



ADUR & WORTHING COUNCILS

:

Monitoring our Air Quality

Report by the Director for Communities

Executive Summary

1. Purpose

1.1 To provide members of JOSC with information regarding the responsibilities of the Councils for Local Air Quality management, working in Partnership with a range of other agencies and bodies, and the outputs of these processes.

1.2 To provide committee members with information in relation to questions posed by 'AREA' and members of the public.

1.3 To enable committee members to determine what further information they require (if any).

Recommendations

2.1 That the Committee note the information in this report and determine whether any further information/updates or actions are required going forward.

2.2 That the committee consider any recommendations they wish to make to the Executive/relevant Executive Members.

3 Context

- 3.1 At its meeting on 21 September 2017, the Joint Overview and Scrutiny Committee considered a request from a member of the public, a [Shoreham resident](#) and the [Area Residents Environment Action \(AREA\)](#) for the Committee to investigate air pollution in Shoreham and surrounding areas. The Committee agreed to receive a scoping report on air quality issues to this meeting, giving background to the issue and options for how this matter could be reviewed moving forward. This report aims to provide the Joint Overview and Scrutiny Committee with information that addresses some of those issues and updates on the work of Adur & Worthing Councils in relation to air quality.
- 3.2 Air pollution is associated with a number of adverse health impacts. Nitrogen dioxide (NO₂) is thought to cause 23,500 deaths per annum. District level mortality statistics for this pollutant are not available although Public Health England (PHE) is understood to be working on such a metric. PHE suggest that PM_{2.5} (particles less than 2.5 microns in diameter) are responsible for ~4.4% of deaths in Adur and ~4.9% in Worthing. Both below the England average of 5.1%. The National estimate is 29,000 related deaths per annum. Given there is some overlap in these numbers the total UK estimated mortality burden for the two pollutants is 40,000 deaths/annum. Poor air quality is deemed to be the largest environmental risk to public health in the UK with a disproportionate burden borne by those in deprived areas (Air Quality Briefing for Directors of Public Health, Defra 2017).

4 Local Air Quality Management (LAQM)

- 4.1 Established under the Environment Act 1995, LAQM places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the national 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) which sets out the measures it intends to put in place in pursuit of the objectives. There are currently over 500 Air Quality Management Areas (AQMAs) in England for non-compliance with the UK's Air Quality annual mean objective for nitrogen dioxide.
- 4.2 The statutory air quality objectives applicable to LAQM in England can be found in the table below

