



**Melton
Borough
Council**

2024 Air Quality Annual Status Report (ASR)

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

Date: August 2024

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Executive Summary: Air Quality in Our Area

Air Quality in the Borough of Melton

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year¹.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution².

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.
Ammonia NH ₃	Ammonia (NH ₃) is a colourless gas with a distinct, pungent smell The unwanted byproduct of animal waste.
Particulate Matter (PM ₁₀ and PM _{2.5})	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM ₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM _{2.5} are particles under 2.5 micrometres.

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

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

Actions to Improve Air Quality

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

The Environmental Improvement 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 Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

The outer ring road, otherwise known as the Melton Mowbray Distributor Road (MMDR) is to be delivered in accordance with the Melton Borough Council local plan. Two MMDRs are proposed – north & east and south. Currently the north & east sections are being constructed and they are expected to be completed in winter of 2025. The MMDR schemes are being led by Leicestershire County Council (LCC) in partnership with Melton Borough Council.

There is a countywide campaign to “Choose How You Move” in Leicestershire. Choose How You Move is a partnership project between Leicester City Council and Leicestershire County Council, funded by the Department for Transport.

Their website is a one-stop shop for travel information in Leicester & Leicestershire. Residents of Melton Borough Council can use the journey planner to help them explore

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

the different travel options that are available in Leicestershire to help residents choose sustainable trips across the county.



The link for this campaign is: <https://www.choosehowyoumove.co.uk/>

Conclusions and Priorities

Melton Borough Council has outlined several key priorities aimed at improving air quality within its borough and will work with its key partner who manages highways in the borough Leicestershire County Council. While the specific initiatives and priorities may evolve over time, the main areas of focus generally include:

1 Reduction of Traffic Emissions

- **Promoting Active and Sustainable Travel:** Encouraging walking, cycling, and the use of public transport over car travel is a major priority. This involves improving infrastructure for cyclists and pedestrians, as well as enhancing public transport services to make them more accessible and efficient.
- **Traffic Management:** Implementing measures to reduce congestion, such as traffic calming, better traffic flow management, and promoting car-sharing schemes to reduce the number of vehicles on the road.
- **Supporting Low Emission Vehicles:** Promoting the adoption of electric vehicles (EVs) by increasing the number of EV charging points throughout the borough and encouraging the use of low-emission vehicles among residents and local businesses.

2 Monitoring and Managing Air Quality

- **Regular Air Quality Monitoring:** The council prioritizes ongoing monitoring of air quality across the borough to identify pollution hotspots and track progress over time. This involves using diffusion tubes and other monitoring equipment to measure levels of pollutants like nitrogen dioxide (NO₂). Melton Borough Council has not identified or declared any Air Quality Management Areas at this time.
- **Data-Driven Decision Making:** Using data from air quality monitoring to inform policy decisions, such as where to focus efforts to reduce emissions and improve public health.

3 Supporting Cleaner Industries

- **Regulating Industrial Emissions:** Working with local businesses to ensure they comply with environmental regulations aimed at reducing emissions. This includes promoting cleaner technologies and practices in industries and agriculture that are significant sources of air pollution. All regulated pollutant levels within the Borough of Melton remain compliant with the national air quality standards and objectives in 2023.
- **Encouraging Sustainable Practices:** Encouraging businesses to adopt sustainable practices, such as using energy-efficient equipment, reducing waste, and minimizing the use of polluting chemicals.

4 Public Engagement and Education

- **Raising Awareness:** Educating the public about the importance of air quality and what they can do to help, such as reducing car usage, avoiding the use of solid fuels, and supporting local air quality initiatives.
- **Community Involvement:** Engaging with residents through consultations, workshops, and community programs to involve them in efforts to improve air quality and to gather input on local concerns and solutions.

5 Enhancing Green Spaces

- **Urban Greening:** Increasing the number of green spaces, trees, and vegetation in urban areas to help absorb pollutants and improve air quality. This includes initiatives like planting trees, creating parks, and maintaining green corridors.
- **Protection of Natural Environments:** Preserving and enhancing natural environments that act as carbon sinks and help to filter pollutants from the air.

6 Policy and Planning Integration

- **Incorporating Air Quality in Planning:** Ensuring that air quality considerations are integrated into local planning policies and decisions. This involves assessing the potential air quality impacts of new developments and ensuring they incorporate measures to mitigate pollution.

7 Climate Change Mitigation

- **Linking Air Quality with Climate Action:** Recognizing the connection between air quality and climate change, the council may focus on reducing greenhouse gas emissions as part of a broader strategy to improve air quality. This includes promoting energy efficiency, renewable energy sources, and other measures that reduce both carbon emissions and air pollutants.

8 Collaboration with Regional and National Initiatives

- **Partnerships and Collaboration:** Working with neighbouring councils, regional bodies, and national agencies to tackle air pollution. This may involve joint initiatives, shared resources, and collaboration on larger projects aimed at improving air quality across the region.

By focusing on these priorities, Melton Borough Council aims to create a healthier environment for its residents, reduce pollution-related health risks, and ensure that the borough meets national and regional air quality standards.

Changes in Nitrogen Dioxide (NO₂) Levels in Melton Mowbray:

In recent years, particularly since the onset of the COVID-19 pandemic, Melton Mowbray has seen fluctuations in nitrogen dioxide (NO₂) levels, a key indicator of air pollution.

- **During the COVID-19 Pandemic:** NO₂ levels in Melton Mowbray, like many parts of the UK, dropped significantly during the lockdown periods in 2020 due to reduced traffic volumes. The decrease in vehicle emissions, particularly from diesel engines, which are the main source of NO₂, was the primary cause.
- **Post-Pandemic Trends:** As traffic levels have gradually returned to pre-pandemic levels of NO₂ concentrations have continued to decline and remain below their previous pre-pandemic highs. This is partly due to ongoing changes in work habits, with more people continuing to work from home resulting in improved traffic flows and less congestion and a sustained increase in the use of bicycles and walking.
- **Long-Term Trends:** Over the past decade, Melton Mowbray, like much of the UK, has seen a general downward trend in NO₂ levels, thanks to stricter vehicle

emission standards, the introduction of cleaner low or no emission EV vehicles, and local air quality management strategies.

Comparison with UK Trends:

- **National Trends:** Across the UK, NO₂ levels have been generally declining over the last decade, driven by a combination of cleaner vehicle technologies, reduced reliance on coal for power generation, and air quality regulations. However, certain urban areas still experience exceedances of NO₂ limits, especially near major roads and in larger cities.
- **Pandemic Impact:** Nationally, the most significant drop in NO₂ levels occurred during the early months of the pandemic, with reductions in some areas by as much as 40-60%. While levels have risen again post-pandemic, many areas have not returned to pre-2020 levels, reflecting ongoing shifts in transportation patterns.
- **Melton Mowbray in Context:** The changes in NO₂ levels in Melton Mowbray mirror the national trends, albeit on a smaller scale due to its more rural setting. The town has benefitted from the same broader improvements in air quality seen across the UK but is also affected by local factors such as the reduction in traffic congestion and industrial activities.

Local Engagement and How to get Involved

Improving local air quality in Melton Mowbray involves community-wide efforts where residents can take simple but effective actions. Here are some measures the public can adopt:

1. Use Active Transport

- **Walk or Cycle:** Whenever possible, residents should opt for walking or cycling instead of using a car, especially for short trips. This not only reduces vehicle emissions but also promotes physical health.
- **Carpool or Use Public Transport:** Sharing rides with others or using public transportation reduces the number of vehicles on the road, leading to lower emissions.

