



2021 Air Quality Annual Status Report (ASR)

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

Date: July, 2021

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Executive Summary: Air Quality in Our Area

Air Quality in Fenland

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, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas^{1,2}.

The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages³, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017⁴.

The Cambridgeshire Transport and Health Joint Strategic Needs Assessment (JSNA) for Air Pollution (2015)⁵ also details the relationship between air pollution and health, and provides a local context when examining air quality in Cambridgeshire. The report can be found using the following link: <http://cambridgeshireinsight.org.uk/wp-content/uploads/2017/08/Transport-and-Health-JSNA-2015-Air-Pollution.pdf>.

Fenland is a rural district located in the north of Cambridgeshire; it houses four main market towns: Chatteris, March, Whittlesey and Wisbech, with Wisbech and Whittlesey containing the majority of the industrial and manufacturing processes.

Main pollutants and trends

¹ Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

³ Defra. Air quality appraisal: damage cost guidance, July 2020

⁴ Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

⁵ Cambridgeshire Transport and Health Joint Strategic Needs Assessment available at <http://cambridgeshireinsight.org.uk/wp-content/uploads/2017/08/Transport-and-Health-JSNA-2015-Air-Pollution.pdf>

Fenland District Council currently monitors for the pollutant Nitrogen Dioxide (NO₂) throughout the district (32 diffusion tube monitoring sites); the primary source for this pollutant in the district is vehicle emissions. All of the monitoring sites in Fenland are currently achieving the national objectives. Although 2020 was not a representative year in terms of emissions, due to the COVID-19 pandemic, measurements in previous years have also been well below the objective and trends show that concentrations are reducing. Fenland District Council has installed two sensors on roads within the district to monitor NO₂, and Particulate Matter (PM₁₀ and PM_{2.5}). Although the data are not included in this ASR, the data will be used to further establish any changes in concentrations at these locations.

Automatic (continuous) Sulphur Dioxide (SO₂) monitoring was undertaken at Whittlesey Brickworks; this monitoring is stipulated as a condition of their Part A Environmental Permit. All objectives were met in the year of 2020.

Air Quality Management Areas

Fenland currently have four Air Quality Management Areas (AQMA's); three in Wisbech (SO₂, PM₁₀ and NO₂) and one in Whittlesey for SO₂. The AQMA's can be viewed in Appendix D of this report or on the Defra website via the following link: https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=104. Work is underway to potentially revoke the AQMA's, although any revocation will be balanced with additional pressure from new developments. With regards to the Whittlesey AQMA, it has been agreed with the Environment Agency that further modelling is to be undertaken before a decision is made regarding this AQMA.

Development in Fenland and new sources of emissions

Fenland is a growing district and has highlighted areas for residential growth within its 2014 Adopted Local Plan. As a result, Fenland has relatively large scale residential developments either in construction or proposed within the planning process. Strategic allocations are located in: West March, South-East March, East and South Chatteris, North and South of Eastrea Road in Whittlesey and East Wisbech. A number of new developments have either received planning permission, or are currently within the planning system, for example at the pre-application stage. The air quality officer will continue to work closely with planning colleagues to ensure that any future applications do not have a detrimental effect on air quality.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy⁶ sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero⁷ sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of AQMAs are designated due to elevated concentrations heavily influenced by transport emissions.

Fenland District Council has taken forward a number of direct measures during the current reporting year of 2020 in pursuit of improving local air quality. More detail on these measures can be found in their respective Action Plans, the latest version of which was updated in May 2021. There are three key traffic management measures, which are currently being planned or implemented in Wisbech and March. Any future measures should be proportionate to the air quality issues within the AQMAs. Currently, there are no exceedances of air quality objectives within the AQMAs.

Fenland District Council expects the following measures to be completed over the course of the next reporting year: junction improvements at Wisbech, and implementation of elements of the March area transport study.

Conclusions and Priorities

The 2021 ASR shows that air quality in Fenland is good and continues to meet the national objectives at all monitoring sites in 2020; although 2020 was not a representative year in terms of emissions, previous years have shown compliance across the district. Work relating to AQMA revocation will continue through both monitoring and detailed modelling to provide meaningful data to inform further action for the AQMAs.

⁶ Defra. Clean Air Strategy, 2019

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

Fenland District Council will continue to work with other statutory consultees and stakeholders as the planning process continues for the Energy from Waste Incinerator proposed in the South of Wisbech. This decision will be determined by the Secretary of State for Business, Energy and Industrial Strategy.

Fenland's priorities for the coming year are to work towards revocation of the AQMAs, whilst continuing to work towards a more general reduction in emissions across the district, largely through the planning process and in collaboration with transport planners at Cambridgeshire County Council. This work should also ensure that development within the district does not lead to any unacceptable deterioration of air quality.

Local Engagement and How to get Involved

Members of the public can get involved to improve local air quality by participating in active travel, such as walking, cycling, using public transport and car sharing in order to reduce the number of single car journeys made. Other methods include switching to energy efficient goods, reducing solid fuel burning and choosing low emission vehicles.

Information on air quality in Fenland can be found on our website: <https://fenland.gov.uk/airpollution>. Further information on Air Quality and how to improve it can be found on the Clean Air Hub website: <https://www.cleanairhub.org.uk/>. General information on sustainable living and energy saving ideas can be found on the Energy Saving Trust website: <https://energysavingtrust.org.uk/>.

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1 Local Air Quality Management

This report provides an overview of air quality in Fenland during 2020. 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 (AQMA) and prepare an Air Quality Action Plan (AQAP) 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 Fenland District Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

AQMAs are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 12 months setting out the measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Fenland District Council can be found in Table 2.1. The table presents a description of the four AQMAs that are currently designated within Fenland. Appendix D: Maps of Monitoring Locations and AQMAs provides maps of the AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO₂ annual mean;
- PM₁₀ 24-hour mean; and
- SO₂ 15-minute mean.

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	Name and Date of AQAP Publication	Web Link to AQAP
Whittlesey AQMA No. 1	01/09/2006	SO ₂ 15-minute mean	An area along roads and cycle routes to the west and northwest of Whittlesey brickworks and an area covering roads, footpaths, dwellings, schools and public open spaces to the east of Whittlesey brickworks	NO	15-minute mean objective was predicted to be breached based on modelling	15-minute mean objective is met	Fenland District Council Air Quality Action Plan 2018	https://www.fenland.gov.uk/media/16752/Air-Quality-Action-Plan-2018-/pdf/Air_Quality_Action_Plan_-_2018.pdf?m=637209017923330000
AQMA Wisbech No. 1	01/05/2001	SO ₂ 15-minute mean	An area in central Wisbech surrounding the HL Food site.	NO	1,300 15-minute means	Source of pollution removed	Fenland District Council Air Quality Action Plan 2018	https://www.fenland.gov.uk/media/16752/Air-Quality-Action-Plan-2018-/pdf/Air_Quality_Action_Plan_-_2018.pdf?m=637209017923330000

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	Name and Date of AQAP Publication	Web Link to AQAP
AQMA Wisbech No. 2	01/05/2001	PM ₁₀ 24-hour mean	An area in central Wisbech surrounding the HL Food site	NO	38 days (predicted)	Source of pollution removed	Fenland District Council Air Quality Action Plan 2018	https://www.fenland.gov.uk/media/16752/Air-Quality-Action-Plan-2018-/pdf/Air_Quality_Action_Plan_-_2018.pdf?m=637209017923330000
AQMA Wisbech No. 3	01/04/2006	NO ₂ annual mean	An area extending along the B198 Lynn Road between Freedom Bridge Roundabout and Mount Pleasant Road and along the A1101, from Sandylands, along Churchill Road to just past Westmead Avenue.	NO	40.9 µg/m ³	24.7 µg/m ³	Fenland District Council Air Quality Action Plan 2018	https://www.fenland.gov.uk/media/16752/Air-Quality-Action-Plan-2018-/pdf/Air_Quality_Action_Plan_-_2018.pdf?m=637209017923330000

Fenland District Council confirm the information on UK-Air regarding their AQMA(s) is up to date.

Fenland District Council confirm that all current AQAPs have been submitted to Defra.

