Sussex Annual Air Quality Monitoring Report 2023

Sussex Air Quality Partnership / East Sussex County Council

June 2024

Move Forward with Confidence

BUREAU VERITAS

THIS PAGE IS LEFT BLANK INTENTIONALLY

Document Control Sheet

Identification	
Client	East Sussex County Council for Sussex Air Quality Partnership
Document Title	Sussex Annual Air Quality Monitoring Report 2023
Bureau Veritas Ref	AIR13115761

Contact Details		
Company Name	Bureau Veritas UK Limited	East Sussex County Council
Contact Name	Nigel Jenkins	Andy Arnold
Position	Principal Consultant	Contract Manager for Sussex AQP
Address	Bureau Veritas 100 Lower Thames St Mary at Hill London EC3R 6DL	East Sussex County Council County Hall St Anne's Crescent, Lewes, East Sussex, BN7 1UE
Telephone	07929 665814	
e-mail	nigel.jenkins@bureauveritas.com	Andy.arnold@eastsussex.gov.uk
Websites	www.bureauveritas.co.uk	sussex-air.net

Configuration				
Version	**Date**	**Author**	**Reason for Issue/Summary of Changes**	**Status**
v1	24/04/24	N Jenkins	First Issue	First Issue
v1.1	23/05/24	N Jenkins	Minor editorial revisions	Final Issue
V1.2	05/06/24	N Jenkins	Data updates	Final Rev 1

	Name	Job Title	Signature
Prepared By	N. Jenkins	Principal Consultant	
Approved By	R Maggs	Project Director	

THIS PAGE IS LEFT BLANK INTENTIONALLY

Table of Contents

Executive Summary

Bureau Veritas UK Ltd was commissioned by East Sussex County Council on behalf of the Sussex local authorities (who collectively form the Sussex Air Quality Partnership), to manage, provide support and report on air quality monitoring data collected from the Sussex Air Quality Network.

This report provides an overview of the monitoring data collected from the Sussex Air Quality Network air quality monitoring stations (AQMS) during 2023.

The Network

The Sussex Air Quality Network is made up of local authority (LA) owned AQMSs and sites that are Automatic Urban and Rural (AURN) AQMSs operated by the Environment Agency on behalf of Defra. There were 12 LA AQMSs in the network and 5 AURN AQMS in the network in 2023. Additional, two new PM_{10} and $PM_{2.5}$ instruments were introduced at two Sussex sites during 2023 and now provide additional data to the network.,

Data capture

Overall, the data capture was excellent across the Sussex owned network sites during 2023. Apart from 1 site which achieved 89.9% data capture the rest of the Sussex owned AQMSs that were in operation for the whole year met or exceeded the 90% data capture. There were two AURN sites that did not achieve the 90% data capture rate. These sites are operated by the Environment Agency for Defra managed independently from the Sussex owned network sites.

Compliance with air quality standards

All network sites that achieved the necessary data capture showed results that were compliant with the relevant air quality objectives and standards. These included: particulate matter (PM_{10}) and nitrogen dioxide (NO_2) long-term and short-term objectives. With regard to the fine particulates ($PM_{2.5}$) target annual mean values, there were no sites above the 2040 annual mean target of 10 µg/m³ and the interim 2028 target of 12 µg/m³.

Occurrences of High and Moderate pollution days

As seen each year there were many days of 'Moderate' air pollution measured across the Sussex network AQMS. During 2023 there were up to 39 days where 'moderate' ozone (O_3) was recorded across the network. Additionally, there were 4 days where 'moderate' PM_{10} was recorded and 4 days where 'moderate' $PM_{2.5}$ was recorded across the network. Only three sites measured 'High' levels of PM_{10}, $PM_{2.5}$ and O_3 and these were only for 1-2 days during 2023. No 'Very High' days were recorded in 2023.

Trends in annual means

The annual mean concentrations for NO_2, PM_{10}, $PM_{2.5}$ and O_3 have showed a general levelling-off trend between 2019 and 2023. There were two locations where slight upward trends were seen, namely at roadside locations for NO_2 at Horsham - Cowfold and Brighton - North Street. However, no sites across Sussex exceeded the air quality objectives.

Summary

Overall, the network has achieved high data capture rates and data has been disseminated over to the Sussex Air Quality Partnership website (www.sussex-air.net) efficiently over 2023. Monitoring data has been available as "live data" and following the publishing of this report, "approved[1]" data sets for the Sussex owned AQMS (non AURN sites) will be available in convenient formats to download. These data will be available for all pollutants in 1-hour, 24-hour and 8-hour running average formats.

---

[1] The Sussex AQN data validation process is available here: Sussex Data Validation Process

1. Air Quality Legislation, Standards and WHO Guidelines

1.1   Air Quality Strategies and 25 Year Environment Plan

The importance of existing and future air quality can be assessed in relation to the national air quality standards and objectives established by Government. The Air Quality Strategy (AQS)[2] provides the over-arching strategic framework for air quality management in the UK and contains national air quality standards and objectives established by the UK Government and Devolved Administrations to protect human health.

The Clean Air Strategy 2019[3] provided a more focused strategy on $PM_{2.5}$; linkages with Net Zero goals and a re-focus on other pollutants that remain challenging from a compliance or health perspective. This was followed up by the 25 Year Environment Plan (2023) "*A Green Future: Our 25 Year Plan to Improve the Environment*"[4]. The 25 Year Environment Plan included a 25-year goal of "clean air" amongst other objectives and supporting policies.

1.2   The Environment Act 2021

The Environment Act 2021 established a legally binding duty on Government to set an annual mean target on the level of fine particulate matter ($PM_{2.5}$), in addition to a longer-term target, by 31st October 2023 for England. The Act states:

"*Whilst the responsibility for meeting the $PM_{2.5}$ targets sits with national government; local authorities have a role to play in delivering reductions in $PM_{2.5}$.*"

and

"*Local authorities in England will need to work towards reducing $PM_{2.5}$ in their area. Action to tackle PM_{10}/NOx can be expected to contribute towards this.*"

1.3   The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 sets the target to ensure that the annual mean concentration of $PM_{2.5}$ in ambient air is equal to or less than 10 micrograms per cubic metre ($\mu g/m^3$) by 31st December 2040. Additionally, the Environmental Improvement Plan 2023 for England set interim targets that by January 2028, the annual average of 12 $\mu g/m^3$ for $PM_{2.5}$ is not exceeded at any monitoring station.

In support of these national targets local authorities are encouraged to review and assess $PM_{2.5}$ and take actions where possible to reduce the sources and emissions of these particulates. These are national targets and are non-binding targets for local authorities.

Additional to the $PM_{2.5}$ concentration targets set out the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023, there is a population exposure reduction target for $PM_{2.5}$ in England, which requires that there is at least a 35% reduction in concentrations from the baseline year of 2018 to be achieved by 2040.

Population exposure refers to the average concentration someone in England is exposed to and is based on urban or in some case suburban background measurements which are representative of the type of environment most people live and work.

---

[2] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007), Published by Defra in partnership with the Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland.

[3] The Clean Air Strategy 2019
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

[4] A Green Future: Our 25 Year Plan to Improve the Environment
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

The Environmental Improvement Plan 2023 for England also set interim targets that by January 2028 for population exposure to $PM_{2.5}$ is at least 22% less than in 2018.

1.4 LAQM Policy and Technical Guidance (LAQM PG(22) and LAQM TG(22)) 2023

The updated 2023 Local Air Quality management (LAQM) Policy and Technical Guidance provide the latest policy and technical support for the assessment of air quality for local authorities.

At the core of LAQM delivery are three pollutant objectives; these are: Nitrogen Dioxide (NO_2), Particulate Matter (PM_{10}) and Sulphur Dioxide (SO_2). LAQM PG(22) and LAQM TG(22)) also provides further detail on the focus of actions for local authorities to measure and report Particulate Matter ($PM_{2.5}$). Ozone (O_3) is not included under the LAQM regime but is pollutant of concern at national level, hence there is no reporting requirement by local authorities.

The UK Air Quality Objectives are provided in Appendix 1, Table A1-2.

1.5 World Health Organization (WHO) Guidelines

The World Health Organization (WHO) provides air quality guideline (AQG) values for a range of pollutants which was updated in 2021[5]. The pollutants of concern include particulate matter of a diameter equal or smaller than 10μm (PM_{10}) or equal or smaller than 2.5μm ($PM_{2.5}$), ozone (O_3) nitrogen dioxide (NO_2) and sulphur dioxide (SO_2). The WHO guideline values are provided in Appendix 1, Table A1-3.

The WHO global air quality guidelines aim to protect populations from the adverse effects of air pollution. They are designed to serve as a global reference for assessing whether, and how much, exposure of a population (including particularly vulnerable and/or susceptible subgroups) to various levels of the considered air pollutants results in health concerns.

The most recently published WHO Ambient Air Quality Database (31 January 2024 v6.1)[6] compiles data on ground measurements of annual mean concentrations for pollutants. The current v6.1 database covers the period 2010 – 2020. This database provides an average for the city or town, rather than for individual stations, as such this database differs from the actual AQMS measured concentrations presented in this report.

---

[5] The WHO global air quality guidelines (September 2021) https://iris.who.int/bitstream/handle/10665/345329/9789240034228-eng.pdf

[6] WHO Ambient Air Quality Database (January 2024) https://www.who.int/publications/m/item/who-ambient-air-quality-database-(update-jan-2024)

2. Sussex Air Quality Network

The Sussex Air Quality Network ("the network") was established in 1995 to support the local authorities across Sussex in their duties to monitor and report air quality under the Local Air Quality Management (LAQM) framework requirements as set out under Part IV of the Environment Act 1995.

The network was developed by the Sussex Air Quality Partnership ("Sussex-air"), which is made up from the Sussex local authorities and Public Health bodies. The members of Sussex Air Quality Partnership are:

Adur District Council	Horsham District Council
Arun District Council	Mid Sussex District Council
Brighton and Hove City Council	Lewes District Council
Chichester District Council	Rother District Council
Crawley Borough Council	Wealden District Council
Eastbourne Borough Council	West Sussex County Council
East Sussex County Council	Worthing Borough Council
Hastings Borough Council	

The Partnership has developed a comprehensive regional monitoring network, which currently (to the end of 2023) has twelve continuous air quality monitoring stations (AQMS) in operation[7]. The network also incorporates data from five national Automatic Urban and Rural Network (AURN) AQMS that are in Sussex. This enhances the network to a total of **seventeen air quality stations** across Sussex. Bureau Veritas manages the Sussex Air Quality Network and hosts the Sussex-air website on behalf of the Sussex Air Quality Partnership.