2. Drive Smarter

- **Replace** Internal Combustion Engine ICE Vehicles with Electric EV or Hybrids
- **Limit Idling:** Turning off the engine when stationary for more than a minute reduces unnecessary emissions.
- **Eco-friendly Driving:** Driving smoothly, avoiding sudden stops and starts, maintaining a steady speed, and keeping tires properly inflated can improve fuel efficiency and reduce emissions.
- **Vehicle Maintenance:** Regular servicing of vehicles, including changing oil and checking exhaust systems, helps keep emissions low.

3. Reduce Home Energy Use

- **Insulate Homes:** Proper insulation and energy-efficient windows can reduce the need for heating and cooling, thereby lowering emissions from home energy use.
- **Use Energy-efficient Appliances:** Switching to energy-efficient appliances and light bulbs reduces electricity consumption, often leading to reduced emissions if the electricity comes from fossil fuels.

4. Switch to Cleaner Energy Sources

- **Renewable Energy:** Residents can switch to renewable energy providers or install solar panels on their homes to reduce reliance on fossil fuels.

- **Use Low-emission Heating:** Using low-emission heating systems, such as heat pumps or modern, efficient boilers, reduces the amount of pollutants released into the air.

5. Limit Use of Solid Fuels

- **Burn Cleaner Fuels:** If residents use a fireplace or stove, they should opt for cleaner fuels like seasoned wood or smokeless fuel to minimize smoke and particulate emissions.
- **Avoid Open Burning:** Refrain from burning garden waste or household rubbish, which can release harmful pollutants. Composting or using local waste collection services is a better option.

6. Support Local Green Initiatives

- **Tree Planting:** Participate in or support local tree-planting initiatives. Trees absorb CO₂ and other pollutants, helping to clean the air.
- **Community Clean-ups:** Engage in local clean-up efforts to reduce litter and maintain green spaces, which contribute to better air quality.

7. Educate and Advocate




- **Spread Awareness:** Educate others about the importance of clean air and how small changes can make a big difference.
- **Support Policies:** Advocate for local policies that promote clean air, such as low-emission zones, better cycling infrastructure, and improved public transportation.

By taking these steps, residents of the borough of Melton can collectively contribute to improving their local air quality, making the town a healthier place to live. Local Responsibilities and Commitment

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

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Table of Contents

Executive Summary: Air Quality in Our Area	i
Air Quality in the Borough of Melton	i
Actions to Improve Air Quality	ii
Conclusions and Priorities	iii
1 Local Air Quality Management	1
2 Actions to Improve Air Quality	2
2.1 Air Quality Management Areas	2
2.2 Progress and Impact of Measures to address Air Quality in Melton Borough Council	3
2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations	7
3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance	9
3.1 Summary of Monitoring Undertaken	9
3.1.1 Non-Automatic Monitoring Sites	9
3.2 Individual Pollutants	11
3.2.1 Nitrogen Dioxide (NO ₂)	11
3.2.2 Particulate Matter (PM ₁₀)	16
3.2.3 Particulate Matter (PM _{2.5})	16
3.2.4 Sulphur Dioxide (SO ₂)	16
Appendix B: Full Monthly Diffusion Tube Results for 2023	27
Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC	29
New or Changed Sources Identified Within Melton Borough Council During 2023	29
Additional Air Quality Works Undertaken by Melton Borough Council During 2023	29
QA/QC of Diffusion Tube Monitoring	29
Diffusion Tube Annualisation	30
Diffusion Tube Bias Adjustment Factors	30
NO ₂ Fall-off with Distance from the Road	32
QA/QC of Automatic Monitoring	33
Appendix D: Map(s) of Monitoring Locations and AQMAs	34
Appendix E: Summary of Air Quality Objectives in England	38
Glossary of Terms	39
References	40

Figures

Figure A.1 – Trends in Annual Mean NO ₂ Concentrations.....	22
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Tables

Table 10.1 – Progress on Measures to Improve Air Quality.....	6
---	---

Table A.1 – Details of Non-Automatic Monitoring Sites	18
---	----

Table A.2 – Annual Mean NO ₂ Monitoring Results: Automatic Monitoring (µg/m ³).....	20
--	----

Table A.3 – Annual Mean NO ₂ Monitoring Results: Non-Automatic Monitoring (µg/m ³)	20
--	----

Table B.1 – NO ₂ 2023 Diffusion Tube Results (µg/m ³)	27
--	----

Table C.1 – Bias Adjustment Factor	31
--	----

Table C.2 – Local Bias Adjustment Calculation	32
---	----

Table C.3 – Non-Automatic NO ₂ Fall off With Distance Calculations (concentrations presented in µg/m ³)	33
--	----

Table E.1 – Air Quality Objectives in England	38
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1 Local Air Quality Management

This report provides an overview of air quality in Melton Borough Council during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether 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 Melton Borough Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

Melton Borough Council currently does not have any declared AQMAs. A local Air Quality Strategy is under development to prevent and reduce polluting activities. This will be go out for consultation with an aim of adoption in early 2025.

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

Defra's appraisal of last year's ASR concluded

- Melton Borough Council (MBC) reported no exceedances of air quality objectives (AQOs) and therefore did not declare any Air Quality Management Areas (AQMAs).
- As a result, MBC has not developed a formal Air Quality Action Plan (AQAP).
- Starting in 2023, authorities like MBC without AQMAs will need to create a local Air Quality Strategy to prevent and reduce pollution before exceedances occur.
- The local Air Quality Strategy can be integrated with other relevant plans and must address air quality assessments and policy responsibilities.
- In 2022, MBC conducted non-automatic monitoring of NO₂ at 16 sites, with no need for distance correction.
- The highest recorded NO₂ level in 2022 was 28.3 µg/m³, and the lowest was 8.1 µg/m³.
- PM_{2.5} levels were estimated using national background maps, with the highest predicted concentration being 10.02 µg/m³, below the regulatory limit of 25 µg/m³.
- MBC is working to reduce PM_{2.5} by redirecting traffic away from Melton town centre using the distributor road.
- A local Air Quality Strategy for MBC is required and is expected to be published within the next year, with a subsequent Annual Status Report due in 2024.

Melton Borough Council has taken forward several direct measures during the current reporting year of 2024 in pursuit of improving local air quality.

Melton Borough Council is in the process of producing an Air Quality Strategy which will go out for stakeholder consultation in Autumn 2024. This strategy will align itself with the emerging Public Health led Leicestershire Health Needs Assessment: Air Quality and Health 2024.

