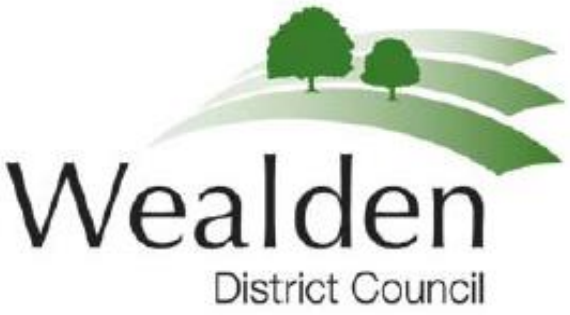

2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: June, 2021

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Executive Summary: Air Quality in Our Area

Air Quality in Wealden

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].

The District of Wealden is the largest district in East Sussex, and one of the most rural districts in England. Road traffic is the dominant source of air pollution in the area, the major routes being the A22, the A26, the A267, the A259, the A27 and the A272. The main pollutants of concern with respect to road traffic are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$). Currently, there are no areas in Wealden where members of the public are exposed to levels of these pollutants in excess of the UK Air Quality Strategy (AQS) objectives.

Wealden District Council manages local air quality in close collaboration with East Sussex County Council (which contributed to monitoring until 2014) and with the Sussex Air Quality Partnership (Sussex Air). The partnership provides assistance to members and information to the public via its website with recent air quality data, news updates, educational resources, links and other services such as airAlert.

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[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

In previous years, local monitoring has identified high levels of NO_2 at two roadside locations (A267 East of Cross in Hand (W7), and West of Boship Roundabout (W8)), in areas where members of the public are not affected. In March 2017 the A267 East of Cross in Hand monitoring location was changed, due to difficult access and as it was not a representative site, with the monitor moved further down the road nearer to residential properties. In more recent years (2017 – 2020), concentrations at the nearest sensitive receptors for both locations achieved the UK air quality objective for annual mean NO_2, with concentrations lower than 40 µg/m^3.

Two new locations for monitoring NO_2 were introduced in 2020 in Hailsham - Lower Horsebridge (W11) and Hailsham A295 car park (W12). In 2020, the annual mean NO_2 concentration observed at W11 was 11.1 µg/m^3 and at W12 was 16.1 µg/m^3, both well below the annual mean AQS NO_2 objective.

PM_{10} and $PM_{2.5}$ are not monitored in Wealden District, but data from neighbouring Eastbourne suggests concentrations are consistently well below the annual mean AQS objectives, decreasing slightly but with year-to-year variations. Concentrations in 2020 were lower than recent years.

As in other suburban and rural areas of East Sussex, ozone (O_3) is of considerable concern. O_3 is monitored in two locations in Wealden: Isfield and Lullington Heath. Annual average O_3 levels at Lullington Heath have increased since 2011. The number of days with high ozone concentrations (above the 8-hour objective) has decreased since 2011 at Isfield, with significant year-to-year variability. However, an increase from 2019 to 2020 is observed at both Lullington Heath and Isfield.

Sulphur dioxide (SO_2) is also measured at the Lullington Heath station. However, in recent years there have been no exceedances of any of the three AQS objectives (15-minute, 1-hour and 24-hour).

Two-thirds of the District is designated as the High Weald and Sussex Downs Areas of Outstanding Natural Beauty (AONB) with 34 other conservations areas. The impact of traffic-related air pollution on some of these areas has been assessed in past years. The impact of traffic on the Ashdown Forest Special Protection Area (SPA) and Special Area of Conservation (SAC) is currently being monitored, and the results will be examined in future years.

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 (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Wealden District Council is helping the public to avoid the worst effects of O_3 pollution by informing the public of pollution events through the airAlert pollution warning service using the O_3 monitoring data obtained from two monitoring stations within the District. This service is provided and maintained through the Sussex Air partnership.

Wealden District Council contributes to the Air Quality and Emissions Mitigation Guidance for Sussex. The guidance supports the principles of the Sussex Air Quality Partnership to improve air quality across Sussex and encourage emissions reductions to improve the environment and health of the population. Other actions being implemented to improve public health include promoting active modes of transport like walking, cycling and using public transport, as well as car clubs and car sharing.

In 2020, Wealden District Council also had constructive discussions around planning policy to ensure air quality mitigation requirements are integrated as policy into the future Local Plan. The Council increased the use of the Air Quality Guidance produced by Sussex Air to apply conditions to major planning applications. This has ensured that air quality mitigation cost calculations have been undertaken and measures to improve air quality are starting to get integrated into major developments.

[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

Conclusions and Priorities

This Annual Status Report confirms that concentrations within Wealden continue to be well within the NO_2 annual mean AQS objective at relevant locations. No significant changes in emissions sources within the Council's area have been identified in the last year.

The priorities for the coming year will be to continue monitoring in the area and continue to implement measures to increase sustainable travel options and improve transport infrastructure. The Council will ensure assessment and mitigation measures for new developments, particularly those allocated around the main urban centres. The Council will also consider additional monitoring points in these areas of new development. The Council will continue discussions around planning policy to ensure that air quality mitigation requirements become policy in the new Local Plan and continue work with Sussex Air and other Local Authorities.

The main challenge for air quality management in Wealden is balancing the planned population growth in the District with conservation of the natural habitats that constitute most of the District's territory. Two-thirds of the District is designated as the High Weald and Sussex Downs AONB, along with 34 other conservations areas. Wealden District Council will address this challenge by managing a sustainable level of development, and monitoring pollution impacts on conservation areas such as the Ashdown Forest. There are also challenges associated with increasing traffic as a result of development in the District.

A risk that a post Covid-19 lack of funds for Local Authorities (LAs) and other public bodies, plus the need to recover the economy, will increase the use of fossil fuels and in the short term, reduce the importance of improving air quality. Equally, there's an opportunity that post Covid-19, that home working within the Council and other organisations will continue to a much greater extent than previously, thereby inadvertently improving air quality.

Local Engagement and How to get Involved

Everyone concerned about air quality in Wealden and the rest of Sussex can find real-time information on pollution levels on the Sussex Air website sussex-air.net, and sign up for advance warnings with the airAlert service at airalert.info. Warnings are provided by text or voice message, email, or using an Android or iOS app. The service is also available to schools and is a great way to get everyone engaged in thinking about the importance of air quality.

The reduction in using cars to travel to work, further home working and increasing walking and cycling post Covid-19 are all encouraged.

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Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Wealden 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 UK Air Quality Strategy (AQS) 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 AQS objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Wealden 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

Air Quality Management Areas

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

Wealden currently does not have any declared AQMAs. Therefore, no formal AQAP has been set up and implemented for the District.

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
Wealden District has no declared AQMAs.								

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

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

Progress and Impact of Measures to address Air Quality in Wealden

Defra's appraisal of last year's ASR concluded that the report as acceptable with the following comments:

1. *All relevant objectives, both for NO_2 and SO_2 were complied with at all monitoring locations within 2019.*
2. *As no locally-derived bias factor is available, the national factor has been used which is acceptable. It would be beneficial for the previous bias adjustment factors to be presented within the ASR.*
3. *The QA/QC procedures are shown within the ASR but it would benefit from explicitly stating the bias factor within the report text. The bias factor is also not shown in Table B.1 in the Excel file.*
4. *Discrepancies in data transposition from the Excel sheets to the report tables and concentration data between the tables A.3 and B.1 should be checked, together with the precision of the concentration calculations.*
5. *The continual collaborative approach that Wealden District Council is taking with East Sussex County Council and Sussex Air is welcomed and it is beneficial to show results from neighbouring authorities for indicative purposes.*
6. *The Council should continue to review their monitoring locations in relation to new developments.*
7. *The Council should consider reference to the Public Health outcomes Framework within Section 2.3 to highlight further discussion in relation to $PM_{2.5}$*
8. *As detailed within the 2019 appraisal, Table 2.2 would benefit from more detail in relation to KPIs and reduction targets for each measure. Additionally, the Council are encouraged to consider measures specific to ozone, as the pollutant of greatest concern within the district.*

To address these comments, previous bias adjustment factors are presented within this ASR, with the bias factor explicitly stated in the text. Wealden District Council are continuing their collaborative approach with East Sussex County Council and Sussex Air. Reference is made to the Public Health outcomes Framework within Section 2.3.

Wealden is committed to continue monitoring and in 2020 added another two diffusion tubes in Hailsham. All main urban conurbations within the district are being monitored.

Wealden District Council is a member of the Sussex Air Quality Partnership (Sussex Air), which produced an air quality strategic plan 2010 to 2015[7]. Wealden District Council contributed to the development of this strategy, which aims to provide a consistent approach to air quality across a number of district councils.

This plan has 5 key objectives:

1. *Provide advice and support and improve the expertise and knowledge base*
2. *Project development and implementation*
3. *Partnership working*
4. *Develop cross cutting work on health improvement, climate change, environment and transport*
5. *Communicate air quality issues and initiatives in Sussex*.

