



2024 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: September, 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Arun

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. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year¹.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution².

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})	<p>Particulate matter is everything in the air that is not a gas.</p> <p>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.</p> <p>PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.</p>

¹ UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

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

Sussex local authorities jointly review air quality across the region to identify any breaches of air quality standards (the Sussex Air Quality Partnership). This has resulted in the declaration of a number of Air Quality Management Areas (AQMAs) in other local authorities in Sussex.

Air quality monitoring carried out by the Council continues to indicate that there is good air quality within the Arun District, and particularly the air quality objectives for Nitrogen Dioxide (NO₂) are being met. Thus it has not been necessary to declare an AQMA in Arun District.

Despite pollution levels being generally low in the District, road traffic exhaust emissions are the major source and they have the potential to cause excessive levels of NO₂ when large volumes of road traffic are queuing. There were no new major sources of emissions in the District in 2023 and through joint-working, the Adopted Local Plan has paid specific attention to projected traffic loads and changes at high capacity junctions.

Data collection is through a diffusion tube network, in 2023 there were 26 diffusion tubes located across the district. Their location is regularly reviewed and altered where data or local knowledge indicate a new location should be investigated. The latest monitoring data shows that levels of NO₂ continue to be well beneath the Government objective and have decreased slightly since 2019.

Air quality is a material consideration when a development is planned. Using the Sussex Air Quality Partnership (SAQP) guidance, Arun District Council will require an air quality assessment where necessary. The Guidance was published in 2013 and a revised document was published in 2020.

In February 2018 West Sussex County Council, along with districts and boroughs, reviewed action plans across the county and have developed a joint air quality action plan 'Breathing Better; a partnership approach to improving air quality in West Sussex'. This was updated in 2020 and 2023 [Air Quality Plan](#)

In February 2019 an Inter Authority Air Quality Group of the relevant portfolio holder from each district, borough and county council was established to develop and monitor an annual action plan, this now forms part of the Climate Change Board. [Our strategy and commitment - West Sussex County Council](#)

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.

The Environmental Improvement Plan³ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM_{2.5}), the pollutant of most harmful to human health. The Air Quality Strategy⁴ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁵ details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

General measures to limit NO₂ pollution from road traffic and prevent the exceedance of the Air Quality Objective are carried out in partnership with West Sussex County Council and the Sussex Air partnership and include:

- Road traffic calming and routing away from residential and other areas where the public may suffer significant exposure.
- Education and raising awareness - increasing the availability of air quality information and incentivising people to change their travel behaviour. The Sussex Air website has information on clean burning to raise awareness of the health and environmental impact of burning solid fuels and reduce emissions of particulates and the AirAlert service. [Sussex-air :: Promoting better Air Quality in Sussex :: sussex-air.net :: Home](#)

³ Defra. Environmental Improvement Plan 2023, January 2023

⁴ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

⁵ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

- Continued delivery of the Sussex-air, Defra funded intervention programme into primary and secondary schools in 2023. The project again employed Sustrans to deliver the programme, aiming to raise awareness of air quality issues.
- “Cut Engine – Cut Pollution” signs where there are periodic stationary traffic queues at level crossings.
- “Travelwise” schemes to promote sustainable transport - to include more car share schemes and alternatives to the car. Promotion of school and work travel plans. Development and promotion of cycle routes.
- Working closely with Planners and other agencies to ensure appropriate mitigation measures are implemented for new developments and due consideration is given to Air Quality issues. The Sussex Air Quality Planning Guidance is used for major developments.
- Installation of EV charge points at Arun District Council office car parks to support the Council’s transition to electric vehicles.
- The Council has worked with other District and Boroughs and the County Council to adopt an [EV Strategy](#), establish a partnership and appoint a concession contractor to install, operate and maintain a network of on and off-street EV chargepoints over 15+5 years.
- The Council’s vehicle fleet has been reduced and new electric vehicles have been ordered to replace older vehicles wherever possible.
- Production of an air quality strategy. [Air Quality Strategy 2023 | Arun District Council](#).
- Improved infrastructure for cycling and walking funded by Arun’s share of the UK Shared Prosperity Fund. E.g. cycle repair stations, cycle racks and additional benches which have been installed in Angmering.

Conclusions and Priorities

Air Quality in Arun continues to be good; there remains no apparent need for the declaration of any Air Quality Management Areas. However, local housing and other developments planned or likely to take place in the short- to medium-term, have the potential to increase traffic flows and, if not carefully managed, congestion.

Trends nationally are reassuring as awareness of NO₂ pollution sources increases – low emission vehicle purchases are increasing in number and technology has seen strides

taken in emission controls at source. Although there may be additional traffic in Arun in the years ahead, as the improvements through reduced vehicle emissions become embedded, these may well offset any anticipated increases in pollution. Continued monitoring will provide data for assessment.

The Council's priorities for the coming year are:

- To begin work on implementing the councils new air quality strategy
- To continue to encourage take-up and use of electric and other low-emission vehicles by working with West Sussex County Council on delivering our Electric Vehicle Strategy, with particular focus on delivering EV charge points across the County.
- To assist in progressing road schemes that will provide congestion relief and local reductions in air pollution.
- To encourage and, where possible require, the adoption and use of recognised mitigation measures in the planning consultation process.
- To continue work related to the declaration of a climate emergency in January 2020, specifically encouraging active travel by updating planning policies regarding road infrastructure, reviewing the vehicles it lease's and aiming to change to 100% electric fuelled vehicles. More information can be found here [Climate change | Arun District Council](#).

The availability of financial and staffing resources will continue to affect the ability of the council to work on improving air quality in the district.

Local Engagement and How to get Involved

Arun District Council is a member of the Sussex Air Quality Partnership which benefits from the co-ordinated monitoring of air pollutants across the region, including the "airAlert" service. We all need to play a part in reducing air pollution. Please consider whether you can do any of the following:

- Walk or cycle on shorter journeys
- Join a car-sharing scheme – see [West Sussex Car Share community - part of the Liftshare network](#)
- Turn your engine off when you're not moving

- If you know anyone with asthma or other breathing difficulties, let them know about “airAlert” [Sussex Air Quality Service for Sussex - Sussex-air :: Promoting better Air Quality in Sussex](#)
- Find out from your child’s school about available travel options for getting to school
- Consider switching to a less polluting vehicle next time you change your car. [Green Car Guide](#)
- Make use of the Energise network’s electric vehicle charging points in the District [Map of charging points for electric car drivers in UK: Zap-Map](#)

If you have any questions or want more information, please see the Council’s website [Air quality | Arun District Council](#)

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Arun District Council with the support and agreement of the following officers and departments:

Jamie Dallen – Transport Planning and Policy, Senior Planner, West Sussex County Council

This ASR has been approved by:



Nat Slade, Group Head of Technical Services

This ASR has not been signed off by a Director of Public Health but has been sent to them for their information. The Public Health Head of Emergency Preparedness is a member of Sussex Air and liaises with all West Sussex Authorities.

If you have any comments on this ASR please send them to:

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1 Local Air Quality Management

This report provides an overview of air quality in Arun during 2023. 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 Arun District Council to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 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.

Arun currently does not have any declared AQMAs. A local Air Quality Strategy is in place to prevent and reduce polluting activities. The Local Air Quality Strategy is available at [Air Quality Strategy 2023 | Arun District Council](#). Air quality is also addressed through existing Transport Plans and the West Sussex Joint Air Quality Action Plan, Breathing Better [Air Quality Plan 2020 \(westsussex.gov.uk\)](#)

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

Defra's appraisal of last year's ASR concluded that the "report is well structured, detailed, and provides the information specified in the Guidance." The following comments were designed to help inform future reports and have been responded to in italics:

1. Figure A.1 provides a good overview of trends in monitoring data, and the inclusion of the air quality objective allows for easy comparison with the monitored results. It may be useful to provide additional graphs highlighting trends within certain areas (e.g. Arundel, Barnham and Ford). *Additional graphs included.*
2. The provided figures are clear and well-presented, with most monitoring sites easy to distinguish. It may be beneficial to add a north arrow and scale bar to each figure for completeness. Some labels (DT2 and DT29) appear to overlap the site, and are therefore quite difficult to read. *Overlapping labels have been corrected. Unfortunately the GIS system does not allow scales etc to be added easily. However, this will be raised with IT for the future.*
3. A number of measures to address PM_{2.5} concentrations has been provided. The Council should ensure that progress is made against these measures to ensure that the PM_{2.5} objective of 20 µg/m³ continues to be met, and to make progress towards achieving the additional target of 10 µg/m³ by 2040. *Noted.*
4. In future reports, the Council could include a screenshot of the appropriate bias adjustment factor spreadsheet for completeness and to demonstrate that the correct bias adjustment factor has been used. *Figure C.1 shows a screen shot of the spreadsheet.*

Arun District Council and West Sussex County Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. 19 measures are included within Table 2.1, with the type of measure and the progress the authorities have made during the reporting year of 2023 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:

- The County's major projects webpage information:
[Roadworks and projects – West Sussex County Council](#)
- the ADC Local Plan 2011-2031, chapter on transport - [Our Local Plan | Arun District Council](#)
- the walking and cycling strategy for 2016 to 2026 –[West Sussex Walking and Cycling Strategy 2016-2026 - West Sussex County Council](#)
- the West Sussex Transport Plan 2022-2036 -
[West Sussex Transport Plan – West Sussex County Council](#)
- County wide air quality plan for West Sussex [Air Quality Plan \(westsussex.gov.uk\)](#)

The county air quality plan contains detailed information from across the whole of West Sussex, including details of local strategies, plans and policies at both County and District level. The County's focus will be through:

- *The West Sussex Transport Plan* which has now been reviewed and sets the strategy for guiding future investment in highways and transport infrastructure and was adopted in April 2022. It sets a framework for considering transport infrastructure requirements associated with future development across the county. Ensuring good air quality will have a number of links to the strategies that will sit within the Transport Plan and has particular relevance to improving public health.
- *The West Sussex Walking and Cycling Strategy 2016-26* sets out the aims and objectives for walking and cycling in West Sussex. The strategy contains a prioritised list of over 300 potential walking and cycling improvements suggested by a range of stakeholders and partner organisations. The importance of increasing levels of walking and cycling in helping to tackle poor air quality is a key focus of this strategy.
- *The Rights of Way Management Plan 2018-28* sets out West Sussex County Council's approach to managing the Public Rights of Way (PRoW) network, as well as signposting how improvements can be achieved over the next ten years. The Plan highlights the importance of green space in improving air quality.
- The *Bus Service Improvement Plan (BSIP)* sets out joint priorities of bus operators and West Sussex County Council for investment and spending on local bus services, and how the County Council will do more with partners and bus operators

to promote bus travel. Funding has been requested from government, for emission reductions, service enhancement, information provision, and infrastructure.

