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: July 2024

Information	Chichester District Council Details
Local Authority Officer	Kate Simons Simon Ballard
Department	Environmental Protection
Address	East Pallant House East Pallant Chichester West Sussex PO19 1TY
Telephone	01243 521160
E-mail	ksimons@chichester.gov.uk sballard@chichester.gov.uk
Report Reference Number	ASR 24
Date	July 2024

Executive Summary: Air Quality in Our Area

Air Quality in Chichester District

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 year[1].

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 often the most exposed to dangerous levels of air pollution[2].

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 main pollutant in Chichester district is nitrogen dioxide (NO_2), the key source being road traffic. Several roads in Chichester and Midhurst are affected by elevated concentrations of NO_2 (exceeding National Objectives) and Air Quality Monitoring Areas (AQMAs) have had to be declared (two of which have been revoked). There are two extant AQMAs at the following locations:

---

[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

- St Pancras, Chichester (in 2007)
- Rumbolds Hill, Midhurst (in 2020)

See web link Air quality - Chichester District Council

The latest monitoring data indicates that concentrations of NO_2 have generally decreased over the last five years and air quality in the AQMAs was in compliance with the National Objectives during 2023. If this trend continues the remaining AQMAs will be revoked in 2025/6.

During 2023, the TEOM analyser was replaced with a dual PM_{10}/$PM_{2.5}$ analyser and a new air conditioning unit was installed within the Stockbridge monitoring station. The new analyser was purchased using DEFRA air quality grant monies and data from it will be reported in next year's ASR. The diffusion tube network has been expanded with the introduction of two new tube locations (Tangmere and Westgate, Chichester – data from these tubes will be reported in the next ASR).

The Council continues to work with partners both internal and external to improve air quality. Works continue to develop a feasibility design for one of the CDC Local Cycling and Walking Infrastructure Plan (LCWIP) routes in the west of the City. This work is being undertaken by West Sussex County Council (WSCC) and its consultants in partnership with Chichester District Council (CDC). The Council has been supporting WSCC on various other schemes aimed at increasing walking, cycling and wheeling in the district including schemes at Oaklands Way and Westhampnett Road in Chichester and a scheme using the A259 corridor from Chichester to Bognor Regis. The Council also continues to work with WSCC and its delivery partner Connected Kerb for the roll out of EV charging points both in Council car parks and in on-street locations, some of which are already installed and operational.

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 Plan[3] 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 Strategy[4] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[5] 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.

---

[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

Key completed actions by CDC during 2023 are as follows:

- Installation of a dual $PM_{2.5}$ /PM_{10} monitor within the Stockbridge air quality monitoring station (CI1) to replace the TEOM analyser and replacement of the air conditioning system – commissioned December 2023.
- To associate the Sussex-air Air Quality and Emissions Guidance for Sussex within the Council's planning process – CDC Local Plan submitted to Planning Inspectorate for independent examination May 2024.
- To continue to work to implement our policy that 'all new council cars and vans shall be electric unless there is a business reason as to why not'. An EV van was procured during 2023 for our Environmental Protection and Facilities teams. Three other electric vehicles have been purchased during 2023 by the Council including two refuse freighters.
- Delivery of 12 EV charge points in two locations as part of partnership work with WSCC and Connected Kerb (CK).
- We continued to run and maintain two air quality monitoring stations during 2023 and have published the monitoring information at http://sussex-air.net – this work is used within the air Alert forecasting service (see measure 17 in Table 2.2).
- We continue to monitor 20 sites using NO_2 diffusion tubes and have added two new sites in October 2023 (Westgate in Chichester and A27 at Tangmere).
- We continue our partnership working with WSCC, Sussex-Air and Chichester & District Cycle Forum.

Conclusions and Priorities

The 2023 monitoring of NO_2 shows no exceedances of Air Quality Standards at either of the two real time monitoring stations. At all of the diffusion tube monitoring locations the UK's NO_2 air quality annual mean Objective of 40µg/m^3 was met (both within and outside AQMAs).

We are not aware of any new developments within the district that will have a significant air quality impact in the future although there are a number of residential developments that could result in increasing traffic volumes which could have an impact on local air quality.

The Council Air Quality Action Plan (AQAP) was updated during 2021 and the Council's priorities for the next five years are detailed in the document and summarised in Section 2.2 of this report.

Local Engagement and How to get Involved

The public can get involved by supporting behavioural change initiatives such as car sharing, walking, cycling, using public transport, joining the Car Club, buying zero emissions vehicles for personal and commercial travel and turning petrol/diesel engines off when stationary. Other initiatives such as minimising wood burning, only burning dry, well-seasoned wood and composting instead of having bonfires can also reduce air pollution.

The Chichester and District Cycle Forum provides information on local cycling opportunities and campaigns on behalf of cyclists. The Forum is open to the public and further information can be obtained by emailing: environmentalprotect@chichester.gov.uk

The Environmental Protection team regularly provides updates to Members of the Council regarding progress on implementing the AQAP and provides details on the staff intranet/website regarding air quality issues and campaigns.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection team at Chichester District Council with the support and agreement of the following officers and departments:

West Sussex Highways, Transport and Planning departments

This ASR has been submitted for approval to:

Andrew Frost – Director Planning and Environment, CDC

Cllr Jonathan Brown – Deputy Leader of the Council and Cabinet Member for Environmental Strategy.

This ASR has not been signed off by a Director of Public Health but has been made available to the appropriate officer and relevant comments have been included in the report.

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

Chichester District Council
East Pallant House
East Pallant
Chichester
West Sussex
PO19 1TY
Telephone: 01243 521160
Email: ksimons@chichester.gov.uk

Table of Contents

Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Chichester District 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 Chichester 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.

A summary of AQMAs declared by Chichester District Council can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within Chichester District. Appendix D: Maps of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objective pertinent to the current AQMA designations is as follows:

- NO_2 annual mean

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
St Pancras AQMA	17-May-07	NO$_2$ Annual Mean	An area along St Pancras, Chichester between Eastgate Square and New Park Road. Note St Pancras forms a street canyon in this section.	NO	48.3	36.3	4 years[6]	CDC AQAP 2022	https://www.chichester.gov.uk/pollutioncontrolairquality

---

[6] Four years compliance includes years affected by Covid lockdown and the period post-covid when the economy and economic activity returned to 'normal'. As such it is the Council's intention to await three years in a row of compliance post 2022 before moving to revoke this AQMA.

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Rumbolds Hill AQMA	17-Jan-20	NO$_2$ Annual Mean	An area along Rumbolds Hill, Midhurst between the A272 at its southern end and the junction of North Street (A286) and Knockhundred Row at its northern end.	NO	42	27.5	4 years[6]	CDC AQAP 2022	as above

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

☒ **CDC confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in Chichester District

Defra's appraisal of last year's ASR included the following comments *(CDC responses in italics)*:

- The data capture for PM_{10} was below 75% therefore required annualization. Due to intermittent faults with the analyser throughout the year, the estimated $PM_{2.5}$ is not considered realistic. CDC should ensure the analyser is fully functional and calibrated regularly to ensure accurate results – *the TEOM analyser was replaced in 2023 with a dual $PM_{10}/PM_{2.5}$ analyser which was commissioned in December 2023.*

- QA/QC procedures are robust and well explained and appropriately evidenced, however a screenshot of the national bias adjustment spreadsheet should be included in future to cross reference the local bias adjustment factors used. - *A screenshot of the national bias adjustment spreadsheet has been included within this report. For the 2023 report, the National Bias Adjustment has been used.*

- Following an additional year of compliance, CDC can consider revocation of both AQMA's, or potentially amending the AQMA to cover a smaller area and revising a new AQAP to reflect this – *see section 3.2 for commentary of this issue.*

- Defra recommends that Directors of Public Health approve draft ASRs. Sign off is not a requirement, however collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all. Please bear this in mind for the next annual reporting process too – *Public Health officers have been consulted regarding this year's ASR and comments included where necessary.*

- On the basis of the evidence provided by the local authority the conclusions reached in the report are **accepted** for all sources and pollutants. ASRs are public facing documents that serve to keep local communities informed of the steps being taken by their local authority to improve air quality, and as such it is important that they are accessible and easy to read. Following the completion of this report, Chichester District Council should submit an Annual Status Report in 2024. *- An ASR has been completed for 2024.*

Chichester District Council (CDC) 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 2.2. Twenty current measures are included within Table 2.2 plus three completed measures (and one aborted measure), with the type of measure and the progress CDC has 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 2.2.