Wealden 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. Key completed measures regarding awareness raising and transport related measures are:

1. Website improvements

   Wealden District Council supports the Sussex Air Quality website (http://www.sussex-air.net), which provides access to air quality statistics and relevant local information and improves public awareness of air quality.

2. Promotion of airAlert service

   Wealden District Council supports the airAlert air pollution warning service, offered by the Sussex Air Quality Partnership to vulnerable people, schools, health professionals and the general public in Sussex. The airAlert service provides warnings based on O_3 levels monitored inside the Wealden District both at Isfield and Lullington Heath.

3. Local O_3 monitoring

   High O_3 levels can cause difficulty breathing in vulnerable people with existing lung or heart conditions. Wealden District Council monitors O_3 levels at Isfield rural monitoring

[7] Sussex Air Quality Partnership Air Quality Strategic Plan 2010 http://www.sussex-air.net/Reports/SAQP_Vision_Strategy_2015.pdf

station and at Lullington Heath monitoring station. Data from these stations are available on the Sussex-Air website.

4. Updated Guidance

Wealden District Council contributed to the Air Quality and Emissions Mitigation Guidance for Sussex, first published in 2013 and revised in 2019[8]. The guidance is helping to mitigate potential air quality impacts from developments across Sussex. It is also contributing to public health by promoting active modes of transportation like walking, cycling and using public transport, as well as car clubs and car sharing. Additional mitigations are provided on the updated guidance including contribution to low emission vehicle refuelling infrastructure, low emission bus service provision or waste collection services, bike/e-bike hire service, contribution to renewable fuel and energy generation projects and incentives for the take-up of low emission technologies and fuels.

In February 2020, Wealden District Council withdrew the Wealden Local Plan 2019, which had been submitted to the Secretary of State for Examination on 18th January 2019. The Council will now be undertaking further work on a new Local Plan. The withdrawal of the Wealden Local Plan will not impact on those Neighbourhood Plans that have been prepared and submitted for examination (Hailsham and Hellingly).

Progress on the measures set out in Table 2.2 has been impacted by the COVID-19 pandemic, although core actions have continued.

Wealden District Council expects the following measures to continue over the course of the next reporting year:

1. *Screening planning applications for air quality impacts based on the guidance documents;*
2. *Informing the public of high air pollution events via the Sussex Air website and the airAlert service;*
3. *Monitoring at LAQM sites;*
4. *Supporting low emission vehicles through the Energise network*.

[8] Air Quality and emissions mitigation guidance for Sussex (2019). Available at: http://www.sussex-air.net/Reports/Sussex_AQ_Guidance_2019.pdf

Wealden District Council's priorities for the coming year are to continue to implement changes to transport networks and road layout, and policies to keep shifting towards more sustainable forms of transport. Wealden will continue to monitor air quality across the district and keep the public informed, and will continue to protect public health by providing real-time O_3 measurements on the Sussex Air website and alerting the general public in advance of pollution events through the airAlert service.

The principal challenge that Wealden District Council anticipates facing is balancing the planned population growth in the District with conservation of the natural habitats that constitute most of the District's territory. Wealden District Council will address this challenge by managing a sustainable level of development, and monitoring pollution impacts on conservation areas such as Ashdown Forest.

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	Air Quality and Emissions Mitigation Guidance for Sussex	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2014	2014	Sussex Air Quality Partnership	-	-	-	-	Completed	N/A	N/A	Completed - Guidance published	Under review by the partnership.
2	Air Quality Strategic Plan 2010	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2010	2010	Sussex Air Quality Partnership	-	-	-	-	Completed	N/A	N/A	Completed - Plan published and currently implemented	None.
3	Sussex Air website	Public Information	Via the Internet	2012	2012 - Ongoing	Sussex Air Quality Partnership	-	-	-	-	Implementation	N/A	N/A	The website is online and reporting on monitored pollution levels	Under review by the partnership.
4	airAlert	Public Information	Via other mechanisms	2011	2011 - Ongoing	Sussex Air Quality Partnership	-	-	-	-	Implementation	N/A	921 registered subscribers, 70 from Wealden District	The service is running and the number of subscribers increasing every year	None.
5	Energise Network	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2014	2014 - Ongoing	Sussex Air Quality Partnership	-	-	-	-	Implementation	N/A	5 charging points installed in Wealden District	The service is running and several charging points are available in Wealden District	None.
6	SANGS guidelines	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2013	2013	Wealden District Council	-	-	-	-	Completed	N/A	N/A	Guideline document to help identify SANGS sites published.	None.
7	Nitrogen Reduction Guidance	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2013	2013	Wealden District Council	-	-	-	-	Completed	N/A	N/A	Guidance note published for small scale developments on reducing traffic impacts on Ashdown Forest.	None.
8	Ashdown Forest Monitoring	Other	Other	2017	2017	Wealden District Council	-	-	-	-	Completed	N/A	N/A	Monitoring started 2014	None.

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
9	Publically available advice on sustainability	Public Information	Via the Internet	2017	2017 - ongoing	Wealden District Council	-	-	-	-	Completed	N/A	N/A	The website is online and fully available	None.
10	Encouraging home working using IT solutions	Promoting Travel Alternatives	Encourage / Facilitate home-working	2017	2017 - ongoing	Wealden District Council	-	-	-	-	Completed	N/A	N/A	IT solutions in place for staff wishing to home-work	None.
11	Employee tax incentive scheme for purchasing bikes	Promoting Travel Alternatives	Promotion of cycling	2017	2017 - ongoing	Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	None.
12	Car sharing for employees and associated priority staff parking	Promoting Travel Alternatives	Workplace Travel Planning	2017	2017 - ongoing	Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	None.
13	Implementation of ESCC Local Transport Plan 3	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2016	2016 - ongoing	East Sussex County Council & Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	Under review
14	Bus route improvements in Wealden via Local Transport Plan 3	Transport Planning and Infrastructure	Bus route improvements	2016	2016 - ongoing	East Sussex County Council & Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	Under review
15	Cycle network improvements in Wealden via Local Transport Plan 3	Transport Planning and Infrastructure	Cycle network	2016	2016 - ongoing	East Sussex County Council & Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	Under review
16	Public transport improvements in Wealden via Local Transport Plan 3	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2016	2016 - ongoing	East Sussex County Council & Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	Under review

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
17	Introduction of tariffs for new developments to reduce the impact of cumulative development upon the Ashdown Forest SPA/SAC	Policy Guidance and Development Control	Other policy	2018	2018-Ongoing	Wealden District Council	-	-	-	-	Implementation	N/A	N/A	Ongoing	None
18	Commitment to a sustainable procurement strategy	Policy Guidance and Development Control	Sustainable Procurement Guidance	2014	2014-2017	Wealden District Council	-	-	-	-	Completed	N/A	N/A	WDC encourages key suppliers to demonstrate an awareness of sustainability issues and to promote practices that are consistence with their policies. [1]	None
19	Promote health activities and encourage public to participate	Public Information	Via Other	2018	2018-Ongoing	Wealden District Council	-	-	-	-	Implementation	N/A	N/A	Introduced various ‘Healthy Wealden’ activities to encourage use of the Cuckoo Trail in 2018	None
20	Ensuring air quality mitigation is policy in the new local plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	-	Ongoing	Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	None
21	Use of Sussex Air Guidance and incorporation of planning conditions on major plans	Policy Guidance and Development Control	Other policy	-	Ongoing	Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	None
22	Support and involvement with Sussex Air and it’s initiatives	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	-	Ongoing	Wealden District Council	-	-	-	-	Implementation	N/A	N/A	-	None

$PM_{2.5}$ – 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 particulate matter with an aerodynamic diameter of 2.5µm or less ($PM_{2.5}$). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Wealden District Council currently does not undertake $PM_{2.5}$ monitoring within the district. Concentrations monitored at the Holly Place urban background site in Eastbourne indicate that levels are well within required levels.

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

- Supporting the Energise Network of electric vehicle charging points, together with the Sussex Air Quality Partnership;
- Requiring the assessment of $PM_{2.5}$ as part of Air Quality Assessments for planning applications.

Although there are no new specific measures targeting $PM_{2.5}$ currently, it is expected that the combination of actions and that are currently in force or coming into force will help to bring about a reduction in $PM_{2.5}$. However, discussions are being held with Public Health and other Local Authorities as part of Sussex Air to devise policies that will specifically target the reduction in $PM_{2.5}$. Any links measures have to the Public Health Outcomes Framework (available at https://fingertips.phe.org.uk/profile/public-health-outcomes-framework) will be considered.

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

This section sets out the monitoring undertaken within 2021 by Wealden District Council and how it compares with the relevant AQS 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.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Wealden District Council undertook automatic (continuous) monitoring at two sites during 2020. Isfield (for ozone (O_3)) and Lullington Heath (for nitrogen dioxide (NO_2) sulphur dioxide (SO_2) and O_3). Particulate matter (PM_{10} and $PM_{2.5}$) was not monitored in the district, so this report includes the results from two sites in the neighbouring Eastbourne District: Devonshire Park and Holly Place for information. Table A.1 in Appendix A shows the details of the automatic monitoring sites.

