EAST CAMBRIDGESHIRE
DISTRICT COUNCIL

2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

June 2021

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Report Reference Number	ASR 2021
Date	June 2021

Executive Summary: Air Quality in Our Area

Air Quality in East Cambridgeshire

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 ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

East Cambridgeshire is predominantly rural in character and air quality is relatively good. Statutory objectives are being met at all monitoring locations and the council has not designated any areas as Air Quality Management Areas (AQMA). As in most other areas of the country road traffic emissions are the principal source of poor air quality. Nitrogen dioxide (NO_2) and particulates are the main contaminants of concern and East Cambridgeshire District Council currently monitors NO_2 levels at 24 locations across the district. This Annual Status Report (ASR) relates to data gathered between 1st January and 31st December 2020. Overall, there has been a gradual downward trend in annual mean NO_2 concentrations in recent years; and in 2020 NO_2 concentrations fell at all locations by an average of 23% compared to the previous year largely due to a reduction in road traffic as a result of COVID-19 restrictions. Four extra monitoring locations were added in 2020 and monitoring was discontinued at one location, NAS9, at Station Road, Haddenham, as this tube frequently went missing and sufficient data has been gathered from this location over the years. This ASR has not identified the need to proceed to a

[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

Detailed Assessment for any pollutants. No new significant emission sources have been identified which could lead to poor air quality in the district. East Cambridgeshire District Council will continue to operate the NO_2 diffusion tube monitoring programme to demonstrate that air quality objectives continue to be met. The council will continue to work with other bodies such as the Cambridgeshire and Peterborough Combined Authority (CPCA), Network Rail, and Cambridgeshire County Council to bring about transport improvements to maintain and improve air quality. The council will compile and submit a further ASR in 2022.

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 Strategy[5] sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero[6] 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 Air Quality Management Areas are designated due to elevated concentrations heavily influenced by transport emissions.

Although air quality in East Cambridgeshire is relatively good, the council supports any actions to maintain and improve air quality. East Cambridgeshire District Council is working with the Cambridgeshire and Peterborough Combined Authority, Cambridgeshire County Council and others to bring about transport improvements.

East Cambridgeshire District Council is supporting the CPCA in the implementation of the new Local Transport Plan and the Strategic Bus Review with a view to improving transport links in the district and beyond and reducing negative impacts on air quality. The Council is working with the CPCA and Network Rail on projects to expand rail traffic, including the creation of a new railway station at Soham and other improvements in rail infrastructure.

[5] Defra. Clean Air Strategy, 2019

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

East Cambridgeshire District Council has produced a New Bus Service for East Cambridgeshire prospectus, and is currently formulating an East Cambridgeshire Cycle/Footpath Strategy which will help promote alternatives to private car journeys. Following a district-wide review of bus services and public consultation the Council is seeking funding from the CPCA to trial new bus services in the district, and is working with the environmental charity Sustrans to produce feasibility studies for new cycle routes.

The Council declared a climate change emergency in 2019 and has produced an Environmental and Climate Change Strategy and Action Plan setting itself the goal of achieving net zero carbon emissions by 2050. Many of the proposed actions will also help bring about improvements in air quality.

Conclusions and Priorities

Air quality objectives were met at all monitoring locations. The downward trend in annual mean NO_2 concentrations continued in 2020 with a more marked decline apparent due to reduced road traffic volumes as a result of COVID-19 restrictions. Rapid population growth and an increase in demand for new housing in the district may lead to an increase in road traffic which can have a negative impact on air quality. The council's main priority is to ensure that good air quality is maintained across the district at a time of increased development pressure.

East Cambridgeshire District Council has taken forward a number of direct measures during the current reporting year of 2020 in pursuit of improving local air quality.

The Council will continue to help bring about improvements in air quality by working with the CPCA, Network Rail, and Cambridgeshire County Council to develop transport plans to improve public transport provision.

Cambridgeshire Health and Wellbeing Board has approved a number of Joint Strategic Needs Assessments (JSNA). These assessments help determine what actions local authorities, the NHS, and others need to take to meet local health and social care needs; and to address the wider determinants that impact on public health and wellbeing such as traffic and air quality. The Transport and Health JSNA includes a chapter on Air Pollution and recommends that future actions focus on:

- Introducing low emission passenger fleets and vehicles
- Encouraging walking and cycling rather than car use

- Further assessment of short-term measures to reduce exposure

East Cambridgeshire District Council will work with Cambridgeshire County Council towards achieving these aims.

East Cambridgeshire District Council supports measures to reduce heavy traffic through towns and villages and encourages all traffic to use the most appropriate route with a particular focus on heavy commercial vehicles with all non-local traffic encouraged to use the strategic road network.

Annual mean NO_2 levels fell by around 23% across the district in 2020 due to a decrease in road traffic as a result of COVID-19 restrictions.