More detail on these measures can be found in our Air Quality Action Plan (AQAP), Chichester City Local Cycling and Walking Infrastructure Plan (LCWIP) and the WSCC Connected Kerb project[7]. Key completed measures are:

- Using DEFRA air quality grant monies we installed a dual $PM_{2.5}$/PM_{10} monitor within the Stockbridge air quality monitoring station (CI1) to replace the TEOM analyser and replaced a defective air conditioning unit – commissioned December 2023.
- To associate the Sussex-air Air Quality and Emissions Guidance for Sussex within the Council's planning process – CDC Local Plan submitted to Planning Inspectorate for independent examination in May 2024.
- To continue to work to implement our policy that 'all new council cars and vans shall be electric unless there is a business reason as to why not'. An EV van was procured during 2023 for our Environmental Protection and Facilities teams. Three other electric vehicles have been purchased during 2023 by the Council including two refuse freighters.
- The Council's pilot two-EV car fleet will be extended by a further two years (from October 2024).
- Delivery of 12 EV charge points at two locations as part of partnership work with WSCC and Connected Kerb (CK)[8].
- We continued to run and maintain two air quality monitoring stations during 2023 and have published the monitoring information at http://sussex-air.net – this work is used within the air Alert forecasting service (see measure 17 in Table 2.2).
- We continue to monitor 20 sites using NO_2 diffusion tubes and have added two new sites in October 2023 (Westgate in Chichester and A27 at Tangmere).
- We continue our partnership working with WSCC, Sussex-Air and Chichester & District Cycle Forum.
- Delivery of active travel schemes by WSCC resulting in improvements to bridleways in Kirdford/Wisborough Green and Midhurst and development of concept designs for schemes in Chichester and A259 Bognor Regis to Chichester corridor (see measures 2 and 4 in Table 2.2).
- We have arranged for our Members to receive a twice yearly briefing session on sustainable transport infrastructure delivery to increase their knowledge around scheme delivery across the district.
- We have continued to support WSCC as our sustainable transport infrastructure delivery partner by taking our consultation responses to their Active Travel Strategy and LCWIP documents through our Environment Panel and Cabinet.
- We continue to work with National Highways, WSCC, Sustrans and the community in order to bring forwards the A259 Chichester to Emsworth active travel improvement scheme.
- The Council has renewed its Easit membership and continues to promote the Lease car scheme as staff benefits to encourage non-car mode travel and the lease of EV's. Both measures were delivered by the air quality officer.

---

[7] West Sussex EV Chargepoint Network | Connected Kerb

[8] In fact 18 were delivered but due to electricity supply issues were not able to be energised and so are not reported here.

CDC expects the following measures to be completed over the course of the next reporting year:

- To support our partners, particularly WSCC, with respect to developing an initial feasibility study for one of the cycle routes in the west of Chichester City (LCWIP Route K) and further supporting work on WSCC STIP[9] cycle route proposals.
- To continue to work with WSCC and CK for the delivery of an on-street and in Council car parks network of EVCPs. We are working with our Car Parks team on this long-term project and anticipate significant progress this coming year.
- To encourage use of the electric pool cars and electric pool bikes by staff for work related journeys. Money previously planned to extend the Car Club fleet has been diverted towards extending the CDC staff EV pool car fleet pilot for a further two years (October 2024 – September 2026). Promotion of the staff pool bikes is delivered through CDC's intranet.
- Consultation on the WSCC Walking and Cycling Strategy closed in December 2023 and a draft consultation report has been produced with a view to adoption in Autumn 2024. Several routes within the Strategy are within CDC area. The Council has endorsed the draft WSCC Strategy via Environment Panel and Cabinet during the reporting year.
- In March 2024 ATE awarded WSCC £1.014m (capital) from the Active Travel Fund 4 Extension. This is being used to deliver 4 active travel improvement schemes across the County including a new puffin crossing on A286 Midhurst Road at Lavant (within CDC area). The new crossing has been delivered and will support walking to Lavant Primary School and access to the nearby bus stops for services to Chichester and Midhurst.
- The Council is consulting on a potential project for a significant expansion of the car club in the Climate Change Emergency Action Plan public consultation. If the public support the proposals, this work would be a joint air quality and climate team project.
- The Council also continues to work with WSCC, NH, other partners (Sustrans) and the community towards the delivery of the A259 Chichester to Emsworth Active Travel improvement scheme. The scheme is technically and politically complex. At the time of writing feedback has been received from ATE and is being reviewed on the 'in-principle' design prior to seeking funding for a further redesign.

CDC's top priorities for the coming year are (see Table 2.2 for further details):

- Installation of significant number of EV recharging points in CDC car parks and on-street locations through the Connected Kerb (CK) contract (partnership of district and borough councils to deliver charge point network).
- Ongoing work on CDC LCWIP scheme concept design, working with WSCC using Community Infrastructure Levy (CIL) funds.

---

[9] Sustainable Transport Investment Programme – schemes include: Oaklands Way and Westhampnett Road in Chichester, A259 Chichester to Bognor Regis Corridor Scheme

- Promotion of existing Chichester Car Club and possible joint air quality and climate team project to significantly expand Car Club[10].

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

- WSCC Highways/Transport Teams
- Neighbouring District and Borough Councils
- National Highways
- Public Health Team at WSCC
- Sussex-air members

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

- Availability of funding for LCWIP[11] and AQAP projects.
- Availability of WSCC highways staff resources to deliver multiple LCWIP schemes.

Progress on the following measures has been slower than expected due to:

- Expansion of the Car Club car continues to be delayed due to changes in travel patterns following the pandemic.

CDC anticipates that the measures stated above and in Table 2.2 will achieve compliance with the NO_2 annual mean air quality standard in 2024 at both the St Pancras, Chichester and Rumbolds Hill, Midhurst AQMAs (as predicted by our air quality modelling carried out in 2020[12] – see the Council's AQAP for more details).The Council plans to revoke these AQMAs in 2025/6 if there is a further year of compliance in 2024.

---

[10] This action is dependent on the public's support through the Climate Change Action Plan

[11] This includes both the Council's LCWIP and (separately) WSCC's LCWIP.

[12] This modelling is available on request contact sballard@chichester.gov.uk and/or ksimons@chichester.gov.uk

Table 2.2 – 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	Cleaner Vehicles	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2012	2025	WSCC/ CDC	WSCC/ CDC	NO	Partially Funded	£50k - £100k[13]	Implementation		Number of EV recharging points	installed 18 recharging points in Chichester District having secured funding in 2019 from OLEV. Part of regional network of rapid charging points through Sussex-air project. Joined Connected Kerb contract October 2022 (partnership of district and borough councils to deliver charge point network). 12 on-street sockets delivered.	Significant number of sockets due to be delivered in Council's car parks and in on-street locations in 2024/25
2	Cycling and Walking Initiatives	Promoting Travel Alternatives	Promotion of cycling	2012	2026	CDC/ WSCC	CDC/ WSCC	NO	Partially Funded	£50k - £100k	Planning		% increase in cycling	stable levels of cycling from 2022-2023 based on cycle loop data. CDC LCWIP for Chichester City adopted April 2021 and CDC/WSCC have produced concept design for one of CDC LCWIP routes. Supported WSCC on work on STIP schemes. Consultation on WSCC Walking and Cycling Strategy closed in December 2023 and data has been analysed. Document to be adopted in September 2024.	WSCC awaiting reassessment of capability rating in order to be able to bid for future funds from ATE. £474,000 Capability Fund (revenue) funding awarded to increase capability to develop a pipeline of walking, wheeling and cycling schemes - CDC LCWIP scheme one of top 3 schemes for which funding available.

[13] The EV charge points delivered under the Council's contract with WSCC/Connected Kerb are at zero-cost as the contract is a concession contract.

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
3	Car Clubs	Alternatives to private vehicle use	Car Clubs	2012	2026	CDC/ WSCC	CDC/Car club operator	NO	Partially Funded	£10k - 50k	Planning		Utilisation rate of cars to be 20%	7 cars available within Chichester City - 2 EV cars used by CDC staff during working hours and available to public out of hours. Development worker employed 2014-16 to promote Club. £14.7k available to extend 2 staff cars for 2 years (2024 - 2026). 64 corporate members of car club at CDC, 36 active users. Total mileage Oct 22 to March 24 - 6260 miles.	CDC is consulting on a potential project for significant expansion of the car club in the Climate Change Emergency Action Plan public consultation. Consultation is due to close September 2024 - if public support the proposal the work would be a joint air quality and climate team project.
4	Cycling and Walking Initiatives	Transport Planning and Infrastructure	Cycle network	2023	2024	WSCC	ATE	NO	Funded	£100k - £500k	Implementation		increase in active travel	WSCC awarded ATE capital funding (£1.014m) from Active Travel Fund 4 extension. This is to be used for 4 active travel schemes across County including puffin crossing on A286 Midhurst Road at Lavant. Construction started 3 June 2024 and the project has been completed. Other cycling improvements in district to be delivered through CIL and S106 funding.	The new crossing will support walking/cycling to Lavant Primary School and access to the nearby bus stops for services to Chichester and Midhurst - part funded by ATE funding ((£79k) and £61k of s106 funding. The Council continues to work with WSCC toward the intended delivery of the CDC LCWIP Route B and A259 Chichester to Emsworth active travel improvement scheme. It is anticipated that a section of LCWIP Route B will be subject to a redesign and further public consultation in this financial year.
5	Air Quality Working Group	Promoting Travel Alternatives	Other	2012	2030	CDC	CDC	NO	Not Funded		Implementation	N/A	2 meetings per year	Average of 2 meetings /year up to 2022. 8 meetings in 2023	Reports to Environment Panel at CDC
6	Planning policy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2012	2024	CDC	CDC	NO	Not Funded		Implementation		No of planning conditions imposed on planning consultations	Sussex-air produced Planning Guidance and Low Emissions Strategy and document adopted by CDC Policy Planners in Local Plan (submitted to Planning Inspectorate for independent examination in May 2024).	WSCC revised parking standards 2019 are applied to planning consultations as necessary (relating to parking facilities and Building Control Regulations Part S applied with respect to EV charging points.
7	School travel plans	Promoting Travel Alternatives	School Travel Plans	2012	2030	WSCC/ CDC	WSCC/ CDC	NO	Not Funded		Planning		% children travelling to school by sustainable means	Living Streets project engaged with 5 primary schools in District and staff/students at Chichester Uni between 2018-2021	WSCC in discussion with Living Streets about future projects