Lullington Heath and Holly Place are part of the Automatic Urban and Rural Network (AURN), managed by the Environment Agency. National monitoring results are available at https://uk-air.defra.gov.uk/.

Isfield and Devonshire Park are part of the Sussex Air Quality Monitoring Network (SAQMN), managed on behalf of Sussex Air by King's College London Environmental Research Group (KCL-ERG). Regional monitoring results are available at www.sussex-air.net.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Wealden District Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 12 sites during 2020. Table A.2 in Appendix A presents the details of the non-automatic sites.

Data capture for 2020 was generally good; the lowest data capture during the monitoring period was 83%, recorded at diffusion tube location W10 (therefore, no annualisation was required for any diffusion tubes).

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.

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 (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the AQS objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2020 dataset of monthly mean values is provided in Appendix B. No distance correction has been applied as all concentrations were below 36 µg/m^3.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the AQS objective of 200µg/m^3, not to be exceeded more than 18 times per year.

The results indicate that the annual mean NO_2 concentrations at all monitoring sites were well within the AQS objective (40 µg/m^3) in 2020. Neither of the automatic monitoring sites exceeded the 200 µg/m^3 standard on any occasion in 2020, nor in any year since 2015. The results indicate that the 1-hour NO_2 AQS objective is unlikely to be exceeded at any location in the district.

Diffusion tubes do not provide hourly measurements of NO_2; however, the Defra Technical Guidance states that where annual mean NO_2 concentrations measured by diffusion tubes

exceed 60 µg/m^3 there is a likelihood that the 1-hour AQS objective may be exceeded. All of the annual mean NO_2 concentrations at diffusion tube monitoring locations between 2015 and 2020, inclusive, were well below 60 µg/m^3 and so the 1-hour AQS objective is very unlikely to have been exceeded.

Figure A.1 shows the trend in NO_2 concentrations monitored at the Lullington Heath, Devonshire Park and Holly Place automatic monitoring stations. The results indicate there is a gradual downward trend in NO_2 concentrations over the time period shown, with little variation from year to year, although a sharper decrease at these locations in 2020 is likely to have been influenced by the decrease in traffic due to the COVID-19 pandemic. Concentrations have also been well below the annual mean AQS objective of 40 µg/m^3 in all years.

Figure A.2 shows trends in annual mean NO_2 concentrations measured at non-automatic (diffusion tube) sites. All sites show decreasing concentrations since 2018. In 2020 the impact of the COVID-19 pandemic has likely caused concentrations to be lower than that might have been expected following the trends observed.

Annual mean NO_2 concentrations at W4 (Uckfield Town Centre), had been increasing from 2014 to 2018. However, since 2018, concentrations have fallen at this location. At other roadside sites, there has been some year-to-year variability, with a decreasing trend in concentrations in the last couple of years.

3.1.4 Particulate Matter (PM_{10})

There has been no PM_{10} monitoring undertaken within the Council's area. Concentrations monitored at two urban background sites in Eastbourne (Devonshire Park and Holly Place) are, therefore, provided for indicative purposes. No data is available for Eastbourne Holly Place for 2017 and 2018 as the PM_{10} analyser was withdrawn on 4th January 2017. However, the Devonshire Place monitoring data for 2019 and 2020 show the lowest PM_{10} concentrations since 2010 of 15.5 µg/m^3 and 14.5 µg/m^3 respectively.

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the AQS objective of 40µg/m^3. The results indicate that annual mean PM_{10} concentrations were well below the AQS objective between 2016 and 2020.

Figure A.3 shows the trend in annual mean PM_{10} concentrations. A decreasing trend is apparent from concentrations recorded at Holly Place, but with considerable year on year

variability. At Devonshire Park a varying trend is shown, with a decreasing trend in recent years. Concentrations have been consistently well below the annual mean AQS objective.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the AQS objective of 50µg/m^3, not to be exceeded more than 35 times per year. These results show that both Eastbourne sites achieved the daily PM_{10} AQS objective every year from 2016 to 2020.
Figure A.4 shows the trend in number of exceedances of the daily mean PM_{10} AQS objective. The number of days which exceeded the AQS objective has generally decreased at both sites since 2012.

3.1.5 Particulate Matter ($PM_{2.5}$)

There is no $PM_{2.5}$ monitoring undertaken within Wealden District. Concentrations monitored at the Holly Place urban background site in Eastbourne are, therefore, provided for indicative purposes.

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years. Between 2016 and 2020, the measured levels have been below the AQS objective of 25 µg/m^3.

Figure A.5 shows the trend in annual mean $PM_{2.5}$ concentrations. No clear trend is evident in the results between 2009 and 2020.

3.1.6 Sulphur Dioxide (SO_2)

Table A.9 in Appendix A compares the ratified continuous monitored SO_2 concentrations for 2020 at the Lullington Heath rural site with the AQS objectives for SO_2. There have been no exceedances in 2020 of any of the three AQS objectives for SO_2 (15-minute, 1-hour or 24-hour).

3.1.7 Ozone (O_3)

Table A.10 in Appendix A presents the ratified continuous monitored annual mean O_3 concentrations for the past 5 years at the Isfield and Lullington Heath rural sites. Between 2016 and 2020, the annual mean concentrations monitored at Isfield have been between 45.2 µg/m^3 and 53.2 µg/m^3, and at Lullington Heath between 55 µg/m^3 and 65.2 µg/m^3. There is no annual mean AQS objective or target value for annual mean O_3 concentrations.

Figure A.6 shows the trend in annual mean O_3 concentrations at the two monitoring stations. No clear trend is evident in the results at Isfield between 2011 and 2020. A slight increase has been observed at Lullington Heath between 2018 and 2020.

Table A.11 in Appendix A compares the ratified continuous monitored O_3 running 8-hour mean concentrations for the past 5 years with the AQS objective of 100 µg/m^3, not to be exceeded on more than 10 days per year. The monitoring results show that the Isfield station exceeded the O_3 AQS objective every year from 2013 to 2020, except for 2019 (7 days). The Lullington Heath station has measured days exceeding the AQS objective in 2019 (10 days) and 2020 (39 days). In 2020, the number of days exceeding the O_3 running 8- hour mean was 39 for Lullington Heath and 21 for Isfield Station.

Figure A.7 shows the trend in number of days exceeding the O_3 AQS objective between 2011 and 2020. Isfield Station shows a varying trend with sharp increases in 2013, 2017 and 2020. Lullington Heath Station shows an overall decreasing trend between 2011 and 2016 and an increase between 2016 and 2018. The number of days exceeding the AQS objective between 2018 to 2019 decreased for both sites but increased in 2020.

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)
LL1	Lullington Heath AURN	Rural	553855	101740	NO_2; SO_2; O_3	No	Chemiluminiscence; UV Fluorescence; UV Absorption	> 1000	1000	3
AR2	Wealden - Isfield	Rural	544890	117380	O_3	No	UV Absorption	60	20	2
EB1	Eastbourne - Devonshire Park	Urban Background	561180	98360	NO_2; PM_{10}; O_3	No	Chemiluminiscence; FDMS; UV Absorption	40	10	1.5
EB3	Holly Place AURN	Urban Background	560085	103118	NO_2; PM_{10}; $PM_{2.5}$	No	Chemiluminiscence; TEOM FDMS; TEOM FDMS	10	10	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

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)
W1	Crowborough Background	Urban Background	552591	130667	NO_2	No	7.5	2.0	No	2.5
W2	Crowborough Town Centre	Roadside	551626	131090	NO_2	No	7.5	2.0	No	2.5
W3	Uckfield Background	Urban Background	547828	121954	NO_2	No	15.0	1.0	No	2.5
W4	Uckfield Town Centre	Roadside	547250	120977	NO_2	No	7.5	2.0	No	2.5
W5	Eastbourne Road, Polegate	Roadside	558079	104481	NO_2	No	13.0	1.0	No	2.0
W6	London Road, Hailsham	Roadside	558845	109783	NO_2	No	0.5	1.0	No	2.5
W7	Outside Rydale-A267	Roadside	557503	121318	NO_2	No	7.5	1.0	No	2.0
W8	A22 W of Boship roundabout	Roadside	556933	111165	NO_2	No	8.0	2.0	No	2.0
W9	Forest Row Riverside	Urban Background	542336	135324	NO_2	No	5.0	0.1	No	2.0
W10	Forest Row A22	Kerbside	542464	135279	NO_2	No	1.0	2.0	No	2.0
W11	Hailsham - Lower Horsebridge	Roadside	558024	111237	NO_2	No	0.5	1.0	No	2.0
W12	Hailsham A295 car park	Roadside	558892	109272	NO_2	No	8.5	1.0	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.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

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)	2016	2017	2018	2019	2020
LL1	553855	101740	Rural	Automatic	11.4	7.8	7.7	7.6	7.4	6.1
EB1	561180	98360	Urban Background	Automatic	99.1	-	16.1	14.5	15.0	10.7
EB3	560085	103118	Urban Background	Automatic	51.3	12.0	12.3	10.7	10.8	8.8

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

☒ **Reported concentrations are those at the location of the monitoring site (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 AQS objective of 40µg/m^3 are shown in **bold**.

