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

August 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Babergh and Mid Suffolk

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[1].

Air pollution particularly affects the most vulnerable in society; children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[2].

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

[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

The Babergh and Mid Suffolk districts are predominantly rural, with a few small market towns. Most of the non-residential area is used for agricultural activity.

Industrial activity in the districts is light with very few large industrial processes. As such, industry has relatively little impact on air quality. No new sources of significant industrial emissions began operation in 2023. Planning applications for large residential developments with associated facilities, mixed industrial uses, storage and distribution centres, and a large replacement biomass boiler, were assessed, but no significant emissions were predicted.

The main transport routes within the districts are the railway between London and Norwich, and the A12, A14 and A140 roads; none of which have previously been found to be of significance to air quality. No significant changes have been made to transport routes within either district during 2023.

Within the Babergh and Mid Suffolk districts, the main air pollutant of concern is Nitrogen dioxide. The primary source of Nitrogen dioxide within the districts is emissions from road transport. Monitoring is conducted to measure concentrations of Nitrogen dioxide. In the past, this monitoring has shown that within specific areas of Cross Street, Sudbury (within the Babergh district), concentrations of Nitrogen dioxide have been higher than the health based annual mean air quality objective (‘the objective’). As a result of the exceedances of the annual mean objective for Nitrogen dioxide, an Air Quality Management Area (AQMA) was designated in 2008 for a section of Cross Street, Sudbury. Further information about the AQMA can be found at

https://uk-air.defra.gov.uk/aqma/details?aqma_ref=635. This is the only AQMA within the Babergh district, and there are no AQMAs within the Mid Suffolk district.

The exceedances of the objective at locations on Cross Street were because of emissions from road transport, local highways design and local topography. In January 2020, two sets of on-street parking bays were removed from Cross Street, under an Experimental Traffic Regulation Order (TRO), which was the principal action of the Air Quality Action Plan (AQAP). This meant that traffic could flow freely in both lanes, rather than being forced into one lane to overtake the vehicles parked in the bays. The photographs below show the difference.

Photograph 1: Traffic passes the parking bays by entering the northbound lane

Photograph 2: Without the bays, traffic no longer needs to enter the northbound lane

Traffic travelling southbound no longer has to enter the northbound lane. Furthermore, vehicles do not have to queue to pass parked vehicles, with the associated braking, idling, and accelerating. These were all matters that were thought to be leading to elevated Nitrogen dioxide concentrations at properties on the west of Cross Street.

The intention was for the Experimental TRO to be in place for 18 months, during which the results for the 2020 calendar year would be analysed, and this would influence whether the TRO was made permanent. However, due to the Covid-19 pandemic, traffic flows were lower than usual during 2020. Although Nitrogen dioxide concentrations fell on Cross Street during 2020, it was not possible to quantify the impact of the lower traffic volumes compared to the removal of the on-street parking bays. However, towards the end of the 18-month period, a decision had to be taken by Suffolk County Council, Highways Department as to whether the TRO should be made permanent, or the parking bays reintroduced. It was decided to make the TRO permanent due to the benefits to air quality, and it remains in place to date.

During 2023, there were no exceedances of the objective in the Babergh or Mid Suffolk districts. The 2023 bias adjusted mean Nitrogen dioxide concentration at each monitoring location was lower than the 2022 result. Over the last five years, the general trend across the districts has been a significant reduction in concentration between 2019 and 2020, then a slight increase in 2021, concentrations remaining similar in 2022, and then falling in 2023. The objective was last exceeded in 2019.

Traffic counts in the AQMA in 2023 were similar to in 2019. This indicates that the reduced Nitrogen dioxide concentrations in the AQMA are due to removing the on-street parking bays, and potentially a contribution from lower emissions per vehicle, rather than the temporary reduction in traffic flows which was the case in 2020. The AQMA must remain in place until data is gathered from another year. This would then give three representative years of data, as 2020 and 2021 are not considered to be representative of long term traffic flows. The process of revoking the AQMA would begin if the objective is not exceeded in 2024. The AQMA will not be amended in any way now.

It appears that the results in Babergh and Mid Suffolk are in line with national trends, caused by traffic flows settling down after the Covid-19 pandemic, reduced emissions from newer vehicles and increasing numbers of Electric Vehicles (EVs).

In addition to the above monitoring, Babergh and Mid Suffolk District Councils are working with Suffolk County Council to implement a range of policies and strategies that have a positive impact on air quality. This includes actions within Suffolk County Council's Transport Strategy relating to sustainable planning developments[3] and in the Suffolk

[3] Suffolk Local Transport Plan 2011 – 2031, Suffolk County Council

County Council Air Quality Strategy[4], which was published May 2023. Officers have worked with Public Health at Suffolk County Council to submit a bid to DEFRA for funding from the 2024/25 Air Quality Grant, and conduct initiatives linked to Clean Air Day. Air Quality Officers across the Suffolk Councils continue to share knowledge and work on joint projects. There has been work with the University of Suffolk to share expertise and create networking links. Officers have liaised with the Environment Agency as necessary, mainly in relation to the control of industrial emissions by the Environmental Permitting regime.

Actions to Improve Air Quality

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

The Environmental Improvement Plan[5] 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 most harmful to human health. The Air Quality Strategy[6] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[7] 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.

The key action during 2023 has been monitoring the effect of the permanent TRO in Cross Street, Sudbury. Removing the on-street parking bays was the main action in the AQAP that was predicted to reduce concentrations of Nitrogen dioxide. However, it has been important to determine whether the predicted reduction in emissions was realised in practice or whether additional actions are required.

[4] Air Quality Strategy and Action Plan, May 2023, Suffolk County Council

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

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

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

The AQAP was updated in late 2023 in light of the main action having been implemented. The priorities in the updated AQAP are continuing to monitor Nitrogen dioxide concentrations in the AQMA, reviewing the ‘free parking’ policy for short stay parking in Council car parks, and ensuring new developments minimise their impact on air quality.

Babergh and Mid Suffolk District Councils have previously requested EV charging points through the planning process for commercial and residential developments. This is now replaced in part by new requirements under the Building Regulations. However, the previously requested charging points are being delivered in new developments, which encourages the uptake of EVs. The Councils installed thirty-four EV charging points in 2023 in public car parks. This is an example of forward-thinking investment with environmental and financial benefits.

The Councils’ refuse fleet was switched to a biodiesel, Hydrotreated Vegetable Oil (HVO – which has significantly lower emissions of Nitrogen oxides and particulates than traditional fuel) in 2021. In February 2023, a fleet of 22 new, more efficient, refuse lorries commenced operation, also running on HVO.

Various actions were taken for Clean Air Day in June 2023. The national theme was ‘Clean up our air to look after your mind’, emphasising the link between poor air quality and the increased prevalence of mental health and brain conditions. There was a social media campaign using the national resources, and the Suffolk councils organised a lunch time walk from the shared office location. The Clean Air Day work is an example of successful individual and partnership working to target a range of audiences.

Photograph 3: Employees taking part in a ‘Mile for my Mind’ walk on Clean Air Day

In early 2023, theatrical performances took place in eleven primary schools across the districts relating to air quality and active travel. The project was organised by Suffolk County Council's Growth, Highways and Infrastructure department, in association with the Suffolk district councils, and is a good example of sharing resources to achieve a greater outcome. The performances received excellent feedback from staff and pupils.

Photograph 4: Examples of social media posts about the air quality performances

A school in Sudbury, Babergh District Council

Clean Air presentation by Shed of Science was enjoyed by the year 5 children this afternoon sponsored by Suffolk County Council. #suffolkroadsafe #performaneinedication

The Councils are continuing work associated with the Suffolk Climate Emergency Plan; aiming to make the Councils carbon neutral by 2030. Many of the measures have the co-benefit of bringing about improvements in air quality.

Conclusions and Priorities

Air quality monitoring in both districts has shown that Nitrogen dioxide concentrations have not exceeded the objective in 2023 at any monitoring location. Concentrations were all lower than the 2022 annual mean. Monitoring will continue at the same locations in 2024 as they represent a relevant range of locations including within the AQMA, just outside the AQMA, areas of potential concern, and background sites. Data from one more year must be gathered before it is appropriate to consider revoking the AQMA and possibly amending the monitoring locations within that area.

Analysing the data from the monitoring within the AQMA is a priority for next year, as stated in the revised AQAP. This will determine whether the process to revoke the AQMA can commence. It is expected that the reduced concentrations will continue and a long term trend of compliance with the objectives will be shown. An Air Quality Strategy is being developed for Mid Suffolk District Council (as there is not an AQMA) and Babergh District Council (as the AQMA should soon be revoked). Further work on this is a priority for 2024.

Another priority is more involvement in Clean Air Day 2024, preferably with partners. However, allocating staff resource to this proactive work is likely to be a challenge. The Councils aim to continue to be aware of the increasing emphasis on particulate matter and take steps to reduce this, especially in partnership with the other Suffolk local authorities and Public Health.

Local Engagement and How to get Involved

Officers from the Environmental Protection Team have continued to respond to planning consultations with regard to air quality (i.e. engagement with the Development Management Team and developers), investigate air quality concerns raised by the public, and the Suffolk Air Quality Network is a developing forum for a range of professionals and member of community groups. There has been positive engagement with schools via the air quality themed theatrical performances, and via Modeshift STARS, a national sustainable and active travel scheme, run locally by Suffolk County Council.

As an individual there are many actions that you can take to improve the air quality and reduce air pollution. This will improve the quality of life for everyone, including you and your family. Below are a few suggestions of how to get involved:

- Use your car less. Try to walk, cycle, and use the bus or train. Cars are particularly polluting over short journeys, so aim to cut these out first.
- Reduce emissions from your car by ensuring it is regularly serviced and well maintained, you only carry the weight you need, and you drive in a gentle, steady manner.
- Consider purchasing an electric vehicle; the costs are always reducing, and the technology and infrastructure are better supporting this significant change in vehicle technology.
- When buying a traditional fuel vehicle consider the most fuel-efficient petrol vehicle and use cleaner alternative fuels where possible.
- Encourage your employer, school, or college to set up a Green Travel Plan.
- Car share, to reduce emissions and save money. This could be with friends, colleagues or through a car sharing scheme.
- Avoid having bonfires. If you do choose to have a fire, only burn dry garden waste, and avoid burning on days that already have high pollution levels.

- Avoid burning solid fuel. If you do choose to burn solid fuel, always ensure the appliance is well maintained and fuel is clean and dry.

For further information about how you can get involved, please see:

www.babergh.gov.uk/w/air-quality

www.midsuffolk.gov.uk/w/air-quality

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection Team of Babergh and Mid Suffolk District Councils with the support and agreement of the following officers and departments:

- Operations and Climate Change, BMSDC
- Communications, BMSDC
- Waste Services, BMSDC
- Public Health and Communities, SCC
- Growth, Highways and Infrastructure, SCC

This ASR has been signed off by Mark Emms, Director – Operations, Babergh and Mid Suffolk District Councils and Stuart Keeble, Director of Public Health, Suffolk County Council.