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
8	WSCC and CDC travel plans	Promoting Travel Alternatives	Workplace Travel Planning	2012	2030	WSCC/ CDC	WSCC/ CDC	NO	Not Funded		Implementation		% WSCC and CDC staff travelling by sustainable means	WSCC grey fleet business mileage 6.6 million km - slightly above 6m target. Easit scheme at WSCC and CDC to encourage rail use. Cycle to work scheme at CDC with £3k limit for ebikes. CDC procured two EV bikes for staff use Autumn 2022 to supplement existing pool pedal cycles and pool bikes actively promoted on CDC's intranet.	WSCC pool fleet mileage: Petrol 470,138 km, hybrid pool 686,844 km, EV pool 36,862 km, train 1,802,854 km - increase in train mileage and decrease in petrol mileage from 2022.
9	Business travel plans	Promoting Travel Alternatives	Workplace Travel Planning	2012	2030	WSCC	WSCC	NO	Not Funded		Implementation		Travel plans implemented within target period	over 50 Travel Plans have been submitted since 2009	3 business plans submitted in 2023
10	Residential travel plans	Promoting Travel Alternatives	Personalised Travel Planning	2012	2030	WSCC	WSCC	NO	Not Funded		Implementation		Travel plans implemented within target period	over 51 Travel Plans have been submitted since 2009	4 additional plans submitted in 2023
11	TravelWise/s marter choices	Public Information	Via the Internet	2012	2030	WSCC/ CDC	WSCC	NO	Not Funded		Implementation		No. of users of WSCC car share database for PO19 area	Travel patterns have altered since 2021 with many employees hybrid working	data awaited for 2023
12	Cycle route information	Promoting Travel Alternatives	Promotion of cycling	2012	2030	CDC	CDC	NO	Not Funded		Implementation		No. of maps sold through Tourist Information or other outlets	5 route leaflets have been produced and over 1513 copies have been sold to date	33 maps sold in 2023
13	Cycle journey planning	Public Information	Via the Internet	2012	2030	WSCC	WSCC	NO	Not Funded		Implementation		No. of journeys planned on website (note this covers whole of West Sussex area)	Web link available on WSCC and CDC websites	Access to data (number of journeys planned on website) no longer available but website still functioning
14	Public transport infrastructure	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2012	2030	WSCC	WSCC	NO	Funded	£50k - £100k	Implementation		Increase in use of public transport	RTPI displays installed at key locations across the City	52 battery powered displays installed in Chichester District between Jan - March 2024. Two additional bus shelters installed in City in 2023.

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
15	Cleaner buses	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2012	2030	WSCC	WSCC	NO	Funded		Implementation		% or Euro 6 buses	Two Euro 6 double deckers added to fleet in 2019. Emissions retrofitting project ongoing for 2022 for five Euro 4 and three Euro 3 buses. February 2023 WSCC entered into Enhanced Partnership (EP) scheme with bus operators for a period of 5 years.	Details of the EP proposals are available at https://www.westsussex.gov.uk/media/20299/bsip_enhanced_partnership_scheme.pdf - includes new bus service 500 between Chichester and Littlehampton via Chichester hospital.
16	Licensing requirement for taxis	Promoting Low Emission Transport	Taxi Licensing conditions	2012	2030	CDC	CDC	NO	Not Funded		Implementation		No. of Euro 4 vehicles	For vehicles 5 years and over, MOT and fitness test required every 6 months	Most recent taxi licensing policy adopted in 2022. Over 40% of fleet either hybrid or electric vehicles.
17	Forecasting, monitoring and public information	Public Information	Via other mechanisms	2012	2030	SAQP	SAQP	NO	Partially Funded		Implementation		No. of people registered to receive alerts	590 subscribers in 2022	656 subscribers at end June 2024
18	Air quality monitoring and traffic monitoring	Traffic Management	UTC, Congestion management, traffic reduction	2012	2030	CDC/ WSCC	CDC/ WSCC	NO	Not Funded		Implementation		Reduction in traffic volumes	traffic data awaited	
19	A27 by-pass 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	2017	2030	National Highways	National Highways	NO	Not Funded		Planning		Reduction in congestion	NH consulted during 2017 on options for improving A27 around Chichester however no option chosen	No funds allocated for A27 improvements at current time. NH's Road Investment Strategy 3 is anticipated in early 2025. A259 Chichester to Bognor corridor scheme links to A27 at Bognor Rd roundabout. Stage 1 consultation completed in spring 2024, stage 2 consultation scheduled for Autumn 2024 – multi modal scheme with improvements to walking and cycling, bus priority measures and localised highway improvements.
20	Variable message signing (VMS) on A27	Traffic Management	UTC, Congestion management, traffic reduction	2017	2030	National Highways	National Highways	NO	Not Funded		Planning		No. of warnings made per year	NH decision awaited	awaiting outcome of A27 improvements decision
21	Park and Ride schemes in and around City	Alternatives to private vehicle use	Bus based Park & Ride			CDC/WSCC	CDC/WSCC	NO	Not Funded		Aborted		Reduce traffic in City centre by 3%	Not currently part of area transport strategy for Chichester within the West Sussex Transport Plan (2022-2036) due to lack of possible sites	

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
22	Speed limit changes - 20 mph as part of school safety zone	Traffic Management	Reduction of speed limits, 20mph zones	2012	2015	WSCC	WSCC	NO	Funded		Completed		Reduction in traffic queues within Orchard St AQMA	Signs installed around schools and on nearby roads - AQMA revoked in 2022	measure completed and ongoing
23	Blanket 20mph scheme on residential streets	Traffic Management	Reduction of speed limits, 20mph zones	2014	2016	WSCC	WSCC	NO	Funded		Completed		Reduced speed on residential streets	Roads monitored before and after implementation and speed reductions achieved on some roads	measure completed and ongoing
24	MOVA traffic signal optimisation	Traffic Management	UTC, Congestion management, traffic reduction	2012	2015	WSCC	WSCC	NO	Not Funded		Completed		Reduction in traffic queues within AQMAs	2 new Puffins to replace existing crossings implemented	eliminates ghost users and reduces red time

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[14], 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.

Data from the Public Health Outcomes Framework (Public Health Outcomes Framework - Data - OHID (phe.org.uk) indicates that Chichester District has a lower fraction of mortality (4.8% in 2022) attributable to particulate air pollution than the England average of 5.8%. This is similar to other nearby authorities and represents an improvement during the period 2018 – 2022).

CDC/WSCC is taking the following measures to address PM$_{2.5}$:

- Measure 1 – cleaner vehicles – we have installed electric vehicle charging points across the district over recent years and have a procurement policy to encourage the use of electric vehicles where the business case is favourable. We have implemented a pilot pool car fleet for CDC employees comprising ZEZ vehicles and the pilot is being extended for two more years. Further EV charge points were installed in 2023-24 in partnership with WSCC and their provider Connected Kerb and this project is continuing.
- Measure 2 and 3 – two electric pool bikes have been installed to enhance the current pool bike fleet and they are being actively promoted to staff. We continue to promote cycling opportunities and the use of the Car Club for CDC staff. Car clubs are also promoted in responses to planning applications for large scale developments in order to help reduce private vehicle mileage and increase the use of alternative modes of transport.
- Measure 15 – cleaner buses – under the Bus Service Improvement Plan an Enhanced Partnership Scheme has been formally made by West Sussex County Council and local bus operators (commencement date 10 February 2023) Details of the obligations on authorities are given at the following link WSCC Enhanced partnership scheme for buses (westsussex.gov.uk) The partnership will be considering its approach to assisting operators to increase their fleets of zero emission vehicles through applications to the Zero Emission Bus Regional Area (ZEBRA). This opportunity is primarily focused where zero emission buses will make a notable positive impact on air quality.
- Measure 16 – taxi licensing conditions – air quality considerations have been included with CDC's taxi licensing policy. There are currently 37.3% of the taxi fleet comprised of hybrid vehicles and 2.8% of the fleet are electric.

---

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

The Council has yet not declared any Smoke Control Areas however within the revised AQAP we have included the following measures:

- Consider declaring Smoke Control Areas which would allow for regulatory oversight of firewood and stoves being sold.
- Include in the Communications Plan for Air Quality a specific thread on domestic burning, bonfires, fire-pits, open fires and wood burners.