Melton Mowbray, like many towns and cities in the UK, is focusing on promoting active travel and good health through a variety of initiatives. Here are some steps they are currently taking:

- **Development of Cycling and Walking Infrastructure:** Melton Borough Council is investing in improving its cycling and walking infrastructure to encourage more people to choose these modes of travel. This includes creating dedicated cycle paths, improving pedestrian crossings, and making the town more accessible for non-motorized travel.
- **Active Travel Campaigns:** The town supports campaigns to raise awareness about the benefits of active travel, such as reduced pollution, improved physical health, and less traffic congestion. These campaigns often include events like bike rides, walking challenges, and public consultations to engage the community.
- **School Travel Plans:** Leicestershire County Council is working with local schools to develop travel plans that promote walking and cycling to school. This includes safe routes to school, walking buses, and bike training sessions for students.
- **Partnership with Local Organizations:** The town collaborates with local health organizations, businesses, and community groups to promote health and well-being. These partnerships often result in joint initiatives that encourage residents to be more active, such as community walks, fitness classes, and health fairs.
- **Public Health Initiatives:** Melton Borough Council also focuses on broader public health initiatives that align with promoting active travel. These include campaigns on healthy eating, mental health, and overall well-being, which often tie into the benefits of an active lifestyle.
- **Integration into Local Planning:** Active travel is being integrated into local planning policies. New developments are encouraged or required to include facilities for cyclists and pedestrians, such as bike racks, green spaces, and easy access to public transport.
- **Promotion of Public Transport:** To reduce car usage, there is a push to promote public transport, which often involves walking or cycling to and from bus stops or train stations. Improving the accessibility and reliability of public transport is also part of the strategy.
- **Events and Challenges:** The town organizes and supports events that promote active lifestyles, such as charity runs, cycling events, and town-wide fitness challenges. These events help to build community spirit and encourage people to adopt healthier habits.

These steps reflect a broader commitment by Melton Borough Council to promote a healthier, more active lifestyle for its residents, and to make the town a more sustainable place to live.

More detail on these measures can be found in their respective Action Plans
Leicestershire Health Needs Assessment: Air Quality and Health 2024. Key completed measures are: To contribute to the improvement of the health and wellbeing of the local community and reduce inequalities from outdoor air quality harm for all ages.

To determine what actions the local authority, local NHS and other partners need to take to address outdoor air quality as a wider determinant of health that impacts on health and wellbeing. The HNA recommends focus on vulnerable groups and urban areas.

To provide a source of relevant reference to the local authority and partners of the Leicestershire Air Quality and Health Partnership.

Melton Borough Council expects the following measures to be completed over the course of the next reporting year the completion of the north and eastern section of the. Melton Borough Council's priorities for the coming year are the completion of the Air Quality Strategy.

Melton Borough Council worked to implement these measures in partnership with the following stakeholders during 2023:

- Leicestershire County Council

The principal challenges and barriers to implementation that Melton Borough Council anticipates facing are:

Progress on the air quality strategy has been slower than expected due to the loss of specialist staff that has been replaced as of the 1st July 2024. The EHO has completed the ASR and drafted the Air Quality Strategy.

Details of all measures completed, in progress or planned are set out in Table 2.. Three measures are included within Table 2., with the type of measure and the progress Melton Borough Council have made during the reporting year of 2023 presented.

Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2..

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Melton Borough Council Transport Planning and Infrastructure (By-Pass) North Distributor Road	Transport	Other	2016	2025	Melton Borough Council, Leicestershire County Council, Department for Transport, Galliford Try	NO		Fully funded	> £10 million	Implementation period.	Reduced NOx emissions in Melton town centre - arterial routes & improved local air quality	See Environmental Impact Assessment	Funding fully secured & regulatory permissions obtained. Compulsory Purchase Order notices served. Completion of Sysonby Farm complete. Ecological/archaeological works complete. Final detailed design complete. Construction commenced April 2023 with delivery winter 2025.	Long implementation period.
2	Melton Borough Council Transport Planning and Infrastructure (By-Pass) South Distributor Road	Transport	Other	2016	2028	Melton Borough Council, Leicestershire County Council, Homes England, private developers	NO		Partially Funded	> £10 million	Planning submission.	Reduced NOx emissions in Melton town centre - arterial routes & improved local air quality	See Environmental Impact Assessment	Part funding from S106 agreements secured & Homes England. Project board commissioned prior to planning application submission. Concept design drawings underway. Delayed due to rising costs. Viability in question.	Rising costs. Regulatory approvals.
3	Local Transport Plan LTP3	Transport	Other	2011	2026	Leicestershire County Council Melton Borough Council,			local government funds, central government grants, developer contributions (through mechanisms like Section 106 agreements), and other external funding sources such as the Local Enterprise Partnership (LEP).		No fixed budget		KPIs for LTP3 typically include: Reduction in CO2 emissions: Monitoring the overall carbon footprint of transport in the county. Air Quality Levels: Specifically focusing on pollutants like NO2 (Nitrogen Dioxide) in key areas like Melton Mowbray. Traffic Congestion: Measurement of peak-time congestion and journey times on key routes. Public Transport Usage: Number of public transport users compared to private car users. Road Safety: Reduction in road traffic accidents and fatalities.	Melton Mowbray's Air Quality: LTP3 aims to address air quality issues in Melton Borough Council by reducing congestion and promoting cleaner modes of transport. Measures include: Encouraging walking, cycling, and public transport usage to reduce vehicle emissions. Implementing traffic management schemes to reduce idling and improve traffic flow. Supporting the development of bypasses or alternative routes to divert heavy traffic away from congested town centres.	The effectiveness of LTP3 in meeting its KPIs would have been reviewed periodically throughout the plan's lifespan. This would involve monitoring progress against targets like reduced congestion, lower emissions, and increased use of sustainable transport modes.

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.

Using DEFRA's 2022 background mapping, the estimated maximum background annual mean PM_{2.5} within the Borough of Melton was 9.18ugm⁻³.

Melton Borough Council is taking the following measures to address PM_{2.5}.

The Air Quality Strategy has clear focus on the importance of PM_{2.5} and how the Authority will tackle it in partnership with key stakeholders such as public health, Leicestershire County Council and engage in the emerging Leicestershire Health Needs Assessment: Air Quality and Health 2024 and Local Transport Plan LPT4 expected 2026.

Air Quality is being integrated into Local Planning Allocation. Advice given by Environmental Health on additional employment allocation assessment has flagged up sites where PM 2.5 may become an issue and a detailed briefing sheet provided to local planning on this issue using the latest information has been provided.

This is significantly below the annual average of 25 ugm⁻³ as per The Air Quality Standards Regulations 2010.

The Melton Mowbray distributor road is expected to reduce traffic volumes in Melton town centre, inner ring road and arterial access roads. Much of this traffic is not thought to be local but passing through Melton to reach onward destinations. Some of this traffic, particularly freight traffic, are diesel engine road vehicles (DERVs) and a primary source of particulate air pollution. By moving this traffic outside the urban centre, air pollution is expected to become more homogenised and maximum PM_{2.5} concentrations are predicted in areas of high-density housing to decline.

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

The increased development in Melton Borough Council is placing an upward pressure on vehicular emissions of PM2.5 levels in the Borough. However, the combination of measures outlined in this report should counteract these pressures. The greater efficiencies of free-flowing traffic do appear to have improved nitrogen dioxide levels, with minimal 'stop-starts', and this should correlate with a reduction of the overall PM2.5 generation.

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

There has been no declaration of AGMA or likelihood of declaring AGMA in the foreseeable future in the Melton Borough Council.