Local Engagement and How to get Involved

East Cambridgeshire District Council has worked with other public bodies, including the CPCA, Network Rail, and Cambridgeshire County Council to bring about improvements in public transport and active travel provision to help improve air quality. The Council encourages the public to help improve air quality by reducing the number of car journeys they make, choosing a low emission vehicle, switching off car engines when stationary; and by walking, cycling, and using public transport for journeys wherever possible.

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1 Local Air Quality Management

This report provides an overview of air quality in East Cambridgeshire 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 East Cambridgeshire 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

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 measures it intends to put in place in pursuit of compliance with the objectives.

East Cambridgeshire District Council currently does not have any declared AQMAs.

2.2 Progress and Impact of Measures to address Air Quality in East Cambridgeshire

DEFRA's appraisal of last year's ASR concluded that air quality in East Cambridgeshire is very good overall with all monitoring locations recording concentrations far below objective levels, and that the Council should continue to implement its monitoring programme paying close attention to sites which have either increased NO_2 concentrations overall or increased over the past 12 months (NAS2, NAS4, NAS5, NAS17 and NAS18). These sites have been kept under review in 2020. However, the increased levels recorded in 2019 were relatively marginal and are not thought to be significant; and annual mean NO_2 concentrations fell at all of these locations in 2020 by between 16 and 31%, although reduced traffic flows as a result of COVID-19 restrictions are likely to have played a major part in this decline.

East Cambridgeshire 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 2.1. Seven measures are included within Table 2.1, with the type of measure and the progress East Cambridgeshire District Council has 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 2.1.

More detail on these measures can be found in their respective Action Plans. These are:

- CCPA - Cambridgeshire and Peterborough Local Transport Plan

- East Cambridgeshire Environment and Climate Change Action Plan

Key completed measures are:

- publication of the Local Transport Plan by the CCPA which will ensure that future transport initiatives bring about improvements in air quality
- completion of the Littleport railway station improvements which will benefit air quality by increasing passenger capacity on this stretch of the Cambridge to King's Lynn line by the provision of longer platforms to accommodate 8 car trains
- Environmental and Climate Change Action Plan published. Measures will be introduced to reduce the Council's own Carbon emissions by, e.g. reducing council vehicle mileage, which will have a beneficial effect on air quality

East Cambridgeshire District Council expects the following measure to be completed over the course of the next reporting year:

- Opening of the new Soham railway station on the Ely to Ipswich line. The station should bring about improvements in air quality by allowing trains to stop at Soham providing an alternative to road travel

The principal challenges and barriers to implementation that East Cambridgeshire District Council anticipates are the requirement to maintain and improve air quality at a time of increased development pressure across the district. East Cambridgeshire has been set a target of delivering 11,500 new dwellings and 9,200 additional jobs in the current local plan period which runs up to 2031. These developments have the potential to significantly impact air quality.

Table 2.1 – 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	Local Transport Plan	Policy Guidance and Development Control	Other policy	2019	2022	CPCA	CPCA	NO	Funded	£100k - £500k	Implementation	Reduction in vehicle emissions not quantified	Compliance with AQ limits	Plan published	Lengthy Timescale
2	New railway station at Soham	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2018	2021	Network Rail	CPCA	NO	Funded	> £10 million	Implementation	not quantified	Compliance with AQ limits	Under construction. Due to open late 2021	
3	Littleport railway station improvements	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2018	2020	Network Rail	Department of Transport	NO	Funded	£1 million - £10 million	Completed	Reduced vehicle emissions	Compliance with AQ limits	Completed	Completed December 2020
4	Ely North rail junction upgrade	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2019	2026	Network Rail	Department of Transport	NO	Partially Funded	> £10 million	Planning	Reduced vehicle emissions	Reduced vehicle emissions	Plans produced and public consultation has taken place	Proposals now part of larger Ely Area Enhancement Scheme/ Long time scale
5	Strategic Bus Review	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2019	2020	CPCA	CPCA	NO	Funded	£10k - 50k	Implementation	Reduced vehicle emissions	Reduced vehicle emissions	Review completed. CPCA is now funding new bus services in Cambridgeshire	
6	New Bus Service Proposals for East Cambridgeshire Prospectus and the East Cambridgeshire Strategic Cycle/Footpath Strategy	Alternatives to private vehicle use	Other	2019	2022	ECDC, CPCA	ECDC, CPCA	NO	Partially Funded	£10k - 50k	Implementation	Reduced vehicle emissions	Reduced vehicle emissions	New cycleways provided at Sutton and Ely. Bid for new CPCA funding to trial new bus routes	
7	Environmental and Climate Change Strategy Action Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2019	2030	ECDC, local business and environmental organisations	ECDC	NO	Partially Funded	£100k - £500k	Implementation	Reduced vehicle emissions	Reduced vehicle emissions	Action Plan published and reviewed.	Goal to be Carbon neutral by 2050 will have beneficial effects on air quality

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. Under the Health and Social Care Act 2012 the government introduced a Public Health Outcomes Framework (PHOF) which sets out key indicators of the state of public health and includes an indicator relating to air pollution:

- D01- Fraction of mortality attributable to particulate air pollution.