The site information and location map of all the Sussex AQMS's are found in Appendix 3.

The full list of site information and all "live" and historical data is provided on the Sussex-air website: http://www.sussex-air.net.

The Sussex-air website also provides health information and the Sussex-wide air pollution forecasting and alert service to support vulnerable persons and the public and provide pollution alerts direct to the subscriber for "FREE". To see pollution forecasts go to our homepage and to register for the airAlert service at: https://sussex-air.net/sussex-air-quality-service-for-sussex/registration/.

---

[7] LS7 Newhaven AQMS was not operational during 2023 and not included in the 2023 data. This site was removed in 2021 and is yet to be re-installed.

3. Sussex Air Quality Network Performance

3.1 Sussex Network Data Reviews

Data from the Sussex Air Quality Monitoring Network is reviewed and goes through a data validation process to provide confidence in data reported from air quality instruments to the Sussex-Air website. As the Sussex network provides data from both local authority (LA) owned air quality monitoring stations (AQMS's) and the UK national Automatic Urban and Rural Network (AURN) AQMS's, it is important to understand and distinguish the differences in the quality of data provided by each type of station. The process of data collection, review and verification (also termed as ratification) can be complex and has numerous influencing factors, on which ultimately the reporting of a final data set is dependent.

Within the Sussex network it should be recognised that there are two separate QA/QC regimes in operation, these are:

- AURN sites have a formal ISO 17025 QA/QC regime in place; and
- Sussex LA sites (non-AURN) do not have a formal QA/QC regime.

For the AURN sites initial collected data is termed "provisional" data, then moves to "verified" data on a quarterly basis in arrears across an operating year, after QA/QC reviews. All AURN data and status are available on UK-AIR https://uk-air.defra.gov.uk/ and should always be referenced as the source of AURN data.

The Sussex LA sites currently have no QA/QC audits, therefore the data terms are different. Data collected from the AQMS are termed "provisional data" which is provided in near real-time on the Sussex-air website. Quarterly reviews of the data are undertaken to identifying any short and long-term issues and trends. This is followed by an annual data review to provide the final annual "approved" data set published in May of each year on Sussex-air.

3.2 Sussex Network AQMS and instrument additions

Additional monitoring instruments were added into existing Sussex AQMS's during 2023. The dates of valid data introduction to the network are shown in Table 3-1, with a full listing of all site instruments provided in Appendix 3 Table A3-1.

Table 3-1 : Additional AQMS instrumentation added to the Sussex Network in 2023.

ID	Site name	Pollutant	Date introduced to network
HT1	Hastings - Bulverhythe	$PM_{2.5}$	28/04/23
RY2	Rother - De La Warr Road	$PM_{2.5}$	19/12/23
EB3	AURN – Eastbourne, Holly Place	O_3	01/12/23

A new PM_{10} and $PM_{2.5}$ instrument was installed in December 2023 at CI1 Chichester - A27 Chichester Bypass, however as there were air conditioning issues on site, no valid data was produced until January 2024. Thus, there are no data results for PM_{10} and $PM_{2.5}$ in 2023 for CI1 Chichester - A27 Chichester Bypass. A new O_3 instrument was introduced in December 2023 at AURN – Eastbourne, Holly Place and so data was only available for 1 month.

3.3 Sussex Network Data Capture

The majority of the Sussex owned sites achieved high data capture rates above 90% with only one site, Adur - Shoreham-by-sea (AD1), just below 90% at 89.9%. Some AURN sites were below the 90% threshold.

AURN site data are ratified under a separate national network contract. Data capture rates are therefore provided from the data sets available on UK-AIR at the time of publishing. AURN data is ratified independently by the AURN QA/QC unit and may change after this report being published.

Complete data capture rates for 2023 and the air quality monitoring instrumentation used at each site are presented in Table 3-2 for each network analyser. The average capture the AQMS is presented also.

These results reflect the data capture for each instrument over a calendar year. Instruments that were introduced during the year are also provided in (brackets). However, if these instruments were not in the network for more than 75% of the year, then these data are excluded from the average (Avg.) data capture values.

Low data capture rates can also be caused by analyser or logging system issues, on-site communications problems, or interruptions in power supply to the monitoring stations. In addition, data may be lost due to routine maintenance or calibration visits undertaken by local site operators (LSO) or their equipment support unit (ESU).

3.4   Network data capture rates

Data capture results for all AQMS's in Sussex, including the AURN sites are presented in Table 3-2. Commentary on the reasons for low data capture rates for the Sussex AQMS sites is provided in Table 3-3. The AURN sites are not included in this table as the AURN data management and ratification of data is independent and undertaken separately for Defra.

These results reflect the data capture for each instrument over a calendar year. Instruments that were introduced during the year are also provided in (brackets). However, if these instruments were not in the network for more than 75% of the year, then these data are excluded from the average (Avg.) data capture values.

Table 3-2 :Data capture rates (%) per pollutant

Site ID	Site Name	NOx	NO	NO$_2$	PM$_{10}$	PM$_{2.5}$	O$_3$	SO$_2$	Avg.
AD1	Adur - Shoreham-by-sea	95.9	95.9	95.9		(71.9)			89.9
EB3	AURN – Eastbourne, Holly Place	(57.7)	(57.7)	(57.7)	(61.8)	(61.8)			59.4
LL1	AURN - Lullington Heath	97.5	97.5	97.5	99.9	99.9	99.0	81.9	96.2
BH0	AURN – Brighton, Preston Park	99.2	99.2	99.2		(58.3)	95.2		90.2
HO4	AURN - Storrington	90.4	90.5	90.4					90.4
HO4	*Storrington (Fidas)				96.3	96.3			96.3
WT2	AURN - Worthing A27 Grove Lodge	84.9	84.9	84.9		48.2			75.7
BH10	Brighton - North Street	99.6	99.6	99.6		97.4			99.0
CI1	Chichester - A27 Chichester Bypass	91.0	91.0	91.0					91.0
CI5	Chichester - Westhampnett Road	95.7	95.7	95.7					95.7
CA2	Crawley - Gatwick Airport	95.1	95.1	95.1	99.6	99.6			96.9
EB1	Eastbourne - Devonshire Park	99.8	99.8	99.8	90.4		98.3		97.9
HT1	Hastings - Bexhill Rd, Bulverhythe	94.1	94.1	94.1	90.9	(53.0)			93.3
HO5	Horsham - Cowfold	90.6	90.6	90.6					90.6
HO2	Horsham - Park Way, Horsham	98.4	98.4	98.4	99.6				98.7
LS8	Lewes – Little East Street, Lewes	95.1	95.1	95.1	99.7	96.6			96.3
MS1	Mid Sussex - London Road, East Grinstead	99.5	99.5	99.5	99.6				99.6
RY2	Rother - De La Warr Road, Bexhill	96.1	96.1	96.1	88.6	(3.8)			94.2

Note: *Storrington Fidas is a particulate analyser measuring PM$_{10}$ and PM$_{2.5}$ which was added into the AQMS at AURN – Storrington. This instrument is not part of the AURN in respect of UK compliance reporting. Data from AURN sites may differ from these reported, see Section 3.

Low data capture rates can also be caused by analyser or logging system issues, on-site communications problems, or interruptions in power supply to the monitoring stations. In addition, data may be lost due to routine maintenance or calibration visits undertaken by local site operators (LSO) or their equipment support unit (ESU).

Table 3-3: Data capture information for Sussex AQMS's.

Site ID	Site Name	Data capture comments
AD1	Adur - Shoreham-by-sea	Very good data capture for the NOx instrument, however the PM2.5 instrument had operational issues through the year. Overall the AQMS was just below the 90% target at 89.9%.
BH10	Brighton - North Street	Very good data capture.
CI1	Chichester - A27 Chichester Bypass	Good data capture
CI5	Chichester - Westhampnett Road	Very good data capture.
CA2	Crawley - Gatwick Airport	Very good data capture.
EB1	Eastbourne - Devonshire Park	Very good data capture.
HT1	Hastings - Bexhill Rd, Bulverhythe	Very good NOx and PM10 instrument data capture. The new $PM_{2.5}$ instrument was only operational for 55.5% of year, so is excluded from the average.
HO5	Horsham - Cowfold	Good data capture although there were NOx instrument issues, which reduced data capture to 90.6%.
HO2	Horsham - Park Way, Horsham	Very good data capture.
LS8	Lewes – Little East Street, Lewes	Good data capture.
MS1	Mid Sussex - London Road, East Grinstead	Very good data capture.
RY2	Rother - De La Warr Road, Bexhill	Good data capture. PM_{10} instrument issues (88.6%), reduced the average data capture to 94.2%. Data capture for the new $PM_{2.5}$ data (3.8%) is not included in the average data capture result.

4. Annual statistics for 2023

4.1 Annual mean data for all Sussex sites

Table 4-1 provides annual mean pollutant concentration results for 2023.

Table 4-1: Annual mean concentrations 2023.

Site ID	Site Name	NO$_2$	PM$_{10}$	PM$_{2.5}$	O$_3$	SO$_2$
AD1	Adur - Shoreham-by-sea	21.0		(10.8)		
EB3	AURN – Eastbourne, Holly Place	(7.6)	(12.4)	(7.8)		
LL1	AURN - Lullington Heath	5.2	11.6	7.1	65.2	0.6
BH0	AURN – Brighton, Preston Park	11.0		9.8	53.0	
HO4	AURN - Storrington	17.4				
HO4	Storrington (Fidas)		13.7	7.7		
WT2	AURN - Worthing A27 Grove Lodge	23.4		(8.6)		
BH10	Brighton - North Street	27.5		9.0		
CI1	Chichester - A27 Chichester Bypass	20.4				
CI5	Chichester -Westhampnett Road	21.5				
CA2	Crawley - Gatwick Airport	18.5	13.6	7.9		
EB1	Eastbourne - Devonshire Park	10.6	17.2		62.6	
HT1	Hastings - Bexhill Rd, Bulverhythe	9.3	22.6	(10.8)		
HO5	Horsham - Cowfold	24.6				
HO2	Horsham - Park Way, Horsham	16.2	20.5			
LS8	Lewes – Little East Street, Lewes	13.9	14.3	9.0		
MS1	Mid Sussex - London Road, East Grinstead	21.1	17.0			
RY2	Rother - De La Warr Road, Bexhill	13.0	20.2	(7.9)		

Values shown in (brackets) have less than 75% data capture rate. All units are µg/m^3. Particulate data is corrected to gravimetric equivalent measurement values. All corrections are applied for the instrument type and size fraction measured. No Volatile Correction Method (VCM) was used across Sussex TEOM sites. All AURN data is reported from UK-Air. Data from AURN sites may differ from these reported, see Section 3.

