2020 Air Quality Annual Status Report (ASR)

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

June 2020

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Executive Summary: Air Quality in Our Area

Air Quality in Eastbourne Borough Council

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].

Background & episodes

Air pollution can come from many different sources – traffic, imported air pollution from the Continent, air emissions from shipping, and domestic wood burning. There are also natural sources of air pollution too, such as dust from soils, ash and sea-spray. Burning wood and coal in open fires and stoves makes up 38% of the UK's primary emissions of fine particulate matter ($PM_{2.5}$). Particulates are not a single pollutant; they are made up from a huge variety of chemical compounds and materials. Around 15% of UK PM comes from naturally occurring sources, up to a third from other European countries and around half from UK human-made sources. (Clean Air Strategy 2019, Defra[4]).

Unfortunately there is no 'quick fix' in regards to air quality. The air is a constantly changing and evolving environment. We may get days when air pollution is higher than others, due to a number of meteorological conditions and chemical reactions occurring in the air. We can receive 'imported' pollution from the Continent and also from sources such as domestic wood burning and shipping. Wind speed, wind direction and the topography of the land mass plays an important part in where air pollution ends up. Particles or particulate matter are extremely small bits of liquid or solid suspended in the air. They can originate from engine emissions, brake and tyre

[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

wear, industry and natural sources as previously mentioned. Very fine particulates ($PM_{2.5}$) can therefore remain in the air for weeks and travel great distances (e.g. from the continent).

Ground level ozone is normally formed when other pollutants including nitrous oxides react in sunlight to form ozone (sometimes leading to a haze/smog); ozone levels are highly dependent on the weather and warm sunny periods can cause a sharp increase in mean levels. Ozone concentrations in the summer months tend to be higher in the south-east because it is closer to European pollution sources. Eastbourne monitors ozone (O_3) at the Devonshire Park site. The monitor had a % data capture rate of 90% (90% is classed as adequate data capture and therefore not requiring annualisation). The days of moderate ozone was 13 days, which demonstrates that it did not meet '100 µg/m3 as an 8 hour mean, not to be exceeded more than 10 times a year'.

The air quality objectives for PM_{10} and NO_2 were met by Eastbourne Borough Council in 2019 and there are currently no Air Quality Management Areas (AQMAs) declared within the local authority area. Road transport is the primary source of local air pollution with industrial sources only representing a small proportion of emissions of air pollutants.

As was discussed in last year's ASR, sickness and staffing issues led to little data being produced for 2018. Provisions have been implemented to ensure appropriate data capture in 2019, with none of the original diffusion tubes requiring annualisation. Data from the 11 diffusion tubes that were added in May 2019 have been annualised and included in this report.

Actions to Improve Air Quality

Eastbourne Borough Council has taken forward a number of initiatives during the current reporting year of 2020 in pursuit of improving local air quality. East Sussex County Council (ESCC) managed to secure £1.4 million funding from the Department for Transport to deliver a programme of active travel across East Sussex. The Active Access for Growth Programme will run from 2017 to 2020, focusing on a number of growth areas, one of these being Eastbourne (See Section 2.2).

Further temporary anti-idling signs have been deployed in Eastbourne Borough. Deployment was highlighted in the local press and on social media. We have placed a few more of these signs in areas where there may have been additional issues highlighted by members of the public such as the approaches to the District General Hospital and Hampden park railway Crossing. We are continuing the anti-idling initiative and in March 2019 we launched an anti-idling education campaign aimed at schools over both Lewes and Eastbourne councils. We will be continuing this anti-idling message into schools over the next few years.

Conclusions and Priorities

Eastbourne Borough Council works closely and in collaboration with all its delivery partners, for example - East Sussex County Council, in order to deliver improvement initiatives (see Section 2.2).

Temporary anti-idling signs have been deployed in a few areas e.g. routes leading towards the hospital roundabout and around the Ashford Road/Susans Road where cars often queue for the car park to the shopping centre. We are continuing this anti-idling initiative – in March 2019, the council launched an anti-idling education campaign aimed at schools over both Lewes and Eastbourne councils. EBC will be continuing this anti-idling message into schools over the next few years.

The Sussex Air Quality Partnership (Sussex-air) led by Horsham District Council were successful in bidding for a DEFRA grant (for period 2019/2020). This project is an educational campaign on solid fuel burning, promoting cleaner fuels, low smoke appliances and the correct way of installing and maintaining them. We plan to gather information and data on the type of appliance and solid fuels that house-holders use in the region, to heat their home. We aim to promote cleaner burning choices. We would like to try and ascertain why householders use particular appliances and fuels and understand their decision making process when considering energy efficiency improvements. Advice and information to householders will be provided online via a dedicated website. In addition, leaflets will be posted or be available to download from the website. Each questionnaire respondent will be either directed or referred to energy improvement programmes.

We are always keen to work with our neighbouring authorities via Sussex-air, with our county council and increasingly with our public health colleagues. For example,

the schools anti-idling campaign – part of the information we send out includes '*Health Matters by Public Health England*'.[7] The link:
https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution

We recognise the importance of joint working and the successful award of this year's grant demonstrates the importance and success that combining forces can create.

We also recognise that joint working provides the public with a greater understanding of how air quality and health are intrinsically linked.

More exercise – less obesity – less vehicles on the road – improved air quality - = increased general health

Local Engagement and How to get Involved

Help improve your own environment:

Can you cut down on the use of your vehicle?

- Use public transport
- Cycle
- Walk
- Use alternative routes to get from A to B. Instead of walking or cycling along a major road, use alternative quieter and less polluted routes.

Not only can you help in improving our environment but it gives you the added benefit of exercise and helps improve general health and well-being.

Idling engines:

Vehicle idling causes air pollution and engines should not be left running unnecessarily. Breathing polluted air is not only extremely unpleasant but is also detrimental to our health. The air inside the vehicle can be worse than outside!

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[7] Health Matters – Public Health England (2018)

Why it's good to turn off vehicle engines - Cut Engine Cut pollution

- Exhaust emissions contain a range of air toxic pollutants such as carbon monoxide, benzene, formaldehyde, Polyaromatic hydrocarbons, nitrogen dioxide and particulate matter.
- Every minute your car idles you could fill 150 balloons with harmful chemicals.
- Turning off your car engine and restarting it after one minute causes less pollution and uses less fuel than keeping the engine running.
- Modern batteries need less engine running time to stay charged.
- It takes up to an hour for an engine to cool down which means your car heating fan will work with your engine turned off.
- Idling does not keep a catalytic converter warm. They retain heat for approximately 25 minutes after the engine is switched off.

Air quality is as important as exercise and diet for health. Reducing air pollutants can help reduce respiratory problems, heart disease, lung cancer and asthma attacks.

Changing your vehicle:

- If you are considering buying a new or second hand vehicle/s consider the options of newer cleaner models – e.g. hybrids, electric.
- Have a good look at the vehicles emission credentials before buying.
- Consider alternatives – could you join a Car Club?

There are various organisations and clubs which offer help and advice on getting active, for example: Sustrans: http://www.sustrans.org.uk/what-you-can-do, walking: https://www.livingstreets.org.uk/walk-to-school, Bikeability: http://bikeability.org.uk/ - programmes – involving schools and workplaces (cycling and walking activities). Public Health England published a very informative document on air pollution and health. This can be found on this link: https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution. Public Health England[7] says: '*Epidemiological studies have shown that long-term exposure to air pollution (over years or lifetimes) reduces life expectancy, mainly due to cardiovascular and respiratory diseases and lung cancer. Short-term exposure (over hours or days) to elevated levels of air pollution can also cause a range of health impacts, including effects on lung function, exacerbation of*

asthma, increases in respiratory and cardiovascular hospital admissions and mortality.'

Details, including local air quality monitoring data, annual air quality reports and the impact air quality may have on health can be found on the Sussex-air website. Sussex-air also runs the airAlert service providing warnings to people with respiratory and cardiovascular conditions, health professionals and carers in Sussex. The service is FREE to register/subscribe to and anyone can join. Alerts are sent direct to the airAlert app, email, mobile phone via text message or home phone. Sussex-air also provides a free coldAlert service – providing extreme cold weather warnings and information and also a heatAlert service. The apps, airAlert, coldAlert and heatAlert are provided as a free service by the Sussex Air Quality Partnership and supported by the Public Health Bodies (East Sussex & West Sussex County Council). Further information can be found: www.sussex-air.net or telephone 01273 484337.