Mark Emms

Stuart Keeble

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

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1 Local Air Quality Management

This report provides an overview of air quality in Babergh and Mid Suffolk during 2023. Babergh District Council and Mid Suffolk District Council are two constitutionally separate local authorities with a shared officer structure. As such, this report is the combined Annual Status Report (ASR) for both districts. 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 ASR is an annual requirement showing the strategies employed by Babergh and Mid Suffolk District Councils 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

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

A summary of the AQMA declared by Babergh District Council can be found in Table 2.1. Appendix D: Maps of Monitoring Locations and AQMAs provides maps of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objective pertinent to the current AQMA designation is Nitrogen dioxide (NO_2) annual mean.

Mid Suffolk District Council currently does not have any declared AQMAs. A local Air Quality Strategy is under development to prevent actions that are detrimental to air quality, reduce polluting activities and proactively encourage improvements in 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
Cross Street, Sudbury	Declared November 2008	NO2 Annual Mean	An area encompassing properties on Cross Street, with 5 and 90 at the northern boundary and 50 Cross Street and the junction with Church Street at the southern boundary.	No	64.0 µg/m3	No exceedance. Highest concentration 31.0 µg/m3	4 years (2020 – 2023)	Air Quality Action Plan for Cross Street, Sudbury, December 2023	Awaiting publication

☒ **Babergh District Council confirm the information on UK-Air regarding their AQMA is up to date.**

☒ **Babergh District Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Babergh and Mid Suffolk

Defra's appraisal of last year's ASR concluded –

- *The AQAP for Babergh District Council must be updated, as likely revocation of the AQMA is not justification for not updating the AQAP.* The AQAP has been updated.
- *An Air Quality Strategy is to be produced for Mid Suffolk District Council as there are not any AQMAs in this district.* This is under development.
- Several positive points were noted, including sufficient discussion of QA/QC procedures, correct justification of the bias adjustment factor, good mapping of all monitoring locations and extensive trend graphs.

Babergh and Mid Suffolk District Councils have taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Twenty-one measures are included within Table 2.2, with the type of measure and the progress Babergh and Mid Suffolk District Councils have made during the reporting year of 2023 presented. The measures are listed broadly in order of the estimated benefit to air quality, with some grouping by themes too. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2. Where measures are ongoing, or information is unknown, the table has intentionally been left blank.

More detail on these measures can be found in the AQAP for the AQMA, the Carbon Reduction Management Plan, the Suffolk Climate Emergency Plan, the Vision for Sustainable Travel, the Suffolk Local Transport Plan, and the Suffolk County Council Air Quality Strategy.

Measure 1 relates to an action from the previous AQAP. As this has been implemented and appears to be sufficient to result in concentrations not exceeding the objective, not all actions from the previous AQAP have been addressed. Furthermore, the AQAP was updated in late 2023, and arrangements now need to be made to implement this revised AQAP.

Key completed measures are:

- The impact of removing the on-street parking bays in the AQMA has been monitored by the diffusion tube network throughout the year. Traffic flows have also been monitored to study the relationship between traffic flows and Nitrogen dioxide concentrations in the area.
- The AQAP has been updated to focus on this monitoring, alongside reviewing the 'free parking' policy for short stay parking in Council car parks, and ensuring new developments minimise their impact on air quality.
- The Councils installed thirty-four EV charging points in 2023 in public car parks. Additionally, Suffolk County Council installed twenty EV charging points on their property, some of which are within the Babergh and Mid Suffolk districts.
- Promoting Clean Air Day via social media and working with Suffolk County Council and other partners to deliver bike maintenance and local walks. Involvement was restricted by staff resources though.
- Planning applications that may have an adverse impact on air quality have been assessed and mitigation recommended where necessary. Planning consultations have included several Nationally Significant Infrastructure Projects, where the impact of the construction and operational phases has been assessed.
- The Suffolk Air Quality Group (SAQG, which the Councils are a member of) continued to meet to share knowledge and liaise with other bodies such as Public Health and Communities, Trading Standards, and Growth, Highways and Infrastructure (all within Suffolk County Council), UK Health Security Agency and the University of Suffolk. Anti-idling material produced by the SAQG was updated and relaunched in March 2024. It is circulated to primary school Junior Road Safety Officers, who may choose to educate their peers on this topic, and it is available on the Council website for schools to use as they wish. The SAQG continued to meet with researchers from the University of Suffolk to consider research needs and opportunities for information sharing, with the future aim of producing locally researched air quality material for campaigns. A workshop run by the University of Suffolk in late 2022 identified a desire for a Suffolk Air Quality Network, and Officers from Babergh and Mid Suffolk District Councils have participated in this. The launch meeting was held in November 2023, and was a well-attended, positive event.
- A bid was submitted to DEFRA in September 2023 by Suffolk County Council in partnership with Babergh and Mid Suffolk District Councils, East Suffolk Council,

Ipswich Borough Council and West Suffolk Council for £545,701 of Lot 2 Funding from the 2024/25 Air Quality Grant.

The bid was for a 2-year evidence-led education and behaviour change project which aimed to increase public knowledge about air quality, its health impacts, and how individuals can both reduce their emissions and protect themselves from its harms. It aimed to improve health outcomes and reduce associated health inequalities.

The funding was to cover the purchase and installation of 15 sensors monitoring Nitrogen Dioxide (NO2) and Particulate Matter (PM2.5 and PM10) to provide live pollution data to be made publicly accessible via a Suffolk Air Quality website. The bid also included funding for 10 School Streets in or close to Air Quality Management Areas, a school toolkit and a communication and behaviour change campaign. Funding was awarded to Suffolk County Council and Partners in February 2024, but the Air Quality Grant was subsequently withdrawn by the Air Quality Minister in April 2024 under his overarching duty to manage public monies.

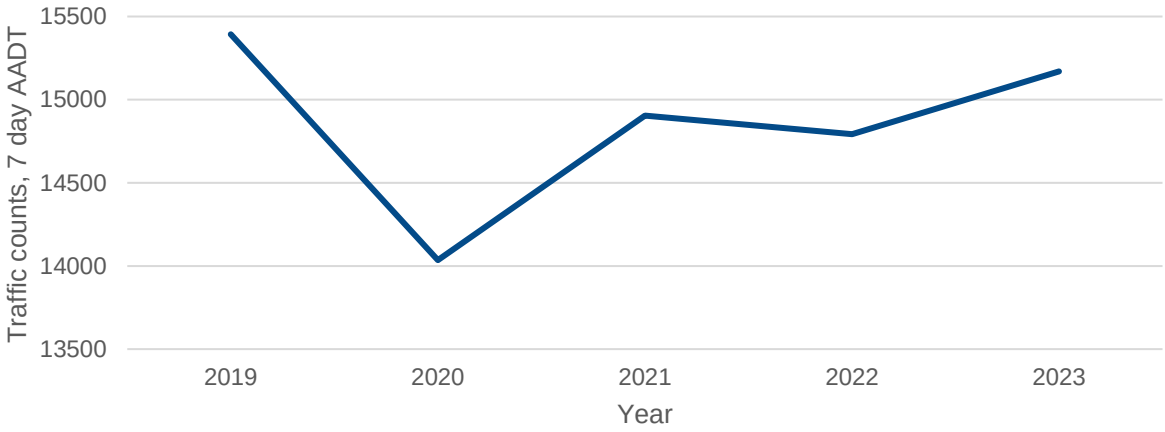
- Most premises that hold Environmental Permits to control emissions to atmosphere, including particulate matter, were rated low risk in 2023. Good practice was encouraged during the inspections to minimise emissions.

Babergh and Mid Suffolk District Councils priorities for the coming year are –

- Analysing the data from the diffusion tube monitoring within the AQMA to determine whether the objective is being met. This is the priority from the revised AQAP as it affects whether further actions are necessary to address the previous exceedances of the objective.

  It is likely, considering the current Nitrogen dioxide concentrations and the traffic flows, that the reduction in annual mean is a long term trend rather than an effect of a temporary reduction in traffic, as shown on Figure 1. The 2021 to 2023 mean results are not significantly affected by reduced traffic flows, as the 2020 mean was. Traffic flows from a local site within Suffolk County Council's traffic monitoring programme are shown below. All figures are measured 7 day Annual Average Daily Traffic at Ballingdon Street, Sudbury.

Figure 1: Traffic data from Ballingdon Street, Sudbury, 2019 – 2023



Other priorities are -

- Reviewing the 'free parking' policy for short stay Council car parks, including those in Sudbury, close to the AQMA.
- Ensuring new developments minimise their impact on air quality by improving efficiency and reducing emissions, especially in the Sudbury area, close to the AQMA.
- Completing the Air Quality Strategy for both Babergh and Mid Suffolk District Councils and starting to implement this as a proactive means of improving air quality.
- More involvement in Clean Air Day 2024, especially with partners. This is a key opportunity for informing the public about the health effects of poor air quality and the actions they can take.
- Continuing to implement carbon saving measures that have air quality co-benefits. Achieving a carbon neutral status by 2030 is a priority for the Councils.
- Continuing to work with partners, especially Public Health, in implementing measures to reduce particulate matter and engaging with the public.

Babergh and Mid Suffolk District Councils worked to implement these measures in partnership with the following stakeholders during 2023:

- Suffolk County Council – Growth, Highways and Infrastructure
- Suffolk County Council – Public Health and Communities
- Suffolk County Council – Trading Standards
- East Suffolk Council, Ipswich Borough Council and West Suffolk Council – Environmental Protection Teams
- UK Health Security Agency

- University of Suffolk

The principal challenges and barriers to implementation that Babergh and Mid Suffolk District Councils anticipate facing are limited availability of staff resources for involvement in proactive work such as Clean Air Day and undertaking multi-agency projects, funding for carbon reduction projects, and clear evidence to support responsible burning campaigns as a means of addressing particulate matter.

Progress on the following measures has been slower than expected:

- Involvement in Clean Air Day 2023 was less than expected, due to staff resources.
- Proactive work regarding particulate matter, due to staff resources and funding for campaign materials.

It is anticipated that the measures stated above and in Table 2.2 will achieve compliance in the Cross Street, Sudbury AQMA.

