2025 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021

Date: May 2025

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Local Responsibilities and Commitment

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Ian Wheeler, Environmental Health and Licensing Manager, Hastings Borough Council

The ASR will be sent to the Director of Public Health, East Sussex County Council for their information and review.

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LAQM Annual Status Report 2025

Executive Summary: Air Quality in Our Area

Air Quality in Hastings Borough Council

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Low-income communities are also disproportionately impacted by poor air quality, exacerbating health and social inequalities.

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

The key pollutants of concern in Hastings Borough are nitrogen dioxide (NO_2) and fine particulates ($PM_{2.5}$ and PM_{10}), with road traffic emissions being the principal source of local emissions. $PM_{2.5}$ concentrations in Hastings and the Southeast of England (including London) tend to be, on average, higher than other parts of the UK due to higher population

density and proximity to pollution sources in mainland Europe. These are factors that fall outside of Hastings Borough Council's direct control.

Hastings Borough Council has a network of air quality monitoring across the Borough, including one continuous monitoring station, which monitors NO_2, PM_{10} and $PM_{2.5}$, and passive NO_2 diffusion tubes. In 2024, passive NO_2 diffusion tube monitoring occurred at 12 distinct locations. Defra also have also recently gained planning permission (ref: HS/PR/23/00373) to install a new continuous monitoring station on the West Hill Open Space, which will add to our understanding of pollution in the Borough. At the time of writing this new station is not yet operational.

In 2024, no exceedances of the UK Air Quality Standards (i.e., legal limits) were monitored at any location. Furthermore, there is a long-term trend showing a decline in measured concentrations of NO_2. Air quality is improving across much of the UK, where road traffic is the major source of emissions, due to the replacement of older, "dirtier" vehicles with those with "cleaner" engines, including electric vehicles. As such, these results are in line with national trends.

However, in 2024, measured annual mean concentrations of NO_2 were generally higher than in previous years (especially at diffusion tubes). At this stage, it is not known whether this is reflective on an increase in emissions locally, weather conditions that promote poor air quality, or an anomalous result caused by the way in which raw data is converted to official measurements (i.e. the application of a national bias adjustment factor).

There has been no clear downward trend in concentrations of PM_{10} in the Borough and levels have remained relatively consistent. However, measured annual mean PM_{10} concentrations, in the past five years, were only lower in 2021, which is encouraging. Regardless, the Council will continue to monitor PM_{10} to better understand the long-term trend and to identify measures to reduce emissions. There is still insufficient data for $PM_{2.5}$ to establish a long-term trend. Hastings Borough Council is also actively taking steps to control emissions of dusts and other particulate matter, associated with construction, bonfires and permitted installations. These are local sources of $PM_{2.5}$ which the Council can exert some control over.

The national trend for PM_{10} and $PM_{2.5}$ is more complicated than the trend for NO_2, with decreases in PM_{10} and $PM_{2.5}$ emissions from vehicle exhausts and industry somewhat offset by increases in emissions from domestic sources (emissions of $PM_{2.5}$ from domestic

wood burning increased by 124% between 2011 and 2021)[1]. Nevertheless, average exposure to $PM_{2.5}$ across the borough, calculated by the Office for Health Improvement and Disparities, was below the government's 2040 target of 10µg/m^3 and below the average for the rest of England and the Southeast.

It should be stressed, however, that there are no safe levels of some pollutants and Hastings Borough Council, along with Sussex Air, continues to work to reduce pollution levels to improve the health and wellbeing of its residents and visitors, implementing its Air Quality Strategy.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

Core actions in 2024 to improve air quality in the Borough include the continued maintenance of the air quality monitoring programme. Hastings Borough Council also continued to support the Sussex Air Quality Partnership, which aims to improve air quality across Sussex. Hastings Borough Council has supported improving air quality and reducing exposure by:

- Reviewing and updating our Air Quality Strategy.
- Supporting the co-ordination and delivery of a high standard of air quality evidence base (monitoring) in Sussex.
    - In 2024, Hastings Borough Council provided its first full year of $PM_{2.5}$ monitoring at HT1.
- Supporting the co-ordination and delivery of strategic work and projects to improve air quality in Sussex, with Sussex Air.
    - Discussions were held with the Taxi trade, in relation to the Taxi Survey which aims to promote the uptake of Electric Vehicle (EV) taxis.
- Providing information and advice to the public, through the website and other channels.

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[1] Defra. Emissions of air pollutants in the UK – Particulate matter (PM10 and PM2.5), February 2023: https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-particulate-matter-pm10-and-pm25

- An enforcement led approach to the determination of smoke nuisance/ burning of trade waste and dust nuisance complaints in the Borough.

Conclusions and Priorities

This ASR confirms that levels of PM_{10}, $PM_{2.5}$ and NO_2 continue to comply with the UK Air Quality Objectives.

In 2024, there were minor increases in NO_2 at 9 out of the 14 diffusion tubes, when compared to 2023 monitoring data, which is contrary to long term national and local trend. There is, however, insufficient data at this time to determine whether NO_2 levels are rising again, or whether these measurements are because of natural variations (e.g. a 'bad' weather year for pollution, and pollution dispersion), or are associated with how official measurements are calculated (e.g. bias adjustment).

Hastings Borough Council's priorities for the coming year are:

- Continue to maintain the air quality monitoring programme.
- Continue to support the Sussex Air Quality Partnership.
- Consider the outcomes of the Sussex Taxi Survey, designed to identify the barriers to electric vehicle take up, and work with drivers to remove those barriers.
- Support positive air quality outcomes associated with the Hastings Town Centre Public Realm and Green Connections Project (The Hastings town centre redevelopment).
- Support the installation of DEFRA's $PM_{2.5}$ monitor on the West Hill Open Space.
- Consider the location of the existing air quality monitoring network in the context of the Queensway Gateway, which is due for completion in 2025.
- Increase in the EV charging network in the Borough.
- Move the diffusion tubes HT(1), HT(2) and HT(3) to the cage of the HT1 continuous monitor.

Hastings Borough Council, working with our partners at Sussex Air, did not identify any new major emission sources in 2024, which have the potential to *significantly* impact air quality in the borough. Several major planning applications were granted permission in 2024, which will have a minor influence on air quality.

How to get Involved

Sussex Air is an overarching body which coordinates the response to air quality in Sussex, including providing bids to Defra.

The Sussex Air Quality Partnership are liaising with East Sussex County Council Public Health to explore the potential for funding to restart the successful Sustrans active travel project in Hastings. Sustrans previously worked with community groups in Hastings to promote air quality and active travel, via Air Quality Workshops and Air Quality rides. They also worked with the Southeast Community Rail Partnership in Hastings and the *Active Hastings Youth Link Worker* to plan activities around Air Quality during Sustrans led rides.

Road vehicles are a major source of many pollutants in urban areas, including Hastings. In 2021, they produced over 27% of the emissions of Nitrogen Oxides (NOx) in the UK[2]. As such, before using your car, ask yourself:

- Do I really need to make this journey?
- Could I walk or cycle instead of taking the car?
- Could I take a bus, or train or carpool?
- Are the levels of air pollution already too high today?

If you must drive:

- Drive smoothly. You'll save fuel (and money), and your engine will also pollute less.
- Don't rev your engine unnecessarily.
- Maintain your car. Keep the engine properly tuned and the tyres at the right pressure; and
- Turn off the engine when your car is stationary.

At home:

- Buy water-based or low-solvent paints, varnishes, glues and wood preservatives;
- Avoid burning solid fuels, if possible;
- Avoid lighting bonfires, but if you must, don't light them when pollution levels are high or while the weather is still and cold;

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[2] https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-nitrogen-oxides-nox

- Only burn dry material and never burn household waste, especially plastic, rubber, foam or paint;

- Levels of pollution can be quite high on bonfire night and other events/festivals with bonfires, and sensitive people, including people with respiratory conditions, may notice some effects;

- However, exposure can be considerably reduced by remaining indoors and keeping windows closed;

- Be aware of internal sources of pollution (e.g. candles, cleaning products and gas stoves) and make sure that your home is sufficiently ventilated when using these products,

Further information on the health effects of air pollution can be found on the Government's website.

Further information on how you can improve air quality is provided by Sussex Air.

Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Hastings Borough Council during 2024. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Hastings Borough Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained and provide dates by which measures will be carried out.

Hastings Borough Council does not have any declared AQMAs. The Bulverhythe AQMA, which was declared in 2003 due to exceedances of the 24-hour mean Air Quality Objective for PM_{10} (35 exceedances of 50 µg/m^3 per annum), was revoked in April 2017. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at: Defra UK-Air webpage AQMA list.

Hastings Borough Council has an Air Quality Strategy in place to improve air quality and ensure continuing compliance with the national air quality objectives. Hastings Borough Council's Air Quality Strategy can be found online, on the Air Quality Management page.

2.2 Progress and Impact of Measures to address Air Quality in Hastings Borough Council

Defra provided detailed commentary of last year's ASR, suggesting the following measures which should be considered, in terms of air quality monitoring and reporting:

1. The Council installed a $PM_{2.5}$ monitor at their automatic monitoring location in 2023. This is highly positive and very welcomed for continuing the good air quality in the borough, and for tackling pollutants which have a great impact on public health.

This ASR includes the first full year of monitoring from this monitor.