Business

Businesses in East Sussex can obtain assistance from energy advisors LoCASE (Low Carbon Across the South East). Your business may be eligible for a free energy audit and funding for energy efficiency solutions identified with a grant. More information can be found on: http://locase.co.uk/partners-and-services/

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1 Local Air Quality Management

This report provides an overview of air quality in Eastbourne during 2019. 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 Eastbourne Borough 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 Table E.1 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.

Eastbourne Borough Council currently does not have any AQMAs. For reference, a map of Eastbourne Borough Council's monitoring locations is available in Appendix D.

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

Defra's appraisal of last year's ASR concluded that the report was as comprehensive and thorough as it could have been, given the unforeseen circumstances that led to poor data capture at all diffusion tubes. Data capture has been improved in this reporting year, with valid data for all 11 original tubes and an extension to the monitoring network through the addition of a further 11 diffusion tubes. It is recommended that Eastbourne Borough Council consider using a local bias-adjustment factor, should diffusion tubes be able to be co-located in triplicate in the future.

Eastbourne Borough Council has taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1.

Although air quality objectives are not exceeded in Eastbourne, we are required to report on strategies aimed at improving air quality during 2018. A collaborative approach has been taken in order to improve the environment as a whole – for example the East Sussex Strategic Partnership:

http://www.essp.org.uk/What-we-do/Pride-of-Place/Environment

http://www.essp.org.uk/East-Sussex-Strategic-Partnership-Media/East-Sussex-Strategic-Partnership-Document-Library/PoP%20documents/Eastbourne.pdf

One of the key tasks under the Environment and Climate Change theme is to reduce traffic by increasing alternative sustainable travel choices and to improve air quality. Under Health and Social Care, one of the priorities is encouraging people to take more exercise, reduce obesity and improve diet and nutrition. Coupled with this under 'Environment Priorities', Eastbourne aim to improve the standard and quantity of public transport, improve facilities for walking and cycling and encouraging the production of green travel plans.

Eastbourne Borough Council works in partnership with East Sussex County Council to improve local air quality. One of the main mechanisms to achieve this is through the Local Transport Plan (LTP3, 2011-2026). An update on the Local Transport Plan

is provided in the Second Implementation Plan (2016/2017 to 2020/2021) which can be found at: ESCC Local Transport Plan 3.

It identifies the importance of various improvements to key walking and cycling corridors (e.g. improving signs for cycle Regional Route 90), focussing on improvements to public transport corridors, better use of technology e.g. Real Time Bus Information and charging points for electric vehicles. Further information can be found on: ESCC Local Transport Plan.

While air quality is not an explicit objective for the LTP, there will be co-benefits in terms of the measures designed to tackle climate change and improve quality of life. Measures will indirectly aid reductions in pollutant levels by encouraging more people to walk and cycle instead of using vehicles.

More detail on these measures are likely to be found within the upcoming Eastbourne Local Plan (2018-2038), which will be the key planning document that will shape, plan and manage growth, regeneration and development across the Borough.

Progress on the following measures has been slower than expected due to staff changeovers and the unforeseen circumstances mentioned in the previous ASR.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Walking & Cycle Network – Horsey Way Phase 3 (Lottbridge Drove to Sovereign Harbour)	Transport Planning and Infrastructure	Cycle network		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				May-18	
2	Walking & Cycle Network – Horsey Way Phase 1b (Cavendish Place to Ringwood Road)	Transport Planning and Infrastructure	Other		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-19	
3	Walking & Cycle Network – Meads area Pedestrian & safety improvements	Transport Planning and Infrastructure	Cycle network	Preliminary Design March 2019	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					
4	Walking & Cycle Network – Willingdon Drove cycle route	Transport Planning and Infrastructure	Cycle network	Business Case Approval March 2019	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					
5	Eastbourne /South Wealden Cycling & Walking improvements (following BC approval)	Transport Planning and Infrastructure	Cycle network	Feasibility Design March 2019	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					
6	Hailsham/Polegate/Eastbourne Sustainable Transport Corridor	Alternatives to private vehicle use	Other		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-19	

7	Eastbourne Walking and Cycle Network - Town centre to hospital cycle route route	Transport Planning and Infrastructure	Cycle network	Design March 2019	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					
8	Victoria Drive - Pedestrian Improvements study	Transport Planning and Infrastructure	Other		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-19	
9	Eastbourne Town centre improvement scheme Phase 2 (complete transport model and designs)	Transport Planning and Infrastructure	Cycle network	Work commenced March 2019	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					
10	Friday Street Pedestrian Improvement study - Oak Tree Lane pedestrian crossing	Transport Planning and Infrastructure	Other		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-19	
11	Ocklynge School Safety Zone	Transport Planning and Infrastructure	Other		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-19	
12	Eastbourne Walking and Cycle Network - Horsey Way Phase 1B (Cavendish Place to Ringwood Road)	Transport Planning and Infrastructure	Cycle network		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-20	
13	Eastbourne Walking and Cycle Network: Stone Cross to Langney walking and cycling corridor - Oak Tree	Transport Planning and Infrastructure	Cycle network		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-20	

	Lane/Friday Street										
14	Eastbourne Walking and Cycle Network - Langney to Sovereign Harbour	Transport Planning and Infrastructure	Cycle network		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-20	
15	Eastbourne Walking and Cycle Network - Town centre to hospital	Transport Planning and Infrastructure	Cycle network	Design March 2020	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					
16	Eastbourne Walking and Cycle Network - Willingdon Drove	Transport Planning and Infrastructure	Cycle network		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-20	
17	Eastbourne / South Wealden Walking and Cycling Network Phase 2: Eastbourne town centre	Transport Planning and Infrastructure	Cycle network	Design March 2020	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					
18	Eastbourne / South Wealden Walking and Cycling Network Phase 2: Eastbourne town centre	Transport Planning and Infrastructure	Cycle network		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-20	
19	Eastbourne / South Wealden Walking and Cycling Network Phase 2: Eastbourne town centre	Transport Planning and Infrastructure	Cycle network		EBC Environmental Health, EBC Transport, ESCC Transport	Defra				Mar-20	
20	Eastbourne / South Wealden Walking and Cycling Network Phase 2: Stone Cross to	Transport Planning and Infrastructure	Cycle network	Design March 2020	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					

	Langney walking and cycling corridor										
21	Hailsham/Polegate/Eastbourne Sustainable Transport Corridor (inc. Victoria Drive - Pedestrian Improvements study	Transport Planning and Infrastructure	Other	Design March 2020	EBC Environmental Health, EBC Transport, ESCC Transport	Defra			Elements constructed by March 2020		
22	Eastbourne Town centre improvement scheme Phase 2a - Terminus Road complete transport model and designs	Transport Planning and Infrastructure	Other	Commence Construction March 2020	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					
23	Eastbourne Town centre improvement scheme Phase 2b other design elements	Transport Planning and Infrastructure	Other	Preliminary Design March 2020	EBC Environmental Health, EBC Transport, ESCC Transport	Defra					

Eastbourne Town Centre Movement and Access package

The Town Centre Local Plan for Eastbourne aims to inform the transport measures to be prioritised and funding has been secured from the LEP to deliver improvements and access in and around the town. Further information can be found on this link:

http://www.lewes-eastbourne.gov.uk/_resources/assets/inline/full/0/223510.pdf

The Eastbourne Town Centre Improvement Scheme (ETCIS) is a joint project between East Sussex County Council and Eastbourne Borough Council. The objectives of this are:

- Modernise the town centre, creating a pedestrian friendly environment
- Create civic space along Terminus Road for cultural and social activities
- Support local economic growth by providing a step change in the quality of the environment for local residents and visitors to Eastbourne

Terminus Road is currently Eastbourne's main commercial corridor and has resulted in a dense congregation of buses in a busy pedestrian area. The ETCIS addresses these problems using imaginative design solutions to enhance the road and the environment. The scheme was near completion in December 2019.

For more details see: http://www.eastsussexhighways.com/eastbourne-town-centre-improvement-scheme-etcis

News updates on scheme developments can be found on:

http://community.mildrenconstruction.co.uk/projects/eastbourne-town-centre/news/

The Arndale Centre/The Beacon in Eastbourne's Town Centre has been undergoing an £85 million new extension development.