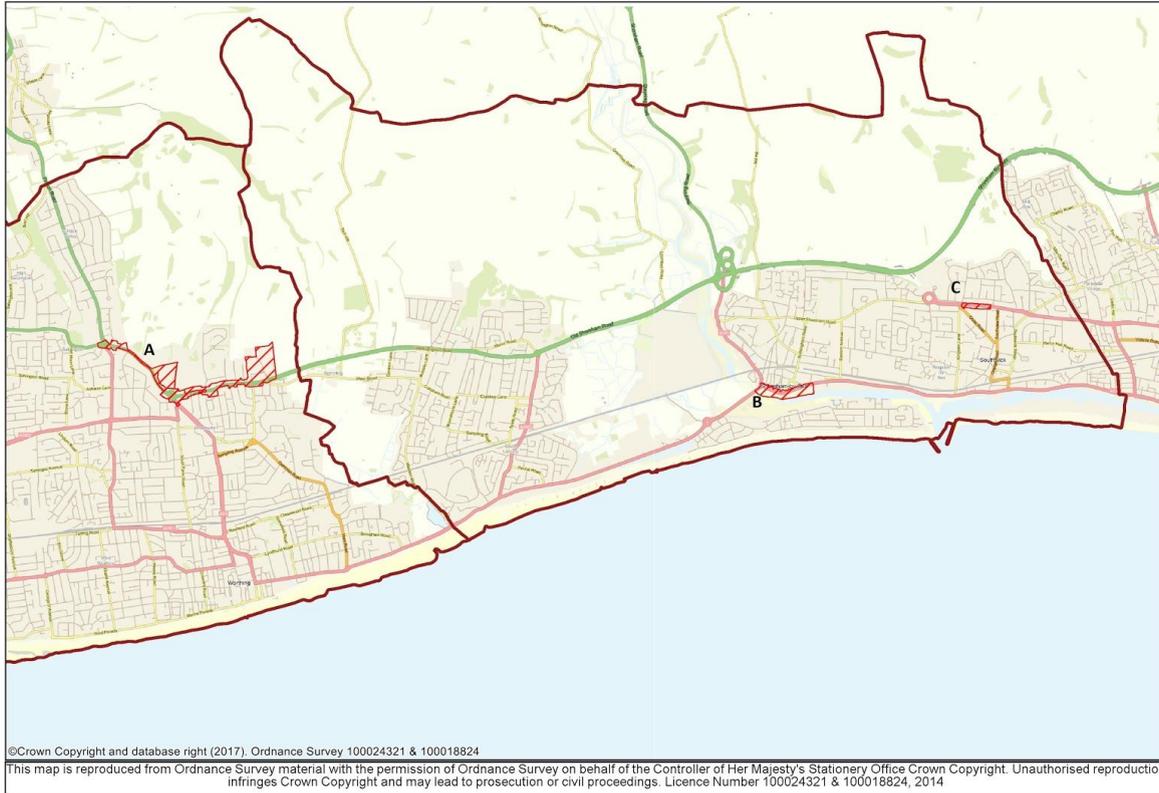
Air Quality Objectives in England

Pollutant	Air Quality Objective ¹	
	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

¹ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

- 4.3 After declaring an Air Quality Management Area, 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.
- 4.4 The local authority is also required by statute to produce an Annual Status Report (ASR) showing the strategies employed by the authority to improve air quality and detail any progress that has been made. The Adur and Worthing ASR's for 2017 are available at <https://www.adur-worthing.gov.uk/environmental-health/pollution/air-quality-and-pollution/local-air-quality-management/#air-quality-reports>.
- 4.5 There is no regulatory requirement on the Council to carry out continuous monitoring, it is up to the Authority to determine how it monitors air pollution. Diffusion tubes (small plastic passive tubes) are a recognised standard method of monitoring for NO₂ and most Authorities including Adur & Worthing, use them as they present value for money when compared to the high cost of continuous monitoring (which also has an ongoing service and maintenance cost).
- 4.6 Diffusion tubes need to be left in place ideally for 12 months, but at least achieve a data capture rate of 75% to enable results to be compared to the NO₂ annual mean objective. Levels are often elevated during the winter months and lower in other months. Exposing tubes for very short periods (e.g. a couple of months) will not enable comparison of the results with the annual mean objective.

- 4.7 Results from monitoring during 2017 will not be available until April 2018 as correction factors from Defra are not made available until late March.
- 4.8 The long-term air quality objectives apply where members of the public are likely to be regularly present for long periods e.g.. homes, schools, hospitals, etc. Guidance states that the Objectives should generally not apply to gardens of residential properties and kerbside sites. The 1-hour mean objectives are designed to take account of short term exposure.
- 4.9 Concentrations of NO₂ decrease away from the roadside. Government guidance requires us to predict roadside measurements back to the nearest receptors using a standard modelling tool. When we do this at Shoreham High Street, the level drops below the annual mean objective. Additionally, there is a link between pollutant concentrations measured both inside and outside of a building. For this reason it is considered appropriate to measure/predict at the building façade to represent relevant exposure and to assess exposure for pollutants with an annual mean objective. Smaller particles, especially PM_{2.5}, do not decrease so rapidly away from the road. Where annual mean concentrations are measured above 60µg/m³ this indicates the 1-hour mean objective may be exceeded.
- 4.10 The Councils are not required to carry out monitoring of Particulate PM_{2.5}'s at the moment. We are however working with other Sussex Authorities and West Sussex Public Health (through Sussex-air) to determine our approach to reducing emissions and concentrations as per Government guidance.
- 4.11 Adur & Worthing currently have 3 Air Quality Management Areas (AQMAs) - the red hatched areas in the map below - all declared for exceedances of the annual mean objective for Nitrogen Dioxide (NO₂).



- A. Worthing AQMA - centered around Grove Lodge (A27/A24) and including Lyons Farm;
- B. Adur AQMA (1) - High Street, Shoreham-by-Sea;
- C. Adur AQMA (2) - Old Shoreham Road, Southwick, in the vicinity of Kingston Lane.