5. Air Quality Strategy (AQS) Objectives and Targets (2023)

The following data presented in the following tables compare Sussex monitoring results with the Government's Air Quality Strategy (AQS) objectives.

There is often more than one objective per pollutant reflecting the differing health effects of short and long-term exposure. The AQSs are set out in Appendix 1. Where a site did not achieve a minimum of 75% data capture for the year, the measurements cannot be accurately compared to the AQS objectives and are entered as 'not applicable'.

5.1 Nitrogen Dioxide (NO$_2$)

Table 5-1 provides a comparison of NO$_2$ annual mean concentrations and 1-hour mean with the Air Quality Objective (AQO) values for 2023 and shows whether the location achieved the objective, i.e. under the objective (yes) or not (no).

Table 5-1: NO$_2$ Comparison with Air Quality Strategy Objectives.

Site ID	Site Name	NO$_2$			
		Annual mean	Achieved (yes/no)	1-hour mean	Achieved (yes/no)
	Air Quality Objective	40µg/m³		200 µg/m³ not to be exceeded more than 18 times per year	
AD1	Adur - Shoreham-by-sea	21.0	Yes	0	Yes
EB3	AURN – Eastbourne, Holly Place	(7.6)	N/A	(0)	N/A
LL1	AURN - Lullington Heath	5.2	Yes	0	Yes
BH0	AURN – Brighton, Preston Park	11.0	Yes	0	Yes
HO4	AURN - Storrington	17.4	Yes	0	Yes
WT2	AURN - Worthing A27 Grove Lodge	23.4	Yes	0	Yes
BH10	Brighton - North Street	27.5	Yes	0	Yes
CI1	Chichester - A27 Chichester Bypass	20.4	Yes	0	Yes
CI5	Chichester - Westhampnett Road	21.5	Yes	0	Yes
CA2	Crawley - Gatwick Airport	18.5	Yes	0	Yes
EB1	Eastbourne - Devonshire Park	10.6	Yes	0	Yes
HT1	Hastings - Bexhill Rd, Bulverhythe	9.3	Yes	0	Yes
HO5	Horsham - Cowfold	24.6	Yes	0	Yes
HO2	Horsham - Park Way, Horsham	16.2	Yes	0	Yes
LS8	Lewes – Little East Street, Lewes	13.9	Yes	0	Yes
MS1	Mid Sussex - London Rd, East Grinstead	21.1	Yes	0	Yes
RY2	Rother - De La Warr Road, Bexhill	13.0	Yes	0	Yes

Values shown in (brackets) have less than 75% data capture rate. Sites that are N/A do not comply due to having less than 75% data capture. Data from AURN sites may differ from these reported, see Section 3.

5.2 Particulate matter (PM$_{10}$)

Table 5-2 provides a comparison of PM$_{10}$ annual mean concentrations and 24-hour mean with the Air Quality Strategy Objective values for 2023 and shows whether the location achieved the objective, i.e. under the objective (yes) or not (no).

Table 5-2: PM$_{10}$ Comparison with Air Quality Strategy Objectives.

Site ID		PM$_{10}$			
		Annual mean	Achieved (yes/no)	24-hour mean	Achieved (yes/no)
	Air Quality Objective	40 µg/m³		50 µg/m³ not to be exceeded more than 35 times per year	
EB3	AURN – Eastbourne, Holly Place	(12.4)	N/A	(0)	N/A
LL1	AURN - Lullington Heath	11.6	Yes	0	Yes
HO4	Storrington Fidas	13.7	Yes	1	Yes
CA2	Crawley - Gatwick Airport	13.6	Yes	5	Yes
EB1	Eastbourne - Devonshire Park	17.2	Yes	0	Yes
HT1	Hastings - Bexhill Rd, Bulverhythe	22.6	Yes	3	Yes
HO2	Horsham - Park Way, Horsham	20.5	Yes	0	Yes
LS8	Lewes – Little East Street, Lewes	14.3	Yes	0	Yes
MS1	Mid Sussex - London Road, East Grinstead	17.0	Yes	1	Yes
RY2	Rother - De La Warr Road, Bexhill	20.2	Yes	0	Yes

Values shown in (brackets) have less than 75% data capture rate. Sites that are N/A do not comply due to having less than 75% data capture. Data from AURN sites may differ from these reported, see Section 3.

5.3   Particulate matter (PM$_{2.5}$)

Table 5-3 provides a comparison of 2023 PM$_{2.5}$ annual mean concentrations with the Air Quality Strategy Target Year (2040) and Interim Year (2028). Two sites did exceed the 2040 annual mean target of 10 µg/m³, at Adur – Shoreham-by-sea and Hastings - Bexhill Rd, Bulverhythe, however as these sites did not achieve the 75% valid data threshold, the annual average is not valid.

Table 5-3: PM$_{2.5}$ Comparison with Air Quality Strategy Target Year (2040) and Interim Year (2028).

Site ID		PM$_{2.5}$		
		Annual mean (µg/m³)	Target 2040 10µg/m³	Interim 2028 target 12µg/m³
AD1	Adur - Shoreham-by-sea	(10.8)	N/A	N/A
EB3	AURN – Eastbourne, Holly Place	7.8	Yes	Yes
LL1	AURN - Lullington Heath	7.1	Yes	Yes
BH0	AURN – Brighton, Preston Park	9.8	Yes	Yes
HO4	Storrington Fidas	7.7	Yes	Yes
WT2	AURN - Worthing A27 Grove Lodge	(8.6)	N/A	N/A
BH10	Brighton - North Street	9.0	Yes	Yes
CA2	Crawley - Gatwick Airport	7.9	Yes	Yes
HT1	Hastings - Bexhill Rd, Bulverhythe	(10.8)	N/A	N/A
LS8	Lewes – Little East Street, Lewes	9.0	Yes	Yes
RY2	Rother - De La Warr Road, Bexhill	(7.9)	N/A	N/A

Values shown in (brackets) have less than 75% data capture rate. Sites that are N/A do not comply due to having less than 75% data capture. Data from AURN sites may differ from these reported, see Section 3.

5.4   Sulphur dioxide (SO₂)

There is only one location in Sussex measuring SO_2, at Lullington Heath (LL1), which is a remote rural background site on the Sussex Downs near Lullington. LL1 did not exceed any Air Quality Strategy Objective values for 2023.

Table 5-4 presents the Air Quality Strategy Objective values for 2023 and shows whether the location achieved the objective, i.e. under the objective (yes) or not (no).

Table 5-4: SO₂ Comparison with Air Quality Strategy Objectives.

	SO₂				
	Air Quality Objective	**Concentration Measured as:**	**Max. concentration µg/m³**	**Number of exceedances**	**Achieved (yes/no)**
LL1	266 µg/m³ not to be exceeded more than 35 times a year	15-minute mean	7.27	0	Yes
LL1	350 µg/m³ not to be exceeded more than 24 times a year	1-hour mean	5.5	0	Yes
LL1	125µg/m3 not to be exceeded more than 3 times a year	24-hour mean	3.0	0	Yes

Values shown in (brackets) have less than 75% data capture rate. Sites that are N/A do not comply due to having less than 75% data capture. Data from AURN sites may differ from these reported, see Section 3.

5.5   Ozone (O₃)

Table 5-5 provides a comparison of O_3 8-hour mean with the Air Quality Strategy Objective values for 2023 and shows whether a location achieved the objective, i.e. under the objective (yes) or not (no).

Table 5-5: O₃ Comparison with Air Quality Strategy Objectives.

	O₃		
Site ID	**Air Quality Objective**	**Number of exceedances: 100 µg/m³ not to be exceeded more than 10 times per year (8-hour mean)**	**Achieved (yes/no)**
LL1	AURN - Lullington Heath	294	No
BH0	AURN – Brighton, Preston Park	116	No
EB1	Eastbourne - Devonshire Park	144	No

Values shown in (brackets) have less than 75% data capture rate. Sites that are N/A do not comply due to having less than 75% data capture. Data from AURN sites may differ from these reported, see Section 3.

There was an episode of high concentrations (above 100 µg/m³) measured at the urban background sites at Brighton Preston Park and Eastbourne - Devonshire Park from 9th June to 17th June in addition to a number of exceedances of 100µg/m³ again between 7th September to the 9th September. AURN - Lullington Heath being high on the South Downs and being a rural background site recorded over 294 exceedances of 100µg/m³ which equates to 80.5% of the calendar year.

The O_3 Air Quality Strategy Objective is a national objective, not required under LAQM.

6. Air Quality Measurements and Daily Air Quality Indices (DAQI)

There are several pollutants monitored across Sussex and each of these or the combination of these pollutants can affect people's health differently. To provide a health-based information service in the UK there is an Air Quality Banding system which is used to inform the public about the levels of pollution that they may be exposed to and are based on health advice approved by the UK Committee on Medical Effects of Air Pollution Episodes (COMEAP).

The system uses an index divided into four bands to provide more detail about air pollution levels in a simple way; these bandings range from Low, Moderate, High to Very High. The overall air pollution index is calculated from the highest index value of five pollutants: NO_2, PM_{10}, $PM_{2.5}$, O_3 and SO_2. The UK uses Daily Air Quality Index (DAQI) categories which set out specific health impact related pollutant thresholds and exposure periods. The DAQI categories are: "Low" (Air Quality Index 1- 3), "Moderate" (Air Quality Index 4- 6), "High" (Air Quality Index 7-9) and "Very High" (Air Quality Index 10), see Appendix 2, Table A2-1 for the full table.

Sussex has an air quality Alert forecasting service which uses these DAQIs to send out alerts to vulnerable people across Sussex. For more information visit https://sussex-air.net/sussex-air-quality-service-for-sussex/what-is-sussex-air-quality-service/

6.1 Air quality forecasts DAQI data by AQMS

The following tables and graphs show the number of days where exceedances of these DAQI categories occurred at the Sussex and AURN AQMSs sites in 2023. The following tables present the sites where exceedances of a DAQI day was measured.

"Low" DAQI days

2023 was dominated by 'low' air pollution days (Daily Air Quality Index 1 - 3) across the year. There were on average 345 out of 360 days which were "low" across the Sussex sites. "Low" air pollution therefore accounted for 95% of the data for 2023. Table 6-1 provides a summary of 'Low' air pollution days during 2023.