This was estimated as 5.31% for East Cambridgeshire in 2019, 0.19 percentage points below the average for the East of England. East Cambridgeshire District Council does not carry out monitoring or take any measures to specifically address $PM_{2.5}$ concentrations. However, measures to reduce road traffic emissions generally are likely to reduce emissions of $PM_{2.5}$.

East Cambridgeshire District Council is taking the following measures to address $PM_{2.5}$:

- Working with the CPCA through the Local Transport Plan to prioritise sustainable transport alternatives and reduce congestion
- Implementing actions identified in the New Bus Service Proposals for East Cambridgeshire Prospectus and the East Cambridgeshire Strategic Cycle/Footpath Strategy to encourage healthy and active travel and support people's wellbeing
- Requiring applicants for planning permission to provide Construction Environment Management Plans to minimise the production of $PM_{2.5}$ and other particulates which might arise during construction work in considering applications for planning approvals for new development under the Town and Country Planning regime

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

This section sets out the monitoring undertaken in 2020 by East Cambridgeshire 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

East Cambridgeshire District Council did not undertake any automatic (continuous) monitoring in 2020.

3.1.2 Non-Automatic Monitoring Sites

East Cambridgeshire District Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 23 sites during 2020. Table A.1 in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that

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

The full 2020 dataset of monthly diffusion tube mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values only where relevant.

Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NAS1	Market Street, Ely	Roadside	554154	280427	NO2		0.0	1.5	No	2.5
NAS2	Abbott Thurston Avenue, Ely	Urban Background	554616	281320	NO2		4.5	1.5	No	2.3
NAS3	Station Road, Ely	Roadside	554322	279566	NO2			1.8	No	2.5
NAS4	Fieldside, Ely	Urban Background	553385	281320	NO2		0.9	0.4	No	3.0
NAS5	Main Street, Littleport	Roadside	556845	280309	NO2		4.2	1.6	No	2.3
NAS6	High Street, Soham	Roadside	559418	273098	NO2		0.0	1.5	No	2.5
NAS7	Market Street, Fordham	Roadside	562682	270294	NO2		0.0	1.5	No	2.5
NAS8	Sheriffs Court, Burrough Green	Roadside	563721	255387	NO2		2.1	1.5	No	2.3
NAS10	Tramar Drive, Sutton	Urban Background	545012	279286	NO2		5.8	0.8	No	2.3
NAS11	Nutholt Lane, Ely	Roadside	554255	280536	NO2		0.0	2.5	No	2.3

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)
NAS12	A142, Witcham Toll	Roadside	546346	279106	NO2		1.8	2.7	No	2.3
NAS13	A10, Stretham	Roadside	550811	274395	NO2		10.8	3.2	No	2.3
NAS14	High Street, Burwell	Roadside	558896	266364	NO2		0.0	1.5	No	2.3
NAS15	Hop Row, Haddenham	Roadside	546466	275463	NO2		0.0	1.5	No	3.0
NAS16	High Street, Haddenham	Roadside	546382	275411	NO2		0.0	1.0	No	2.3
NAS17	West End, Haddenham	Roadside	546185	275594	NO2		0.0	1.5	No	2.3
NAS18	Post Office, Wilburton	Roadside	548320	274895	NO2		0.0	1.5	No	2.5
NAS22	Broad Street, Ely	Roadside	554353	280017	NO2		0.0	0.7	No	2.5
NAS20	Granta Close, Witchford	Roadside	549542	279026	NO2		4.0	1.5	No	2.5
NAS21	Station Road Roundabout, Ely	Roadside	554296	279649	NO2			2.0	No	2.6
NAS23B	Cage Hill, Swaffham Prior	Roadside	557052	264135	NO2		1.7	1.7	No	2.3
NAX1	High Street, Ely	Roadside	554084	280356	NO2		0.0	6.0	No	2.0
NAX2	Lamb Corner, Ely	Roadside	553937	280390	NO2		0.0	4.1	No	2.3

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)
NAX3	Station Road West, Ely	Roadside	554322	281320	NO2			3.3	No	2.5

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

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
NAS1	554154	280427	Roadside		100.0	21.5	19.7	19.4	18.2	14.8
NAS2	554616	281320	Urban Background		100.0	12.9	12.2	11.7	11.9	9.8
NAS3	554322	279566	Roadside		100.0	20.4	30.9	28.9	19.5	15.4
NAS4	553385	281320	Urban Background		92.6	15.2	14.9	14.2	14.5	11.7
NAS5	556845	280309	Roadside		90.4	15.9	15.6	15.2	15.3	12.8
NAS6	559418	273098	Roadside		100.0	19.8	19.4	19.7	17.3	14.6
NAS7	562682	270294	Roadside		100.0	19.7	19.3	17.9	17.2	14.3
NAS8	563721	255387	Roadside		100.0	10.9	10.9	10.2	9.9	8.2
NAS10	545012	279286	Urban Background		90.4	16.3	14.3	14.8	13.5	11.4
NAS11	554255	280536	Roadside		100.0	19.9	19.4	18.6	18.6	14.1
NAS12	546346	279106	Roadside		100.0	27.2	27.0	26.0	25.8	19.9
NAS13	550811	274395	Roadside		100.0	21.9	18.2	20.2	19.2	14.6
NAS14	558896	266364	Roadside		100.0	24.6	26.5	22.6	22.1	13.6