- *Guidance on Parking at New Developments 2020* – The parking guidance outlines the expected requirements for car and cycle parking provision at new developments within the county.
- *Electric Vehicles strategy* – In December 2019, the County Council adopted an Electric Vehicle Strategy which sets out an ambitious vision for electric vehicle take up across the county. The Strategy sets out that partners want to see one consistent, affordable, easy to use, reliable, widely accessible and recognisable charging network across the county, providing renewable energy charging. Chargepoints are being located on-street, in public sector car parks, and on community assets county wide, providing charging primarily for those residents who do not have access to off road parking, and who would be unable to switch to EV without public charging. The County Council and all of the District and Borough Councils in the county, including Arun District Council, have procured Connected Kerb as a market based supplier. The supplier is responsible for planning, funding, building, marketing and operating a publicly accessible chargepoint network across West Sussex, as well as providing an on-going 24/7 service (including the management of payments and support), maintenance and repairs to ensure the network is fully operational at all times.

Key completed measures are:

- To produce an air quality strategy. [Air Quality Strategy 2023 | Arun District Council](#)
- Completion of construction of A259 Littlehampton improvements,
- To support the Council's transition to electric vehicles, a total of ten EVCP have been installed in Arun District Council depots.
- Substantial completion of Active Travel Fund infrastructure schemes in Arun District, including the Findon Valley to Findon Village cycle scheme and a signal crossing for pedestrians and cyclists on the A259 to the south east of the Drayton Lane roundabout.
- Opening of the Fitzalan Link Road South in Littlehampton.
- The council implemented its revised taxi policy in 2024. From 2025 the age of a newly licenced vehicle must be less than 10 years and from 2030 it must also be an Ultra Low Emission Vehicle.

Arun District Council expects the following measures to be progressed over the course of the next reporting year (2024):

- Progression of an Active Travel Fund contraflow cycle route on the National Cycle Network (NCN) Route 2 at River Road, Littlehampton, which is expected to be implemented during Spring 2023.
- Ongoing construction of the A284 Lyminster Bypass (North) (completion expected 2024) and commencement of construction of phase 1 (north) of the A29 realignment. Progression of planning/feasibility studies and design stages for other highway schemes (A259 Bognor Regis-Littlehampton, A259 Bognor Regis to Chichester, and A24 Worthing to Horsham including A280 Long Furlong) which should bring congestion relief and sustainable travel benefits.
- The Council has worked with other District and Boroughs and the County Council to adopt an EV Strategy, establish a partnership and appoint a concession contractor to install, operate and maintain a network of on and off-street EV chargepoints over 15+5 years. Phase 1 and 2 was delayed in 2023 but continues to progress.

Arun's priorities for the coming year are:

- To continue to encourage take-up and use of electric and other low-emission vehicles by working with other Districts and Boroughs and the County Council to deliver on the adopted EV Strategy.
- To assist in progressing road schemes that will provide congestion relief and local reductions in air pollution.
- To encourage and, where possible require, the adoption and use of recognised mitigation measures in the planning consultation process.
- The Council declared a climate emergency in January 2020 and is working on a number of projects which will also impact on air quality, specifically encouraging active travel by updating planning policies regarding road infrastructure, reviewing the vehicles it leases and aiming to change to 100% electric fuelled vehicles. More information can be found here [Climate change | Arun District Council](#) The Council's vehicle fleet has already been reduced to 16 vehicles (from 21), with 14 new electric vehicles being ordered in 2023.

- Work with Sussex Air to bid for funding for projects that will improve air quality in Arun.

The principal challenges and barriers to implementation that Arun anticipates facing are:

- Availability of legal and estates surveyor resources to grant leases and wayleave agreements adversely affecting speed with which EV chargepoints can be installed.
- Increasing cost of installing EV chargepoints adversely affecting viability and therefore number of chargepoints.
- Electricity Distribution Network cost and speed of connection adversely affecting number of EV chargepoints and speed of their roll out.
- Availability of resources due to other demands and priorities and vacant posts.

Progress on the following measures has been slower than expected:

- completing conversion of the Council's own fleet to EVs has been delayed because the electricity supply grid connection costs to one of its depots have doubled to £115K making it currently unaffordable, though alternative options are being explored.
- EVCPS for publicly owned and publicly accessible car parks - go live of the Phase 1 and 2 EV chargepoints was not achieved in 2023 as expected. However, most of the Phase 1 chargepoints (comprising 22 in total) have gone live in the first half of 2024, and all remaining Phase 1 and all Phase 2 chargepoints are expected to go live by the end of March 2025.
- Improvements to the A27 at Arundel – this project will not be taken forward following a government review.

Arun worked to implement these measures in partnership with the following stakeholders during 2023:

- West Sussex County Council – Transport and Public Health teams
- All District & Borough Councils in West Sussex and Connected Kerb as part of the EV Network Partnership
- All Local Authorities in East and West Sussex as part of Sussex Air.

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	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Membership of West Sussex Electric Vehicle Charging Partnership	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2019	ongoing	WSCC and West Sussex LAs	Private Investment; Government Funding	NO	Partially Funded	Private funding of charging infrastructure	Implementation	Reduced vehicle emissions	Installation of EV Chargepoints	Contract awarded to ConnectedKerb. Project in delivery with various off-street charge point locations provided, with further engagement about locations for on-street chargers in Arun expected 2024/25	Delivery of on and off -street charging point infrastructure programme started in 2023.
2	Changes to Council vehicle fleet	Vehicle Fleet Efficiency	Other	2022	2022	ADC		NO	Funded		Implementation	Reduced vehicle emissions	Vehicles in use	In Progress, 14 electric vehicles in the fleet.	
3	Review of Taxi policy	Promoting Low Emission Transport	Taxi Licensing conditions		2022	ADC		NO			Planning	Reduced vehicle emissions	Revised policy in place	In review	Came into force 1 April 2024

	Congestion on A284 Lyminster Road and at level crossing (Lyminster)	Traffic Management	UTC, Congestion management, traffic reduction	Construction started October 2022	Expected to complete in Autumn 2024	WSCC, ADC, C2CLEP and Developers	WSCC, C2CLEP, DfT and Developers	NO	Funded	> £10 million	Implementation	Reduced vehicle emissions	By-pass in use	Planning permission granted March 2019; Construction commenced October 2022	The Lyminster bypass (north) scheme is the second part of Lyminster Bypass. This will bypass the village and associated level crossing with a viaduct over Black Ditch River. The southern scheme is being completed by a developer and will cross over the railway line.
5	Congestion on A29 and at level crossing (Woodgate)	Traffic Management	UTC, Congestion management, traffic reduction	Phase 1 north (A29 south of Eastergate Ln to Barnham Rd) Construction estimated start Spring/Summer 2025	Phase 1 estimated completion Spring 2027; Phase 2 south (Barnham Rd to south of Lidsey Bends) TBC	WSCC & ADC. WSCC, C2CLEP and Developers	WSCC, C2CLEP and Developers	NO	Funded	> £10 million	Planning	Reduced vehicle emissions	New A29 section in use	Planning application approved, detailed design complete	£22.7m Northern section to be jointly funded by C2CLEP, WSCC and private developers; Southern section funding partly dependent on local housing S106 contribution
6	Congestion at peak hours - A27	Traffic Management	UTC, Congestion management, traffic reduction	Estimated scheme commencement 2025	Estimated scheme completion 2030	National Highways, WSCC, ADC & others	National Highways	NO	Partially Funded	> £10 million	Planning	Reduced vehicle emissions	New A27 section and junction improvements	Statutory consultation and consent application was started.	The Department for Transport has confirmed that this scheme will be deferred to RIS3 (third Road Investment Strategy)

															(covering 2025-30)
7	A259 Littlehampton improvements	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Main construction phase commenced in September 2020	Estimated completion Spring 2023	WSCC, ADC,	Developer contributions & Coast to Capital LEP funding	NO	Funded	> £10 million	Completed	Reduced vehicle emissions	Improvements to A259	Scheme completed 2023	Scheme completed. £29.5m approved budget.
8	A259 Bognor Regis to Littlehampton Corridor improvements	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Feasibility study completed in Autumn 2021	2025-30	WSCC, ADC,	DfT MRN and LLM funding	NO	Not Funded	>£10m	Planning	Reduced vehicle emissions	Improvements to A259	Public Consultation, design development and submission of outline business case to DfT. Awaiting review and approval by DfT prior to detailed design and full business case submission.	Dependent on local housing S106 contributions and DfT MRN (Major Road Network)/LLM (Local Large Majors) funding