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	Monitoring the effect of the permanent removal of on-street parking bays within the AQMA	Traffic management	Other	2020	2024	SCC, BMSDC	SCC, BMSDC	No	Funded	< £10k	Implementation	Maximum predicted reduction 9.7µg/m3 NO2, modelled in previous AQAP. Actual maximum reduction 2019-2023 17.6 µg/m3 NO2	Measured concentration of NO2 within AQMA, monitoring in line with DEFRA calendar	Diffusion tube monitoring is continuing until at least the end of 2024	This is the key action from the AQAP.
2	Installation of 34 EV charging points in Council car parks	Promoting low emission transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2023	BMSDC	BMSDC, Office for Zero Emission Vehicles	No	Funded	£100k - £500k	Completed	Reduced vehicle emissions as encourages use of EV	Number of points installed and their use	Installed and operational	
3	Councils' refuse fleet is still run on HVO, now with 22 new HVO fuelled refuse lorries operating	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	2021	2023	BMSDC	BMSDC	No	Funded	£1 million - £10 million	Completed	NOx reduced by up to 30%, PM2.5 and PM10 reduced by up to 86% with HVO (New Era Fuels, 2021)	Emissions from vehicles – reduced compared to older HVO fuelled vehicles	New more efficient vehicles commenced operation in 2023	
4	Installation of EV charging points throughout Suffolk	Promoting low emission transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2023	SCC	Local EV Infrastructure funding (£7.3 million to date), commercial funding, SCC	No	Funded	£1 million - £10 million	Implementation	Reduced vehicle emissions as encourages use of EV	Number of points installed and their use	LEVI funding - EV points in community locations across Suffolk, 20 EV points on SCC property, businesses installing EV points via planning conditions	
5	Suffolk Climate Emergency Plan	Policy guidance and development control	Other policy	2019		SCC, all Suffolk LA's	SCC, all Suffolk LA's	No	Funded	£50k - £100k	Implementation	Reduced emissions from a range of sources, carbon reduction has an air quality co-benefit	Use of EV charging points, use of sustainable travel by the public, use of sustainable travel by businesses eg last mile delivery	Improved work with schools and businesses in 2023, involvement in use of LEVI funding	
6	Implementation of Local Transport Plan 3, and development of	Transport planning and infrastructure	Other	2015		SCC	SCC	No	Funded	£10k - 50k	Implementation	Reduced vehicle emissions as	Modes of transport used, travel	LTP3 has been in use since 2011, LTP4 is being	Cost is mainly officer time in

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
	Local Transport Plan 4											alternatives are encouraged	options available	developed including plans for a dedicated air quality section. Consultation on LTP4 in 2024	terms of writing the document.
7	SCC Air Quality Strategy	Policy guidance and development control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2022	2023	SCC, all Suffolk LA's, NHS, University of Suffolk	SCC	No	Funded	< £10k	Completed	Reduced emissions from range of sources due to behaviour change	Actions and awareness of the public	The Air Quality Strategy was published by SCC in 2023, with input in 2022 from all Suffolk LA's on the draft.	Cost is mainly officer time in terms of writing the document. Implementation cost will be determined in future years.
8	Responding to planning consultations regarding air quality impacts	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance			BMSDC	BMSDC	No	Funded	£10k - 50k	Implementation	Potentially prevent unacceptable emissions or health effects	Number of consultations responded to within timeframe	Approximately 85 planning consultations were responded to regarding air quality in 2023, including Nationally Significant Infrastructure Projects	This is one of the key actions from the AQAP.
9	Started to produce the local Air Quality Strategy	Policy guidance and development control	Other policy	2022	2024	BMSDC	BMSDC	No	Funded	< £10k	Planning	Reduced emissions from range of sources due to preventative actions and behaviour change	Overall air quality	Initial research completed. Selected preferred air quality consultant to assist with developing the strategy	
10	The Suffolk Air Quality Group shares knowledge and liaises with other bodies	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality			LA's across Suffolk, SCC, UK Health Security Agency, University of Suffolk	LA	No	Funded	< £10k	Implementation	Reduced emissions from vehicles, burning, improved awareness of air quality	Development of policies, strategies, projects	Continued knowledge sharing, improved links through Suffolk Air Quality Network launched 2023	

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
11	Involvement in Clean Air Day 2023	Public information	Via website	2023	2023	All Suffolk LA's, SCC	All Suffolk LA's, SCC	No	Funded	£10k - £50k	Completed	Reduced vehicle emissions due to increased awareness	Actions and awareness of the public	Campaign included social media campaign using national resources, walks, bike maintenance and e-bike trials arranged by SCC	Limited by officer resources
12	Promotion of sources of information for sustainable travel on the Councils' websites	Public information	Via the internet			BMSDC	BMSDC	No	Funded	< £10k	Implementation	Reduced emissions due to improved awareness	Use of sustainable travel	Information updated regularly	Council website is unlikely to be where people would search for such information
13	Home working is encouraged, improved technology allows it to occur effectively	Promoting travel alternatives	Encourage / Facilitate home-working	2015		BMSDC	N/A	No	Funded		Implementation	Reduced emissions from commutes to office and meeting locations	Mileage claims, office use	Recent office redesign encourages office use for specific purposes, but working from home is very common	
14	Pool cars are still EV, upgraded with another EV as necessary	Promoting low emission transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	2017		BMSDC	BMSDC	No	Funded		Completed	Ongoing reduced vehicle emissions	Miles driven in EV	All pool cars are EV	Ongoing costs associated with maintenance, servicing of EV but purchase cost has been reported previously
15	Regulation of premises with an Environmental Permit	Environmental permits	Other			BMSDC	BMSDC	No	Funded	£10k - 50k	Implementation	Reduced emissions, especially PM	Emissions measured from premises and risk rating score	Majority of premises were low risk in 2023, no complaints received, advice given re PM control	
16	Improved punctuality of Park & Ride – one car park for travelling into Ipswich is in BDC	Alternatives to private vehicle use	Bus based Park & Ride	2023	2023	SCC	SCC	No	Funded	< £10k	Completed	Encourages use of Park & Ride if it is more punctual, reduced emissions from individual vehicles	Use of Park & Ride	Improved timetable in operation	Only a small area of BDC is served by the Park & Ride route, but use of it reduces emissions going into Ipswich and encourages a mindset of public transport
17	Provision of two electric buses to serve the rural communities	Promoting low emission transport	Public Vehicle Procurement -Prioritising uptake of low	2022	2023	MSDC	MSDC	No	Funded	£500k – £1 million	Aborted	Reduced vehicle emissions	Provision of buses and their use	Budget allocated Feb 2022, discussions held with	Financial uncertainty with EV buses, budget to be reallocated to

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
			emission vehicles											partners, lack of evidence from similar schemes, put on hold Feb 2023	buses running on biofuel
18	Modeshift STARS	Promoting travel alternatives	Other			SCC	SCC	No	Funded	< £10k	Implementation	Reduced vehicle emissions in locality of schools	Provision and use of sustainable and active travel	During 2023, five schools achieved accreditation, and six others started the accreditation process in BMSDC	Competing demands on school time
19	School theatre performances about air quality and active travel	Public information	Via other mechanisms	2022	2023	SCC, all other Suffolk LA's	SCC, all other Suffolk LA's	No	Funded	< £10k	Completed	Reduced vehicle emissions in locality of schools	Future travel to school, evaluation of the performances	Performances at 30 primary schools took place (1,200 children), including 11 schools in BMSDC	High demand on school time, so not all the priority schools were able to accommodate performances
20	Cycle training through the 'Bikeability' scheme	Promoting travel alternatives	Promotion of cycling	2023	2023	SCC	SCC	No	Funded		Implementation	Encourages cycle use	Number of participants in scheme	In 2023, approximately 3,800 students across Suffolk were trained to Bikeability Level 2	County wide scheme – difficult to obtain costs and participant figures per LA
21	Sustainable travel event at Needham Lakes	Promoting travel alternatives	Promotion of cycling	2023	2023	BMSDC	BMSDC	No	Funded	< £10k	Completed	Reduced vehicle emissions as encourages cycling	Future uptake of cycling	Event in April 2023, attended by over 100 people, bike maintenance and test bikes	Funding for such events is limited

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[8], 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 than 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Babergh and Mid Suffolk District Councils are taking the following measures to address reducing $PM_{2.5}$:

- The SAQG has continued to engage with Suffolk County Council Public Health regarding $PM_{2.5}$. The Suffolk County Council Air Quality Strategy, published in 2023, addresses $PM_{2.5}$ in addition to other pollutants. *(Measure 7)*
- The Councils' refuse fleet has been run on HVO since 2021. This fuel has up to 86% reduced PM emissions. In 2023, 22 refuse lorries were upgraded to new vehicles, also run on HVO. There was a competition for the public to name the vehicles, and publicity around the winning names and the lower emissions. *(Measure 3)*
- Thirty four EV charging points have been installed in Council car parks in 2023. Providing EV charging points encourages the uptake of EV's and reduces particulate matter emissions from traditional fuel vehicles. Suffolk County Council has also been actively involved in installing EV charging points throughout 2023. *(Measure 2, 4)*
- Throughout 2023, inspections of premises that hold an Environmental Permit found that installations that are likely to emit $PM_{2.5}$, for example concrete crushers and cement batching plants, were operating in line with best practice. Control measures such as water spraying, sideboards on conveyors and low drop heights were implemented. *(Measure 15)*

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

- The Environmental Protection Team continues to recommend planning conditions regarding the control of $PM_{2.5}$, for example by compliance with a construction management plan. *(Measure 8)*

The fraction of mortality attributable to particulate air pollution was 5.6% within the Babergh district and 5.3% within the Mid Suffolk district, compared to 6.2% as the average figure for the East of England Region and 5.8% as the England average. All figures are for 2022, which is the latest dataset available[9]. It is understood from local contacts at the UK Health Security Agency, that this mortality figure varies based on the weather as well as based on emissions. Therefore, although the figures for Babergh and Mid Suffolk District Councils are higher for 2022 than for previous years, but lower than the regional and national figure, caution should be given in drawing any firm conclusions.

All measures taken that reduce $PM_{2.5}$ have links to the Public Health Outcomes Framework, as they reduce the percentage of all-cause adult mortality attributable to anthropogenic particulate air pollution, which is measured as $PM_{2.5}$.

There are not any smoke control areas in the Babergh or Mid Suffolk districts and monitoring does not occur for PM_{10} or $PM_{2.5}$. This is because the districts are largely rural with small market towns, and do not have densely populated urban areas where significant solid fuel burning is prevalent.

[9] Public Health Outcomes Framework, Health Protection, https://fingertips.phe.org.uk/profile/public-health-outcomes-framework

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Babergh and Mid Suffolk District Councils do not operate any automatic monitoring sites in the districts.

3.1.2 Non-Automatic Monitoring Sites

Babergh and Mid Suffolk District Councils undertook non-automatic (i.e. passive) monitoring of NO_2 at 15 sites during 2023: 13 within the Babergh district and 2 within the Mid Suffolk district. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments, are included in Appendix C.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.4 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that

the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B. It has not been necessary to distance correct any results, as only one location is not at relevant exposure, and the bias adjusted mean was below 36µg/m^3. At many monitoring locations, including all sites in the AQMA, two diffusion tubes are positioned close to each other to improve the accuracy of the results. The monthly results are presented with the highest result first for each monitoring location e.g. BDC 1a, and then the lower result e.g. BDC 1b.