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
NAS15	546466	275463	Roadside		100.0	27.6	28.0	23.6	22.4	17.8
NAS16	546382	275411	Roadside		100.0	19.0	17.1	17.9	16.8	13.3
NAS17	546185	275594	Roadside		90.4	19.0	18.3	16.9	18.0	12.4
NAS18	548320	274895	Roadside		92.6		32.0	29.2	30.0	20.8
NAS22	554353	280017	Roadside		100.0				24.7	18.6
NAS20	549542	279026	Roadside		100.0		10.2	11.7	11.1	8.6
NAS21	554296	279649	Roadside		100.0	27.1	32.5	24.1	21.9	17.4
NAS23B	557052	264135	Roadside	100	76.9					9.7
NAX1	554084	280356	Roadside	100	76.9					12.0
NAX2	553937	280390	Roadside	100	76.9					21.4
NAX3	554322	281320	Roadside	100	76.9					12.7

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

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

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

Notes:

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

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

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

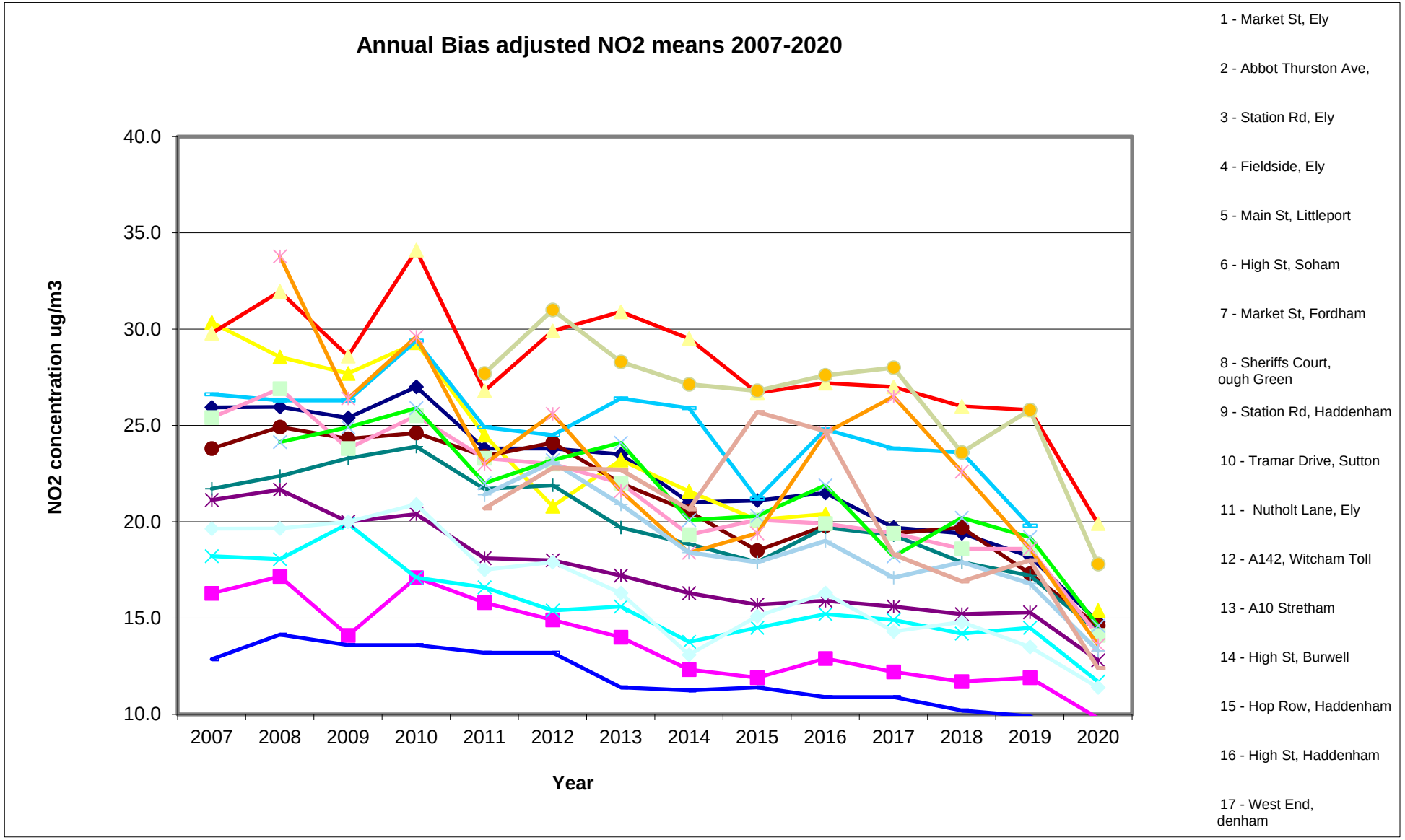
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO_2 2020 Diffusion Tube Results ($\mu g/m^3$)