5 Air Quality in Adur

- 5.1 The Council undertakes monitoring of NO₂ using diffusion tubes at 23 sites across the District. The sites are reviewed every December to take account of any known proposed developments and other areas of interest. As a result in 2018 monitoring will take place adjacent to the skate park in Shoreham, the A27 by the airport, an additional site in Sompting and Brighton Road Shoreham, near the lighthouse. The sites are available to view by the public on a map at <https://www.adur-worthing.gov.uk/maps/general-map/>.
- 5.2 During 2016 all monitoring sites showed an increase in measured levels over 2015 results. One site exceeded the annual mean objective – Shoreham High Street within AQMA 1. However, concentrations decrease away from the road and are estimated to be below the annual objective at the nearest location with relevant exposure (residential). Due to this Defra initially suggested we

look to revoke this AQMA, however, with the large number of local developments and increased public interest, we are keeping a close eye on levels here and Defra have agreed with this course of action.

- 5.3 Within AQMA 2 (Southwick) concentrations have been consistently below the annual mean objective of $40\mu\text{g}/\text{m}^3$ since 2012. The general downward trend since 2012 means that we propose to revoke Adur District Council AQMA 2 in 2018.
- 5.4 Elsewhere within the District NO_2 concentrations remain below the annual objective, although some sites remain under scrutiny as they are close to the annual mean objective, particularly those close to Lancing Manor.
- 5.5 In 2016 Nitrogen Dioxide (NO_2) monitoring equipment in Shoreham High Street irreparably failed alongside ancillary equipment (and following repeated faults since 2012), we reluctantly took the decision to stop using this equipment and the particulate monitoring unit (both units used the same failed ancillary equipment) during the summer of 2016. This is why there is no data from continuous monitoring for NO_2 and Particulates (PM_{10}). Works are now in place to reinstate the site, which we aim to have effective in February 2018. The results from this monitoring will then be available to the public via the Sussex-air website www.sussex-air.net and is updated daily.
- 5.6 The Adur District Council Air Quality Action Plan dates back to 2007 and was partially revised in 2015 and 2016 to report to Defra. We intend to revise it in 2018 as some of the 2007 measures are either completed or no longer relevant. The plan relies heavily on West Sussex County Council to deliver actions to improve traffic flows and therefore improve air quality. We are currently working with West Sussex on a combined Air Quality Strategy that will also aim to improve partnership working with WSCC Highways team to support delivery of relevant measures within the action plan.

Air Quality in Worthing

- 5.7 We undertake monitoring of Nitrogen Dioxide (NO_2) using diffusion tubes at 39 sites across the Borough. For 2018 a couple of sites have been moved to better reflect public exposure (Lyndhurst Road and Cricketers Parade, Broadwater). During 2016 monitoring showed an increase in measured levels over 2015 results. Three sites exceeded the annual mean objective all within the AQMA. Concentrations decrease away from the road and at two locations are estimated to be below the annual objective at the nearest location with relevant exposure. However, one site at Grove Lodge Cottages remains

above the annual mean objective even when projected back to the facade and is a cause for concern. This site has been above the objective for many years. There is a danger that this site also fails to meet the 1-hour mean objective of $200\mu\text{g}/\text{m}^3$ and Defra have requested that we consider redeclaring the AQMA for exceedances of the 1-hour mean.

- 5.8 Elsewhere within the District NO_2 concentrations remain below the annual mean objective.
- 5.9 We have an automatic (continuous) monitoring cabinet housing equipment to monitor NO_2 located close to the Grove Lodge roundabout (on the eastbound carriageway). In 2015 Defra sought another roadside site to add to their Automatic Urban and Rural Network (AURN) of monitoring sites to enable better reporting to the EU. The Worthing site fit their criteria (the Adur site did not) and was affiliated into the AURN network in 2016. The benefits of affiliation are that Defra have gifted us a new NO_2 monitoring device and aircon unit within the existing cabinet. They are also providing a $\text{PM}_{2.5}$ monitoring device enabling us to monitor particulates (such devices can cost up to £30K). This is due to be installed at the end of January 2018. We will be responsible for financing the ongoing service and maintenance of the equipment.
- 5.10 Results from our continuous monitoring shows the annual mean objective is exceeded at the roadside. The result for 2016 was $48\mu\text{g}/\text{m}^3$.
- 5.11 The Worthing Borough Council Air Quality Action Plan was published in 2015 and relies on partnership work with Highways England and West Sussex County Council to deliver actions to improve traffic flows and therefore improve air quality. As the road is controlled by Highways England we have limited scope to bring about improvements. The recent improvement plans for the A27 are unlikely to result in sufficient improvements to air quality within the AQMA.
- 5.12 The Action Plans for Adur & Worthing are published on our website - <https://www.adur-worthing.gov.uk/environmental-health/pollution/air-quality-and-pollution/local-air-quality-management/#air-quality-action-plans>.