The proposals for the Town Centre have been designed around the concept of Shared Space which aims to improve pedestrian movement and comfort by reducing the dominance of motor vehicles and enable users to share the space. Shared spaces encourage low vehicle speeds, create an environment in which pedestrians can walk, or stop and chat, without feeling intimidated by motor traffic. They also make it easier for people to move around and promote social interaction.

The key design objectives are to:

- Improve public realm and connections with wider town
- Reallocate road space to pedestrians and public realm
- Reduce conflict of buses and pedestrians
- Improve relationship and connection with railway station
- Retain accessibility and visibility of buses on Terminus Road
- Coordinate the design of street furniture and signage which will be finished to a high standard befitting a key gateway into the Town Centre.
- Future proof design to aid a potential expansion of the shared space concept

Measures will enable walking between key destinations, including residential areas, town centres, schools and employment. There will be significant pedestrian and bus facility upgrades to Terminus Road and Cornfield Terrace area in association with the redevelopment of the Arndale Centre.

Other – potential improvements mentioned in the Local Transport Plan

- Improvements to bus infrastructure, waiting facilities and information distribution on key routes
- Improved access and presentation of real time information through all delivery channels
- Provision of secure cycle parking facilities at key locations across the area
- Electric vehicle charging points at town centre car parks, stations and key destinations
- ESCC will support and lobby for rail infrastructure and rail service improvements
- Bikeability cycle training
- Travel behaviour change initiatives

East Sussex County Council (ESCC) managed to bid successfully from the *Active Access for Growth Programme,* obtaining a £1.4 million grant from the Department for Transport to deliver a programme of active travel across East Sussex. The Growth programme will run from 2017-2020, focusing on particular growth areas, one of them being Eastbourne.

The key objectives of this are:

- Improve access to jobs, skills, training and education
- Seek support local economic growth
- Demonstrate an alignment to health, air quality and reduced carbon emissions and improve air quality
- Increase walking and cycling by 2% per year and increase the proportion of people completing 30 minutes of physical activity/day

The programme is split into 3 strands and covers a wide range of audiences and has many partners to deliver the programmes:

1. Business and Workforce Development
2. Education and Training
3. Healthy Communities

The Community Grant Scheme (AAfG Community Fund) aims to assist community groups, voluntary organisations and educational establishments to actively promote increasing the number of people traveling to work/education/training to walk and cycle and actively promote increased physical activity and AAfG officers have built important links with workplaces and colleges in relation to the first two strands above.

See link:
https://www.eastsussex.gov.uk/roadsandtransport/localtransportplan/funding/active-access-for-growth/active-access-for-growth/

- Under point 1: *Sustrans Active Steps, Living Streets, Sustrans Active Travel and Pedal Power have all delivered activities aimed at enabling employees to travel more actively for every day journeys.*
- Under point 2*: In surveyed Sustrans schools, cycling more than tripled after 1 year of engagement*
- Point 3 works with public health colleagues tackling physical inactivity in the county. It aims to integrate a number of cycling and walking initiatives into existing community development plans to promote increased levels of exercise into people's daily lives.

- Various cycling and walking schemes in the design phase with design and construction planned for 2019/20 in ESCC's Local Transport Capital Programme.

Cycling

Under the Active Access for Growth – ESCC have launched Pedal Power which gives people the opportunity to try cycling by offering bikes for rent for between 1 and 6 months. There are a range of bikes to try – for more information please see this link:

https://eastsussexpedalpower.com/

Walking

Under the ESCC Active Access for Growth not only is cycling encouraged but also walking opportunities: using active travel maps, journey planning and giving people walking challenges and pledges. There are also opportunities to explore the South Downs by walking and or cycling.

There are other plans in development, e.g. looking towards 2020/21, ESCC are looking to propose a Local Cycling & Walking Infrastructure Plan later in 2019, where integrated travel behaviour programmes and road safety initiatives will be a key element of the plan.

The principal challenges to implementation of air quality improvements that Eastbourne Borough Council face is funding and staffing.

DEFRA's, Clean Air Strategy (Jan 2019)[4] states:

> *'New legislation will create a stronger and more coherent framework for action to tackle air pollution. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms*.'

If local authorities are going to be given 'new powers' to 'take action' the government will need to consider how they will support and fund resources for this. Staff resourcing and funding is already an issue for many local authorities. Other

challenges range from: changing people's behaviour on their travel choices, getting people to recognise the polluting effect of engine idling (and turn off!), linking of cycle routes to encourage and make cycling safer (particularly if trying to encourage more children to cycle – the safety aspect of this can make parents very anxious), the increased popularity of domestic wood burning stoves in homes and how quickly can/will company vehicle fleets change to cleaner vehicles?

There are lots of pressures placed upon local authorities – on one hand they must improve air quality but on the other they must find suitable locations for development. Careful planning measures will be required.

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.

Work carried out by Public Health England as part of the Public Health Outcomes Framework (PHOF) shows that the mortality associated with particulate air pollution within the Eastbourne Borough is 5.3% (2018 data), a very slight decrease on the previous year (2017 data) which was 5.4%. The mortality calculated for Eastbourne in 2018 is less than that calculated for south east England (5.6%) and slightly above the England average at 5.2% as a whole. This information is available from the following web link: https://fingertips.phe.org.uk/search/air%20pollution#page/1/gid/1/pat/6/par/E12000008/ati/101/are/E07000061

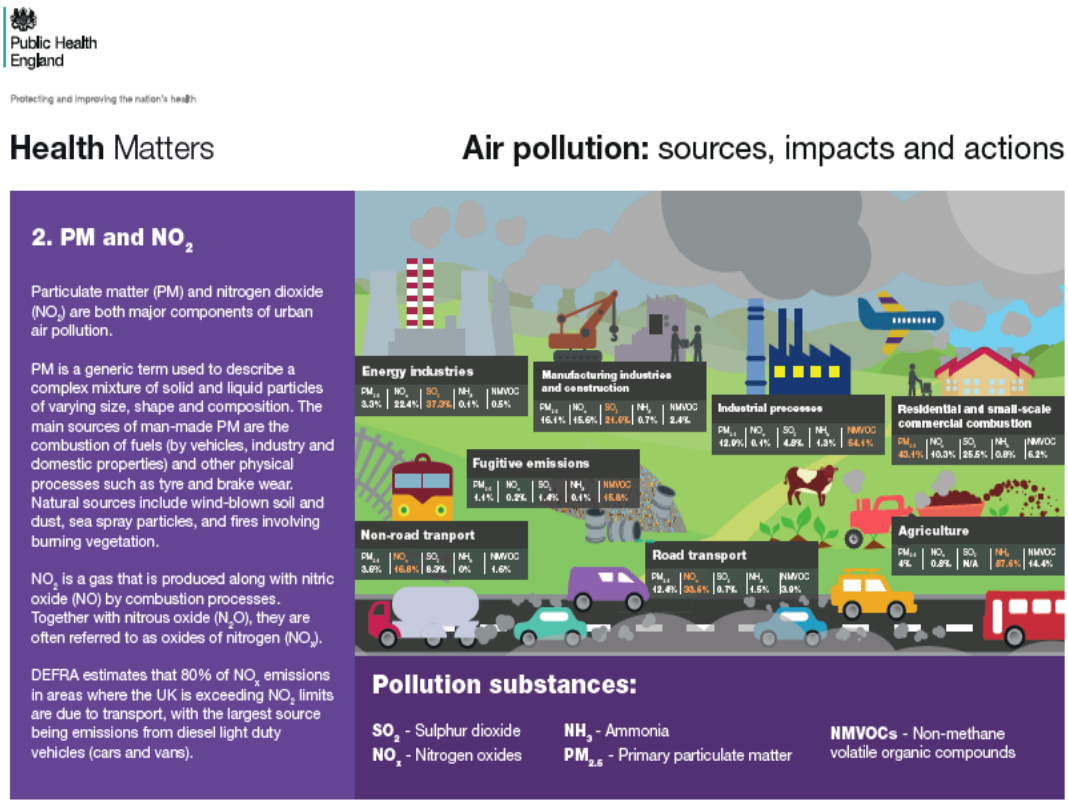
Site EB3 Holly Place has a continuous automatic monitor measuring $PM_{2.5}$. Data capture at this site during 2018 was 97.5%, giving an annual mean of 10.4µg/m^3. This figure is lower than last years (13µg/m^3).