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 (0.77)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NAS1	554154	280427	31.1	19.2	15.5	14.0	13.1	16.1	13.4	16.9	18.5	17.4	30.7	24.9	19.2	14.8	-	
NAS2	554616	281320	24.9	14.0	8.5	8.4	6.9	9.1	6.7	8.4	10.5	11.0	24.9	19.5	12.7	9.8	-	
NAS3	554322	279566	33.6	21.9	18.4	15.2	14.4	15.2	12.9	17.6	20.3	17.0	28.1	25.7	20.0	15.4	-	
NAS4	553385	281320	28.2		12.0	10.9	8.4	11.2	8.1	11.5	13.2	14.6	26.9	21.8	15.2	11.7	-	
NAS5	556845	280309	29.2	17.7	13.3	11.6	9.5	13.1	11.2		13.3	16.6	25.8	22.1	16.7	12.8	-	
NAS6	559418	273098	27.7	17.3	15.8	19.0	12.3	16.7	11.7	18.2	17.8	15.4	30.3	24.8	18.9	14.6	-	
NAS7	562682	270294	31.6	19.5	15.1	14.6	13.4	14.0	11.5	14.5	16.2	19.4	29.5	24.3	18.6	14.3	-	
NAS8	563721	255387	19.6	9.9	7.8	7.7	6.3	9.3	6.1	6.5	6.6	8.8	24.0	15.6	10.7	8.2	-	
																-	-	
NAS10	545012	279286	25.9	14.1	14.0	11.9	9.4	11.6	9.7		11.6	14.2	23.7	17.4	14.9	11.4	-	
NAS11	554255	280536	33.7	20.2	13.5	13.2	12.1	14.1	11.0	15.0	16.8	17.5	29.1	22.9	18.3	14.1	-	
NAS12	546346	279106	37.6	21.9	15.8	22.8	29.6	26.0	17.6	25.5	22.4	21.3	38.0	31.3	25.8	19.9	-	
NAS13	550811	274395	30.2	16.2	15.2	17.0	15.0	18.0	11.9	22.0	19.4	16.7	28.6	18.1	19.0	14.6	-	
NAS14	558896	266364	32.9	19.6	16.3	13.4	12.3	15.5	13.0	14.7	8.9	21.3	28.0	16.6	17.7	13.6	-	
NAS15	546466	275463	40.0	24.1	15.4	12.8	14.7	17.7	19.5	23.4	25.2	24.6	32.2	27.5	23.1	17.8	-	
NAS16	546382	275411	26.5	13.2	15.3	14.9	13.4	15.8	9.8	17.0	16.7	15.7	26.2	22.0	17.2	13.3	-	
NAS17	546185	275594	26.1	19.5	12.9	12.1	11.9	13.9	12.4	15.0	16.0	15.0	22.8		16.1	12.4	-	
NAS18	548320	274895	51.7		17.0	15.3	18.8	23.4	21.6	24.9	29.1	29.1	42.5	23.4	27.0	20.8	-	

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 (0.77)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NAS22	554353	280017	40.9	24.7	20.1	13.5	15.8	18.5	20.1	22.5	25.0	26.5	31.0	31.3	24.2	18.6	-	
NAS20	549542	279026	21.9	12.9	8.7	8.3	7.3	7.0	6.6	8.0	8.7	9.2	21.0	14.9	11.2	8.6	-	
NAS21	554296	279649	42.9	26.7	20.2	11.4	12.9	17.6	16.6	20.1	21.9	16.1	36.8	27.9	22.6	17.4	-	
NAS23B	557052	264135				10.6	8.7	9.2	9.2	10.3	9.8	12.4	25.5	17.7	12.6	9.7	-	
NAX1	554084	280356				11.0	11.0	13.7	12.6	16.0	14.8	14.4	24.7	21.6	15.5	12.0	-	
NAX2	553937	280390				23.4	19.5	26.0	18.1	33.1	31.8	29.3	36.9	32.3	27.8	21.4	-	
NAX3	554322	281320				12.9	11.6	13.4	11.3	14.2	16.2	15.2	29.0	25.0	16.5	12.7	-	

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

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

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **East Cambridgeshire District Council confirms that all 2020 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within East Cambridgeshire During 2020

East Cambridgeshire District Council has not identified any new sources relating to air quality within the reporting year of 2020.