6. Development Management & Planning Policy

- 6.1 The number and scale of developments planned for the sub-region resulting in additional traffic on the strategic road network, primarily the A27 and A259, do

pose a risk to air quality. We work hard to try and ensure the air quality impacts of major developments are assessed and use the Sussex Planning and Emissions Mitigation Guidance to assist us (<https://www.adur-worthing.gov.uk/media/media.121587.en.pdf>). The Guidance is also signposted in the Local Plans.

- 6.2 The Guidance is designed to assist developers and requires them to carry out an impact assessment and an emissions mitigation assessment. The purpose of the latter is to assess the local emissions from a development and determine the appropriate level of mitigation required to help reduce the potential effect on health and/or the local environment. Developers should identify and ensure the integration of appropriate mitigation into a scheme at the earliest stage, so the damage costs on health can be mitigated. Mitigation should include targeting actions contained within our Action Plans. Mitigation includes the promotion of cycling and walking, public transport improvements, car clubs, low emission vehicles and associated infrastructure, etc.
- 6.3 To be effective air quality needs to be considered at the design stage, where mitigation can be incorporated to ensure it is effective. This relies on planners, particularly transport planners, being aware of the issue early. Internally, work is ongoing across Public Health and Regulation and the Planning teams to ensure that there is early sight of and discussion of such issues.

7. Engagement and Communication

- 7.1 The Air Quality Action Planning Group within the Communities Directorate exists to oversee delivery of the action plans for Adur and Worthing. The group has representatives from Highways England, WSCC Highways, A&W Public Health & Regulation, Wellbeing, Development Control, Planning Policy, and Councillors. The last meeting was also attended by Defra as the group is recognised as an example of good practice. The group would benefit from additional member support at local and County level and is due to meet again this Spring.
- 7.2 We are in regular communication with West Sussex County Council Highways and West Sussex Public Health in an attempt to drive forward improvements across both Adur and Worthing. West Sussex CC is keen to develop a county wide strategy, but there remain issues of appropriate funding to support improvements that may be necessary.
- 7.3 We have also held discussions, through Brighton & Hove CC and WSCC, with the bus companies operating routes through our AQMA's. Many of the main

routes operate EuroV standard buses and some of the Brighton & Hove buses operating through Shoreham High Street are hybrid. We will continue dialogue with them to improve emissions.

- 7.4 We are also in discussions with Brighton & Hove City Council to discuss how we could work together on improving taxi emissions. This work is at an embryonic stage.
- 7.5 The Councils have embarked on an electric vehicle charging strategy aimed at providing fast charging points at a few locations across the area. These should be installed during February 2018. The emphasis will then move towards encouraging local businesses and land owners to provide similar facilities. There is also work ongoing at a County-wide level.
- 7.6 Adur District Council and Worthing Borough Council are both paying members of the Sussex Air Quality Partnership (Sussex-air). The Partnership was established over 15 years ago to support Sussex local authorities with Local Air Quality Management and comprises representatives from all Councils in East and West Sussex, East and West Sussex County Councils (transport and public health) and Kings ERG in London (who provide website and monitoring data support).
- 7.7 Sussex-air has helped with the modelling of geographical areas in both Councils where levels have exceeded, or been close, to the air quality objectives, including the AQMA's. There is also an arrangement with Ricardo to provide technical support, at additional cost, on matters such as air pollution modelling and complex planning applications. The partnership also provides the public with information on the levels of pollutants from our continuous monitoring stations, via it's website www.sussex-air.net. Adur & Worthing took over the Chairmanship of the Group last year. The Group is actively engaging with Public Health and Transport at the County Councils in the hope that this will lead to greater partnership working and the delivery of projects aimed at reducing public exposure to poor air quality across Sussex.
- 7.8 Public Health & Regulation are in regular contact with the AREA action group and have held several meetings with them over the last year. We are actively trying to engage with them on local action, to assist us in our attempts to improve air quality, albeit with limited success.