Where considered appropriate we have recommended that construction environmental management plans (CEMP) are put in place during the construction of new developments which include dust control strategies. Where appropriate officers are objecting to planning applications that include wood-burning stoves.

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

This section sets out the monitoring undertaken within 2023 by CDC 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

CDC undertook automatic (continuous) monitoring at two sites during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. The http://www.sussex-air.net page presents automatic monitoring results for CDC, 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

CDC undertook non- automatic (i.e. passive) monitoring of NO_2 at 22 sites during 2023 (note monitoring at two of the sites commenced in October so the results will be reported next year when a full set of data is available). 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

$40\mu g/m^3$. 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 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.

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 $200\mu g/m^3$, not to be exceeded more than 18 times per year.

Following the economic downturn during the pandemic many businesses have moved to 'hybrid' working arrangements resulting in reduced vehicle trips for commuting.

Data in Table A.3 indicates that there has been a decrease in the NO_2 annual mean concentration at the Stockbridge monitoring station (from 22.4 to 20.4 $\mu g/m^3$) and the air quality objective was not exceeded. The results at this location have been decreasing for the past five years (from 28 to 20.4 $\mu g/m^3$). The monitoring station is not within an AQMA and does not represent a location of relevant exposure however it is the only real-time monitoring location available near the former Stockbridge AQMA. There are three co-located diffusion tubes at the monitoring station and the 2023 annual mean for these tubes was 22.8 $\mu g/m^3$. As noted for the air quality monitoring station, the air quality objective was not exceeded. Measured concentrations for the Claremont Court diffusion tube location (which is in the former Stockbridge AQMA) remained similar to last year at 27.6 $\mu g/m^3$ compared to 27.1 $\mu g/m^3$ last year, (and over the last five years the results have decreased from 33 to 27.6 $\mu g/m^3$). As reported last year, the Stockbridge Roundabout AQMA was revoked on 9 May 2022 based on air quality monitoring data showing compliance with the air quality standard for over three years and the results of air quality modelling (presented within the AQAP).

At the Westhampnett Road monitoring station the NO_2 annual mean concentration was 21.5 $\mu g/m^3$. This monitoring station was commissioned in February 2019 so we now have a five year trend at this location and the results are showing a decreasing trend (from 27 to 21.5 $\mu g/m^3$). There is a diffusion tube located to the east of the monitoring station. The annual mean for the diffusion tube has been decreasing over the last five years (from 27 to 22.3 $\mu g/m^3$). Neither the monitoring station nor the diffusion tube are located within an AQMA.

At the former Orchard Street AQMA there are still a number of diffusion tubes being deployed. The annual mean for the diffusion tube at the former Orchard Street monitoring station was 16.3 $\mu g/m^3$ (over the last five years the results have decreased from 20 to 16.3 $\mu g/m^3$). At the nearby co-located diffusion tube location at 174 Orchard Street, the annual mean was 24.5 $\mu g/m^3$ (and over the last five years the results have decreased from 30 to 24.5 $\mu g/m^3$). As reported last year the Orchard Street AQMA was revoked on 9 May 2022

based on the long term trend in the results. The monitoring station was decommissioned in January 2022.

At the diffusion tube locations within the St Pancras AQMA, there were no exceedences of the air quality objective of 40 µg/m^3 and the concentrations measured were :

- St Pancras co-located diffusion tube annual mean 36.3 µg/m^3 (down from 36.4 µg/m^3 last year, though within the accuracy limits of this monitoring we consider the concentrations to be at parity.
- Nag's Head diffusion tube annual mean 31.5 µg/m^3 (up from 28.4 µg/m^3 last year).

At the diffusion tube locations within the Rumbolds Hill AQMA in Midhurst, there were no exceedances of the air quality objective of 40 µg/m^3 and the concentrations were:

- Rumbolds Hill co-located diffusion tube annual mean 27.5 µg/m^3 (down from 31.6 µg/m^3 last year)
- Midhurst Stationery diffusion tube annual mean 19 µg/m^3 (down from 21.3 µg/m^3 last year)
- Nat West Bank diffusion tube annual mean 25.2 µg/m^3 (down from 29.5 µg/m^3 last year)
- Nationwide diffusion tube annual mean 21.5 µg/m^3 (down from 27.2 µg/m^3 last year).

It should be noted that there was a fire in Midhurst in Spring 2023 which resulted in the A286 being closed to through traffic for just over 3 months (from 16 March until 23 June 2023). Traffic volumes using Rumbolds Hill were significantly reduced during this period resulting in a reduction in NO$_2$ at the diffusion tubes in Midhurst – this is considered likely to have reduced the annual mean concentrations at these locations.

At the other diffusion tube sites within Chichester and Midhurst, the NO$_2$ concentration has fluctuated with some sites marginally higher and some sites marginally lower than in 2022. All sites were compliant with the air quality objective. It is not intended that the locations of any of the existing diffusion tubes will be changed in the coming year given that some businesses are continuing to struggle after the pandemic and traffic volumes may not have fully stabilised. There are a number of vacant business premises which may become occupied during the year, potentiallly generating increased traffic and subsequent pollutants.

We have added an additional diffusion tube site near the Tangmere westbound A27 carriageway as a result of air quality information made available to CDC by National Highways (monitoring commenced in October 2023 so results will be reported in the ASR next year). We have also added an additional diffusion tube at Westgate in Chichester (near the Orchard Street roundabout which is due to be redeveloped as part of traffic measures related to a housing develoment in the west of Chichester). Monitoring is being undertaken here in order to understand the impact of the proposed changes to the roundabout (monitoring commenced in October 2023 so results will be reported in the ASR next year).

From Table A.5 there have been no exceedances of the NO$_2$ 1-hour mean concentration at the Stockbridge or Westhampnett Road monitoring stations for the last five years. The DEFRA guidance suggests the 1-hour mean objective is unlikely to be breached unless the annual mean concentration is 60 µg/m^3 or above.

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

As reported at section 2.2 of the report, a new PM$_{10}$/PM$_{2.5}$ analyser was installed in December 2023 at the Stockbridge monitoring station. The analyser was not commissioned until January 2024 and no PM$_{10}$ data is available for 2023[15].

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

As reported at section 2.2 of the report, a new PM$_{10}$/PM$_{2.5}$ analyser was installed in December 2023 at the Stockbridge monitoring station. The analyser was not commissioned until January 2024 and no PM$_{2.5}$ data is available for 2023.

---

[15] Ongoing monitoring data is available at Sussexair.net

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) [1]	Distance to kerb of nearest road (m) [2]	Inlet Height (m)
CI1	Stockbridge	Suburban	485881	103791	NO$_2$	No	Chemiluminescent	25	26	3
CI5	Westhampnett Road	Roadside	487212	105372	NO$_2$	No	Chemiluminescent	11.8	4.2	1.9

Notes:

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

(2) N/A if not applicable

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
1	Kings Ave/Southbank Jct	Roadside	485776	103961	NO2	No	11.0	2.3	No	3.0
2a, 2b	Claremont Court	Roadside	485772	103847	NO2	No	0.0	7.5	No	3.0
3, 4, 5	Cabin	Suburban	485880	103791	NO2	No	25.0	26.0	Yes	2.7
6	Stockbridge Road South	Roadside	485696	103731	NO2	No	14.0	2.0	No	2.9
7	Cleveland Rd	Roadside	486953	104414	NO2	No	18.0	1.8	No	2.8
8	Westhampnett Rd	Roadside	487341	105474	NO2	No	3.0	1.7	No	2.9
9a, 9b	Hornet	Roadside	486502	104795	NO2	No	0.0	1.8	No	3.1
10a, 10b	St Pancras	Roadside	486533	104860	NO2	Yes, St Pancras AQMA	0.0	2.0	No	3.0
11	Arthur Purchase	Urban Background	486082	105026	NO2	No	0.0	6.0	No	2.7
12a, 12b	174 Orchard St	Roadside	485914	105185	NO2	No	0.0	2.0	No	2.7
13a, 13b	Rumbolds Hill	Roadside	488561	121479	NO2	Yes, Rumbolds Hill AQMA	0.5	1.5	No	3.4

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)
14	Sussex Cleaners	Roadside	486575	104799	NO2	No	0.0	1.8	No	3.0
15	Nag's Head	Roadside	486495	104845	NO2	Yes, St Pancras AQMA	0.0	2.4	No	3.2
16	Orchard St Cabin	Roadside	485982	105221	NO2	No	9.8	3.8	No	2.0
17	Midhurst Stationery	Roadside	488545	121434	NO2	Yes, Rumbolds Hill AQMA	1.8	0.6	No	2.8
18	Nat West Bank	Roadside	488583	121512	NO2	Yes, Rumbolds Hill AQMA	9.9	1.1	No	3.0
19	Nationwide	Roadside	488605	121538	NO2	Yes, Rumbolds Hill AQMA	0.5	2.2	No	2.7
20	British Heart Foundation	Roadside	488636	121613	NO2	No	0.0	3.8	No	2.8
21	Whyke Road	Roadside	486899	103720	NO2	No	20.0	1.7	No	2.4
22	St Pauls Rd	Roadside	485957	105334	NO2	No	0.0	2.1	No	2.1

