2020 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management

October 2020

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Please note that this report relates to 2019 only. It does not make any reference to changes in air quality or traffic activity due to the Covid-19 pandemic. This will be reported on in the Annual Status Report covering 2020.

Executive Summary: Air Quality in Our Area

Air Quality in Babergh and Mid Suffolk

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

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

Industrial activity in the districts is light in nature 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 2019. A small number of planning applications for uses such as combustion engines associated with standby electricity generators and a biogas combined heat and power plant were assessed for air quality purposes, 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 2019.

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. This monitoring has shown that within specific areas of Cross Street, Sudbury (within the Babergh district), concentrations of Nitrogen dioxide are higher than the health based annual mean Air Quality Objective. As a result of the exceedances of the annual mean objective for Nitrogen dioxide, an Air Quality

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

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.

The exceedances of the objective at locations on Cross Street are because of emissions from road transport, local highways design and local topography. During 2019, the annual mean at three monitoring locations on Cross Street exceeded the objective. These three monitoring locations have all exceeded the objective for the past five years and are within the AQMA. At these locations there was not much variation in the measured Nitrogen dioxide concentration between 2015 and 2017, but there has been a noticeable reduction between 2017 and 2019. There is one other monitoring location that has shown exceedances of the objective during the past five years, but did not in 2018 or 2019. There are monitoring locations within the AQMA at which there were not exceedances of the objective during 2019. These locations are affected to a lesser extent by road transport, owing to highway design allowing free flow of traffic and greater dispersal of exhaust emissions. At all these locations, Nitrogen dioxide concentrations have reduced over the past five years. Overall, the monitoring in 2019 supports the continued designation of the AQMA.

In response to increased traffic flows being monitored through the village of Sproughton (within the Babergh district), the Council expanded its Nitrogen dioxide diffusion tube monitoring to assess the air quality in the vicinity of the 'Wild Man Junction' (B1113 Lorraine Way and Lower Street, Sproughton). Monitoring commenced in June 2019. The data from these seven months of 2019 shows that Nitrogen dioxide concentrations are below the annual mean objective. Monitoring at these locations will continue in 2020.

At other monitoring locations within the Babergh district but outside the AQMA, results over the last five years have shown a gradual reduction. No exceedances of the objective were recorded outside the AQMA in 2019.

Monitoring in the Mid Suffolk district has not historically shown exceedances of the objective at relevant exposure, (for example residential properties, schools, hospitals, care homes), and there are no designated AQMAs. This remains true for 2019. One of the locations monitored in 2019 within the Mid Suffolk district has shown a gradual

reduction in Nitrogen dioxide concentration over the past five years. The other location shows an increase between 2015 and 2016, and a decrease since then, with results from 2015 and 2019 being almost identical.

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[4]. Babergh and Mid Suffolk District Councils also ran a project in 2019 to install Electric Vehicle charging points in the districts and in locations in Suffolk, Norfolk and Essex via a grant from Highways England.

Actions to Improve Air Quality

Due to the AQMA in Cross Street, Sudbury, an Air Quality Action Plan (AQAP) is in place. The key action from the AQAP that will reduce the concentration of Nitrogen dioxide is to remove the on-street parking bays on Cross Street.

Throughout the life of the AQAP and during 2019 there were two sets of parking bays on the southbound lane of Cross Street, allowing a total of seven vehicles to park. When either of these bays was occupied by at least one vehicle, traffic had to slow down, and often queue, to pass the bays, as shown in Photograph 1.

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

Photograph 1: Southbound traffic has had to queue behind the bays until northbound traffic has passed

Traffic then passes the bays by entering the northbound lane. Concentrations of Nitrogen dioxide exceed the objective at relevant exposure on the west of Cross Street in the area of the parking bays. This is thought to be primarily because both lanes of traffic pass the parking bays in the northbound lane, closest to these properties, as shown in Photograph 2.

Photograph 2: Traffic passes the parking bays by entering the northbound lane

Queuing and accelerating traffic also leads to higher concentrations of Nitrogen dioxide than free flowing traffic. Appendix E shows the annual mean Nitrogen dioxide results for 2019 compared to the location of the parking bays. Exceedances of the objective are identified in red text.

Officers from Babergh District Council have been working with Suffolk County Council Highways Department to pursue the temporary removal of the on-street parking bays. An experimental Traffic Regulation Order came into force in early 2020 to remove the parking bays. The impact on air quality of removing the bays is being monitored and initial results are promising. The results will be presented in the next ASR.

Babergh and Mid Suffolk continue to request electric vehicle charging points through the planning process, and these are now being delivered in new developments. The Councils recognise that for electric vehicles to become widespread, the infrastructure needs to be developed by both the private and public organisations in public car parks, workplaces and other easily accessible locations.

Photograph 3: An Electric Vehicle charging point installed by the Councils

The Councils have promoted events such as the national Clean Air Day and Walk to School week on their websites and social media. Officers from the Environmental Protection team have organised presentations relating to improving local air quality, to be delivered to schools in early 2020.

The Councils declared a 'climate emergency' in 2019 and have produced a Carbon Reduction Management Plan with the objective of making the Councils carbon neutral by 2030. The Councils have also committed to work with partners across the county and region, including the Local Enterprise Partnership and the Public Sector Leaders, towards the aspiration of making the county of Suffolk carbon neutral by 2030. It is anticipated that many of the actions undertaken in pursuit of these objectives such as the electrification of transport, sustainable transport and active travel planning policies, investment in renewables and energy efficiency measures for buildings will have the co-benefit of bringing about improvements in air quality.

Conclusions and Priorities

The Nitrogen dioxide monitoring that is conducted within the districts remains relevant. It showed that the AQMA at Cross Street, Sudbury was still required in 2019, and no other AQMAs should be designated as exceedances of the objective are only within the AQMA. In the main, the monitoring has shown a reduction in Nitrogen dioxide concentration in both districts.

The priority for the future is to assess the impact of the experimental removal of the on-street parking bays on Cross Street, Sudbury, and quantify the effect it has on the concentration of Nitrogen dioxide. Once the effect of removing the parking bays has been determined, other actions in the AQAP will be reviewed as appropriate.

Local Engagement and How to get Involved

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 now 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. Please see www.suffolkcarshare.com for details of a Suffolk wide 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/environment/air-quality/

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

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1 Local Air Quality Management

This report provides an overview of air quality in Babergh and Mid Suffolk during 2019. 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) 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 and prepare an Air Quality Action Plan setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (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 can be found in Table F.1 in Appendix F.

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 must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Babergh and Mid Suffolk District Councils can be found in Table 2.1. Further information related to declared AQMAs, including maps of AQMA boundaries are available online at www.babergh.gov.uk/environment/air-quality/ and at Appendix G. Alternatively, see Appendix D: Maps of Monitoring Locations and AQMAs, which provides for a map of air quality monitoring locations in relation to the AQMA.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
Cross Street, Sudbury	Declared November 2008	NO2 Annual Mean	Sudbury	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	47.5	µg/m3	Air Quality Action Plan: Babergh District Council - Cross Street, Sudbury AQMA	Oct-11	https://www.babergh.gov.uk/assets/Environment/Air-Quality-Action-Plan.pdf

☒ **Babergh and Mid Suffolk District Councils confirm the information on UK-Air regarding their AQMA is up to date**

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:

1. Trends are presented and discussed and a robust comparison with air quality objectives is provided.
2. The diffusion tube mapping is comprehensive and demonstrates the monitoring network, however it would be useful to show the AQMA boundaries on the map(s).
3. Further commentary on the duplicate tubes would be welcomed. This would enhance the reader's understanding of the monitoring data.
4. QA/QC of the data was considered to be thorough, a national bias adjustment factor used for the non-automatic network and distance correction applied to one tube; annualisation was not required in 2018.
5. Example calculations should be shown where distance correction has been applied.
6. The report included measures to address $PM_{2.5}$ and links to the Public Health Outcomes Frameworks. This is encouraged to be continued in future ASRs.
7. Priorities for 2019 were identified, which is welcomed. Progress made on these priorities should be reported on in next year's report.
8. Comments from the previous appraisal have been included and addressed, which is welcomed.

Babergh and Mid Suffolk District Councils have taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2, with those targeted at the AQMA listed first.

More detail on these measures can be found in the Action Plan for the AQMA, and sources such as the Local Transport Plan and on the Suffolk Climate Change Partnership's website, http://www.greensuffolk.org/. Key completed measures are:

- Progress was made in 2019 on securing the temporary removal of the on-street parking bays in Cross Street, Sudbury (within the AQMA). Discussions with Suffolk County Council Highways Department concluded with the agreement that an experimental Traffic Regulation Order (TRO) would be made to remove the parking bays for a temporary period of 18 months, commencing in early 2020.
- Installation of Electric Vehicle (EV) charging points. The Councils now operate five EV charging points across the two districts including a rapid charger at Needham Lakes (a local attraction close to the A14). Further EV charging infrastructure is planned for 2020 in response to the Councils' declaration of a Climate Emergency in 2019.
- Planning applications that may have an adverse impact on air quality have been assessed, and mitigation recommended where necessary.
- First time central heating has been installed in over 200 properties in Suffolk between 2015 and 2019, funded by a grant obtained by the Suffolk Climate Change Partnership (of which the Councils are a member).
- The main office bases of Babergh and Mid Suffolk District Councils changed from Hadleigh and Needham Market, respectively, to central Ipswich in September 2017. The previous bases were rural, with limited public transport. Central Ipswich is more easily accessible by public transport, the Councils have continued to sign up to Suffolk County Council's Travel Plan (giving discounted public transport and free use of the Park and Ride buses), and agile and flexible working is encouraged, resulting in fewer car journeys to an office base. Technology has continued to improve during 2019, which allows agile and flexible working to be maximised and travel minimised.
- Most premises that hold environmental permits which control emissions to atmosphere, including Particulate Matter, were rated low risk in 2019. Good practice was encouraged during the inspections to minimise emissions. Two premises have significantly reduced their solvent use, and hence VOC emissions, so that they do not require a permit and the businesses have improved environmental credentials.