Table 6-1: Number of days 'Low' air pollution during 2023 (Daily Air Quality Index 1-3).

Site ID	Site Name	NO₂	PM₁₀	PM₂.₅	O₃	SO₂
AD1	Adur - Shoreham-by-sea	365		263		
EB3	AURN – Eastbourne, Holly Place	204	193	193	28	
LL1	AURN - Lullington Heath	363	354	354	322	365
BH0	AURN – Brighton, Preston Park	348		277	332	
HO4	AURN - Storrington	363	349	348		
HO4	Storrington Fidas	363	349	348		
WT2	AURN - Worthing A27 Grove Lodge	309		241		
BH10	Brighton - North Street	362		359		
CI1	Chichester - A27 Chichester Bypass	365				
CI5	Chichester -Westhampnett Road	365				
CA2	Crawley - Gatwick Airport	365	358	358		
EB1	Eastbourne - Devonshire Park	365	327		343	
HT1	Hastings - Bexhill Rd, Bulverhythe	365	328	200		
HO5	Horsham - Cowfold	365				
HO2	Horsham - Park Way, Horsham	362	364			
LS8	Lewes – Little East Street, Lewes	365	365	365		
MS1	Mid Sussex - London Road, East Grinstead	365	364			
RY2	Rother - De La Warr Road, Bexhill	365	321			

"Moderate" DAQI days

Table 6-2 shows the number of days that were measured as 'moderate' air pollution (Daily Air Quality Index 4- 6) at each of the Sussex AQMSs.

Table 6-2: Number of days 'Moderate' air pollution during 2023 (Daily Air Quality Index 4- 6).

Site ID	Site Name	NO_2	PM_{10}	$PM_{2.5}$	O_3	SO_2
LL1	AURN - Lullington Heath				39	
BH0	AURN – Brighton, Preston Park			1	16	
HO4	AURN - Storrington					
HO4	Storrington Fidas			1		
CA2	Crawley - Gatwick Airport		4	4		
EB1	Eastbourne - Devonshire Park				21	
HT1	Hastings - Bexhill Rd, Bulverhythe		3			
MS1	Mid Sussex - London Road, East Grinstead		1			

Values shown in (brackets) have less than 75% data capture rate.

"High" DAQI days

Table 6-3 identifies the number of days that 'High' air pollution (Daily Air Quality Index 7-9) was measured at each of the Sussex AQMSs.

Table 6-3: Number of days 'high' air pollution during 2023 (Daily Air Quality Index 7-9) 2023

Site ID	Site Name	NO_2	PM_{10}	$PM_{2.5}$	O_3	SO_2
LL1	AURN - Lullington Heath				2	
CA2	Crawley - Gatwick Airport		1	1		
EB1	Eastbourne - Devonshire Park				1	

"Very High" DAQI days

There were no days of 'Very High'(Air Quality Index 10) air pollution during 2023.

6.2 Air quality measurements by pollutant

Nitrogen Dioxide

Figure 6-1 and Figure 6-2 present the 1-hour mean data from the Sussex urban background and urban traffic sites in 2023 to show the profile of 1-hour data and where, if any locations exceeded the DAQI thresholds.

No sites across Sussex exceeded the 'Moderate' levels (1-hour means >200µg/m^3), the 'High' levels (1-hour means >400µg/m^3) or the 'Very High' levels (1-hour means >600µg/m^3) for NO_2 during 2023.

Figure 6-1: NO_2 hourly mean concentrations across 2023 (Sussex Urban background sites)
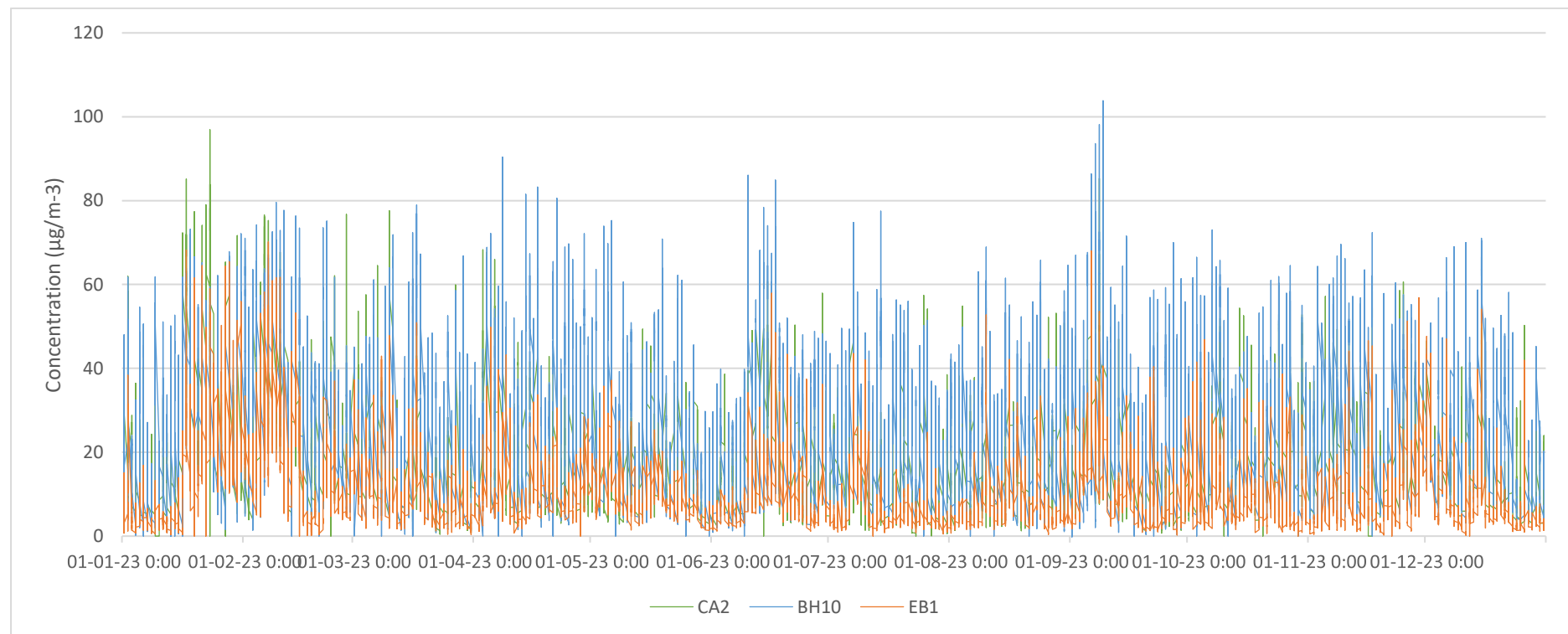
Note: To present the 1-hour mean data for a site, there are 8760 (365 x 24) data points in a full year's data set. This graph is presented to provide an illustration of the data trends and if required these data can be downloaded directly from the Sussex-Air website (www.sussex-air.net) or UK-Air for AURN sites.

Figure 6-2: NO$_2$ hourly mean concentrations across 2023 (Sussex Urban traffic sites)
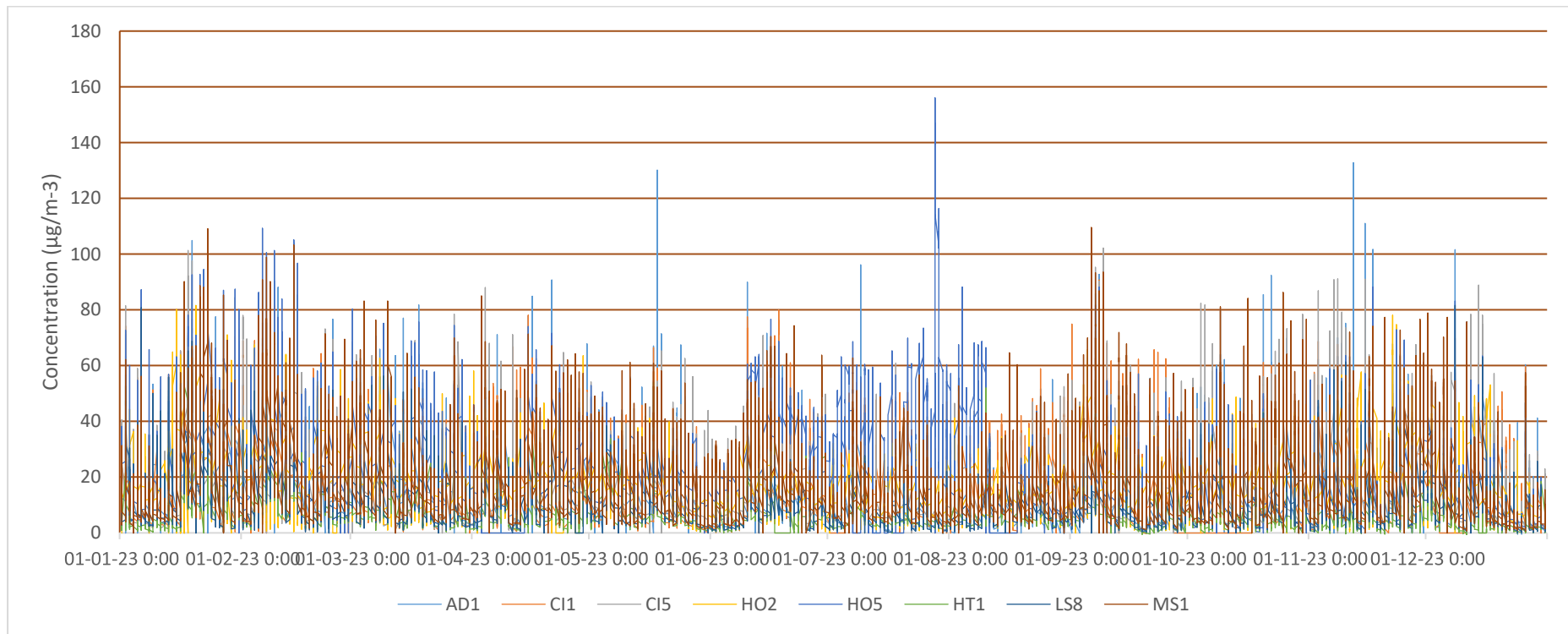
Note: To present the 1-hour mean data for a site, there are 8760 (365 x 24) data points in a full year's data set. This graph is 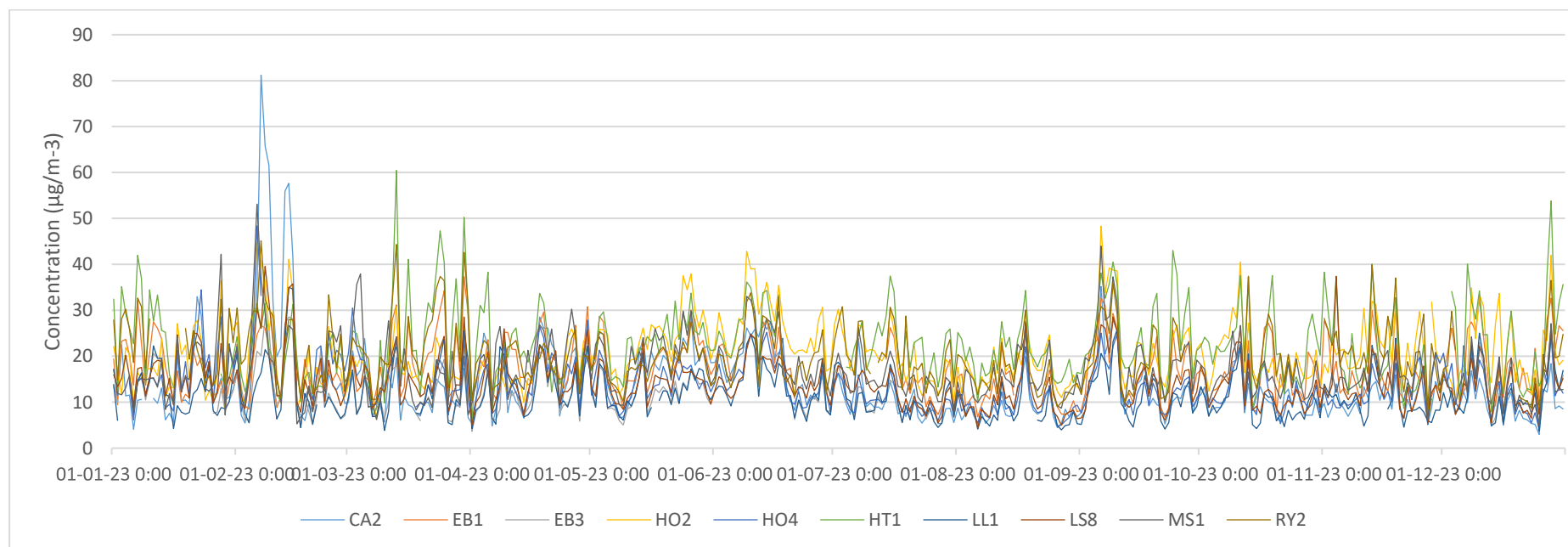presented to provide an illustration of the data trends and if required these data can be downloaded directly from the Sussex-Air website (www.sussex-air.net) or UK-Air for AURN sites.