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 NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Site 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
CI1	485881	103791	Suburban		91	28	23	24	22.4	20.4
CI5	487212	105372	Roadside		95.7	27	19	23	23.5	21.5

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the NO₂ annual mean objective of 40µg/m³ 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 2023 (%) [2]	2019	2020	2021	2022	2023
1	485776	103961	Roadside	99.7	99.7	25.0	20.8	22.9	21.0	20.7
2a, 2b	485772	103847	Roadside	99.7	99.7	33.0	27.2	29.2	27.1	27.6
3, 4, 5	485880	103791	Suburban	99.7	99.7	28.0	24.4	24.1	22.1	22.8
6	485696	103731	Roadside	99.7	99.7	33.0	27.9	31.6	30.0	28.6
7	486953	104414	Roadside	99.7	99.7	14.0	11.7	12.8	10.5	11.1
8	487341	105474	Roadside	99.7	99.7	27.0	21.6	23.4	22.3	22.3
9a, 9b	486502	104795	Roadside	99.7	99.7	34.0	26.9	30.4	28.2	29.0
10a, 10b	486533	104860	Roadside	99.7	99.7	**42.0**	33.3	37.5	36.4	36.3
11	486082	105026	Urban Background	99.7	99.7	17.0	13.1	14.5	12.7	13.1
12a, 12b	485914	105185	Roadside	99.7	99.7	30.0	21.5	25.1	25.0	24.5
13a, 13b	488561	121479	Roadside	99.7	99.7	**40.0**	33.5	36.0	31.6	27.5
14	486575	104799	Roadside	82.7	82.7	31.0	25.6	25.1	24.2	24.4

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
15	486495	104845	Roadside	99.7	99.7	37.0	28.3	33.0	28.4	31.5
16	485982	105221	Roadside	99.7	99.7	20.0	15.5	17.2	16.4	16.3
17	488545	121434	Roadside	93.1	93.1	26.0	22.0	24.2	21.3	19.0
18	488583	121512	Roadside	99.7	99.7	37.0	30.2	33.3	29.5	25.2
19	488605	121538	Roadside	99.7	99.7	33.0	29.0	29.8	27.2	21.5
20	488636	121613	Roadside	99.7	99.7	24.0	18.7	20.3	19.6	14.7
21	486899	103720	Roadside	99.7	99.7		25.1	28.0	26.7	26.4
22	485957	105334	Roadside	99.7	99.7		17.0	20.8	18.9	19.3

☒ **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 **<u>bold and underlined</u>**.

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 NO$_2$ Concentrations

Trends in annual mean NO$_2$ concentrations at Stockbridge and Westhampnett Rd monitoring stations

40µg/m³ annual mean Objective

CI1 Stockbridge Sub-Urban CI4 Orchard St Roadside CI5 Westhampnett Roadside

NO₂ concentrations measured by diffusion tube in Chichester 2019 - 2023

NO₂ concentrations measured by diffusion tubes in Midhurst 2019 to 2023
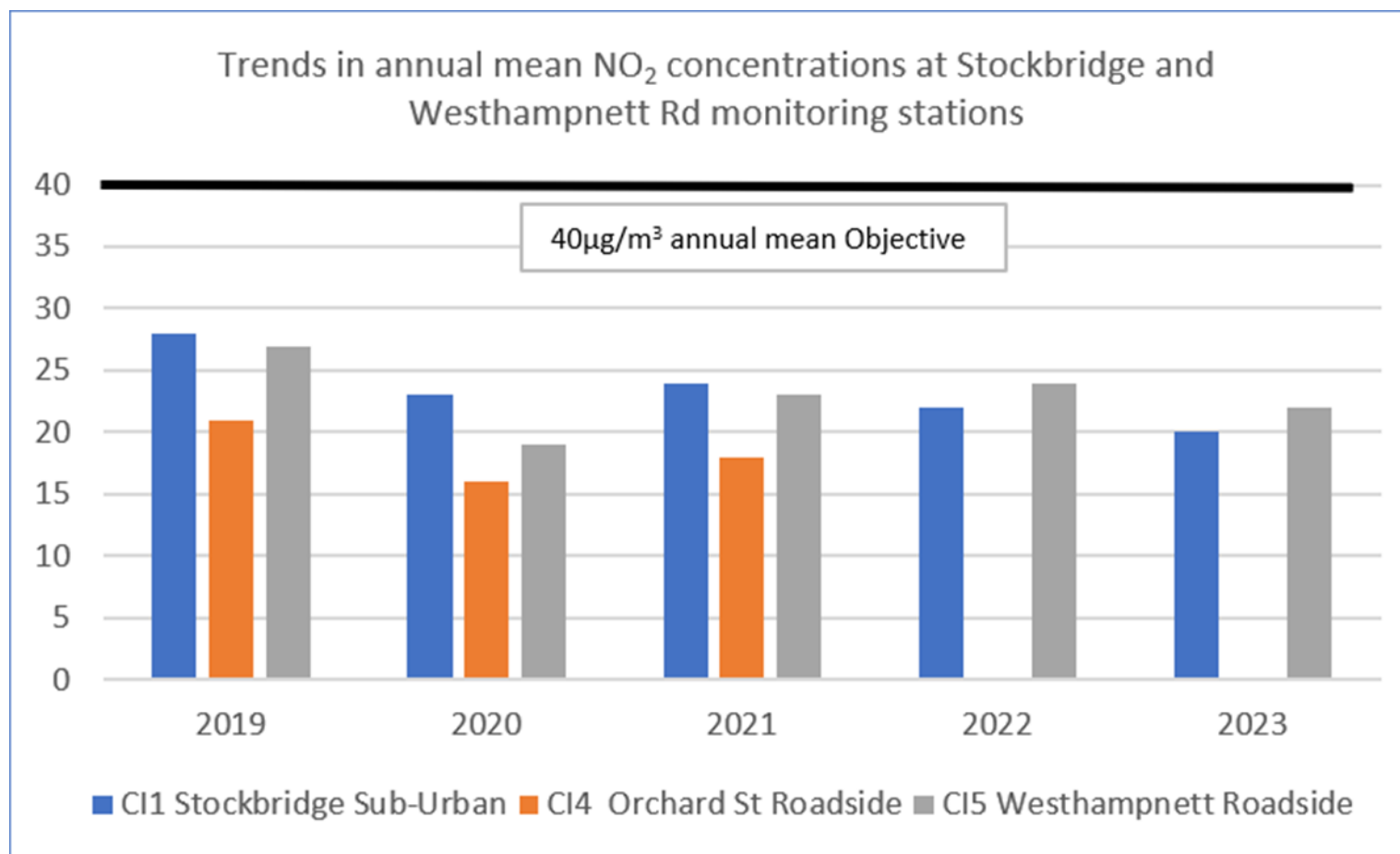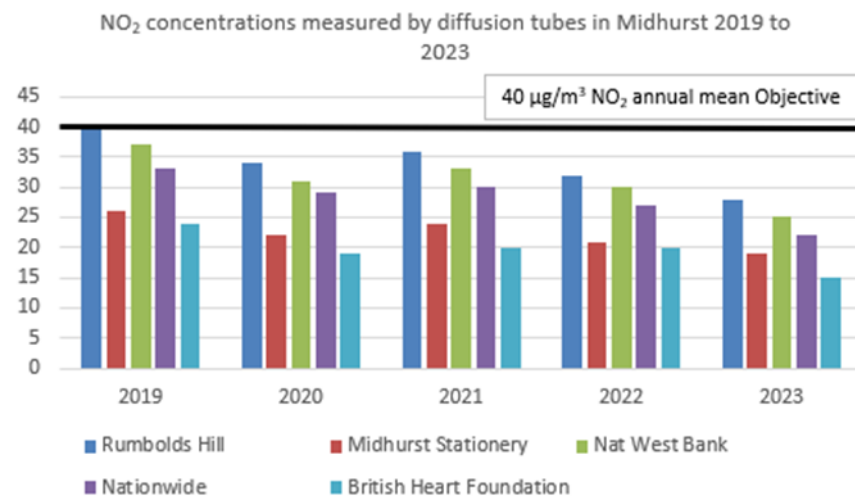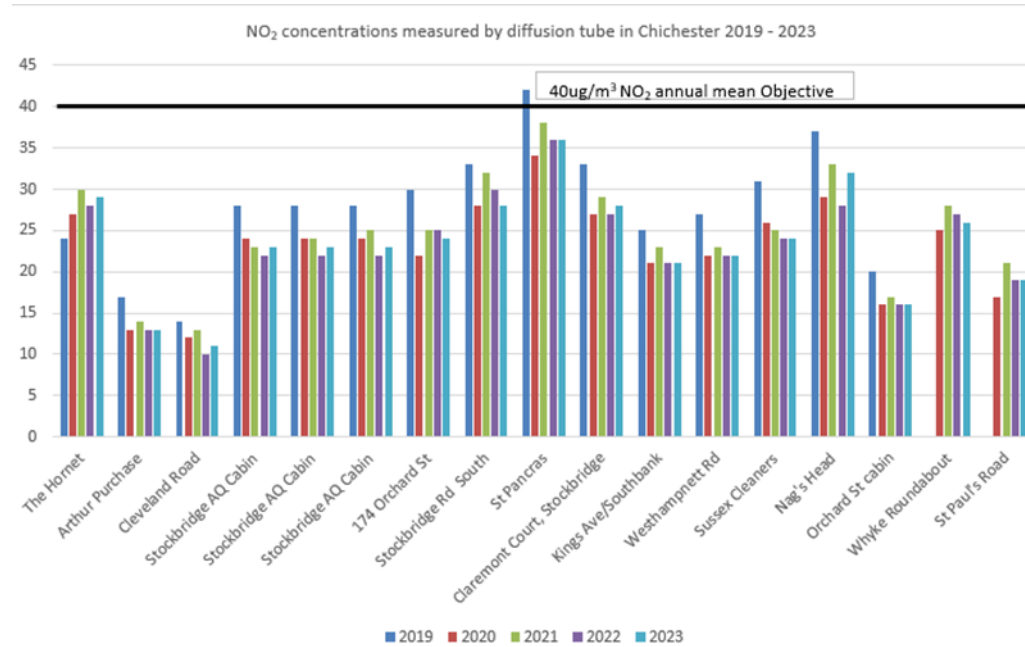
Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site 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
CI1	485881	103791	Suburban		91	0	0	0	0	0
CI5	487212	105372	Roadside		95.7	0	0	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded.