2. In the QA/QC section, HBC have not clarified what continuous monitors have been used to calculate the annualization factor. It would be useful if the Council could add this, so as to enable the reader to be certain that the annualisation has been done according to TG22.

The previous year's data was annualised using data from the Automatic Urban and Rural Network (AURN), specifically the stations at Brighton Preston Park, Lullington Heath and the, now closed, Canterbury monitor. This was outlined in Table C.1 in the previous ASR. Annualisation was not required in this year's ASR.

3. Sites 15-17 had data capture below 25%, and as such concentrations are unlikely to be representative of the year. The Council is recommended to either remove them from data tables or to not report the annualised means from these sites.

No sites had data capture of less than 25% in 2024.

4. The data capture for site 13 is reported as being below 75% but does have 9 out of 13 months data capture. It is assumed this is due to the Diffusion Tube Tool calculating data capture as days out of the year instead of months. To avoid any confusion for the reader, it would be useful to add a caveat in the report as to why this site is not annualised.

The previous ASR carried out monitoring in line with Defra's Diffusion Tube Calander and therefore only conducted 12 periods of monitoring in 2023. There was no 13th period at any location. It is not understood why the data capture at Diffusion Tube 13 was reported as being less than 75% in the templated spreadsheet.

Hastings Borough Council has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all

measures completed, in progress or planned are set out in Table 2.1. 12 measures are included within Table 2.1, with the type of measure and the progress Hastings Borough Council have made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

More detail on these measures can be found in Hastings Borough Council's Air Quality Strategy. The measures in Table 2.1 generally represent ongoing efforts to increase awareness of air pollution and minimise emissions, with the exception of the Redevelopment of the Town Centre space, which is expected to be completed in 2026.

Hastings Borough Council's priorities for the coming year are:

- Support the active travel and air quality improvements delivered as part of the Town Centre public realm and green connections regeneration project;
- Reduce number of smoke/burning & construction dust nuisance complaints through public engagement and enforcement, particularly in the revoked AQMA area;
- Increase the number of EV charge points across Hastings.
- Continue discussions with the Taxi trade, relating to the promotion of EV taxis.

Hastings Borough Council worked to implement these measures in partnership with the following stakeholders during 2024:

- East Sussex County Council
- Sussex Air Quality Partnership

East Sussex County Council are also heavily involved in projects that could help to improve air quality in Hastings. For example, they were involved in a Strategic Outline Business Case for proposed upgrades to the Kent and East Sussex rail network. The following two proposed improvements relate to rail in Hastings:

- partial line speed improvements between Rye and Ore and between Bexhill and Hampden Park; use of bi-mode diesel or battery trains; and
- full scale line speed improvements; Marshlink third rail electrification; electric trains; diversion of A259 at Star/Guldeford level crossings.

As these projects are not on a national priority list of rail projects, local MPs and local authorities in East Sussex and Kent are working collaboratively to explore opportunities to lever private sector finance/investment to fund the delivery of the rail schemes identified in the study.

Regarding the implementation of measures which the Sussex Air Quality Partnership and Hastings Borough Council have direct control over, Hastings Borough Council anticipates facing no significant challenges or barriers to implementation in 2025. Although, the Environmental Health and Licensing Services have, however, lost several key members of staff and so core projects are likely to be prioritised.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	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	Hastings Town Centre Public Realm and Green Connections Project	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2023	2026	HBC	HBC - ESCC	Funded	£10 Million as part of the Town Deal £24.3 Million	Ongoing	Low	Active travel and Air quality improvements delivered as part of the Town Centre public realm and green connections regeneration project	Project given approval in Nov 204 to proceed to the detailed design and construction phase. Further engagement of stakeholders planned for spring/summer 2025	
2	Managing the new PM2.5 analyser and PM data of HT1.	Other	Other	2024	Ongoing	HBC	Defra	Funded	< £10k	Ongoing	NA	To achieve >75% PM2.5 data capture 2024.	>75% data captured in 2024.Continue maintenance contract, servicing, and calibration to achieve >75% in 2025	
3	Public engagement and enforcement around nuisance related complaints.	Public Information	Via other mechanisms	2024	Ongoing	HBC	HBC	Funded	< £10k	Ongoing	Low	Complaints / website updates etc	Website updated. Responded to all complaints in 2024	With particular emphasis around revoked AQMA area.
4	Promote clean burning information on Sussex Air website via HBC web traffic	Public Information	Via the Internet	2022	Ongoing	Sussex-Air	HBC	Funded	< £10k	Ongoing	Low	Reduce PM10 concentrations / fewer smoke complaints	Website includes latest Defra clean burning guidance.	
5	Sussex Air Quality Alert	Public Information	Via the Internet		Ongoing	Sussex-Air	Sussex-Air	Funded	< £10k	Ongoing	NA	Raise profile of Sussex Air Alert Service	Sussex Air has promoted Alert Service through campaign, targeted social media, and digital marketing	Community Engagement
6	Increase the use of electric vehicles and charging	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission		Ongoing	Sussex-Air	-	Funded	>£10k	Ongoing	Low	Uplift in physical EV infrastructure locations and EV charging point in HBC	4 new EV charging locations installed in 2023, a further planned in 2025	Funding

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
	through the network		Vehicles, EV recharging, Gas fuel recharging											
7	Households and building trade to avoid fires for waste disposal in revoked AQMA to reduce levels of PM2.5	Environmental Permits	Other		Ongoing	HBC Env-protection	HBC	Funded	< £10k	Ongoing	Low	Investigation of smoke/ burning nuisance complaints in revoked AQMA area	All complaints responded to during 2024. Same target set for 2025	Community Engagement
8	Post Sussex Taxi Survey Engagement	Promoting Low Emission Transport	Taxi emission incentives		Ongoing	HBC	Sussex-Air	Funded	< £10k	Ongoing	Low	Engage with taxi trade following completion of survey to promote take up of EV taxis	Discussions held with trade and will continue during 2025	
9	Hastings Borough Council EV fleet Upgrade,	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles		Ongoing	HBC	HBC	Funded	£100k - £500k	Ongoing	Low	Number of EV in HBC fleet	7 out of 26 HBC vehicles are electric vehicles. No uplift during 2024.	
10	Review of AQS to be completed	Other	Other	2024	2024	HBC	HBC	Funded	£1K	Ongoing	Low	Complete review of Air Quality Strategy	Review Completed during 2024	
11	Planning consultations	Policy Guidance and Development Control	Other policy	2023	Ongoing	HBC	HBC	Funded	£1K	Ongoing	Low	Responses to major development planning application in accordance with Air quality and emissions mitigation guidance for Sussex (2024)	79 planning consultations completed in 2023, and 106 in 2024	
12	Construction Dust	Policy Guidance and Development Control	Other policy	2023	Ongoing	HBC	HBC	Funded	£1K	Ongoing	Low	Responding to larger construction sites across the borough which are frequently the subject of dust nuisance complaints.	All planning consultations responded to and complaints investigated by officers during 2024	

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[3], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM$_{2.5}$). There is clear evidence that PM$_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

An annual average concentration of 9.2 µg/m^3 was measured at Hasting Borough Council's sole PM$_{2.5}$ monitor, in 2024. This is higher than the estimate from Public Health England. Public Health England estimates that average PM$_{2.5}$ concentrations across the borough were 6.4 µg/m^3 in 2023, with 4.8% of mortality associated with particulate air pollution in 2023. This information is available from Public Health England's Public Health Data webpage.

The mortality calculated for Hastings Borough Council is slightly lower than that calculated for 2023, for Southeast England (5.1%) and England (5.2%) as a whole.

Hastings Borough Council continues to work with Sussex Air and the East Sussex County Council Public Health team to address PM$_{2.5}$. Several of the existing measures in Table 2.2 and the Air Quality Strategy directly address PM$_{2.5}$ concentrations, including investigating dust complaints and the promotion of clean burning. In addition, Hastings Borough Council continues to investigate smoke nuisance in line with the requirements of the Environmental Protection Act (1990).

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[3] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

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

This section sets out the monitoring undertaken within 2024 by Hastings Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2020 and 2024 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Hastings Borough Council undertook automatic (continuous) monitoring at one site during 2024. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The automatic monitoring site is situated at Bulverhythe known as Hastings 1 (HT1) and forms part of the Sussex Air Quality Network. Table A.1 in Appendix A shows the details of the automatic monitoring site, with Appendix F showing various analytical plots.

The Sussex Air 'Air quality monitoring page' presents automatic monitoring results for Hastings Borough Council, with automatic monitoring results also available through the UK-Air website.

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

Hastings Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 using 14 diffusion tubes in 2024, covering 12 locations. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

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

3.2 Individual Pollutants

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

3.2.1 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 air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2024 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Figure A.2 – Trends in Annual Mean NO$_2$ Concentrations at Non-Automatic Monitors

Table A.5 in Appendix A compares the ratified continuous monitored NO$_2$ hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

No exceedances of the annual or 1-hour mean air quality objectives were measured in Hastings Borough, in 2024. Measured annual mean NO$_2$ concentrations, generally, increased in 2024 compared to 2023. It is not known whether this is because of an increase in emissions, natural weather variations (some weather conditions promote bad air quality) or the application of the national bias adjustment factor to Hastings Borough Council's data.

