2019 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management

June 2019

Local Authority Officer	Kate Simons Simon Ballard
Department	Environmental Protection
Address	East Pallant House 1 East Pallant Chichester West Sussex PO19 1TY
Telephone	01243 521160
E-mail	ksimons@chichester.gov.uk sballard@chichester.gov.uk
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Executive Summary: Air Quality in Our Area

Air Quality in Chichester District

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

The air quality in Chichester district is generally good however there are areas where elevated concentrations of pollutants occur. The key source of local air pollution is road traffic, particularly on roads in and adjacent to Chichester city and on Rumbold's Hill within Midhurst. The principal pollutant of concern is nitrogen dioxide (NO_2). Although concentrations of NO_2 show a slight decrease over the last few years there are still hotspots in Chichester and Midhurst where exceedances of the national air quality Objective for NO_2 occur. The hotspots in Chichester are mainly within or close to the Air Quality Management Areas (AQMAs). In Midhurst there is an area of exceedance within the town centre where we are moving towards declaration of a further AQMA. The existing AQMAs are as follows:

- Stockbridge roundabout at the junction with the A27 and A286
- Orchard Street, Chichester
- St Pancras, Chichester

Our current Air Quality Action Plan (AQAP) was adopted in 2015 and is available here: http://www.chichester.gov.uk/pollutioncontrolairquality The AQAP is being revised during 2019-20 and we have let a contract to undertake revised air quality modelling within Chichester and Midhurst. The modelling includes source apportionment and scenario testing and as such it is our intention that the actions in the revised AQAP will be prioritised.

Air quality is seen by the Council as an important public health issue but it is not something we can improve on our own. We are working actively with other services within the Council, partners at West Sussex County Council (WSCC) including the Public Health team and the Sussex Air Quality Partnership (SAQP) to tackle this issue. WSCC have set-up a pan West Sussex Inter Authority Air Quality Group. CDC has taken the terms of reference through Cabinet and a Cabinet member and a senior officer attend the group.

We are working with neighbouring authorities and WSCC to produce a Local Cycling and Walking Infrastructure Plan (LCWIP) for Chichester City. We have contracted a consultancy to assist with this project which has been funded by a successful bid to

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra.Abatement cost guidance for valuing changes in air quality, May 2013

the WSCC pooled business rates fund. The draft LCWIP should be completed in early 2020. Once produced, we intend that the LCWIP will inform our Infrastructure Development Plan to help enable prioritise infrastructure provision across the district. CDC is currently reviewing its Local Plan. We are working with our policy planning team to ensure that air quality policies in the Plan are robustly present. To this end we have actively contributed to a pan-Sussex working group on the development of a draft Supplementary Planning Guidance note to provide clarity to the interpretation of the air quality policy in the draft Revised Local Plan.

Since our first AQAP dated 2008, we have won in excess of £374k of grant monies from a variety of sources. Key projects that have been delivered include Chichester's first car club, installation of two electric vehicle charging points, 140 additional bike parking spaces in the city centre, delivered training to over 150 cyclists to ride more confidently/maintain their bikes and provided data to the air-Alert forecasting service (coordinated by SAQP).

Actions to Improve Air Quality

Key completed actions during 2018 are as follows:

- Chichester District Council (CDC) has rolled out across the organisation its whole life costing (WLC) model and 'reporting by exception form' to support the Cabinet resolution to replace cars and vans with EVs unless there is a business reason as to why not.
- Using the WLC model to justify the procurement, CDC has replaced two diesel vans for its Parking Services fleet with two electric vehicles;
- CDC has submitted a grant application to OLEV in support of our Cabinet resolution to install eighteen electric vehicle charging bays across Chichester District.
- CDC delivered a new air quality monitoring station at the end of 2018 on Westhampnett Road, Chichester. This location was chosen as there are a number of commercial and residential developments being constructed on the eastern side of the Chichester which will use this route to access the City. The road passes close to existing residential properties.
- CDC drafted its air quality policy within its draft Revised Local Plan and a Supplementary Policy Document is in draft.
- CDC is funded to expand the car club in Chichester. The tender invite document is written and we will invite submissions in the summer. The car's location will be at a local community centre adding to the existing six car club fleet in Chichester.
- Using grant monies CDC has funded a feasibility study for conversion of a footpath to dual-use and provided a grant to a local organisation in support of their work to deliver an ambitious length of bike path.

Conclusions and Priorities

This year's NO_2 and PM_{10} monitoring shows no exceedances of Air Quality Standards at either of the monitoring stations[4]. There are two diffusion tube locations where the NO_2 air quality objective of 40 µg/m^3 was exceeded, namely:

- St Pancras, within the St Pancras AQMA, Chichester
- Rumbold's Hill, Midhurst - not within an AQMA.

The above two diffusion tube locations' exceedances is consistent with the last few years data. As a result additional diffusion tube monitoring commenced in December 2017 in Midhurst and further diffusion tubes were installed in Chichester and Midhurst in January 2018. At the Nag's Head PH location (in the St Pancras AQMA) the results are close to exceeding the Objective and at two locations near the Rumbold's Hill location, the results are just compliant with the Objective. The additional monitoring locations will help us to understand the spatial extent of the pollution.

Detailed air quality modelling of discrete areas of Chichester and Midhurst was contracted in February 2019. This modelling will be reported in next year's ASR and will inform the necessity (and extent) of the Rumbolds Hill AQMA and any amendments or additional AQMAs in Chichester.

All other diffusion tube monitoring locations outside of AQMAs were compliant with the NO_2 Objective.

It is not intended to revoke any of the AQMAs at this time and the air quality modelling will inform the shape of an AQMA in Midhurst to be declared in 2019. Nevertheless the monitoring data in the Orchard Street AQMA indicates the possibility of undeclaring this AQMA and we have a watching brief on this issue for the next few years.

Local Engagement and How to get Involved

The public can get involved by supporting behavioural change initiatives (eg joining the Car Club, car sharing and walking, cycling, using public transport, turning their vehicle's engine off when stationary, minimising wood burning and only burning dry, well-seasoned wood and composting instead of having garden bonfires wherever possible). Further information can be obtained by emailing: airquality@chichester.gov.uk

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 cycle@chichester.gov.uk

[4] The new monitoring station on Westhampnett Road has not yet been monitoring for long enough for us to include it in this year's report.

Table of Contents

List of Tables

List of Figures

1 Local Air Quality Management

This report provides an overview of air quality in Chichester District during 2018. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the 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 pursuit of the objectives. 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 can be found in **Error! Reference source not found.** in Appendix E.

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 must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Chichester District Council can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at

http://www.chichester.gov.uk/pollutioncontrolairquality

Alternatively, see Appendix D: Map(s) of Monitoring Locations and AQMAs, which provides maps of air quality monitoring locations in relation to the AQMA(s).

We propose to declare a new AQMA in Rumbold's Hill, Midhurst (see monitoring section). We are currently carrying out computer modelling of air quality to help confirm the extent of the exceedance, and source apportionment and scenario testing will be carried out to prioritise actions within the revised AQAP
Monitoring data for our Orchard Street, Chichester AQMA indicates that air quality there is compliant with all Objectives. As such we have a watching brief over the next two years with a view to the possibility of undeclaring this AQMA.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
AQMA Stockbridge Roundabout	24-Aug-06	NO2 Annual Mean	Chichester	An area encompassing the Stockbridge Roundabout at the junction of the Chichester bypass (A27) and Stockbridge Road (A286)	YES	44.9	µg/m3	33	µg/m3	CDC AQAP	2015	http://www.chiche
AQMA Orchard Street	17-May-07	NO2 Annual Mean	Chichester	An area along Orchard Street, Chichester at the eastern end of the street where it meets Northgate	NO	40.7	µg/m3	33	µg/m3	CDC AQAP	2015	as above

AQMA St Pancras	17-May-07	NO2 Annual Mean	Chichester	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	µg/m3	45	µg/m3	CDC AQAP	2015	as above

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

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

Defra's appraisal of last year's ASR concluded that the 2017 monitoring suggested exceedances within the St Pancras AQMA and at two further locations outside AQMAs (The Hornet, close to St Pancras AQMA and Rumbold's Hill, Midhurst). It noted that additional monitoring had been established at these locations to increase the dataset. The results of this additional monitoring are detailed in this report and in addition a contract has recently been let to model these locations, further details are given below.

Defra considered that the results at Orchard Street were at a level that the status of this AQMA should be reviewed and considered for revocation – commentary regarding this point is provided in this year's ASR, see section 3.2.1.

Defra also welcomed the proposal to review the Action Plan – further information about this is given below.

A number of technical queries were raised which we responded to in our response of 22 August 2018. Defra confirmed that all actions had been completed in its response of 23 August 2018.

Chichester District Council has taken forward a number of direct measures during the current reporting year of 2018 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

More detail on these measures can be found in our Action Plan. Key completed measures are:

- Chichester District Council (CDC) has replaced two of its fleet vehicles with electric vehicles (for use by its Parking Services Team);
- CDC delivered a new air quality monitoring station at the end of 2018 on Westhampnett Road, Chichester. This location was chosen as there are a number of commercial and residential developments being constructed on the eastern side of the Chichester which will use this route to access the City. The route passes close to existing residential properties.
- CDC finalised its air quality policy within its emerging Local Plan and a Supplementary Policy Document is drafted.

Chichester District Council expects the following measures to be completed over the course of the next reporting year:

- Promoting low emission transport: we have a funded Cabinet resolution to install up to ten EV charging points across the District. We have submitted an OLEV bid for additional funding for additional points and subject to the grant award aim to deliver these during 2019.

- Alternatives to private car use: we plan to expand the Car Club in Chichester city which was originally set up using Defra funding. We will let a tender for an additional car to be put in place during 2019.
- We are working in partnership with West Sussex Public Health and West Sussex County Council to reduce idling at rail level crossings and school drop off zones and signs to alert drivers have been deployed at suitable locations within the District.
- A contract was let in early 2019 to model air quality in discrete locations in Chichester and one location in Midhurst. The results of this work will feed into the review of the Air Quality Action Plan and next year's ASR.

Chichester District Council's priorities for the coming year are:

- To complete work on a Local Cycling and Walking Infrastructure Plan (LCWIP) for Chichester to enable the cycling and walking network to be developed and priorities for infrastructure to be established. Funding was agreed during 2018 to tender for this work and a Consultancy was contracted in May 2019 to assist with this work.
- To finalise the Supplementary Policy Document on air quality to enable the air quality impact of new development to be properly considered during the planning process.
- To review the Air Quality Action Plan.