This section sets out the monitoring undertaken within 2023 by Melton Borough Council by and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Non-Automatic Monitoring Sites

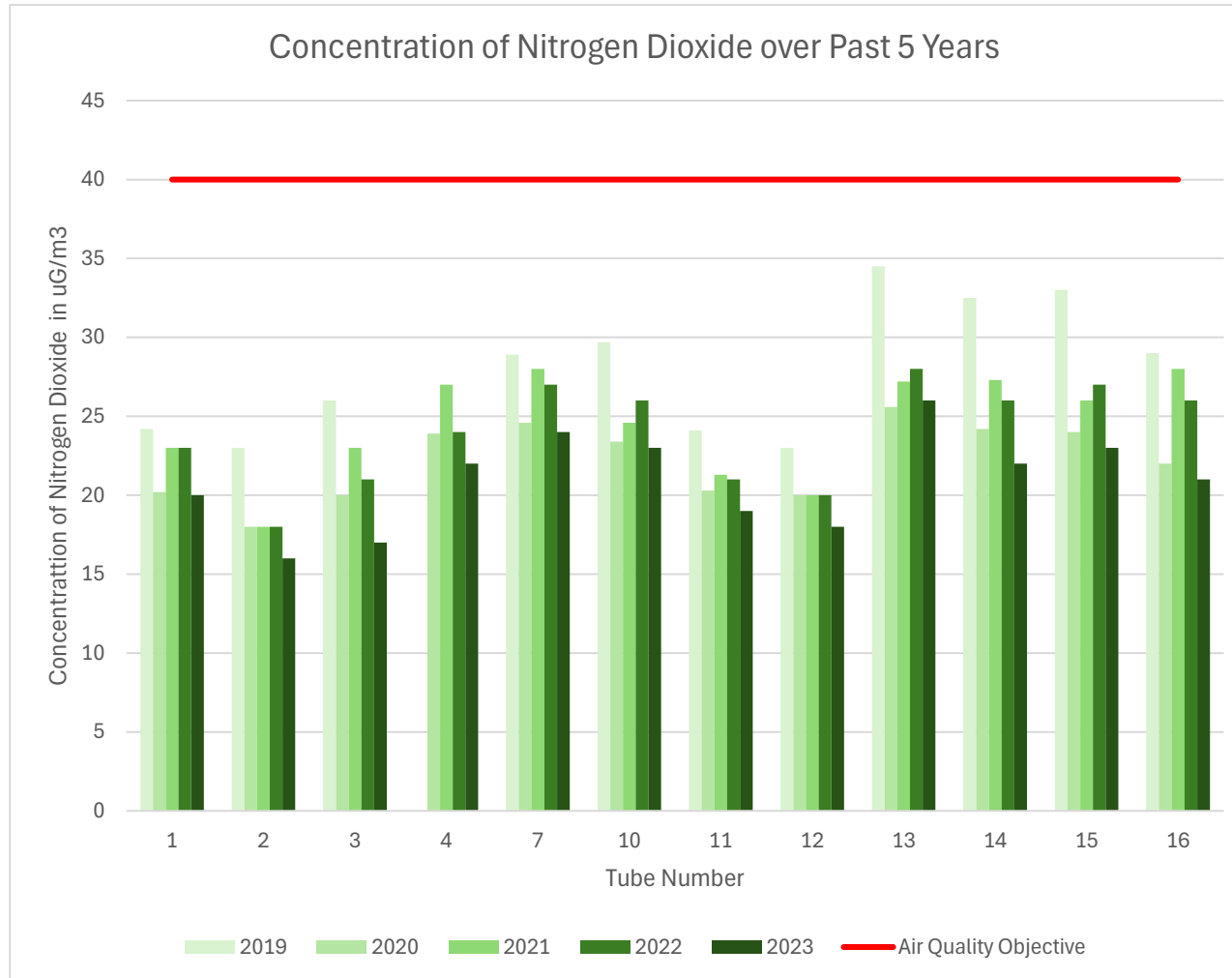
Melton Borough Council undertook non-automatic (i.e. passive) monitoring of NO₂ at 16 sites during 2023. Table A.1 in Appendix A presents the details of the non-automatic sites.

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

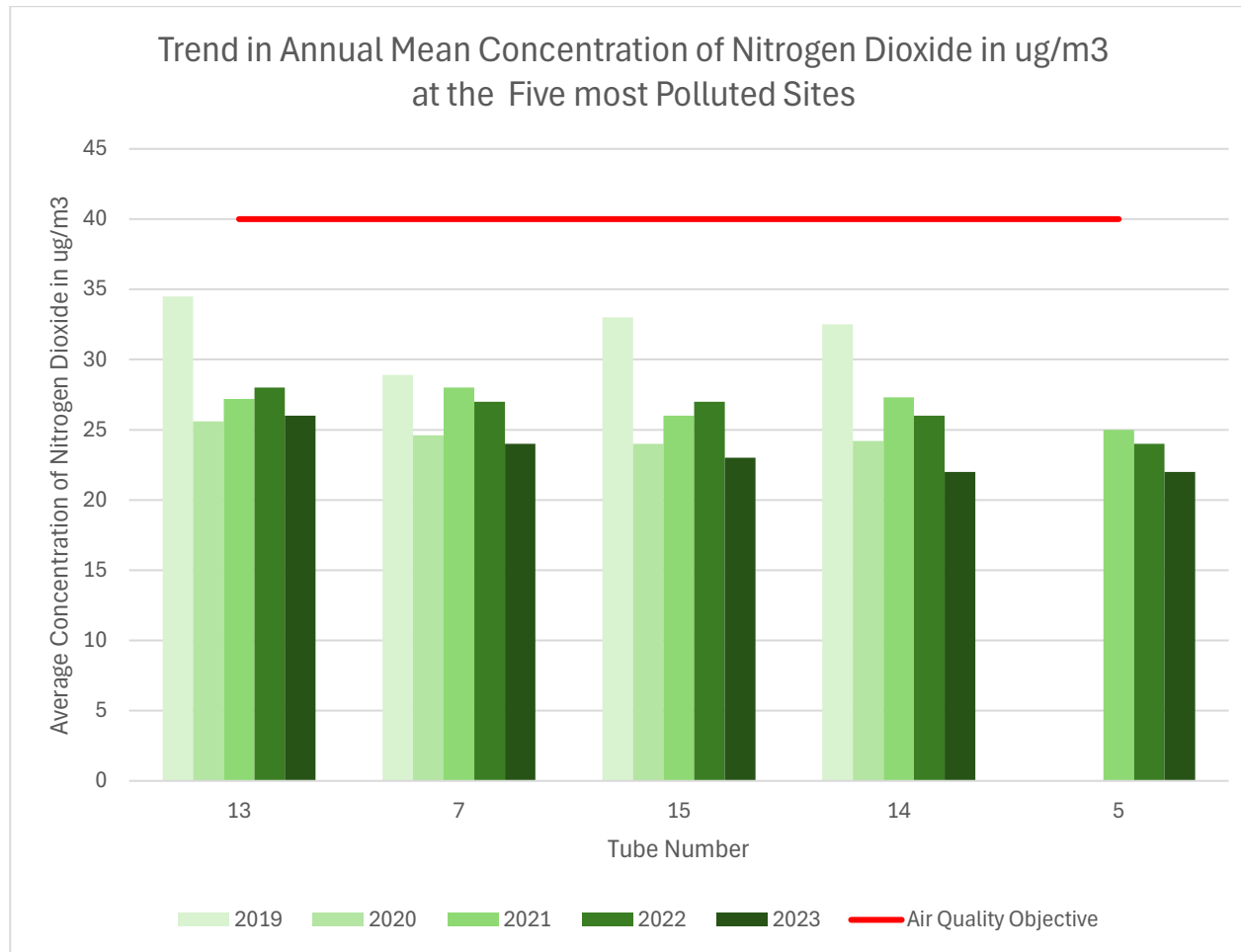
Average Nitrogen Dioxide Levels	
Urban Centre	~28.5 µg/m ³
Roadside	~23.4 µg/m ³
Suburban	~11.1 µg/m ³
Trend	Urban Centre and Roadside sites exhibit fluctuating but relatively stable NO ₂ levels, while Suburban sites have consistently low NO ₂ levels.
Average Nitrogen Dioxide Levels	Urban Centre: ~28.5 µg/m ³ Roadside: ~23.4 µg/m ³ Suburban: ~11.1 µg/m ³

3.2 Individual Pollutants

3.2.1 Nitrogen Dioxide (NO₂)



Ranking	Type	Average Nitrogen Dioxide Levels:
1	Urban Centre:	~28.5 µg/m ³
2	Roadside:	~23.4 µg/m ³
3	Suburban:	~11.1 µg/m ³
These averages reflect the general air quality trends across different site types, with Urban Centre locations having the highest average NO2 levels, followed by Roadside, and Suburban areas with the lowest.		