Appendix F shows that measured concentrations of NO$_2$ at HT1 are likely influenced by road traffic emissions, with peaks in pollution occurring during rush hour, and when the wind is from the east, blowing parallel to the A259.

3.2.2 Particulate Matter (PM$_{10}$)

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 air quality objective of 40µg/m^3.
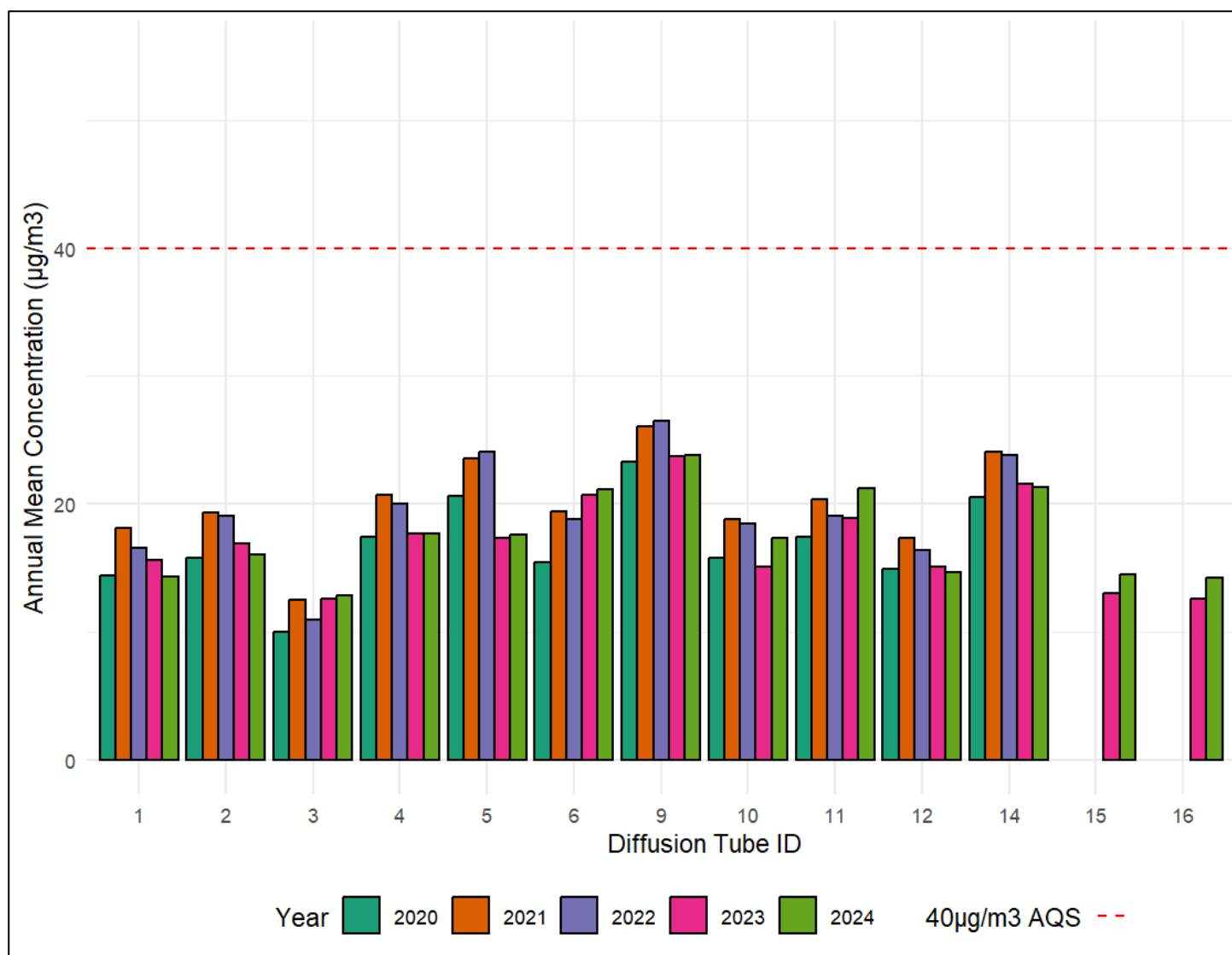
Table A.7 in Appendix A compares the ratified continuous monitored PM$_{10}$ daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year. Daily mean concentrations above 50 µg/m^3 were recorded only once in 2024, which is well below the objective.

Appendix F shows that measured concentrations of PM$_{10}$ at HT1 may be highly influenced by emissions from the business park/ industrial estate and rail depot to the southeast and another rail depot to the southwest. Between 2023 and 2024, there was a change in the time of day when the highest concentrations of PM$_{10}$ were recorded. In 2023, PM$_{10}$ concentrations tended to fall during the workday – however, in 2024, PM$_{10}$ concentrations peaked during the working day. Regardless, compared to 2023, measured concentrations of PM$_{10}$ fell in 2024. Hastings Borough Council will, however, continue to analyse the time of day, days of week and time of year PM$_{10}$ is highest at this monitor to identify opportunities to improve air quality.

3.2.3 Particulate Matter (PM$_{2.5}$)

Table A.8 in Appendix A presents the ratified and adjusted monitored PM$_{2.5}$ annual mean concentrations for the past five years.

Hastings Borough Council began monitoring PM$_{2.5}$ in May 2023. An annual average concentration of 9.2µg/m^3 was measured in 2024. This is below the UK AQS of 20µg/m^3 and the 2040 target value of 10µg/m^3.

There is insufficient data at this time to discuss long-term trends in PM$_{2.5}$.

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? [1]	Monitoring Technique	Distance to Relevant Exposure (m) [2]	Distance to kerb of nearest road (m) [1]	Inlet Height (m)
HT1	Hastings-Bulverhythe	Roadside	577633	108726	NO_2, PM_{10}, $PM_{2.5}$	No	NA	Chemiluminescent / TEOM / BAM	5	3	1.7

Notes:

(1) N/A if not applicable

(2) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

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)
1	St Lukes, Alma Terrace	Roadside	580037	110902	NO2	No	1.0	1.0	No	2.0
2	Carlise Parade	Roadside	581496	109288	NO2	No	5.0	1.0	No	2.5
3	Manor Road	Roadside	582223	110361	NO2	No	0.0	10.0	No	2.5

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)
4	Ore Church	Roadside	583610	111325	NO2	No	0.0	2.0	No	2.5
5	Harley Shute Road	Roadside	578382	109601	NO2	No	10.0	1.0	No	2.0
6	The Boat, Bexhill Road	Roadside	576770	108101	NO2	No	15.0	1.5	No	2.5
9	71 Bexhill Road	Roadside	578532	108776	NO2	No	0.5	0.5	No	2.5
10	139 Bexhill Road	Roadside	578290	108819	NO2	No	1.5	2.0	No	2.5
11	Railway Bridge	Roadside	578447	108794	NO2	No	10.0	3.0	No	2.5
12	Grosvenor Gardens	Roadside	578946	108746	NO2	No	10.0	0.5	No	2.5
14	116 Bohemia Road	Roadside	580246	110064	NO2	No	0.5	1.5	No	2.0
15	HT1 (1)	Roadside	577633	108726	NO2	No	5.0	3.0	Yes	1.7
16	HT1 (2)	Roadside	577633	108726	NO2	No	5.0	3.0	Yes	1.7
17	HT1 (3)	Roadside	577633	108726	NO2	No	5.0	3.0	Yes	1.7

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 2024 (%) [2]	2020	2021	2022	2023	2024
HT1	577633	108726	Roadside	90.7	90.6	10.7	11	12.8	9.4	8.8

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

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

☒ **Where exceedances of the NO$_2$ annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2024**

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**.

All means have been "annualised" as per LAQM.TG22 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 NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2024 (%) (2)	2020	2021	2022	2023	2024
1	580037	110902	Roadside	100.0	92.7	14.4	18.1	16.6	15.6	14.3
2	581496	109288	Roadside	100.0	100.0	15.8	19.3	19.1	16.9	16.0
3	582223	110361	Roadside	100.0	93.0	10.0	12.5	10.9	12.6	12.8
4	583610	111325	Roadside	100.0	100.0	17.4	20.7	20.0	17.7	17.7
5	578382	109601	Roadside	100.0	100.0	20.6	23.6	24.1	17.3	17.6
6	576770	108101	Roadside	100.0	100.0	15.4	19.4	18.8	20.7	21.1
9	578532	108776	Roadside	100.0	100.0	23.3	26.1	26.5	23.7	23.8
10	578290	108819	Roadside	100.0	100.0	15.8	18.8	18.5	15.1	17.3
11	578447	108794	Roadside	100.0	100.0	17.4	20.4	19.1	18.9	21.2
12	578946	108746	Roadside	100.0	100.0	14.9	17.3	16.4	15.1	14.7
14	580246	110064	Roadside	100.0	90.8	20.5	24.1	23.8	21.6	21.3
15	577633	108726	Roadside	100.0	100.0	-	-	-	13.0	14.5

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 2024 (%) [2]	2020	2021	2022	2023	2024
16	577633	108726	Roadside	100.0	100.0	-	-	-	12.6	14.2
17	577633	108726	Roadside	100.0	100.0	-	-	-	12.8	15.0

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

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

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

Notes:

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

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

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

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 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 NO₂ Concentrations at Automatic Monitors