In DEFRA's recently published Clean Air Strategy 2019 the government want to cut $PM_{2.5}$ levels to those recommended by the World Health Organisation:

'We will progressively cut public exposure to particulate matter pollution as suggested by the World Health Organisation. We will halve the population living in areas with concentrations of fine particulate matter above WHO guideline levels (10 µg/m^3) by 2025.'

Public Health England published a very informative 'Health Matters'[7] of which an example page is reproduced below. The document demonstrates the causes and effects of pollutants and links the problems of air pollution and health. This connects well with the schools anti-idling campaign the council are running, anti-idling signage installed in a few heavily trafficked/problematic areas and the new Clean Burn Sussex education campaign which has been recently undertaken. Results for this are to be reported soon.

Figure 2.1: Air Pollution: Sources, impacts and actions



Whilst the measures stated in this section are not necessarily aimed directly at one pollutant such as $PM_{2.5}$, they will indirectly aid reductions in all pollutant levels, including particulates such as $PM_{2.5}$ by encouraging more people to walk and cycle and make use of public transport rather than private vehicles.

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.

Eastbourne Borough Council undertook automatic (continuous) monitoring at 2 sites during 2019. Table A.1 in Appendix A shows the details of the sites. EB3 is part of the governments AURN (Automatic Urban and Rural Network) and continuously monitors NO_2 and $PM_{2.5}$. 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. Eastbourne's automatic monitoring results are available at http://www.sussex-air.net.

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

Eastbourne Borough Council undertook non- automatic (passive) monitoring of NO_2 at 22 sites during 2019. 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. The most recent non-automatic monitoring data is now available on: http://www.sussex-air.net/Tools/NO2DiffusionMap.aspx

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[4], "annualisation" (where the data capture falls below 75%), and distance correction[5]. 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. Note that the concentration data presented in Table A.3 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 2019 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.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.

Figure A.1 shows the trends at all original monitoring locations within the borough. Results show that no monitoring lcaotion has been in exceedance of the annual mean objective of 40µg/m^3 in the last 5 years. However, one diffusion tube on Whitley Road was within 10% of this objective. There is no discernible increase or decreasing trend in concentrations within that 5 year timeframe.

3.2.2 Particulate Matter (PM_{10})

Table A.5 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.6 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.

[4] https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html
[5] Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

There have been no exceedances of the annual or daily mean objectives in the past 5 years, at the two automatic monitoring sites. There is no discernible increase or decreasing trend in concentrations within that 5 year timeframe, as shown in Figure A.3.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.7 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past 5 years, from the automatic monitor at Holy Place. No exceedances of the annual mean objective value of 25µg/m^3 have occurred in the last 5 years. There is no discernible increase or decreasing trend in concentrations within that 5 year timeframe, as shown in Figure A.5.

Appendix A: Monitoring Results

Table A.1 - Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
EB1	EB1 Devonshire Park	Urban Background	561150	98341	NO_2; PM_{10}, O_3	NO	Chemiluminescent BAM Beta-attenuation; UV absorption	N/A	5	3
EB3	EB3 Holly Place	Urban Background	560085	103118	NO_2, $PM_{2.5}$	NO	Chemiluminescent FDMS	N/A	N/A	4

Notes:

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

(2) N/A if not applicable

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

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	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	PO Upperton Road	Kerbside	560774	99163	NO_2	N/A	2	0	NO	3.1
2	E/B1 Langney Rd	Kerbside	561458	99116	NO_2	N/A	4	0	NO	2.9
3	SRTS4 Pevensey Rd	Kerbside	561568	99108	NO_2	N/A	3	0	NO	2.7
4	SRTS2 Seaside East	Kerbside	561717	99061	NO_2	N/A	3	0	YES	2.8
5	SRTS1 Seaside West	Kerbside	561621	99004	NO_2	N/A	3	0	NO	2.8
6	SRTS3 Cavendish Place	Kerbside	561737	98948	NO_2	N/A	3	0	NO	2.6
7	61 Royal Parade PrincesPark	Kerbside	562692	100149	NO_2	N/A	4	0	NO	2.7
8	53- Seaside (Tesco)	Kerbside	562655	100970	NO_2	N/A	10	0	NO	2.8
9	ESCC102/EB6 FridaySt/Larkspur Dr	Kerbside	561885	103847	NO_2	N/A	8	1	NO	2.7
10	E/B5 Woodland Ave	Urban Background	559392	102006	NO_2	N/A	N/A	0	NO	1.8
11	26- East Dean Road	Roadside	557829	98190	NO_2	N/A	20	3	NO	2
12	6 The Goffs	Roadside	560440	99352	NO_2	NO	3	1.95	NO	3
13	32 The Avenue	Kerbside	560943	99480	NO_2	NO	7	0.9	NO	2.4
14	68 Susans Rd	Kerbside	561354	99279	NO_2	NO	3	0.6	NO	2.4

15	109 Whitley Rd	Roadside	561527	99846	NO_2	NO	6.5	1.5	NO	2.5
16	opp 7 Lewes Rd	Roadside	561043	99828	NO_2	NO	2	1.6	NO	2.7
17	Lottbridge Drove Tesco	Kerbside	562583	101109	NO_2	NO	N/A	0.9	NO	2.7
18	Mountfield Rd, next to rail crossing	Roadside	560749	102189	NO_2	NO	5	1.6	NO	2.6
19	o/s 43 Brassy Ave	Roadside	560505	102196	NO_2	NO	7	1.7	NO	2.5
20	Kings Drive/ Weavers Close	Roadside	560134	100561	NO_2	NO	5.5	2.9	NO	2.8
21	o/s/ 181 Kings Drive	Roadside	559894	101035	NO_2	NO	11	0.9	NO	2.9
22	114 Willingdon Rd	Roadside	559730	100251	NO_2	NO	10	1.5	NO	2.4

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3) (4)				
							2015	2016	2017	2018	2019
EB1	561150	98341	Urban Background	Automatic	91	91	N/A	N/A	16	14	15.5
EB3	560085	103118	Urban Background	Automatic	91	91	10.6	12	13	12	11.7
1	560774	99163	Kerbside	Diffusion Tube	83	83	25.9	29.6	29.5	N/A	26.0
2	561458	99116	Kerbside	Diffusion Tube	83	83	18	21.7	21.1	N/A	21.6
3	561568	99108	Kerbside	Diffusion Tube	92	92	21.9	27.1	24.9	N/A	24.7
4	561717	99061	Kerbside	Diffusion Tube	92	92	25	33.3	31.4	N/A	30.1
5	561621	99004	Kerbside	Diffusion Tube	92	92	25.8	27.6	27.2	N/A	31.9
6	561737	98948	Kerbside	Diffusion Tube	92	92	21.5	25.6	26.9	N/A	24.2
7	562692	100149	Kerbside	Diffusion Tube	92	92	21.9	27	25.4	N/A	23.8
8	562655	100970	Kerbside	Diffusion Tube	92	92	29.7	34.3	32.5	N/A	33.3
9	561885	103847	Kerbside	Diffusion Tube	92	92	19.7	24.8	24	N/A	21.5
10	559392	102006	Urban Background	Diffusion Tube	92	92	9.4	11.7	10.8	N/A	10.4
11	557829	98190	Roadside	Diffusion Tube	92	92	19.4	23.6	20.4	N/A	18.5
12	560440	99352	Roadside	Diffusion Tube	92	58	-	-	-	-	25.9

13	560943	99480	Kerbside	Diffusion Tube	92	58	-	-	-	-	27.3
14	561354	99279	Kerbside	Diffusion Tube	92	58	-	-	-	-	25.6
15	561548	99869	Roadside	Diffusion Tube	83	50	-	-	-	-	39.3
16	561043	99828	Roadside	Diffusion Tube	92	58	-	-	-	-	27.4
17	562583	101109	Kerbside	Diffusion Tube	92	58	-	-	-	-	31.8
18	560749	102189	Roadside	Diffusion Tube	92	58	-	-	-	-	30.8
19	560505	102196	Roadside	Diffusion Tube	92	58	-	-	-	-	25.1
20	560134	100561	Roadside	Diffusion Tube	83	50	-	-	-	-	20.8
21	559894	101035	Roadside	Diffusion Tube	92	58	-	-	-	-	29.9
22	559730	100251	Roadside	Diffusion Tube	83	50	-	-	-	-	33.3

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

☒ **Annualisation has been conducted where data capture is <75%**

☒ **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 adjustment**

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.**

(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.