- The Suffolk Air Quality Group continued to meet to share knowledge and liaise with other bodies such as Public Health. The Group engaged a consultancy to produce literature relating to anti idling. This has been circulated to school staff and parents, via contacts at Suffolk County Council, and anti idling campaigns are starting to be run across the county. The Group also provided air quality materials to primary school Junior Road Safety Officers, who may choose to educate their peers on this topic.
- The air quality pages of the Councils' websites have been updated to include information about anti idling, and events such as the national Clean Air Day and Walk to School week have been promoted on the websites and social media.

Babergh and Mid Suffolk District Councils expect the following measures to be completed over the course of the next reporting year:

- Implementation of the experimental TRO for the removal of on-street parking in Cross Street, Sudbury.
- Monitoring of Nitrogen dioxide concentrations within the Cross Street AQMA using diffusion tubes to assess the effect of the experimental TRO.
- In conjunction with Suffolk County Council Highways Department, determining whether the experimental TRO should be made permanent.

The above actions relating to the AQMA are the priorities for the coming year as they will have the greatest impact on reducing Nitrogen dioxide to below the objective. The modelling that was conducted when the AQAP was written shows that if the on-street parking bays were removed, the objective would be met at all but one of the modelled receptor locations. This receptor is in a similar position to the diffusion tube monitoring location at 30 Cross Street (BDC 3). The annual mean at this location for 2019 was more than 7µg/m^3 below the baseline (i.e. with the bays present) given in the AQAP. Therefore, it is likely that the objective would now be met there too if the on-street parking bays were removed.

Babergh District Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in the Cross Street, Sudbury AQMA. They will also lead to improvements in the air quality in other locations in the Babergh district and throughout the Mid Suffolk district.

Examples of other measures that are expected to be completed in the Babergh and Mid Suffolk districts over the course of the next reporting year are:

- The installation of EV charging points within the districts, both by the Councils directly and through planning developments.
- Continuing to promote sustainable travel options to the public via the Councils' website and other publicity.
- Engagement with schools, for example delivering air quality presentations and continuing to inform the primary school Junior Road Safety Officers about air quality.
- Continue to respond to planning applications to advise on air quality related risks.
- Continue to permit, inspect and advise industries that require environmental permits in terms of emissions to atmosphere.

Measures 3, 4 and 5 of Table 2.2 detail the three key proposals from the AQAP that warranted further investigation after analysis of all possible measures. The impact of these measures at various receptor locations (some of which tie in with the Nitrogen dioxide monitoring locations) has been modelled. This is presented in the AQAP as the concentration of Nitrogen dioxide at each location without any action, and then the concentration with each individual action being implemented. The 'Reduction in Pollutant/Emission from measure' is therefore stated as the difference between these figures. It should be noted that there are uncertainties associated with any modelling and that the figures were derived a number of years ago. The 2019 annual mean from the monitoring locations has been compared with the relevant baseline figures (after the removal of the build out, as this has been completed) in the AQAP, and there are generally quite significant differences, both higher and lower than the figures predicted in the AQAP. For the purposes of this report, the figures in the AQAP have been used to demonstrate the predicted impact of a measure. Once an assessment has been made of the impact of the experimental TRO, a decision will be made as to whether the figures in the AQAP need updating. Table 2.2 also details two other measures from the AQAP that are specifically focused on the AQMA. Other 'district wide' measures are not specifically focused on the AQMA, but in many cases they would benefit the air quality in the AQMA as well as in general.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations Involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to Implementation
AQMA focused measures											
1	Create a bypass that avoids the AQMA - Sudbury Western bypass	Traffic Management	Strategic highway improvements, re-prioritising road space away from cars, including access management, selective vehicle priority, bus priority, high vehicle occupancy lane	Local Transport Plan 2011-2031 states that creating a bypass is a long-term strategic objective	SCC	SCC, DfT	Measured concentration of NO2 within AQMA	Not quantified in AQAP	Aspirational	Aspirational	Funding, long-term project, adverse environmental impacts
2	Redefine the strategic lorry route avoiding the AQMA	Freight and Delivery Management	Route Management Plans/Strategic routing strategy for HGV's	Aspirational	SCC, Essex County Council	SCC, Essex County Council	Measured concentration of NO2 within AQMA	HGVs contribute 46% of annual mean NO2 emissions (AQAP)	Aspirational	Aspirational	Limited reasonable alternative routes, funding
3	Remove on street parking bays within AQMA	Traffic Management	Other	Aiming for January 2020	LA, SCC	LA, SCC	Measured concentration of NO2 within AQMA	Maximum predicted reduction 9.7µg/m^3 NO2	Agreement between LA and SCC to implement an experimental TRO for 18 months, with the first 6 months being a formal consultation period. October 2019 – wrote to all properties on Cross Street to inform them, local publicity, engagement with Councillors. December 2019 – experimental TRO issued to commence 6 January 2020.	Experimental TRO to be in force from January 2020 for 18 months.	Potential opposition from residents
4	Implementation of a one-way system in Sudbury, including through the AQMA	Traffic Management	Strategic highway improvements, re-prioritising road space away from cars, including access management, selective vehicle priority, bus priority, high vehicle occupancy lane	Unlikely to be progressed due to adverse impact on air quality at some locations	SCC	SCC	Measured concentration of NO2 within AQMA	Maximum predicted reduction 12.9µg/m^3 NO2	Unlikely to be progressed due to adverse impact on air quality at some locations	Unlikely to be progressed due to adverse impact on air quality at some locations	Practical issues such as safety, alternative route, and adverse impact on air quality at some locations (max 14.4µg/m^3 NO2 modelled)
5	Implementation of a one-way system for HGVs through the AQMA	Traffic Management	Strategic highway improvements, re-prioritising road space away from cars, including access management, selective vehicle priority, bus priority, high vehicle occupancy lane	Unlikely to be progressed due to adverse impact on air quality at some locations	SCC	SCC	Measured concentration of NO2 within AQMA	Maximum predicted reduction 8.0µg/m^3 NO2	Unlikely to be progressed due to adverse impact on air quality at some locations	Unlikely to be progressed due to adverse impact on air quality at some locations	Practical issues such as safety, alternative route, and adverse impact on air quality at some locations (max 9.4µg/m^3 NO2 modelled)
District wide measures											
6	Working with Highways England to install rapid EV charging points on principal routes	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging	2018 - 2019	LA, Highways England	LA, Highways England	Number of points installed and their use	Reduced vehicle emissions as encourages use of EV	11 charging points installed in Suffolk, Norfolk, and Essex	Completed	
7	Suffolk Guidance for Parking requires electric vehicle charging points	Policy Guidance and Development Control	Other policy	Ongoing (guidance revised 2019)	SCC	SCC	Number of charging points and use of EV	Reduced vehicle emissions	Not possible to quantify impact of this specific policy	Ongoing	Provision of EV charging points encourages EV vehicles to be purchased

8	Suffolk car share	Alternatives to private vehicle use	Car and lift sharing schemes	Ongoing	SCC, Suffolk Climate Change Partnership - BDC and MSDC are members	SCC, Suffolk Climate Change Partnership - BDC and MSDC are members	Number of participants in scheme	Reduced vehicle emissions	Almost 3,100 members at end of 2019, approx. 100 members gained 2019, new community groups for workplaces	Ongoing	Suffolk wide scheme, not possible to quantify benefit in one district
9	Installation of EV charging points	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure to promote Low Emission Vehicles, EV recharging, gas fuel recharging	First charging point installed September 2017. Ongoing programme	LA	LA funds, Community Infrastructure Levy	Number of points installed and their use	Reduced vehicle emissions as encourages use of EV	Five points installed by the Councils including one rapid charger	Ongoing	LA funds limit number of charging points
10	An Energy from Waste incinerator within the Mid Suffolk district has significantly lower emissions than required by the IPPC permit	Environmental Permits	Measures to reduce pollution through IPPC Permits going beyond BAT	Facility began operating December 2014	EA regulated	Privately funded and operated	Emissions of NOX, SO2 and PM compared to the permit limit	Lower emissions of NOX, SO2 and PM than is legally required	Emissions are well below the permit limit	Ongoing	
11	Responding to planning consultations regarding air quality impacts	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	LA	LA	Number of consultations responded to within timeframe	Potentially prevent unacceptable emissions	116 consultations responded to within timeframe in 2019	Ongoing	
12	Green travel plan implemented as part of Council office move	Promoting Travel Alternatives	Workplace travel planning	September 2017	LA (SCC travel plan)	LA (SCC travel plan)	Use of alternative travel	Reduced vehicle emissions	Approximately 90 journeys made daily in 2019 on Park and Ride via free ticket system	Ongoing	Figures include other organisations that have access to the SCC travel plan
13	Encourage good practice regarding control of PM	Environmental Permits	Other	Ongoing	LA	LA	Number of complaints received regarding PM from permitted premises	Reduced emissions of PM	No complaints received regarding PM from permitted premises	Ongoing, in-line with inspection regime	Particularly regarding concrete crushers, use of water suppression
14	Majority of LA permitted premises are low risk, reflecting low emissions. No pollution incidents in 2019	Environmental Permits	Introduction/ increase of environment charges through permit systems and economic instruments	Fee based risk rating scheme operational each year	LA	LA	Variation in risk rating each year	Reduced PM emissions, and chemicals such as VOCs	39 out of 40 permitted premises are low risk	Fee based risk rating scheme operational each year	
15	Suffolk Climate Change Partnership provides information about journey planning	Promoting Travel Alternatives	Personalised travel planning	Ongoing	Suffolk Climate Change Partnership	Suffolk Climate Change Partnership	Use of travel alternatives	Reduced vehicle emissions	Unknown	Ongoing	
16	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	Ongoing	LA	LA	Development of policies, strategies, projects	Reduced emissions, improved awareness of air quality	Continued good links; in 2019 - meetings for knowledge sharing, organised anti idling literature, involvement with air quality education at primary schools, links established with Health Protection to develop projects associated with Climate Change planning that have air quality 'co-benefits'	Ongoing	Staff resources for school engagement
17	Officers at both Councils are increasingly working from home	Promoting Travel Alternatives	Encourage / facilitate home-working	Since 2015	LA	LA	Number of officers working from home	Reduced vehicle emissions from reduced journeys	Majority of officers whose jobs allows it, work from home on occasions	Ongoing	Difficult to quantify as there are day to day variations
18	London Road Park and Ride, reducing vehicles driving into central Ipswich	Alternatives to private vehicle use	Bus based Park and Ride	Ongoing	SCC, Private bus operator	SCC, Private bus operator	Number of users of scheme	Reduced vehicle emissions	Observations suggest increased use of recent years	Ongoing	More beneficial to Ipswich Borough Council, only small section of route is through BDC
19	Council websites encourage car sharing, walking, cycling	Public information	Other	Ongoing	LA	LA	Number of participants in Suffolk car share	Reduced vehicle emissions	Suffolk car share - Almost 3,100 members at end of 2019, approx. 100 members gained 2019, new	Ongoing	Council website is unlikely to be where people would search for such information

