy
ARN	Affected Road Network
ASR	Annual Status Report
CO ₂	Carbon Dioxide
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
HDV	Heavy Duty Vehicle
LAQM	Local Air Quality Management
LTP	Local Transport Plan
NTM	National transport model
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PCN	Penalty Charge Notices
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide
UK	United Kingdom
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. Available at: <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>
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