The principal challenges and barriers to implementation that Chichester District Council anticipates facing are:

- Availability of funding for infrastructure projects.

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

- Continuing delays to the decision on improvements to the A27 by Highways England mean that there is increasing congestion on the A27 trunk road, leading to traffic diverting through Chichester with resulting impacts on local air quality in the City.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Chichester District Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of all three AQMAs within the District.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Set up Air Quality Working Group	Promoting Travel Alternatives	Other	CDC	June/Dec 2008	Dec-08	2 meetings per year	N/A	12 meetings held to date	Ongoing	meeting held in July 2018
2	Cleaner vehicles	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	WSCC/CDC	2010	2011	No. of electric vehicle recharging points		2 recharging points in Chichester, secured funding to install additional charging points during 2018-19. Part of regional network of rapid charging points through Sussex-air project	2019-20	WSCC has purchased four electric cars and an electric van and installed charge points in its car park. CDC has replaced two diesel vehicles with electric vehicles in 2018. Awaiting outcome of OLEV bid to fund additional charging points.
3	Planning policy	Policy Guidance and Development Control	Low Emissions Strategy	CDC	2010/11	ongoing	No. of planning conditions imposed on planning consultations		Sussex-air produced Planning Guidance and Low Emissions Strategy and in discussion with CDC Policy Planners regarding adopting LES approach. Sussex-air is reviewing its guidance and refreshed document due in 2019	2019-20	Local Plan has to be reviewed within 5 years - aim to have new policy in place within updated Plan. Draft policy in place.
4	Cycling and walking initiatives	Promoting Travel Alternatives	Promotion of cycling	CDC/WSCC	2009	2010	% increase in cycling		Slight decrease in cycling from 2017-2018. Funding secured to deliver LCWIP for Chichester City. Cycle track at Medmerry	LCWIP to be completed Dec 2019	Once LCWIP in place, bids for funding can be made for cycle infrastructure improvements

									completed in 2018.		
5	Car Clubs	Alternatives to private vehicle use	Car Clubs	CDC	2010	2011	Utilisation rate of cars to be 20%		6 cars now available to book, development worker employed 2014-16 to promote Club, utilisation rate increasing throughout 2018 and 22% by Dec 18	2019-20	Two cars added in Dec 2017 at site within housing development. Additional site identified for new car to be added during 2019-20.
6	School travel plans	Promoting Travel Alternatives	School Travel Plans	WSCC/CDC	2008/9	2009/10	% children travelling to school by sustainable means		During 2017/18 Living Streets project engaged with 5 primary schools in the District to support Walk to School scheme (WOW) and engaged students and staff at Chichester University	Mar-20	1 school travel plan commented on during 2018
7	WSCC and CDC travel plans	Promoting Travel Alternatives	Workplace Travel Planning	WSCC/CDC	2010	2011/12	% WSCC and CDC staff travelling by sustainable means		Grey fleet business mileage was 5.35 million miles below 6.0 million miles target. Easit scheme at WSCC and CDC to encourage rail use. Cycle to work scheme at CDC	Ongoing	
8	Business travel plans	Promoting Travel Alternatives	School Travel Plans	WSCC	2009	Ongoing	Travel Plan implemented within target time period		Over 35 Travel Plans submitted since 2009 and Travel Plan group set up attended by large organisations to work on joint	Ongoing	6 commented on during 2018

									measures.		
9	Residential travel plans	Promoting Travel Alternatives	Personalised Travel Planning	WSCC	2009	Ongoing	Travel Plan implemented within target time period		Over 30 Travel Plans have been submitted since 2009	Ongoing	5 commented on during 2018
10	TravelWise/ smarter choices	Public Information	Via leaflets	WSCC/CDC	2009	Ongoing	No. of users of WSCC car share database for PO19 area		Steady increase in number of users of database for 2018	Ongoing	
11	Cycle route information	Promoting Travel Alternatives	Promotion of cycling	CDC	2009	Ongoing	No. of maps sold through Tourist Information or other outlets.		5 route leaflets have been produced so far and over 1360 copies have been sold to date. 64 leaflets sold in 2018	Ongoing	64 maps sold in 2018
12	Cycle journey planning	Public Information	Via the Internet	WSCC	2010	2011	No. of journeys planned on website		Web link available on WSCC and CDC websites	Ongoing	4500 journeys planned 2018-19
13	Public transport infrastructure	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	WSCC	2010	2011-15	Increase in use of public transport		RTPI displays installed at key locations across City	Ongoing	8 RTPI displays installed in 2018-19 and more planned for 2019-20. Total within Chichester now 17.
14	Cleaner buses	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	WSCC	2009	Ongoing	% of Euro 5 buses		Stagecoach has 60% of fleet Euro 5 and replaced older Euro 2 buses with Euro 4 and 5 buses during 2017	Ongoing	Need to promote cleaner buses to other bus companies
15	Licensing requirement for taxis	Promoting Low Emission Transport	Taxi Licensing conditions	CDC	2009/10	2011	No. of Euro 4 vehicles		For vehicles 5 years and over, MOT and fitness test required every 6 months	Ongoing	

16	Forecasting, monitoring and public information	Public Information	Via other mechanisms	SAQP	2008	Ongoing	No. of people registered to receive alerts		Over 1071 subscribers registered across Sussex	Ongoing	inc of 36 subscribers during 2018
17	AQ monitoring and traffic monitoring	Traffic Management	UTC, Congestion management, traffic reduction	CDC/WSCC	2008	Ongoing	Reduction in traffic volumes		Traffic flows between 2017 - 2018 have reduced by 8% in Stockbridge AQMA and have increased slightly (1%) in the Orchard St AQMA.	Ongoing	
18	A27 by-pass improve-ments	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	HE	Ongoing	Post 2020	Reduction in congestion		HE re-consulted during 2017 on options for improving A27 around Chichester however no option chosen	2025	No funds allocated for A27 improvements at the present time.
19	Variable message signing (VMS) on A27	Traffic Management	UTC, Congestion management, traffic reduction	HE	2009	pilot by 2020	No. of warnings made per year		HE decision awaited	Ongoing	Awaiting outcome of A27 improvements decision
20	Park and ride schemes in and around City	Alternatives to private vehicle use	Bus based Park & Ride	CDC	Post 2015	Post 2018	Reduce traffic in City centre by 3%		Linked to A27 improvements that have not yet been brought forward	Ongoing	CDC parking strategy under review
21	Speed limit changes - 20 mph as part of school safety zone	Traffic Management	Reduction of speed limits, 20mph zones	WSCC	2009	2012/13	Reduction in traffic queues within Orchard St AQMA area		Signs installed around schools and on nearby residential streets	Completed	Reductions in NO2 within AQMA could be achieved through smoothing of traffic flow

22	Blanket 20mph scheme on residential streets	Traffic Management	Reduction of speed limits, 20mph zones	WSCC	2012/13	2013/14	Reduced speed on residential streets		WSCC contracted officer to promote 20mph and work with schools and community and CDC hosted officer and provided support	Completed	Roads monitored before and after implementation and speed reductions achieved on some roads
23	MOVA traffic signal optimisation	Traffic Management	UTC, Congestion management, traffic reduction	WSCC	2009/10	2010	Reduction in traffic queues within AQMAs		2 new Puffins to replace existing crossings implemented	Completed	Improves emissions by eliminating ghost users and reducing red time

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

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

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

- Measure 15 – taxi licensing conditions – since 2011 we have required vehicles that are 5 years old and over to have MOT and fitness tests every 6 months. The taxi licensing policy is currently under review and air quality considerations will be considered as part of the review.
- Measure 14 – cleaner buses – fleet managers report that upgrades to the fleet are ongoing in order to introduce cleaner buses. WSCC continues to engage with them to promote any funding opportunities that may enable upgrades to the fleet.

We are working in partnership with West Sussex Public Health and WSCC to run an anti-idling campaign outside schools and at level crossings across West and East Sussex. Signs have been placed at suitable locations with anti-idling messages to raise awareness about this issue.

Where considered appropriate we have recommended that construction environmental management plans (CEMP) are put in place at new developments which include dust control strategies.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Chichester District Council undertook automatic (continuous) monitoring at three sites during 2018. Table A.1 in Appendix A shows the details of the sites.

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

Chichester District Council undertook non- automatic (passive) monitoring of NO_2 at 18 sites during 2018 (note at some locations there are co-located tubes). Table A.2 in Appendix A shows the details of the 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” and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full 2018 dataset of monthly mean values is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

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 33 to 29µg/m^3) and the air quality objective was not exceeded. The results at this location have been broadly similar for the past five years, ranging from 29 - 34µg/m^3 and since 2015 have shown a downward trend. The monitoring station is not within the AQMA and does not represent a location of relevant exposure however it is the only suitable long term

location available for real-time monitoring near the Stockbridge AQMA. There are three co-located diffusion tubes at the monitoring station and the 2018 annual means for these tubes ranged from 29 - 30µg/m^3. As noted for the monitoring station, the air quality objective was not exceeded. Results for the Claremont Court diffusion tube location (which is within the Stockbridge AQMA) show a reduction from 2017 to 2018 from 39 to 33µg/m^3 (as an average of two co-located tubes). Results at Claremont Court have ranged from 33 - 42µg/m^3 over the last 5 years so monitoring will be continued at this location to determine the long term trend within this AQMA.

At the Orchard Street monitoring station the NO_2 annual mean concentration was 22 µg/m^3. Results at this monitoring station have ranged from 22 - 34µg/m^3 over the last five years and the air quality objective has never been exceeded. It should be noted that the analyser at the monitoring station was replaced in September 2016 as the previous analyser had become faulty therefore we do not have a full year's data for 2016 or any data for 2015. A diffusion tube has been co-located at the monitoring station for the last year and the annual mean for this tube was also 22µg/m^3. At another nearby diffusion tube location, the annual mean was 33µg/m^3 (average of the two co-located tubes). The results at this diffusion tube location have ranged from 33 - 39µg/m^3 over the last five years. Both the monitoring station and the diffusion tubes are located within the AQMA and represent relevant exposure. We will continue monitoring at Orchard Street where there remains the possibility of undeclaring the AQMA.