									community groups for workplaces		
20	Cycle training through the 'Bikeability' scheme	Public information	Other	Ongoing	SCC	SCC	Number of users of scheme	Encourages cycle use	More than 250,000 young cyclists trained to-date	Ongoing	
21	Council pool cars are EV	Promoting Low Emission Transport	Company vehicle procurement - prioritising uptake of low emission vehicles	2017	LA	LA	Miles driven in EV	Reduced vehicle emissions	All pool cars are electric	Completed	

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

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ 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 $PM_{2.5}$:

- The Suffolk Air Quality Group (which the Councils are a member of), has engaged with Suffolk County Council (SCC) Public Health in order to move forward together with regard to Particulate Matter. The Joint Strategic Needs Assessment now includes a chapter on Air Quality in Suffolk (www.healthysuffolk.org.uk/jsna/state-of-suffolk-report/sos19-how-we-sustain-suffolk).
- The local transport survey shows that 64.7% of employees drive to work and 53.9% are single occupants despite efforts to encourage car sharing, however the rural nature of Suffolk presents transport challenges. Overall, it is estimated that 118 people in Suffolk die early each year with air quality as a contributing factor. The Public Health team has used the Defra/Public Health England Air Quality Toolkit for Directors of Public Health to develop a self-assessment framework for understanding the Suffolk air quality situation. This highlights where there are management gaps and potentially areas to prioritise. Questionnaires were sent out to relevant stakeholders for completion and a need for strategic leadership on air quality across Suffolk has been identified. Currently discussions are on-going on how this can be effectively managed. A co-ordinated and partnership approach to reducing local $PM_{2.5}$ concentrations is likely to be more effective.
- As members of the Suffolk Climate Change Partnership, installing first time central heating to residential premises, which will reduce emissions from burning solid fuel.

- Residents are encouraged to use the green waste collection service or household waste recycling centres rather than burning garden waste.
- Throughout 2019, inspections that were conducted 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. Through taking these matters into account in the risk rating and subsequent annual subsistence charge, good practice is encouraged to continue.
- Recommending planning conditions regarding the control of $PM_{2.5}$, for example by compliance with a construction management plan.

Within the Babergh and Mid Suffolk districts, the percentage of mortality in those aged over 30 years, due to fine Particulate Matter is 5.32 and 5.30 respectively[5]. This is very similar to the average figure for the East of England Region (5.5%), and the England average of 5.13%[5].

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.

[5] 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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

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 (passive) monitoring of Nitrogen dioxide (NO_2) at 17 sites during 2019: 15 within the Babergh district and 2 within the Mid Suffolk district. Table A.2 in Appendix A shows the details of the sites.

From the monitoring locations used in 2018, it was decided that one was no longer necessary, and it was not used in 2019. Additionally, in response to increased traffic flows being monitored through the village of Sproughton, Babergh District Council expanded its diffusion tube monitoring to assess the air quality in the vicinity of the Wild Man Junction (B1113 Lorraine Way and Lower Street, Sproughton). Monitoring commenced in June 2019 and will be conducted for at least a twelve-month period. The data collected during 2019 has been annualised. All other locations remained the same as in 2018 as they were still relevant.

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 distance correction), are included in Appendix C. All monitoring locations except one (which has been distance corrected) are at relevant exposure.

No amendments to the AQMA are necessary as a result of the monitoring. No changes are proposed to the monitoring strategy for 2020.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias[6], "annualisation" (where the data capture falls below 75%), and distance correction[7]. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3. Note that the concentration data presented in Table A.3 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 2019 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. 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, then the mean average e.g. BDC 1 mean.

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.

Figure A.1 shows the annual mean NO_2 concentration over the last five years at monitoring locations that exceeded the objective in 2019. These locations are all within the AQMA. At these locations there was not much change in the annual mean NO_2 concentration between 2015 and 2017, but there has been a noticeable reduction between 2017 and 2019. There has been approximately a 6µg/m^3 reduction at each monitoring location between 2015 and 2019. There is only one other monitoring location that has exceeded the objective in the past five years, but the objective was met there in 2019, so it is not included in this figure.

[6] https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html
[7] Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

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. At all these locations there has been a reduction in the NO_2 concentration over the past five years. Monitoring locations BDC 14 and BDC 15 are not included in this figure as monitoring has only been conducted here for part of 2019, so no trend can be shown yet.

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, showing that it is only a small number of locations that show exceedances of the objective. It is thought appropriate to maintain the current boundary of the AQMA, at least until the impact of the experimental TRO has been assessed.

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, at a busy crossroad in a town, shows an increase between 2015 and 2016, and a decrease since then, with results from 2015 and 2019 being almost identical. The other location, close to the A14, has shown a gradual reduction in NO_2 concentration over the past five years.

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
BDC 1	9 Cross Street, Sudbury	Roadside	586848	241133	NO2	YES	0	1.74	NO	2.25
BDC 2	17 Cross Street, Sudbury	Roadside	586836	241089	NO2	YES	0	2.10	NO	2.25
BDC 3	30 Cross Street, Sudbury	Roadside	586808	241015	NO2	YES	0	1.38	NO	2.25
BDC 4	36 Cross Street, Sudbury	Roadside	586790	240944	NO2	NO	0	1.49	NO	2.30
BDC 5	58 Cross Street, Sudbury	Roadside	586798	241010	NO2	YES	0	1.93	NO	2.25
BDC 6	70 Cross Street, Sudbury	Roadside	586818	241068	NO2	YES	0	1.50	NO	2.30
BDC 7	78 Cross Street, Sudbury	Roadside	586829	241104	NO2	YES	0	1.25	NO	2.25
BDC 8	82 Cross Street, Sudbury	Roadside	586835	241123	NO2	YES	0	1.60	NO	2.20
BDC 9	87 Cross Street, Sudbury	Roadside	586842	241148	NO2	YES	0	1.09	NO	2.25

BDC 10	5 Ballingdon Street, Sudbury	Roadside	586721	240879	NO2	NO	0	3.60	NO	2.25
BDC 11	54 Church Street, Sudbury	Roadside	586930	241058	NO2	NO	0	1.70	NO	2.55
BDC 12	7 Gainsborough Street, Sudbury	Roadside	587253	241256	NO2	NO	0	2.79	NO	2.45
BDC 13	31 Friars Street, Sudbury	Roadside	587257	241110	NO2	NO	0	2.86	NO	2.25
BDC 14	1 High Street, Sproughton	Roadside	612257	244946	NO2	NO	0	1.4	NO	2.50
BDC 15	12 Lower Street, Sproughton	Roadside	612302	244922	NO2	NO	0	1.38	NO	2.54
MSDC 1	Station Road West, Stowmarket	Roadside	604972	258745	NO2	NO	0	2.24	NO	2.30
MSDC 2	Cottage Farmhouse, Stowmarket	Roadside	606049	259307	NO2	NO	4	15.7	NO	1.90

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	X OS Grid Ref	Y OS Grid Ref	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
							2015	2016	2017	2018	2019
BDC 1	Roadside	586848	241133	Diffusion Tube	100	100	32.8	32.0	30.2	31.0	28.1
BDC 2	Roadside	586836	241089	Diffusion Tube	100	100	33.1	32.8	30.7	30.3	28.7
BDC 3	Roadside	586808	241015	Diffusion Tube	100	100	38.7	39.9	37.0	37.7	34.8
BDC 4	Roadside	586790	240944	Diffusion Tube	100	100	31.5	30.7	28.8	30.6	29.4
BDC 5	Roadside	586798	241010	Diffusion Tube	100	100	**42.0**	**40.9**	**41.3**	38.1	36.0
BDC 6	Roadside	586818	241068	Diffusion Tube	100	100	34.7	36.7	34.5	34.0	31.2
BDC 7	Roadside	586829	241104	Diffusion Tube	100	100	**53.2**	**53.7**	**52.7**	**51.4**	**47.5**
BDC 8	Roadside	586835	241123	Diffusion Tube	92	92	**53.8**	**54.8**	**55.1**	**49.7**	**47.3**
BDC 9	Roadside	586842	241148	Diffusion Tube	100	100	**52.7**	**52.7**	**54.5**	**46.3**	**47.0**
BDC 10	Roadside	586721	240879	Diffusion Tube	100	100	35.1	33.4	30.6	29.4	27.6
BDC 11	Roadside	586930	241058	Diffusion Tube	100	100	24.6	24.3	24.4	22.2	22.4
BDC 12	Roadside	587253	241256	Diffusion Tube	100	100	33.3	31.5	31.3	29.8	28.0
BDC 13	Roadside	587257	241110	Diffusion Tube	92	92	20.1	18.7	18.0	18.0	18.8