Top 5 Sites with the Highest Levels of Nitrogen Dioxide (Bias Adjusted and Annualised Mean):

Top 5 Sites with the Highest Levels of Nitrogen Dioxide (Bias Adjusted and Annualised Mean):	
1. Jct Leicester Street / Wilton Rd (Site 13)	
○ Bias Adjusted Mean: 26.4 µg/m ³	
2. Jct Nottingham Rd / Norman Way (Site 7)	
○ Bias Adjusted Mean: 24.4 µg/m ³	
3. Nottingham Road (Site 15)	
○ Bias Adjusted Mean: 23.4 µg/m ³	
4. Sherrard Street (Site 14)	
○ Bias Adjusted Mean: 22.4 µg/m ³	
5. Nottingham Road (Tesco PS) (Site 5)	
○ Bias Adjusted Mean: 22.2 µg/m ³	

The graph shows the concentration of nitrogen dioxide (NO₂) over the past five years at different tube locations in Melton Mowbray. Here are the key observations:

- **General Decline:** There is a general trend of declining nitrogen dioxide concentrations from 2019 to 2023 across most tube locations. The bars representing the years 2022 and 2023 are generally lower than those for 2019 and 2020.
- **Impact of 2020:** The year 2020 shows a noticeable decrease in NO₂ levels, likely due to reduced traffic and activity during the COVID-19 pandemic lockdowns. This drop is consistent across almost all tube locations.

- **Steady Levels Post-2020:** After the dip in 2020, the concentrations seem to have slightly increased or stabilized in 2021, 2022, and 2023. However, the levels in 2023 are still generally lower than in 2019, indicating a lasting improvement in air quality.
- **Air Quality Objective:** The red line on the graph represents the air quality objective, set at 40 µg/m³. None of the tube locations exceed this objective in any of the years shown, indicating that the NO₂ levels have remained within acceptable limits.
- **Variation Between Locations:** While the overall trend is a decrease in NO₂ levels, some locations (like tubes 7 and 13) show relatively higher concentrations compared to others, though still within safe limits.

In summary, the data reflects a positive trend of reducing nitrogen dioxide levels in the Borough of Melton Council over the past five years, with concentrations consistently below the air quality objective.

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](#).

Table A.3 in Appendix A 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 2023 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

There have been no exceedances of the air quality objectives relating to the annual mean. There is no 1-hour monitoring in the Malton Borough Council. From the most recent results air quality has been improving with a fall in Nitrogen Dioxide. There are no sites close to the air quality objectives and therefore no AQMA declaration is considered.

3.2.2 Particulate Matter (PM₁₀)

Melton Borough Council does not currently monitor for PM10

3.2.3 Particulate Matter (PM_{2.5})

Melton Borough Council does not currently monitor for PM2.5.

3.2.4 Sulphur Dioxide (SO₂)

Melton Borough Council does not currently monitor for sulphur dioxide.

Table A.1 – 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)
1	Wilton Road	Urban Centre	475029	319164	NO2	No	15.0	2.0	No	2.5
2	Leicester Road (B&Q)	Roadside	474301	318366	NO2	No	12.0	2.5	No	2.5
3	Brook Street	Roadside	475753	319167	NO2	No	1.0	1.0	No	2.5
4	Jct Thorpe Road / Norman Way	Urban Centre	475763	319262	NO2	No	0.2	1.0	No	2.5
5	Nottingham Road (Tesco PS)	Roadside	474704	320100	NO2	No	7.0	1.7	No	2.5
6	Freeby Close	Suburban	476478	318632	NO2	No	5.0	1.5	No	2.5
7	Jct Nottingham Rd / Norman Way	Urban Centre	474991	319403	NO2	No	12.5	1.3	No	2.5
8	Discovery Drive	Roadside	475192	321173	NO2	No	1.0	1.0	No	2.5
9	Keel Drive, Bottesford	Suburban	480474	338622	NO2	No	5.0	3.5	No	2.5
10	Norman Way 2 (Court House)	Urban Centre	475183	319378	NO2	No	1.0	1.5	No	2.5
11	Jct Norman Way / Wilton Road	Urban Centre	475021	319364	NO2	No	4.0	3.0	No	2.5
12	Jct Dalby Way / Wilton Road	Roadside	474879	318971	NO2	No	18.5	2.0	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
13	Jct Leicester Street / Wilton Rd	Urban Centre	475046	319132	NO2	No	1.0	0.5	No	2.5
14	Sherrard Street	Urban Centre	475394	319128	NO2	No	2.0	1.5	No	2.5
15	Nottingham Road	Roadside	474954	319437	NO2	No	5.0	2.0	No	2.5
16	Burton Street	Roadside	475342	318960	NO2	No	2.0	0.3	No	2.5

Notes:

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

(2) N/A if not applicable.

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

There are no automatic monitoring

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
1	475029	319164	Urban Centre	100	100.0	24.2	20.2	22.7	22.6	19.6
2	474301	318366	Roadside	100	100.0	21.8	17.9	17.7	17.6	16.3
3	475753	319167	Roadside	100	100.0	26.4	19.6	22.5	20.9	17.0
4	475763	319262	Urban Centre	100	100.0	-	23.9	26.8	23.9	21.9
5	474704	320100	Roadside	100	100.0	-	-	24.9	24.3	22.2
6	476478	318632	Suburban	100	100.0	-	-	-	-	8.9
7	474991	319403	Urban Centre	100	100.0	28.9	24.6	27.6	26.6	24.4
8	475192	321173	Roadside	100	100.0	-	-	-	-	9.3
9	480474	338622	Suburban	100	100.0	-	-	-	-	8.3
10	475183	319378	Urban Centre	100	100.0	29.7	23.4	24.6	25.9	22.7
11	475021	319364	Urban Centre	100	100.0	24.1	20.3	21.3	21.2	18.5
12	474879	318971	Roadside	100	100.0	22.7	19.6	20.0	20.1	18.1
13	475046	319132	Urban Centre	100	100.0	34.5	25.6	27.2	28.3	26.4
14	475394	319128	Urban Centre	100	100.0	32.5	24.2	27.3	26.1	22.4
15	474954	319437	Roadside	100	100.0	32.6	24.3	26.1	26.8	23.4
16	475342	318960	Roadside	100	90.4	29.1	22.2	28.0	25.5	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 µg/m³.

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**.