2.2 Progress and Impact of Measures to address Air Quality in Fenland

Defra's appraisal of last year's ASR concluded that on the basis of the evidence provided, the conclusions reached were acceptable for all sources and pollutants. Comments were provided supporting the approach within the ASR, in particular the relocation of some of the diffusion tubes and links to public health outcomes framework. The specific comments included in the appraisal have been taken on board in this ASR. It was noted in last years appraisal that distance correction calculations were not shown. This year, distance correction was not required as there were no sites within 10% of the objective.

Fenland District Council has taken forward a number of direct measures during the current reporting year of 2020 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Nine measures are included within Table 2.2, with the type of measure and the progress Fenland District Council have made during the reporting year of 2020 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans, the latest versions of which were published in May 2021. There are three key traffic management measures which are currently being planned or implemented in Wisbech and March. Any future measures should be proportionate to the air quality issues within the AQMAs. Currently, there are no exceedances of air quality objectives within the AQMAs.

Fenland District Council expects the following measures to be completed over the course of the next reporting year: junction improvements at Wisbech, and implementation of elements of the March area transport study. Fenland District Council's priorities for the coming year are to work towards revocation of the AQMAs.

The principal challenges and barriers to implementation that Fenland District Council anticipates facing are in relation to funding, staff resources, and the pressures on existing air quality of new development within the district.

Fenland District Council anticipates that the measures stated above and in Table 2.2 will maintain compliance in all of the AQMAs.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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	Improve traffic management at key junctions - Wisbech Access Strategy	Traffic Management	UTC, Congestion management, traffic reduction	2016	2021	Cambridgeshire & Peterborough Combined Authority (CPCA) Cambridgeshire County Council (CCC)	Government Growth Fund & CPCA	NO	Partially Funded	> £10 million	Planning	Reduced vehicle emissions / Maintain levels below standards	Reduced congestion and increased average speeds through AQMA	Continue detailed design stage working towards implementation of short term schemes. Additional funding required for implementation.	Lengthy Timescale
2	Improve traffic management - March Area Transport Study	Traffic Management	UTC, Congestion management, traffic reduction	2017	2020	Cambridgeshire & Peterborough Combined Authority (CPCA) Cambridgeshire County Council (CCC)	CPCA	NO	Partially Funded	> £10 million	Planning	Reduced vehicle emissions / Maintain levels below standards	Reduced congestion, Junction improvements, walking and cycling strategy, town centre proposals, new link road	Feasibility work and online public consultation completed Summer 2020. The Quick Win schemes are in delivery phase and expect to be completed by Autumn 2021. Strategic Outline Business Case (SOBC) for major schemes completed December 2020. Outline Business Case (OBC) nearing completion Summer 2021.	Funding
3	Improve traffic management – March Town Centre Transformation through Future High Streets Fund	Traffic Management	UTC, Congestion management, traffic reduction	2019	2024	FDC, Hatch Regeneris	Future High Streets Fund & CPCA	NO	Funded	> £10 million	Implementation	Reduced vehicle emissions / Maintain levels below standards	Part pedestrianisation of key congested areas (Broad Street), reduced congestion, junction improvements	Fenland District Council bid shortlisted for final phase of application process. Bid submissions due by June 5 th 2020. Bidding authorities expected to hear more from Government in late summer.	First phase successful, second phase on-going
4	Fletton Liaison Meetings	Environmental Permits	Measures to reduce pollution through PPC Permits going beyond BAT	On-going	On-going	Environment Agency / Whittlesey Brickworks, FDC	Whittlesey Brickworks	NO	Funded	< £10k	Implementation	Maintain levels below standards	Exceedances of emission limits detailed in Environmental Permits	On-going	
5	Consideration of Air Quality Impacts when providing comments on planning applications within an AQMA or where an AQMA could be impacted or created.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	On-going	On-going	Local Authority Environmental Health	FDC	NO	Funded	£10k - 50k	Implementation	Maintain levels below standards	Planning response time	On-going	

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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
6	Explore Air Quality automatic (continuous) monitoring options	Policy Guidance and Development Control	Other policy	2019	2020	Local Authority Environmental Health	Local Transport Fund	NO	Funded	< £10k	Implementation	Provide real-time Air Quality data for PM and NO ₂	Purchase and Install sensors	Funding secured and two air quality sensors purchased and in place.	
7	Review and Expand Diffusion Tube network	Policy Guidance and Development Control	Other policy	2019	Completed (data reported in this report)	Local Authority Environmental Health	FDC	NO	Funded	< £10k	Implementation	Provide NO ₂ pollution data	Diffusion tube reviewed and expanded	Diffusion tube network successfully reviewed in 2019, diffusion tubes positioned in January 2020 and data from revised network reported on in this report.	
8	Transport & Access Group	Promoting Travel Alternatives	Promotion of walking	2016	On-going	FDC	FDC & Hereward Community Rail Partnership	NO	Partially Funded	£10k - 50k	Implementation	Reduced vehicle emissions / Maintain levels below standards	Reduced vehicle use and increased use of public transport / Active Travel	53 community champions have been provided with transport training to enable them to assist others access transport and help promote walking and cycling. In late 2020 FDC approved the development of a Walking, Cycling and Mobbity Strategy to support infrastructure for non motorised transport. A public consultation on the draft strategy is expected Autumn 2021.	
9	Develop Air Quality Action Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018	2020	Local Authority Environmental Health	FDC	NO	Funded	< £10k	Completed	Maintain levels below standards	Update Plan	Plan published in 2019.	

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.

Fenland District Council has two sensors in place which are measuring PM_{2.5} (in addition to NO₂ and PM₁₀) in order to extend their understanding of PM_{2.5} concentrations across the district, particularly at roadside locations. However, the data are currently not available for reporting, while further QA is undertaken. The maximum (2018) background concentration is 10.6 µg/m³ (<https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>).

Fenland District Council is taking the following measures to address PM_{2.5}:

- The measures discussed in Table 2.2, Section 2.2 above will help in reducing traffic related PM_{2.5};
- Fenland District Council has been successful in acquiring funding from the Local Transport Fund to purchase two automatic air quality sensors, which have been implemented. Although not reported within this ASR, these data will enable officers to obtain a clearer understanding of PM_{2.5} concentrations in Fenland;
- Continuing to provide members of the public with information on the impacts of solid fuel burning and bonfires on air quality and particulate matter through the Joint Cambridgeshire and Peterborough Pollution Group task force; and
- Continuing to consult on planning applications to advise planning conditions for Construction Management Plans, in order to manage dust from construction and demolition activities.

Key indicators of the state of public health have been developed through the Public Health Outcomes Framework (PHOF) following the Health and Social Care Act 2012. The PHOF data tool, compiled by Public Health England, includes an indicator applicable to air pollution: fraction of mortality attributable to particulate pollution. The fraction of mortality attributed to particulate air pollution (2019 data) in Fenland is 5.3%, which has reduced by

0.1% from 2018. The value is slightly lower than the East of England region as a whole, which was 5.5% in 2019, and is higher than the average for England (5.1%).

The above measures should help to improve the fraction of mortality attributable to particulate pollution for the air quality indicators in Fenland, along with measures implemented at national level.

There are currently no smoke control areas within the district.

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

This section sets out the monitoring undertaken within 2020 by Fenland District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2016 and 2020 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Monitoring data for SO₂ has been supplied by Forterra Building Products Limited (formally Hanson). As a requirement of their Environmental Permit they monitor at two locations in the vicinity of the brickworks in Whittlesey. Forterra operates continuous ambient monitoring stations (CAMS) to the east-southeast of the former Saxon Works (Park Lane AM1) and to the north of the Kings Dyke Works (Bradley Fen AM2).

Maps showing the location of the monitoring sites are provided in Appendix D.

3.1.2 Non-Automatic Monitoring Sites

Fenland District Council undertook non-automatic (i.e. passive) monitoring of NO₂ at 32 sites during 2020, seven of which were new sites deployed in January 2020. A further six sites (S2, S11, S13, S14, S18, S19) were relocated from locations where NO₂ levels had been compliant for many years. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

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.

3.1.3 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2020 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.

Measured concentrations at all monitoring locations were compliant with the annual mean air quality objective for nitrogen dioxide (40 µg/m³). The results for 2020 show a substantial reduction in annual mean nitrogen dioxide concentrations compared to 2019 at all sites, likely as a consequence of COVID-19-related restrictions (see Appendix E). Overall, there has been good data capture at all monitoring locations across the district (>90%).