9	A24 Worthing to Horsham Corridor improvements, including A280 Long Furlong	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Feasibility study complete 2022	2025-2030	WSCC, ADC, WBC & HDC.	DfT MRN and LLM funding	NO	Not Funded	>£10m	Planning	Reduced vehicle emissions	Improvements to A280/ A24 Findon	Feasibility study completed. Next steps include public engagement / consultation expected to commence 2024/25.	Dependent on scheme prioritisation. Dependent on local housing S106 contributions and DfT MRN (Major Road Network)/LLM (Local Large Majors) funding
10	A259 Bognor Regis to Chichester Corridor Enhancement	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Feasibility study to complete 2023	2025-2030	WSCC/CDC/ADC	tba	NO	not Funded	>£10m	Planning	Reduced vehicle emissions	Improvements to A259	Feasibility study completed. Stage 1 public engagement Spring 2024, and further consultation expected 2024/25.	Dependent on local housing S106 contribution and DfT MRN (Major Road Network)/LLM (Local Large Majors) funding
11	NCN2 Cycle route (Bognor to Littlehampton section)	Transport Planning and Infrastructure	Cycle network	2016	2018	ADC, WSCC,NCN	tba	NO	Funded	£1 million - £10 million	Completed	Behavioural change	New section open	Completed 2018	Completed
12	Membership of SAQP	Public Information	Via television	2010	ongoing	Sussex LAs, PHE, ESCC and WSCC	Sussex LAs, PHE, ESCC and WSCC	NO	Funded		Completed	Behavioural change	Delivery of data, Air Alert and other schemes	Ongoing	LA budget cuts
13	A24 Findon Valley to Findon Village cycle scheme	Transport Planning and Infrastructure	Cycle network	2022	2023	WSCC	Active Travel Fund	NO	Funded	£1 million - £10 million	Completed	Behavioural change	Improvements to A24	Funding award from Active Travel Fund, scheme completed 2023	N/A

14	Additional Active Travel Fund cycle & pedestrian schemes	Transport Planning and Infrastructure	Cycle network	2022	2023	WSCC, ADC	Active Travel Fund	NO	Funded	£100k - £500k	Implementation	Behavioural change	Improvements to infrastructure	Funding award from Active Travel Fund; signalised 'toucan' crossing for A259 Chichester Road at Merston completed 2023; contraflow cycle route for River Road, Littlehampton completed 2023; upgrade of puffin crossing to toucan crossing B2259 Felpham Way, Bognor Regis construction expected to commence late 2024	Outcomes of consultation
15	Electric Vehicles Charging Developer Infrastructure	Promoting Low Emission Transport	Procuring alternative refueling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging			ADC	Developers	NO	Funded		Implementation	Reduced vehicle emissions	Installation of EV charge points	EV charge points continued to be negotiated for new developments until the changes to Building Regs came into effect in June 2022.	Reluctance from developers to install sufficient chargers of suitable charging capability.
16	Bognor Regis seafront regeneration plans	Promoting travel alternatives	Other	2022	2023	ADC, WSCC	WSCC design funding	NO	Partially Funded	£1 million - £10 million	Planning	Reduced vehicle emissions	Delivery of infrastructure improvements	Preliminary Design Stage	Potential cost increases which may require scope alteration
17	Littlehampton Terminus Place and wider Town Centre Public Realm Improvement Project	Promoting travel alternatives	Other	2022	2023	ADC, WSCC	WSCC, ADC, Littlehampton Town Council, C2C LEP	NO	Fully funded	£1 million - £10 million	Implementation	Reduced vehicle emissions	Delivery of infrastructure improvements	Completed	No issues at this stage

18	Arun Active Travel Connectivity Study routes	Transport Planning and Infrastructure	Cycle network	2020	TBC	ADC, WSCC, National Highways	TBC	NO	Not funded	£1 million - £10 million	Planning	Reduced vehicle emissions	Delivery of infrastructure improvements	Active Travel Study published 2020, pre-feasibility assessments for example, Arundel to Littlehampton Ford Route and River Arun routes	Securing funding
19	Installation of 10 EV charge points in Council car parks	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2022	ADC		NO	Funded		Completed	Reduced vehicle emissions	Installation of EV charge points	Completed	

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 Strategy⁶, 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.

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

- Requirement for dust control in Construction Management Plans for developments through the planning consultation process according to the merits of individual sites
- Publication of guidance document for small scale construction sites which includes dust control advice [Construction Code of Practice \(arun.gov.uk\)](https://www.arun.gov.uk/construction-code-of-practice)
- Responding to complaints of dust nuisance using investigation and enforcement powers through Environmental Protection legislation
- Participation in reviews of the *Air Quality and Emissions Mitigation Guidance for Sussex Authorities (2020)* to further encourage lower-emission developments
- Continuing participation in, and funding for, the Sussex Air Quality Network which includes seven permanent automatic particulate monitoring sites measuring both PM₁₀ and PM_{2.5}. Currently, none of which are in the district.
- Encouraging electric vehicle take-up by participation in the West Sussex EV Partnership and increasing the availability of on-street EVCPs
- The Council's vehicle fleet is being transferred to electric vehicles.
- To support the Council's transition to electric vehicles, a total of ten EVCP have been installed in Arun District Council office car parks. The council will continue to review opportunities to install additional EVCPs in its building car parks.
- Arun District Council will work in partnership with Public Health to communicate the impacts of air pollution including PM_{2.5}. Additionally, Arun District Council will utilise

⁶ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

the revised Air Quality and Emissions Mitigation Guidance for Sussex Authorities, to encourage lower emission developments with planning and transport authorities to assist in reducing PM_{2.5} emissions.

- The Clean Burn Sussex scheme will be promoted again this winter.
- The council revised its taxi policy in 2024. From 2025 the age of a newly licenced vehicle must be less than 10 years and from 2030 it must also be an Ultra Low Emission Vehicle.
- Encourage active travel such as walking and cycling in the district, our planning policies have been updated regarding road infrastructure, to make sure that improved walking and cycling routes are accessible across Arun.

As part of the air quality strategy the council also proposes to investigate

- declaring some or all of the district a Smoke Control Area.
- the use of powers to require drivers to switch off their engines while their vehicles are parked and to issue fixed penalty notices to those who refuse.
- adoption of supplementary planning guidance for the control of dust and emissions from construction and demolition.
- adoption of a code of construction practice, including minimum emission standards for non-road mobile machinery used in construction.
- set up minimum emissions standards for equipment used by Council contractors.
- investigate methods for dust monitoring around large construction sites.

The local indicator for PM_{2.5} in the district under the Public Health Outcomes Framework, Fraction of mortality attributable to particulate air pollution indicator' value is now 4.6%, a slight decrease from last year's figure of 5.0 – this is lower than the National indicators for England, and the South East (5.4) and similar to the value of our neighbouring authorities (Worthing 4.7 and Chichester 4.8).

In the absence of PM_{2.5} and PM₁₀ monitoring the current Defra background mapping resource has been used to identify the maximum background annual mean PM_{2.5} concentration within the Local Authority of 10.0 ug.m⁻³. This is below the current objective of 20 ug.m⁻³.

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

This section sets out the monitoring undertaken within 2023 by Arun District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Arun District Council has no automatic (continuous) monitoring stations. However, the Council benefits from the co-ordinated monitoring of air pollutants across the region [Sussex-air :: Promoting better Air Quality in Sussex :: sussex-air.net :: Home](https://sussex-air.net). The Sussex Air Quality Monitoring Network is managed and Co-ordinated by Bureau Veritas, on behalf of the SAQP and they provide data calibration and ratification of results.

National monitoring results are available at [Monitoring Networks - Defra, UK](https://www.gov.uk/government/collections/monitoring-networks)

3.1.2 Non-Automatic Monitoring Sites

Arun District Council undertook non- automatic (i.e. passive) monitoring of NO₂ at 26 sites during 2023. This is an increase of four new sites. [Table A.1](#) in Appendix A presents the details of the non-automatic sites.

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

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater

than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2023 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.

The data shows a continued low level of NO₂ in the district with levels well below the objective and no areas of particular concern. No AQMAs are required within Arun District Council's area. NO₂ levels in the district have remained relatively stable over the last five years (excluding data from 2020 and 2021) with only small fluctuations and a general downwards trend since 2019 at sites which were in existence prior to 2020. NO₂ levels in 2023 show a decrease in levels from 2022 with the exception of sites 2 and 30 which increased. However, these two sites are on a stretch of the A259 which has been undergoing widening over recent years which may have resulted in increased traffic since the works were completed. Monitoring will continue at all sites in 2024 and the monitoring network will be reviewed again at the end of 2024.

Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
1	Terminus Road, Littlehampton (Bus stop between train station and Albert Road)	Roadside	502568	102147	NO2	No	3.0	2.0	No	2.7
2	Worthing Road, Littlehampton (parallel to No. 1 Cornfield Close)	Roadside	503438	103365	NO2	No	7.0	2.0	No	2.8
8	Ford Road, Ford (opp Carleton Canine Centre on 40 mph sign)	Roadside	500297	104359	NO2	No	7.5	1.5	No	2.7
12	Chichester Road, Bognor (lamp post on junction with Town Cross Ave opp. car wash)	Roadside	493356	100090	NO2	No	0.5	1.5	No	2.8
13	Rowan Way, Bognor (Lampost A15)	Roadside	493408	101228	NO2	No	14.8	1.3	No	2.7

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)
	after Ash Grove but before the roundabout)									
16	The Causeway (hanging basket bracket on fascia of 'Aundel Park Inn')	Roadside	502354	106527	NO2	No	0.0	8.1	No	2.3
17	Lyminster Road (BT post No. 741034 outside 'Coach House')	Kerbside	502865	105336	NO2	No	4.7	1.0	No	2.8
20	Barnham Road, Barnham (drain pipe of 2 Rose cottages/20 Barnham Road)	Roadside	495950	104396	NO2	No	0.0	1.5	No	2.3
21	Longford Road, Bognor (lamp post next to Reynolds Funeral Service)	Roadside	493371	099465	NO2	No	1.7	1.2	No	2.7
22	Lyminster Road, Littlehampton (Last lamp post on the left before train crossing)	Roadside	502746	103857	NO2	No	9.5	1.9	No	2.7
23	Queen Street, Arundel (Bus Stop just before Co-Op)	Roadside	502011	106929	NO2	No	1.7	3.2	No	2.7

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)
24	Ford Road, Arundel (lamp post left hand side on corner of penfolds place)	Roadside	501181	106638	NO2	No	4.2	4.5	No	2.7
25	Barnham Road, Barnham (Lamp post, left side of the road just past train station car park entrance)	Roadside	495772	104458	NO2	No	0.0	1.9	No	2.7
26	A29, Lidsey Road (Lamp post, left side of road opposite Price of Wales Pub)	Roadside	493801	104307	NO2	No	3.0	2.0	No	2.7
27	High Street, Bognor (down pipe outside Lloyds bank above cash point)	Urban Centre	493601	099012	NO2	No	0.0	6.6	No	2.7
28	Anchor Springs, Littlehampton (Lamp post opp. Bus stops)	Urban Centre	502888	102175	NO2	No	11.2	2.1	No	2.7
29	Mill Lane, Rustington (lamp post at entrance to Windmill pub car park)	Roadside	505605	102953	NO2	No	12.0	1.0	No	2.7

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)
30	A259, Rustington (1st lamp post after turning to south drive/ham manor. Best to park down this road)	Roadside	506003	103189	NO2	No	10.0	2.8	No	2.7
31	A259 Littlehampton Rd, Ferring (lamp post by bus stop just before Kilham Way)	Roadside	508900	103374	NO2	No	6.0	4.5	No	2.7
32	Old Worthing Rd, East Preston (lamp post on left just before the train crossing)	Roadside	507474	103002	NO2	No	12.5	1.0	No	2.7
33	Downs Way, East Preston (lamp post outside house no. 70)	Roadside	507040	103155	NO2	No	7.8	2.8	No	2.5
34	Station Rd, Angmering (sign post south of the train crossing, opp turning & same side as Co-Op)	Roadside	506480	102917	NO2	No	14.0	2.8	No	2.7
35	A280 Clapham Common, Long Furlong	Kerbside	509145	105800	NO2	No	7.37	0.5m	No	2.0

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)
	(Telegraph pole of corner)									
36	The Coach House, Fontwell A27 (Pole outside gates of Coach house, small area to pull up into)	Roadside	494863	107154	NO2	No	43.55	2.75	No	2.5
37	Outside No 54 Paghams Road, Paghams (lamp post on grass verge)	Suburban	488893	097859	NO2	No	27.97	0.70	No	2.2
38	Outside No 3 Gloucester Road, Bognor Regis (lamp post opposite short stay carpark)	Suburban	494119	099082	NO2	No	4.65	1.70	No	2.4

Notes:

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

(2) N/A if not applicable.

Table A.2 – 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 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
1	502568	102147	Roadside		100.0	20.1	15.7	18.0	20.5	18.4
2	503438	103365	Roadside		100.0	20.2	16.8	18.4	21.4	23.1
8	500297	104359	Roadside		100.0	15.2	12.4	13.0	13.8	13.7
12	493356	100090	Roadside		100.0	25.8	17.8	19.6	23.4	21.5
13	493408	101228	Roadside		100.0	24.1	19.9	21.1	26.5	23.4
16	502354	106527	Roadside		100.0	13.2	9.1	9.4	11.5	9.2
17	502865	105336	Kerbside		100.0	30.9	23.0	26.3	33.4	29.9
20	495950	104396	Roadside		100.0	18.5	12.9	13.9	16.0	15.0
21	493371	099465	Roadside		100.0	25.5	19.2	21.2	24.6	22.8
22	502746	103857	Roadside		100.0		17.6	19.8	21.8	20.6
23	502011	106929	Roadside		100.0		13.8	13.7	16.1	14.9
24	501181	106638	Roadside		100.0		15.5	16.7	18.8	17.3
25	495772	104458	Roadside		100.0		14.8	14.8	18.0	17.4

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 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
26	493801	104307	Roadside		100.0		14.9	15.0	18.6	16.6
27	493601	099012	Urban Centre		90.4		14.8	15.0	18.7	16.7
28	502888	102175	Urban Centre		100.0		12.4	13.9	15.6	15.0
29	505605	102953	Roadside		100.0		17.8	20.0	21.3	20.7
30	506003	103189	Roadside		100.0		23.3	22.4	24.7	28.2
31	508900	103374	Roadside		100.0		13.8	14.8	16.7	16.2
32	507474	103002	Roadside		100.0		15.6	16.8	16.2	16.3
33	507040	103155	Roadside		100.0		11.6	13.5	13.6	14.5
34	506480	102917	Roadside		100.0		13.4	13.7	15.5	14.2
35	509145	105800	Kerbside		100.0					16.4
36	494863	107154	Roadside		100.0					28.4
37	488893	097859	Suburban		100.0					11.0
38	494119	099082	Suburban		92.3					16.9

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 $\mu\text{g}/\text{m}^3$.

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

NO_2 annual means exceeding $60\mu\text{g}/\text{m}^3$, 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 – all sites