Particulate matter (PM$_{10}$)

Figure 6-3 presents the 24-hour mean data from the Sussex PM$_{10}$ sites in 2023 to show the profile of 24-hour data. Four sites exceeded the 24-hour mean AQO concentration of 50 µg/m³, but no site exceeded it more than 35 times per year, thus all sites achieved the AQO. Three locations (Crawley – Gatwick Airport (CA2) Hastings - Bexhill Rd, Bulverhythe (HT1) and Mid Sussex - London Road, East Grinstead (MS1)) exceeded the "Moderate" DAQI threshold for 4, 3 and 1 day(s) respectively in 2023. Only Crawley - Gatwick Airport (CA2) exceeded the "High" DAQI threshold, for 1 day in the year.

Peak concentrations of PM$_{10}$ tended to occur in the winter, when there are cold still atmospheric conditions which do not allow the pollutants to disperse, hence the highest concentrations were seen in February 2023. There were no significant events during 2023.

Figure 6-3: PM$_{10}$ 24hr mean concentrations across 2023.

Note: To present the 24-hour mean data for a site, there are 365 data points in a full year's data set. This graph is presented to provide an illustration of the data trends and if required these data can be downloaded directly from the Sussex-Air website (www.sussex-air.net) or UK-Air for AURN sites.

Particulate matter (PM$_{2.5}$)

Figure 6-4 presents the 24-hour mean data from the Sussex PM$_{2.5}$ sites in 2023 to show the profile of 24-hour data. All AQMS locations were below the AQS 2028 Interim annual mean target value of 12μg/m^3, and only one site (Adur - Shoreham-by-sea) exceeded the AQS target value of 12μg/m^3 set for 2040. There were three sites (AURN – Brighton, Preston Park (BH0), Storrington Fidas (HO4) and Crawley - Gatwick Airport (CA2)) that exceeded the "Moderate" DAQI threshold for 1, 1 and 4 days respectively in 2023. Only Crawley - Gatwick Airport (CA2) exceeded the "High" DAQI threshold, for 1 day in the year.

Peak concentrations of PM$_{2.5}$ were seen in February 2023, which also coincided with peak periods of PM$_{10}$.

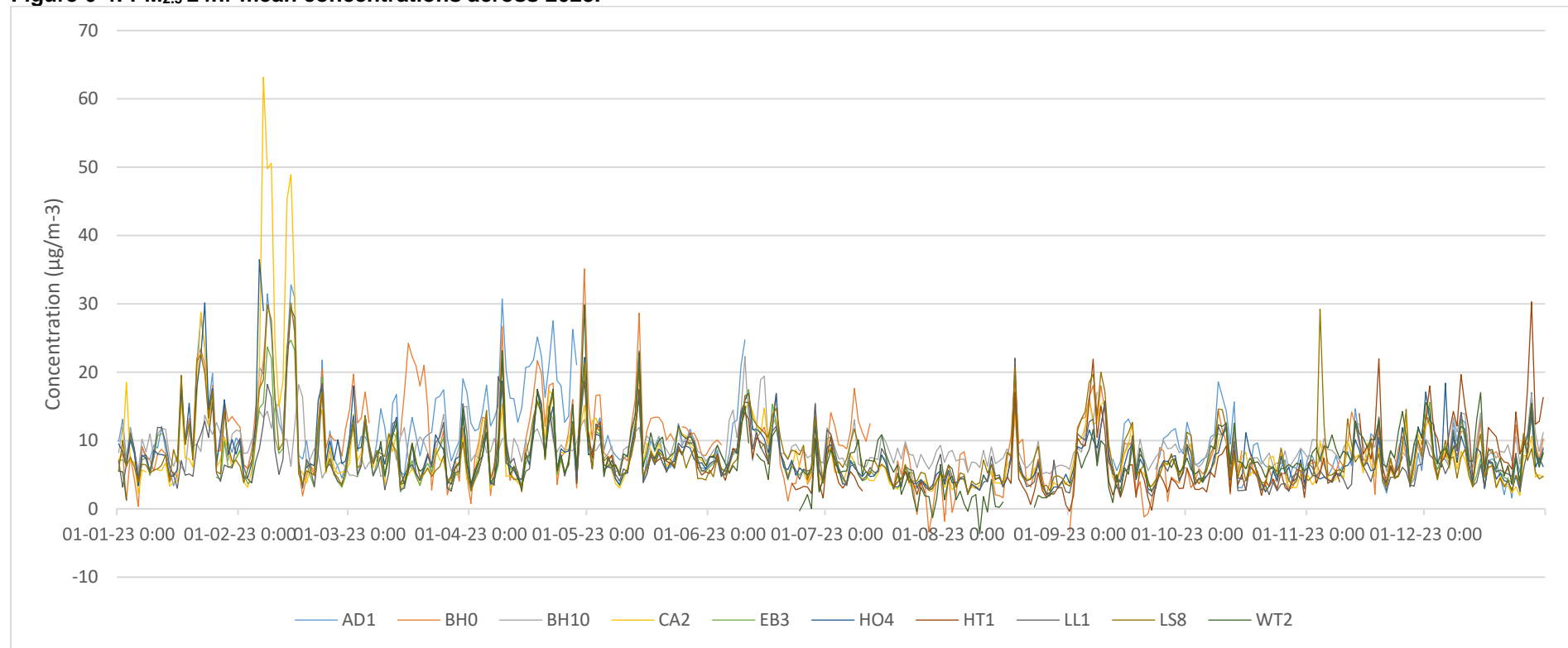**Figure 6-4: PM$_{2.5}$ 24hr mean concentrations across 2023.**
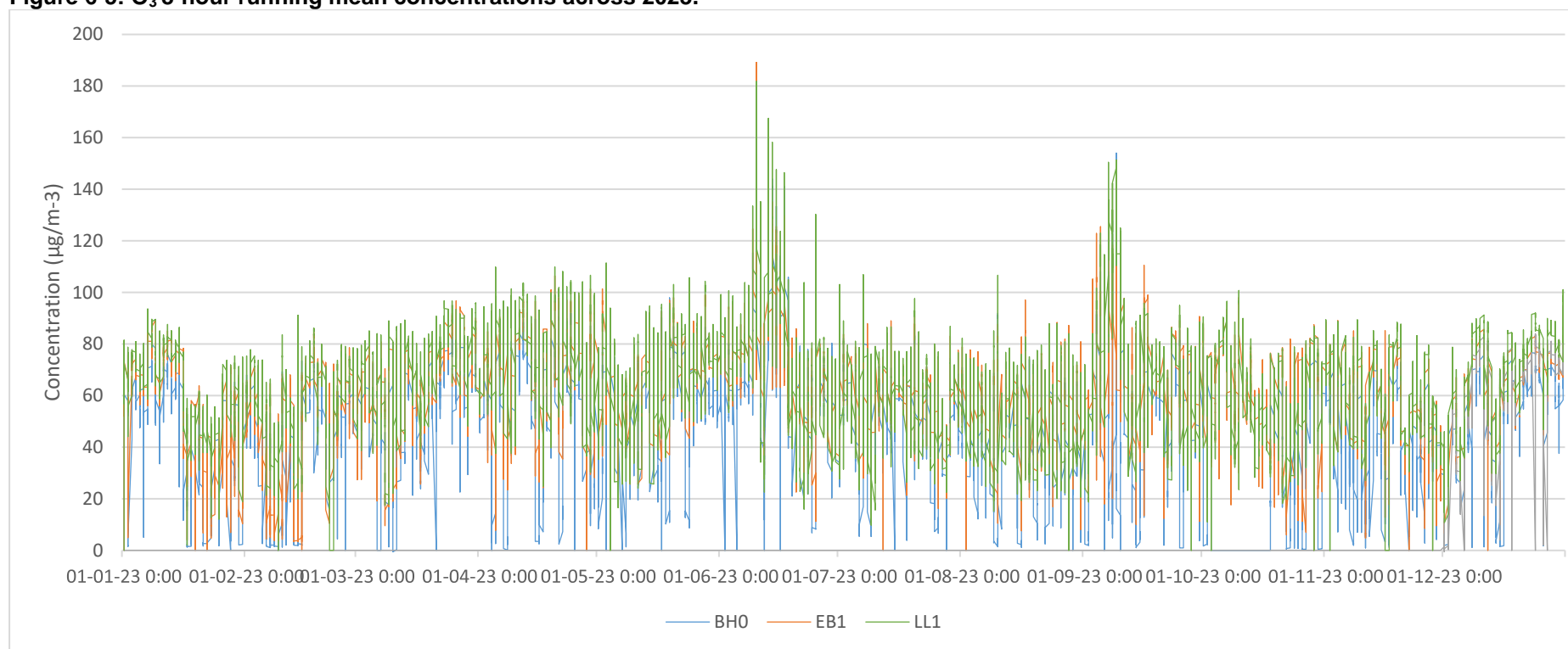

Note: To present the 24-hour mean data for a site, there are 365 data points in a full year's data set. This graph is presented to provide an illustration of the data trends and if required these data can be downloaded directly from the Sussex-Air website (www.sussex-air.net) or UK-Air for AURN sites.