The annual mean has not exceeded 60µg/m^3 at any monitoring location. Therefore, it is not considered likely that there will be an exceedance of the 1 hour mean objective at any location.

There were no exceedances of the air quality objective in 2023. Concentrations of NO_2 are similar to the 2020 - 2022 results both within and outside the AQMA. The results are lower than those in 2019. It is thought that this is because of reduced traffic flows compared to 2019, the removal of the on-street parking bays within the AQMA, improved engine technology causing reduced emissions, and an increase in EV's.

Figure A.1 shows the annual mean NO_2 concentration over the last five years at monitoring locations that exceeded the objective in 2019. This is the last year that the objective was exceeded. It was thought that the exceedances were due to the effect of the on-street parking bays, which were removed in early 2020. Significant reductions of 16.4µg/m^3, 14.5µg/m^3 and 15.5µg/m^3 were measured between 2019 and 2020 at these locations. Although the annual mean increased slightly at two of the locations between 2020 and 2021, it remained the same at the other location between 2020 and 2021. The annual mean decreased slightly at all three locations between 2021 and 2022, and then again between 2022 and 2023. This ties in with a slight reduction in traffic flows at a nearby monitoring site between 2021 and 2022, see Figure 1. Now that traffic flows can be considered to have reached a 'new normal', these results suggest that removing the on-street parking bays caused a significant reduction in NO_2 at these locations. The annual mean for all three locations is lower in 2023 than 2020.

Figure A.2 shows the annual mean NO_2 concentration over the last five years at monitoring locations within the Babergh district that did not exceed the objective in 2019. There was a maximum reduction of 8µg/m^3 (at BDC 6) between 2019 and 2020 within

these locations. At all but two locations, there was a slight increase in NO_2 concentration between 2020 and 2021. This was thought to be due to increased traffic flows. It is not known why there was a further decrease in NO_2 concentration at two locations between 2020 and 2021, but the concentrations at both locations increased between 2021 and 2022. At all locations, there was a slight decrease in NO_2 concentration between 2022 and 2023. At all locations, the annual mean for 2023 is lower than it was in 2019, by between 1.1µg/m^3 and 8.2µg/m^3.

Figure A.3 shows the annual mean NO_2 concentration over the last five years at all monitoring locations within the AQMA. All these locations are covered by Figures A.1 or A.2, but Figure A.3 draws together all data within the AQMA. The more significant reductions between 2019 and 2020 were at the locations that removing the on-street parking bays was expected to have a positive impact on. There was a slight increase at all locations between 2020 and 2021 (except one which has the same mean for the two years). This is thought to be because of increased traffic flows. However, the similar increase across all monitoring locations supports the view that the on-street parking bays were the reason for the exceedance of the objective. The annual mean results for 2022 are similar to 2021, and then there is a reduction at all locations in 2023.

It is appropriate to maintain the current boundary of the AQMA, whilst gathering more data to support revoking it in 2025 if current trends continue.

Figure A.4 shows the annual mean NO_2 concentration over the last five years at monitoring locations within the Mid Suffolk district. One of the locations (MSDC 1) is at a busy crossroad in a town and the other (MSDC 2) is close to the A14 for reference purposes. Both show a reduction between 2019 and 2023. However, it is more significant between 2019 and 2020 than between any other years, at 6.4µg/m^3 and 5.3µg/m^3. After an increase between 2020 and 2021, the concentration at both locations has fallen between 2021 and 2023.

The monitoring locations in both districts remain appropriate and will continue in 2024.

No new monitoring locations will be added in 2024. Traffic flows and other factors that determine monitoring locations will be kept under review.

3.2.2 Particulate Matter (PM_{10})

Babergh and Mid Suffolk District Councils do not monitor for this pollutant.

3.2.3 Particulate Matter ($PM_{2.5}$)

Babergh and Mid Suffolk District Councils do not monitor for this pollutant.

3.2.4 Sulphur Dioxide (SO_2)

Babergh and Mid Suffolk District Councils do not monitor for this pollutant.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Babergh and Mid Suffolk District Councils do not undertake any automatic monitoring.

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID[1]	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) [2]	Distance to kerb of nearest road (m)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
BDC 1a, BDC 1b	9 Cross Street, Sudbury	Roadside	586848	241133	NO2	Yes - Cross Street	0.0	1.7	No	2.3
BDC 2a, BDC 2b	17 Cross Street, Sudbury	Roadside	586836	241089	NO2	Yes - Cross Street	0.0	2.1	No	2.3
BDC 3a, BDC 3b	30 Cross Street, Sudbury	Roadside	586808	241015	NO2	Yes - Cross Street	0.0	1.4	No	2.3
BDC 4a, BDC 4b	36 Cross Street, Sudbury	Roadside	586790	240944	NO2	No	0.0	1.5	No	2.3
BDC 5a, BDC 5b	58 Cross Street, Sudbury	Roadside	586798	241010	NO2	Yes - Cross Street	0.0	1.9	No	2.3
BDC 6a, BDC 6b	70 Cross Street, Sudbury	Roadside	586818	241068	NO2	Yes - Cross Street	0.0	1.5	No	2.3
BDC 7a, BDC 7b	78 Cross Street, Sudbury	Roadside	586829	241104	NO2	Yes - Cross Street	0.0	1.3	No	2.3
BDC 8a, BDC 8b	82 Cross Street, Sudbury	Roadside	586835	241123	NO2	Yes - Cross Street	0.0	1.6	No	2.2
BDC 9a, BDC 9b	87 Cross Street, Sudbury	Roadside	586842	241148	NO2	Yes - Cross Street	0.0	1.1	No	2.3
BDC 10	5 Ballingdon Street, Sudbury	Roadside	586721	240879	NO2	No	0.0	3.6	No	2.3
BDC 11	54 Church Street, Sudbury	Roadside	586930	241058	NO2	No	0.0	1.7	No	2.6
BDC 12	7 Gainsborough Street, Sudbury	Roadside	587253	241256	NO2	No	0.0	2.8	No	2.5
BDC 13	31 Friars Street, Sudbury	Roadside	587257	241110	NO2	No	0.0	2.9	No	2.3

Diffusion Tube ID[1]	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) [2]	Distance to kerb of nearest road (m)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
MSDC 1a, MSDC 1b	Station Road West, Stowmarket	Roadside	604972	258745	NO2	No	0.0	2.2	No	2.3
MSDC 2	Cottage Farmhouse, Stowmarket	Roadside	606049	259307	NO2	No	4.0	15.7	No	1.9

Notes:

(1) BDC = Babergh District Council, MSDC = Mid Suffolk District Council

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

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

Babergh and Mid Suffolk District Councils do not undertake any automatic monitoring.

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

Diffusion Tube ID[1]	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [2]	Valid Data Capture 2022 (%) [3]	2019	2020	2021	2022	2023
BDC 1a, BDC 1b	586848	241133	Roadside	100	100.0	28.1	24.8	25.8	25.5	24.0
BDC 2a, BDC 2b	586836	241089	Roadside	100	100.0	28.7	27.1	27.9	29.4	27.6
BDC 3a, BDC 3b	586808	241015	Roadside	100	100.0	34.8	28.7	30.0	31.7	29.4
BDC 4a, BDC 4b	586790	240944	Roadside	100	100.0	29.4	22.0	23.2	25.2	21.8
BDC 5a, BDC 5b	586798	241010	Roadside	100	100.0	36.0	30.4	32.3	31.9	31.0
BDC 6a, BDC 6b	586818	241068	Roadside	100	100.0	31.2	23.2	24.9	24.6	23.0
BDC 7a, BDC 7b	586829	241104	Roadside	100	100.0	**47.5**	31.1	33.3	31.8	30.1
BDC 8a, BDC 8b	586835	241123	Roadside	100	100.0	**47.3**	32.8	33.2	32.8	30.4
BDC 9a, BDC 9b	586842	241148	Roadside	100	100.0	**47.0**	31.5	31.5	30.6	29.4
BDC 10	586721	240879	Roadside	100	100.0	27.6	23.7	23.1	24.5	22.3
BDC 11	586930	241058	Roadside	100	100.0	22.4	14.7	17.2	17.9	15.8
BDC 12	587253	241256	Roadside	100	100.0	28.0	22.5	20.2	24.1	22.7
BDC 13	587257	241110	Roadside	92.3	92.3	18.8	14.6	18.0	14.9	12.8

Diffusion Tube ID[1]	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [2]	Valid Data Capture 2022 (%) [3]	2019	2020	2021	2022	2023
MSDC 1a, MSDC 1b	604972	258745	Roadside	100	100.0	31.2	24.8	28.4	28.0	26.8
MSDC 2	606049	259307	Roadside	92.3	92.3	21.4	16.1	17.4	17.8	14.6

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

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

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

Notes:

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

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

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

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

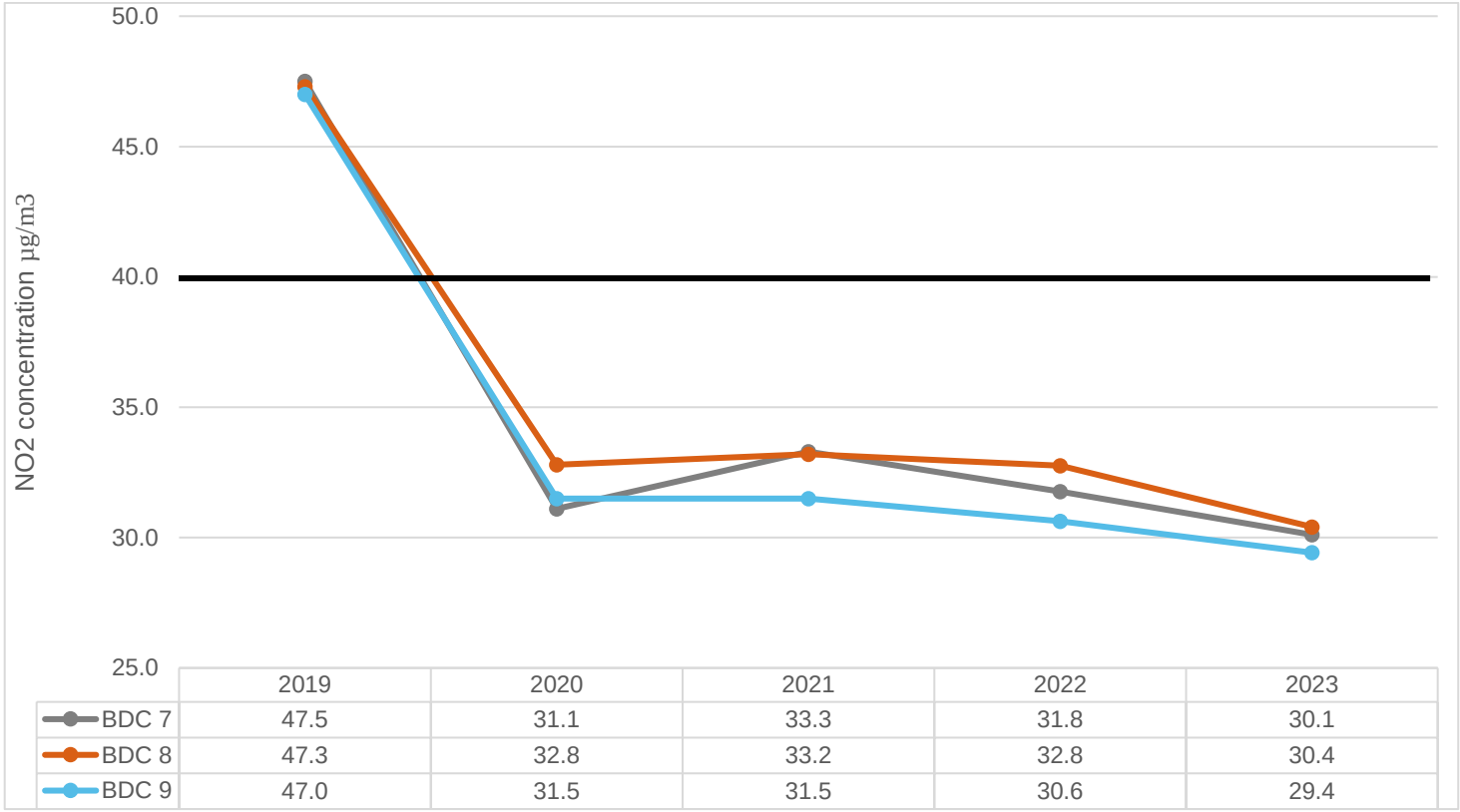
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(1) BDC = Babergh District Council, MSDC = Mid Suffolk District Council

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

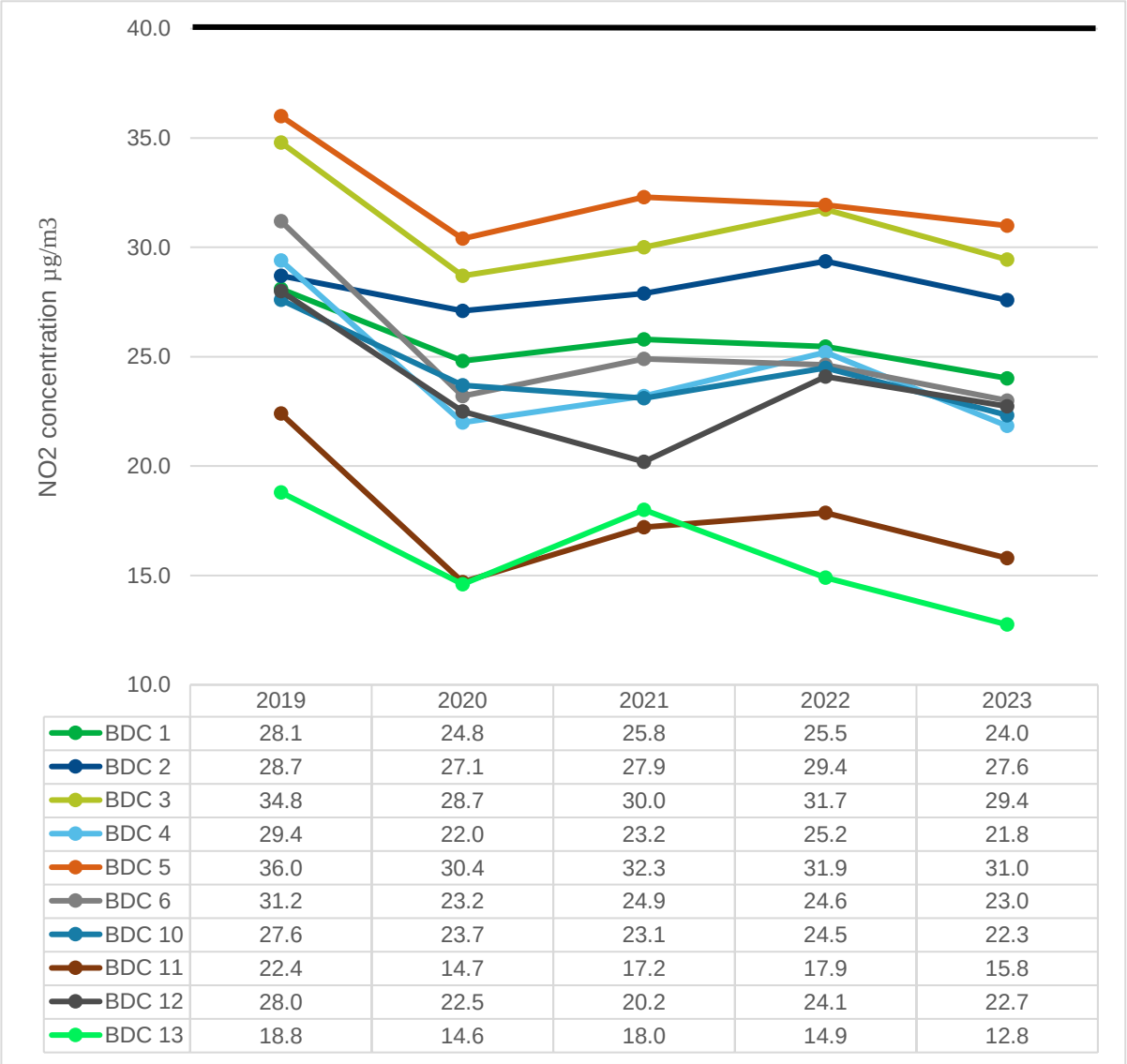
(3) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations for Monitoring Locations in the Babergh district that Exceeded the Objective in 2019



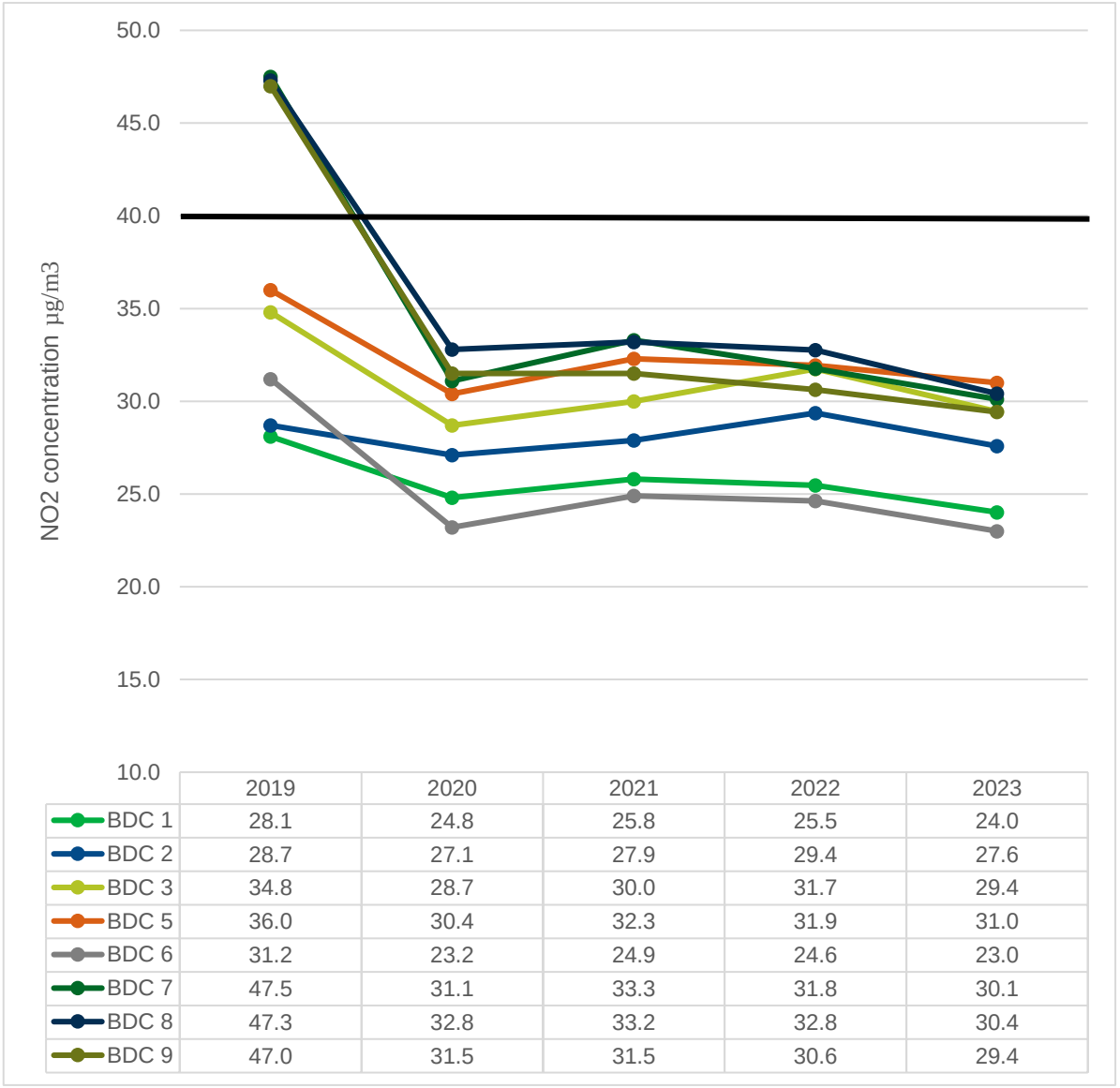
	2019	2020	2021	2022	2023
BDC 7	47.5	31.1	33.3	31.8	30.1
BDC 8	47.3	32.8	33.2	32.8	30.4
BDC 9	47.0	31.5	31.5	30.6	29.4

Figure A.2 – Trends in Annual Mean NO_2 Concentrations for Monitoring Locations in the Babergh district that did not Exceed the Objective in 2019