(4) Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

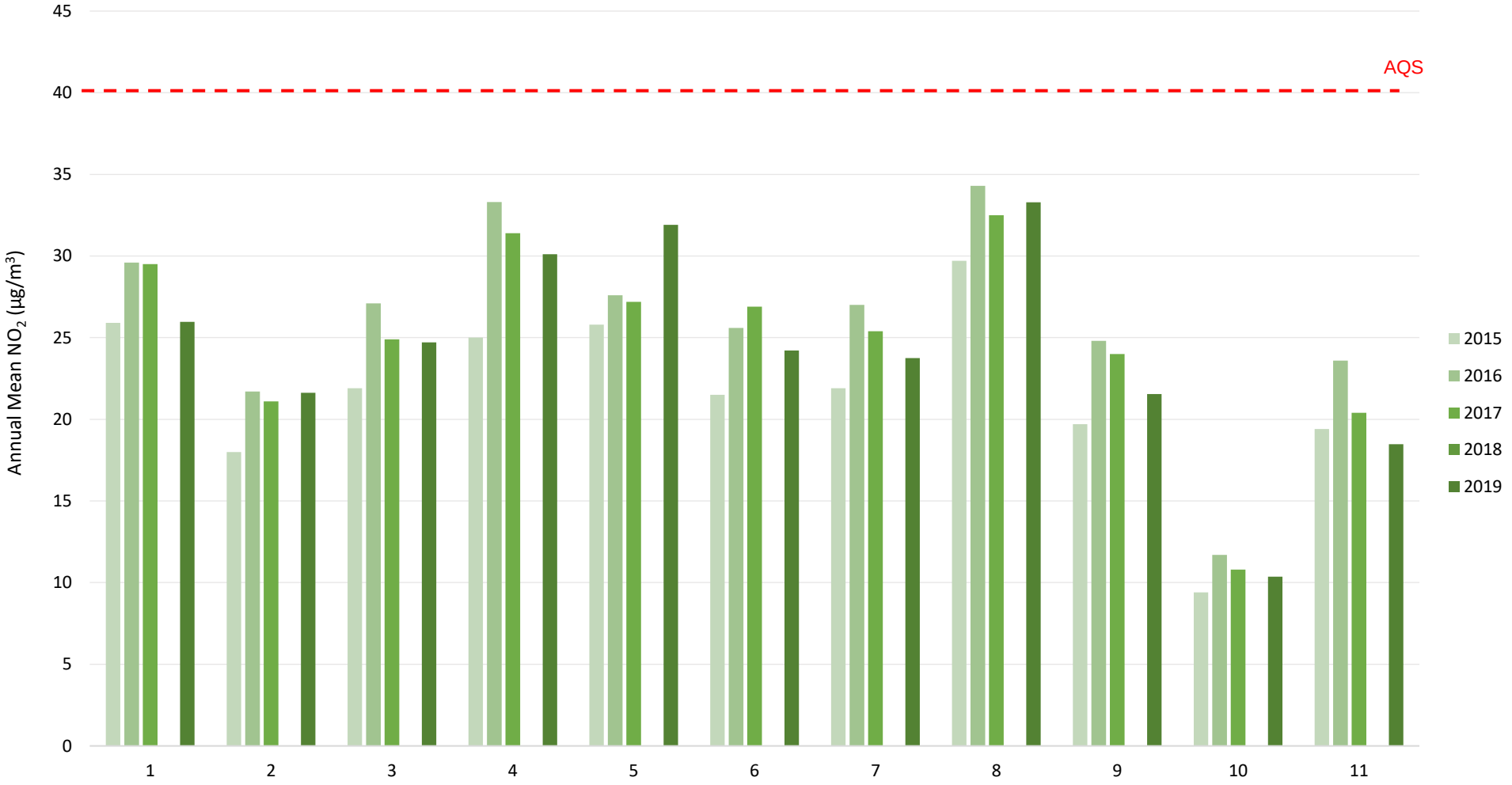


Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 1-Hour Means > 200µg/m³ (3)				
							2015	2016	2017	2018	2019
EB1	561150	98341	Urban Background	Automatic	91	91	0	0	0	0	0
EB3	560085	103118	Urban Background	Automatic	91	91	0	0	0	0	0

Notes:

Exceedances of the NO_2 1-hour mean objective (200µg/m³ 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.

Table A.5 – Annual Mean PM_{10} Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} Annual Mean Concentration (µg/m³) (3)				
						2015	2016	2017	2018	2019
EB1	561150	98341	Urban Background	86	86			19	19	17.3
EB3	560085	103118	Urban Background	95	95	18.1	18			15.5

☒ **Annualisation has been conducted where data capture is <75%**

Notes:

Exceedances of the PM_{10} annual mean objective of 40µg/m³ 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.2 – Trends in Annual Mean PM_{10} Concentrations

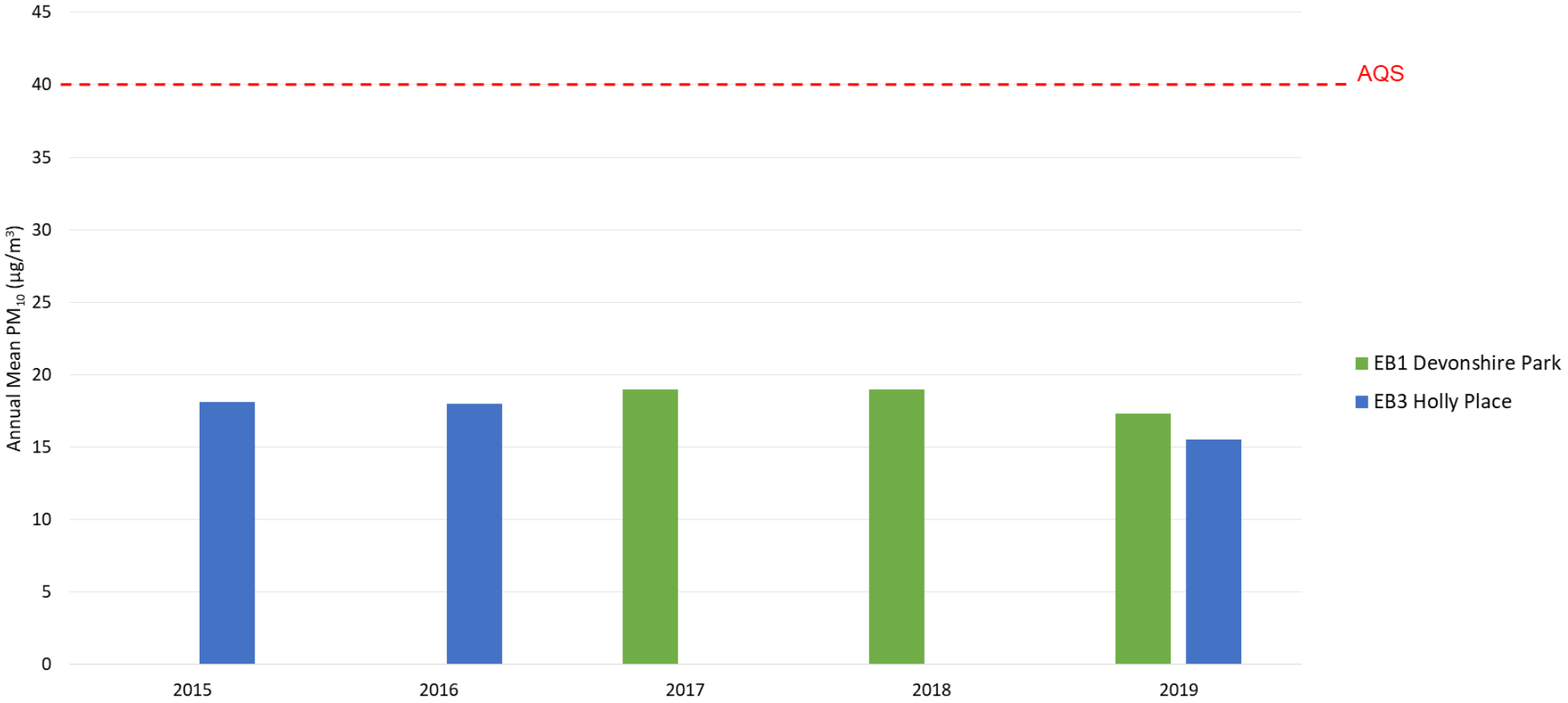


Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} 24-Hour Means > 50µg/m^3 (3)				
						2015	2016	2017	2018	2019
EB1	561150	98341	Urban Background	86	86			0	2	1
EB3	560085	103118	Urban Background	95	95	1	2			3

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.