Additional Air Quality Works Undertaken by East Cambridgeshire District Council During 2020

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

QA/QC of Diffusion Tube Monitoring

East Cambridgeshire District Council's diffusion tubes were supplied and analysed by:

Socotec UK
Unit 12, Moorbrook
Southmead Industrial Estate
Didcot,
Oxfordshire OX11 7HP

The tubes were prepared by spiking a 50:50 mixture of acetone and triethanolamine (TEA) onto the grids prior to being assembled.

The DEFRA Local Air Quality Management Helpdesk publishes information on laboratory performance in the precision of diffusion tube analysis. This can be found at: http://laqm.defra.gov.uk/diffusion-tubes/precision.html

For the purposes of LAQM, tube precision is classed as 'Good' or 'Poor' as follows. Tubes are considered to have Good precision where the coefficient of variation (CV) of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%, and the average CV of all monitoring periods is less than 10%. Tubes are considered to have

Poor precision where the CV of four or more periods is greater than 20% and/or the average CV is greater than 10%.

The distinction between Good and Poor precision is an indicator of how well the same measurement can be reproduced. This precision will reflect the laboratory's performance/consistency in preparing and analysing the tubes, as well as the subsequent handling of the tubes in the field. Any laboratory can show Poor precision for a particular period/co-location study, if this is due to poor handling of the tubes in the field. In 2019 Socotec received a rating of Good in 24 out of all 24 studies for 50% TEA in acetone.

The AIR/WASP (Workplace Analysis scheme for Proficiency) NO_2 proficiency testing scheme is an independent analytical testing scheme operated on behalf of DEFRA and the Devolved Administrations to test laboratory proficiency. Details of laboratory performance can be found at: http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html. Socotec achieved a score of 100% Satisfactory in the two proficiency testing rounds carried out in 2020.

Diffusion Tube Annualisation

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

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 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 a reference chemiluminescence analyser reading. 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/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

East Cambridgeshire District Council has applied a national bias adjustment factor of 0.77 to the 2020 monitoring data. A summary of the bias adjustment factors used by East Cambridgeshire District Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	National	06/21	0.77
2019	National	09/19	0.75
2018	National	06/19	0.77
2017	National	09/18	0.77
2016	National	06/17	0.79

NO_2 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 NO_2 concentration at the nearest location relevant for exposure should be estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO_2 monitoring locations within East Cambridgeshire required distance correction during 2020.