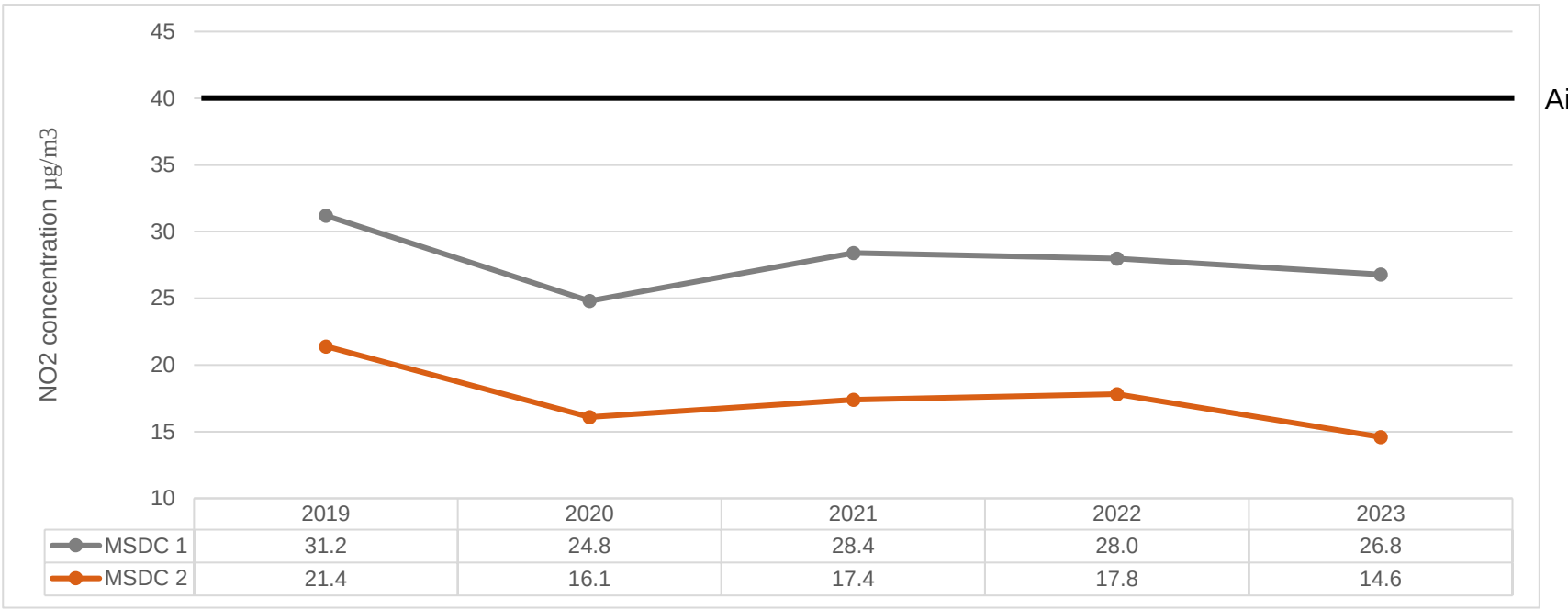
	2019	2020	2021	2022	2023
BDC 1	28.1	24.8	25.8	25.5	24.0
BDC 2	28.7	27.1	27.9	29.4	27.6
BDC 3	34.8	28.7	30.0	31.7	29.4
BDC 4	29.4	22.0	23.2	25.2	21.8
BDC 5	36.0	30.4	32.3	31.9	31.0
BDC 6	31.2	23.2	24.9	24.6	23.0
BDC 10	27.6	23.7	23.1	24.5	22.3
BDC 11	22.4	14.7	17.2	17.9	15.8
BDC 12	28.0	22.5	20.2	24.1	22.7
BDC 13	18.8	14.6	18.0	14.9	12.8

Figure A.3 – Trends in Annual Mean NO_2 Concentrations for Monitoring Locations within the AQMA



	2019	2020	2021	2022	2023
BDC 1	28.1	24.8	25.8	25.5	24.0
BDC 2	28.7	27.1	27.9	29.4	27.6
BDC 3	34.8	28.7	30.0	31.7	29.4
BDC 5	36.0	30.4	32.3	31.9	31.0
BDC 6	31.2	23.2	24.9	24.6	23.0
BDC 7	47.5	31.1	33.3	31.8	30.1
BDC 8	47.3	32.8	33.2	32.8	30.4
BDC 9	47.0	31.5	31.5	30.6	29.4

Figure A.4 – Trends in Annual Mean NO_2 Concentrations for Monitoring Locations in the Mid Suffolk district



	2019	2020	2021	2022	2023
MSDC 1	31.2	24.8	28.4	28.0	26.8
MSDC 2	21.4	16.1	17.4	17.8	14.6

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

Babergh and Mid Suffolk District Councils do not undertake any automatic monitoring.

Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Babergh and Mid Suffolk District Councils do not undertake any automatic monitoring.

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

Babergh and Mid Suffolk District Councils do not undertake any automatic monitoring.

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

Babergh and Mid Suffolk District Councils do not undertake any automatic monitoring.

Table A.9 – SO_2 2023 Monitoring Results, Number of Relevant Instances

Babergh and Mid Suffolk District Councils do not undertake any automatic monitoring.

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Diffusion Tube Results ($\mu g/m^3$)

Diffusion Tube ID[(1)]	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 (0.77)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
BDC 1a	586848	241133	33.2	38.1	35.8	32.9	25.5	31.3	24.6	33.7	37.3	38.0	40.1	26.4	-	-	-	Duplicate Site with BDC 1a and BDC 1b - Annual data provided for BDC 1b only
BDC 1b	586848	241133	29.8	24.8	34.1	31.6	23.7	29.0	24.5	32.5	31.9	35.0	29.3	25.5	31.2	24.0	-	Duplicate Site with BDC 1a and BDC 1b - Annual data provided for BDC 1b only
BDC 2a	586836	241089	38.7	46.3	40.6	40.5	31.8	38.9	29.2	40.7	40.1	39.6	41.6	25.2	-	-	-	Duplicate Site with BDC 2a and BDC 2b - Annual data provided for BDC 2b only
BDC 2b	586836	241089	31.6	29.4	39.9	38.5	30.6	36.5	26.6	39.7	35.5	38.9	35.0	24.5	35.8	27.6	-	Duplicate Site with BDC 2a and BDC 2b - Annual data provided for BDC 2b only
BDC 3a	586808	241015	40.7	47.1	45.1	42.1	38.1	44.5	26.0	41.5	38.7	40.7	41.1	28.8	-	-	-	Duplicate Site with BDC 3a and BDC 3b - Annual data provided for BDC 3b only
BDC 3b	586808	241015	32.0	36.7	37.3	41.3	33.8	41.7	29.3	42.8	42.6	43.3	33.8	28.7	38.2	29.4	-	Duplicate Site with BDC 3a and BDC 3b - Annual data provided for BDC 3b only
BDC 4a	586790	240944	27.1	37.6	35.0	27.8	26.3	29.3	22.6	32.4	31.2	32.6	31.5	21.7	-	-	-	Duplicate Site with BDC 4a and BDC 4b - Annual data provided for BDC 4b only
BDC 4b	586790	240944	23.3	33.6	34.5	20.6	26.0	26.8	20.7	31.3	31.1	29.2	29.3	19.2	28.4	21.8	-	Duplicate Site with BDC 4a and BDC 4b - Annual data provided for BDC 4b only
BDC 5a	586798	241010	49.4	40.0	42.3	34.9	40.7	41.8	38.4	40.8	41.1	41.5	46.9	33.6	-	-	-	Duplicate Site with BDC 5a and BDC 5b - Annual data provided for BDC 5b only
BDC 5b	586798	241010	43.2	38.3	38.2	34.7	39.5	41.1	36.4	46.1	40.4	39.6	43.7	33.4	40.3	31.0	-	Duplicate Site with BDC 5a and BDC 5b - Annual data provided for BDC 5b only
BDC 6a	586818	241068	34.4	41.7	27.6	28.8	33.9	29.0	25.5	34.1	28.8	32.6	37.9	20.9	-	-	-	Duplicate Site with BDC 6a and BDC 6b - Annual data provided for BDC 6b only
BDC 6b	586818	241068	30.2	36.6	24.6	25.9	32.1	26.7	22.1	32.3	28.7	31.3	36.3	14.9	29.9	23.0	-	Duplicate Site with BDC 6a and BDC 6b - Annual data provided for BDC 6b only
BDC 7a	586829	241104	49.1	47.9	42.3	31.8	38.4	38.0	33.9	45.0	45.5	45.4	48.0	38.5	-	-	-	Duplicate Site with BDC 7a and BDC 7b - Annual data provided for BDC 7b only
BDC 7b	586829	241104	48.8	40.6	18.2	30.9	36.7	36.3	23.2	42.5	43.3	36.2	46.9	31.1	39.1	30.1	-	Duplicate Site with BDC 7a and BDC 7b - Annual data provided for BDC 7b only
BDC 8a	586835	241123	44.2	54.6	40.2	34.9	33.2	36.1	36.2	46.5	51.4	42.9	38.3	33.6	-	-	-	Duplicate Site with BDC 8a and BDC 8b - Annual data provided for BDC 8b only
BDC 8b	586835	241123	39.9	45.1	39.3	32.1	31.4	34.4	33.6	43.2	47.0	41.7	37.4	30.7	39.5	30.4	-	Duplicate Site with BDC 8a and BDC 8b - Annual data provided for BDC 8b only
BDC 9a	586842	241148	51.2	48.5	42.0	28.3	28.3	35.5	38.3	41.9	45.7	41.7	45.4	37.0	-	-	-	Duplicate Site with BDC 9a and BDC 9b - Annual data provided for BDC 9b only
BDC 9b	586842	241148	42.3	41.6	37.0	27.8	26.3	34.0	34.1	39.0	43.5	28.4	43.8	35.5	38.2	29.4	-	Duplicate Site with BDC 9a and BDC 9b - Annual data provided for BDC 9b only

Diffusion Tube ID[(1)]	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 (0.77)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
BDC 10	586721	240879	35.8	19.7	30.7	27.6	19.7	27.1		32.7	33.7	28.1	34.9		29.0	22.3	-	
BDC 11	586930	241058	26.7	20.0	21.3	13.8	16.2	17.6	17.5	20.9	21.2	24.4	25.7	20.9	20.5	15.8	-	
BDC 12	587253	241256	30.7	34.0	29.0	26.1	21.0	27.8	26.8	28.0	34.7	32.2	32.8	31.3	29.5	22.7	-	
BDC 13	587257	241110	19.4	24.0	20.2		15.3	14.4	11.1	16.1	15.7	17.2	13.7	15.1	16.6	12.8	-	
MSDC 1a	604972	258745	46.5	43.2	35.1	34.2	34.6	34.3	28.5	35.3	36.7	36.9	44.0	30.2	-	-	-	Duplicate Site with MSDC 1a and MSDC 1b - Annual data provided for MSDC 1b only
MSDC 1b	604972	258745	38.0	42.6	33.7	31.7	33.2	32.9	28.5	32.6	34.1	34.8	22.9	30.6	34.8	26.8	-	Duplicate Site with MSDC 1a and MSDC 1b - Annual data provided for MSDC 1b only
MSDC 2	606049	259307	21.9	19.4	19.5	19.9	23.3	20.5	11.7	20.1	15.9	21.7	21.1	12.9	19.0	14.6	-	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**

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

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

☐ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **Babergh and Mid Suffolk District Councils confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

(1) BDC = Babergh District Council, MSDC = Mid Suffolk District Council

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

New or Changed Sources Identified Within Babergh and Mid Suffolk District Councils During 2023

Babergh and Mid Suffolk District Councils have not identified any significant new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Babergh and Mid Suffolk District Councils During 2023

Although the key action from the AQAP was implemented in 2020, it is not necessary to conduct any additional works associated with this. The impact will continue to be monitored through the routine diffusion tube monitoring programme, rather than through detailed assessments or modelling.