Table A.7 – $PM_{2.5}$ Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	$PM_{2.5}$ Annual Mean Concentration (µg/m^3) (3)				
						2015	2016	2017	2018	2019
EB3	560085	103118	Urban Background	97.5	97.5	10.4	12.7	11	13	10.4

☒ **Annualisation has been conducted where data capture is <75%**

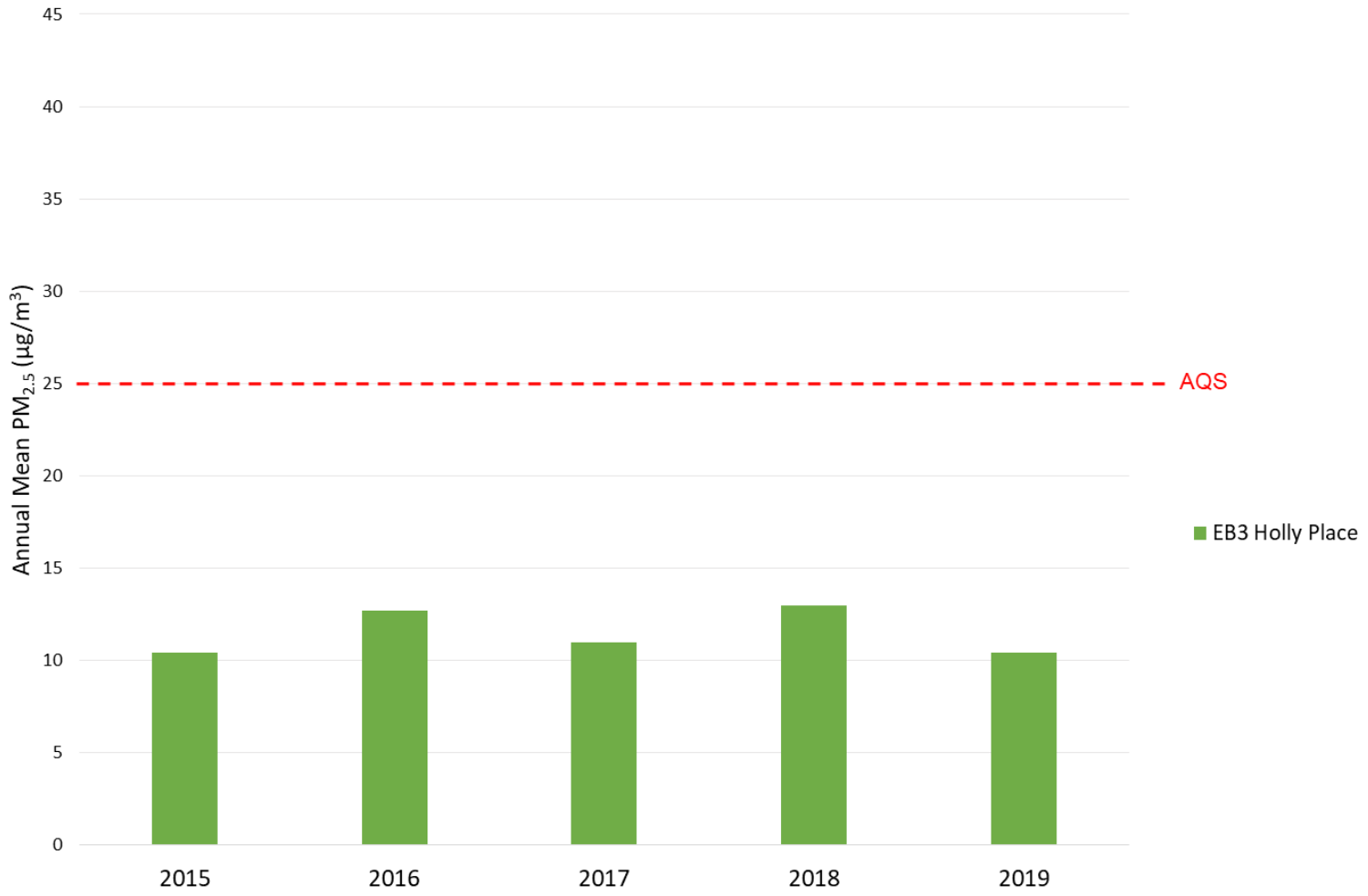
Notes:

(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.3 – Trends in Annual Mean $PM_{2.5}$ Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
1	560774	99163		35.6	35.0	33.4	28.5	31.4	29.9		24.5	17.8	17.9	25.1	27.9	26.0	
2	561458	99116	30.2	26.2	31.1		21.9	20.2	20.3		16.7	19.6	27.3	19.1	23.3	21.6	
3	561568	99108	31.7	34.3	30.6	28.7	23.9	23.6	23.0		20.8	25.5	26.1	24.1	26.6	24.7	
4	561717	99061	37.5	37.3	37.2	36.1	27.5	28.6	28.0		26.2	28.3	37.8	31.7	32.4	30.1	
5	561621	99004	36.4	42.1	39.5	38.4	28.8	30.9	35.3		27.9	31.1	34.2	33.0	34.3	31.9	
6	561737	98948	33.5	34.8	30.2	31.0	23.5	23.8	22.4		20.0	21.6	28.9	16.8	26.0	24.2	
7	562692	100149	32.2	32.1	28.2	29.0	23.5	25.6	24.8		21.7	18.6	25.2	20.3	25.5	23.8	
8	562655	100970	38.7	44.1	43.7	35.8	29.5	31.8	46.0		27.7	32.4	33.1	31.0	35.8	33.3	
9	561885	103847	31.5	28.0	25.4	22.8	20.0	19.4	19.7		19.0	20.8	27.0	21.3	23.2	21.5	
10	559392	102006	15.8	14.5	12.3	11.2	10.1	8.0	8.6		7.0	9.2	15.1	10.9	11.1	10.4	
11	557829	98190	20.2	29.4	23.4	22.1	18.9	20.2	21.3		13.0	15.7	20.3	14.1	19.9	18.5	
12	560440	99352					22.2	20.9	21.0		19.5	23.1	28.6	20.6	22.3	25.9	
13	560943	99480					20.6	24.2	20.9		20.2	26.0	30.8	21.7	23.5	27.3	
14	561354	99279					19.2	21.6	21.3		18.5	22.8	27.0	23.6	22.0	25.6	
15	561548	99869					32.4	34.2			33.7	33.5	34.8	40.2	34.8	39.3	31.0

16	561043	99828					20.9	22.2	20.5		21.1	22.4	33.3	24.5	23.6	27.4	
17	562583	101109					23.7	29.7	29.1		24.6	28.1	34.3	22.4	27.4	31.8	
18	560749	102189					24.9	26.6	24.8		20.4	26.9	37.5	24.6	26.5	30.8	
19	560505	102196					18.8	20.0	20.8		17.1	21.5	30.4	22.8	21.6	25.1	
20	560134	100561					16.9		16.6		14.3	17.4	24.6	18.7	18.1	20.8	
21	559894	101035					26.2	27.0	22.0		23.7	25.6	32.0	23.9	25.8	29.9	
22	559730	100251					29.1	23.2	28.0		24.9		40.0	29.1	29.1	33.3	

☐ **Local bias adjustment factor used**

☒ **National bias adjustment factor used**

☒ **Annualisation has been conducted where data capture is <75%**

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

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.**

(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

QA/QC of automatic monitoring

The continuous monitoring station in Eastbourne Borough Council is managed by the Sussex Air Quality Partnership (https://www.sussex-air.net). All continuous monitoring activities are subject to the same quality assurance/quality control objectives set out in the AURN local site operator's manual. These procedures are:

- Overnight 24 hour IZS calibration checks (NOx analyser);
- Fortnightly manual zero/span calibration using certified cylinders (carried out by Council employees fully trained in LSO duties);
- Full data analysis and ratification by the Environmental Research Group at King's College London for Devonshire Park and by Ricardo Energy & Environment for Holly Place;

Six monthly service visits are undertaken. Full site audits are not undertaken.

QA/QC of diffusion tube monitoring

The Ambient, Indoor, Workplace Air and Stack Emissions Proficiency Testing Scheme (AIR PT) is an independent analytical proficiency-testing scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). Defra and the Devolved Administrations advise that diffusion tubes used for LAQM should be obtained from laboratories that have demonstrated satisfactory performance in the AIR PT scheme. AIR NO_2 PT forms an integral part of the UK NO_2 Network's QA/QC, and is a useful tool in assessing the analytical performance of those laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM).