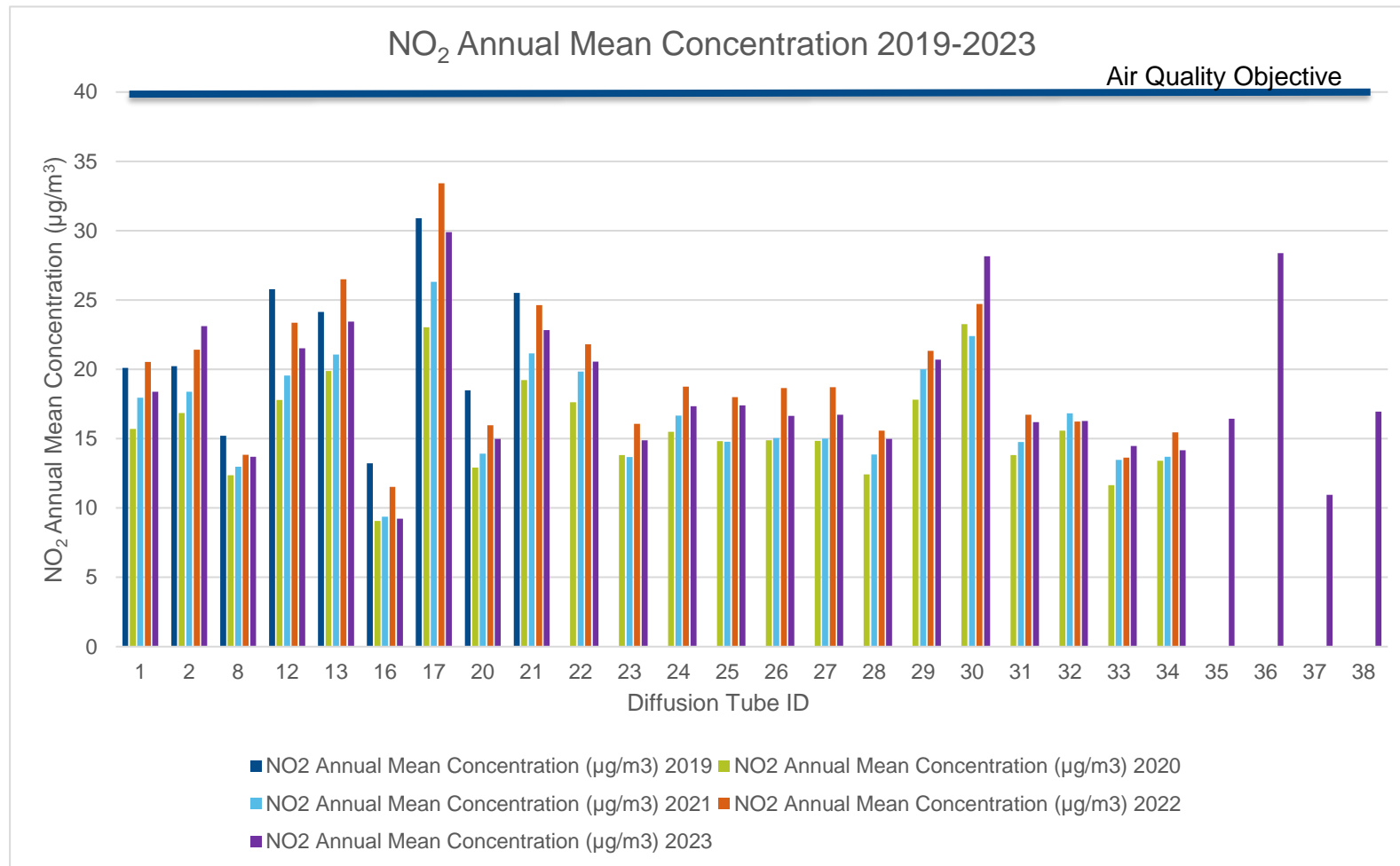


Figure A.2 – Trends in Annual Mean NO₂ Concentrations – Arundel

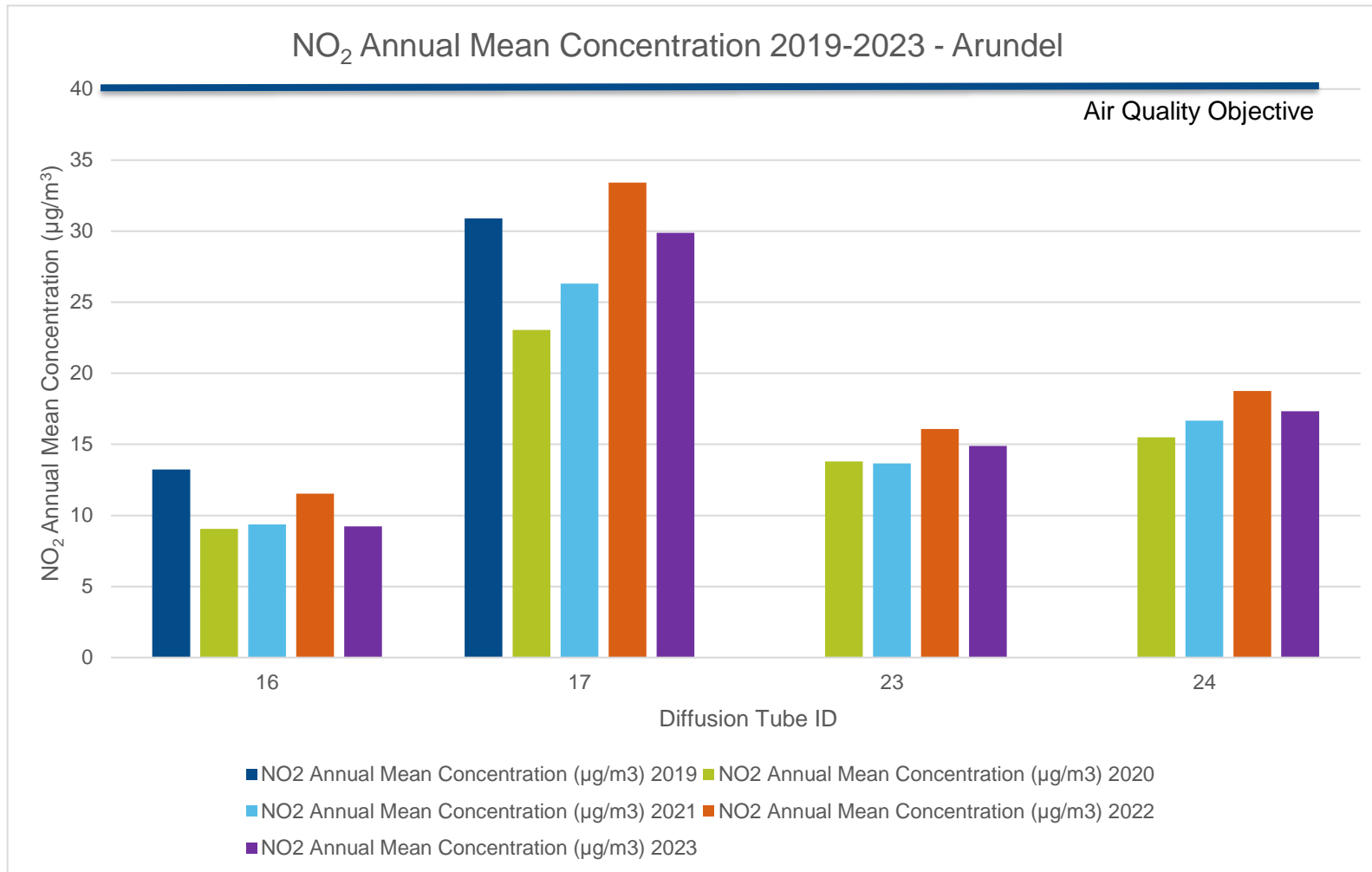


Figure A.3 – Trends in Annual Mean NO₂ Concentrations – Barnham and Ford

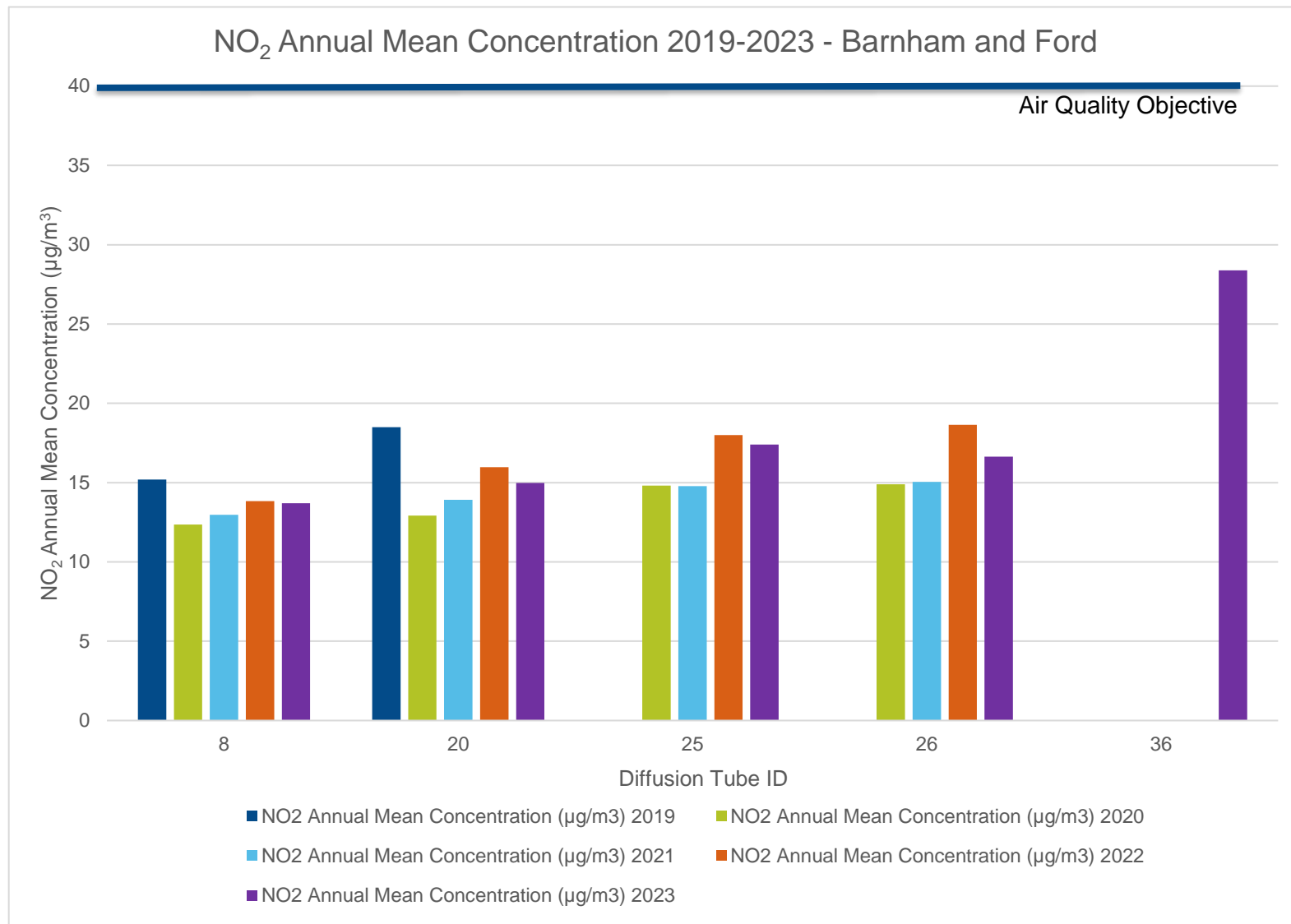


Figure A.4 – Trends in Annual Mean NO₂ Concentrations – Bognor Regis

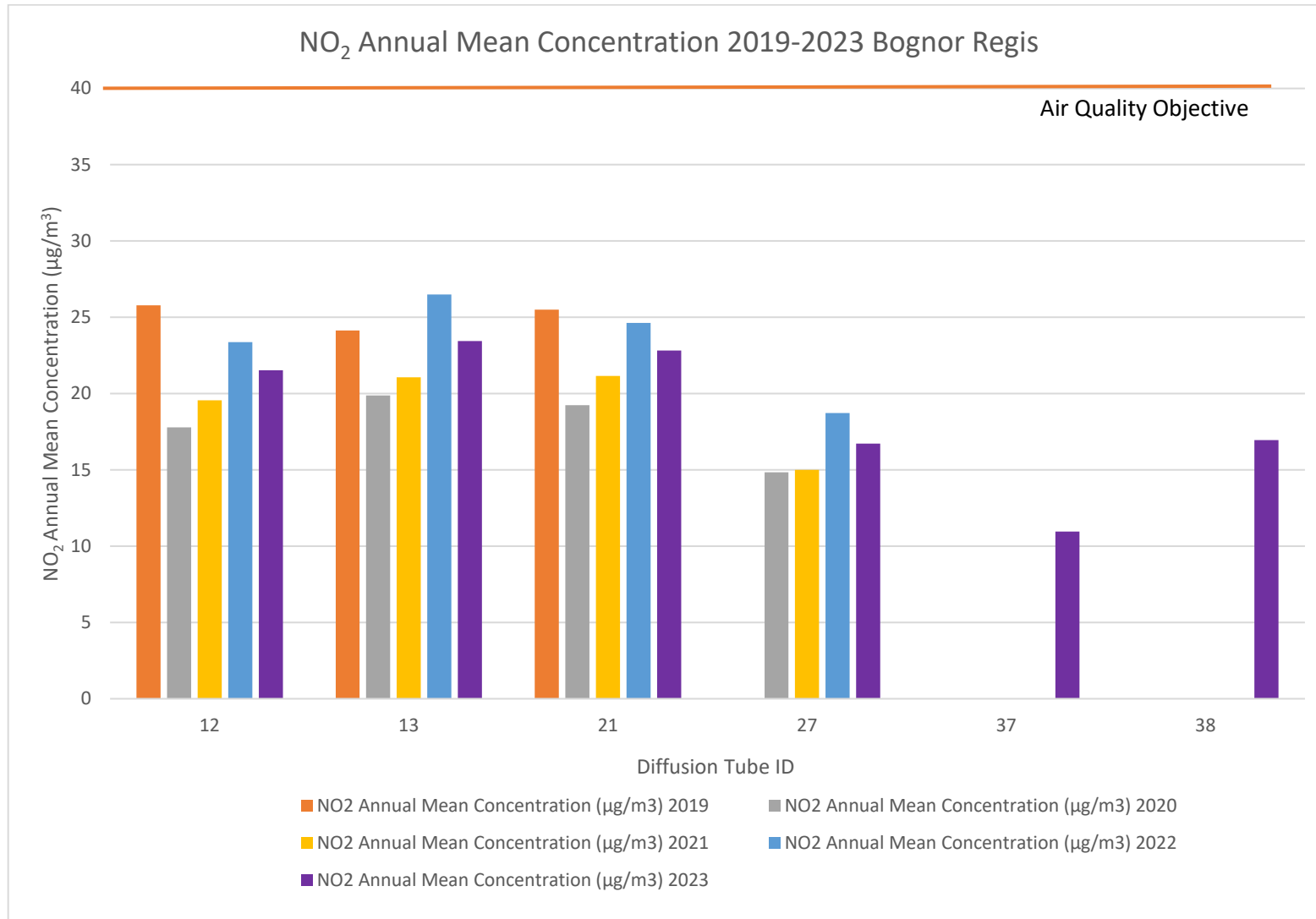
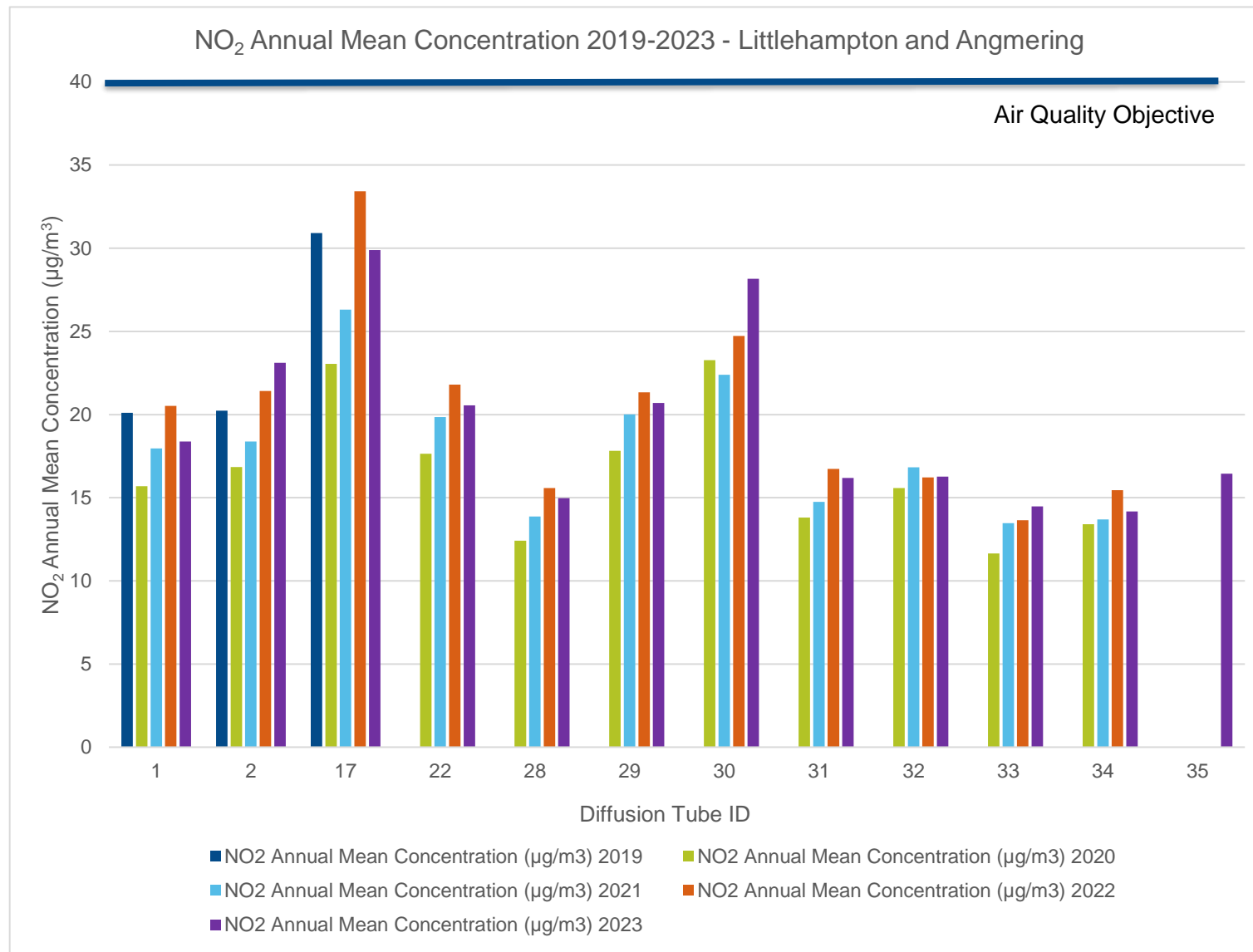


Figure A.5 – Trends in Annual Mean NO₂ Concentrations – Littlehampton and Angmering



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

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 (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	502568	102147	35.5	37.8	26.4	25.1	19.6	16.8	13.2	18.4	20.3	22.8	28.4	18.4	23.6	18.4	-	
2	503438	103365	36.8	38.6	24.7	32.1	26.4	25.9	25.0	26.8	27.9	29.4	35.3	26.6	29.6	23.1	-	
8	500297	104359	15.8	23.8	18.6	14.5	16.7	18.8	14.2	16.0	17.3	20.7	18.1	16.3	17.6	13.7	-	
12	493356	100090	16.6	42.7	23.5	40.4	27.2	31.6	18.9	25.6	29.9	28.7	28.9	17.2	27.6	21.5	-	
13	493408	101228	20.5	40.6	31.7	33.2	29.6	26.3	24.4	28.1	31.7	35.1	36.8	22.6	30.1	23.4	-	