As all annual mean nitrogen dioxide concentrations were well below 60 µg/m³, it is unlikely there were any exceedances of the 1-hour mean nitrogen dioxide objective at any of the monitoring sites in 2020.

3.1.4 Particulate Matter (PM₁₀)

Fenland District Council currently monitors for PM₁₀ for this pollutant using sensors. The data are not included in this ASR due to queries with the data.

3.1.5 Particulate Matter (PM_{2.5})

Fenland District Council currently monitors PM_{2.5} using sensors. The data are not included in this ASR due to queries with the data.

3.1.6 Sulphur Dioxide (SO₂)

Table A.4 in Appendix A compares the ratified continuous monitored SO₂ concentrations for 2020 with the air quality objectives for SO₂.

The results confirm that all the sulphur dioxide objectives are being achieved at Park Lane (AM1) and Bradley Fen (AM2).

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
AM1	Park Lane	Urban Background	526382	296859	SO ₂	Yes (AQMA1)	UV Fluorescence	0.0	N/A	1.5
AM2	Bradley Fen	Industrial	523924	297974	SO ₂	Yes (AQMA1)	UV Fluorescence	0.0	N/A	1.5

Notes:

(1) 0m if the monitoring site is at a location of exposure (in this case where members of the public could spend 15 minutes or more).

(2) N/A if not applicable

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
S1	Syers Lane, Whittlesey [A605]	Kerbside	527059	297205	NO ₂	No	3.0	1.0	No	2.3
S2 ⁽³⁾	Station Road, March [B1101]	Kerbside	541983	297856	NO ₂	No	4.0	1.0	No	2.4
S3	Ramnoth Road, Wisbech	Kerbside	546857	308553	NO ₂	Yes Wisbech No.3	4.0	1.0	No	2.4
S4	Orchard Street, Whittlesey	Roadside	526852	297244	NO ₂	No	6.0	2.0	No	2.3
S5	Churchill Road, Wisbech (Bowthorpe) [A1101]	Roadside	546414	309585	NO ₂	Yes Wisbech Nos. 1,2,3	3.0	2.0	No	2.4
S6	Kings Dyke, Whittlesey	Roadside	525287	297404	NO ₂	No	7.0	2.0	No	2.4
S7	Cemetery Road, Whittlesey	Roadside	527287	297156	NO ₂	No	5.0	2.0	No	2.3
S8	Westmead Ave, Wisbech	Kerbside	546886	308366	NO ₂	Yes Wisbech No.3	12.0	1.0	No	2.4
S9	Thorney Toll [A47]	Kerbside	534132	303969	NO ₂	No	1.0	1.0	No	2.9
S10	Coates Road [A605]	Kerbside	530613	297702	NO ₂	No	0.0	1.0	No	2.7
S11 ⁽³⁾	St Peters Church, March	Kerbside	541659	296462	NO ₂	No	1.0	1.0	No	2.4
S12	Lynn Road, Wisbech [Anglian Water Site]	Urban Background	546588	310192	NO ₂	Yes Wisbech Nos. 1,2	10.0	N/A	No	2.4

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
S13 ⁽³⁾	Lynn Road [B198]	Kerbside	546667	310323	NO ₂	Yes Wisbech Nos. 1,2	3.0	1.0	No	2.6
S14 ⁽³⁾	Bridge Street, Chatteris [Aldi]	Roadside	538985	287082	NO ₂	No	5.0	1.5	No	2.2
S15	Weasenham Lane / A1101, Wisbech	Roadside	546828	308543	NO ₂	Yes Wisbech No.3	4.0	2.0	No	2.4
S16	Lynn Road Roundabout [B198]	Roadside	546260	309987	NO ₂	Yes Wisbech Nos. 1,2,3	0.0	2.0	No	2.4
S17	Weasenham Lane / Cromwell Road [B198]	Roadside	545509	308731	NO ₂	No	2.0	2.0	No	2.3
S18 ⁽³⁾	New Road, Chatteris [B1098]	Kerbside	539333	286172	NO ₂	No	2.0	1.0	No	2.3
S19 ⁽³⁾	Broad Street, March [B1101]	Kerbside	541665	296806	NO ₂	No	1.0	1.0	No	2.4
S20	Napier Court, Churchill Road, Wisbech [B1101]	Roadside	546485	309389	NO ₂	Yes Wisbech Nos. 1,3	2.0	2.0	No	2.5
S21	Norfolk Court, March [B1101]	Kerbside	541833	296985	NO ₂	No	1.0	1.0	No	2.4
S22	Wildboar / Station Road, Whittlesey [B1093]	Roadside	527357	296550	NO ₂	No	1.0	6.0	No	2.3
S23	West End, Whittlesey [A605]	Kerbside	526351	297454	NO ₂	No	1.0	1.0	No	2.3
S24	Hocking Court, March [B1101]	Kerbside	541777	296872	NO ₂	No	1.0	1.0	No	2.4

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
S25	Gildenburgh Crescent, Whittlesey [A605]	Roadside	528089	297173	NO ₂	No	3.0	9.0	No	2.3
S26 ⁽⁴⁾	Peas Hill Roundabout, March [A141]	Kerbside	540247	297604	NO ₂	No	5.0	1.0	No	2.1
S27 ⁽⁴⁾	Dartford Road, March [B1099 / Lidl]	Kerbside	541562	296913	NO ₂	No	6.0	1.0	No	2.4
S28 ⁽⁴⁾	Broad Street, March [B1101]	Kerbside	541689	296836	NO ₂	No	1.0	1.0	No	2.3
S29 ⁽⁴⁾	The Causeway, March [B1101].	Kerbside	541659	296046	NO ₂	No	3.0	1.0	No	2.3
S30 ⁽⁴⁾	High Street, Chatteris [B1050]	Kerbside	539332	286176	NO ₂	No	1.0	1.0	No	2.3
S31 ⁽⁴⁾	South Brink, Wisbech [B198]	Kerbside	545986	309610	NO ₂	Yes Wisbech No. 1	1.0	1.0	No	2.2
S32 ⁽⁴⁾	North End, Wisbech [A1101]	Roadside	545997	310092	NO ₂	Yes Wisbech No. 1	5.0	1.5	No	2.4

Notes:

- (1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).
- (2) N/A if not applicable.
- (3) Site relocated at the start of 2020.
- (4) New site implemented at the start of 2020.

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

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2020 (%) ⁽²⁾	2016	2017	2018	2019	2020
S1	527059	297205	Kerbside	100.0	100.0	24.4	23.3	21.7	21.3	15.8
S2 ⁽³⁾	541983	297856	Kerbside	100.0	100.0	21.4	22.8	20.0	20.3	15.7
S3	546857	308553	Kerbside	100.0	100.0	24.4	25.7	21.1	21.6	17.7
S4	526852	297244	Roadside	100.0	100.0	23.1	24.7	22.2	22.1	17.2
S5	546414	309585	Roadside	100.0	100.0	35.4	35.7	28.2	30.1	23.7
S6	525287	297404	Roadside	100.0	100.0	19.4	20.6	16.1	19.0	15.1
S7	527287	297156	Roadside	100.0	100.0	22.4	23.3	20.6	18.3	16.2
S8	546886	308366	Kerbside	100.0	100.0	18.5	20.3	29.1	28.7	23.4
S9	534132	303969	Kerbside	100.0	100.0	20.3	20.8	19.3	19.9	15.0
S10	530613	297702	Kerbside	100.0	100.0	21.0	22.7	18.6	18.6	13.9
S11 ⁽³⁾	541659	296462	Kerbside	100.0	100.0	21.4	19.9	20.5	19.4	15.5
S12	546588	310192	Urban Background	92.3	92.3	16.1	16.1	14.8	16.6	14.3
S13 ⁽³⁾	546667	310323	Kerbside	100.0	100.0	27.1	26.3	27.2	25.5	26.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2020 (%) ⁽²⁾	2016	2017	2018	2019	2020
S14 ⁽³⁾	538985	287082	Roadside	90.4	90.4	19.5	18.9	17.2	17.9	16.0
S15	546828	308543	Roadside	100.0	100.0	34.4	33.7	29.7	30.3	24.4
S16	546260	309987	Roadside	92.3	92.3	30.5	29.7	30.6	29.6	23.5
S17	545509	308731	Roadside	100.0	100.0	20.3	20.4	17.6	18.9	15.2
S18 ⁽³⁾	539333	286172	Kerbside	100.0	100.0	15.3	14.8	13.7	14.0	11.6
S19 ⁽³⁾	541665	296806	Kerbside	100.0	100.0	33.3	35.8	30.1	28.7	25.4
S20	546485	309389	Roadside	100.0	100.0	31.8	29.0	27.3	26.9	21.8
S21	541833	296985	Kerbside	100.0	100.0	-	-	19.1	20.2	15.6
S22	527357	296550	Roadside	90.4	90.4	-	-	16.1	15.9	14.2
S23	526351	297454	Kerbside	100.0	100.0	-	-	22.4	22.9	16.3
S24	541777	296872	Kerbside	100.0	100.0	-	-	26.2	26.5	19.3
S25	528089	297173	Roadside	92.3	92.3	-	-	16.7	16.8	15.7
S26 ⁽⁴⁾	540247	297604	Kerbside	100.0	100.0	-	-	-	-	27.7
S27 ⁽⁴⁾	541562	296913	Kerbside	100.0	100.0	-	-	-	-	17.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2020 (%) ⁽²⁾	2016	2017	2018	2019	2020
S28 ⁽⁴⁾	541689	296836	Kerbside	100.0	100.0	-	-	-	-	21.9
S29 ⁽⁴⁾	541659	296046	Kerbside	100.0	100.0	-	-	-	-	17.7
S30 ⁽⁴⁾	539332	286176	Kerbside	100.0	100.0	-	-	-	-	17.1
S31 ⁽⁴⁾	545986	309610	Kerbside	100.0	100.0	-	-	-	-	30.7
S32 ⁽⁴⁾	545997	310092	Roadside	100.0	100.0	-	-	-	-	17.2