BDC 14	Roadside	612257	244946	Diffusion Tube	100	58					31.7
BDC 15	Roadside	612302	244922	Diffusion Tube	100	58					26.5
MSDC 1	Roadside	604972	258745	Diffusion Tube	100	100	31.3	36.1	35.8	30.8	31.2
MSDC 2	Roadside	606049	259307	Diffusion Tube	100	100	25.5	24.2	22.2	22.2	21.4

☒ **Diffusion tube data has been bias corrected**

☒ **Annualisation has been conducted where data capture is <75%**

☒ **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 adjustment**

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.**

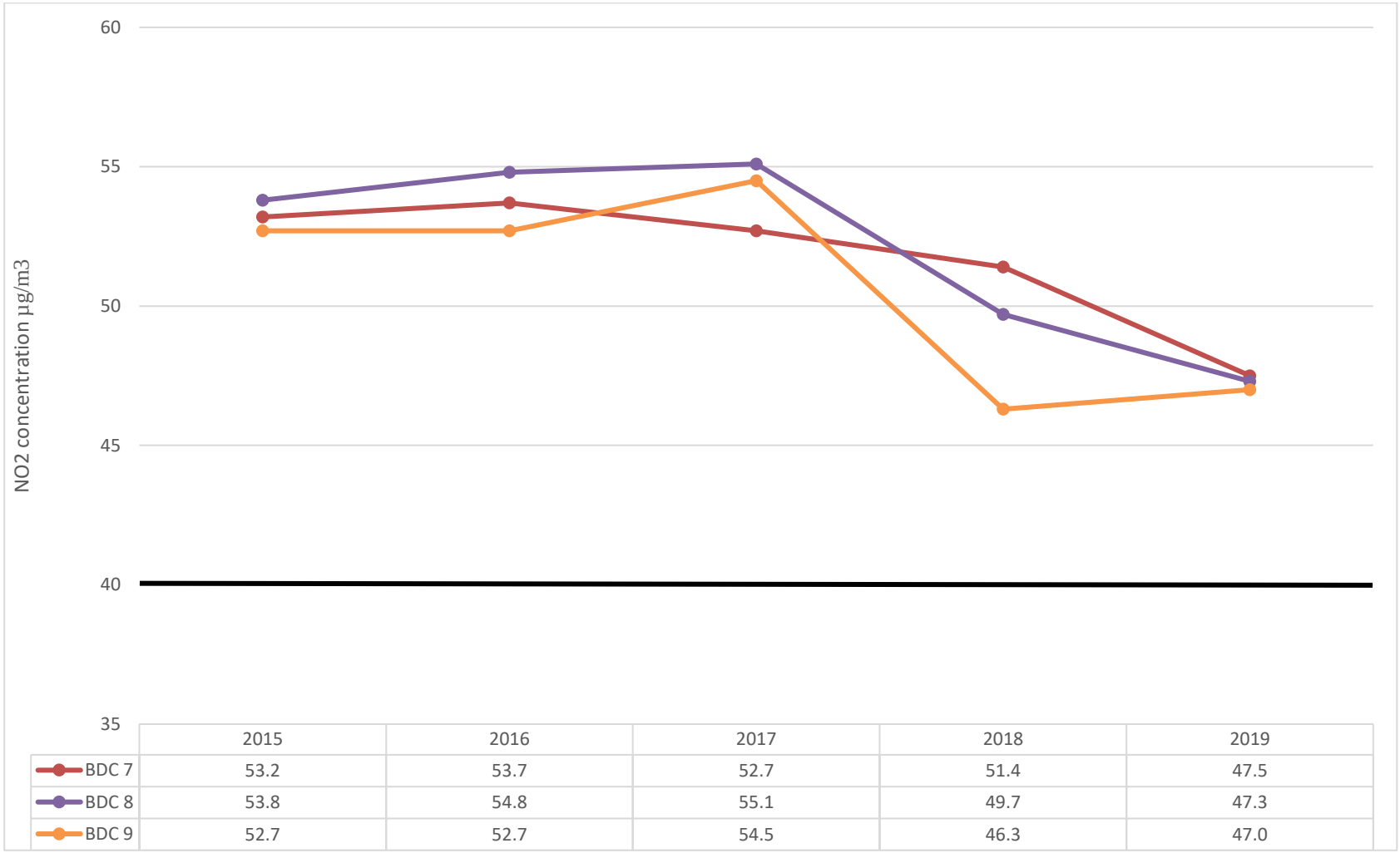
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(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%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

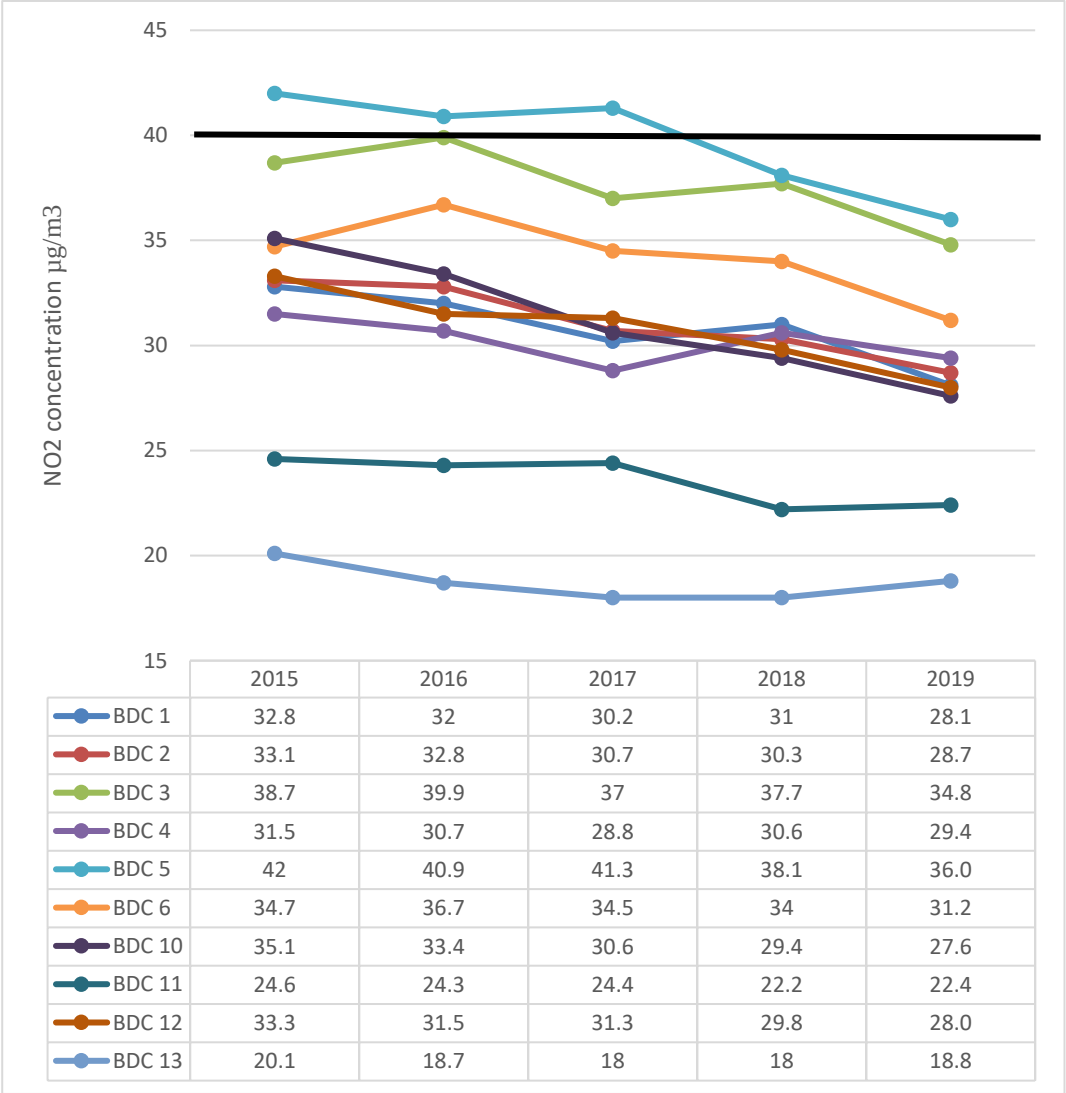
(4) Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