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%).

Table A.4 – 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
W1	552591	130667	Urban Background	100	100.0	14.6	13.1	13.9	12.0	9.2
W2	551626	131090	Roadside	100	100.0	23.8	23.6	23.6	21.9	14.1
W3	547828	121954	Urban Background	100	100.0	14.8	15.6	14.9	13.4	12.1
W4	547250	120977	Roadside	100	100.0	35.0	37.1	36.7	33.6	23.0
W5	558079	104481	Roadside	100	100.0	29.3	30.0	32.6	27.9	19.9
W6	558845	109783	Roadside	100	100.0	23.9	26.1	27.1	24.0	16.9
W7	557503	121318	Roadside	100	100.0	**40.8**	23.0	20.8	19.1	13.4
W8	556933	111165	Roadside	92	92.3	35.9	35.0	34.2	33.2	25.1
W9	542336	135324	Urban Background	100	100.0	-	10.7	12.6	9.5	6.9
W10	542464	135279	Kerbside	83	82.7	-	**40.6**	34.6	28.6	23.7
W11	558024	111237	Roadside	100	100.0	-	-	-	-	11.1
W12	558892	109272	Roadside	92	92.3	-	-	-	-	17.7

☒ **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 AQS 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 measured at Automatic Monitoring Sites

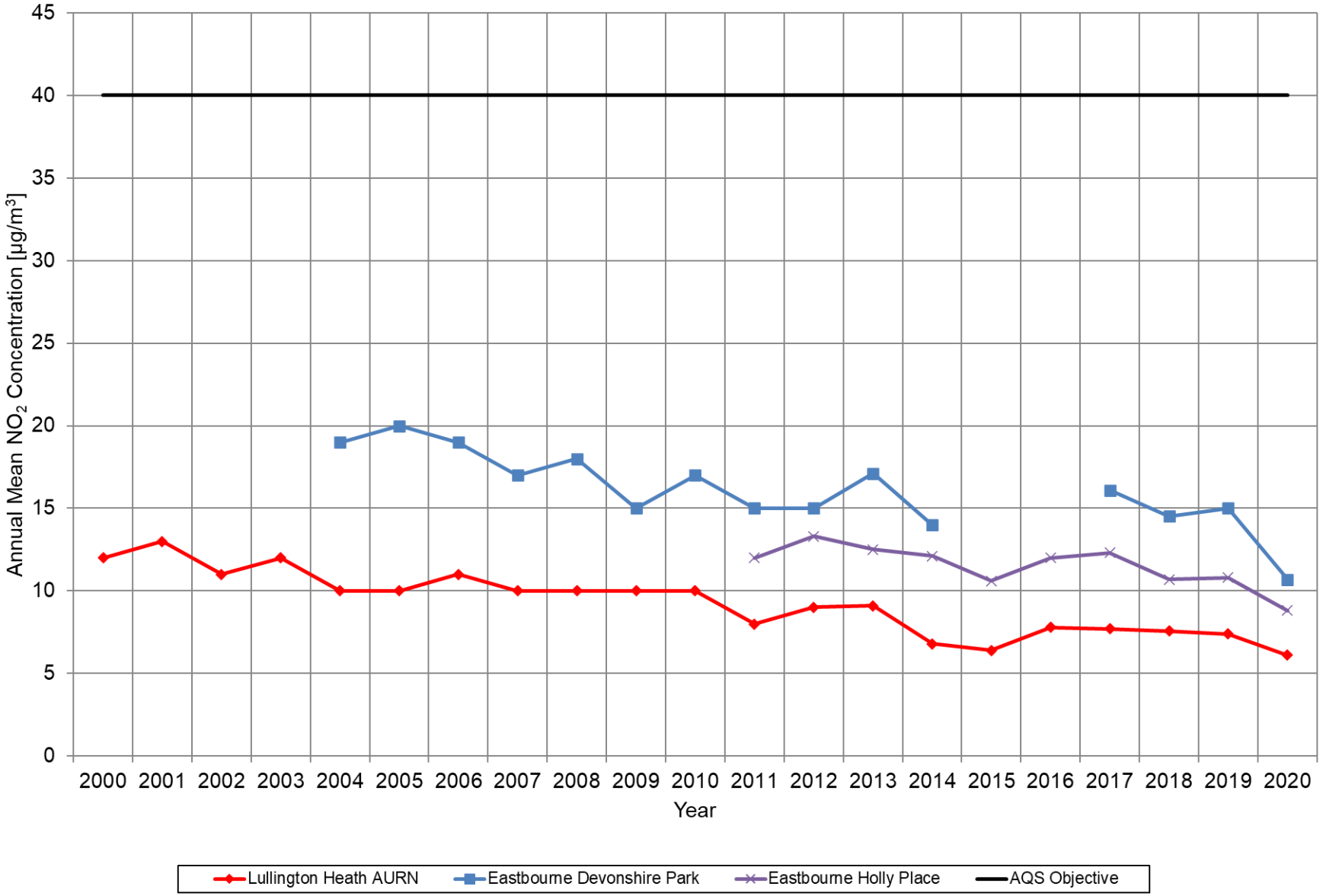


Figure A.2 – Trends in Annual Mean NO_2 Concentrations measured at Diffusion Tube Monitoring Sites

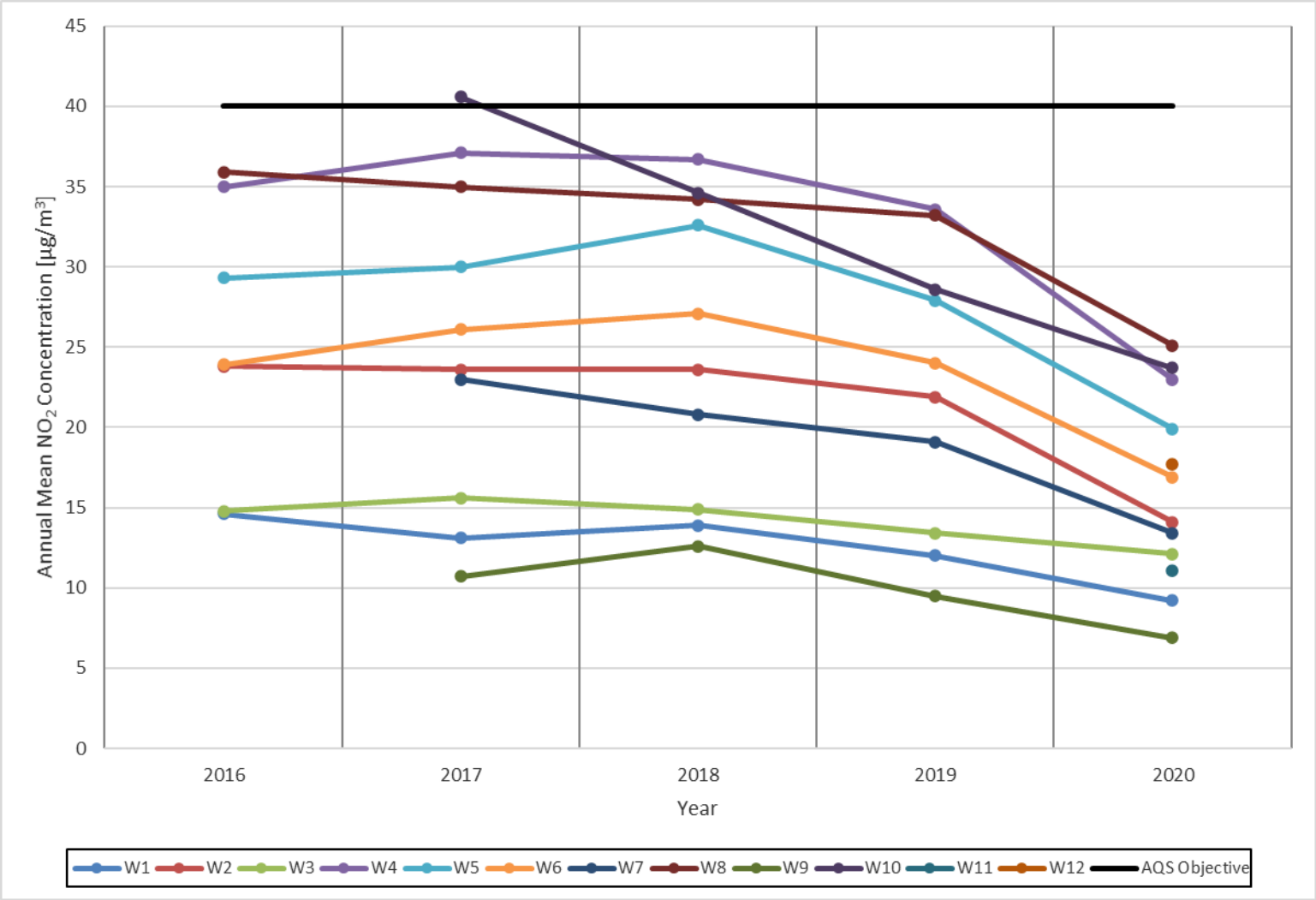


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

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)	2016	2017	2018	2019	2020
LL1	553855	101740	Rural	Automatic	11.4	0	0	0	0	0 (38.2)
EB1	561180	98360	Urban Background	Automatic	99.1	-	0 (68.9)	0	0	0
EB3	560085	103118	Urban Background	Automatic	51.3	0	0	0 (59.8)	0	0 (58.4)

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m^3 have been recorded.

Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

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

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)	2016	2017	2018	2019	2020
EB1	561180	98360	Urban Background	98.6	98.6	-	18.9	18.5	17.2	17.5
EB3	560085	103118	Urban Background	98.3	98.3	18	-	-	15.5	14.5

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

Notes:

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

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold**.

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.

(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.3 – Trends in Annual Mean PM_{10} Concentrations

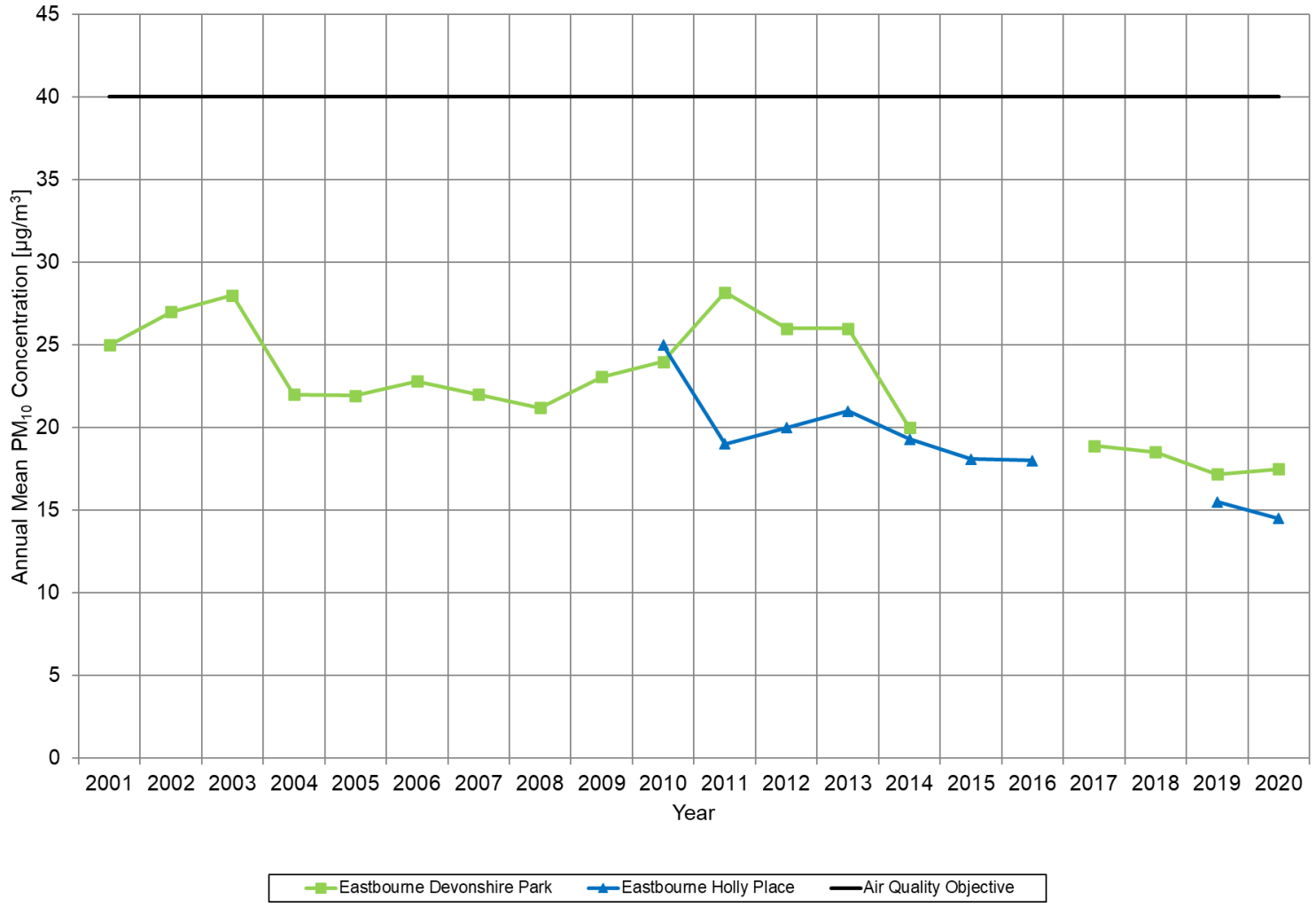


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

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)	2016	2017	2018	2019	2020
EB1	561180	98360	Urban Background	98.6	98.6	-	0 (22)	2	1	1
EB3	560085	103118	Urban Background	98.3	98.3	2	-	-	0	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

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

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

Figure A.4 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m^3

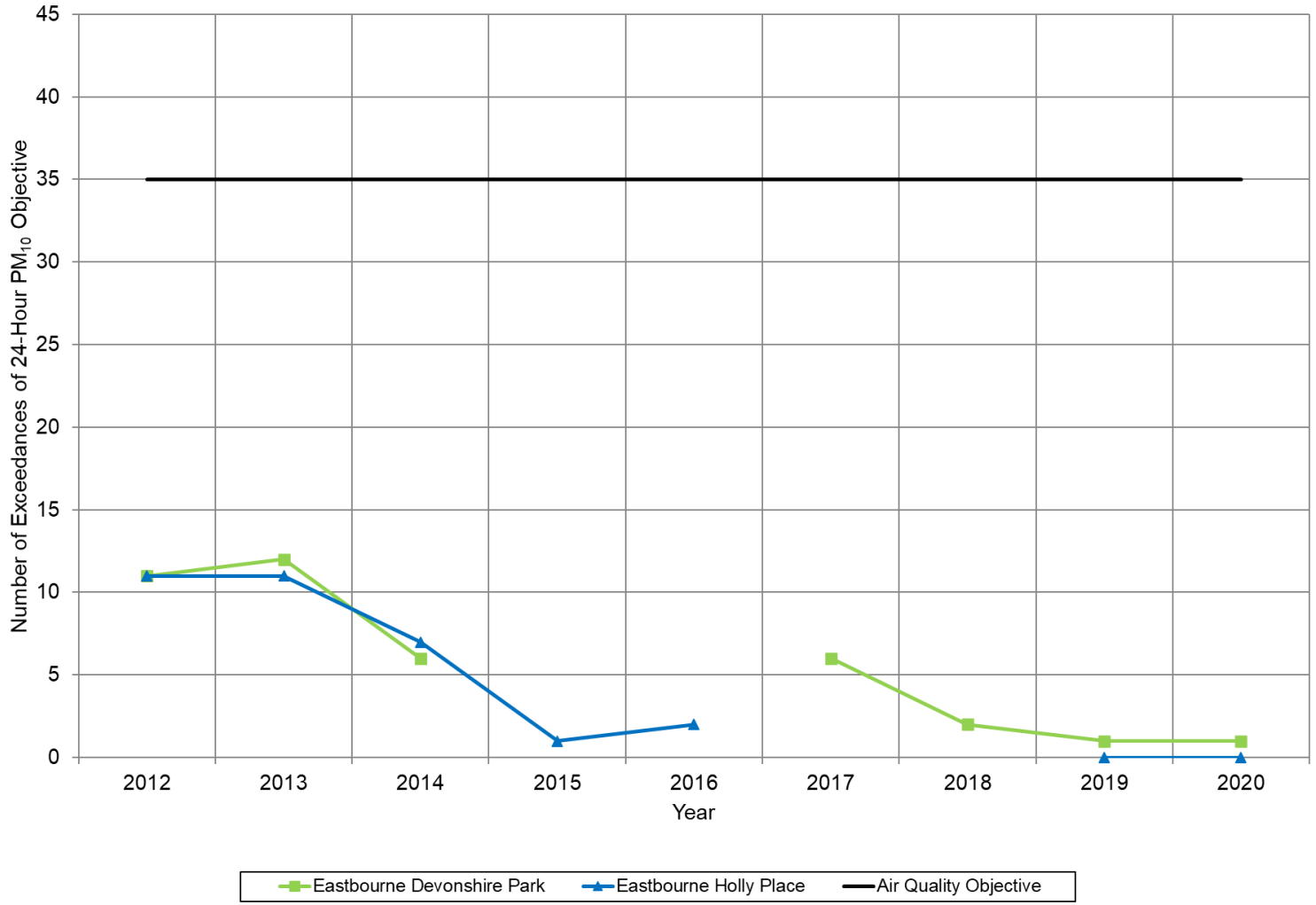


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

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)	2016	2017	2018	2019	2020
EB3	560085	103118	Urban Background	98.3	98.3	12.7 (14.4)	11.3	12.7	10.5	8.7

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

Notes:

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

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.