Diffusion tube data has been bias adjusted.

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

Notes:

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

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

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

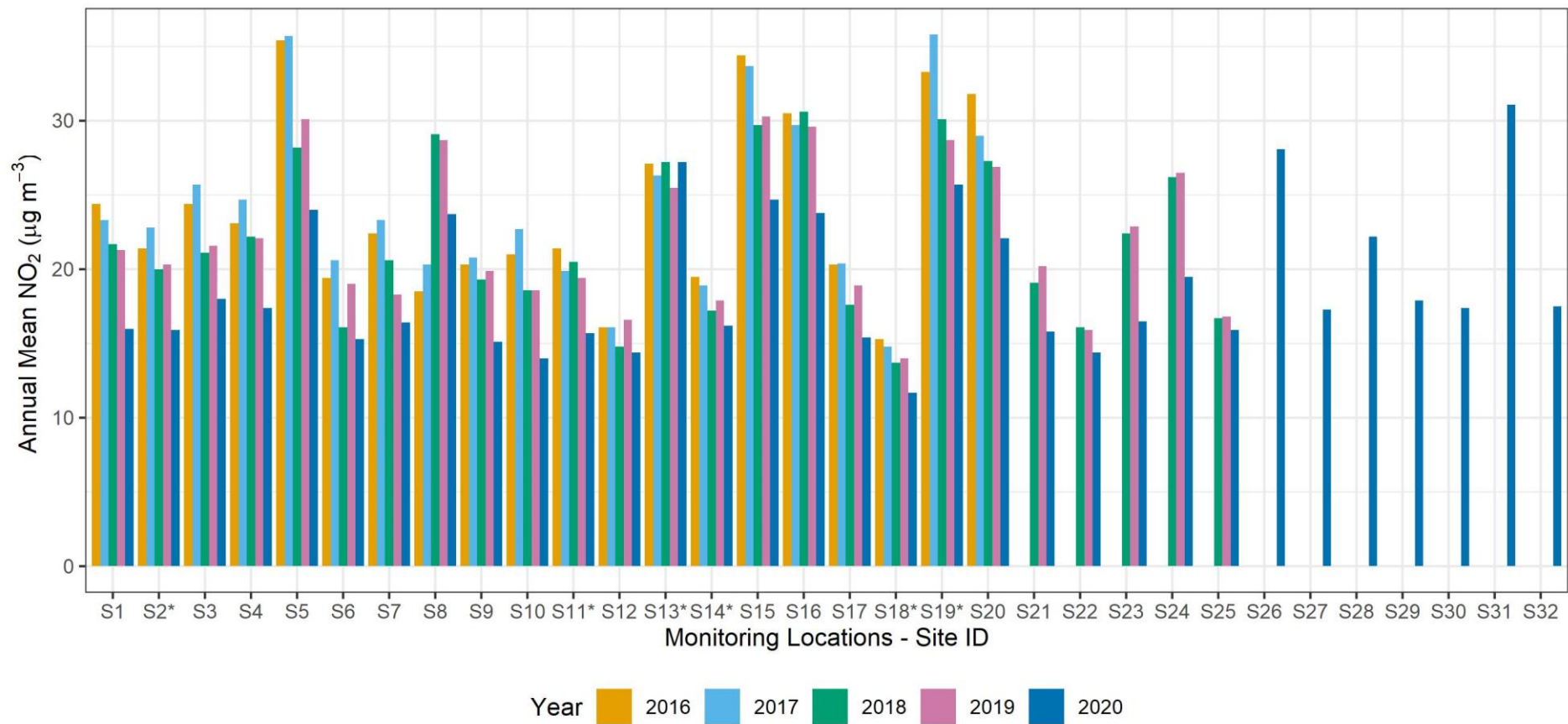
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

(3) Site relocated at the start of 2020.

(4) New site implemented at the start of 2020.

Figure A.1 – Trends in Annual Mean NO₂ Concentrations



* Site relocated at the start of 2020

Figure A.2 – Trends in Annual Mean NO₂ Concentrations at Monitoring Locations within Wisbech AQMA 3 (NO₂) 2016-2020.