QA/QC of Diffusion Tube Monitoring

Diffusion tubes are supplied and analysed by Socotec Didcot. The preparation method is 50% TEA in acetone. The analysis of diffusion tube samples to determine the amount of Nitrogen dioxide present on the tube is within the scope of Socotec's UKAS schedule. The samples are analysed in accordance with Socotec's standard operating procedure, which meets the guidelines set out in DEFRA's 'Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance'. In the AIR-PT inter-comparison scheme for comparing spiked Nitrogen dioxide diffusion tubes, Socotec is ranked as a 'satisfactory' laboratory. Regarding precision results, Socotec, 50% TEA in acetone obtained good results for 28 studies and poor results for 0 studies in 2023. The diffusion tubes were changed in line with the 2023 monitoring calendar.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Babergh and Mid Suffolk District Councils recorded data capture of at least 75%. Therefore, it was not necessary to annualise any monitoring data.

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/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Babergh and Mid Suffolk District Councils have applied a national bias adjustment factor of 0.77 to the 2023 monitoring data. A summary of bias adjustment factors used by Babergh and Mid Suffolk District Councils over the past five years is presented in Table C.1.

The Councils do not conduct automatic monitoring so there are no collocation studies, and the national factor has been used rather than a local factor. For 2023, national spreadsheet version 03/24 has been used, which included 28 studies to derive the bias factor, as shown below.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/24

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

This spreadsheet will be updated at the end of June 2024
LAQM Helpdesk Website

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

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

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[2].

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

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

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
SOCOTEC Didcot	50% TEA in Acetone	2023	R	Horsham District Council	10	25	17	43.5%	G	0.70
SOCOTEC Didcot	50% TEA in Acetone	2023	R	Horsham District Council	10	23	24	-5.4%	G	1.06
SOCOTEC Didcot	50% TEA in Acetone	2023	UI	North Lincolnshire Council	10	14	11	26.2%	G	0.79
SOCOTEC Didcot	50% TEA in acetone	2023	R	Bridgend Council	11	32	27	20.8%	G	0.83
SOCOTEC Didcot	50% TEA in acetone	2023	R	Cambridge City Council	12	22	18	24.8%	G	0.80
SOCOTEC Didcot	50% TEA in acetone	2023	R	Leeds City Council	10	39	29	32.3%	G	0.76
SOCOTEC Didcot	50% TEA in acetone	2023	KS	Leeds City Council	10	30	20	48.9%	G	0.67
SOCOTEC Didcot	50% TEA in acetone	2023	R	Leeds City Council	12	25	19	30.0%	G	0.77
SOCOTEC Didcot	50% TEA in acetone	2023	UC	Leeds City Council	11	26	19	40.0%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2023	KS	Marylebone Road intercomparison	11	53	38	41.4%	G	0.71
SOCOTEC Didcot	50% TEA in acetone	2023	R	Vale Of White Horse District Council	10	22	18	21.2%	G	0.83
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		Overall Factor[3] (28 studies)				Use		0.77

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.77
2022	National	03/23	0.76
2021	National	06/22	0.78
2020	National	06/21	0.76
2019	National	09/20	0.75

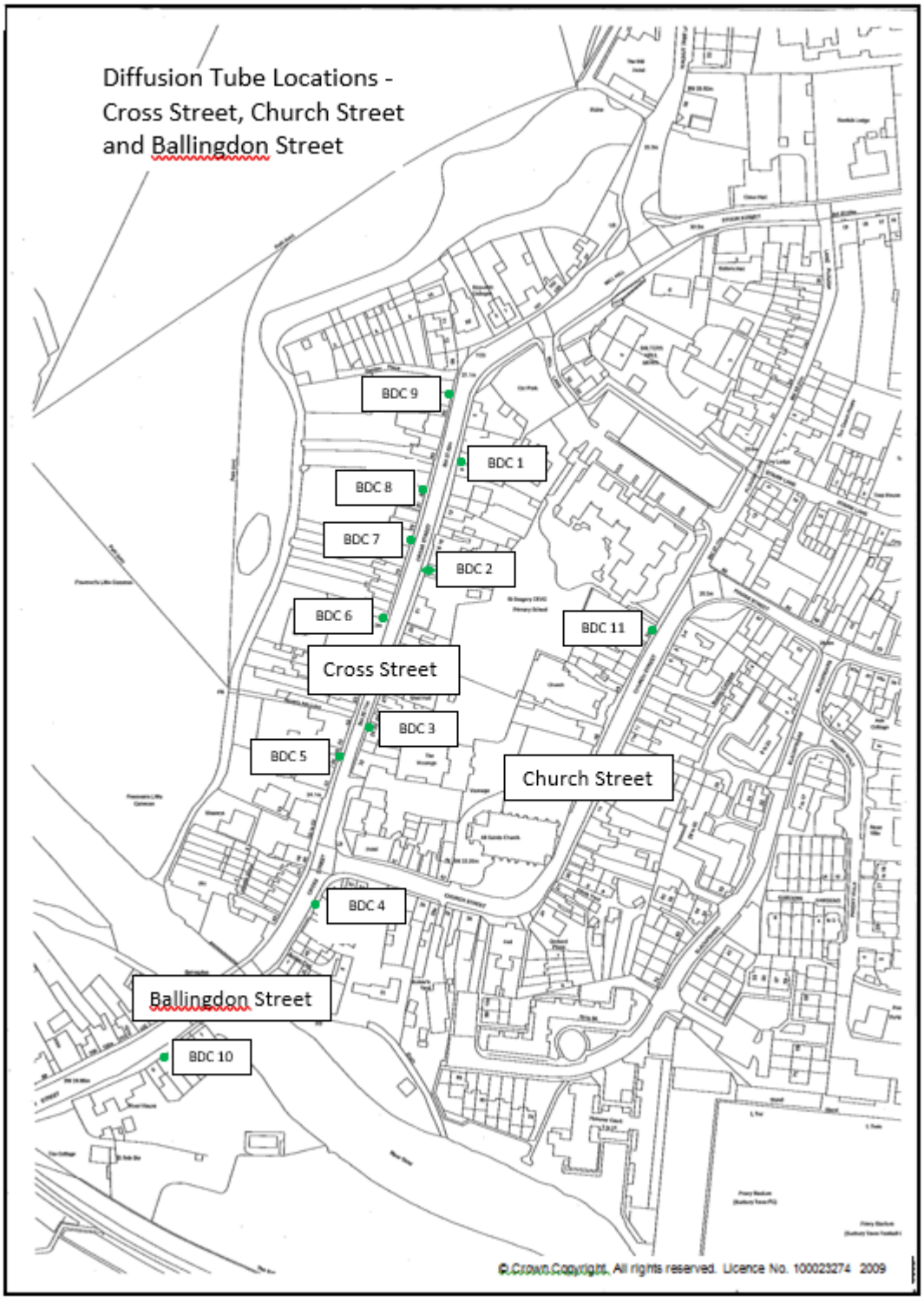
NO_2 Fall-off with Distance from the Road

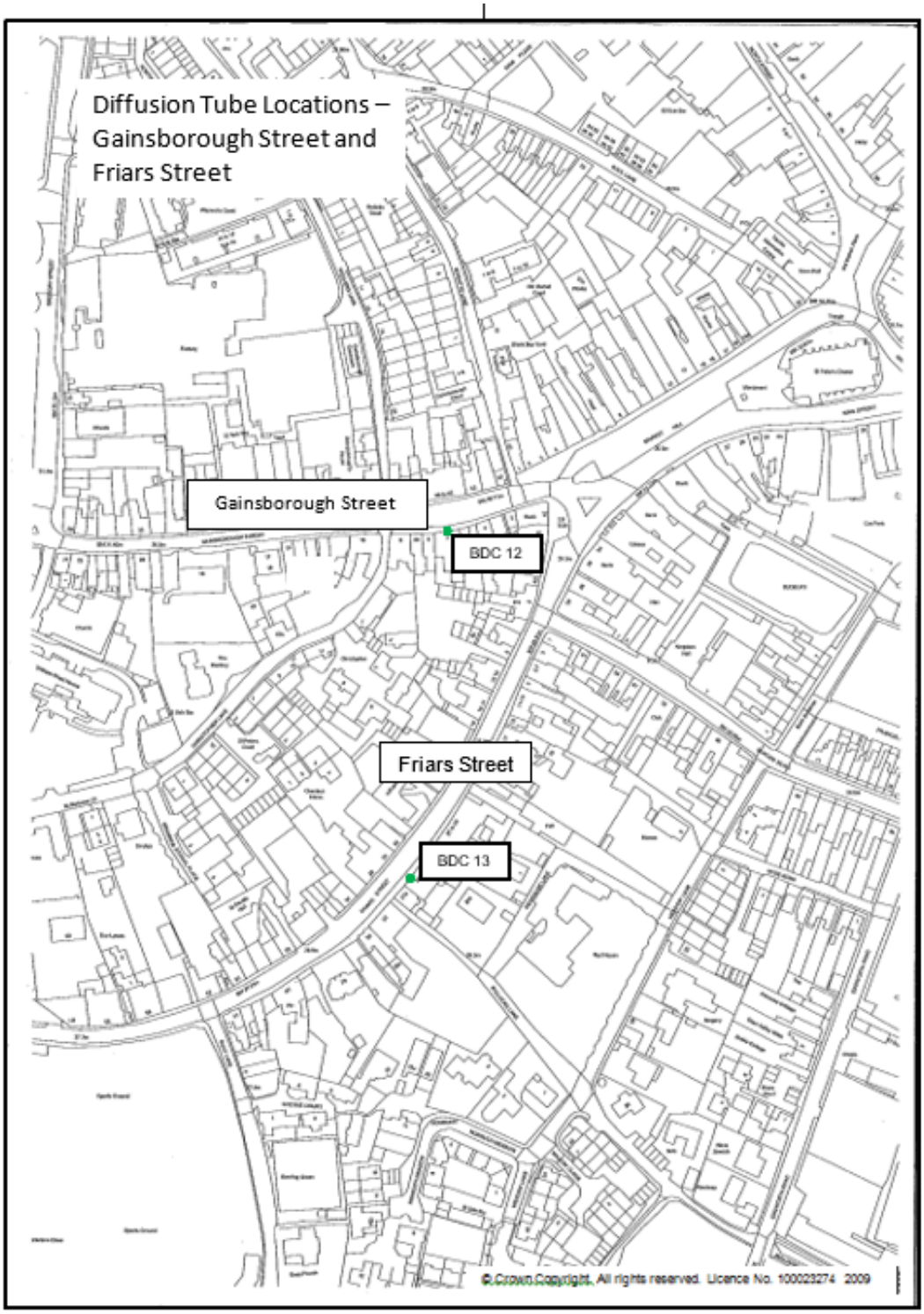
Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure can be estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website.