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ 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%).

Figure A.2 – Trends in Number of NO₂ 1-Hour Means > 200µg/m³ (no exceedance of 200µg/m³)

NO₂ 1-hour means at Stockbridge Monitoring Station units µg/m³ during 2023
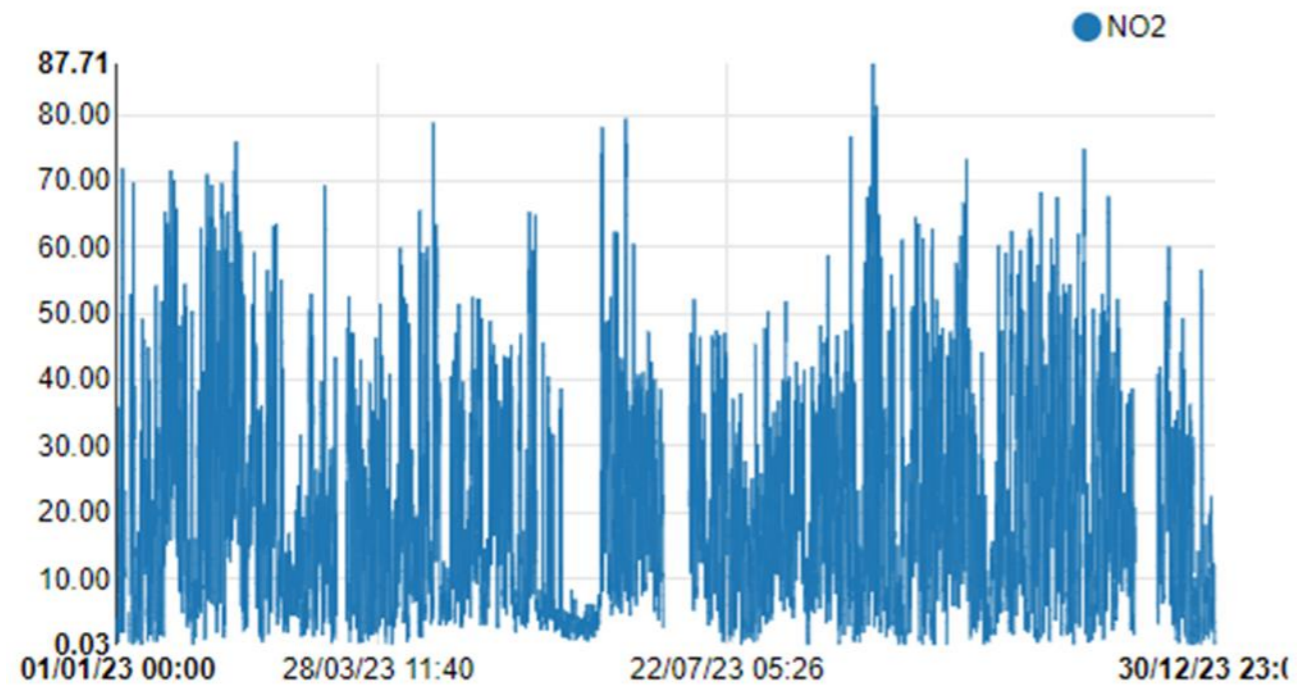
NO₂ 1-hour means at Westhampnett Road Monitoring Station units µg/m³ during 2023
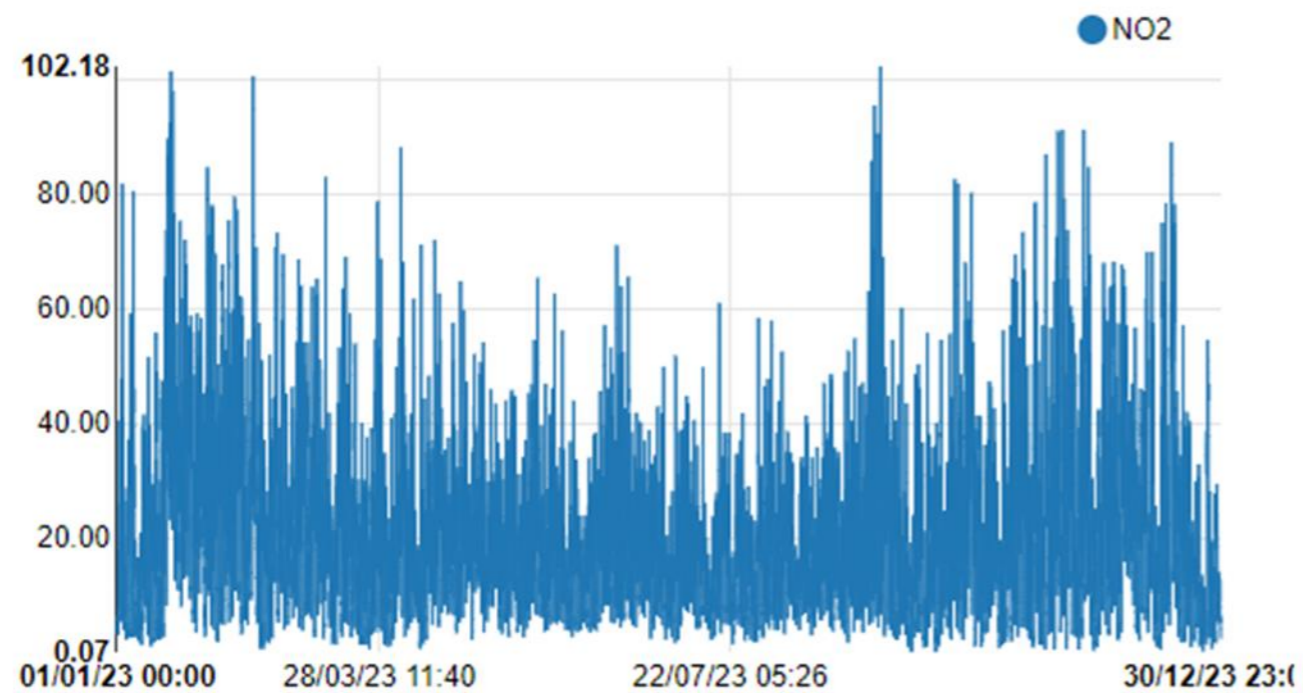
Appendix B: Full Monthly Diffusion Tube Results for 2023