At two of the diffusion tube locations, the air quality objective of 40µg/m^3 was exceeded, namely:

- St Pancras, within the St Pancras AQMA
- Rumbold's Hill, Midhurst – not within a current AQMA. Additional monitoring has been undertaken near this location to determine the extent of this exceedance to enlarge the dataset, see below.

At three other locations, the diffusion tube annual means were close to the air quality objective. At the Nag's Head, Chichester the annual mean was 38µg/m^3 (this tube is within the St Pancras AQMA) and at the Nationwide and Nat West Bank sites, Rumbolds Hill, Midhurst the annual means were 38 and 37µg/m^3 respectively. We now have over three years' data for the Rumbold's Hill site in Midhurst and a year's data for the additional sites near this site. A contract has been let to model air quality in this area and the results are expected within a few months. This data will be used to determine the extent of an Air Quality Management Area at Rumbold's Hill.

The data for the Stockbridge AQMA (eg the Claremont Court diffusion tubes) indicates that the NO_2 concentration has decreased from 2017 to 2018 from 39 to 33µg/m^3 . Results at this location have ranged from 39 - 42µg/m^3 over the previous five years so monitoring at this location will be continued to establish the ongoing trend.

The data for the St Pancras AQMA (ie the St Pancras tubes and the Nag's Head tube) indicates the air quality objective continues to be exceeded so monitoring will continue at these locations to establish the ongoing trend. The diffusion tube data

within The Hornet, near the St Pancras AQMA (ie The Hornet tubes and the Sussex Cleaners tube) was compliant with the the air quality objective.

At the other diffusion tube monitoring sites the NO_2 concentration has decreased from 2017 to 2018 and all sites were compliant with the NO_2 air quality objective of 40 µg/m^3.

From Table A.4 there have been no exceedances of the NO 1-hour mean concentration at the Stockbridge or Orchard Street monitoring stations for the last five years. The DEFRA guidance suggests that the 1-hour mean objective is unlikely to be breached unless the annual mean concentration is 60µg/m^3 or above.

3.2.2 Particulate Matter (PM_{10})

Error! Reference source not found. in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

Table A.5 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past 5 years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

From Table A.5, the annual mean concentration has varied over the last 5 years from a maximum of 21µg/m^3 (2015) to 18µg/m^3 (2018) and is compliant with the air quality objective of 40µg/m^3. In addition the number of PM_{10} daily mean concentrations exceeding the Objective has varied over the last 5 years, from a maximum of 3 in 2015 to 0 in 2018. The air quality objective (50 µg/m^3 not to be exceeded more than 35 times per year) has therefore been met for the last 5 years.

3.2.3 Ozone (O_3)

Chichester District Council has been monitoring ozone in the rural village of Lodsworth for over ten years. Ozone concentrations can become elevated when nitrogen dioxide and volatile organic compounds react in the presence of strong sunlight. CDC monitors this pollutant due to its importance with regard to public health and to provide information to the Sussex-air, air-Alert public information system (see Table 2.2 Measure no. 16).

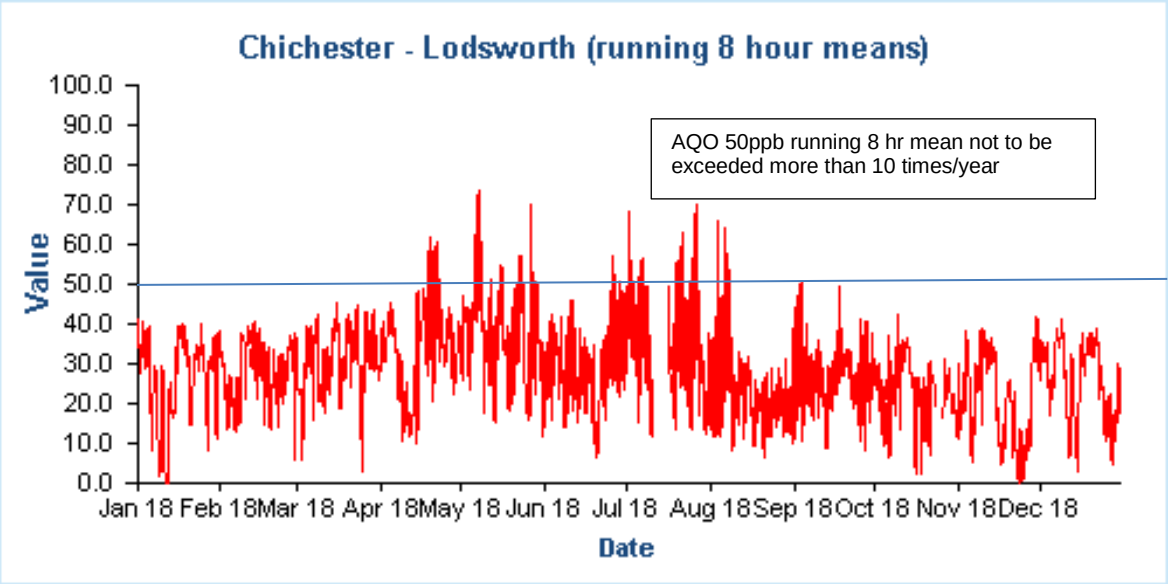
The Table below compares the ratified and adjusted monitored O_3 concentrations and indicates that the number of exceedances of the running 8 hour mean (of 100µg/m^3 or 50 ppb) has fluctuated over the last five years from seven in 2015 to thirty four in 2018.

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	O_3 - No more than 10 days where maximum rolling 8 hr mean >= 100 µg/m^3				
				2014	2015	2016	2017	2018
AR1	Rural (Lodsworth)		97	17	7	16	15	34

(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%).

The latest data shows that the Objective was not achieved in 2018 as there were more than ten exceedances of the running 8 hour mean during the year, see below.



Comparison to the DEFRA banding below shows that in 2018 at Lodsworth there were 34 days when 'moderate pollution' occurred, see box for health messages of DEFRA pollution bands.

Health messages of the DEFRA Pollution Bands

Pollution band and numerical index	Health messages for at-risk groups*
1 – 3 (low)	Enjoy your usual outdoor activities.
4 – 6 (moderate)	Adults and children with lung problems, and adults with heart problems, who experience symptoms, should consider reducing strenuous physical activity, particularly outdoors.
7 – 9 (high)	Adults and children with lung problems, and adults with heart problems, should reduce strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also reduce physical exertion.
10 (very high)	Adults and children with lung problems, adults with heart problems, and older people, should avoid strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often.
**Adults and children with heart or lung problems are at greater risk of symptoms.*	

NB. Local authorities are no longer obliged to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is an issue. National monitoring results are available at https://uk-air.defra.gov.uk/data/

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In 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	NO2; PM10	NO	chemilumin-escent/TEOM	25	26	3
CI4	Orchard Street	Roadside	485982	105221	NO2	YES	Chemiluminescent	10	3.75	2
AR1	Lodsworth	Rural	492396	123248	O3	NO	UV	n/a	n/a	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.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
1	Kings Ave/Southbank Jct	Roadside	485776	103961	NO2	N	11	2.25	N	3
2	Claremont Court	Roadside	485772	103847	NO2	Y	0	7.5	N	3
3	Cabin	Suburban	485880	103791	NO2	N	25	26	Y	2.7
4	Cabin	Suburban	485880	103791	NO2	N	25	26	Y	2.7
5	Cabin	Suburban	485880	103791	NO2	N	25	26	Y	2.7
6	Stockbridge Road South	Roadside	485696	103731	NO2	N	14	2	N	2.85
7	Cleveland Rd	Urban Background	486953	104414	NO2	N	18	1.8	N	2.8
8	Westhampnett Road	Roadside	487341	105474	NO2	N	3	1.65	N	2.85
9	Hornet	Roadside	486502	104795	NO2	N	0	1.8	N	3.1
10	St Pancras	Roadside	486533	104860	NO2	Y	0	2	N	3
11	Arthur Purchase	Urban Background	486082	105026	NO2	N	0	6	N	2.7
12	174 Orchard St	Roadside	485914	105185	NO2	Y	0	2	N	2.65
14	Rumbold's Hill, Midhurst	Roadside	488561	121479	NO2	N	0.5	1.5	N	3.4
15	Sussex Cleaners	Roadside	486575	104799	NO2	NO	0	1.82	NO	2.95
16	Nag's Head	Roadside	496495	104845	NO2	YES	0	2.38	NO	3.23
17	Orchard St cabin	Roadside	485982	105221	NO2	YES	10	3.75	YES	1.95

18	Midhurst Stationery	Roadside	488545	121434	NO2	NO	1.8	0.62	NO	2.79
19	Nat West Bank	Roadside	488583	121512	NO2	NO	8.6	1.07	NO	2.97
20	Nationwide	Roadside	488605	121538	NO2	NO	0.5	2.15	NO	2.7
21	British Heart Foundation	Roadside	488636	121613	NO2	NO	0	3.8	NO	2.79

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2014	2015	2016	2017	2018
CI1	Suburban	Automatic		100	33	34	34	33	29
CI4	Roadside	Automatic		100	34	x	29	23	22
1	Roadside	Diffusion Tube		100	32	30	33	29	27
2	Roadside	Diffusion Tube		100	**42**	**42**	**42**	39	33
3	Suburban	Diffusion Tube		100	33	34	34	33	29
4	Suburban	Diffusion Tube		100	33	34	33	32	30
5	Suburban	Diffusion Tube		100	33	34	35	34	29
6	Roadside	Diffusion Tube		100	**41**	**41**	**43**	36	34
7	Urban Background	Diffusion Tube		92	16	17	18	16	15
8	Roadside	Diffusion Tube		100	31	30	31	30	29
9	Roadside	Diffusion Tube		100	38	**40**	**41**	38	36
10	Roadside	Diffusion Tube		100	**52**	**46**	**51**	**44**	**45**
11	Urban Background	Diffusion Tube		100	18	18	20	18	17
12	Roadside	Diffusion Tube		100	39	33	38	33	33
14	Roadside	Diffusion Tube		92	x	**48**	**51**	**49**	**42**

15	Roadside	Diffusion Tube		92	x	x	x	x	32
16	Roadside	Diffusion Tube		92	x	x	x	x	38
17	Roadside	Diffusion Tube		92	x	x	x	x	22
18	Roadside	Diffusion Tube		100	x	x	x	x	28
19	Roadside	Diffusion Tube		100	x	x	x	x	37
20	Roadside	Diffusion Tube		92	x	x	x	x	38
21	Roadside	Diffusion Tube		92	x	x	x	x	27