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



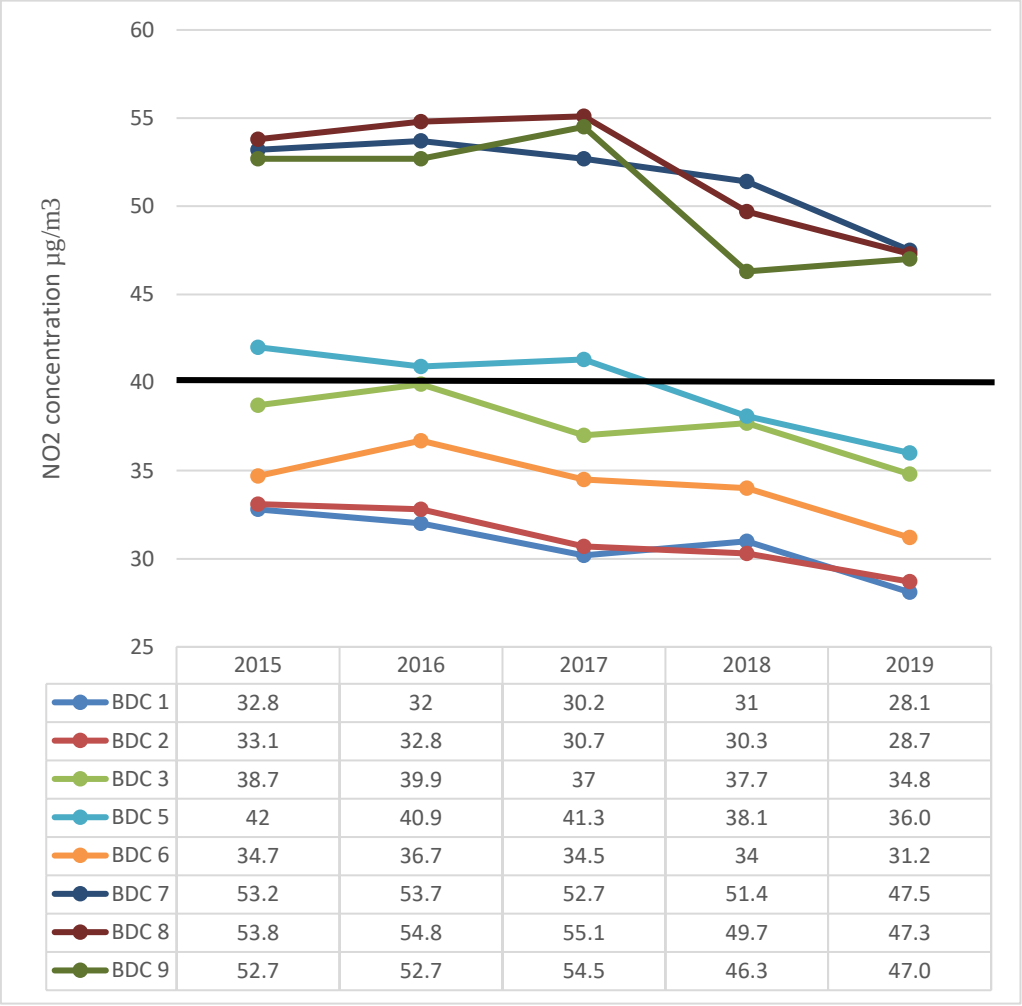
	2015	2016	2017	2018	2019
BDC 7	53.2	53.7	52.7	51.4	47.5
BDC 8	53.8	54.8	55.1	49.7	47.3
BDC 9	52.7	52.7	54.5	46.3	47.0

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



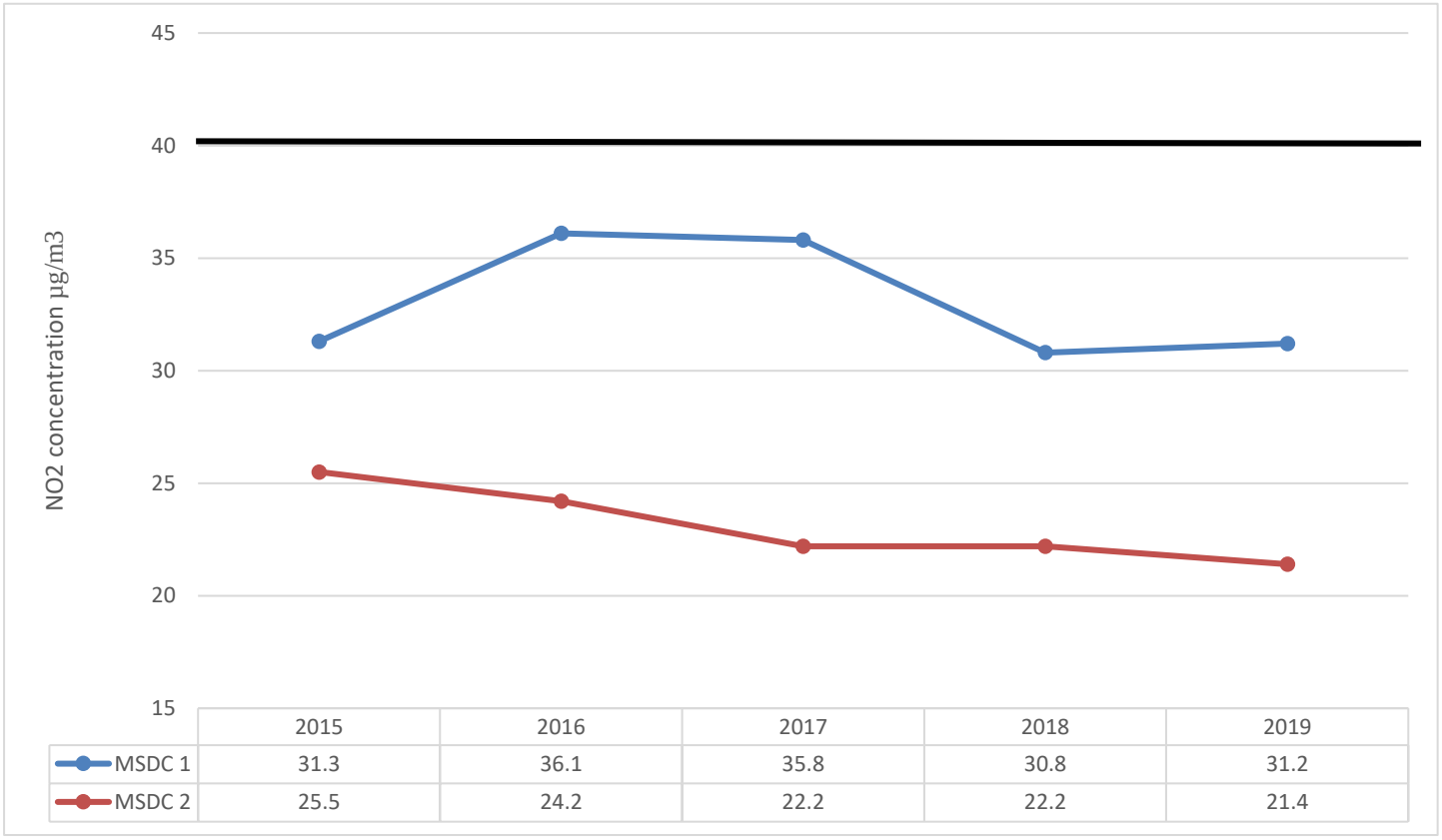
	2015	2016	2017	2018	2019
BDC 1	32.8	32	30.2	31	28.1
BDC 2	33.1	32.8	30.7	30.3	28.7
BDC 3	38.7	39.9	37	37.7	34.8
BDC 4	31.5	30.7	28.8	30.6	29.4
BDC 5	42	40.9	41.3	38.1	36.0
BDC 6	34.7	36.7	34.5	34	31.2
BDC 10	35.1	33.4	30.6	29.4	27.6
BDC 11	24.6	24.3	24.4	22.2	22.4
BDC 12	33.3	31.5	31.3	29.8	28.0
BDC 13	20.1	18.7	18	18	18.8

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



	2015	2016	2017	2018	2019
BDC 1	32.8	32	30.2	31	28.1
BDC 2	33.1	32.8	30.7	30.3	28.7
BDC 3	38.7	39.9	37	37.7	34.8
BDC 5	42	40.9	41.3	38.1	36.0
BDC 6	34.7	36.7	34.5	34	31.2
BDC 7	53.2	53.7	52.7	51.4	47.5
BDC 8	53.8	54.8	55.1	49.7	47.3
BDC 9	52.7	52.7	54.5	46.3	47.0

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



	2015	2016	2017	2018	2019
MSDC 1	31.3	36.1	35.8	30.8	31.2
MSDC 2	25.5	24.2	22.2	22.2	21.4

Table A.4 – 1-Hour Mean NO_2 Monitoring Results

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

Table A.5 – Annual Mean PM_{10} Monitoring Results

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

Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

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

Table A.7 – $PM_{2.5}$ Monitoring Results

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

Table A.8 – SO_2 Monitoring Results

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

Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.75) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
BDC 1a	586848	241133	44.3	50.3	37.1	46	34.7	34.8	32.9	31.4	32.7	42.4	44.4	37.6	39.1		
BDC 1b	586848	241133	43.7	49.2	26.6	40.7	33.3	33.8	31	30	32.3	39	43.4	26.9	35.8		
BDC 1 mean	586848	241133	44	49.8	31.9	43.4	34	34.3	32	30.7	32.5	40.7	43.9	32.3	37.5	28.1	
BDC 2a	586836	241089	39.2	48	39.9	48.8	39.6	36.6	33.8	32.8	36.7	45.2	46.6	31.5	39.9		
BDC 2b	586836	241089	29.4	45.8	29.6	46.5	37.8	33.9	32.5	30.5	35.1	40.1	46.2	31.3	36.6		
BDC 2 mean	586836	241089	34.3	46.9	34.8	47.7	38.7	35.3	33.2	31.7	35.9	42.7	46.4	31.4	38.3	28.7	
BDC 3a	586808	241015	47.9	57	41.1	58.2	45.2	44.3	44.7	40.9	42.8	52.1	57.1	43.6	47.9		
BDC 3b	586808	241015	45.7	49.6	41	53.4	44.5	42.3	39	40.3	36.8	50.1	55.6	39.8	44.8		
BDC 3 mean	586808	241015	46.8	53.3	41.1	55.8	44.9	43.3	41.9	40.6	39.8	51.1	56.4	41.7	46.4	34.8	
BDC 4a	586790	240944	43.7	48.3	35.7	45.4	36.4	35.6	34.5	38.8	36.6	42.8	45.4	35	39.9		
BDC 4b	586790	240944	41.4	47.2	34.8	44.5	36.3	32.8	34.5	35.7	34.5	41.7	43.9	34.4	38.5		
BDC 4 mean	586790	240944	42.6	47.8	35.3	45	36.4	34.2	34.5	37.3	35.6	42.3	44.7	34.7	39.2	29.4	
BDC 5a	586798	241010	55.5	54.6	50.1	50.1	42.8	45.6	46	45.8	46.1	50.6	58.1	46.2	49.3		