Ozone

Figure 6-5 presents the 8-hour running mean data from the Sussex O_3 sites in 2023, it shows the profile of 8-hour running mean data and where, if any locations exceeded the DAQI thresholds. There were three AQMS locations measuring O_3 across Sussex for the whole year at AURN - Lullington Heath (LL1) , AURN – Brighton, Preston Park (BH0), and Eastbourne - Devonshire Park (EB1). 'Moderate' O_3 was recorded at LL1, BH0 and EB1 for 39, 16 and 23 days respectively. There was 1 day where the "High" DAQI was recorded at EB1.

The highest concentrations occurred during the warmer sunnier months in June and later in September 2023. It is also known that a proportion of the O_3 experienced in Sussex is transported from continental Europe under certain meteorological conditions.

Figure 6-5: O_3 8-hour running mean concentrations across 2023.

Note: To present the 8-hour running mean data for a site, there are 8760 (365 x 24) data points in a full year's data set. This graph is presented to provide an illustration of the data trends and if required these data can be downloaded directly from the Sussex-Air website (www.sussex-air.net) or UK-Air for AURN sites.

Sulphur Dioxide

Figure 6-6 presents the 1 hour mean data from the only SO_2 monitoring site (AURN Lullington Heath) in Sussex in 2023. There were no occurrences of 'Moderate' levels (15min mean >266µg/m³) or above for SO_2 pollution during 2023 (refer to Table 6-1).
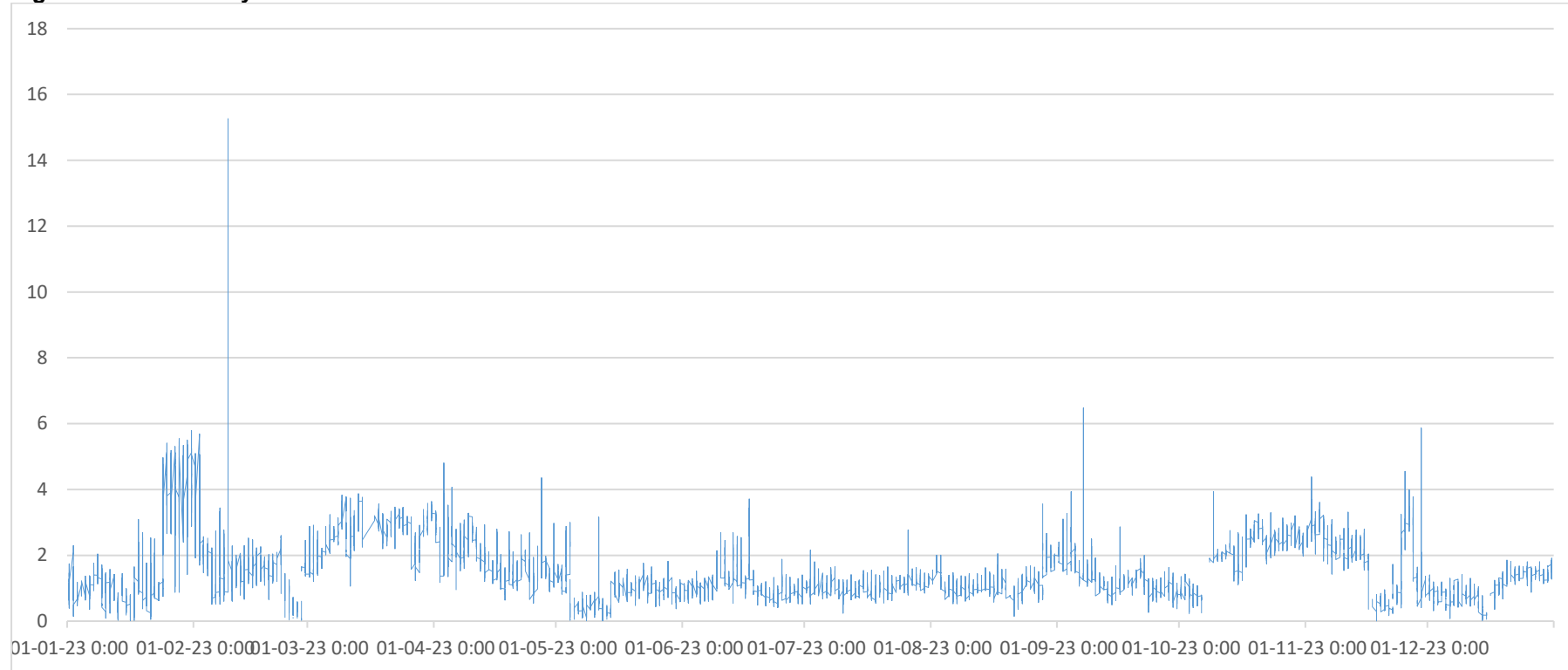
Figure 6-6: SO₂ hourly mean concentrations across 2023.

Note: To present the 15min mean data for a site, there are 35040 (365 x 24 x4) data points in a full year's data set. This graph is presented to provide an illustration of the data trends and if required these data can be downloaded directly from UK-Air.

7. Air Quality Trends (5 years)
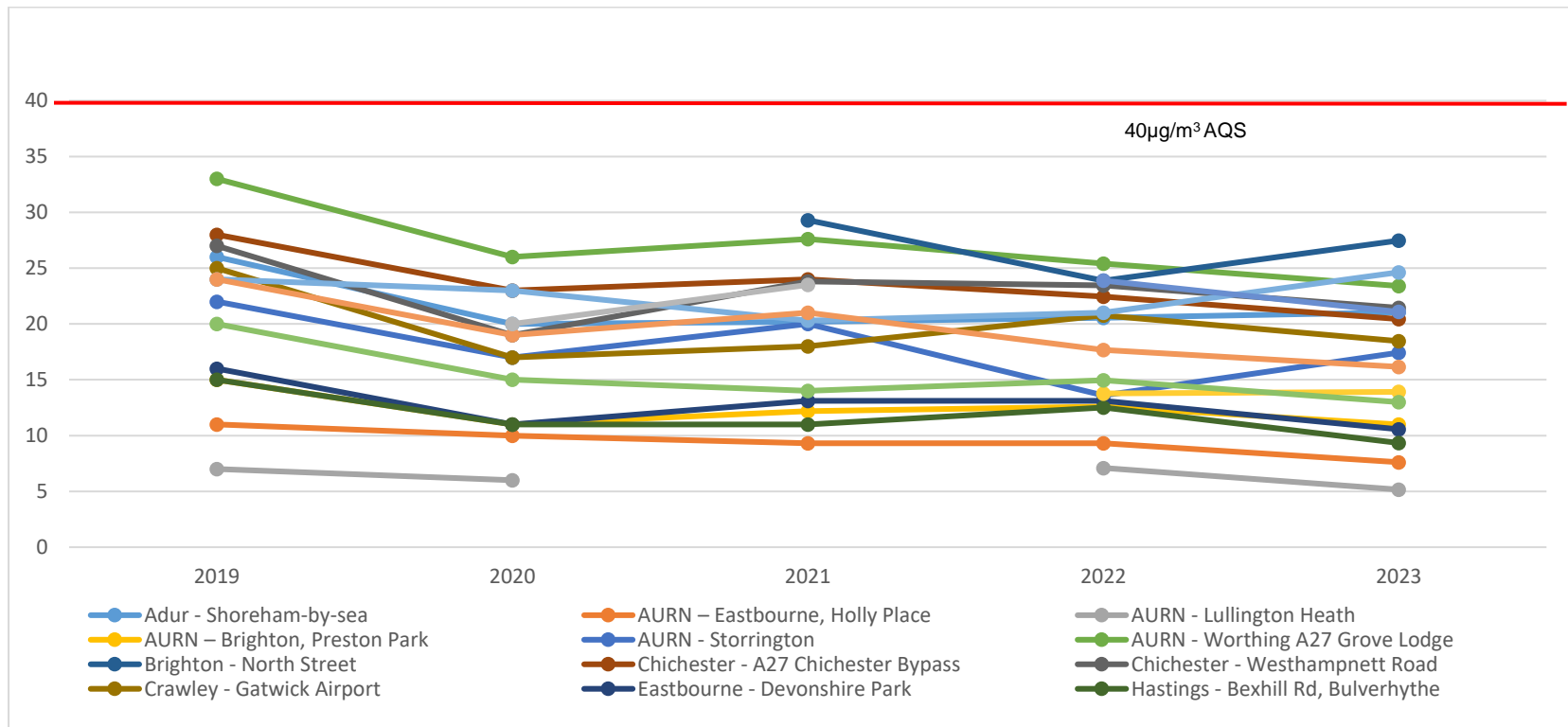
7.1 Nitrogen Dioxide 5-year trend

Table 7-1 and Figure 7-1 present the 5-year trend data for NO_2 annual mean concentrations from 2019 to 2023. The data shows a stabilisation in the annual mean concentration trend for NO_2 over the period of 2019 to 2023 across Sussex. Most locations show a downward or levelling-off trend in concentrations, however in recent years two sites have also shown an upward trend in concentrations, notably Horsham - Cowfold and Brighton - North Street.