☒ **Diffusion tube data has been bias corrected**

Notes:

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

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

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

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

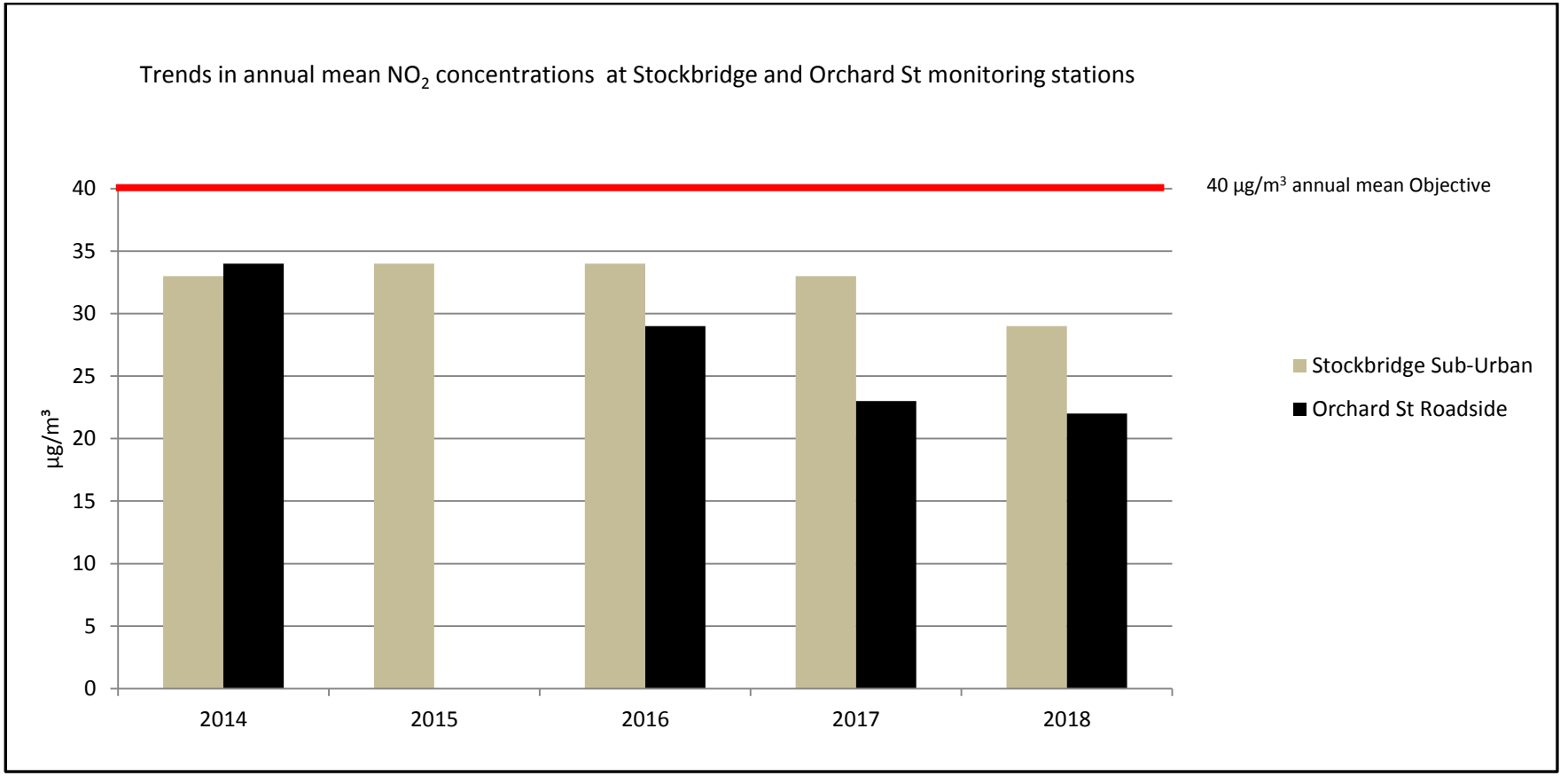


Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
					2014	2015	2016	2017	2018
CI1	Suburban	Automatic		100	0	0	0	0	0
CI4	Roadside	Automatic		100	0	x	0	0	0

Notes:

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

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

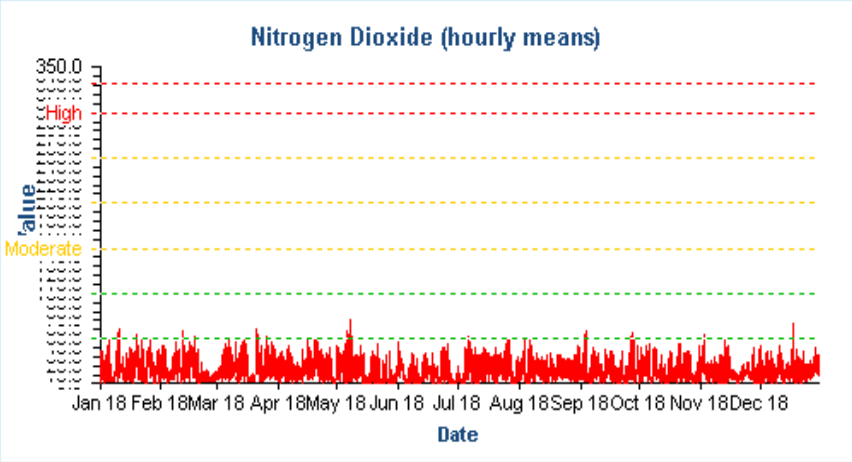
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

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

Figure A.2 – Trends in Number of NO_2 1-Hour Means > 200µg/m^3

There have been no 1 hour mean concentrations that exceed the 200µg/m^3 (100 ppb) Objective in 2018 at either monitoring station

Stockbridge/A27 Chichester bypass hourly means 2018 (units ppb)



Orchard Street, Chichester hourly means 2018 (units ppb)

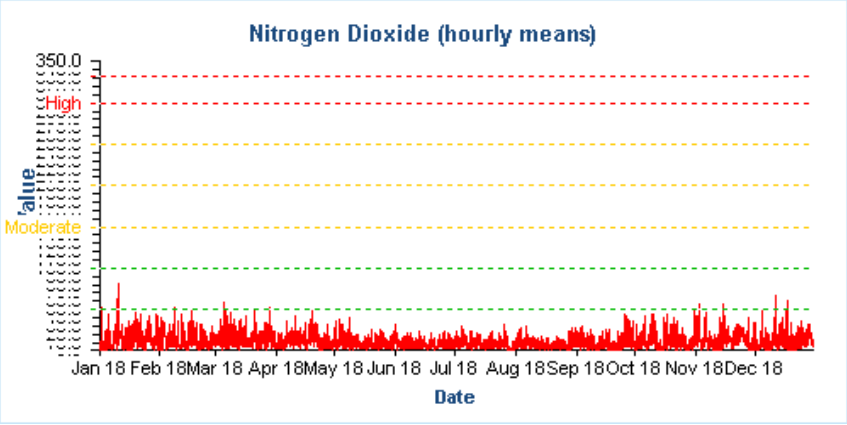
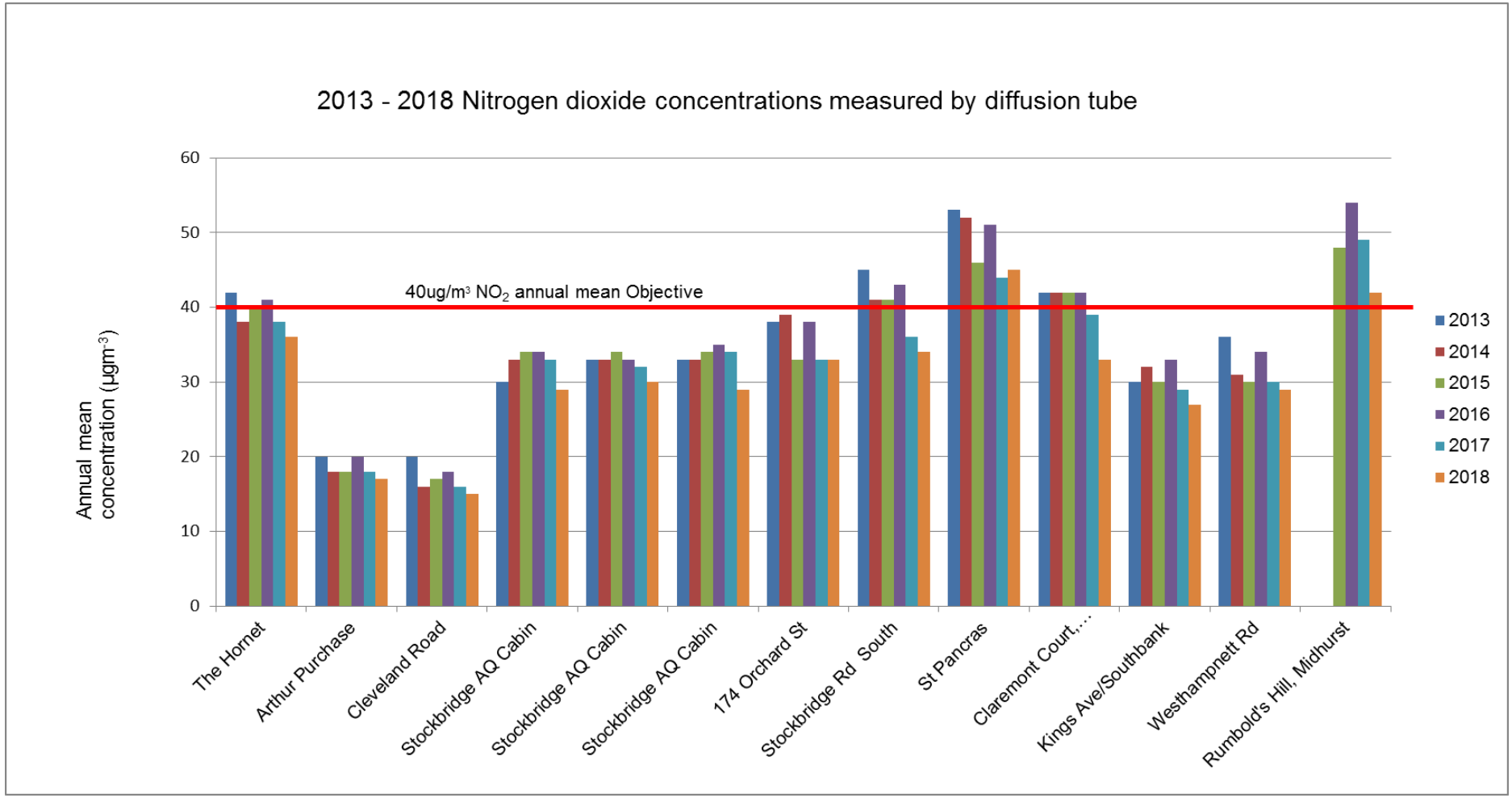