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	485776	103961	29.4	30.3	27.2	23.6	20.8	23.3	24.2	22.7	25.9	25.0	26.6	20.3	24.9	20.7	-	
2a	485772	103847	34.1	37.1	31.0	32.5	29.2	33.2	32.8	34.6	34.0	36.9	31.9	29.1	-	-	-	Duplicate Site with 2a and 2b - Annual data provided for 2b only
2b	485772	103847	37.0	35.6	31.9	34.8	27.9	32.4	33.1	35.6	36.9	36.6	33.2	27.9	33.3	27.6	-	Duplicate Site with 2a and 2b - Annual data provided for 2b only
3	485880	103791	27.3	31.4	24.6	20.6	19.7	25.6	29.7	28.7	30.7	30.9	29.5	27.4	-	-	-	Triplicate Site with 3, 4 and 5 - Annual data provided for 5 only
4	485880	103791	30.2	34.1	25.7	24.2	17.5	24.1	28.9	29.5	27.1	32.6	29.3	28.2	-	-	-	Triplicate Site with 3, 4 and 5 - Annual data provided for 5 only
5	485880	103791	33.3	30.2	27.1	24.9	19.5	24.2	28.2	30.2	31.3	30.4	29.1	23.7	27.5	22.8	-	Triplicate Site with 3, 4 and 5 - Annual data provided for 5 only
6	485696	103731	40.4	38.4	32.4	37.5	38.5	35.1	23.5	31.0	40.4	36.2	35.2	25.1	34.5	28.6	-	
7	486953	104414	17.5	19.8	12.9	12.5	10.2	11.2	8.9	9.3	13.5	14.4	18.0	11.9	13.3	11.1	-	
8	487341	105474	32.5	29.9	28.7	25.9	24.3	26.9	24.4	24.5	26.7	23.6	30.5	24.5	26.9	22.3	-	
9a	486502	104795	44.1	42.8	33.0	36.1	36.8	33.5	25.5	29.5	35.9	36.6	38.2	28.8	-	-	-	Duplicate Site with 9a and 9b - Annual data provided for 9b only
9b	486502	104795	44.7	38.9	35.4	34.6	35.6	34.0	24.7	30.0	34.1	36.6	39.1	29.4	34.9	29.0	-	Duplicate Site with 9a and 9b - Annual data provided for 9b only
10a	486533	104860	41.0	47.7	46.7	47.9	46.0	45.2	40.0	42.8	50.2	44.4	40.7	32.5	-	-	-	Duplicate Site with 10a and 10b - Annual data provided for 10b only
10b	486533	104860	43.2	42.2	47.8	47.8	45.9	47.7	40.9	42.3	50.1	40.0	39.4	36.4	43.7	36.3	-	Duplicate Site with 10a and 10b - Annual data provided for 10b only
11	486082	105026	24.2	21.8	16.7	14.2	11.9	12.4	10.3	11.5	14.5	18.5	20.0	13.0	15.8	13.1	-	
12a	485914	105185	33.1	36.4	28.1	29.2	24.4	26.4	22.9	26.3	35.6	34.8	31.4	24.4	-	-	-	Duplicate Site with 12a and 12b - Annual data provided for 12b only

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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
12b	485914	105185	35.9	35.9	30.1	28.0	24.0	26.5	24.0	27.4	36.2	33.5	33.0	21.2	29.5	24.5	-	Duplicate Site with 12a and 12b - Annual data provided for 12b only
13a	488561	121479	46.3	48.1	26.7	14.3	11.8	20.9	34.4	36.9	39.7	42.0	42.1	32.6	-	-	-	Duplicate Site with 13a and 13b - Annual data provided for 13b only
13b	488561	121479	48.7	47.4	26.4	13.7	13.3	21.8	34.5	36.7	38.5	41.3	41.0	34.9	33.1	27.5	-	Duplicate Site with 13a and 13b - Annual data provided for 13b only
14	486575	104799	32.1	33.9	27.9	30.5	24.4	26.4	27.4	28.8	32.1			30.3	29.4	24.4	-	
15	486495	104845	42.1	45.1	38.1	36.3	38.5	36.7	29.7	32.4	38.6	47.8	39.4	30.7	38.0	31.5	-	
16	485982	105221	27.4	28.0	21.0	19.1	16.4	14.5	12.6	14.2	19.2	22.2	23.1	17.7	19.6	16.3	-	
17	488545	121434	29.7	33.1	22.5	17.3	15.7	18.0	20.4	21.7	26.6		26.3	20.0	22.8	19.0	-	
18	488583	121512	43.0	43.9	25.6	12.3	11.4	20.4	36.2	36.4	34.0	36.7	36.7	28.2	30.4	25.2	-	
19	488605	121538	32.4	37.3	23.4	12.4	11.6	16.4	27.6	27.5	35.1	32.3	30.7	23.8	25.9	21.5	-	
20	488636	121613	24.1	24.7	18.0	9.6	9.8	13.1	17.1	17.3	24.4	20.9	20.5	13.3	17.7	14.7	-	
21	486899	103720	35.0	37.8	32.1	30.0	26.2	29.3	32.2	32.6	33.5	35.3	32.3	25.1	31.8	26.4	-	
22	485957	105334	26.1	31.4	21.6	21.7	21.8	21.5	15.3	18.3	25.6	28.0	31.2	16.4	23.2	19.3	-	

☒ **All erroneous data has been removed from the NO$_2$ diffusion tube dataset presented in Table B.1**

☒ **National bias adjustment factor used**

☒ **CDC confirms that all 2023 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 Chichester District During 2023

CDC has not identified any new or changed sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Chichester District Council During 2023

CDC installed a new $PM_{10}/PM_{2.5}$ analyser in December 2023 at the Stockbridge monitoring station (CI1) – data from this analyser will be reported in the ASR due to be produced in 2025.
CDC installed two additional diffusion tube locations during October 2023 – data from these tubes will be reported in the ASR due to be produced in 2025.

QA/QC of Diffusion Tube Monitoring

CDC uses Gradko Environmental for supplying and analysing the diffusion tubes. The tube preparation method is 50% TEA/Acetone and ANA UKAS Method GLM7 and GLM9. CDC has used the National bias adjustment factor this year as there was poor overall data capture for the continuous monitor for part of the year which affected the local bias adjustment calculation. The monitoring was completed in adherence to the 2023 Diffusion Tube Monitoring Calendar.

Gradko Environmental uses the AIR NO2 Proficiency Testing scheme for quality control. The result for 2023 was Satisfactory (Z score +/-2) for 100% of results submitted.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within Chichester District 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/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

CDC has applied a National Bias Adjustment Factor of 0.83 to the 2023 monitoring data (as there was a period of poor data capture in the continuous monitoring results which is considered to have affected the local bias adjustment factor). A summary of bias adjustment factors used by CDC over the past five years is presented in Table C.1. A screenshot of the National Diffusion Tube Bias Adjustment Factor Spreadsheet is presented below.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	03/24	0.83
2022	Local	-	0.76
2021	Local	-	0.83
2020	Local	-	0.79
2019	Local	-	0.84

Table C.2 – Local Bias Adjustment Calculation

Details from the DTDPT spreadsheet are presented as below. The overall continuous monitor data capture was stated as poor in the spreadsheet for one of the Co-location studies, therefore for 2023 it has been decided to use the national bias adjustment factor instead of the local factor.

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	10				
Bias Factor A	0.74 (0.71 - 0.78)				
Bias Factor B	34% (28% - 41%)				
Diffusion Tube Mean (µg/m³)	26.9				
Mean CV (Precision)	5.5%				
Automatic Mean (µg/m³)	20.0				
Data Capture	95				
Adjusted Tube Mean (µg/m³)	20 (19 - 21)				

Local Bias Adjustment Factor 0.74

NO$_2$ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO$_2$ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO$_2$ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO$_2$ concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO$_2$ monitoring locations within Chichester District required distance correction during 2023.

QA/QC of Automatic Monitoring

All sites are visited by a CDC officer for calibration and filter changes on a bi-monthly basis. CDC has a service agreement with a third party who provides site maintenance, auditing, regular inspections and 48 hour call out response if problems are encountered. Data is downloaded form all sites twice daily by BV[16] and is available to download online[17]. CDC has a contract with BV to calibrate and ratify all real time data collected. Data presented in the report has been ratified.

Automatic Monitoring Annualisation

All automatic monitoring locations within Chichester District 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.

---

[16] Bureau Veritas

[17] www.sussex-air.net

**NO$_2$ Fall-off with Distance from the Road**

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO$_2$ concentration at the nearest location relevant for exposure has been estimated using the NO$_2$ fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO$_2$ concentrations corrected for distance are presented in Table A.3.