16	502354	106527	17.3	19.2	12.5	8.1	13.7	11.4	8.7	12.3	11.5	12.3	5.4	9.5	11.8	9.2	-	
17	502865	105336	38.9	49.3	40.0	40.1	44.6	35.7	30.5	34.9	40.7	39.9	39.3	26.0	38.3	29.9	-	
20	495950	104396	17.6	28.1	18.8	20.8	18.6	15.8	14.1	18.0	20.0	19.5	25.5	13.6	19.2	15.0	-	
21	493371	099465	37.5	41.8	20.7	29.3	29.1	26.4	23.8	24.2	31.8	28.5	32.3	25.8	29.3	22.8	-	
22	502746	103857	30.3	38.8	24.6	27.1	22.5	23.6	20.5	22.2	24.2	29.6	28.9	24.0	26.4	20.6	-	
23	502011	106929	23.3	26.7	19.8	15.2	16.0	16.6	17.9	15.4	19.2	20.4	21.2	17.4	19.1	14.9	-	
24	501181	106638	29.9	35.6	23.6	22.2	18.9	18.3	16.8	16.3	21.1	21.2	25.7	17.1	22.2	17.3	-	
25	495772	104458	28.7	33.9	23.1	21.9	18.0	19.4	19.2	18.0	20.6	24.3	28.7	11.9	22.3	17.4	-	
26	493801	104307	26.0	30.0	24.0	18.6	20.2	19.8	16.8	18.8	21.7	23.5	23.8	12.8	21.3	16.6	-	
27	493601	099012	22.1	29.8	20.3	29.6	20.5		18.4	14.4	20.7	20.8	20.4	18.9	21.4	16.7	-	
28	502888	102175	26.7	29.2	20.1	20.4	17.3	15.5	15.5	13.1	15.2	17.6	23.8	16.0	19.2	15.0	-	
29	505605	102953	37.2	31.6	29.7	24.5	22.9	24.8	20.7	23.0	26.1	25.2	33.6	19.1	26.5	20.7	-	