Figure A.3 – Trends in NO_2 diffusion tubes 2013 - 2018

Original diffusion tube locations



New diffusion tube locations started in 2018

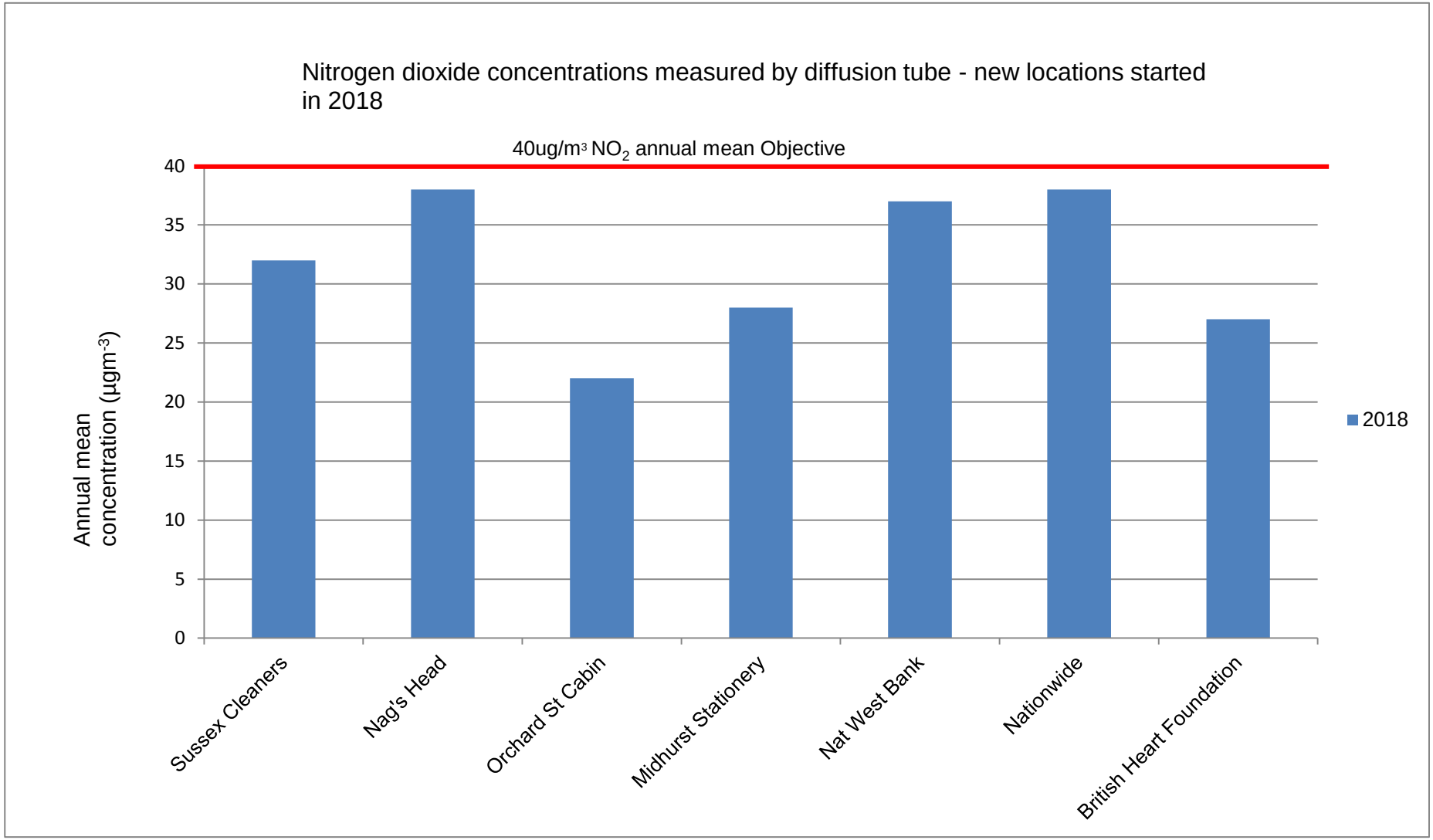


Table A.5 – Annual Mean PM_{10} Monitoring Results at Stockbridge monitoring station

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	PM_{10} Annual Mean Concentration ($\mu g/m^3$) (3)				
				2014	2015	2016	2017	2018
CI1	Suburban		100	20	21	20	19	18

Notes:

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

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

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

(3) All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A.4 – Trends in Annual Mean PM_{10} Concentrations at Stockbridge monitoring station

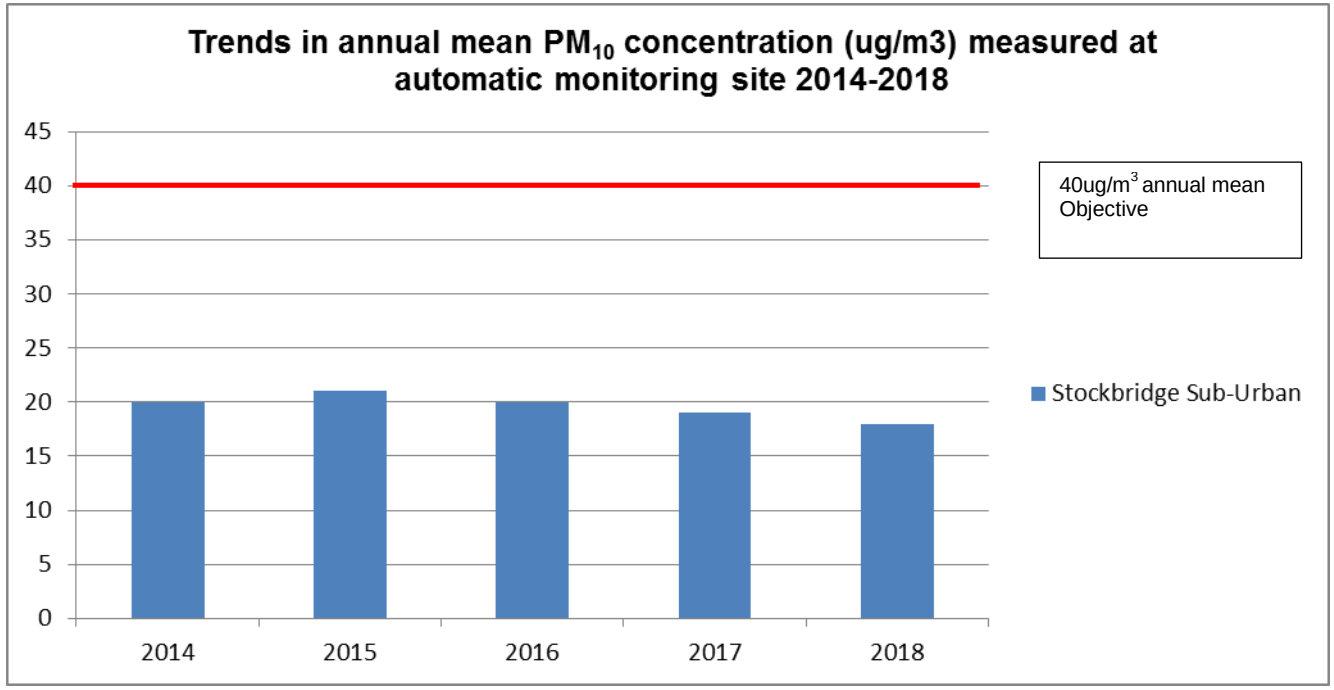


Table A.5 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2018 (%) (2)	PM_{10} 24-Hour Means > 50µg/m^3 (3)				
				2014	2015	2016	2017	2018
CI1	Suburban		100	2	3	2	1	0

Notes:

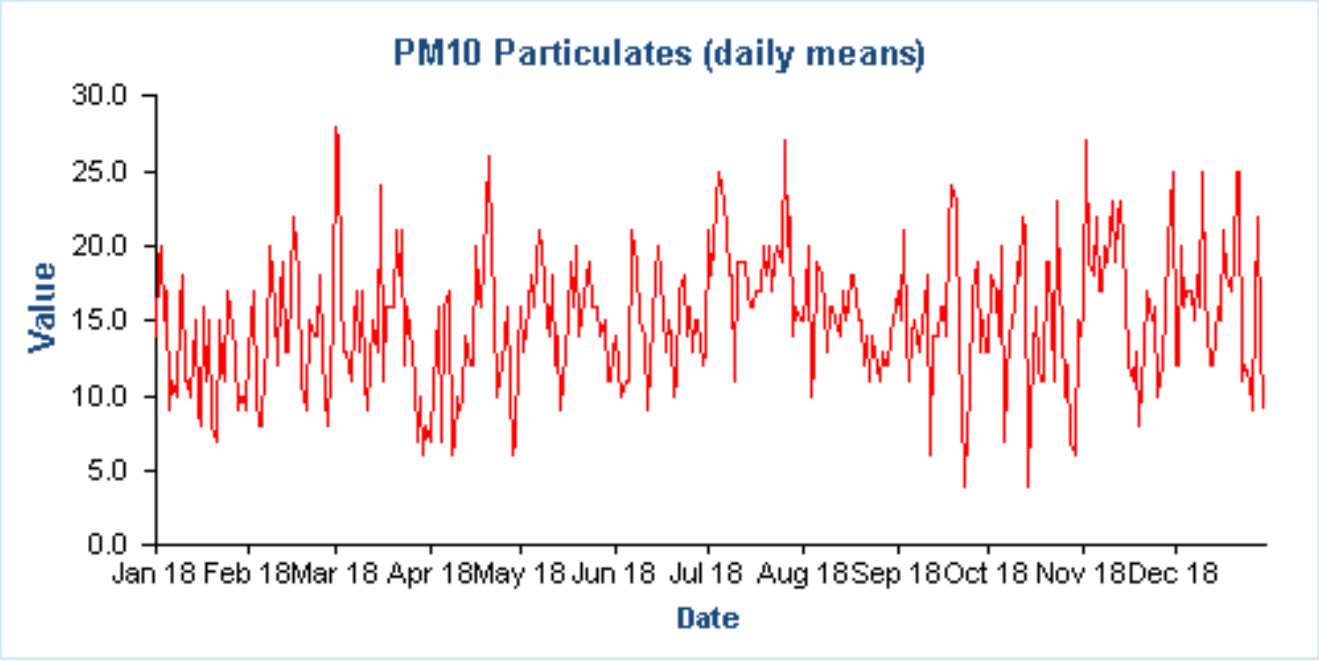
Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold.**

(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%).