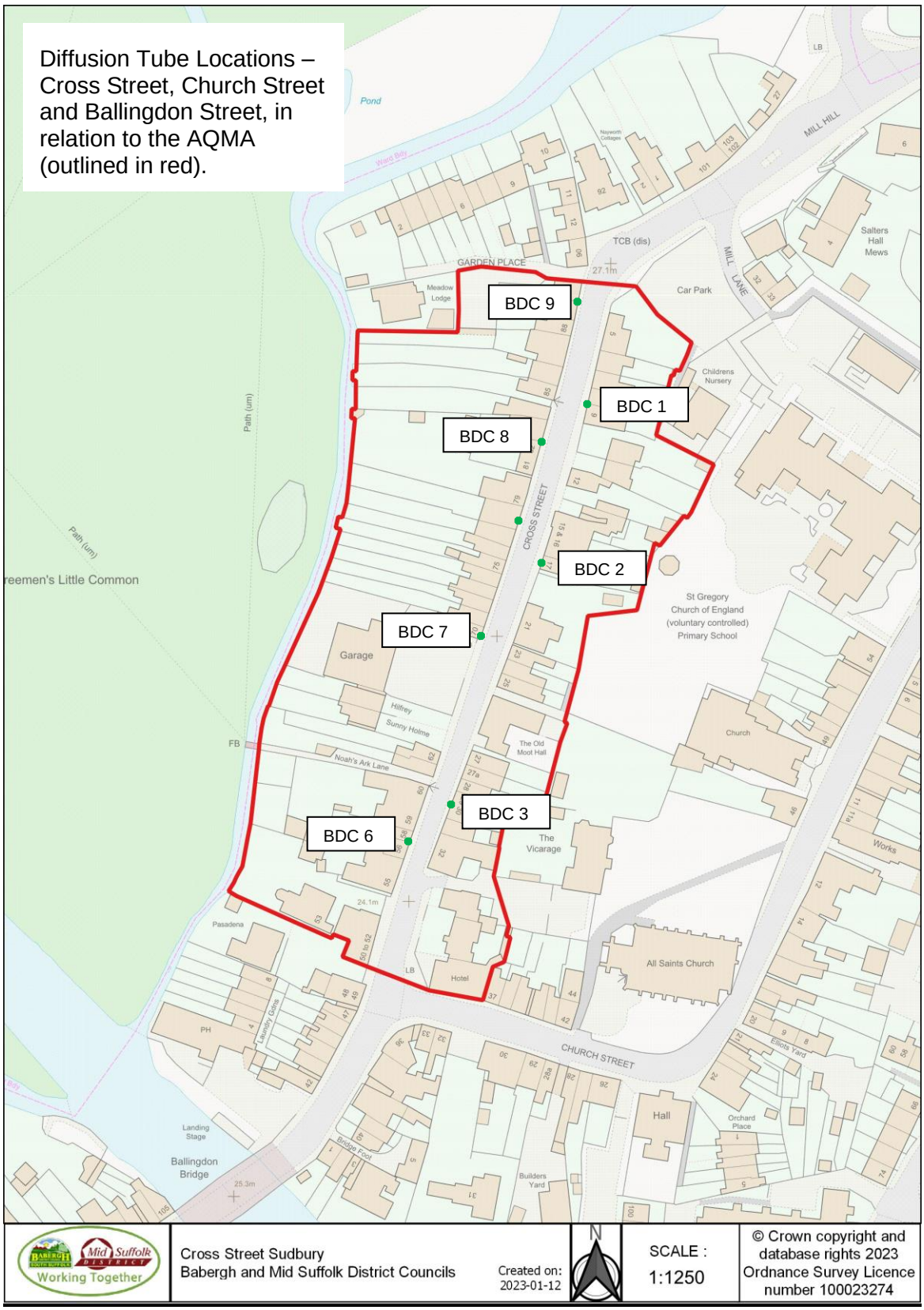
There is only one monitoring location that is not at relevant exposure. However, distance correction should only be considered where the annual mean concentration is greater than 36µg/m^3 and the monitoring is not located at a point of relevant exposure. The annual mean at this location was 14.6µg/m^3, hence no diffusion tube NO_2 monitoring locations within Babergh and Mid Suffolk District Councils required distance correction during 2023.

Appendix D: Maps of Monitoring Locations and AQMAs

Within the Babergh District




Diffusion Tube Locations – Gainsborough Street and Friars Street
Gainsborough Street
BDC 12
Friars Street
BDC 13
©Crown Copyright. All rights reserved. Licence No. 100023274 2009


Diffusion Tube Locations – Cross Street, Church Street and Ballingdon Street, in relation to the AQMA (outlined in red).
BDC 9
BDC 1
BDC 8
BDC 2
BDC 7
BDC 3
BDC 6
CROSS STREET
CHURCH STREET
GARDEN PLACE
MILL HILL
MILL LANE
Car Park
Childrens Nursery
St Gregory Church of England (voluntary controlled) Primary School
Church
All Saints Church
The Vicarage
The Old Moot Hall
Garage
Hall
Hotel
Ballingdon Bridge
Cross Street Sudbury
Babergh and Mid Suffolk District Councils
Created on: 2023-01-12
SCALE : 1:1250
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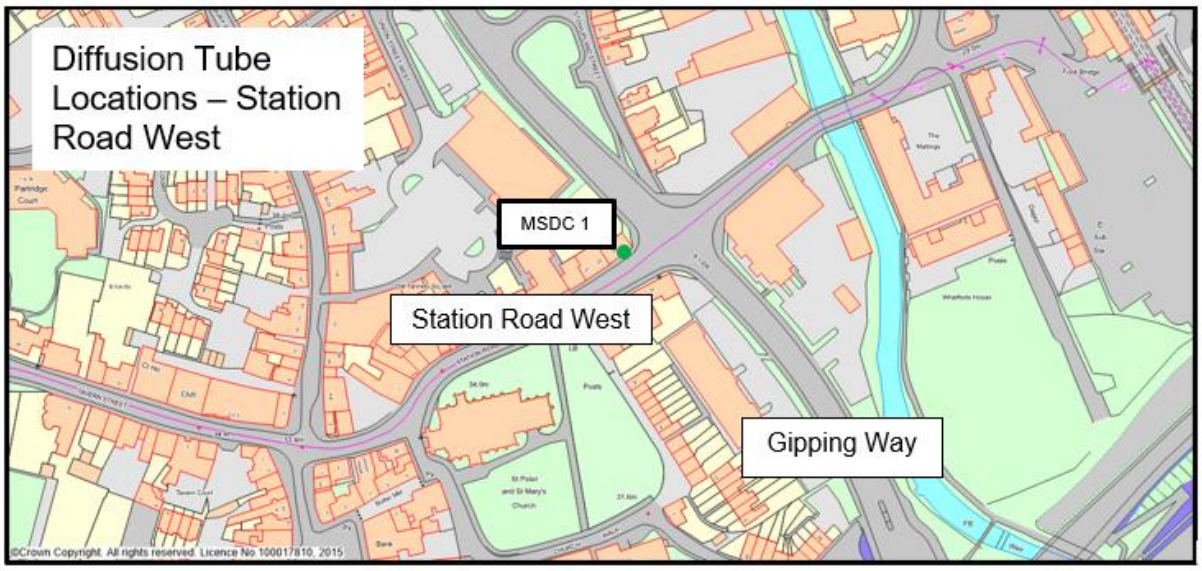
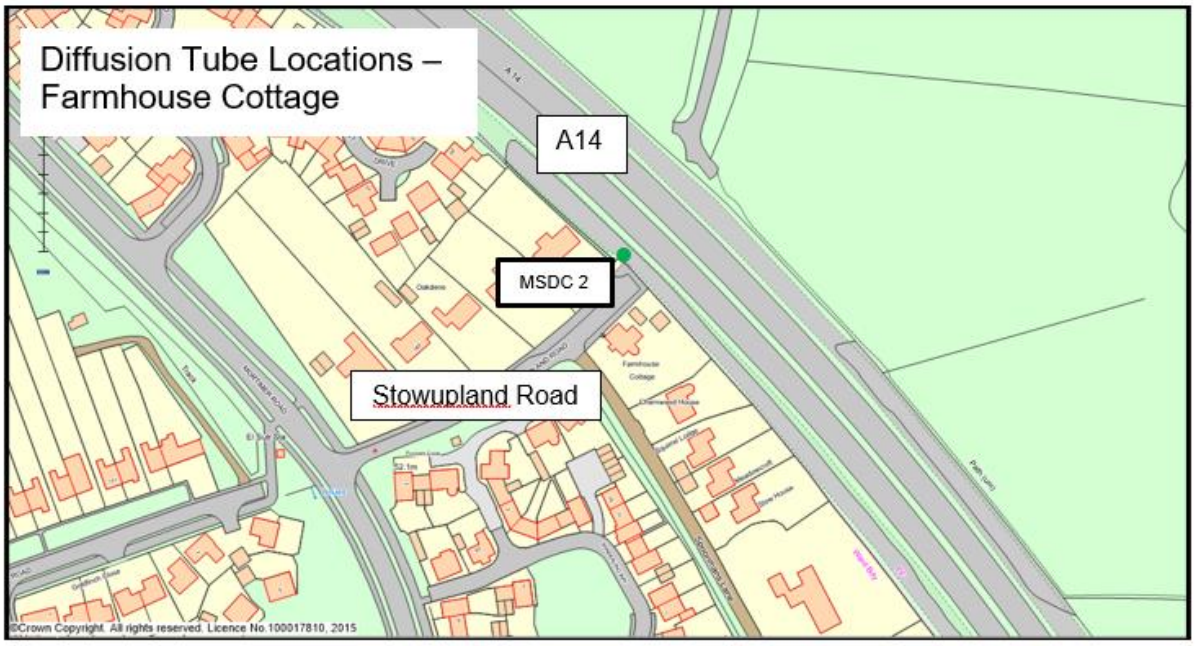
Within the Mid Suffolk District





Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[10]

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

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
BDC	Babergh District Council
BMSDC	Babergh and Mid Suffolk District Councils
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
HVO	Hydrotreated Vegetable Oil
LA	Local Authority
LAQM	Local Air Quality Management
MSDC	Mid Suffolk District Council
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SAQG	Suffolk Air Quality Group
SAQN	Suffolk Air Quality Network
SCC	Suffolk County Council
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.