Appendix D: Maps of Monitoring Locations

Figure D1 - Map of monitoring sites in East Cambridgeshire

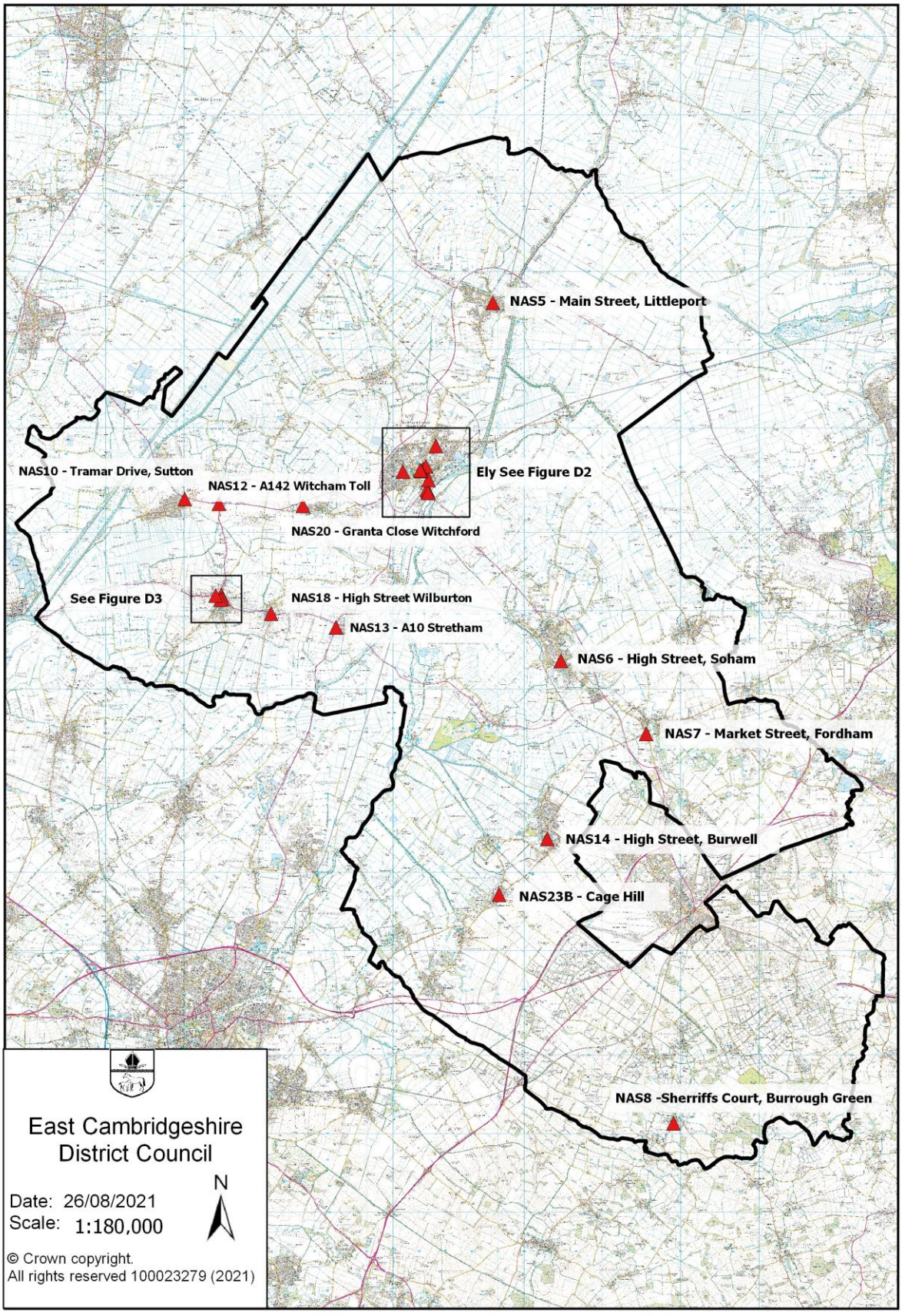


Figure D2 - Map of monitoring sites in Ely

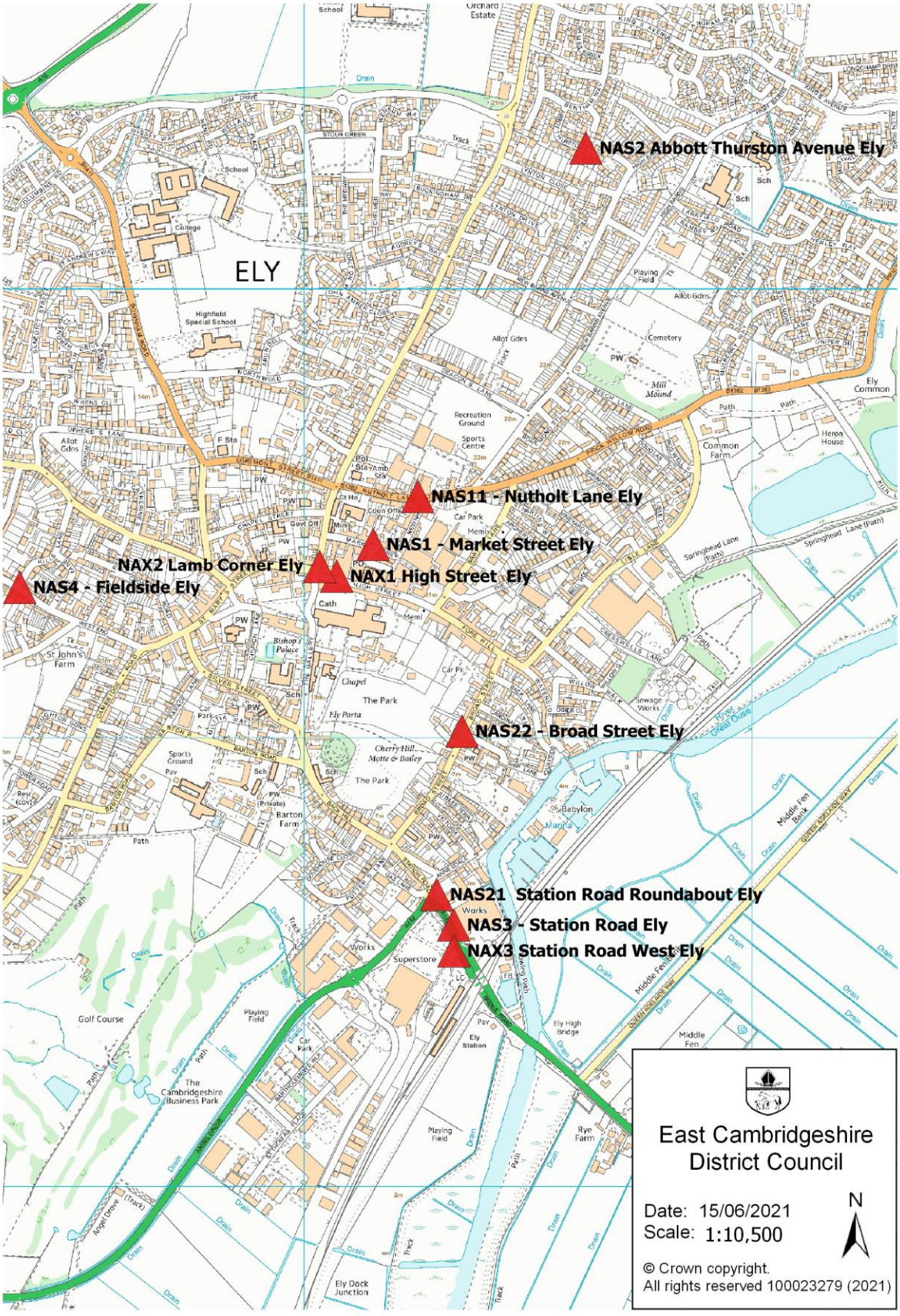


Figure D3 - Map of monitoring sites in Haddenham

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

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

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

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 Air Quality Action Plans (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 nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of the public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent the other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[8] 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)[9] has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations were between 20 and 30% relative to pre-pandemic levels, which