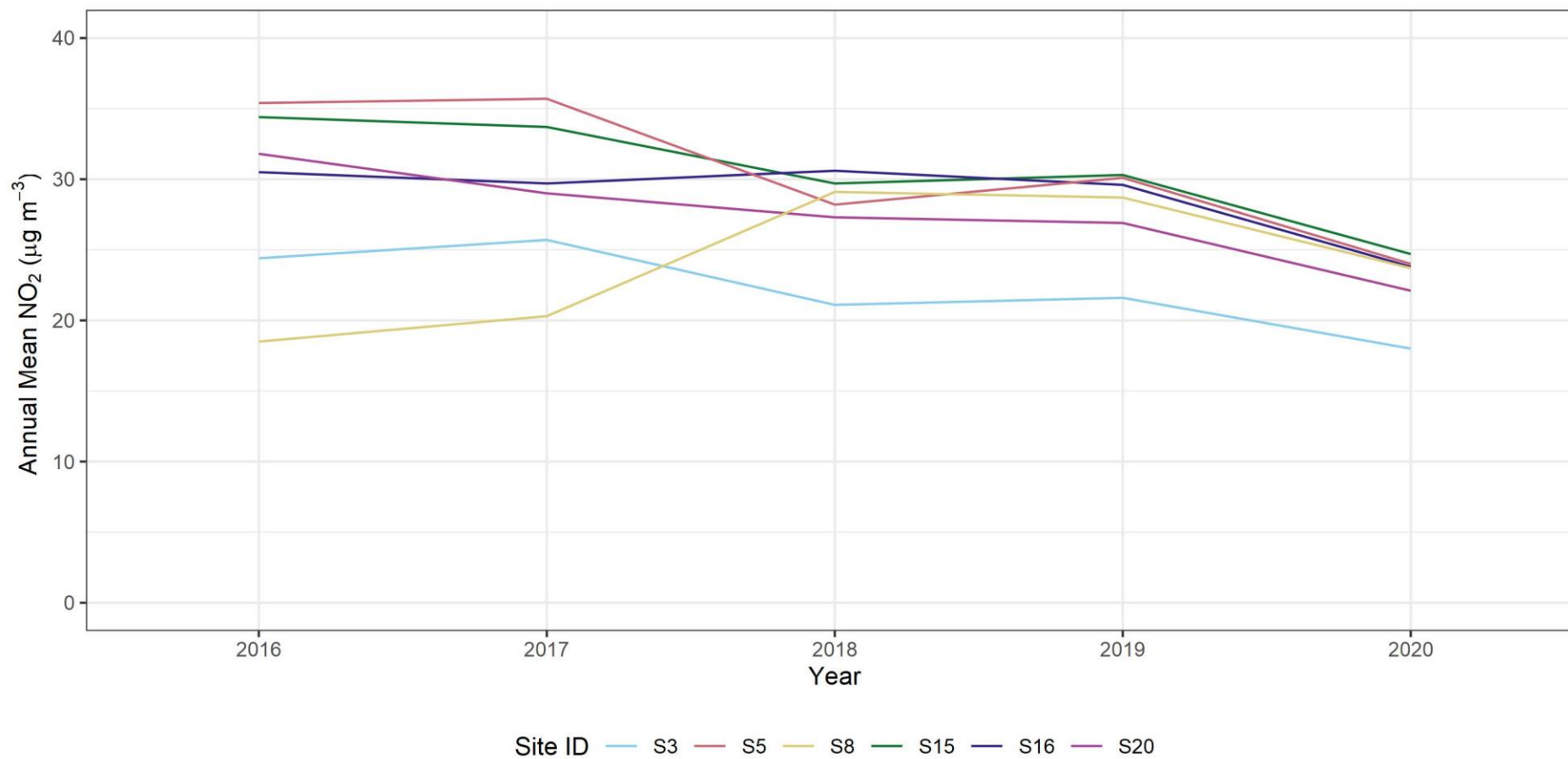


Table A.4 – SO₂ 2020 Monitoring Results, Number of Relevant Instances

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2020 (%) ⁽²⁾	Number of 15-minute Means > 266µg/m ³	Number of 1-hour Means > 350µg/m ³	Number of 24-hour Means > 125µg/m ³
AM1	526382	296859	Urban Background	94.3	94.3	0	0	0
AM2	523924	297974	Industrial	93.1	93.1	0	0	0

Notes:

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO₂ 2020 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S1	527059	297205	28.8	22.2	17.8	14.5	15.1	17.0	14.9	14.9	19.7	21.4	32.5	31.3	20.8	15.8	-	
S2	541983	297856	31.7	22.9	16.8	14.7	14.7	16.0	15.1	19.1	19.7	19.1	28.3	29.8	20.7	15.7	-	
S3	546857	308553	37.6	30.0	21.8	13.4	15.3	17.8	18.0	18.0	22.3	21.2	32.9	31.7	23.3	17.7	-	
S4	526852	297244	36.7	26.9	16.6	13.4	14.3	16.6	15.1	19.3	21.0	22.9	36.9	31.5	22.6	17.2	-	
S5	546414	309585	46.6	33.0	25.8	18.3	22.7	24.1	24.1	29.4	28.7	33.6	43.7	44.1	31.2	23.7	-	
S6	525287	297404	30.8	23.5	18.1	11.7	14.5	17.0	14.3	17.8	18.1	19.3	26.9	26.0	19.8	15.1	-	
S7	527287	297156	33.4	24.4	18.1	13.4	13.2	15.9	23.7	14.9	18.5	22.3	31.1	26.5	21.3	16.2	-	
S8	546886	308366	47.9	31.9	21.8	19.3	23.9	38.2	15.1	26.9	27.3	34.0	42.2	40.5	30.8	23.4	-	
S9	534132	303969	33.6	22.3	13.2	13.0	16.2	18.1	15.1	17.0	16.6	20.6	28.3	22.0	19.7	15.0	-	
S10	530613	297702	22.3	22.9	16.0	12.2	13.9	16.0	13.9	15.7	15.1	19.9	24.1	26.5	18.2	13.9	-	
S11	541659	296462	35.9	26.5	14.7	12.2	12.8	15.3	15.7	18.5	12.8	20.1	30.8	29.4	20.4	15.5	-	
S12	546588	310192	26.0	22.5	16.2	11.1	12.6	13.2	17.4	13.9	14.5	17.0		41.8	18.8	14.3	-	
S13	546667	310323	37.1	39.0	35.0	26.5	30.4	33.0	28.8	34.2	38.6	36.1	45.8	40.1	35.4	26.9	-	
S14	538985	287082	28.5	20.8	19.9	22.7	16.0	20.1	3.8	20.4	21.8		32.3	25.2	21.0	16.0	-	
S15	546828	308543	45.5	36.7	30.2	19.5	27.3	25.8	25.8	26.7	32.9	35.9	41.4	37.6	32.1	24.4	-	
S16	546260	309987	43.2		30.9	25.0	23.9	26.5	19.1	25.6	31.9	31.7	44.9	37.2	30.9	23.5	-	
S17	545509	308731	26.7	21.6	18.1	16.4	16.2	15.9	10.3	17.6	18.3	17.2	32.7	28.8	20.0	15.2	-	
S18	539333	286172	23.1	17.0	11.7	10.7	10.3	11.8	9.0	10.9	20.2	14.1	22.3	21.2	15.2	11.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.76)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
S19	541665	296806	49.9	41.1	30.4	22.3	25.8	27.7	30.4	15.7	36.3	40.1	38.2	43.5	33.4	25.4	-	
S20	546485	309389	44.3	29.8	25.0	22.0	24.8	29.6	19.1	18.5	27.9	27.7	43.0	32.9	28.7	21.8	-	
S21	541833	296985	30.8	23.9	19.5	12.6	13.4	14.5	15.1	13.9	20.6	23.1	29.0	30.2	20.5	15.6	-	
S22	527357	296550	26.7	16.4	13.8	10.7	13.2	13.6	11.7	34.2	15.1		24.3	25.6	18.6	14.2	-	
S23	526351	297454	39.5	22.9	18.7	10.3	13.2	14.3	14.1	20.4	17.4	22.2	33.2	31.5	21.5	16.3	-	
S24	541777	296872	37.6	27.3	18.7	16.2	18.5	22.3	17.6	26.7	22.9	28.1	34.2	34.0	25.4	19.3	-	
S25	528089	297173	31.3	20.2	11.3		13.9	13.9	13.0	25.6	16.0	20.2	30.2	31.5	20.7	15.7	-	
S26	540247	297604	53.7	43.5	40.5	28.5	29.0	40.5	22.3	17.6	37.2	35.1	46.6	42.8	36.4	27.7	-	
S27	541562	296913	33.6	24.3	23.9	15.1	16.4	19.1	15.7	10.9	22.2	22.9	32.9	33.4	22.5	17.1	-	
S28	541689	296836	33.2	25.0	30.0	26.4	26.4	27.1	17.4	30.6	28.8	28.1	36.3	37.2	28.9	21.9	-	
S29	541659	296046	34.4	25.0	24.8	14.9	15.7	18.7	15.3	21.4	23.7	22.3	31.9	30.8	23.2	17.7	-	
S30	539332	286176	33.8	23.7	22.2	13.4	15.9	17.8	17.4	20.8	22.7	21.8	31.5	29.8	22.6	17.1	-	
S31	545986	309610	48.3	46.6	39.3	28.1	34.2	37.8	30.8	42.2	41.8	40.9	47.4	47.9	40.4	30.7	-	
S32	545997	310092	28.7	24.4	26.2	18.3	16.6	20.1	14.3	22.9	24.8	16.2	28.3	31.3	22.7	17.2	-	

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

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.

National bias adjustment factor used.

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

Fenland District Council confirm that all 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Fenland During 2020

Fenland District Council has not identified any new or changes sources (as outlined in Technical Guidance TG.16) relating to air quality within the reporting year of 2020.

Additional Air Quality Works Undertaken by Fenland District Council During 2020

Fenland District Council has not completed any additional works within the reporting year of 2020.

New Developments

A number of new developments have either received planning permission, or are currently within the planning system, for example at the pre-application stage. The following have received planning permission within the reporting period.

Application Ref	Location	Description of proposal
F/YR20/0661/O	New Road, Manea	Biomass boiler to burn wood chips
F/YR20/0768/F	Cross Road, March	Biomass boiler burning wood waste
F/YR20/0807/SCOP	West of The Avenue, March	Scoping opinion for 130+ houses
F/YR19/1068/F	Norwood Road, March	100+ houses
F/YR20/0861/F	Drybread Road, Whittlesey	130 houses

F/YR20/1048/F	AD Plant, Mepal	Extension to existing anaerobic digestion plant, which in effect is doubling the capacity
F/YR20/1112/F	AD Plant, Murrow	Creation of new lagoon
F/YR20/1235/O	Bridge Lane, Wimblington	Outline application for 88 dwellings
PRF/20/3113/CW	Saxon Works, Kings Dyke	Processing stone and aggregate

The outline application for 88 dwellings in Bridge Lane, Wimblington was accompanied with an air quality assessment which concluded that there was no likelihood of a significant effect on air quality, either in the construction or operational phase. The other applications were screened as not requiring an air quality assessment. The air quality officer will continue to work closely with planning colleagues to ensure that any future applications do not have a detrimental effect on air quality. The following developments represent those currently undergoing pre-application discussions and illustrate the level of likely development over the next few years.