Figure A.2 – Trends in Annual Mean NO₂ Concentrations at Non-Automatic Monitors

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 2024 (%) [2]	2020	2021	2022	2023	2024
HT1	577633	108726	Roadside	90.7	90.6	0	0	0	0	0

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%).
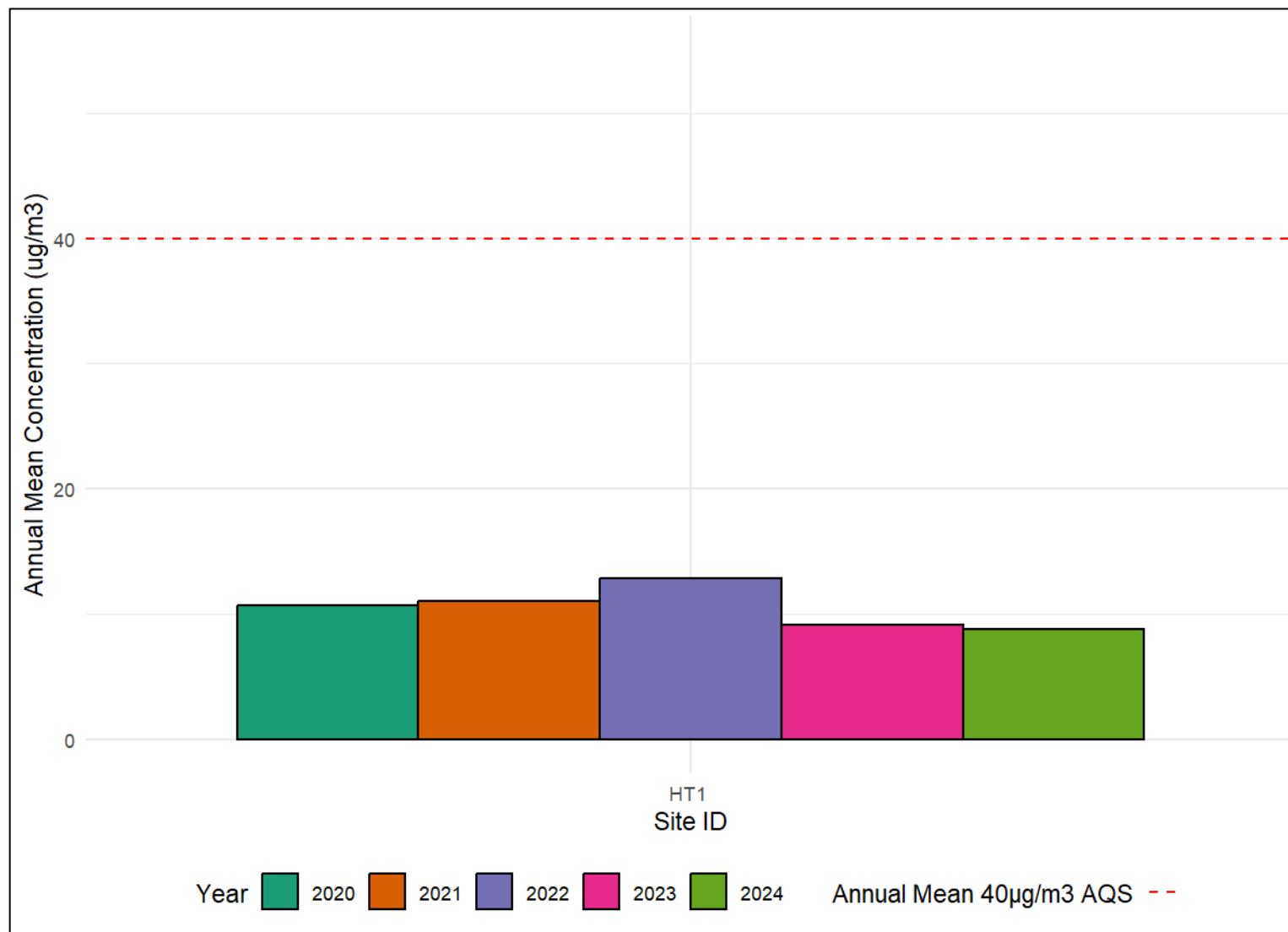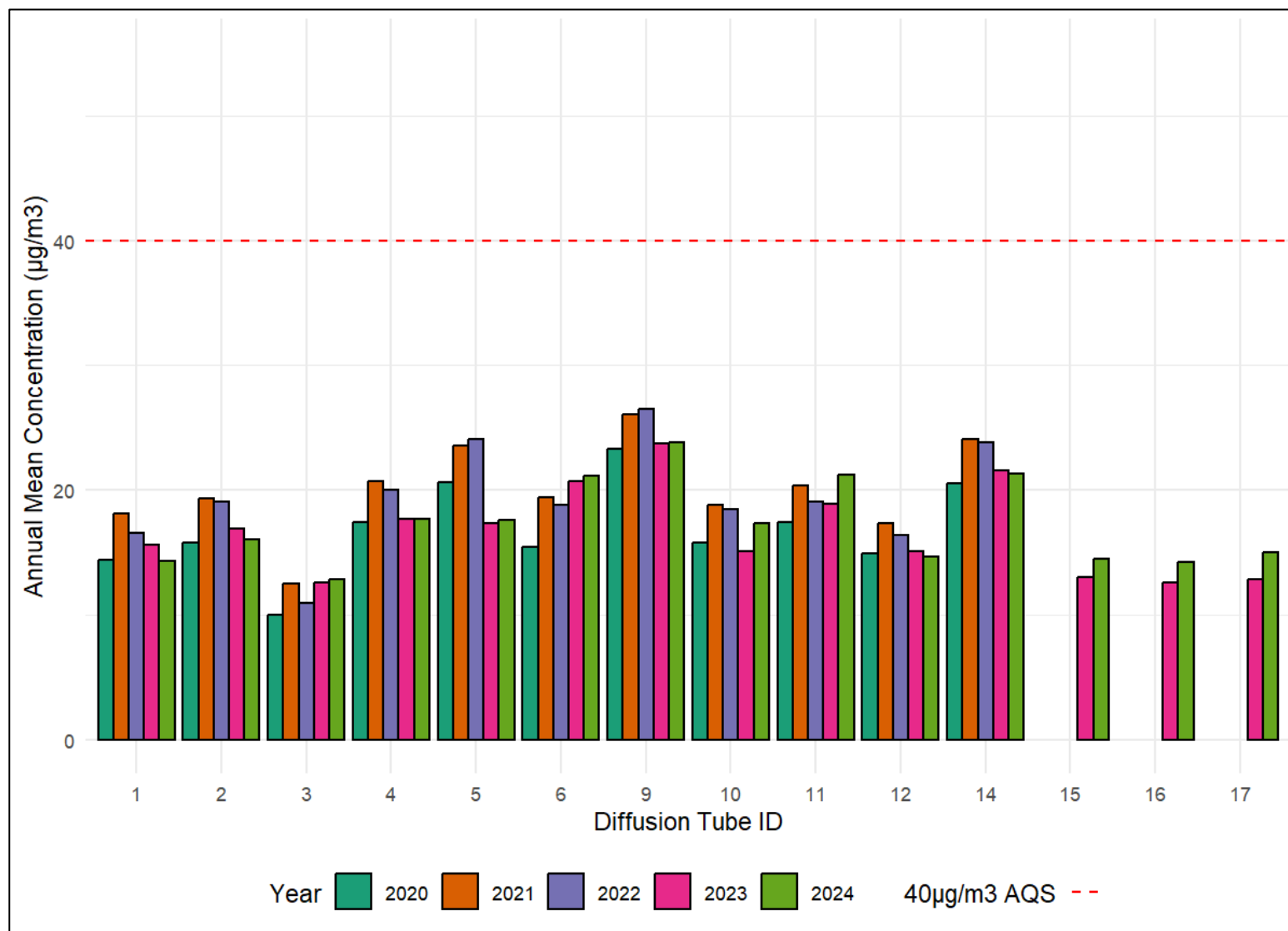
Table A.6 – Annual Mean PM$_{10}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
HT1	577633	108726	Roadside	100.0	90.9	21.3	19.5	23.5	22.7	19.9