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

[9] 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 20µg/m^3 if expressed relative to annual mean averages. During this period, changes in $PM_{2.5}$ concentrations were less marked than those of NO_2. $PM_{2.5}$ 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 5µg/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 East Cambridgeshire

In 2020 there was an overall reduction in annual mean NO_2 concentrations across East Cambridgeshire of around 23% compared with 2019. The most marked fall in NO_2 concentrations during the year took place in April following the national lockdown imposed at the end of March. This coincided with a noticeable decrease in road traffic movements although no figures are available. The largest fall was 8.8µg/m^3 (44%) at the normally busy Station Road Roundabout in Ely (NAS21). However, in normal years air quality generally improves in April; and at NAS2, Abbott Thurston Avenue, Ely; and NAS8, Burrough Green, both of which experience low traffic volumes, the measured NO_2 concentrations fell by only 0.1µg/m^3 in April compared to the March figure. NO_2 concentrations rose at three locations compared with the March figure. These were NAS6, High Street, Soham; NAS12 Witcham Toll; and NAS13, A10 Stretham. Although there was a reduction in the number of commuter journeys by private motor car, other traffic such as bus services and commercial delivery vehicles deliveries continued to operate; and many retail food outlets remained open. Also, there was a similar pattern of April increases at these sites in 2019. Therefore, these figures are not thought to be anomalous.

Opportunities Presented by COVID-19 upon LAQM within East Cambridgeshire

To support COVID-19 recovery the Government relaxed certain elements of legislation and guidance to allow faster delivery of temporary walking and cycling schemes to enable people to leave their homes whilst also enabling social distancing. Cambridgeshire County

Council as the Highways Authority secured funding from the Government's Emergency Active Travel Fund to implement temporary changes such as pop-up cycle lanes, pavement widening, and safer junctions using Temporary and Experimental Traffic Regulation Orders (ETROs). The schemes listed in Table F.1 were introduced in East Cambridgeshire to facilitate walking and cycling.

Table F.1 – COVID-19 Traffic Schemes

Location	Description	Timescale
Station Road, Ely	Temporarily remove car parking on bays on the left-hand side going down the hill to extend cycle path and to include temporary barriers to extend cycle lane down Station Road	Implemented
Downham Road / Cam Drive roundabout	Look to shrink entries, exits and circulatory areas to reduce speeds to improve safety, particularly for cyclists and pedestrians, while traffic flows are reduced	Withdrawn - proposal is not viable due to the existing geometry of the roundabout and auto tracking movements of HGVs.
Clay Street, Soham	Make Clay Street one-way, providing more space for cyclists, which would also give more space on Fountain Lane and Station Road	Incorporated into Soham Town Centre Tranche 2 project
Little Green, Cheveley	White lines on external side of road, to emphasise road. Narrow road with no pavements, but walked by a lot of residents	Implemented

Challenges and Constraints Imposed by COVID-19 upon LAQM within East Cambridgeshire

No challenges or constraints relating to LAQM have arisen during 2020 as a consequence of COVID-19 within East Cambridgeshire.

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'
AQEG	Air Quality Expert Group
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
AURN	Automatic Urban and Rural Network
CPCA	Cambridgeshire and Peterborough Combined Authority
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
ECDC	East Cambridgeshire District Council
ETRO	Emergency Traffic Regulation Order
EU	European Union
HGV	Heavy Good Vehicle
JSNA	Joint Strategic Needs Assessment
LAQM	Local Air Quality Management
NHS	National Health Service
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide
TEA	Triethanolamine
$\mu g/m^3$	Microgrammes per cubic metre

References

1. 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.
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3. Cambridgeshire and Peterborough Combined Authority, Cambridgeshire and Peterborough Local Transport Plan 2020 Local Transport Plan | Cambridgeshire & Peterborough Combined Authority (cambridgeshirepeterborough-ca.gov.uk)
4. Cambridgeshire County Council Health and Wellbeing Board. Transport and Health JSNA https://cambridgeshireinsight.org.uk/jsna/published-joint-strategic-needs-assessments/
5. Public Health England. Public Health Outcomes Framework https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data
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7. Network Rail. Ely Area Capacity Enhancement 2020 https://www.networkrail.co.uk/running-the-railway/our-routes/anglia/improving-the-railway-in-anglia/ely-area-capacity-enhancement/#:~:text=Currently%20operating%20at%20full%20capacity,for%20passenger%20and%20freight%20services