(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.5 – Trends in Annual Mean $PM_{2.5}$ Concentrations

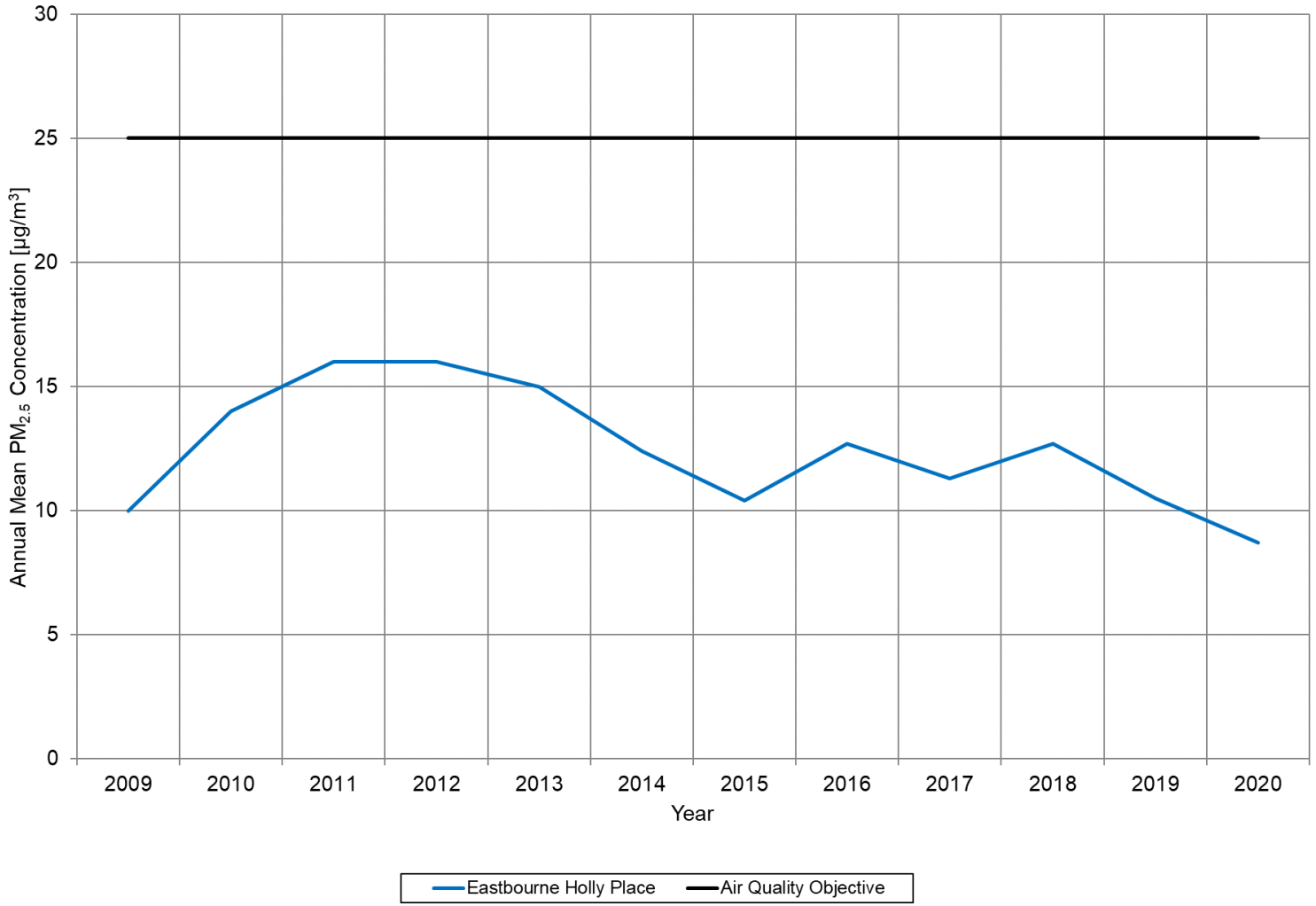


Table A.9 – SO_2 2020 Monitoring Results, Number of Relevant Instances

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
LL1	553855	101740	Rural	86.3	86.3	0	0	0

Notes:

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

Exceedances of the SO_2 objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year).

If the period of valid data is less than 85%, the relevant percentiles are provided in brackets.

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

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

Table A.10 – Annual Mean O_3 2020 Monitoring Results (µg/m^3)

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)	2016	2017	2018	2019	2020
AR2	553855	101740	Rural	100	100	46.2	50.1	53.2	45.2	52.1
LL1	544890	117380	Rural	96.3	96.4	55	55.4	61.1	61.4	65.4

Notes:

(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.6 – Trends in Annual Mean O_3 Concentrations

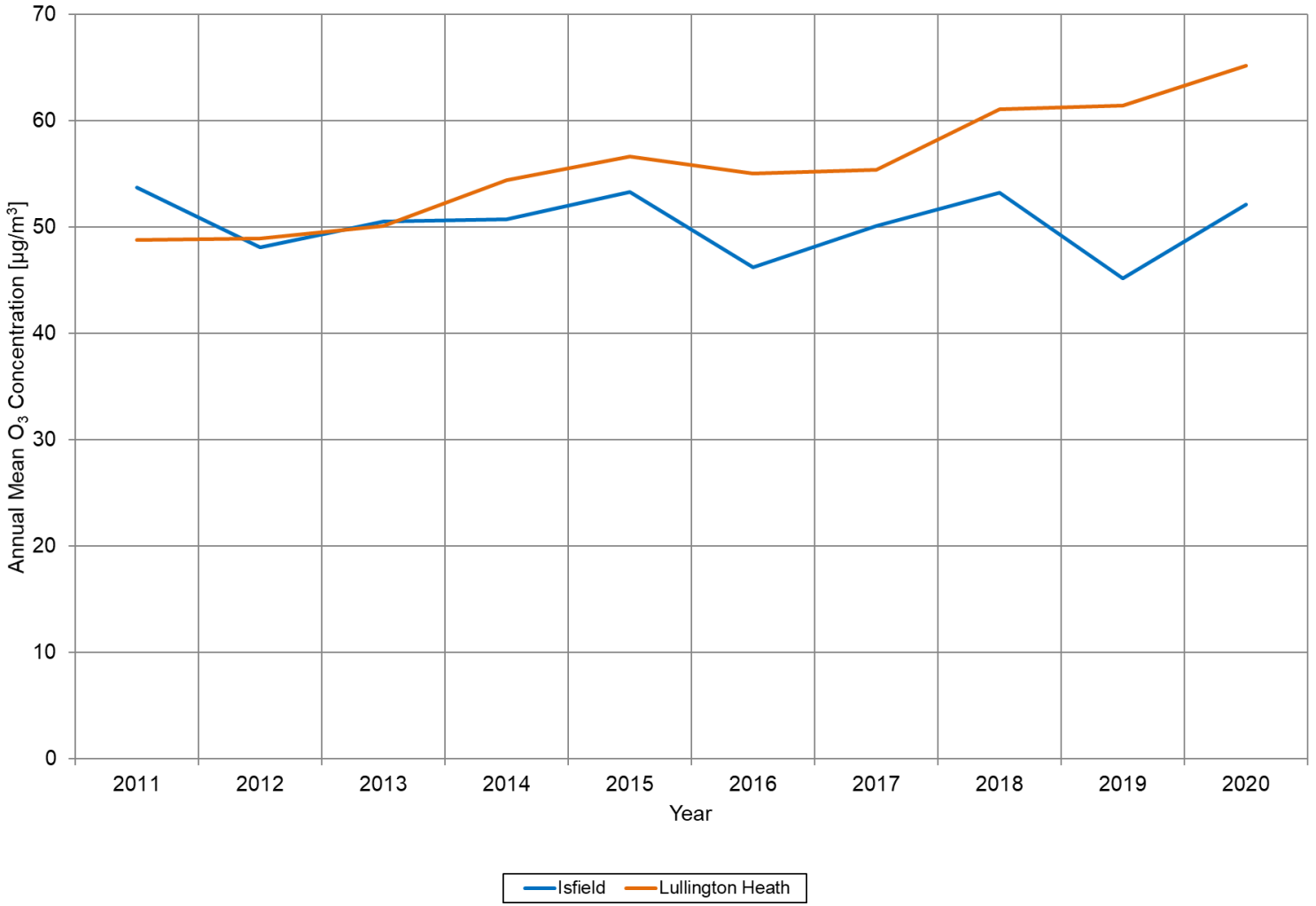


Table A.11 – Running 8-Hour Mean O_3 2020 Monitoring Results

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)	2016	2017	2018	2019	2020
AR2	553855	101740	Rural	100	100	**14**	**27**	**19**	7	**21**
LL1	544890	117380	Rural	96.3	96.4	0	3	**13**	**10**	**39**