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

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.TG22 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
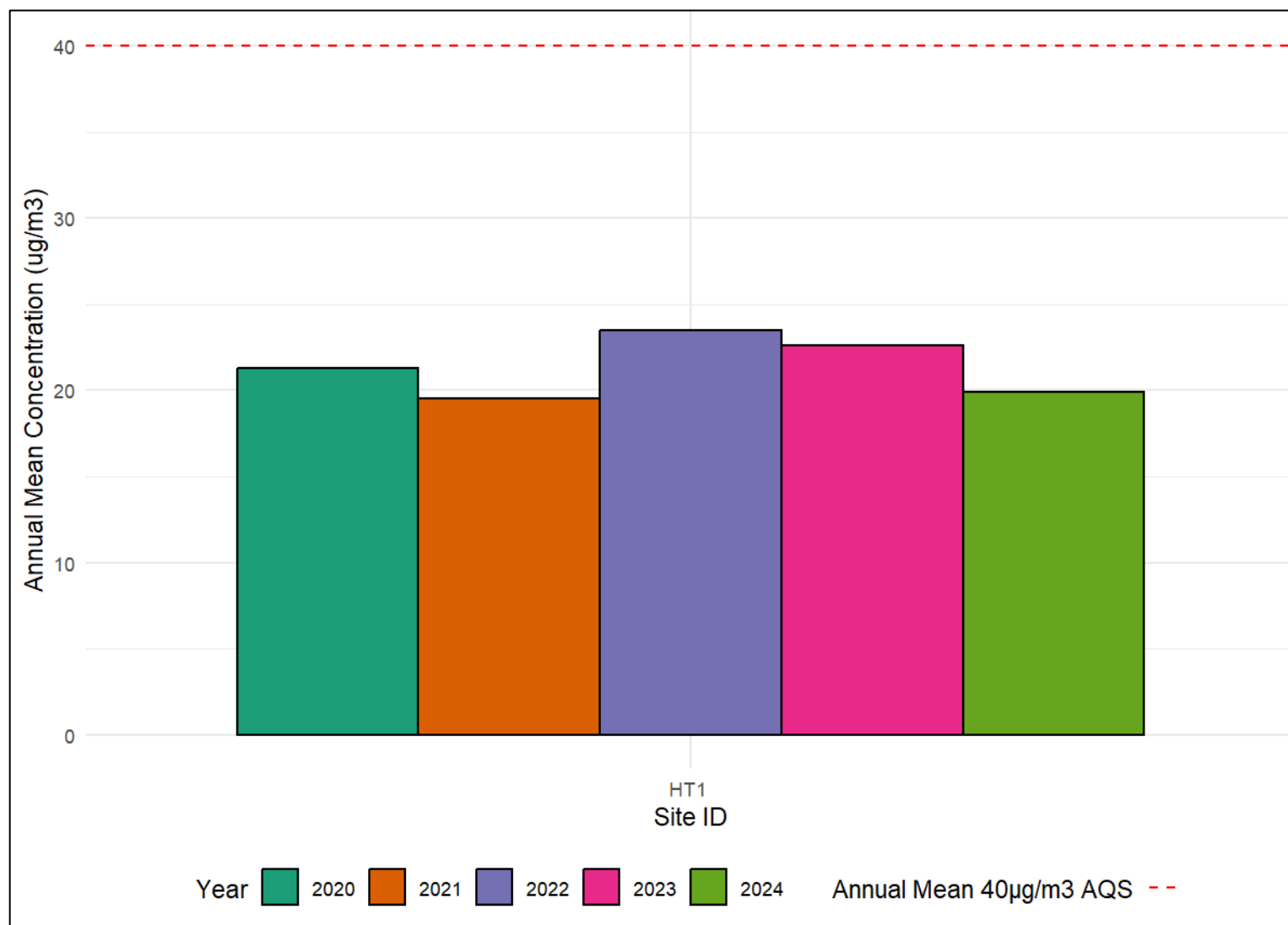
Table A.7 – 24-Hour Mean PM$_{10}$ Monitoring Results, Number of PM$_{10}$ 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
HT1	577633	108726	Roadside	90.1	90.1	1	3	5	3	1

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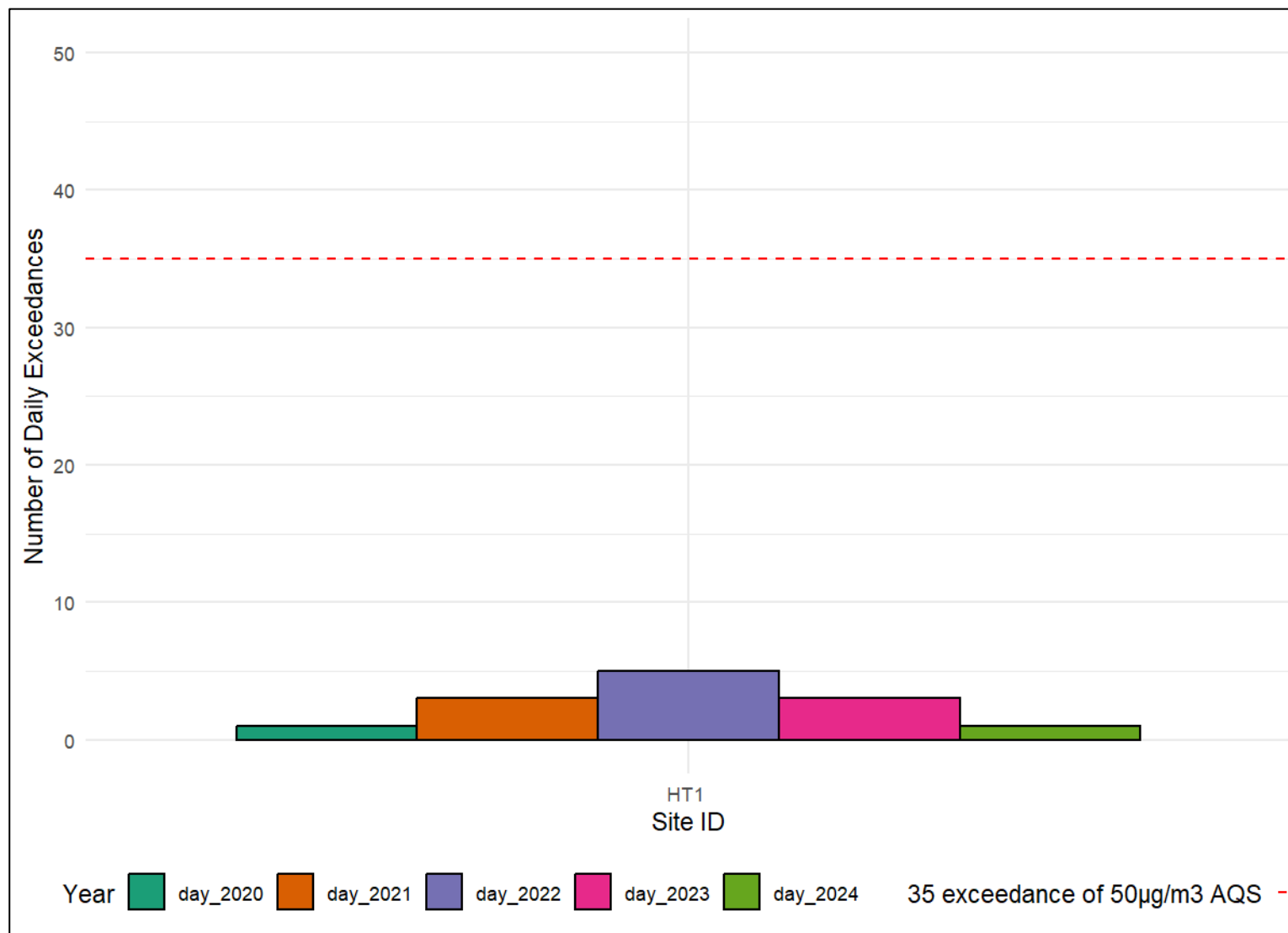
Table A.8 – Annual Mean PM$_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2024 (%) [2]	2020	2021	2022	2023	2024
HT1	577633	108726	Roadside	100.0	78.5	-	-	-	7.8	9.2

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

Notes:

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

All means have been "annualised" as per LAQM.TG22 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%).
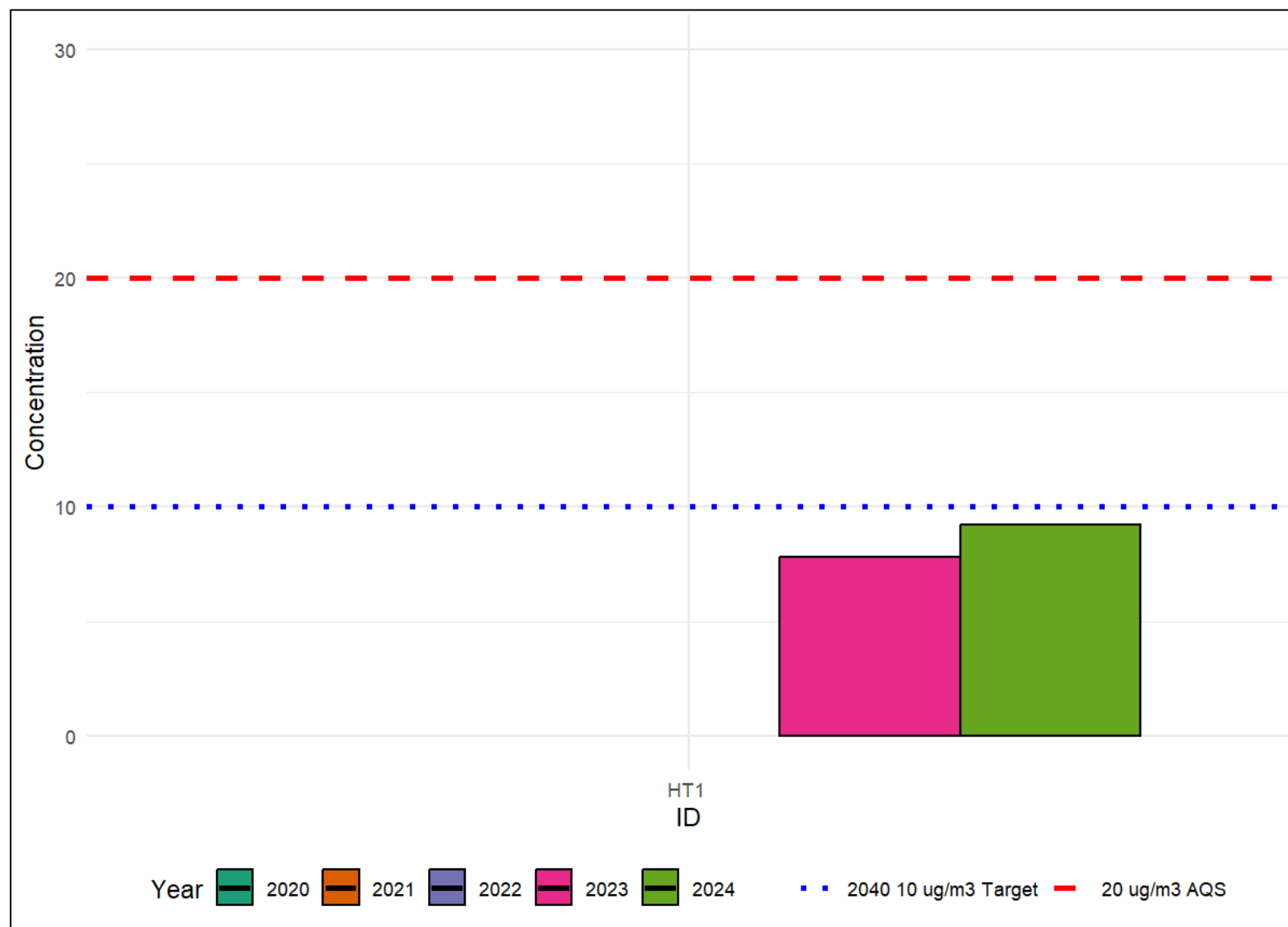
Figure A.5 – Trends in Annual Mean PM$_{2.5}$ Concentrations