8. Financial Implications

- 8.1 The cost of replacing the air quality monitoring station in Shoreham High

Street is estimated to be approximately £8000. This is to be taken from existing budgets.

- 8.2 There is an ongoing cost associated with monitoring which comprises of the service and maintenance of the continuous monitoring sites (approximately £2,500-£3,500 per year for each site), diffusion tube monitoring (£2,500-3,000 per year) and Officer time.
- 8.3 Annual membership to Sussex Air - £4,000.

9. Legal Implications

- 9.1 Section 3(1) of the Local Government Act 1999 (LGA 1999) contains a general duty on a best value authority to make arrangements to secure continuous improvement in the way in which its functions are exercised, having regard to a combination of economy, efficiency and effectiveness.
- 9.2 The Air Quality Directive 2008 came into force on 11 June 2008 (*Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe*). It seeks to minimise the harmful effects of air pollution by setting standards for ambient air quality, and by requiring member states to actively assess and manage the ambient air quality in different areas or zones within their territory.
- 9.2 s1 of the Localism Act 2011 empowers the Council to do anything an individual can do apart from that which is specifically prohibited by pre-existing legislation
- 9.3 S1 Local Government (Contracts) Act 1997 allows the Council to enter into a contract in relation to any of its functions
- 9.4 In addition to the power under s1 above, the Council must comply with its Contract Standing Orders and the Public Contract Regulations 2015.

Background Papers

- Air Quality Annual Status Reports - <https://www.adur-worthing.gov.uk/environmental-health/pollution/air-quality-and-pollution/local-air-quality-management/#air-quality-reports>

- Air Quality Action Plans -
<https://www.adur-worthing.gov.uk/environmental-health/pollution/air-quality-and-pollution/local-air-quality-management/#air-quality-action-plans>
- Air Quality, A Briefing for directors of Public Health, Defra 2017 -
<https://laqm.defra.gov.uk/assets/63091defraairqualityguide9web.pdf>

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Sustainability & Risk Assessment

1. Economic

- Traffic congestion and associated air quality problems can have an effect on economic performance in terms of productivity (time taken to move through the areas of Adur & Worthing - people, goods and services). It could also make the area a less attractive place to conduct business.

2. Social

2.1 Social Value

- Poor air quality tends to affect the more vulnerable within communities. Those with pre-existing conditions in particular tend to be affected. However poor air quality has been linked to the onset of asthma and other diseases in the wider population, particularly the very young and the elderly. This places a burden on health services with an associated cost on those services and communities as a result.

2.2 Equality Issues

- Matter considered and no issues identified

2.3 Community Safety Issues (Section 17)

- Matter considered and no issues identified

2.4 Human Rights Issues

- Matter considered and no issues identified

3. Environmental

- The Councils are under a legal duty to assess air pollution across their areas and where levels are found to be in excess of the national objectives, Air Quality Management Areas must be declared and action plans prepared and delivered. Where development poses a risk of increasing air pollution, appropriate mitigation must be provided to ensure this does not happen. The risk of failing to do this is that air quality decreases and affects local public health and ecosystems.

4. Governance

- Failure to take account of air pollution poses a significant risk on the reputation of the Councils. The Councils are under a statutory duty to assess air pollution and take action (with partners) where levels are found to exceed the National Objectives. Air Quality Management Areas must be declared, action plans prepared and these must then be properly resourced. Where development poses a risk of increasing air pollution, appropriate mitigation must be provided to ensure this risk is minimised. The risk of failing to do this is that air quality worsens and local public health is subsequently placed at risk.

- Therefore all partners must be encouraged to work together to bring about improvements (WSCC, Highways England, developers, etc)
- Worthing Borough Council has an Air Quality Action Plan, Adur District Council has an action plan that requires updating this year (the last version was dated 2007).
- The Adur Local Plan specifically refers to air quality and a requirement to ensure new development contributes to the mitigation of air pollution, particularly in Air Quality Management Areas. It is likely the forthcoming Worthing Local Plan will include similar.
- Ensuring monitoring continues, development impacts are considered and mitigation is agreed and the action plans are maintained (and revised for Adur) and implemented will require officer time.