Application Ref	Location	Description of proposal
20/0043/PREAPP	Doddington	50 houses
20/0047/PREAPP	Chatteris	400+ houses
20/0061/PREAPP	Wisbech East	400+ houses
20/0126/PREAPP	Estover Road, March	Care home – 56 beds
20/0143/PREAPP	Eastrea Road, Whittlesey	204 houses
20/0153/PREAPP	Elm Road, March	50 houses
20/0154/PREAPP	Isle of Ely Way, March	90 houses

QA/QC of Diffusion Tube Monitoring

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Fenland recorded a data capture of over 75% and therefore there was no requirement to annualise any monitoring data.

Diffusion Tube Bias Adjustment Factors

Socotec (formerly ESG) supplies and analyses the diffusion tubes for Fenland. The tubes were prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes were desorbed with distilled water and the extract analysed using a segmented flow auto-analyser with ultraviolet detection.

The diffusion tube data presented within the 2021 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.TG16 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Fenland District Council does not have any automatic analysers with which a collocation study could be undertaken, therefore a bias adjustment factor was obtained from the national bias adjustment database which is available at: <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>. Adjustment factors are derived from data from diffusion tubes which were co-located with real-time analysers. Socotec, 50% triethanolamine (TEA) in acetone for 2020 gave an adjustment factor of 0.76 which has been applied to the Fenland data (see spreadsheet below).

In the summary of Laboratory Performance in AIR NO₂ Proficiency Testing Scheme, Socotec (formerly ESG) scored 100% in all the periods of 2020 where data are available.

National Diffusion Tube Bias Adjustment Factor Spreadsheet										Spreadsheet Version Number: 06/21	
Follow the steps below in the correct order to show the results of relevant co-location studies										This spreadsheet will be updated at the end of Sept 2021	
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods										LAQM Helpdesk Website	
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet											
This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use.											
The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.										Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.	
Step 1:		Step 2:		Step 3:		Step 4:					
Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Select a Preparation Method from the Drop-Down List		Select a Year from the Drop-Down List		Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor shown in blue at the foot of the final column.					
If a laboratory is not shown, we have no data for this laboratory.		If a preparation method is not shown, we have no data for this method at this laboratory.		If a year is not shown, we have no data.		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	Method	Year	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	Bias Adjustment Factor (A) (Cm/Dm)	
SOCOTEC Didcot	50% TEA in acetone	2020	R	East Suffolk Council	12	30	25	19.6%	G	0.84	
SOCOTEC Didcot	50% TEA in acetone	2020	UB	Canterbury City Council	10	13	10	28.1%	G	0.78	
SOCOTEC Didcot	50% TEA in acetone	2020	R	Canterbury City Council	9	26	20	29.6%	G	0.77	
SOCOTEC Didcot	50% TEA in acetone	2020	UB	Kingston upon Hull City Council	12	24	18	34.8%	G	0.74	
SOCOTEC Didcot	50% TEA in acetone	2020	R	Ipswich Borough Council	12	27	21	28.5%	G	0.78	
SOCOTEC Didcot	50% TEA in acetone	2020	R	Ipswich Borough Council	12	36	26	36.3%	G	0.73	
SOCOTEC Didcot	50% TEA in acetone	2020	R	Thanet District Council	9	20	17	21.2%	G	0.83	
SOCOTEC Didcot	50% TEA in acetone	2020	R	Medway Council	12	26	18	41.7%	G	0.71	
SOCOTEC Didcot	50% TEA in acetone	2020	B	Medway Council	11	20	10	96.3%	G	0.51	
SOCOTEC Didcot	50% TEA in acetone	2020	B	Gravesham Borough Council	12	23	22	5.6%	G	0.95	
SOCOTEC Didcot	50% TEA in acetone	2020	B	Gravesham Borough Council	12	27	24	16.1%	G	0.86	
SOCOTEC Didcot	50% TEA in acetone	2020	R	Monmouthshire County Council	10	32	24	35.3%	G	0.74	
SOCOTEC Didcot	50% TEA in acetone	2020	UI	North Lincolnshire Council	13	18	14	26.6%	G	0.79	
SOCOTEC Didcot	50% TEA in acetone	2020	R	City of York Council	12	24	19	23.0%	G	0.78	
SOCOTEC Didcot	50% TEA in acetone	2020	R	City of York Council	11	22	17	34.3%	G	0.74	
SOCOTEC Didcot	50% TEA in acetone	2020	R	City of York Council	12	33	23	40.4%	G	0.71	
SOCOTEC Didcot	50% TEA in acetone	2020	R	Cambridge City Council	10	30	20	47.6%	G	0.68	
SOCOTEC Didcot	50% TEA in acetone	2020	R	Wrexham County Borough Council	9	17	13	26.6%	G	0.79	
SOCOTEC Didcot	50% TEA in acetone	2020	KS	Marylebone Road Intercomparison	11	59	43	38.0%	G	0.72	
Socotec Didcot	50% TEA in acetone	2020	R	Horsham District Council	10	23	23	2.2%	G	0.98	
Socotec Didcot	50% TEA in acetone	2020	R	Horsham District Council	12	22	19	18.6%	G	0.84	
Socotec Didcot	50% TEA in acetone	2020	R	Horsham District Council	9	25	18	42.0%	G	0.70	
Socotec Didcot	50% TEA in acetone	2020	R	Dacorum Borough Council	10	24	19	25.2%	G	0.80	
Socotec Didcot	50% TEA in acetone	2020	R	Huntingdonshire District Council	12	36	25	47.1%	G	0.68	
Overall Factor³ (24 studies)								Use	0.76		

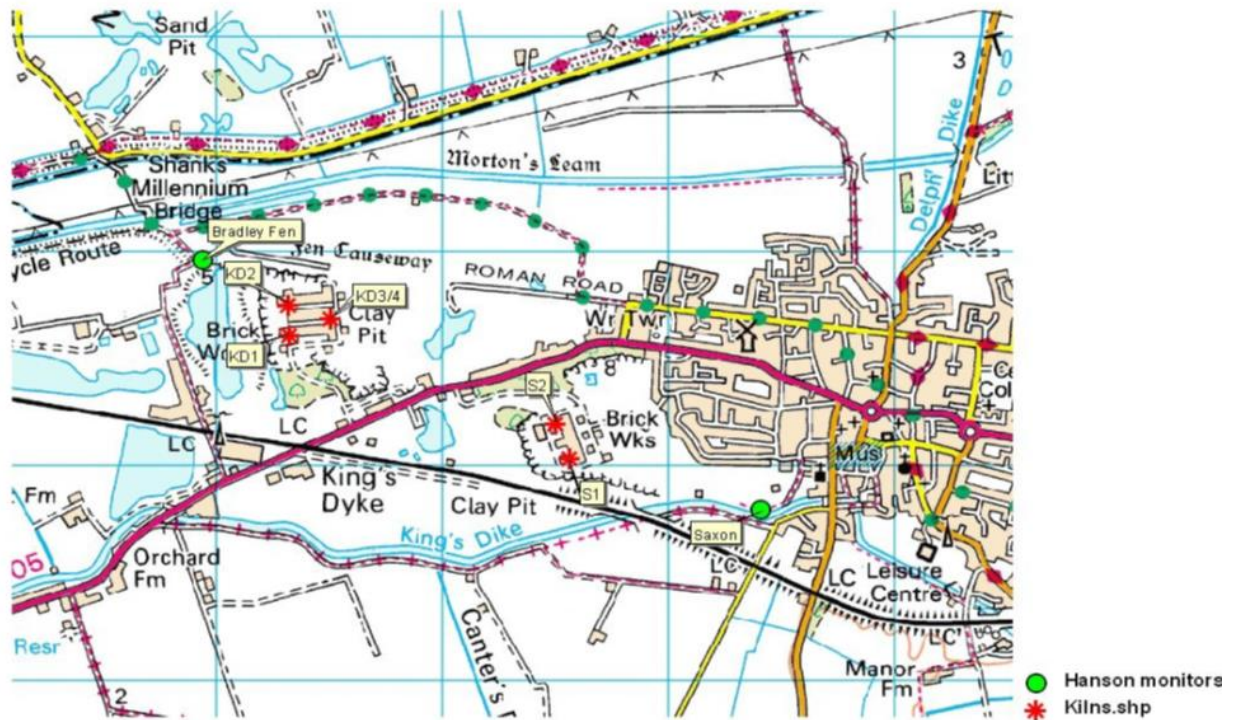
NO₂ Fall-off with Distance from the Road

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

No diffusion tube NO₂ monitoring locations within Fenland required distance correction during 2020, because no locations were within 10% of the objective.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Map of Automatic Monitoring Sites run by Forterra in Whittlesey



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Note: Kilns S1 and S2 no longer operate and the Environmental Permit for this site has been surrendered.