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO$_2$ 2024 Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted 0.84	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	580037	110902	Missing	21.6	20.4	16.7	16.7	14.1	14.1	16.2	14.8	16.3	18.3	18.6	17.1	14.3		
2	581496	109288	23.3	18.3	19.3	17.6	20.2	16.0	18.4	16.7	18.4	19.4	21.3	20.6	19.1	16.0		
3	582223	110361	20.5	17.3	16.9	13.5	14.9	12.0	13.5	12.8	Missing	14.5	16.5	15.6	15.3	12.8		
4	583610	111325	24.3	23.3	23.7	17.6	22.4	17.9	20.8	20.4	18.3	21.2	20.9	22.8	21.1	17.7	-	
5	578382	109601	24.0	23.0	22.8	19.3	21.2	18.7	20.1	18.5	18.9	20.8	22.4	22.3	21.0	17.6	-	
6	576770	108101	28.0	25.3	27.4	23.8	26.9	25.3	25.8	26.4	21.1	23.9	22.1	25.1	25.1	21.1	-	
9	578532	108776	32.7	30.9	32.0	27.0	31.5	28.2	27.6	18.0	22.3	29.8	31.2	28.5	28.3	23.8	-	
10	578290	108819	24.1	22.0	21.3	19.2	22.4	19.0	20.2	19.2	17.6	19.9	21.8	20.9	20.6	17.3	-	
11	578447	108794	26.9	29.5	28.3	24.3	27.3	26.2	25.5	24.5	17.7	23.8	25.2	23.7	25.2	21.2	-	
12	578946	108746	22.5	20.2	19.4	15.1	17.9	13.1	15.9	15.4	14.1	15.6	19.9	20.9	17.5	14.7	-	
14	580246	110064	28.0	26.6	29.7	23.6	26.5	22.3	22.4	18.5	23.4	28.1	29.3	Missing	25.3	21.3	-	
15	577633	108726	16.4	18.8	22.1	16.3	21.1	14.0	17.6	18.8	14.3	17.1	14.4	16.9	17.3	14.5	-	
16	577633	108726	20.2	18.7	19.0	16.1	18.7	16.1	17.7	15.4	13.6	16.6	14.9	16.4	17.0	14.2	-	
17	577633	108726	21.1	18.2	21.3	13.7	21.8	16.0	18.7	19.3	13.9	17.4	14.9	17.8	17.8	15.0	-	

☒ **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.TG22**

☐ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

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

☒ **Hastings Borough Council confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

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 Hastings Borough Council During 2024

Hastings Borough Council has not identified any major new emission sources in 2024.

One major development (which was not a variation of condition application) of over 50 dwellings/rooms was, however, granted planning permission in 2024. The link to this planning application is as follows:

- [HS/FA/22/00409 | Erection of 80 Bedroom Care Home with associated access, parking, open space and landscaping (includes renewable energy) | Site of Former Dane Court Nursing Home, 32-36 Chapel Park Road, St Leonards-on-sea, TN37 6HU](#)

HS/FA/22/00409 included an emissions mitigation assessment which concluded that the proposal would result in *negligible* changes in air quality, and that sufficient mitigation was proposed.

Whilst the risk of significant changes in air pollution is considered low, Hastings Borough Council will consider relocating a diffusion tube in the vicinity of Harrow Lane to manage any residual risk once the final stage of the Queensway Gateway is complete. Queensway Gateway is a new road which will connect Queensway with Sedlescombe Road North (the A21) in northern Hastings/St Leonards.

Additional Air Quality Works Undertaken by Hastings Borough Council During 2024

Hastings Borough Council has not completed any additional works within the reporting year of 2024.

QA/QC of Diffusion Tube Monitoring

Hastings Borough Council's diffusion tubes are prepared and analysed by Gradko International Ltd. using the 20% TEA in water method. This laboratory takes part in the

QA/QC Field Intercomparison, operated on behalf of Defra. Gradko International Ltd are a UKAS accredited laboratory.

Monitoring was completed in adherence with the 2024 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Hastings Borough 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 2024 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.TG22 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.

Hastings Borough Council have applied a national bias adjustment factor of 0.84 to the 2024 monitoring data. A summary of bias adjustment factors used by Hastings Borough Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	03/25	0.84
2023	National	03/23	0.83
2022	National	03/22	0.84
2021	National	02/21	0.81
2020	National	02/21	0.81

Table C.2 includes details of the Local Bias Adjustment study at HT1, with diffusion tubes HT(1), HT(2) and HT(3).

Table C.2 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1 (HT1)
Periods used to calculate bias	12
Bias Factor A	0.5 (0.45 - 0.57)
Bias Factor B	99% (74% - 123%)
Diffusion Tube Mean (µg/m³)	17.4
Mean CV (Precision)	6.1%
Automatic Mean (µg/m³)	8.7
Data Capture	100%
Adjusted Tube Mean (µg/m³)	100%

Notes:

A single national bias adjustment factor has been used to bias adjust the 2024 diffusion tube results.

Figure C.1: 2024 Set Up of Co-Location Study
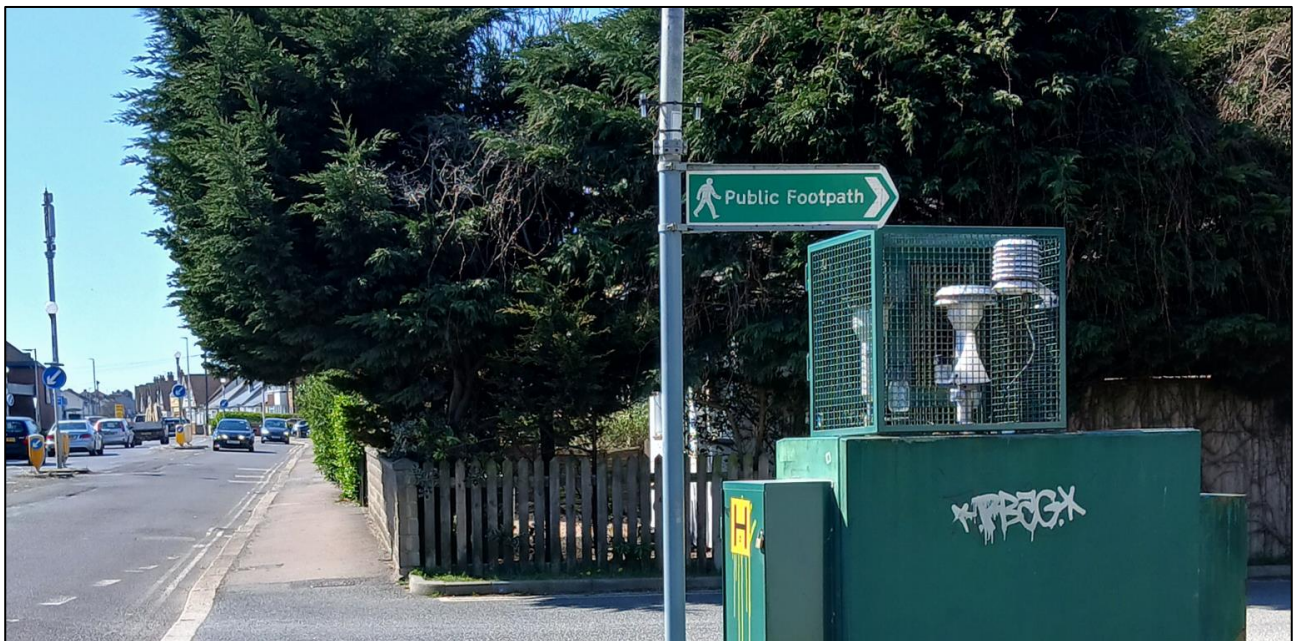
The 2024 co-location study, conducted to determine the local bias adjustment factor, was improperly set up. The diffusion tubes HT(1), HT(2) and HT(3) were mounted on a nearby lamppost as opposed to on the cage of the monitor. As the diffusion tubes were positioned

closer to the road than the continuous monitor, they recorded higher NO_2 concentrations, leading to an artificially low local bias adjustment factor. Applying this factor across Hastings Borough Council's diffusion tube network would have resulted in significant underestimation of annual mean NO_2 concentrations, making its use inappropriate.