During 2019 Gradko participated in the AIR PT programme, and obtained a 100% rating for the whole year (AIR PT rounds AR024, AR025, AR027, AR028 and AR030). Further information can be found on this link:

https://laqm.defra.gov.uk/assets/laqmno2performancedatauptofebruary2019v1.pdf

National bias adjustment factor

The diffusion tubes are supplied and analysed by Gradko utilising the 20% triethanolamine (TEA) in water preparation method. A bias adjustment of 0.93 for the year 2019 has been derived from the national bias adjustment calculator. The spreadsheet is shown below in Table C.1.

Table C.1 : National Bias Adjustment Factor Spreadsheet (Version 03/2020)

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/20

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2020
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List
If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List
If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List
If a year is not shown, we have no data[2]

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in **blue** at the foot of the final column.
If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[5]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in water	2019	R	Blackburn with darwen Borough Council	10	29	21	36.9%	G	0.73
Gradko	20% TEA in water	2019	R	Cheshire West and Chester	12	39	38	2.0%	G	0.98
Gradko	20% TEA in water	2019	R	Cheshire West and Chester	11	34	34	-2.1%	G	1.02
Gradko	20% TEA in water	2019	R	Gedling Borough Council	12	32	30	7.3%	G	0.93
Gradko	20% TEA in water	2019	R	NOTTINGHAM CITY COUNCIL	10	37	40	-7.0%	G	1.07
Gradko	20% TEA in water	2019	R	Bedford Borough Council	11	29	29	-1.0%	G	1.01
Gradko	20% TEA in water	2019	R	Bedford Borough Council	12	37	32	13.0%	G	0.89
Gradko	20% TEA in water	2019	R	Gateshead Council	12	30	25	18.1%	G	0.85
Gradko	20% TEA in water	2019	R	Gateshead Council	10	32	34	-7.2%	G	1.08
Gradko	20% TEA in water	2019	R	Gateshead Council	12	34	27	23.7%	P	0.81
Gradko	20% TEA in water	2019	R	Gateshead Council	11	40	44	-10.5%	G	1.12
Gradko	20% TEA in water	2019	KS	Marylebone Road Intercomparison	12	85	65	30.1%	G	0.77
Gradko	20% TEA in water	2019	R	Borough Council of King's Lynn and West Norfolk	9	27	21	28.4%	G	0.78
Gradko	20% TEA in water	2019	R	Lancaster City Council	13	40	34	16.4%	G	0.86
Gradko	20% TEA in water	2019	R	Lancaster City Council	12	31	31	1.6%	G	0.98
Gradko	20% TEA in Water	2019	R	Monmouthshire County Council	12	39	39	1.3%	G	0.99
Gradko	20% TEA in water	2019	UC	Belfast City Council	10	29	24	21.8%	G	0.82
Gradko	20% TEA in water	2019	R	Dudley MBC	12	33	32	4.5%	G	0.96
Gradko	20% TEA in water	2019	R	Dudley MBC	12	44	42	3.9%	G	0.96
Gradko	20% TEA in water	2019	UB	Dudley MBC	12	23	19	19.8%	G	0.83
Gradko	20% TEA in water	2019	UB	Eastleigh Borough Council	12	24	26	-7.1%	G	1.08
Gradko	20% TEA in water	2019	R	Gateshead Council	12	34	27	23.7%	P	0.81
Gradko	20% TEA in water	2019	R	Gateshead Council	11	40	44	-10.5%	G	1.12
Gradko	20% TEA in water	2019	R	Gateshead Council	10	32	34	-7.2%	G	1.08
Gradko	20% TEA in water	2019	R	Gateshead Council	12	30	25	18.1%	G	0.85
Gradko	20% TEA in water	2019	R	Thurrock Borough Council	12	29	24	21.6%	G	0.82
Gradko	20% TEA in water	2019	R	Brighton & Hove City Council	11	45	50	-9.3%	G	1.10
Gradko	20% TEA in water	2019		**Overall Factor[3] (27 studies)**				**Use**		**0.93**

Annualisation of measurements

All 11 new diffusion tubes needed to be annualised in 2019, as monitoring commenced from May 2019 through to the end of the year. Some of the tubes recorded results for different months so different annualisation factors were applied to each annual mean result.

Following Defra's LAQM.TG(16), data used for annualisation should derive from background continuous monitors connected to the AURN network, within 100 miles of the relevant diffusion tubes. An example calculation for the diffusion tube with the highest annual mean concentration (109 Whitley Road: ID 15) is provided below.

Table C.2: NO_2 Annual Ratio Factor Calculation

Site	NO_2 Annual Mean 2019 $\mu g/m^3 (A_m)$	NO_2 Period Mean 2019 $\mu g/m^3 (P_m)$	Ratio (A_m/P_m)
Eastbourne AURN Urban background Site (91% data capture)	11.7	9.7	1.21
Brighton Preston Park AURN Urban Background Site (97% data capture)	15.3	13.3	1.15
Lullington Heath AURN Background Site (98% data capture)	7.3	5.7	1.27
		Annual Ratio Factor = 1.21	

The annual mean for the diffusion tube data was multiplied by 1.21 (3 s.f.) to give best estimates of annual mean for NO_2 at the site. *Note: Bias adjustment = 0.93 from Table C.1.*

Table C.3: NO_2 Annualised Mean for all new Diffusion Tube sites:

Diffusion Tube	Annual Ratio Factor	Annualised and Bias Adjusted Mean ($\mu g/m^3$)
6 The Goffs	1.25	25.9
32 The Avenue	1.25	27.3
68 Susans Rd	1.25	25.6
109 Whitley Rd	1.21	39.3
opp 7 Lewes Rd	1.25	27.4
Lottbridge Drove Tesco	1.25	31.8
Mountfield Rd, next to rail crossing	1.25	30.8
o/s 43 Brassy Ave	1.25	25.1
Kings Drive/ Weavers Close	1.25	20.8
o/s/ 181 Kings Drive	1.23	29.9
114 Willingdon Rd	1.23	33.3

Distance correction for NO_2 measurements

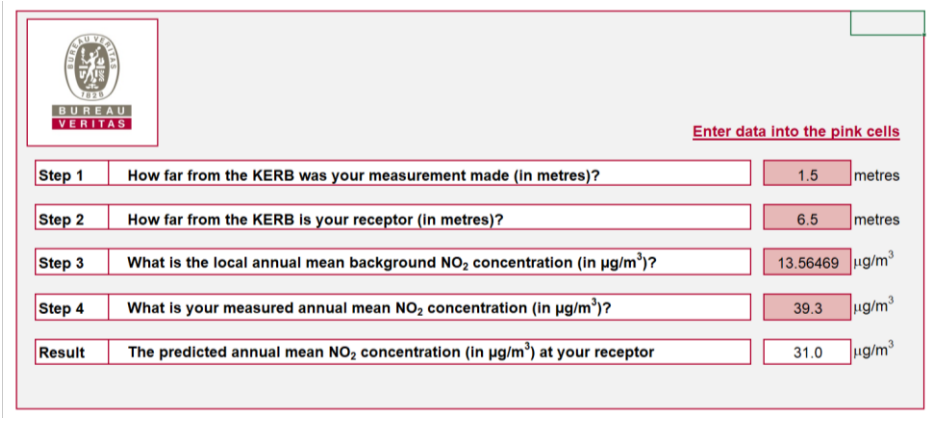
Distance correction of NO_2 diffusion tube measurements used the NO_2 fall-off with distance calculator[6] available on the LAQM website, as discussed in Paragraphs

[6]Defra (2020) Nitrogen Dioxide fall off with distance :https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html

7.77-7.79 of LAQM.TG16. Background concentrations were sourced from Defra's background 1km x 1km maps[7].

The spreadsheet is shown in Table C.4 below presents the 2019 NO_2 diffusion tube measurements as distance corrected to the nearest sensitive receptor (i.e. a location of exposure).

Table C.4 : The NO_2 fall off with distance from roads calculator (Version 4.2)



BUREAU VERITAS

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	6.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	13.56469	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	39.3	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	31.0	µg/m^3

One site, 109 Whitley Road was within 10% of the annual mean AQS for NO_2. As such, this was the one site requiring distance correction. After distance correction the site shows an annual mean concentration of 31µg/m^3.