Table 7-1: Annual mean NO_2 for 2019 – 2023

Site ID	Site Name	2019	2020	2021	2022	2023
AD1	Adur - Shoreham-by-sea	26	20	21	21	21
EB3	AURN – Eastbourne, Holly Place	11	10	9	9	(8)
LL1	AURN - Lullington Heath	7	6		7	5
BH0	AURN – Brighton, Preston Park	15	11	12	13	11
HO4	AURN - Storrington	22	17	20	19	17
WT2	AURN - Worthing A27 Grove Lodge	33	26	28	25	23
BH10	Brighton - North Street			29	24	27
CI1	Chichester - A27 Chichester Bypass	28	23	24	22	20
CI5	Chichester - Westhampnett Road	27	19	24	24	21
CA2	Crawley - Gatwick Airport	25	17	18	21	18
EB1	Eastbourne - Devonshire Park	16	11	13	13	11
HT1	Hastings - Bexhill Rd, Bulverhythe	15	11	11	13	9
HO5	Horsham - Cowfold	24	23	20	21	25
HO2	Horsham - Park Way, Horsham	24	19	21	18	16
LS7	Lewes - Newhaven		20	24		
LS8	Lewes – Little East Street, Lewes				14	14
MS1	Mid Sussex - London Road, East Grinstead				24	21
RY2	Rother - De La Warr Road, Bexhill	20	15	14	15	13

Values shown in (brackets) have less than 75% data capture rate. All units are $\mu g/m^3$.

Figure 7-1: Annual mean NO$_2$ for 2019 – 2023.

7.2   Particulate Matter (PM$_{10}$) 5-year trend

Table 7-2 and Figure 7-2 present the 5-year trend data for PM$_{10}$ annual mean concentrations from 2019 to 2023. The data shows a levelling off in annual mean concentrations of PM$_{10}$ over the period of 2019 to 2023 across Sussex.

Table 7-2: Annual mean PM$_{10}$ 2019 – 2023.

Site ID	Site Name	2019	2020	2021	2022	2023
AD1	Adur - Shoreham-by-sea	24	22			
EB3	AURN – Eastbourne, Holly Place	16	14	13	15	(12)
LL1	AURN - Lullington Heath				11	12
WT2	AURN - Worthing A27 Grove Lodge	10				
HO4	Storrington Fidas				14	14
CI1	Chichester - A27 Chichester Bypass	19	18	20	24	-
CA2	Crawley - Gatwick Airport	17	15	14	14	14
EB1	Eastbourne - Devonshire Park	17	17	17	19	17
HT1	Hastings - Bexhill Rd, Bulverhythe	22	21	20	23	23
HO2	Horsham - Park Way, Horsham	19	16	18	19	21
LS7	Lewes - Newhaven		23	24		
LS8	Lewes – Little East Street, Lewes				15	14
MS1	Mid Sussex - London Road, East Grinstead				18	17
RY2	Rother - De La Warr Road, Bexhill	20	20	22	22	20

Values shown in (brackets) have less than 75% data capture rate. All units are µg/m^3.

Figure 7-2: Annual mean PM$_{10}$ 2019 – 2023.

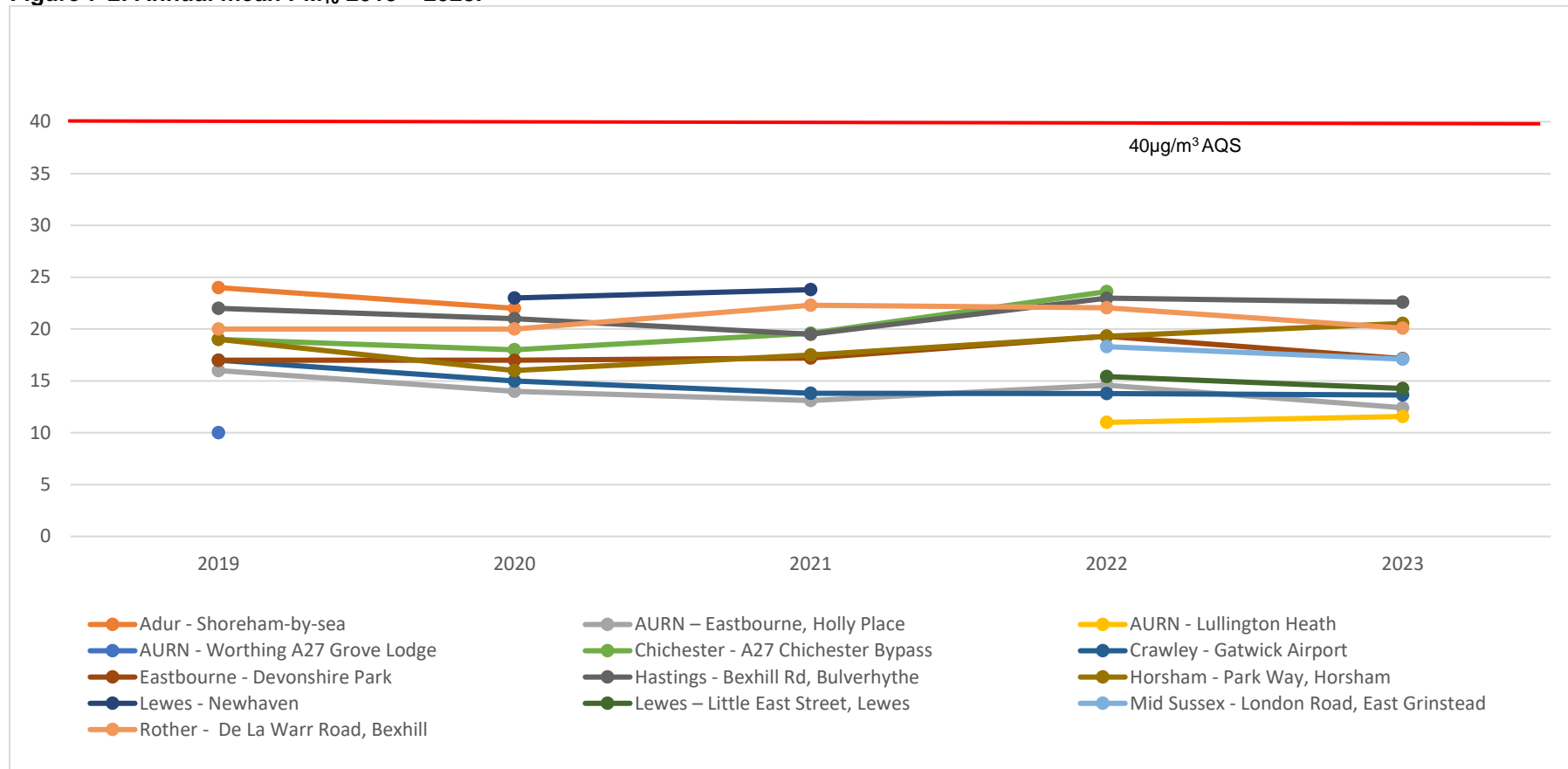## 7.3 Particulate matter (PM$_{2.5}$) 5-year trend

Table 7-3 and Figure 7-3 present the 5-year trend data for PM$_{2.5}$ annual mean concentrations from 2019 to 2023. The data shows a levelling off in annual mean concentrations of PM$_{2.5}$ over the period of 2019 to 2023 across Sussex. An upward trend was seen at Adur - Shoreham-by-sea, however this was on a change over 2 years.

Table 7-3: Annual mean PM$_{2.5}$ 2019 – 2023.

Site ID	Site Name	2019	2020	2021	2022	2023
AD1	Adur - Shoreham-by-sea				11	11
EB3	AURN – Eastbourne, Holly Place	10	9	8	9	(8)
LL1	AURN - Lullington Heath				6	7
BH0	AURN – Brighton, Preston Park		9		11	10
HO4	Storrington Fidas				7	8
WT2	AURN - Worthing A27 Grove Lodge	10	8	9	9	9
BH10	Brighton - North Street	9.8		10	10	9
CA2	Crawley - Gatwick Airport		8	9	8	8
HT1	Hastings - Bexhill Rd, Bulverhythe					(11)
LS8	Lewes – Little East Street, Lewes				10	9
RY2	Rother - De La Warr Road, Bexhill					(8)

Values shown in (brackets) have less than 75% data capture rate. All units are µg/m^3.

Figure 7-3: Annual mean PM$_{2.5}$ 2019 – 2023.

7.4 Ozone 5-year trend
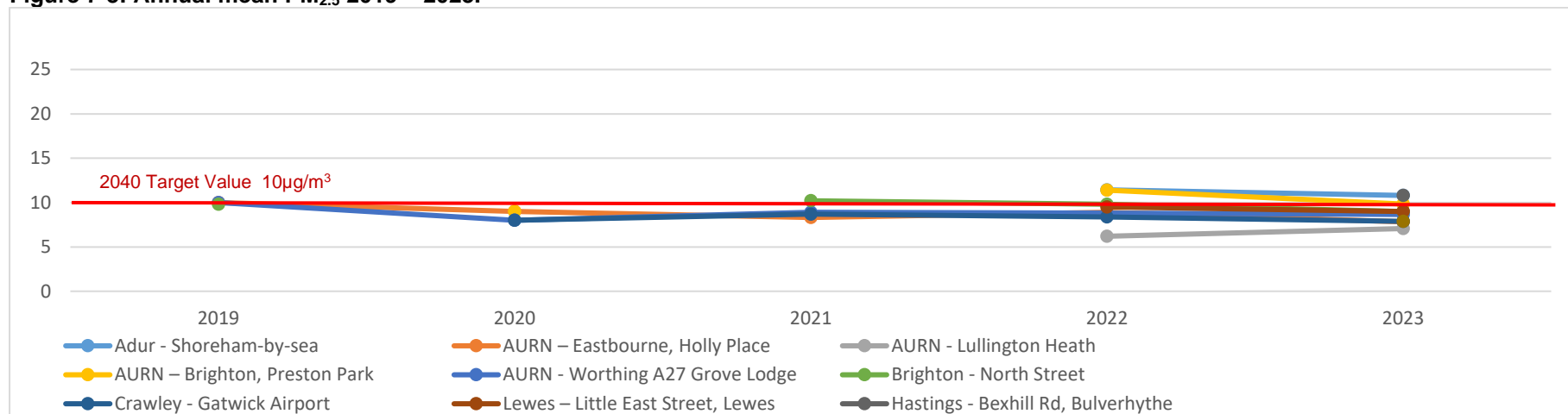
Table 7-3 and Figure 7-4 present the 5-year trend data for O$_3$ annual mean concentrations from 2019 to 2023. The data shows a levelling off in annual mean concentrations of O$_3$ over the period of 2019 to 2023 across Sussex.