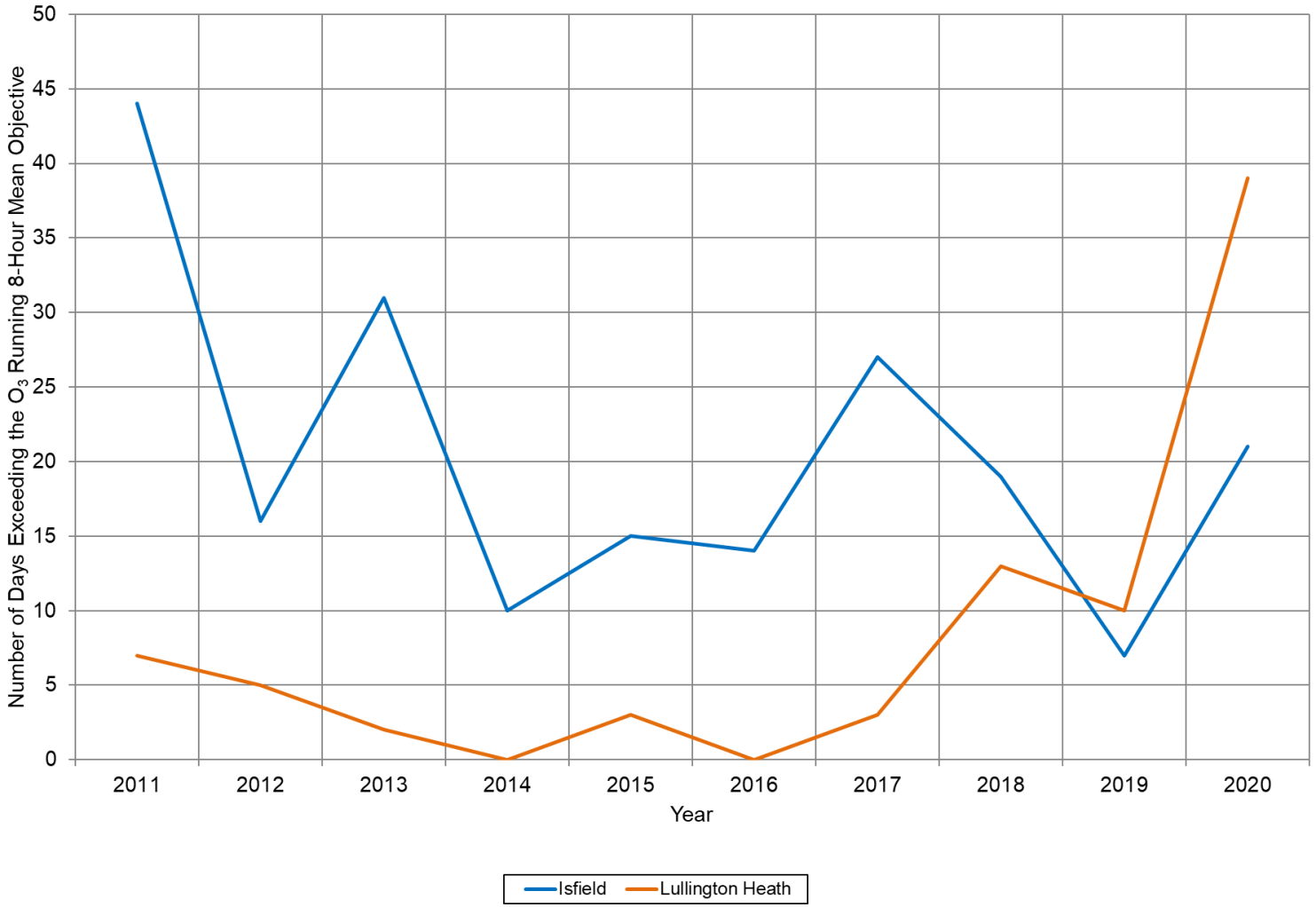
Notes:

Exceedances of the O_3 running 8-hour mean AQS objective (100 µg/m^3 not to be exceeded more than 10 days/year) are shown in **bold**.

(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.7 – Trends in Number of Days Exceeding the Running 8-Hour Mean O_3 AQS Objective



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 (0.81)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W1	552591	130667	16.6	10.6	12.9	11.1	6.3	7.0	7.1	8.6	12.1	10.6	17.1	16.0	11.3	9.2	-	
W2	551626	131090	21.6	15.5	15.9	12.8	12.3	13.4	13.2	19.5	18.4	17.5	26.8	21.7	17.4	14.1	-	
W3	547828	121954	**43.3**	13.5	12.4	11.0	8.0	8.6	9.2	9.9	13.3	12.4	20.2	18.3	15.0	12.1	-	
W4	547250	120977	18.2	36.9	26.8	18.4	18.1	22.3	29.1	34.1	33.6	32.2	37.6	33.4	28.4	23.0	-	
W5	558079	104481	32.7	25.7	21.3	21.8	18.8	19.7	21.5	26.6	26.8	22.4	31.6	26.7	24.6	19.9	-	
W6	558845	109783	30.0	20.4	10.3	20.4	15.6	17.0	16.0	23.4	22.0	19.7	30.6	25.0	20.9	16.9	-	
W7	557503	121318	23.7	15.9	16.0	14.6	12.3	12.1	10.7	15.8	20.0	19.1	22.5	16.3	16.6	13.4	-	
W8	556933	111165	35.1	28.9	27.2	25.8	26.4	28.0		**50.7**	31.4	28.0	34.2	25.0	31.0	25.1	-	
W9	542336	135324	12.3	8.5	9.0	8.3	5.2	5.2	5.2	6.9	8.0	7.1	13.5	12.4	8.5	6.9	-	
W10	542464	135279	**40.6**	35.5	29.2	15.1	17.8	21.8			32.9	32.2	37.4	30.6	29.3	23.7	-	
W11	558024	111237	18.0	14.3	12.6	13.0	10.9	10.3	10.7	12.2	14.0	13.0	18.0	17.2	13.7	11.1	-	
W12	558892	109272		26.1	12.5		16.1	17.4	20.4	21.6	25.3	24.9	27.6	26.7	21.9	17.7	-	

☒ **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.**

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

Notes: No distance correction required as all concentrations well below 36 $\mu g/m^3$.

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**.

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 Wealden District Council During 2020

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

Additional Air Quality Works Undertaken by Wealden District Council During 2020

Wealden District Council has not completed any additional works within the reporting year of 2020 year relating to the development of action plan measures or the declaration, amendment or revocation of an AQMA.

QA/QC of Diffusion Tube Monitoring

AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL Workplace Analysis Scheme for Proficiency (WASP) PT scheme.

Defra and the Devolved Administrations advise that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the AIR PT scheme.

Wealden District Council used Gradko International for the supply and analysis of diffusion tubes, with a 20% triethanolamine (TEA) in water preparation.

The percentage of results submitted by Gradko International Ltd that were subsequently determined to be satisfactory was 75% in AIR-PT Round AR036 (January 2020-February 2020) and 75% for AIR-PT Round AR040 (September – October 2020). No results were

reported for AIR-PT Rounds AR037 (May 2020 – June 2020) and AR039 (July 2020 – August 2020).

All monitoring has been completed in adherence with the 2020 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Wealden District Council recorded data capture of 75%, therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

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

Wealden District Council have applied a national bias adjustment factor of 0.81 to the 2020 monitoring data. A summary of bias adjustment factors used by Wealden District Council over the past five years is presented in Table C.1.

Wealden District Council does not carry out a co-location study with diffusion tubes and an automatic continuous analyser, and so it is necessary to use the national database of bias adjustment factors (version 03/21, 18 studies).