BDC 5b	586798	241010	47.5	54.3	46.1	45.8	41.5	39.6	44.2	45.2	45.3	50.6	55.5	46	46.8		
BDC 5 mean	586798	241010	51.5	54.5	48.1	48	42.2	42.6	45.1	45.5	45.7	50.6	56.8	46.1	48.1	36.0	
BDC 6a	586818	241068	50.5	47.1	42.5	46.3	40.3	37.7	40.9	36.9	45.3	44.6	51.8	34.5	43.2		
BDC 6b	586818	241068	43.2	42.4	36.6	45.4	39.1	35	35.5	36.4	39.7	40.6	50.6	33.9	39.9		
BDC 6 mean	586818	241068	46.9	44.8	39.6	45.9	39.7	36.35	38.2	36.7	42.5	42.5	51.2	34.2	41.5	31.2	
BDC 7a	586829	241104	72	73.1	63.4	63	73.2	57.8	63	57.8	67.2	73.4	75.5	48.3	65.6		
BDC 7b	586829	241104	67	66.8	55.7	61.8	64.6	57.1	59.1	57.2	56.5	66.5	72.3	46.5	60.9		
BDC 7 mean	586829	241104	69.5	70	59.6	62.4	68.9	57.5	61.1	60.1	61.9	70	73.9	47.4	62.7	**47.5**	
BDC 8a	586835	241123	75	71.5	68.1	61.4	65.2	58.1		63	58.8	67.4	69.2	59.3	65.2		
BDC 8b	586835	241123	72.1	54.4	61.9	58.1	62.7	57.4		62.7	55.9	67	63	54.1	60.8		
BDC 8 mean	586835	241123	73.6	63	65	59.8	64	57.8		62.9	57.4	67.2	66.1	56.7	63	**47.3**	
BDC 9a	586842	241148	61.4	77.3	69	50.1	58.8	58	64.6	68.2	58.4	70.3	79.2	67	65.2		
BDC 9b	586842	241148	57.2	70.5	62.2	49.9	58.7	55.7	58.9	61.9	54.1	69.4	67.1	54.7	60		
BDC 9 mean	586842	241148	59.3	73.9	65.6	50	58.8	56.9	61.8	65.1	56.3	69.9	73.2	60.9	62.6	**47.0**	
BDC 10	586721	240879	46.8	56	35.9	41.5	31	33	32.8	36	35.1	38	13.6	42.2	36.8	27.6	
BDC 11	586930	241058	37.1	36.6	29.2	23.9	26.9	23.7	25.1	28.6	25.6	29.7	40.3	30.8	29.8	22.4	
BDC 12	587253	241256	45.7	45.3	38.3	31.5	28.9	32.2	33.6	37.2	31.6	38.9	41.1	42.2	37.2	28.0	
BDC 13	587257	241110	21.8	32.4	22.2	26.5	21.7	17.7		18.5	19.8	36.1	34.8	24.7	25.1	18.8	
BDC 14a	612257	244946						36.2	35.6	35.5	37.8	42.3	57.8	38.2	40.5		
BDC 14b	612257	244946						35.4	34.7	33.6	35.3	42.2	47.4	31.9	37.2		
BDC 14 mean	612257	244946						35.8	35.2	34.6	36.6	42.3	52.6	39.7	39.5	31.7	
BDC 15a	612302	244922						27.7	28.1	35.3	31	42.3	47.4	32.7	34.9		
BDC 15b	612302	244922						27	23.6	32.4	29.9	35.6	44.6	16.9	30		

BDC 15 mean	612302	244922						27.4	25.9	33.9	30.5	39	46	24.8	32.5	26.5	
MSDC 1a	604972	258745	49.6	34	50.4	44.7		42	41.8	39.8	38.9	41.5	60.3	40.2	43.9		
MSDC 1b	604972	258745	44.5	30	48.7	37.8		24.2	36.7	38.9	38.1	37.2	56.5	38	39.1		
MSDC 1 mean	604972	258745	47.1	32	49.6	41.3		33.1	39.3	39.4	38.5	39.4	58.4	39.1	41.6	31.2	
MSDC 2	606049	259307	26.6	31.9	29.7	40.7	28.8	22.9	21	25.6	24.9	28.2	39.6	22.9	28.6	21.4	20.3

☒ **National bias adjustment factor used**

☒ **Annualisation has been conducted where data capture is <75%**

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

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.**

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

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

Supporting Technical Information

No significant changes to relevant sources have occurred during 2019 in either district.

This has not resulted in any change in monitoring or consideration of an AQMA.

Diffusion Tube Bias Adjustment Factors

As there are no collocated studies, the national bias adjustment factors have been used. Diffusion tubes are supplied and analysed by Socotec Didcot. The preparation method is 50% TEA in acetone. The bias adjustment factor used for 2019 is 0.75 from spreadsheet version number 9/20. The bias adjustment factors that have been used for previous years are: 2015 – 0.79 from spreadsheet version number 6/16; 2016 – 0.78 from spreadsheet version number 6/17; 2017 – 0.77 from spreadsheet version number 3/18; and 2018 - 0.76 from spreadsheet version number 3/19. An example of the bias adjustment calculations is below.

Example – MSDC 1, annual mean = 41.5 µg/m^3

41.5 x 0.75 bias adjustment factor = 31.2 µg/m^3

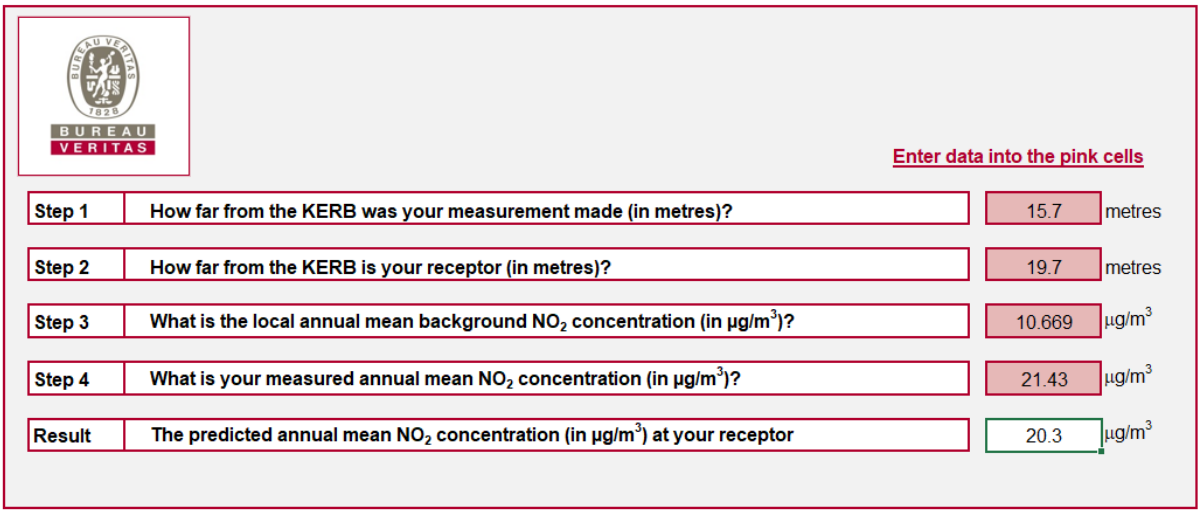
Short-term to Long-term Data Adjustment

Data was collected from most monitoring locations for at least eleven months. Therefore, no short-term to long-term data adjustment is necessary for these. However, two monitoring locations were installed in June 2019, so only seven months of data was possible. The data from these sites has been annualised, and a summary is shown below.

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.75) and Annualised
DT 1	612257	244946						36.2	35.6	35.5	37.8	42.3	57.8	38.2	-	-
DT 2	612257	244946						35.4	34.7	33.6	35.3	42.2	47.4	31.9	38.9	31.7
DT 3	612302	244922						27.7	28.1	35.3	31.0	42.3	47.4	32.7	-	-
DT 4	612302	244922						27.0	23.6	32.4	29.9	35.6	44.6	16.9	32.5	26.5

Distance correction to Relevant Receptors

All but one of the diffusion tubes are located at monitoring sites that are representative of public exposure. Therefore, distance correction was only undertaken for one site, MSDC 2, which is 4m from relevant exposure. The calculation is shown below.