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

Figure A.5 – Trends in Number of 24-Hour Mean PM_{10} Results >50µg/m^3 at Stockbridge monitoring station



Units are µg/m^3 – no exceedances of Objective (50µg/m^3) during 2018

Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO_2 Monthly Diffusion Tube Results - 2018

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.85) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
1	14.4	29.6	33.5	34.5	32.1	32.3	37.6	32.3	30.9	37.6	33.2	29.1	31.4	26.8	21.4
2	26.2	30.5	37.1	41.8	40.3	41.7	42.0	42.4	37.4	41.3	37.3	37.3	37.9	32.0	32.0
2a		30.72	35.06	41.86	45.58	39.84	43.48	44.44	40.57	42.74	36.61	39.25	40.0	34.0	34.0
3	27.77	27.25	33.55	38.73	28.3	31.84	39.38	41.29	32.92	34.23	32.5	34.81	33.5	29.0	n/a
4	25.71	33.22	39.68	40.15	28.74	31.25	39.14	41.46	34.76	36.75	29.23	36.77	34.7	30.0	n/a
5	20.71	31.89	37.82	35.3	29.87	34.15	37.76	39.45	34.09	36.78	33.07	35.83	33.9	29.0	n/a
6	27.94	39.83	45.85	40.31	40.31	41.32	39.78	37	36.69	44.57	46.98	35.94	39.7	34.0	23.6
7	19.09	24.37	20.77	20.47	15.21	14.69	14.48	12.22	14.28	21.81	22.24	A	18.1	15.0	n/a
8	26.92	33.73	45.17	35.14	32	33.58	37.52	20.69	35.07	37.96	38.47	37.43	34.5	29.0	27.1
9	30.11	45.43	45.6	43.79	37.58	39.42	44.99	36.34	36.74	46.93	40.96	40.16	40.7	35.0	35.0
9a		49.93	45.67	38.87	40.12	39.61	46.93	36.91	39.76	47.55	42.02	41	42.6	36.0	36.0
10	34.74	45.07	54.46	60.09	43.36	57.85	68.44	52.57	48.91	54.77	53.85	49.77	52.0	**44.0**	**44.0**
10a		47.73	61.84	53.39	53.47	57.4	63.46	54.35	45.22	54.1	55.18	49.17	54.1	**46.0**	**46.0**
11	21.52	21.13	24.55	22.09	17.71	15.92	15.89	15.56	18.05	22.17	24.38	20.66	20.0	17.0	n/a
12	30.14	37.79	43.98	39.93	34.15	35.53	44.27	30.79	32.76	41.81	42.07	39.34	37.7	32.0	32.0
12a		40.92	45.53	45.16	36.51	36.62	44.21	33.76	33.08	41.69	47.48	40.21	40.5	34.0	34.0

14	33.74	47.46	49.69	45.57	50.18	46.74	59.93	47.67	51.55	55.47	A	43.04	48.3	**41.0**	**41.0**
14a		44.77	50.43	48.1	47.98	48.81	67.8	47.74	46.92	53.28	A	43.25	49.9	**42.0**	**42.0**
15		31.76	41.32	45.2	32.76	37.29	39.86	35.42	35.41	36.01	39.41	43.16	38.0	32.0	32.0
16		46.03	39.9	43.68	48.36	45.69	52.81	40.74	44.2	50.48	40.19	40.51	44.8	38.0	38.0
17		31.78	30.56	17.16	20.7	21.38	22.98	29.88	20.42	25.89	30.38	30.83	25.6	22.0	19.7
18	25.35	35.57	34.41	30.76	35.06	35.02	39.63	25.34	28.94	37.42	35.04	28.71	32.6	28.0	23.6
19	28.98	43.82	45.22	42.87	39.65	42.11	50.56	45.38	44.65	49.92	45.64	43.54	43.5	37.0	25.7
20		43.34	47.41	46.09	45.65	44.51	52.77	38.42	42.06	44.73	48.69	38.24	44.7	38.0	36.6
21		31.54	36.37	35.26	32.4	32.43	38.48	26.43	27.93	30.49	37.36	24.41	32.1	27.0	27.0

☒ **Local bias adjustment factor used**

☒ **Where applicable, data has been distance corrected for relevant exposure**

n/a – where bias adjusted mean does not exceed the annual mean objective of 40 µg/m^3 and the site is background or suburban no distance correction has been calculated.

Sites 2a, 9a, 10a, 12a and 14a represent co-located tubes

Notes:

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

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Significant changes to sources

No significant changes were noted to sources of pollution however additional monitoring is being undertaken within Chichester and Midhurst, see section 2.2 as a result of feedback from DEFRA to the previous ASR.

Detailed dispersion modelling/monitoring campaigns in the District

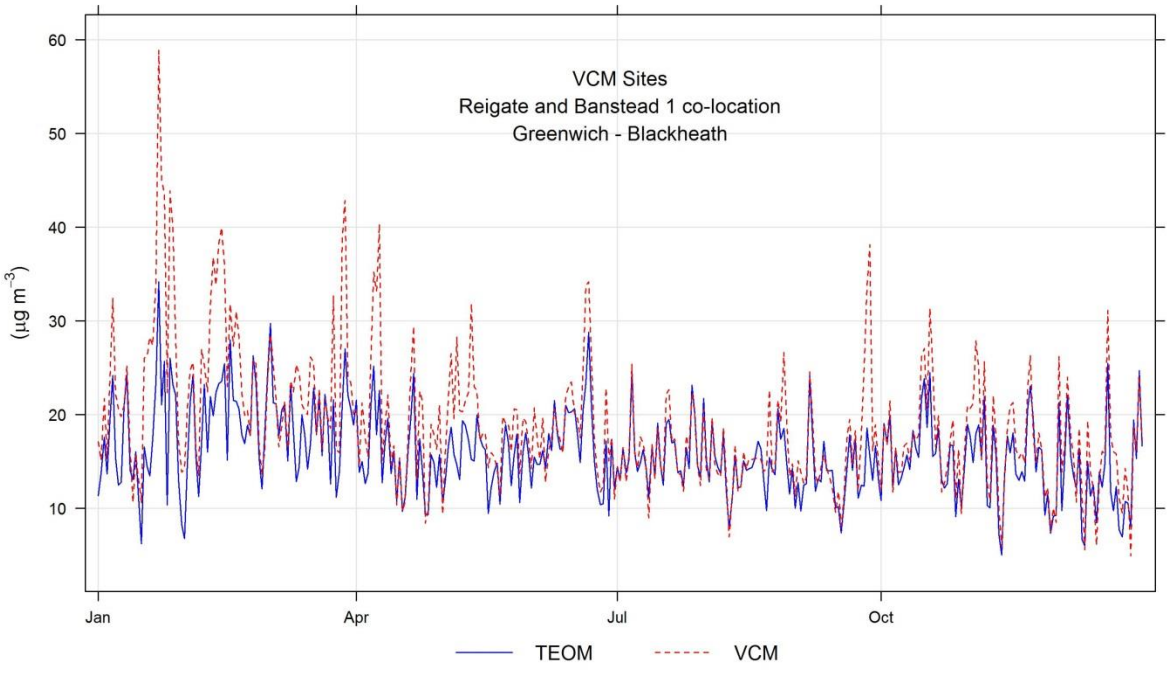
A contract was let in early 2019 to model air quality in discrete locations in Chichester and one location in Midhurst. The results of this work will feed into the review of the Air Quality Action Plan and next year's ASR.

Additional Evidence gathered

None noted.

QA/QC of Automatic Monitoring

All sites are visited by an 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 callout response if problems are encountered at the sites. Data is downloaded from all sites twice daily by the ERG[5] and is available to download online[6]. CDC has a contract with ERG to calibrate and ratify all real time data collected. ERG applies a VCM correction to the PM_{10} data and a screen shot of the correction is shown below. The graph shows the CDC TEOM data in blue and the VCM correction as a dotted red line.



[5] The Environmental Research Group (ERG), part of the School of Biomedical and Health Sciences at King's College London, a leading provider of air quality information and research in the UK.
[6] www.sussex-air.net

For more information please contact the ERG helpdesk[7].

QA/QC Diffusion Tube Data

Chichester District Council uses Gradko Environmental for supplying and analysing the diffusion tubes. The tube preparation method is 50% TEA/Acetone and ANA UKAS Method GLM 7 and GLM 9. CDC uses a local bias adjustment factor.

Factor from Local Co-location Studies

Three diffusion tubes are co-located with the Stockbridge monitoring station. These are used to calculate a bias-correction for the NO_2 diffusion tubes. The automatic monitoring station's data is quality assured by ERG. The annual average concentrations from the three co-located tubes are compared to the annual average real time data derived concentration for the same period. A factor can then be derived to correct all other diffusion tube data. The 'bias correction' calculation is as per the table below.

Annual mean (automatic monitor) [a,b,c]	= 29µg/m^3
Annual average mean (NO_2 diffusion tubes) [d]	= 34.1µg/m^3
Correction factor calculation	= 29/34.1 = 0.85

[a] 1st January 2018 – 31st December 2018
[b] Real-time data capture for 2018 = 100%
[c] All data ratified by Environmental Research Group
[d] Diffusion tube data capture for the period Jan - Dec = 92-100%

QA/QC of Diffusion Tube Monitoring

CDC has confirmed by checking the web site provided that Gradko Environmental uses the Workplace Scheme for Proficiency (WASP) indicator rating for quality control. The result for 2018 was Satisfactory (Z score +/- 2) for 100% of results submitted. For more information please contact Gradko Environmental[8].