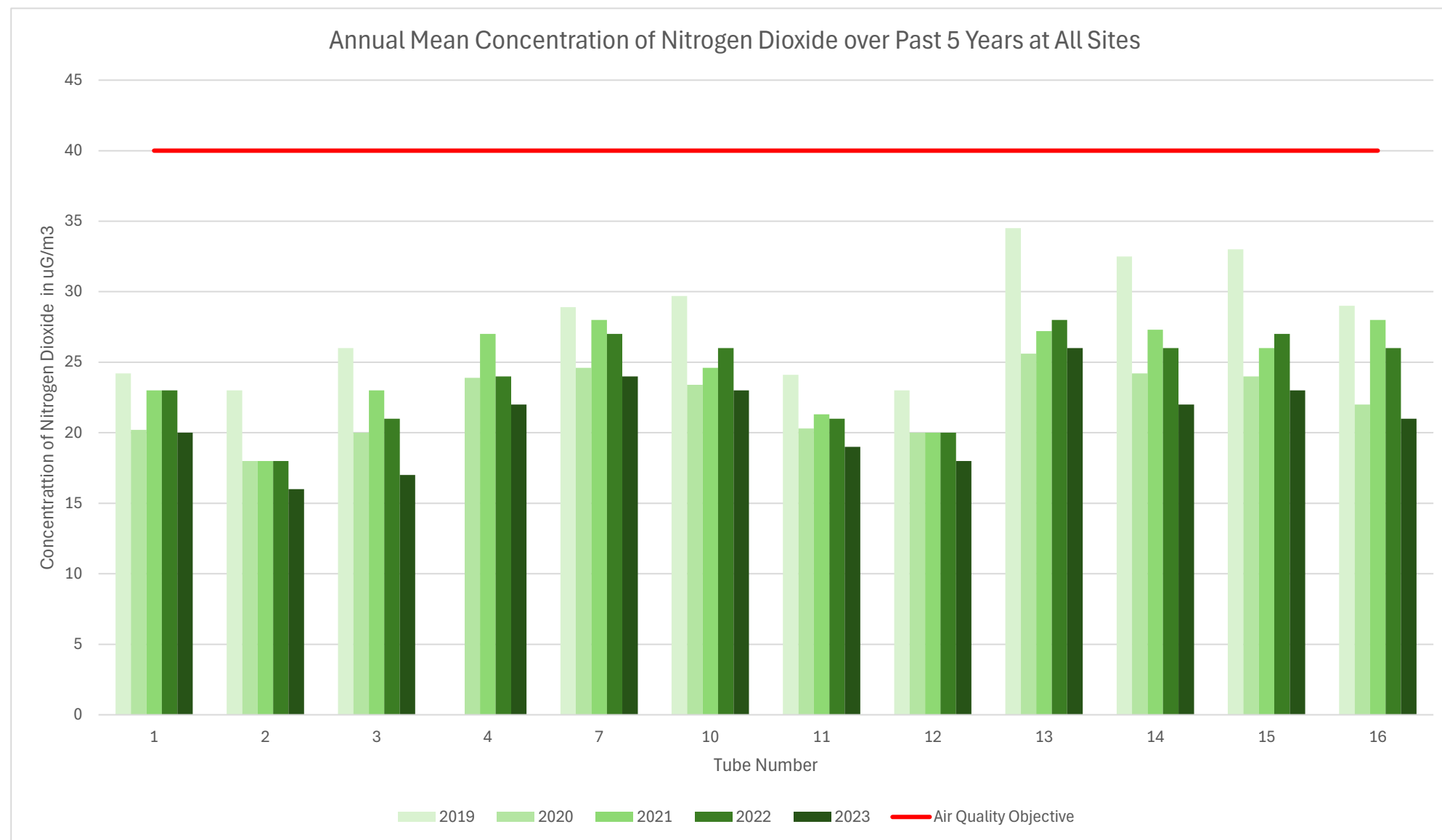
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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



Trend in Annual Mean Concentration of Nitrogen Dioxide in ug/m3 at the Five most Polluted Sites



Mean Nitrogen Dioxide Levels in Urban Centre over the Last 5 Years



Trend in Nitrogen Dioxide at Roadsaie Monitoring Points over the Last 5 Years



Notes:

Results are presented as the number of 1-hour periods where concentrations greater than $200\mu\text{g}/\text{m}^3$ have been recorded.

Exceedances of the NO_2 1-hour mean objective ($200\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2023

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

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	475029	319164	24.5	33.0	27.8	28.2	28.9	30.4	18.1	21.8	26.2	22.2	23.7	16.9	25.1	19.6	-	
2	474301	318366	27.8	17.0	16.9	17.6	18.6	19.1	15.9	19.1	23.7	22.9	28.4	23.2	20.9	16.3	-	
3	475753	319167	29.3	3.5	23.3	21.3	21.1	18.5	18.3	22.4	24.1	22.2	33.8	23.4	21.8	17.0	-	
4	475763	319262	28.6	31.9	29.1	27.1	27.2	24.5	22.2	27.5	30.3	29.4	30.4	28.2	28.0	21.9	-	
5	474704	320100	29.8	33.6	27.4	25.2	18.9	26.4	22.5	26.8	30.7	33.5	36.1	30.4	28.4	22.2	-	
6	476478	318632	12.2	14.8	9.2	8.2	8.7	7.6	7.7	9.9	10.2	13.5	19.5	15.2	11.4	8.9	-	
7	474991	319403	37.6	31.8	33.2	31.8	32.4	28.2	22.4	26.5	29.6	28.5	38.3	34.4	31.2	24.4	-	
8	475192	321173	17.2	12.9	12.1	9.6	8.1	7.4	10.2	9.3	12.1	13.8	16.6	13.6	11.9	9.3	-	
9	480474	338622	30.8	8.1	11.2	7.3	6.6	7.7	5.3	6.7	7.6	10.7	12.2	14.1	10.7	8.3	-	
10	475183	319378	29.6	37.4	27.1	24.0	23.4	20.8	24.4	27.9	29.8	33.1	37.2	35.2	29.2	22.7	-	
11	475021	319364	20.8	28.4	26.2	22.6	24.4	17.3	17.6	22.9	24.8	26.8	32.1	21.3	23.8	18.5	-	
12	474879	318971	22.4	21.5	24.2	23.2	21.8	22.6	17.7	22.0	25.8	25.8	26.0	25.6	23.2	18.1	-	
13	475046	319132	42.3	41.6	32.9	30.7	32.7	30.9	24.5	31.3	36.9	25.9	39.5	36.4	33.8	26.4	-	
14	475394	319128	35.2	41.3	32.1	23.9	28.0	26.4	23.0	27.6	19.9	35.3	33.1	18.7	28.7	22.4	-	
15	474954	319437	39.7	27.2	32.7	27.6	12.0	23.0	26.2	27.1	37.4	33.6	41.5	32.1	30.0	23.4	-	
16	475342	318960	28.1	23.8	NA	28.1	28.7	27.1	18.3	27.0	31.1	26.4	34.3	27.2	27.3	21.3	-	

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

☐ Local bias adjustment factor used

- ☒ National bias adjustment factor used.
- ☒ Where applicable, data has been distance corrected for relevant exposure in the final column.
- ☒ Melton Borough Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.
NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.
See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Melton Borough Council During 2023

There were no new or changed sources of air pollution identified in the Borough of Melton Mowbray.

Additional Air Quality Works Undertaken by Melton Borough Council During 2023

There was no additional work on air quality in Melton Borough Council 2023.