Enter data into the pink cells

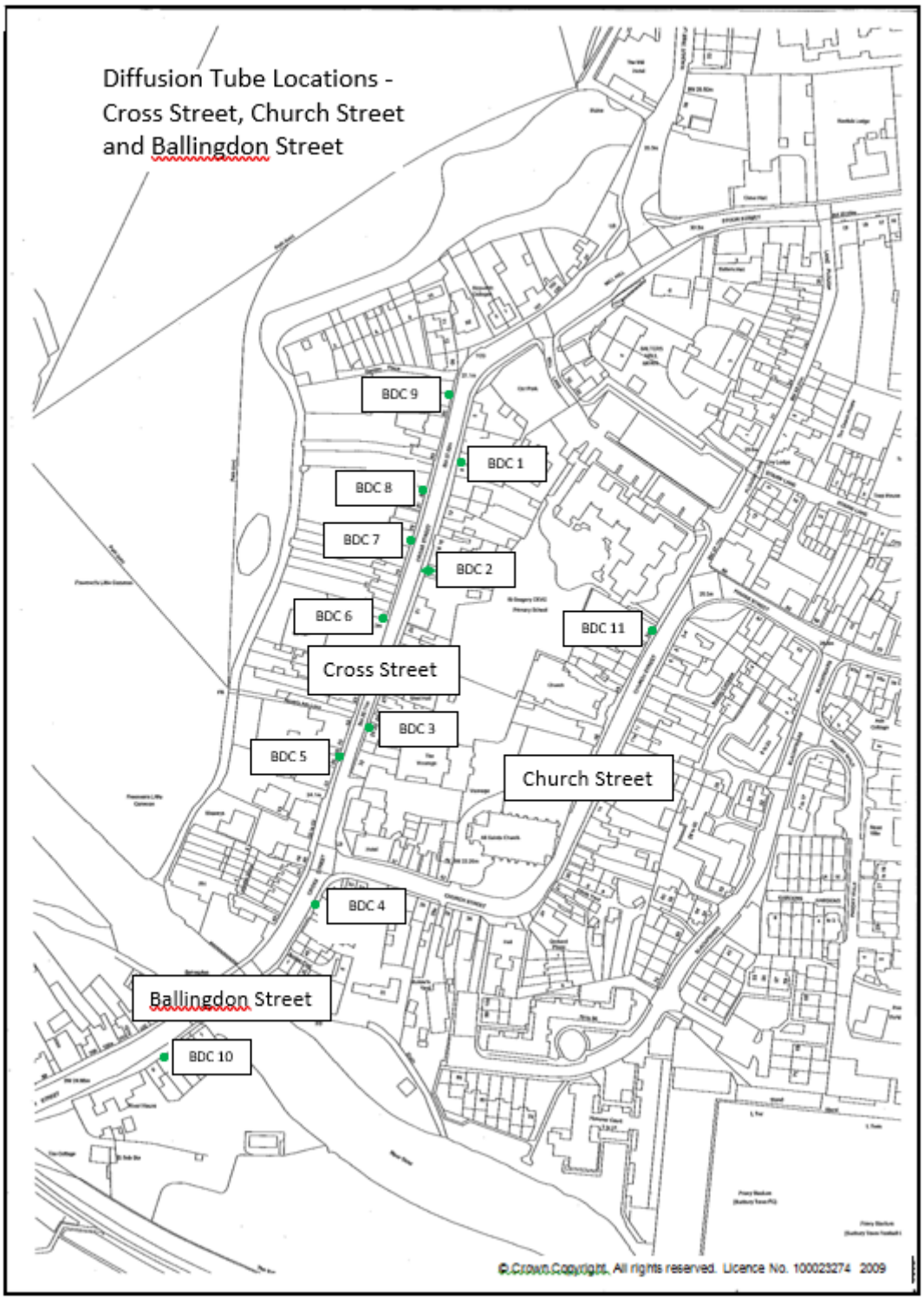
Step 1	How far from the KERB was your measurement made (in metres)?	15.7	metres
Step 2	How far from the KERB is your receptor (in metres)?	19.7	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	10.669	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	21.43	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	20.3	µg/m^3

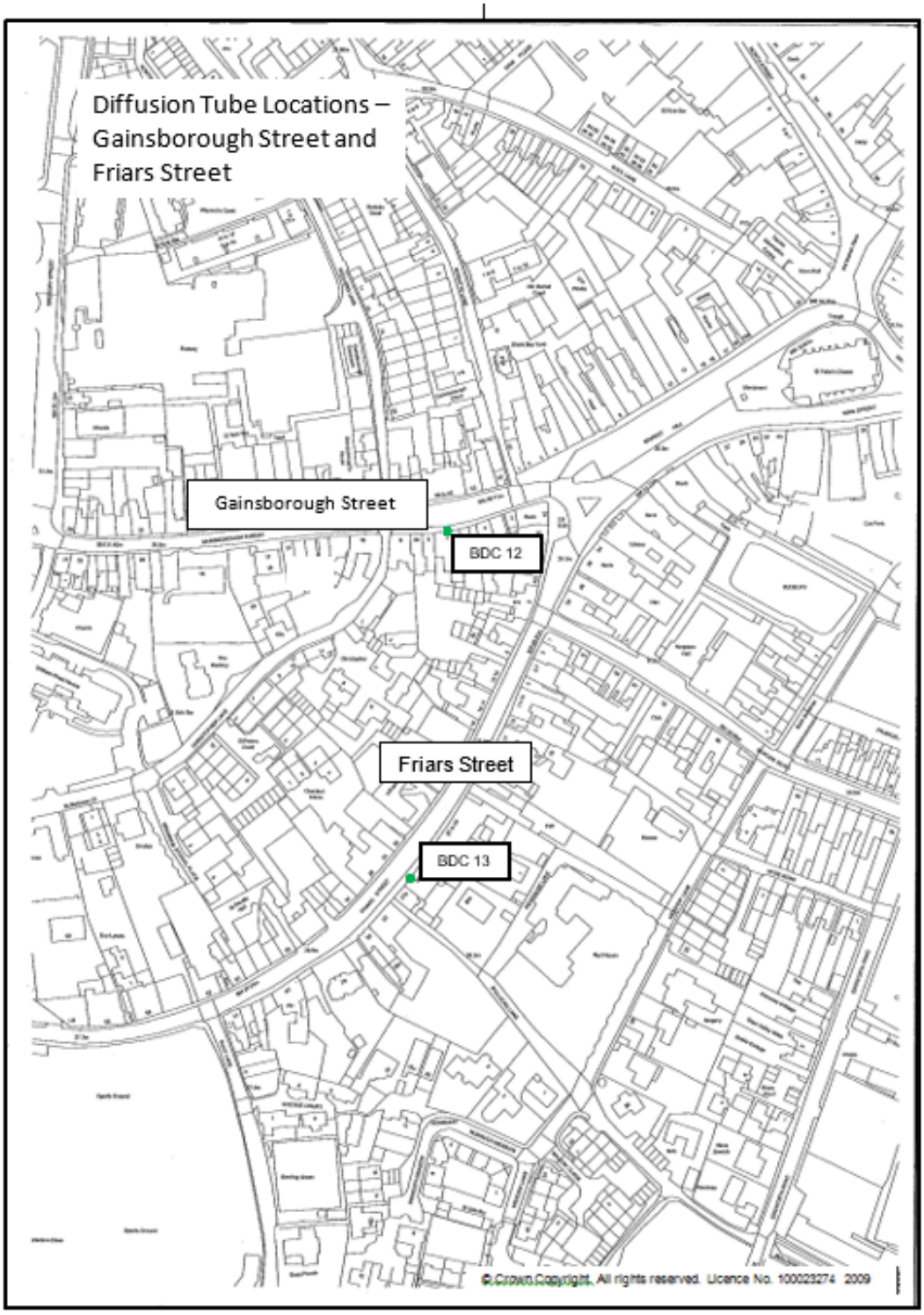
QA/QC of Diffusion Tube Monitoring

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 40 good results and 1 poor result in 2019.

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
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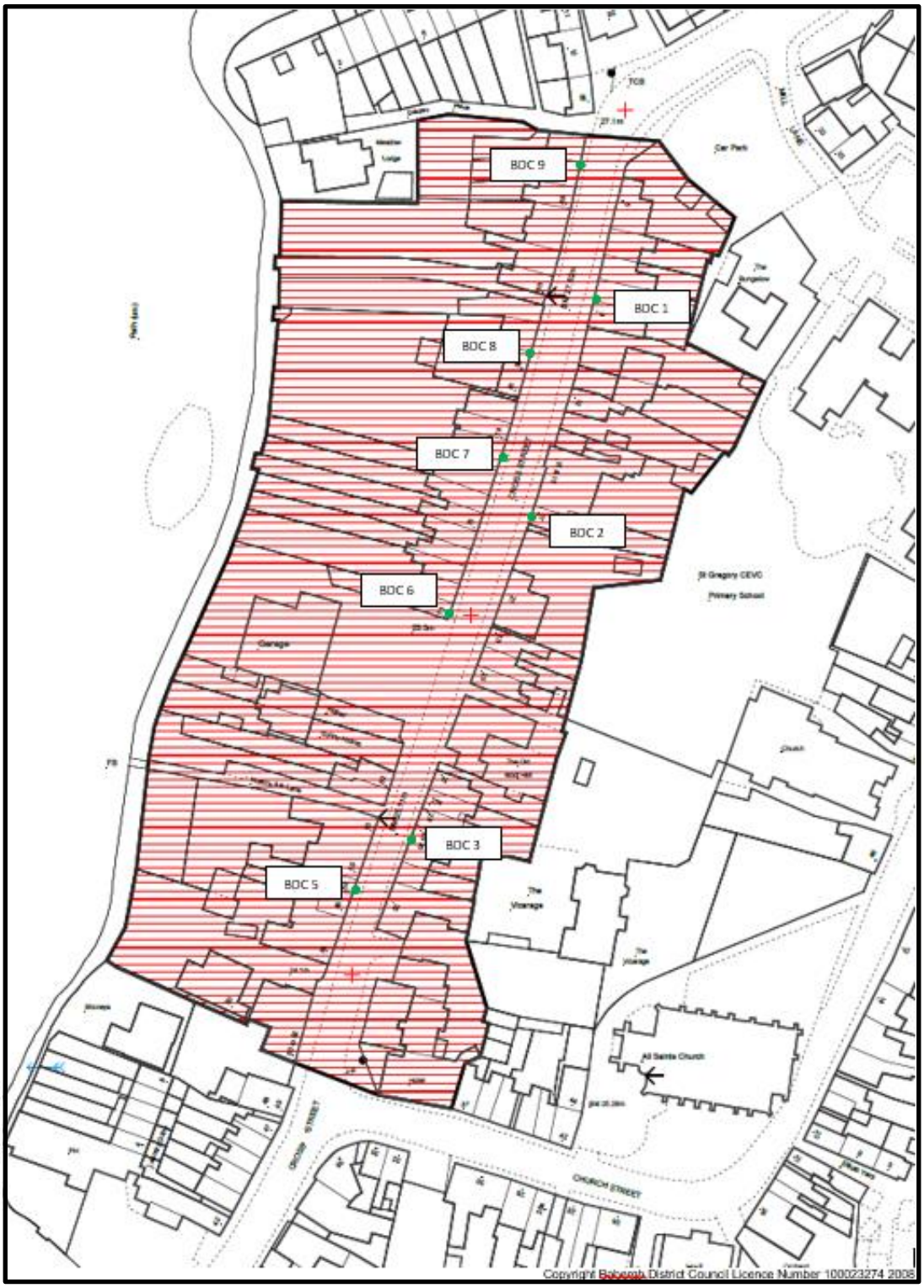
Diffusion Tube Locations – Cross Street, Church Street and Ballingdon Street, in relation to the AQMA (shown hatched in red)