Table 6-4: Annual mean O$_3$ 2019- 2023

Site ID	Site Name	2019	2020	2021	2022	2023
LL1	AURN - Lullington Heath	61	66	58	63	65
BH0	AURN – Brighton, Preston Park	47	56	49	48	53
EB1	Eastbourne - Devonshire Park	57	61	57	59	63
LS7	Lewes - Newhaven			48.5		

Values shown in (brackets) have less than 75% data capture rate. All units are μg/m^3.

Figure 7-4: Annual means O₃ 2019 - 2023
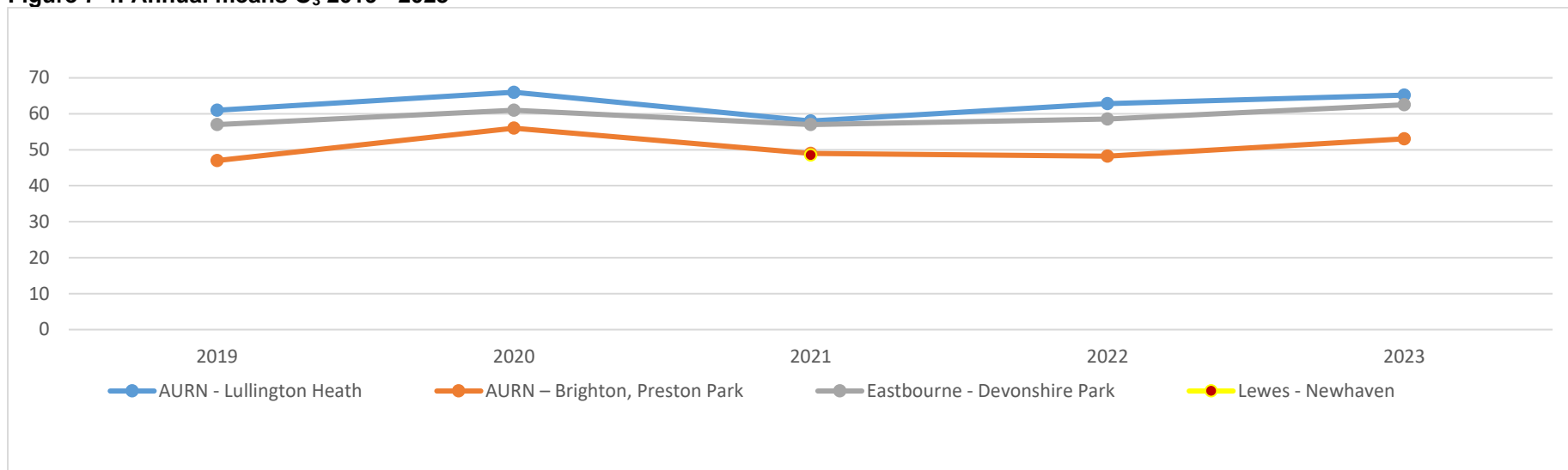
7.5   Sulphur dioxide 5-year trend

Table 7-4 presents the 5-year trend data for SO_2 annual mean concentrations from 2019 to 2023. The SO2 trend data shows a continued levelling-off of concentrations at the only SO_2 monitoring location in Sussex, AURN – Lullington Heath.

Table 7-4: Annual means SO₂ 2019 - 2023

Site ID	Site Name	2019	2020	2021	2022	2023
LL1	AURN - Lullington Heath	1.1	1	0	1	0.6

Values shown in (brackets) have less than 75% data capture rate. All units are µg/m³.

Appendices

Appendix 1: Air Quality Objectives and WHO Guidelines

The AQS objectives apply at locations outside buildings or other natural or man-made structures above or below ground, where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period. Typically, these include residential properties and schools/care homes for long-term (i.e. annual mean) pollutant objectives and high streets for short-term (i.e. 1-hour) pollutant objectives. Table A1, taken from LAQM Technical Guidance (LAQM TG(22)), provides an indication of those locations that may or may not be relevant for each averaging period.

Table A1-1: Examples of where the AQS Objectives should apply.

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care homes etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term
24-hour mean and 8-hour mean	All locations where the annual mean objectives would apply, together with hotels. Gardens or residential properties[1].	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-hour mean	All locations where the annual mean and 24 and 8-hour mean objectives would apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where the public might reasonably be expected to spend one hour or more. Any outdoor locations at which the public may be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.
15-minute mean	All locations where members of the public might reasonably be expected to spend a period of 15 minutes or longer.	

Table A1-2: UK Air Quality Objectives

Pollutant	AQS Objective	Concentration Measured as:
Nitrogen Dioxide (NO₂)	200 µg/m³ not to be exceeded more than 18 times per year	**1-hour mean**
	40 µg/m³	**Annual mean**
Particulate Matter (PM₁₀)	50 µg/m³ not to be exceeded more than 35 times per year	**24-hour mean**
	40 µg/m³	**Annual mean**
Particulate Matter (PM₂.₅)	*Work towards reducing fine particulate matter 10 µg/m³ (PM₂.₅)	**Annual Mean**
Sulphur dioxide (SO₂)	266 µg/m³ not to be exceeded more than 35 times a year	**15 - minute mean**
	350 µg/m³ not to be exceeded more than 24 times a year	**1-hour mean**
	125µg/m³ not to be exceeded more than 3 times a year	**24-hour mean**
Ozone (O₃)	100µg/m³ not to be exceeded more than 10 times a year	**8-hour mean**

Notes:

*Regulation 4 of the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 sets the target to ensure that the annual mean concentration of PM₂.₅ in ambient air is equal to or less than 10 micrograms per cubic metre by 31st December 2040.

Under the LAQM regime and for the purpose of LAQM reporting, concentrations should be reported to 1 decimal place.

Table A1-3: WHO Guideline values (2021)

Pollutant	Averaging period	AQG	Comments
PM₁₀	1 day	45µg/m³	99th percentile (3-4 exceedance days per year). Updated 2021 guideline.
	Calendar year	15µg/m3	Updated 2021 guideline.
PM₂.₅	1 day	15µg/m³	99th percentile (3-4 exceedance days per year). Updated 2021 guideline.
	Calendar year	5µg/m³	Updated 2021 guideline.
O₃	Maximum daily 8-hour mean	100µg/m³	99th percentile (3-4 exceedance days per year). New 2021 guideline.
	Peak season [(b)]	60µg/m³	New 2021 guideline.
NO₂	1 hour	200µg/m³	99th percentile (3-4 exceedance days per year). New 2021 guideline.
	1 day	25µg/m³	
	Calendar year	10µg/m³	Updated 2021 guideline.
SO2	10 minutes	500µg/m³	
	1 day	40µg/m³	99th percentile (3-4 exceedance days per year). New 2021 guideline.

Appendix 2: Air Quality Bandings

Table A2-1: UK Air Quality Bandings: Daily Air Quality Index (DAQI)

Band	Index	Ozone	Nitrogen Dioxide	Sulphur Dioxide	PM2.5 Particles	PM10 Particles
		Running 8 hourly mean	Hourly mean	15 minute mean	24 hour mean	24 hour mean
		µg m-3	µg m-3	µg m-3	µg m-3	µg m-3
Low						
	1	0-33	0-67	0-88	0-11	0-16
	2	34-66	68-134	89-177	12-23	17-33
	3	67-100	135-200	178-266	24-35	34-50
Moderate						
	4	101-120	201-267	267-354	36-41	51-58
	5	121-140	268-334	355-443	42-47	59-66
	6	141-160	335-400	444-532	48-53	67-75
High						
	7	161-187	401-467	533-710	54-58	76-83
	8	188-213	468-534	711-887	59-64	84-91
	9	214-240	535-600	888-1064	65-70	92-100
Very High						
	10	241 or more	601 or more	1065 or more	71 or more	101 or more

Bureau Veritas

Appendix 3: Sussex Network AQMS

Table A3-1: Sussex Air Quality Network sites and instrumentation list

Site ID	Site Name	Local Authority/ AURN	NOx	NO	NO$_2$	PM$_{10}$	PM$_{2.5}$	O$_3$	SO$_2$
AD1	Adur - Shoreham-by-sea	Adur	Yes	Yes	Yes		Yes		
EB3	AURN – Eastbourne, Holly Place	AURN	Yes	Yes	Yes	Yes	Yes	Yes**	
LL1	AURN - Lullington Heath	AURN	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BH0	AURN – Brighton, Preston Park	AURN	Yes	Yes	Yes		Yes	Yes	
HO4	AURN - Storrington	AURN	Yes	Yes	Yes				
HO4	*Storrington (Fidas)	-				Yes	Yes		
WT2	AURN - Worthing A27 Grove Lodge	AURN	Yes	Yes	Yes		Yes		
BH10	Brighton - North Street	Brighton and Hove	Yes	Yes	Yes		Yes		
CI1	Chichester - A27 Chichester Bypass	Chichester	Yes	Yes	Yes	Yes	Yes		
CI5	Chichester - Westhampnett Road	Chichester	Yes	Yes	Yes				
CA2	Crawley - Gatwick Airport	Crawley	Yes	Yes	Yes	Yes	Yes		
EB1	Eastbourne - Devonshire Park	Eastbourne	Yes	Yes	Yes	Yes		Yes	
HT1	Hastings - Bexhill Rd, Bulverhythe	Hastings	Yes	Yes	Yes	Yes	Yes		
HO5	Horsham - Cowfold	Horsham	Yes	Yes	Yes				
HO2	Horsham - Park Way, Horsham	Horsham	Yes	Yes	Yes	Yes			
LS8	Lewes – Little East Street, Lewes	Lewes	Yes	Yes	Yes	Yes	Yes		
MS1	Mid Sussex - London Road, East Grinstead	Mid-Sussex	Yes	Yes	Yes	Yes			
RY2	Rother - De La Warr Road, Bexhill	Rother	Yes	Yes	Yes	Yes	Yes		

Notes:

*Storrington (Fidas) is an independent particulate research instrument installed at AURN Storrington, it is not an AURN instrument but is available on Sussex-air.

** AURN – Eastbourne, Holly Place introduced a new O$_3$ instrument in December 2023, however the data is ignored in 2023 due to low data capture.

Figure A3-1: Sussex Network AQMS locations.