Figure D.2 – Map of AQMAs and Non-Automatic Monitoring Sites in Wisbech

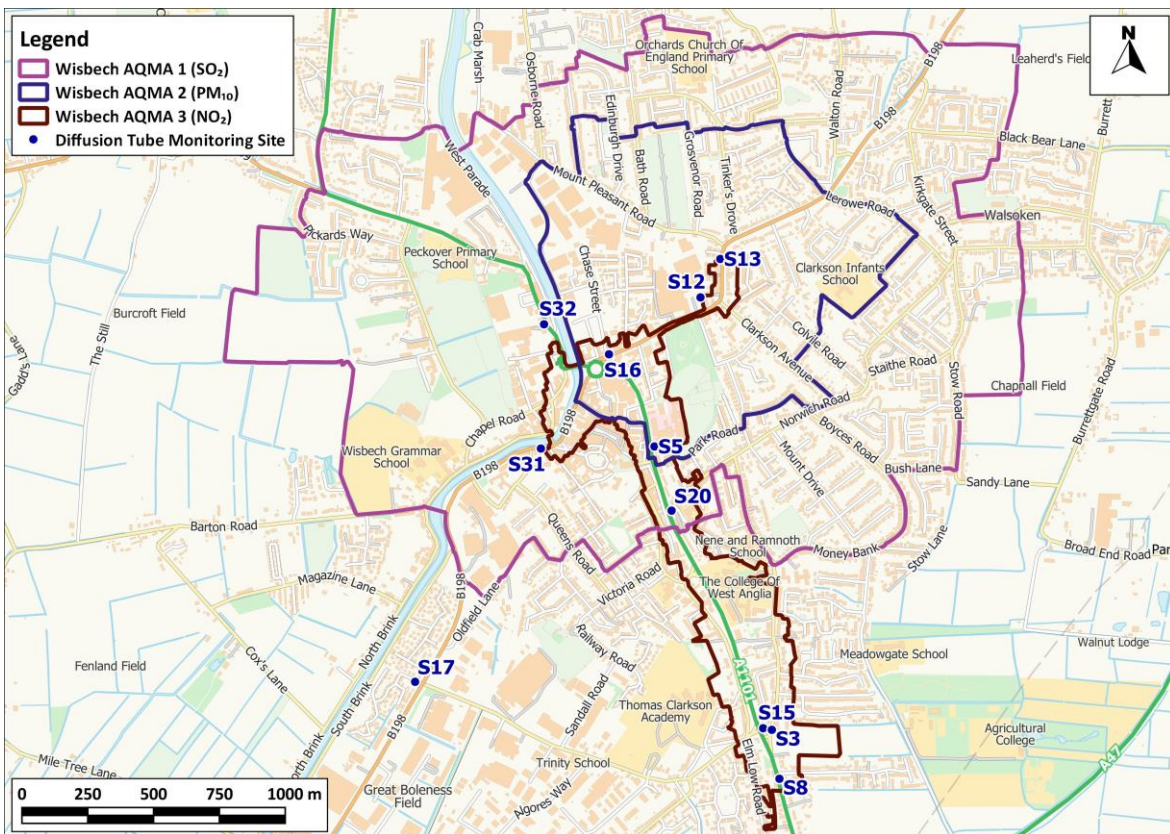


Figure D.3 – Map of the AQMA and Non-Automatic Monitoring Sites in Whittlesey

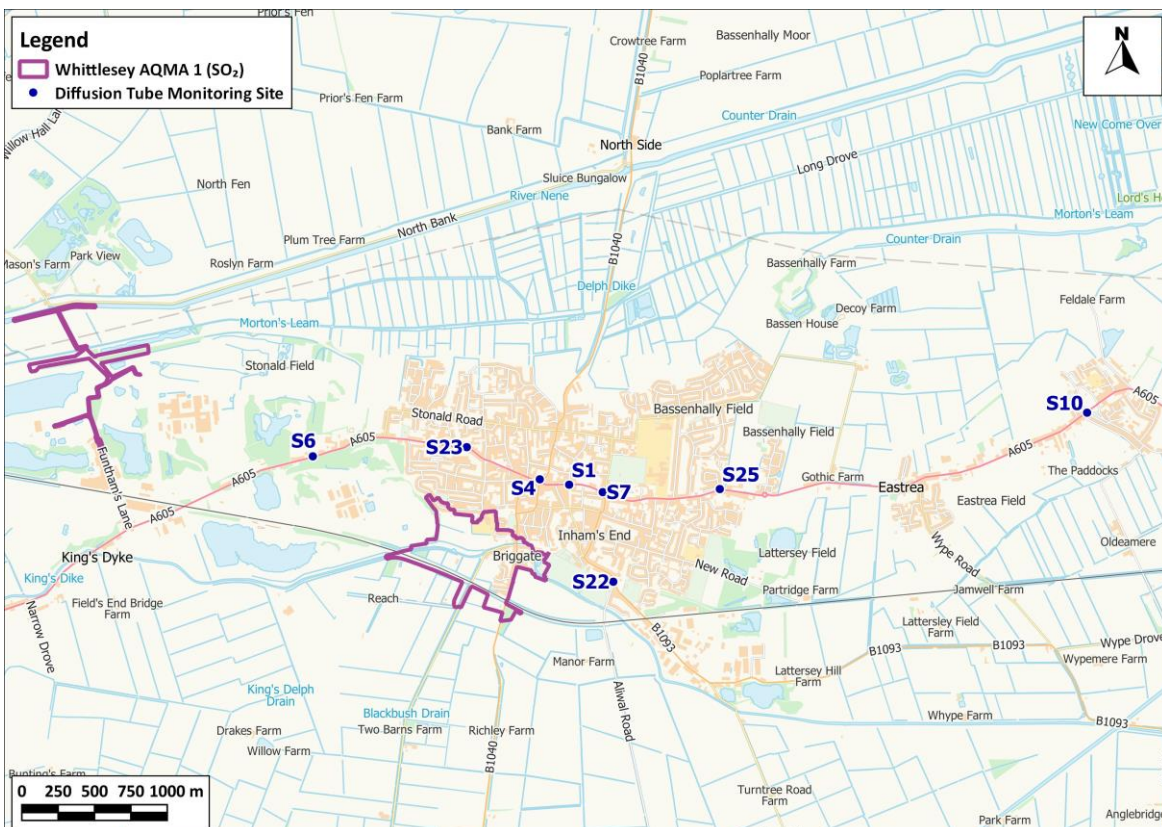


Figure D.4 – Map of Non-Automatic Monitoring Sites in March

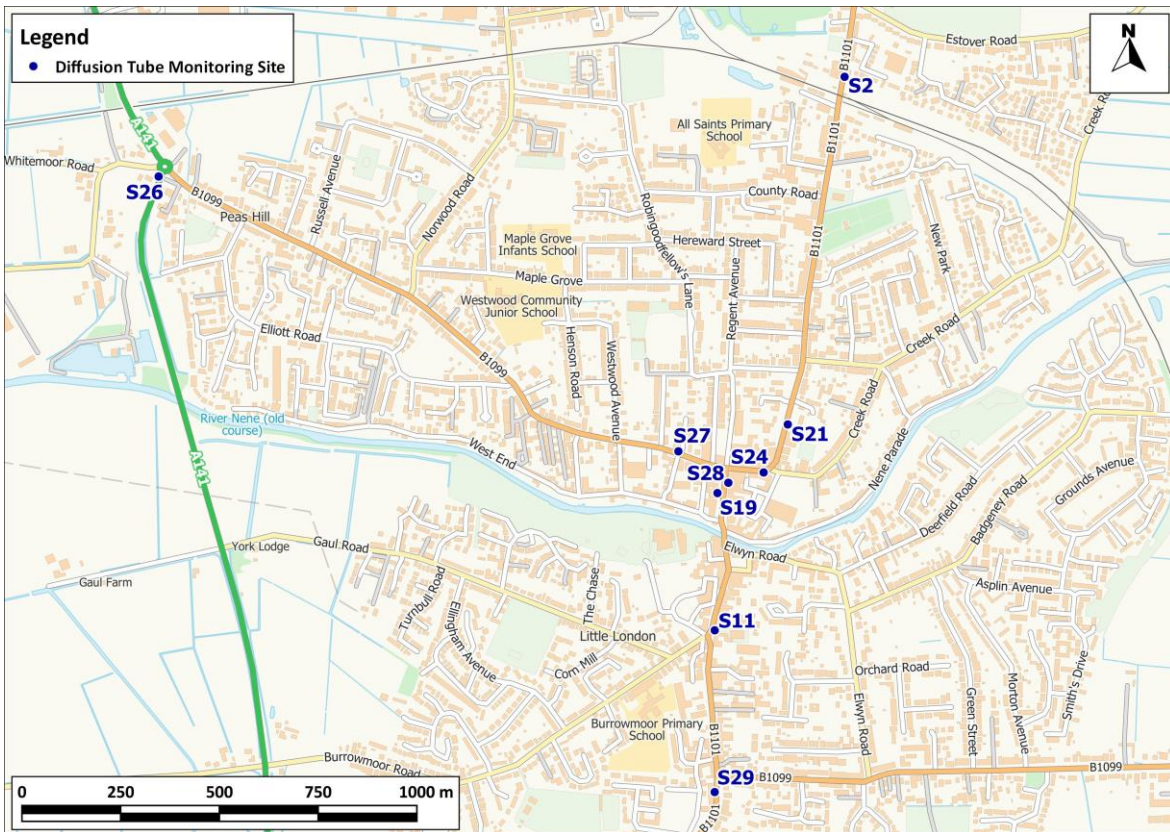


Figure D.5 – Map of Non-Automatic Monitoring Sites in Chatteris

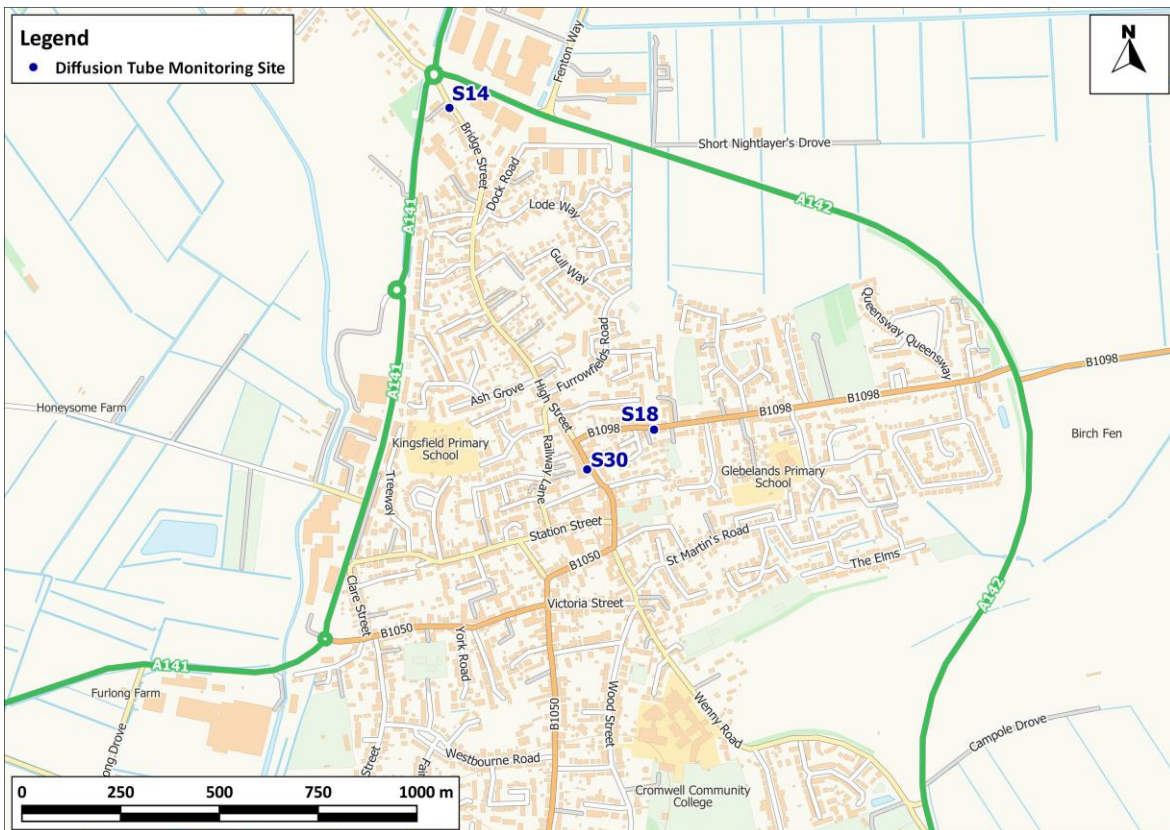


Figure D.6 – Map of Non-Automatic Monitoring Site in Thorney Toll



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁸

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

⁸ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Appendix F: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

COVID-19 has presented various challenges for local authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year. Recognising this, Defra provided various advice updates throughout 2020 to English authorities, particularly concerning the potential disruption to air quality monitoring programmes, implementation of AQAPs and LAQM statutory reporting requirements. Defra has also issued supplementary guidance for LAQM reporting in 2021 to assist local authorities in preparing their 2021 ASR. Where applicable, this advice has been followed.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for NO₂ is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data⁹ suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)¹⁰ has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO₂ annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

⁹ Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

¹⁰ Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

represents an absolute reduction of between 10 to 20 $\mu\text{g}/\text{m}^3$ if expressed relative to annual mean averages. During this period, changes in PM_{2.5} concentrations were less marked than those of NO₂. PM_{2.5} concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that PM_{2.5} concentrations during the initial lockdown period are of the order 2 to 5 $\mu\text{g}/\text{m}^3$ lower relative to those that would be expected under business-as-usual conditions.