[7] Defra (2020) UK-Air Information Resource: https://uk-air.defra.gov.uk/data/laqm-background-home

Appendix D: Maps of Monitoring Locations

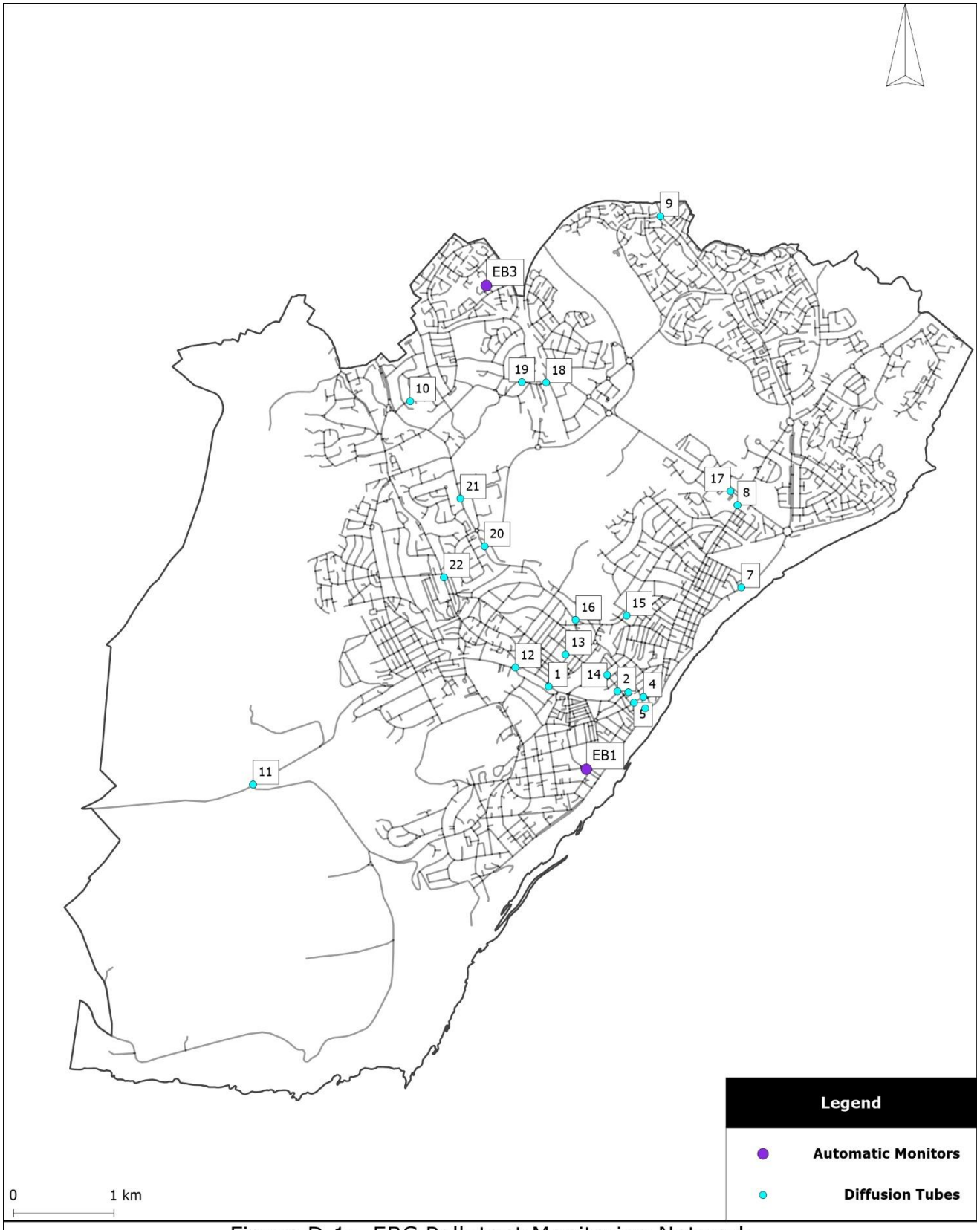


Figure D.1: EBC Pollutant Monitoring Network

June 2020

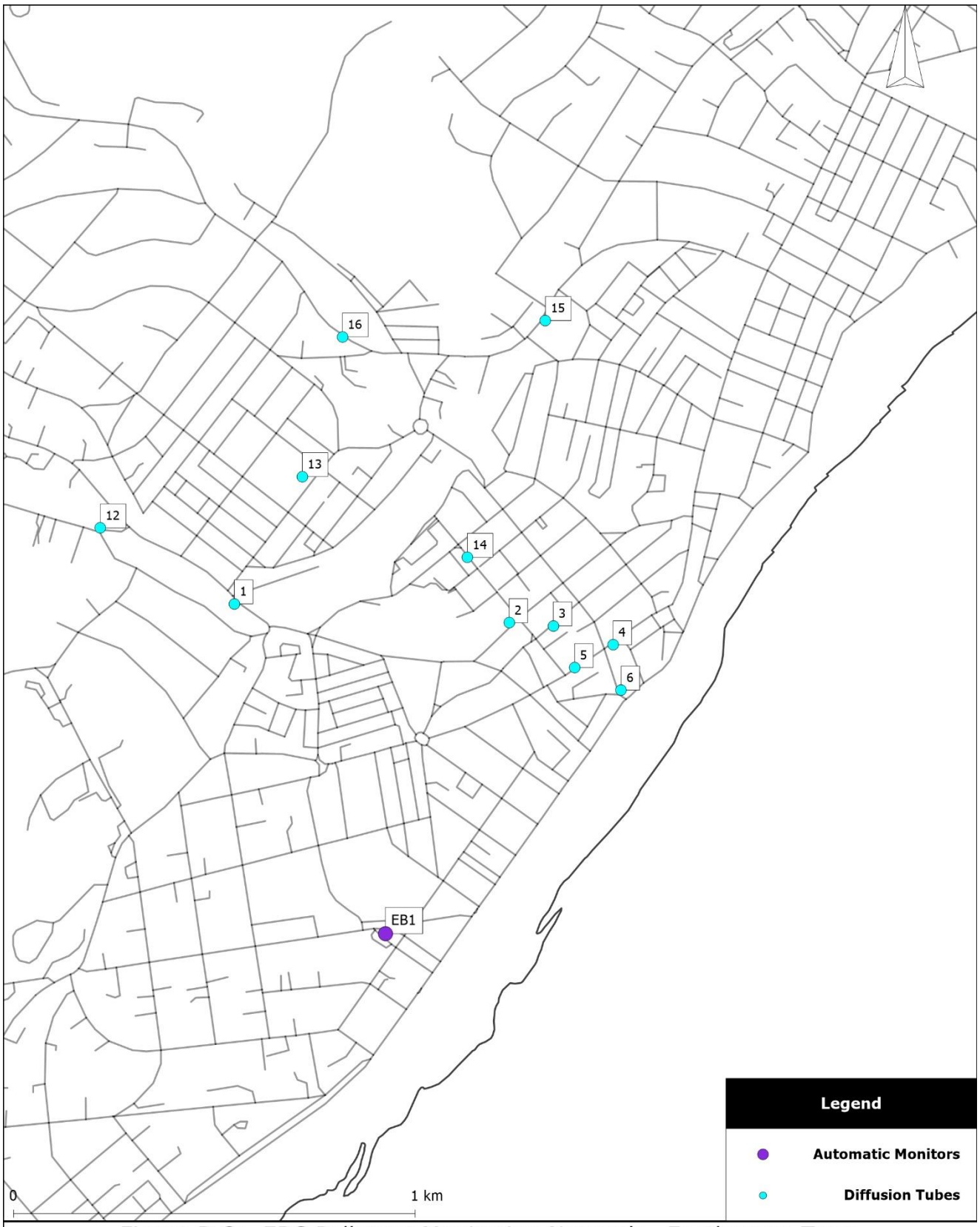


Figure D.2: EBC Pollutant Monitoring Network - Eastbourne Town

June 2020

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[8]	
	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

[8] 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
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (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
SO_2	Sulphur Dioxide
AQO	Air Quality Objective
EBC	Eastbourne Borough Council

References

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

4 Defra. Clean Air Strategy (2019)

5 Kings College London. Sussex Air Pollution Monitoring Network Annual Report (May 2019)

6 Air Quality Bulletin (May 2019) Environmental Management Publishing Ltd

7 Health Matters (2018) Public Health England