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	National	03/21	0.81
2019	National	03/20	0.93
2018	National	03/19	0.93
2017	National	09/18	0.87
2016	National	06/17	0.92

Figure C-1: National Diffusion Tube Bias Adjustment Factor for Wealden District Council (Gradko)

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/21

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

This spreadsheet will be updated at the end of June 2021
LAQM Helpdesk Website

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

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

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data

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

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

Analysed By[1]	Method	Year[2]	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2020	R	Gedling Borough Council	10	31	25	24.1%	G	**0.81**
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	12	37	27	37.1%	G	**0.73**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	25	14	77.4%	G	**0.56**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	12	30	22	35.1%	G	**0.74**
Gradko	20% TEA in water	2020	R	Fareham Borough Council	10	22	17	26.5%	G	**0.79**
Gradko	20% TEA in water	2020	R	SOUTHAMPTON CITY COUNCIL	11	32	31	4.9%	G	**0.95**
Gradko	20% TEA in water	2020	KS	Marylebone Road Intercomparison	12	57	43	33.3%	G	**0.75**
Gradko	20% TEA in water	2020	R	Bath & North East Somerset	11	32	29	13.0%	G	**0.89**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	22	17	28.1%	G	**0.78**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	23	21	11.6%	G	**0.90**
Gradko	20% TEA in water	2020	R	Gateshead Council	10	26	25	6.5%	G	**0.94**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	28	21	30.5%	G	**0.77**
Gradko	20% TEA in water	2020	R	Gateshead Council	12	31	32	-3.4%	G	**1.03**
Gradko	20% TEA in water	2020	R	Luton Borough Council	9	38	28	33.8%	G	**0.75**
Gradko	20% TEA in water	2020	R	Nottingham City Council	12	31	34	-8.5%	G	**1.09**
Gradko	20% TEA in water	2020	R	Dudley MBC	13	33	28	19.9%	G	**0.83**
Gradko	20% TEA in water	2020	UB	Dudley MBC	13	23	14	61.2%	G	**0.62**
Gradko	20% TEA in water	2020	R	Dudley MBC	13	44	34	30.6%	G	**0.77**
Gradko	20% TEA in water	2020		**Overall Factor[3] (18 studies)**				**Use**		**0.81**

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 Wealden District Council required distance correction during 2020.

QA/QC of Automatic Monitoring

As previously described in Section 3.1, monitoring stations within East Sussex are part of the SAQMN and, therefore, measurements made at these sites are traceable to national standards and operational procedures defined for the regional network. AURN sites such as Lullington Heath and Holly Place are managed by Defra contractors and data collected at these sites are traceable to the UK AURN national standards.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

The PM_{10} data from the FDMS continuous analyser at Eastbourne Devonshire Park (EB1) measures gravimetric-equivalent PM_{10} concentrations, and therefore no additional adjustment has been necessary.

Automatic Monitoring Annualisation

Annualisation was required for Eastbourne - Holly Place NO_2 monitoring due to data capture being less than 75% in 2020. The sites used and details of calculation are presented in Table C.2.

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 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.

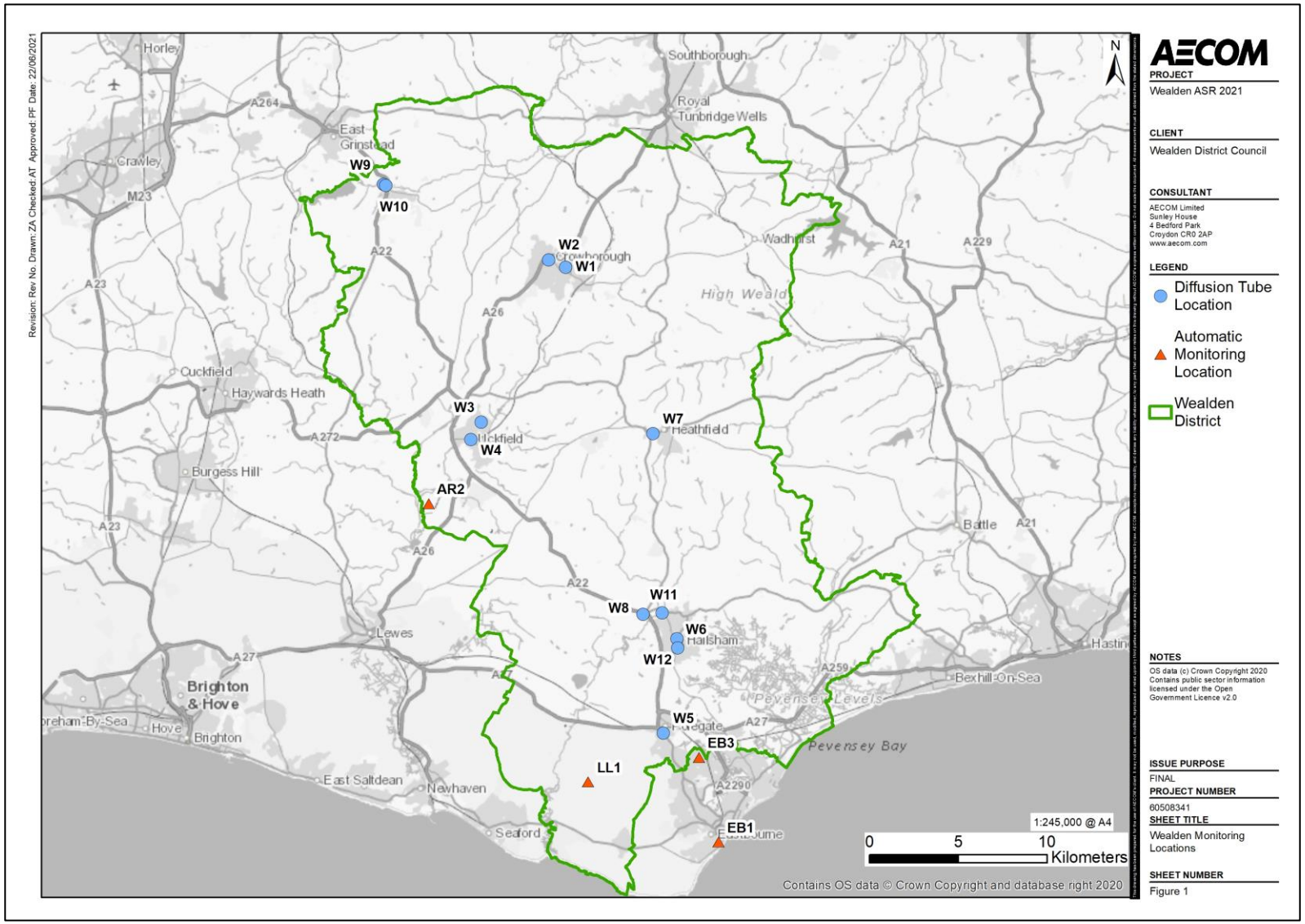
No automatic NO_2 monitoring locations within Wealden District Council required distance correction during 2020.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor – Brighton Preston Park	Annualisation Factor - Canterbury	Annualisation Factor	Annualisation Factor	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
EB3	0.88	0.96	-	-	0.92	9.6	8.8	

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

Figure D.1 – Map of Monitoring Sites



Appendix E: Summary of Air Quality Strategy Objectives in England

Table E.1 – Air Quality Strategy Objectives in England[9]

Pollutant	Air Quality Strategy Objective: Concentration	Air Quality Strategy 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

[9] 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 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 AQS objective for nitrogen dioxide (NO_2) 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) data[10] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April 2020, 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)[11] 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

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

[11] 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 Wealden

No specific studies have been carried out to identify COVID-19 related impacts within Wealden. Analysis of NO_2 concentrations carried out in this ASR show that NO_2 concentrations have decreased in 2020 and it is likely that this is at least in part due to COVID-19 impacts.

Opportunities Presented by COVID-19 upon LAQM within Wealden

Increased home working in 2020 continues for many, including Wealden District Council, as a result of the COVID-19 pandemic. Opportunities have been taken to encourage cycling and walking. It is uncertain how travel preferences may change post COVID-19.

Challenges and Constraints Imposed by COVID-19 upon LAQM within Wealden

A number of challenges have been experienced in relation to LAQM within 2020 that can be attributed to the pandemic. Any impacts presented below are aligned with the criteria as defined in Table F. 1, with professional judgement considered as part of their application.

- The Defra diffusion tube exposure calendar was adhered to and diffusion tube changeovers were carried out as planned. Data capture was high across most monitoring sites. **No Impact**

- As with previous years, a national bias adjustment factor has been utilised to adjust the diffusion tube results for 2020. Within 2018 there were 40 studies and within 2019 there were 31 co-location studies that were utilised to calculate the bias factor for the laboratory and preparation method used. For 2020, this number has reduced to 18 studies. There is therefore the potential for there to be a greater degree of uncertainty associated with the resultant annual mean NO_2 concentrations in 2020 than in previous years. **Small Impact**

Table F. 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: Large
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur dioxide

References

- Local Air Quality Management Technical Guidance LAQM.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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- Sussex Air Quality Partnership – Sussex-air website. Available at http://www.sussex-air.net/Default.aspx
- Sussex Air Quality Partnership Air Quality Strategic Plan 2010 http://www.sussex-air.net/Reports/SAQP_Vision_Strategy_2015.pdf
- National Diffusion Tube Bias Adjustment Factor Spreadsheet, Spreadsheet Version Number: 03/21. Available at: http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html Defra, 2021.
- Air Quality Annual Status Report for Wealden District Council, 2020.