As restrictions are gradually lifted, the challenge is to understand how these air quality improvements can benefit the long-term health of the population.

Impacts of COVID-19 on Air Quality within Fenland

Reductions of annual mean NO₂ concentrations of between 13 and 29% were experienced at kerbside and roadside diffusion tube monitoring sites in Fenland in 2020 relative to 2019. All monitoring sites were below the air quality objective in 2020.

Opportunities Presented by COVID-19 upon LAQM within Fenland District Council

Being largely rural in nature, no LAQM related opportunities have arisen as a consequence of COVID-19 within Fenland District Council.

Challenges and Constraints Imposed by COVID-19 upon LAQM within Fenland District Council

COVID-19 has not impacted on the ability of Fenland District Council to maintain monitoring including changing diffusion tubes in accordance with the Defra schedule. All air quality responsibilities were largely maintained throughout 2020. As with previous years, a national bias adjustment factor has been utilised to adjust the diffusion tube results for 2020. For 2020, the number of studies was 24, which is unlikely to provide any greater degree of uncertainty associated with the resultant annual mean NO₂ concentrations in 2020 than in previous years.

No further challenges or constraints relating to LAQM have arisen during 2020 as a consequence of COVID-19 within Fenland District Council.

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
BAT	Best Available Technology
CCC	Cambridgeshire County Council
CPCA	Cambridgeshire and Peterborough Combined Authority
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
FDC	Fenland District Council
JSNA	Joint Strategic Needs Assessment
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
OBC	Outline Business Case
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
PPC	Pollution Prevention Control
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide
SOBC	Strategic Outline Business Case
UTC	Urban Traffic Control

References

- Local Air Quality Management Technical Guidance LAQM.TG16. April 2021. 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.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.