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 (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
30	506003	103189	40.8	44.0	29.9	31.5	22.0	32.5	38.5	31.3	39.4	43.2	36.7	43.4	36.1	28.2	-	
31	508900	103374	25.8	33.6	21.3	23.2	17.4	16.6	11.8	17.3	20.9	20.1	21.4	19.7	20.8	16.2	-	
32	507474	103002	31.9	32.5	18.7	19.2	18.5	22.6	11.7	18.4	18.2	21.8	21.1	15.8	20.9	16.3	-	
33	507040	103155	26.1	27.5	17.5	20.4	15.5	15.1	11.6	13.4	14.6	18.9	25.7	16.4	18.6	14.5	-	
34	506480	102917	21.9	28.0	19.7	19.0	16.2	15.6	13.4	14.3	17.0	19.0	22.1	11.8	18.2	14.2	-	
35	509145	105800	21.9	30.1	25.6	21.4	21.9	20.4	20.9	20.5	21.8	2.9	23.0	22.5	21.1	16.4	-	
36	494863	107154	34.8	46.1	33.0	44.1	32.1	36.6	31.0	36.5	38.9	38.9	34.2	30.4	36.4	28.4	-	
37	488893	097859	16.1	21.2	15.7	14.9	10.9	13.6	10.7	12.9	13.0	12.4	18.0	9.2	14.1	11.0	-	
38	494119	099082	26.3	32.5	19.4		17.0	16.8	20.1	17.7	22.2	21.6	26.3	19.1	21.7	16.9	-	

- All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.
- Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.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.
- Arun District Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 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 Arun During 2023

No new sources of air pollution have been identified as currently operating within Arun, however we are aware of plans that may do so in the future. Several major road schemes were either in the planning or construction phase during 2023 including the realignment of the A29, the Lyminster Bypass and Fitzalan Link Road which are designed to improve traffic flow and thus air quality but may result in a deterioration in air quality in other areas. A number of new monitoring sites were set up in 2020 in these areas to monitor any changes. Data to date does not suggest any concerns.

The proposed Rampion 2 offshore wind farm could have temporary impacts on air quality as the cabling is laid across the district. A new crematorium opened in the district in 2023 and an application was made for a permit under the Environmental Permitting Regulations 2016 for a small waste incineration plant in Ford. This application is currently being processed. Environmental Health will require and comment on submitted air quality assessments as part of the planning and permitting process and will adjust monitoring if required.

Additional Air Quality Works Undertaken by Arun During 2023

Arun District Council has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

Arun District Council undertakes monitoring with non-automatic methods using nitrogen dioxide (NO₂) diffusion tubes in various locations across the district. There are no Air Quality Management Area's in Arun District.

In January 2022 Arun District Council changed the laboratory that provides and analyses its NO₂ diffusion tubes. SOCOTEC has taken over this role from South Yorkshire Air Quality Samplers which closed at the end of 2021. The NO₂ tube preparation method used is 50% triethanolamine (TEA) in acetone. The samples have been analysed in accordance with SOCOTEC's standard operating procedure ANU/SOP/1015. This method meets the guidelines set out in DEFRA's 'Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance'. This analysis of diffusion tube samples to determine the amount of nitrogen dioxide present on the tube is within the scope of their UKAS schedule. In the AIR PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a **Satisfactory** laboratory.

Monitoring was completed in adherence with the 2023 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Arun 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 2023 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/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Arun have applied a national bias adjustment factor of 0.78 to the 2023 monitoring data. A summary of bias adjustment factors used by Arun over the past five years is presented in Table C.1. A screen shot of the national bias adjustment factor spreadsheet is shown in Table C.2.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	06/24	0.78
2022	National	03/23	0.76
2021	National	03/22	0.77
2020	National	06/21	0.77
2019	National	03/20	0.78

Table C.2 – Screen shot of bias adjustment factor spreadsheet

National Diffusion Tube Bias Adjustment Factor Spreadsheet Spreadsheet Version Number: 06/24

Follow the steps below in the correct order to show the results of relevant co-location studies. This spreadsheet will be updated at the end of September 2024.

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods.

Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet.

This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use. [LAQM Helpdesk Website](#)

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory. Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1:	Step 2:	Step 3:	Step 4:								
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor shown in blue at the foot of the final column.								
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data.	If you have your own co-location study then see footnotes. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953								
Analysed By	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)	
3228	SOCOTEC Didcot	50% TEA in acetone	2023	R	Horsham District Council	10	23	23	-2.3%	G	1.02
3234	SOCOTEC Didcot	50% TEA in Acetone	2023	UI	North Lincolnshire Council	10	14	11	26.2%	G	0.79
3235	SOCOTEC Didcot	50% TEA in acetone	2023	R	Bridgend Council	11	32	27	20.8%	G	0.83
3237	SOCOTEC Didcot	50% TEA in acetone	2023	R	Cambridge City Council	12	22	18	24.8%	G	0.80
3250	SOCOTEC Didcot	50% TEA in acetone	2023	R	Leeds City Council	10	39	29	32.3%	G	0.76
3251	SOCOTEC Didcot	50% TEA in acetone	2023	KS	Leeds City Council	10	30	20	48.9%	G	0.67
3252	SOCOTEC Didcot	50% TEA in acetone	2023	R	Leeds City Council	12	25	19	30.0%	G	0.77
3253	SOCOTEC Didcot	50% TEA in acetone	2023	UC	Leeds City Council	11	26	19	40.0%	G	0.71
3267	SOCOTEC Didcot	50% TEA in acetone	2023	KS	Marylebone Road Intercomparison	11	53	38	41.4%	G	0.71
3284	SOCOTEC Didcot	50% TEA in acetone	2023	R	Vale Of White Horse District Council	10	22	18	21.2%	G	0.83
3285	SOCOTEC Didcot	50% TEA in acetone	2023	UB	Wirral Council	11	15	13	16.7%	G	0.86
3294	Socotec Didcot	50% TEA in acetone	2023	R	Dacorum Borough Council	11	21	18	12.0%	P	0.89
3295	Socotec Didcot	50% TEA in acetone	2023	R	Derry City And Strabane District Council	10	33	34	-3.8%	G	1.04
3296	Socotec Didcot	50% TEA in acetone	2023	UB	Derry City And Strabane District Council	10	11	8	37.1%	P	0.73
3305	Socotec Didcot	50% TEA in acetone	2023	R	Horsham District Council	12	21	16	31.4%	G	0.76
3312	Socotec Didcot	50% TEA in acetone	2023	R	Waverley Borough Council	12	24	18	31.9%	G	0.76
3313	Socotec Didcot	50% TEA in acetone	2023	R	Waverley Borough Council	12	26	19	35.8%	G	0.74
3704	SOCOTEC Didcot	50% TEA in acetone	2023		Overall Factor³ (34 studies)				Use		0.78

For Casella Stanger/Bureau Veritas (NOT Bureau Veritas Labs) use Gradko 50% TEA in Acetone.
For Casella Stanger/Bureau Veritas (Bureau Veritas Labs) use Environmental Sciences Group

NO₂ Fall-off with Distance from the Road

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

No diffusion tube NO₂ monitoring locations within Arun required distance correction during 2023.