Diffusion Tube Locations - Sproughton
Allotment Gardens
Lower Street
BDC 15
BDC 14
High Street
TCB
Forge House
Almshouses
The Wild Man (PH)
Hall
El Sub Sta
Cottage
Cottage
Booth Cottage
BURSTALL LANE
BEECH CLOSE
Track
GP
13.4m
14.6m
7.3m
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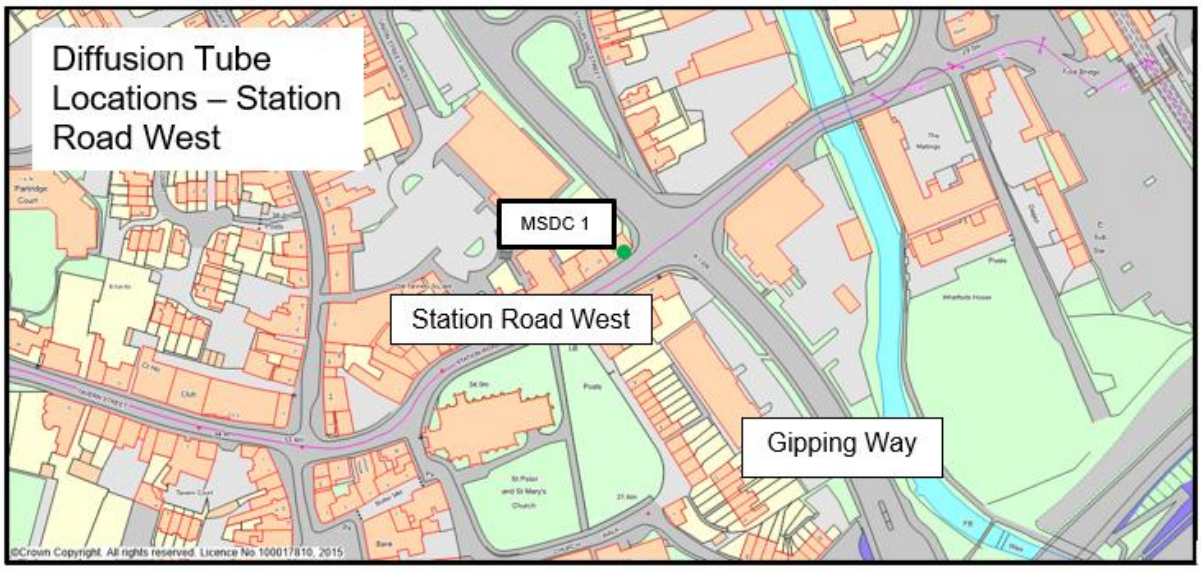
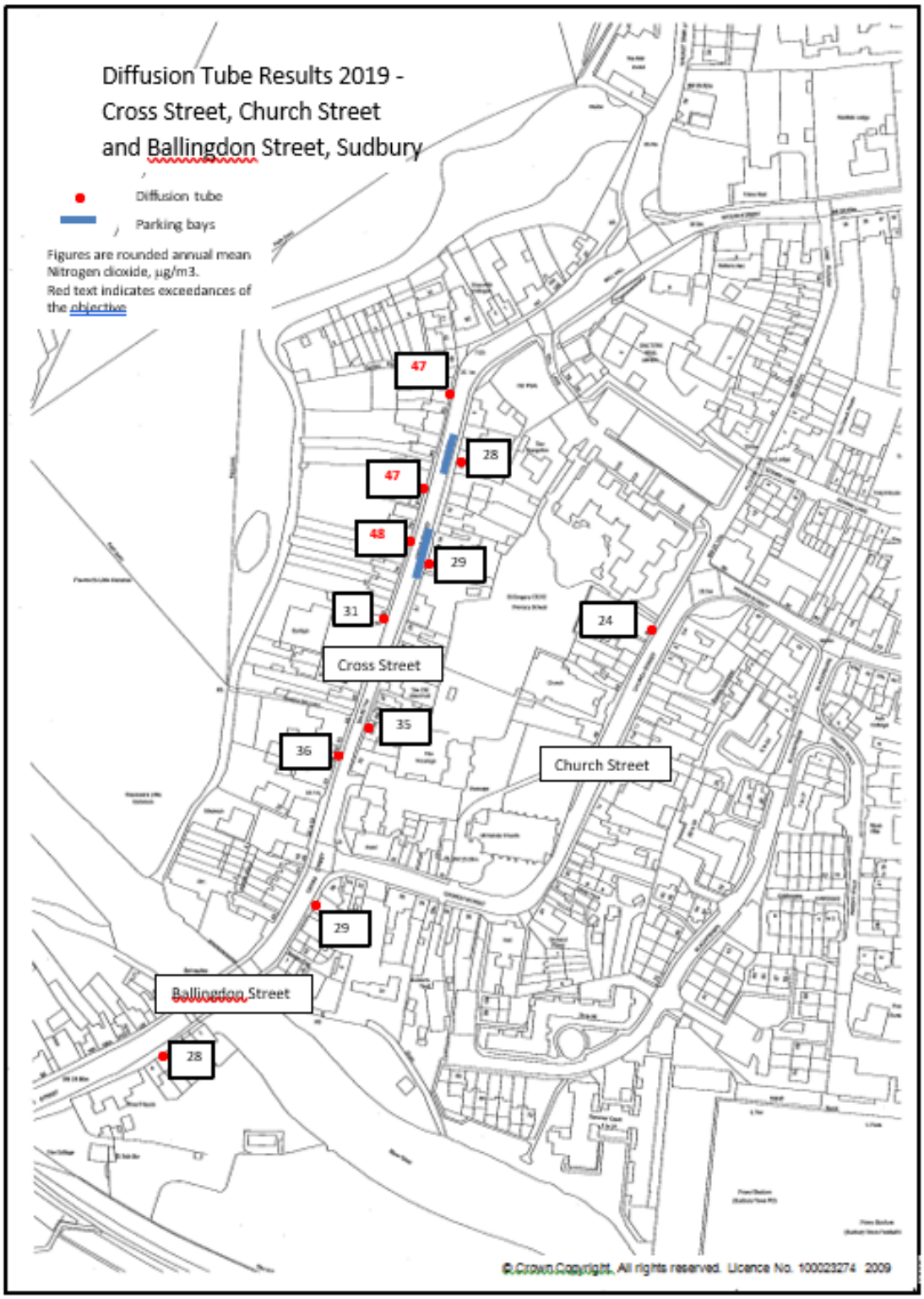
Within the Mid Suffolk district



Appendix E: Map of Annual Results from Monitoring Locations and Position of Parking Bays on Cross Street, Sudbury



Appendix F: Summary of Air Quality Objectives in England

Table F.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[8]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

Appendix G: Babergh District Council Air Quality Management Order 2008 for Cross Street, Sudbury

BABERGH DISTRICT COUNCIL
AIR QUALITY MANAGEMENT ORDER 2008

Babergh District Council ("the Council") of Corks Lane, Hadleigh, Ipswich, Suffolk IP7 6SJ, has made the following Order, in exercise of its powers under Section 83 of the Environment Act 1995:

1. This Order may be cited as the "Babergh District Council Air Quality Management Order 2008". It will come into operation on 21 November 2008.

2. The Council declares that it has designated an area situated on either side of a section of Cross Street, Sudbury, Suffolk, as an Air Quality Management Area ("the Designated Area"). The Designated Area comprises the land hatched red on the attached map, which is indexed in Schedule 1. The Order and map have been prepared and sealed with the Common Seal of the Council and deposited at the offices of the Council at Corks Lane, Hadleigh, Ipswich, Suffolk IP7 6SJ. An explanatory note is included in Schedule 2.

3. The Order may be varied or revoked by a subsequent Order.

4. The Council may revise the Designated Area from time to time.

Schedule 1 – Designated Area

Air Quality Management Area: Map reference No. AQMA1/08

Schedule 2 – Explanatory Note

The Air Quality Management Order 2008 designates an area situated on either side of a section of Cross Street, Sudbury, Suffolk, shown hatched red on Map reference No. AQMA1/08, as an Air Quality Management Area. This is an area in which the Government's annual mean air quality objective for nitrogen dioxide is unlikely to be achieved. The area will be subject to an Action Plan in order to pursue the achievement of the annual mean objective for nitrogen dioxide in the Designated Area.

Dated 20 November 2008

THE COMMON SEAL OF BABERGH DISTRICT COUNCIL was hereunto affixed in the presence of:

Solicitor to the Council


Freemen's Little Common
St Gregory CEVC Primary School
Garage
The Vicarage
All Saints Church
CROSS STREET
CHURCH STREET
Hall
Ballingdon Bridge
Air Quality Management Order 2008, Schedule 1
Air Quality Management Area: Map reference No. AQMA1/08
BABERGH DISTRICT COUNCIL
Corks Lane, Hadleigh, Ipswich. IP7 6SJ
Telephone : 01473 822801
minicom : 01473 825878
www.babergh.gov.uk
N
SCALE 1:1250
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Date Printed : 06/11/2008

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	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
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 (micrometres or microns) 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