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within Hastings Borough Council required distance correction during 2024.

QA/QC of Automatic Monitoring

The automatic monitoring site at Bulverhythe (HT1) is part of the Sussex Air Quality Network. The Local Site Operations (LSO) duties are carried out by trained officers from the Council. Servicing of the instrumentation, gases and associated on-site equipment and station is undertaken by Enviro Technology Services Ltd. Bureau Veritas UK carry out ratification-type process near the ASR submission date. The data presented in this report has not been verified. The verification process is less thorough than the ratification process applied to the AURN network.

Air Quality data is live and uploaded to the Sussex-Air website (www.sussex-air.net).

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

The TEOM PM_{10} monitor utilised by Hastings Borough Council requires correction by a Volatile Correction Model (VCM). Results are presented on the Sussex Air website only as the reference gravimetric equivalent.

Automatic Monitoring Annualisation

All automatic monitoring locations within Hastings Borough Council recorded data capture of greater than 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

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within Hastings Borough Council required distance correction during 2024.

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

Figure D.1 – Map of Monitoring Sites (Bluverhythe)

Figure D.2 – Map of Monitoring Sites (Hastings Borough)

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[4]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO$_2$)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO$_2$)	40µg/m^3	Annual mean
Particulate Matter (PM$_{10}$)	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM$_{10}$)	40µg/m^3	Annual mean
Sulphur Dioxide (SO$_2$)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO$_2$)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO$_2$)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

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 National Highways
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

Glossary of Terms

Appendix F: Openair Plots for HT1

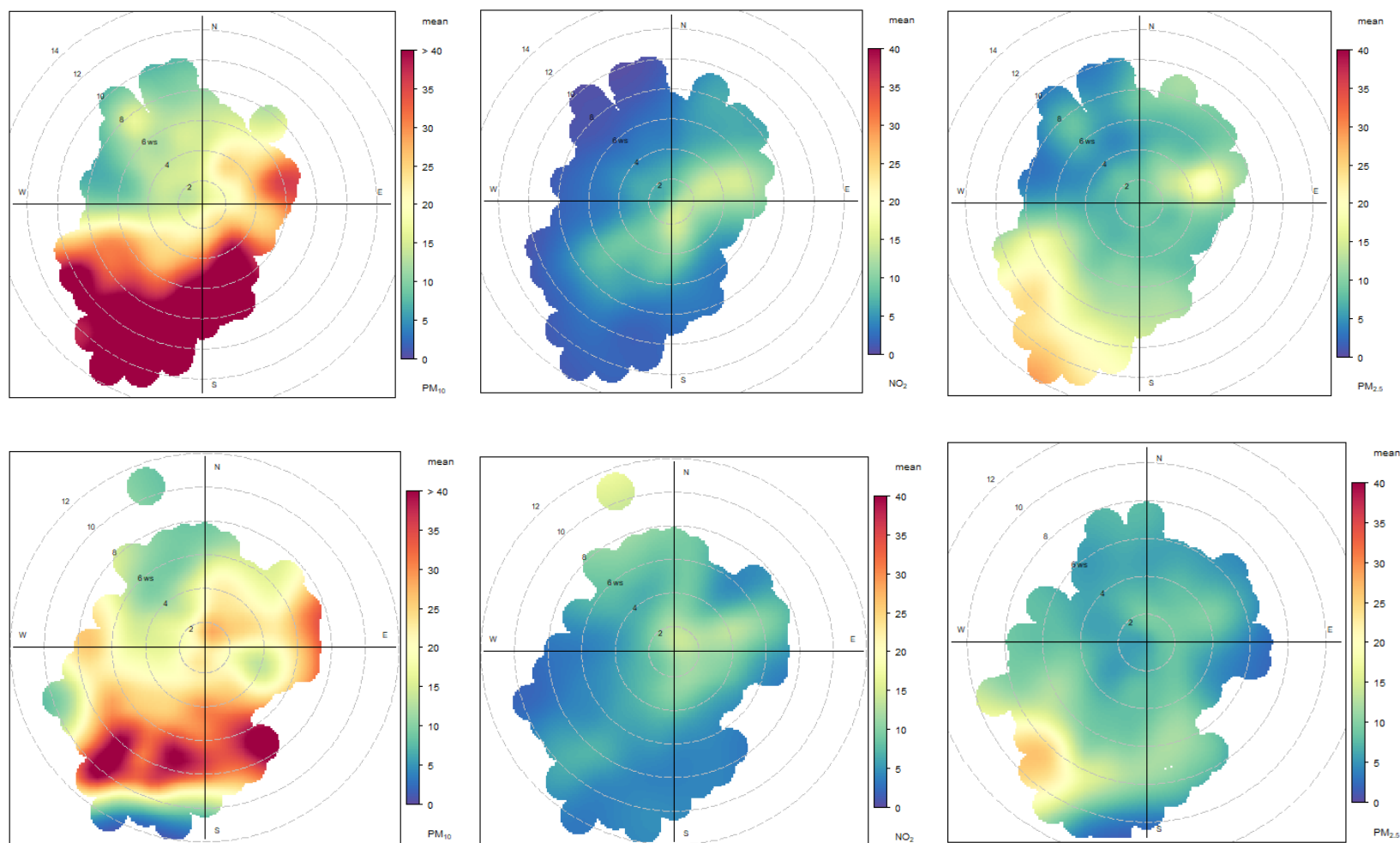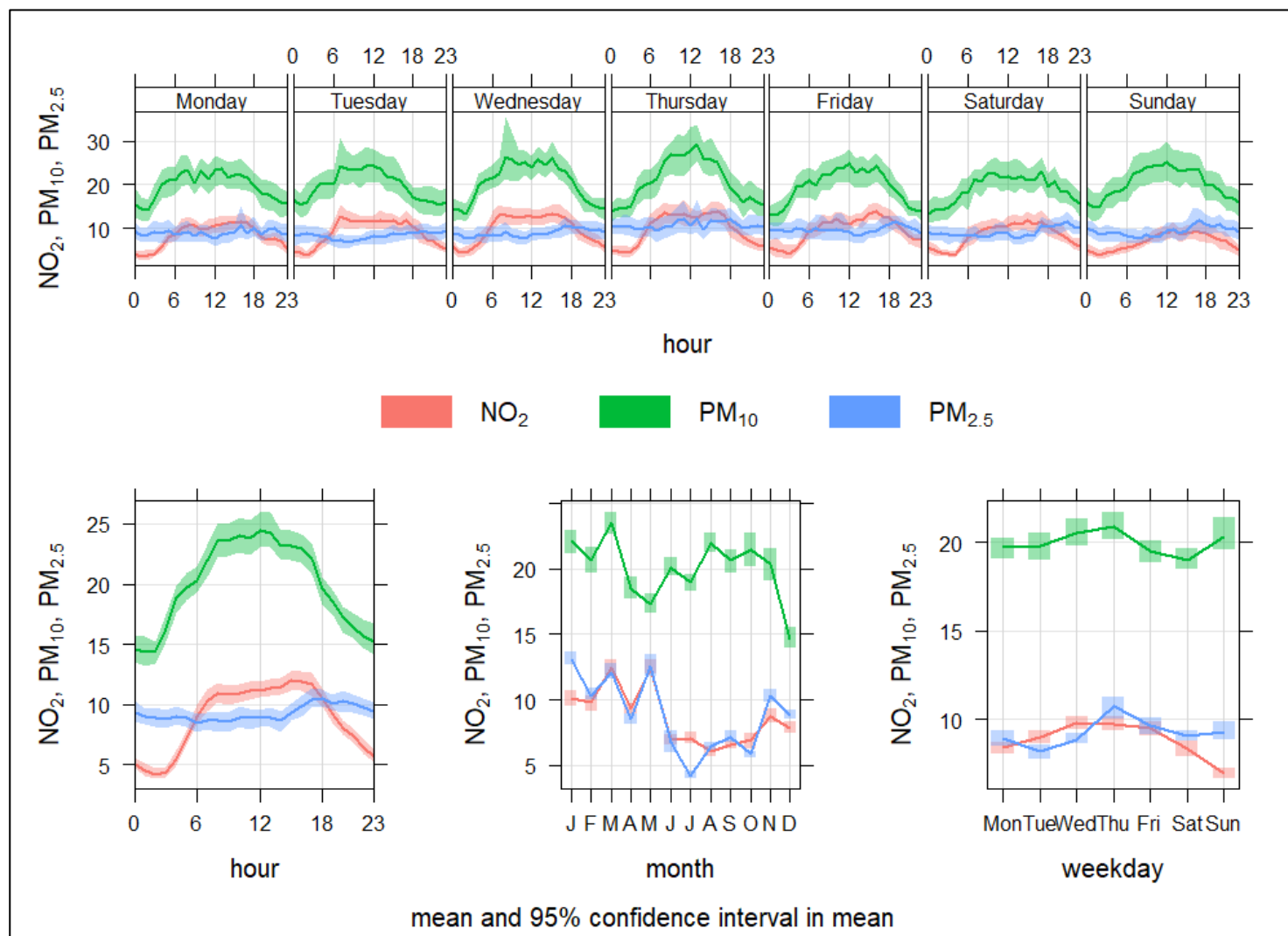**Figure F.1: Polar Plots for PM$_{10}$ (left), NO$_2$ (centre) and PM$_{2.5}$ (right), Upper (2024), Lower (2023)**