QA/QC of Diffusion Tube Monitoring

- The laboratory supplying and analysing the tubes is SOCOTEC - Didcot.
- SOCOTEC uses a 50:50% acetone:triethanolamine) preparation method as per the DEFRA harmonised methods.
- Samples have been analysed in accordance with SOCOTEC's standard operating procedure ANU/SOP/1015. This method meets DEFRA's 'Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance' guidelines.

- SOCOTEC - Didcot holds accredited laboratory analysis for diffusion tubes and is certified as 'satisfactory' UKAS.
- Monitoring has been completed in adherence with the 2023 Diffusion Tube Monitoring Calendar

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Melton Borough Council 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 2023 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.

have applied a National bias adjustment factor of 0.78 to the 2023 monitoring data. A summary of bias adjustment factors used by Melton Borough Council 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
2023	National	<->	0.78
2022	National	06/23	0.76
2021	National	06/22	0.78
2020	National	06/21	0.76
2019	National	6/20	0.75

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 06/24					
Follow the steps below in the correct order to show the results of relevant co-location studies									This spreadsheet will be updated at the end of September 2024 LAQM Helpdesk Website		
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:							
<u>Select the Laboratory that Analyses Your Tubes from the Drop-Down List</u>		<u>Select a Preparation Method from the Drop-Down List</u>	<u>Select a Year from the Drop-Down List</u>	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ³ shown in blue at the foot of the final column.							
If 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 ²	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 ⁵ 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 ⁶	Bias Adjustment Factor (A) (Cm/Dm)
SOCOTEC Didcot		50% TEA in acetone	2023	UB	Wirral Council	11	15	13	16.7%	G	0.86
Socotec Didcot		50% TEA in acetone	2023	R	Dacorum Borough Council	11	21	18	12.0%	P	0.89
Socotec Didcot		50% TEA in acetone	2023	R	Derry City And Strabane District Council	10	33	34	-3.8%	G	1.04
Socotec Didcot		50% TEA in acetone	2023	UB	Derry City And Strabane District Council	10	11	8	37.1%	P	0.73
Socotec Didcot		50% TEA in acetone	2023	R	Horsham District Council	12	21	16	31.4%	G	0.76
Socotec Didcot		50% TEA in acetone	2023	R	Waverley Borough Council	12	24	18	31.9%	G	0.76
Socotec Didcot		50% TEA in acetone	2023	R	Waverley Borough Council	12	26	19	35.8%	G	0.74
SOCOTEC Didcot		50% TEA in acetone	2023		Overall Factor ³ (34 studies)				Use		0.78

Table C.2 – Local Bias Adjustment Calculation

No local bias was used

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. No diffusion tube NO₂ monitoring locations within the Borough of Melton required distance correction during 2023.

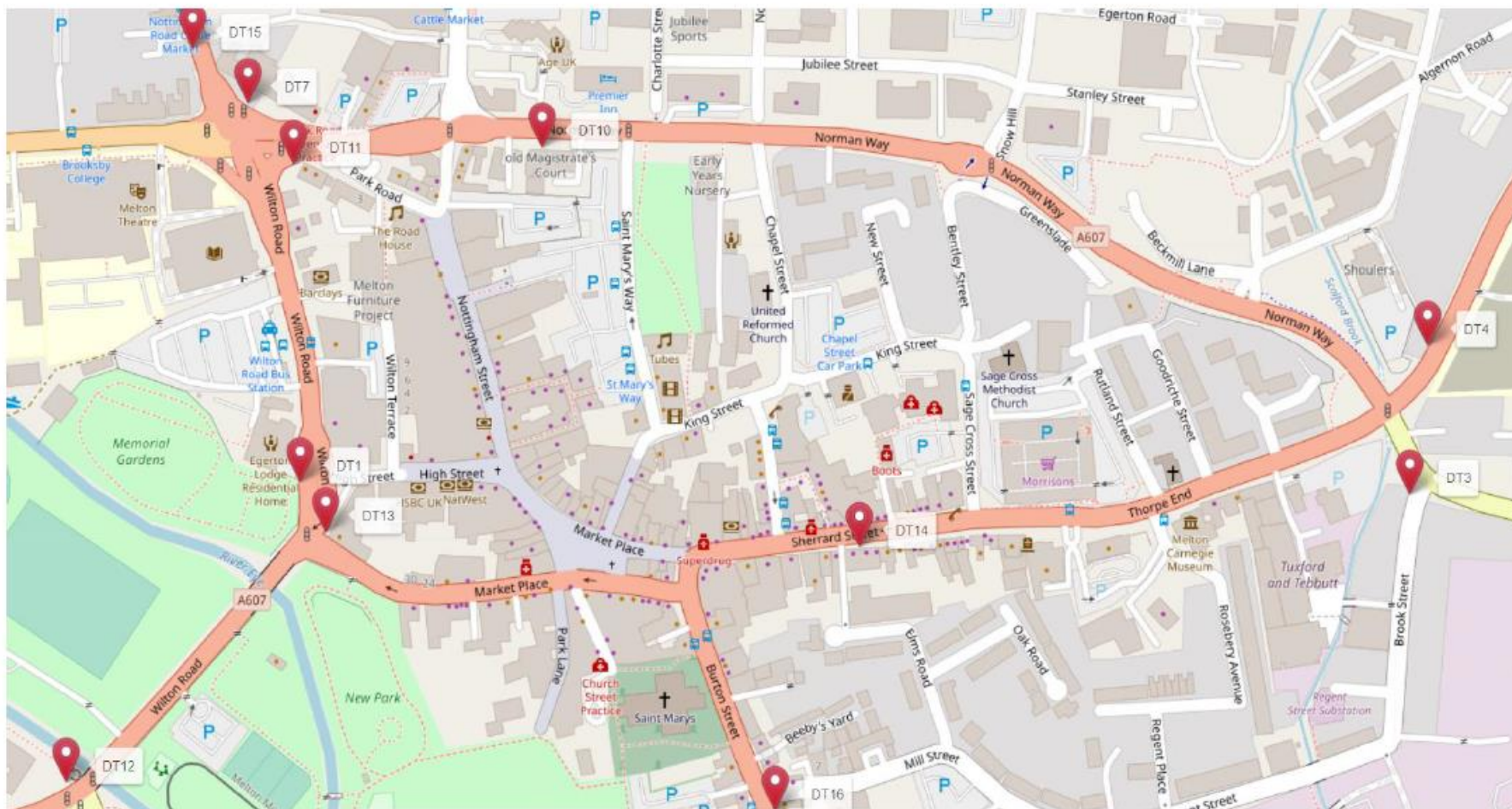
Table C.3 – Non-Automatic NO₂ Fall off With Distance Calculations (concentrations presented in µg/m³)