Distance calculations for roadside diffusion sites where monitoring is not carried out at a location of relevant exposure

Using the NO_2 fall off with distance calculator on the LAQM website, the following sites have had a distance calculation applied:

[7] Contact ERG on 020 7848 4022
[8] Contact Gradko on 01962 860331

King's Avenue/Southbank

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	2.25	metres
Step 2	How far from the KERB is your receptor (in metres)?	11	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12.74	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	26.8	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	21.4	µg/m^3

Stockbridge Road South

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	2	metres
Step 2	How far from the KERB is your receptor (in metres)?	16	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12.736	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	34	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	23.6	µg/m^3

Westhampnett Road

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.65	metres
Step 2	How far from the KERB is your receptor (in metres)?	3	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	14.802	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	29	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	27.1	µg/m^3

Orchard Street Cabin

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	3.75	metres
Step 2	How far from the KERB is your receptor (in metres)?	10	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	13.465	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	22	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	19.7	µg/m^3

Midhurst Stationery

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	0.62	metres
Step 2	How far from the KERB is your receptor (in metres)?	2.42	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	10.574	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	28	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	23.6	µg/m^3

Nat West Bank

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.07	metres
Step 2	How far from the KERB is your receptor (in metres)?	8.6	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	10.574	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	37	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	25.7	µg/m^3

Nationwide

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	2.15	metres
Step 2	How far from the KERB is your receptor (in metres)?	2.65	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	10.574	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	38	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	*36.6*	µg/m^3

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

Figure D.1 Stockbridge Roundabout AQMA, monitoring station and diffusion tube locations