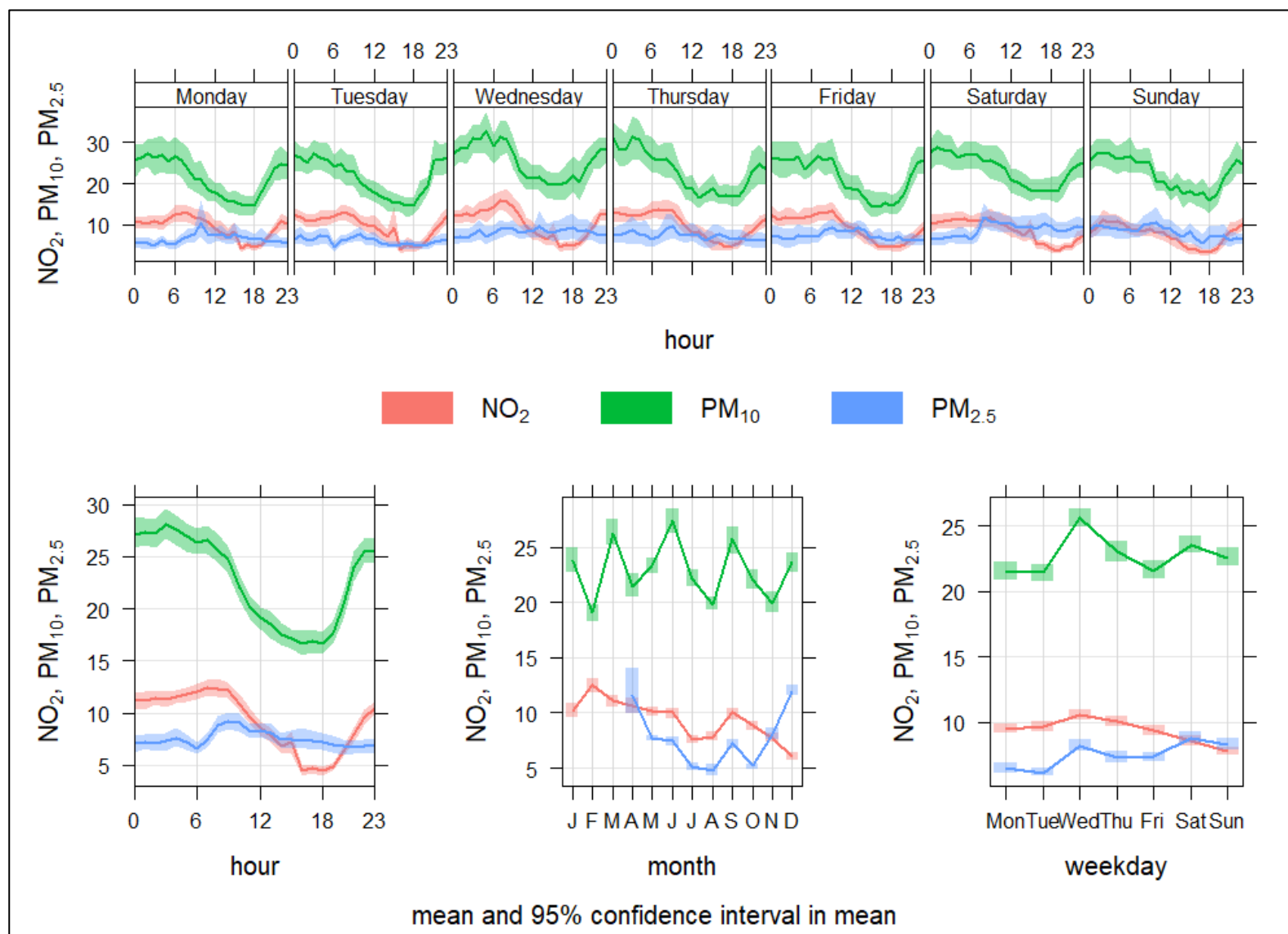**Figure F. 2: Time Variation Plots for NO$_2$, PM$_{10}$ and PM$_{2.5}$ at HT1 (2024)**
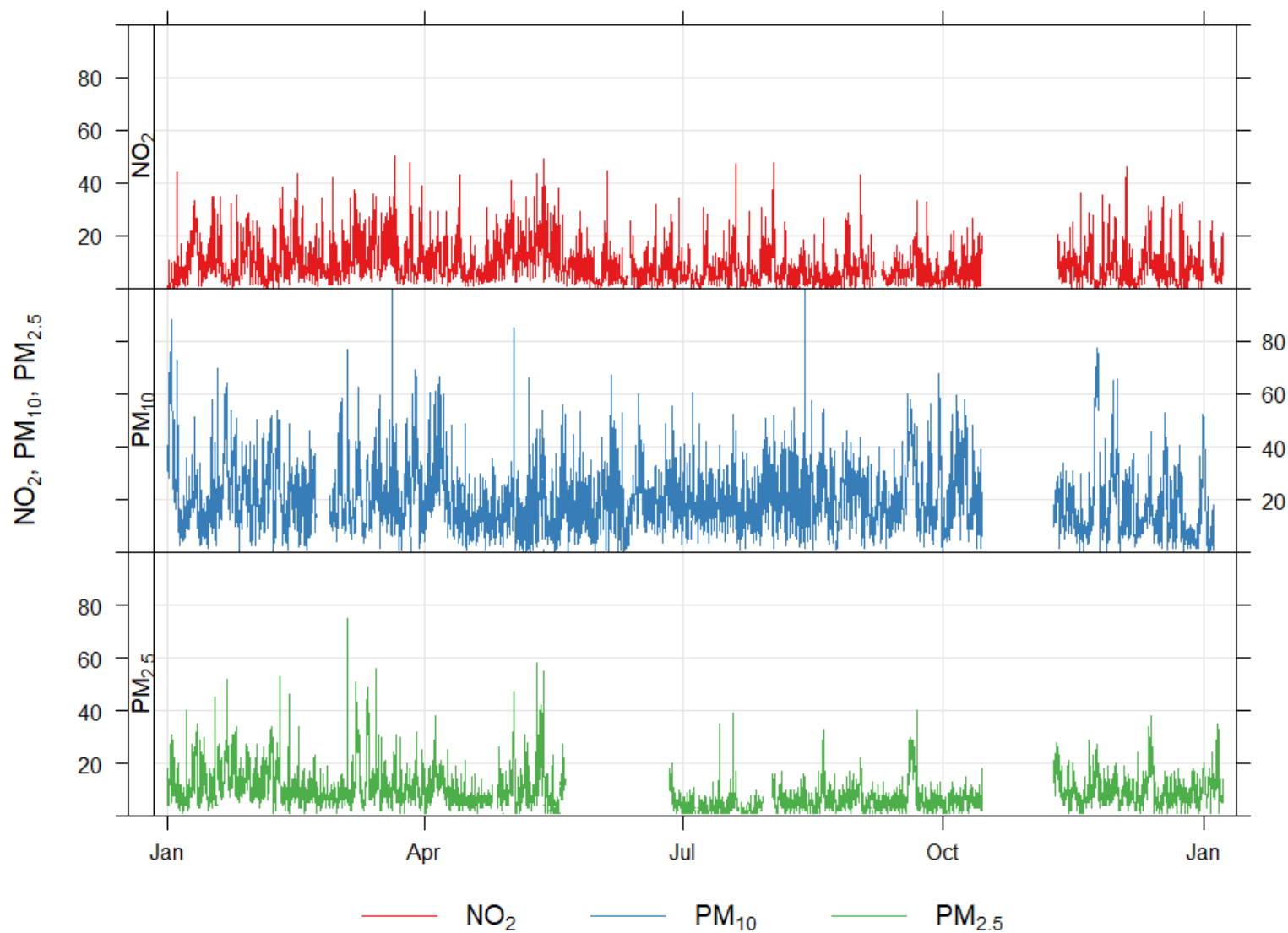
Figure F. 3: Time Variation Plots for NO₂, PM₁₀ and PM₂.₅ at HT1 (2023)

Figure F. 4: Line Plots for NO₂, PM₁₀ and PM₂.₅, at HT1, 2024

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.

- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.

- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency

- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.

- Defra (2025) Particulate Matter (PM10/ PM2.5). Accessed online: https://www.gov.uk/government/statistics/air-quality-statistics/concentrations-of-particulate-matter-pm10-and-pm25 (01/05/2025)