No automatic NO$_2$ monitoring locations within Chichester District required distance correction during 2023.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Map of Non-Automatic Monitoring Sites in Chichester
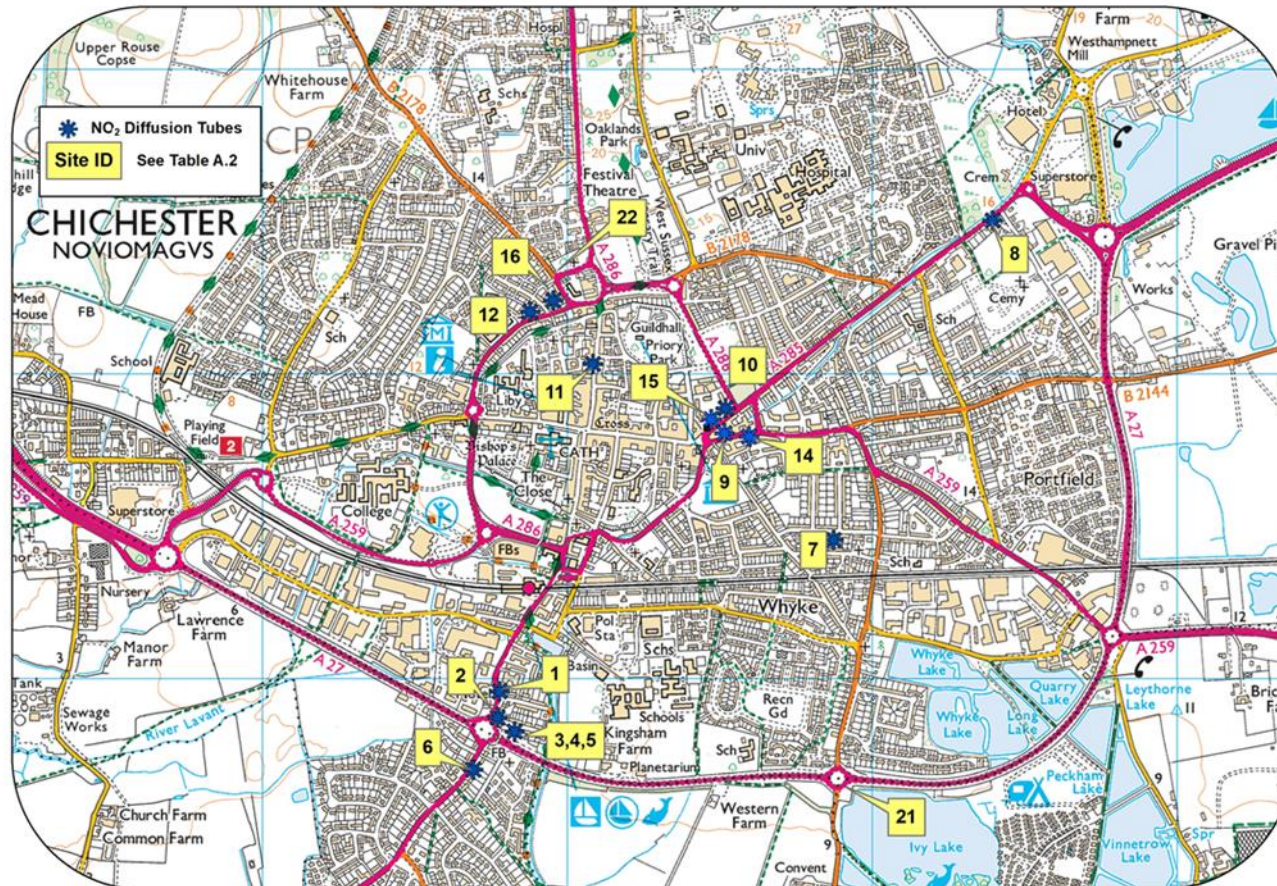
© Crown Copyright and database right 2023. Ordnance Survey 100018803

Figure D.2 – Map of Automatic and Non-Automatic Monitoring Sites at Stockbridge Roundabout site, Chichester (CI1)
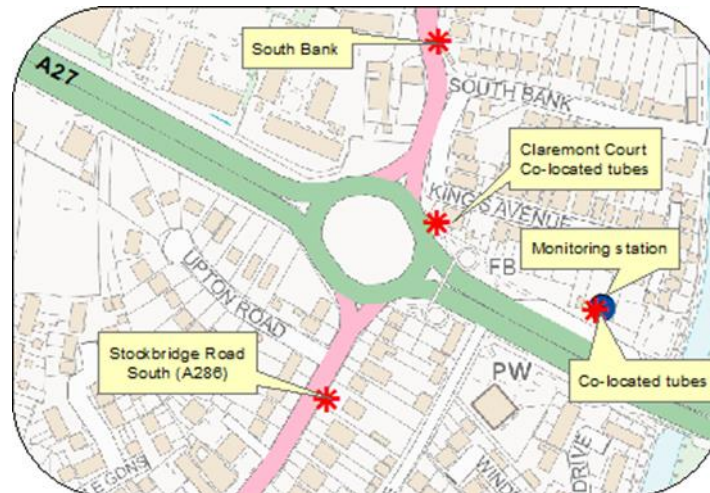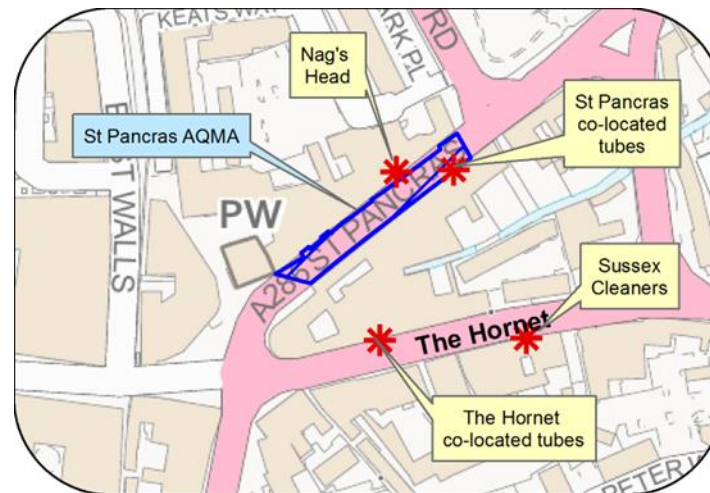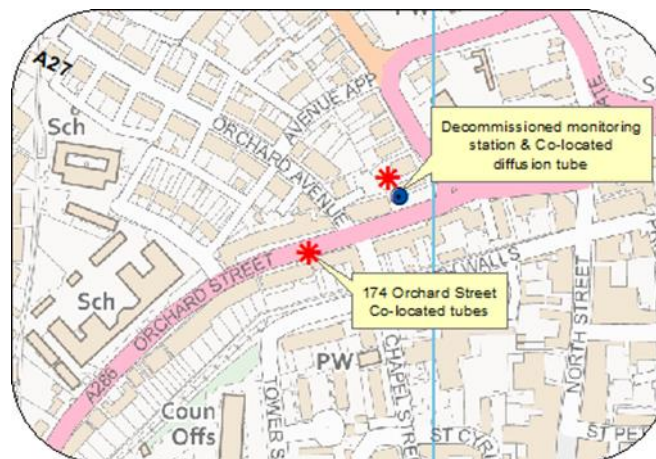

Figure D.3 – Map of Non-Automatic Monitoring Sites at St Pancras AQMA, Chichester

© Crown Copyright and database right 2023. Ordnance Survey 100018803

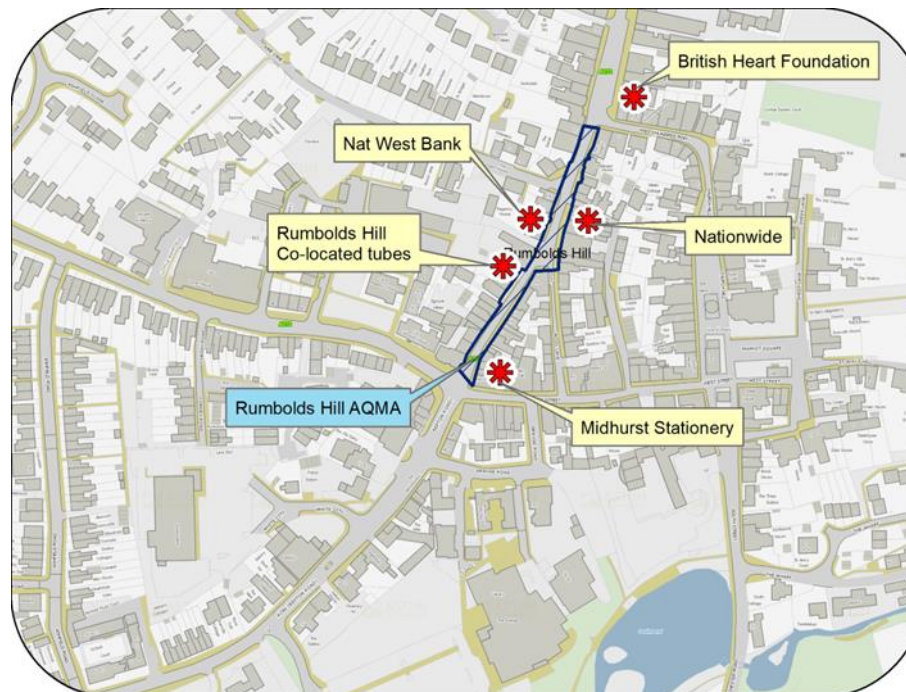**Figure D.4 – Map of Non-Automatic Monitoring Sites at Orchard St, Chichester**

Figure D.5 – Map of Automatic and Non-Automatic Monitoring Sites at Westhampnett Road, Chichester

© Crown Copyright and database right 2023. Ordnance Survey 100018803

Figure D.6 – Map of Non-Automatic Monitoring Sites at Rumbolds Hill AQMA, Midhurst

© Crown Copyright and database right 2023. Ordnance Survey 100018803

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[18]

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

---

[18] 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
CCTV	Closed circuit Television
CDC	Chichester District Council
CIL	Community Infrastructure Levy
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
EV	Electric Vehicle
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Infrastructure Plan
LES	Low Emissions Strategy
MOVA	Microprocessor Optimised Vehicle Actuation
NH	National Highways
NHS	National Health Service
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
OLEV	Office of Low Emission Vehicles
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
SAQP	Sussex Air Quality Partnership

Abbreviation	Description
SO$_2$	Sulphur Dioxide
STIP	Strategic Transport Investment Programme
UTC	Urban Transport Controls
VMS	Variable message signing
WSCC	West Sussex County Council

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.
- Chichester City Local Cycling and Walking Infrastructure Plan 2021 produced by Transport Initiatives and PJA for CDC.
- Revised CDC Air Quality Action Plan 2021 – 2026 produced by CDC February 2021.