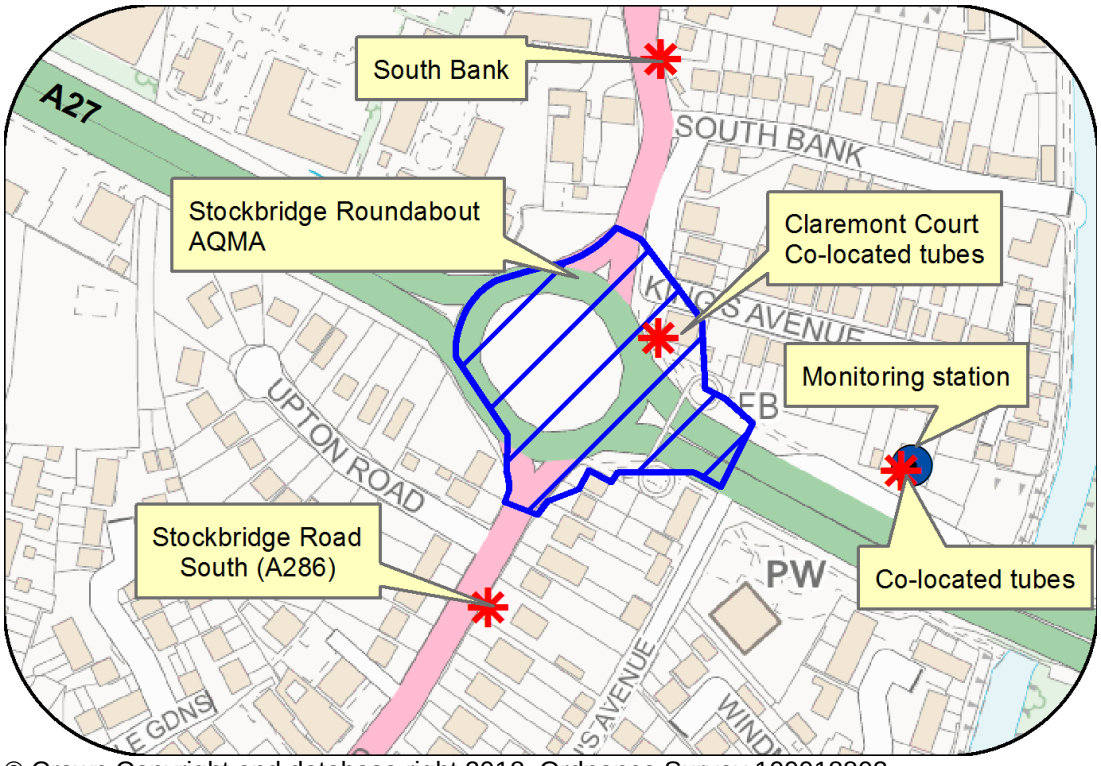


Figure D.2 Orchard Street AQMA, monitoring station and diffusion tube locations

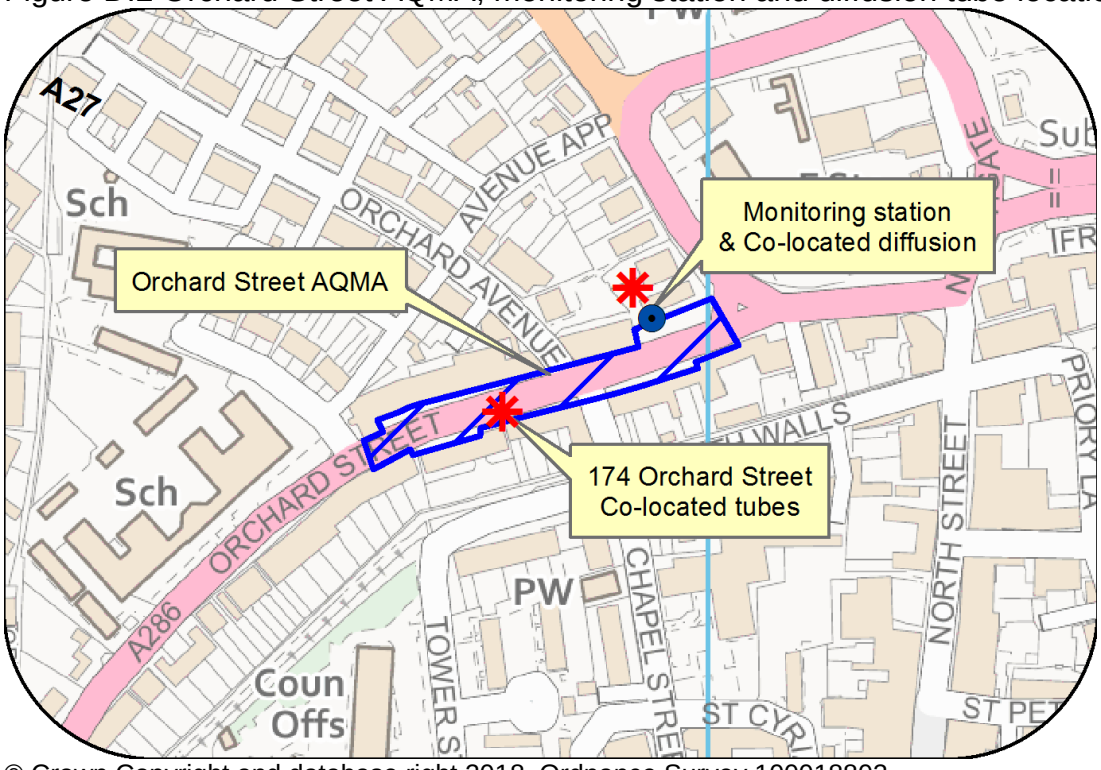


Figure D.3 St Pancras AQMA and diffusion tube locations

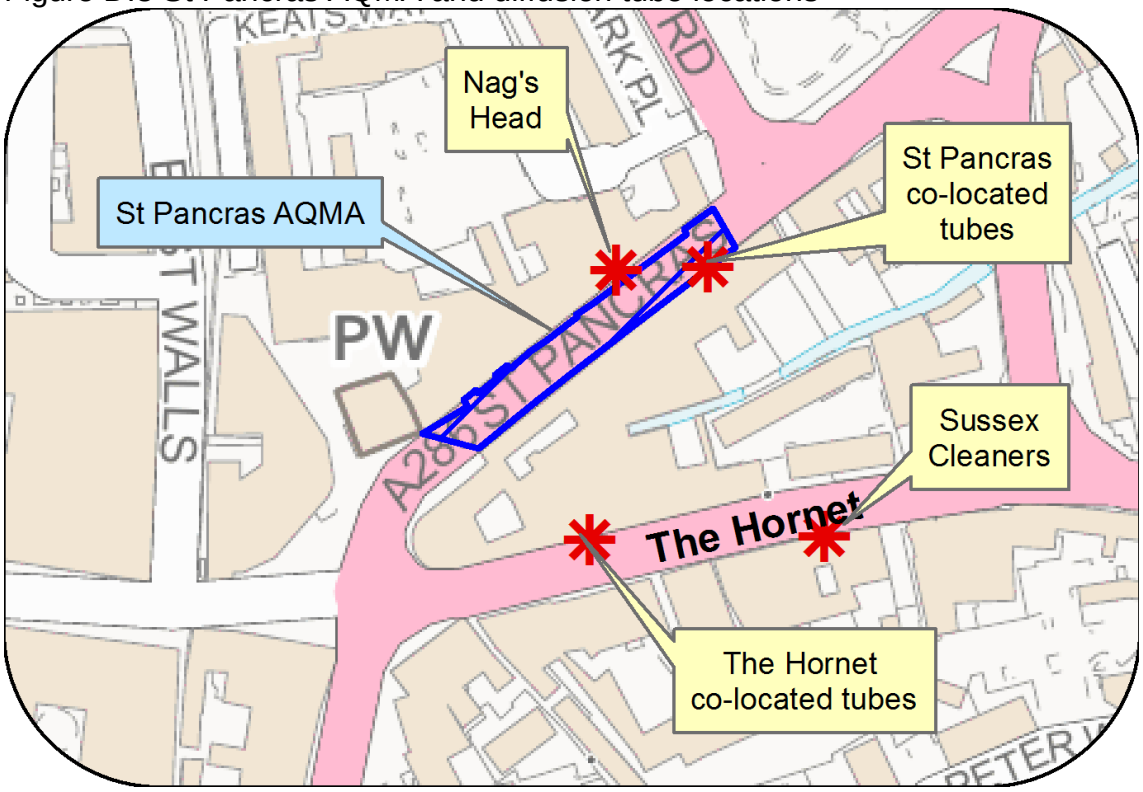


Figure D.4 Map of diffusion tube sites in Chichester

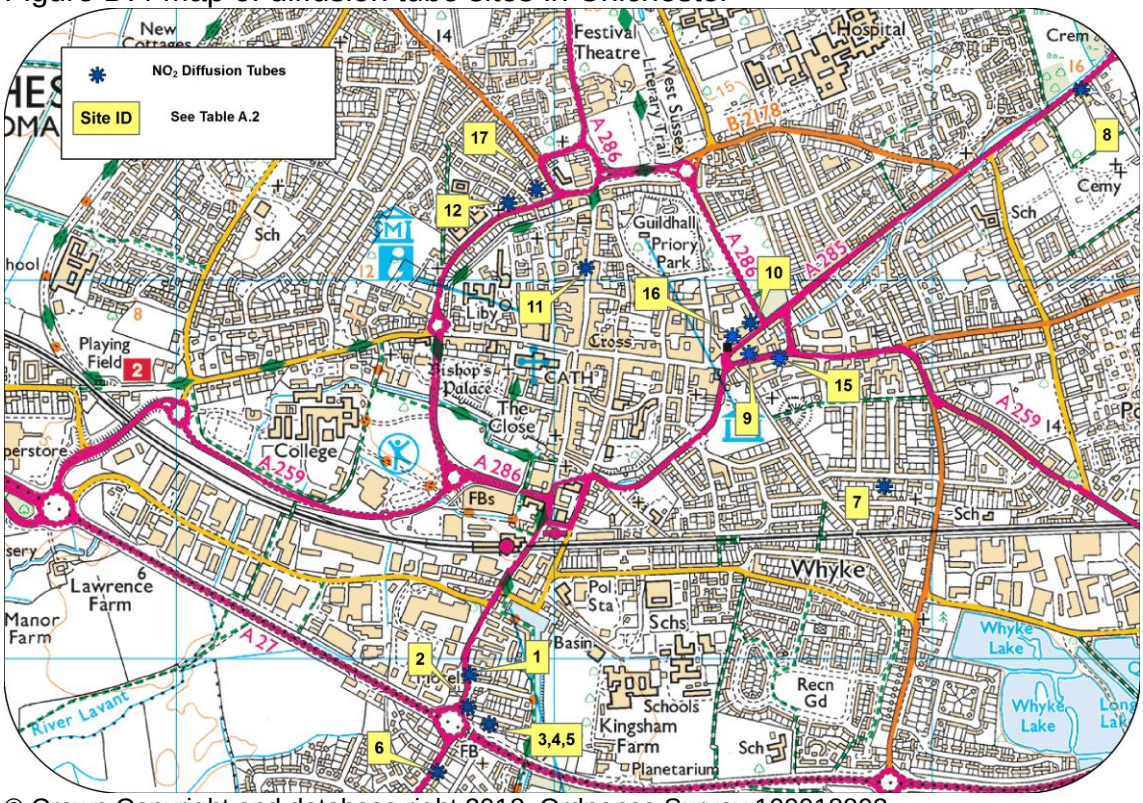


Figure D.5 Location of ozone monitoring station in Lodsworth

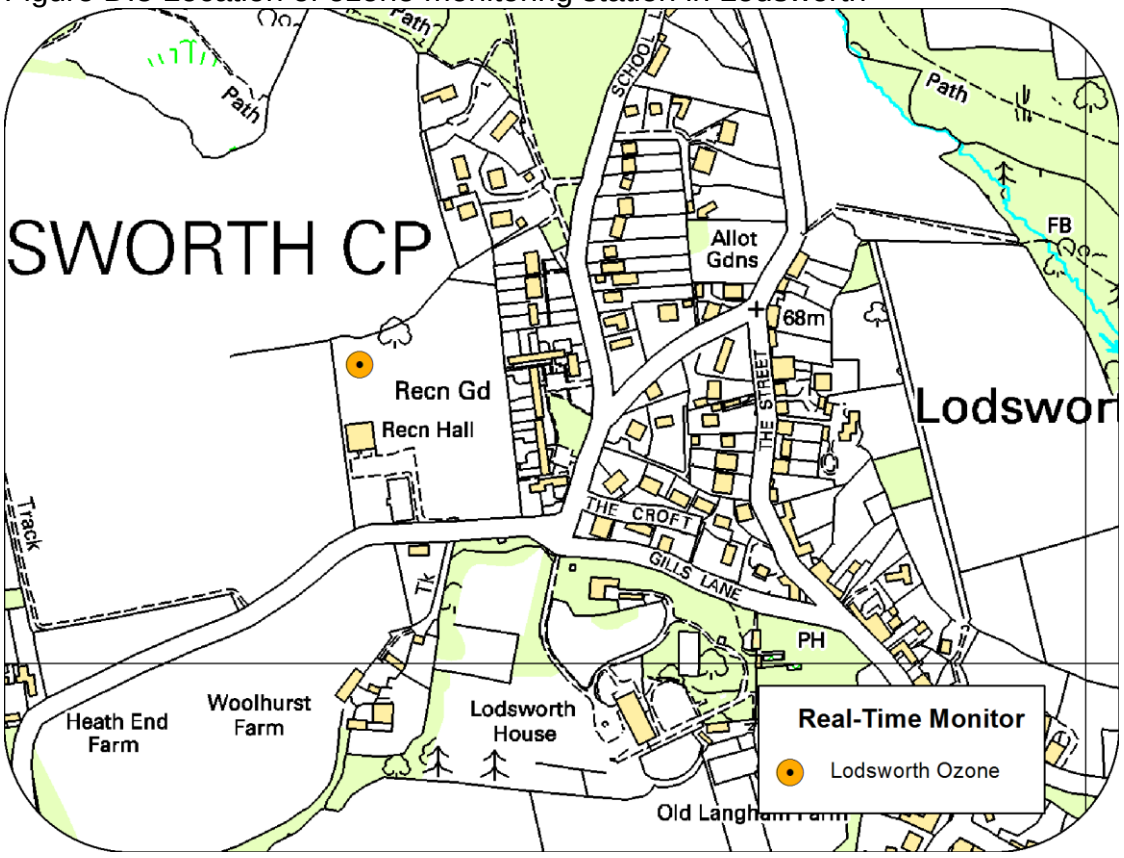
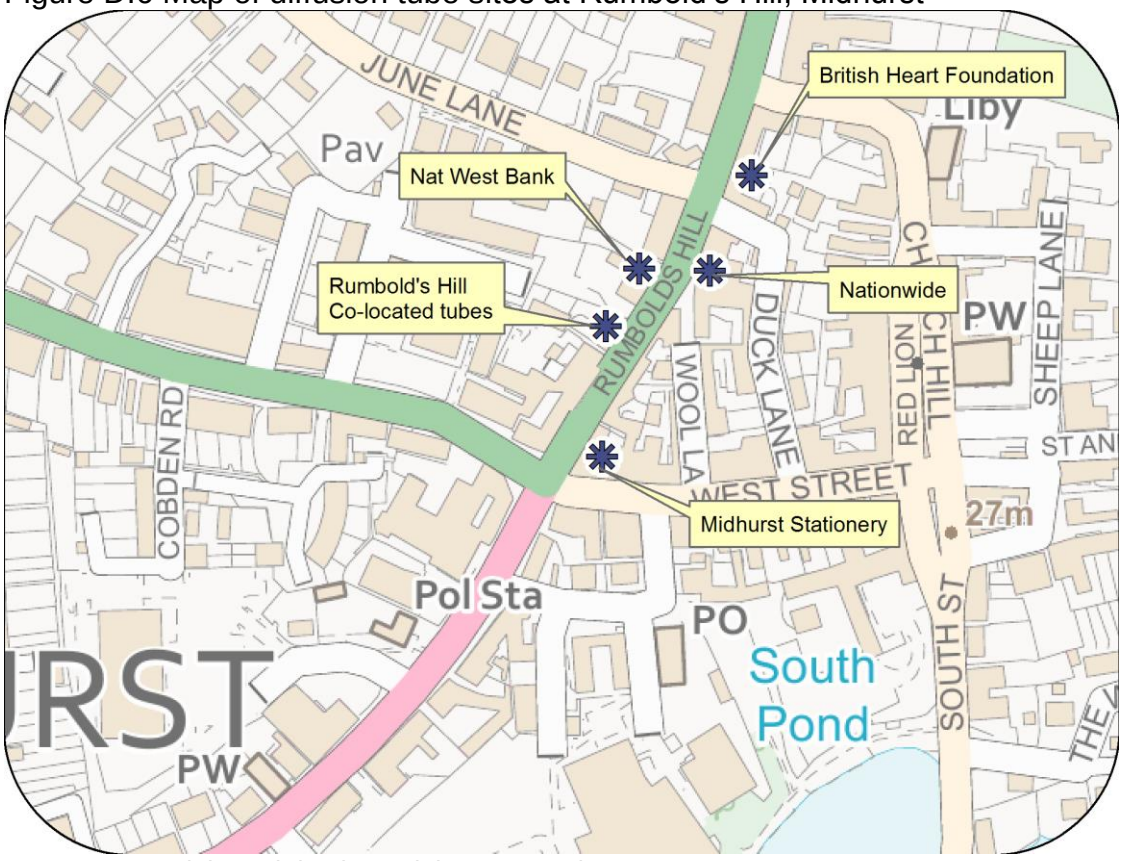


Figure D.6 Map of diffusion tube sites at Rumbold's Hill, Midhurst



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[9]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

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

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	Air quality Annual Status Report
CCTV	Closed circuit television
CDC	Chichester District Council
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
EV	Electric vehicle
FDMS	Filter Dynamics Measurement System
HE	Highways England
LAQM	Local Air Quality Management
LES	Low Emissions Strategy
LSTF	Local Sustainable Transport Fund
MOVA	Microprocessor Optimised Vehicle Actuation
NHS	National Health Service
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
OLEV	Office of Low Emission Vehicles

O_3	Ozone
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
RTPI	Real Time Passenger Information
SAQP	Sussex Air Quality Partnership
SO_2	Sulphur Dioxide
UTC	Urban Transport Controls
VCM	Volatile correction measurement
VMS	Variable message signing
WSCC	West Sussex County Council

References

Towards Better Air Quality: An Air Quality Action Plan for Chichester District Council 2015-20 produced by Chichester District Council

West Sussex Walking and Cycling Strategy 2016 – 2026 produced by WSCC