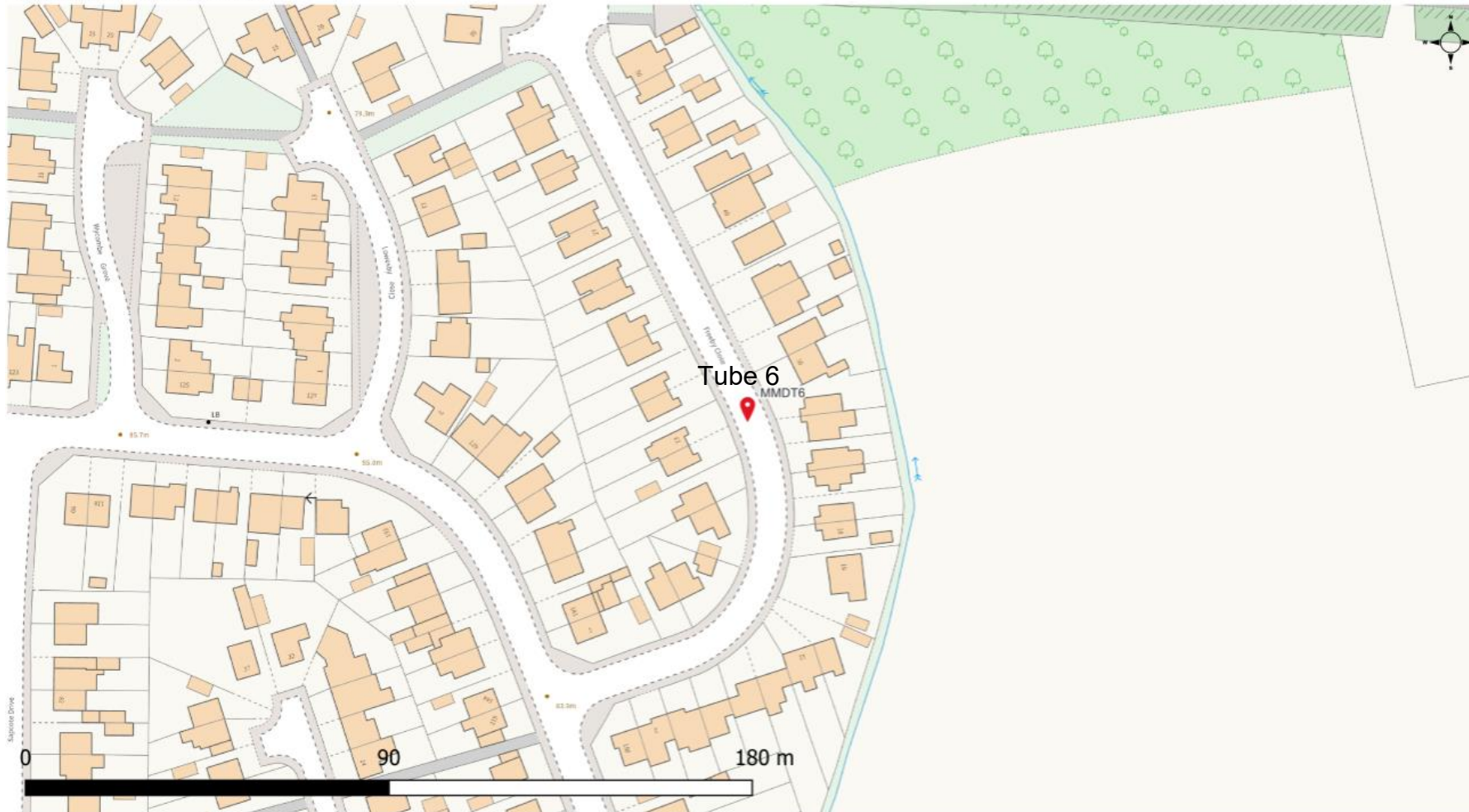
QA/QC of Automatic Monitoring

There are no automatic monitoring locations

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

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





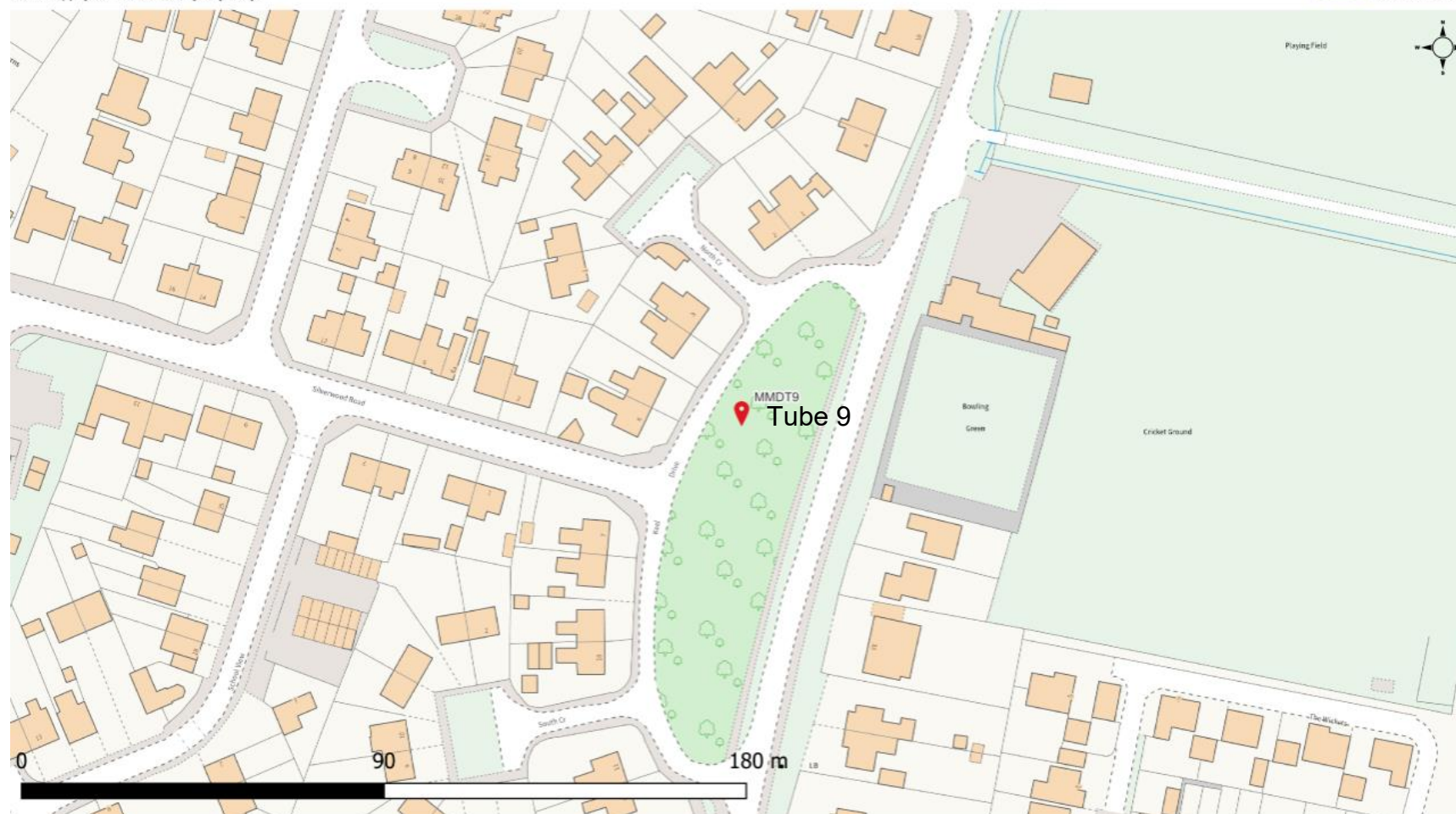
Melton Annual Status Report ASR

MMDT6
Freeby Close
X: 476478
Y: 318632



Melton Annual Status Report ASR

MMDT8
Discovery Drive
X: 475192
Y: 321173



Melton Annual Status Report ASR

MMDT9
Keel Drive, Bottesford
X: 480474
Y: 338622

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

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

⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.
- Local Transport Plan 3 LT3 Leicestershire County Council
- Health Needs Assessment: Air Quality 2024 (Draft) NHS Local Authorities