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

Figure D.1 – Map of Non-Automatic Monitoring Site – Arundel

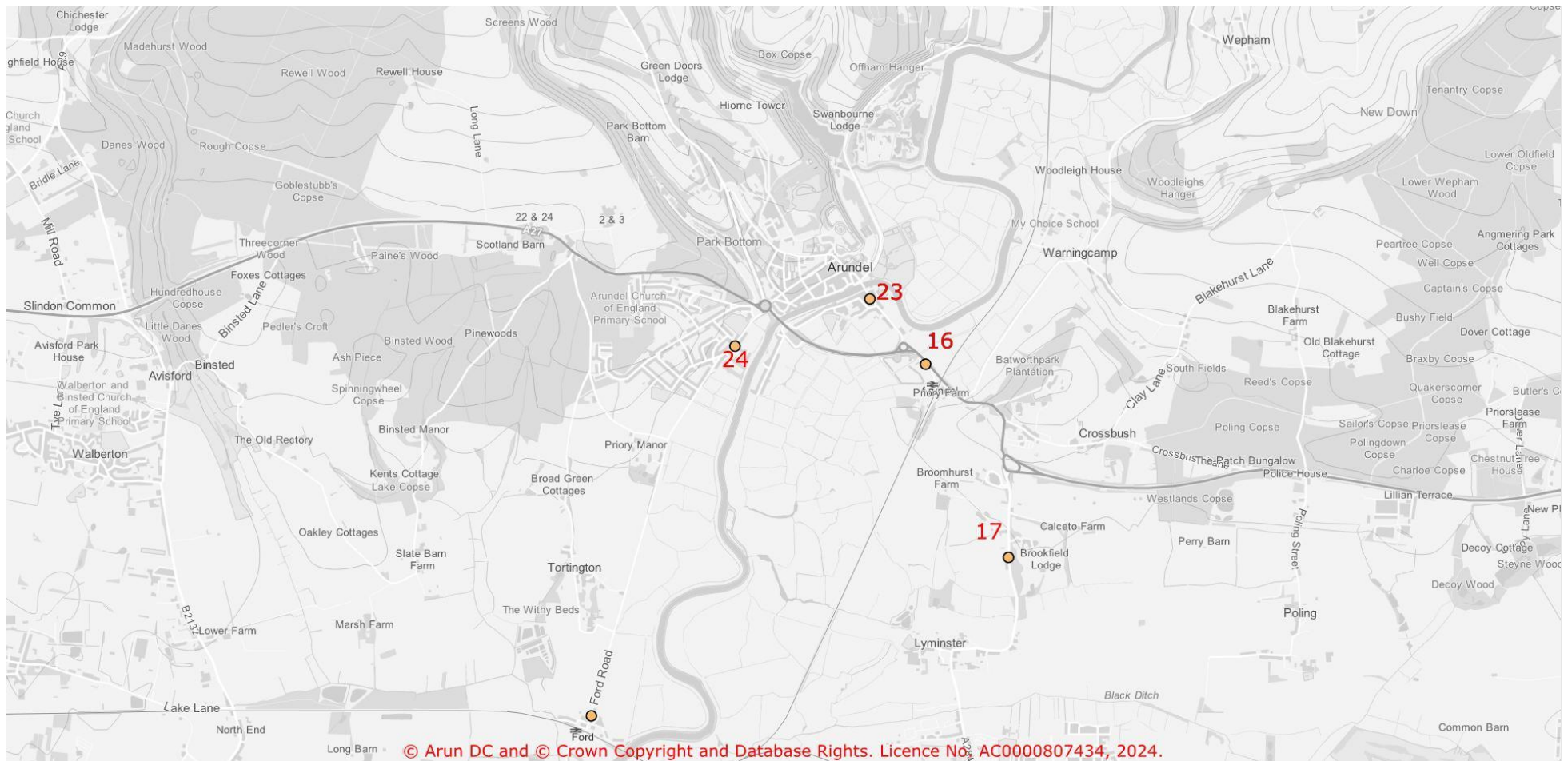


Figure D.2 – Map of Non-Automatic Monitoring Site – Barnham and Ford

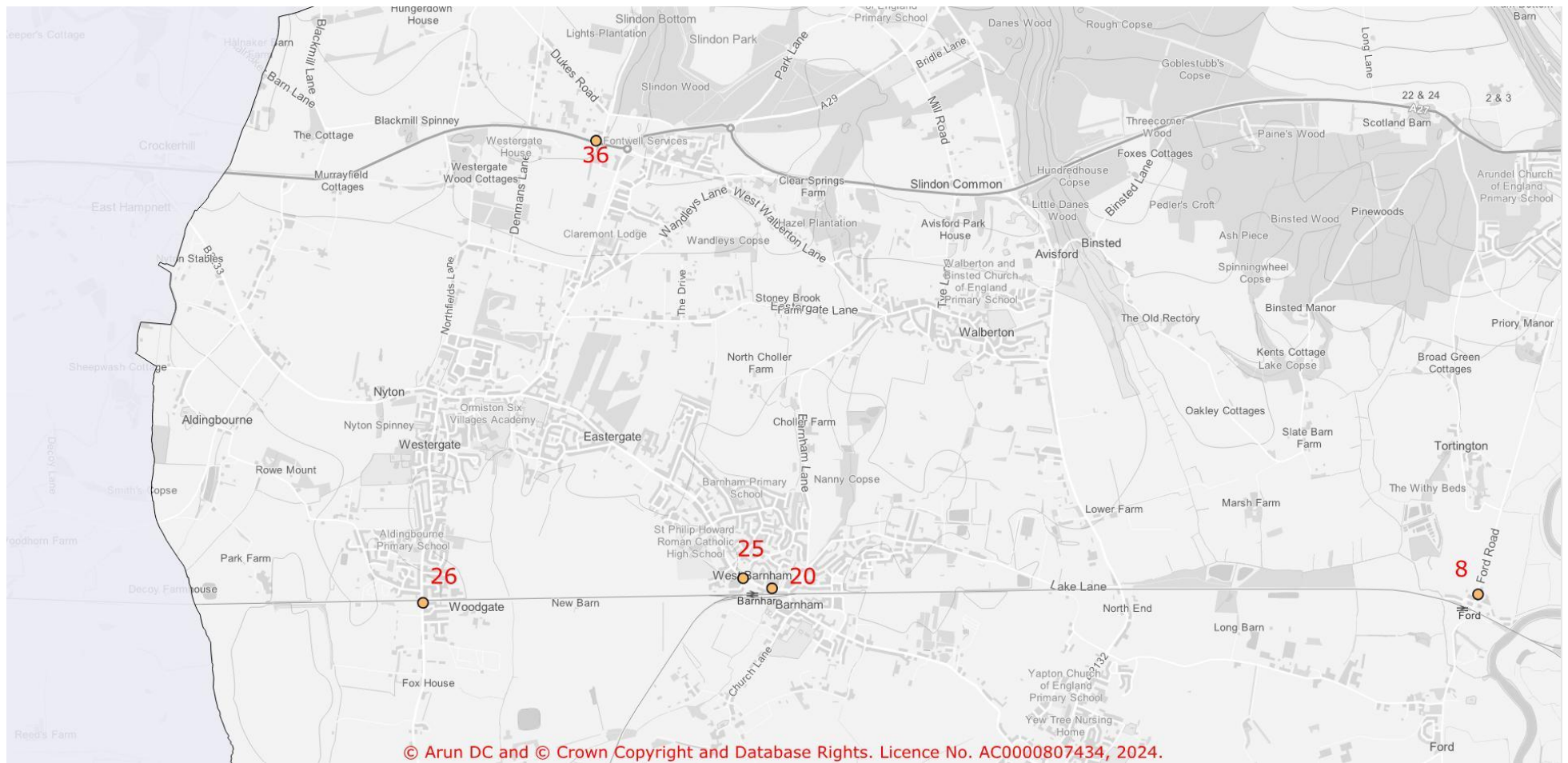


Figure D.3 – Map of Non-Automatic Monitoring Site – Bognor Regis

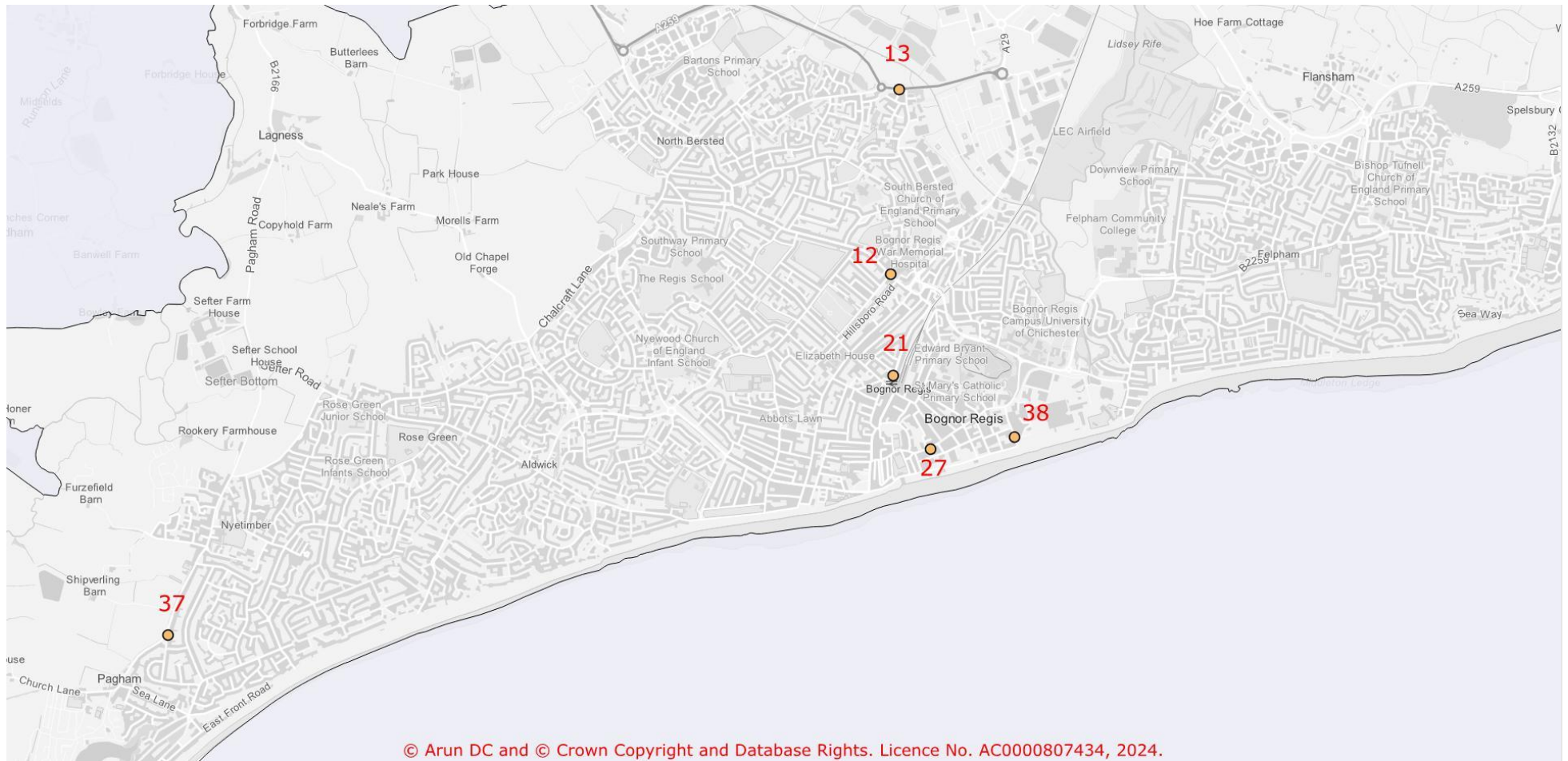


Figure D.4 – Map of Non-Automatic Monitoring Site – Littlehampton and Angmering



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO ₂)	200µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO ₂)	40µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM ₁₀)	40µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO ₂)	125µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO ₂)	266µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.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.