

Air Quality Strategy 2023



Contents

Executive Summary	2
Introduction to air pollution	3
Health impacts	3
Social equity	5
Pollution Sources	5
Road traffic pollution	5
Domestic Burning	6
The Governments Air Quality Strategy	8
An Emphasis on small particulate matter - PM _{2.5}	10
Air quality in Arun	10
Monitoring in Arun	11
Industrial emissions	11
What is Arun currently doing to improve air quality?	11
Transport	12
Healthy and active	13
Electric Vehicle's	13
Domestic Burning	14
Planning	14
Education and raising awareness	16
Climate change and air quality	16
Priority actions for the future	17
What can you do to help improve air quality?	18
References and useful information	20

Executive Summary

Air quality in the UK has improved significantly in recent decades with a decrease in all five major air pollutants. However, air pollution continues to be the biggest environmental risk to human health, disproportionately affecting those who are already vulnerable.

While emissions from transport continue to decrease, data from 2020 indicates transport is still the source of 41% of nitrogen dioxide (NO₂) emissions and 16% of fine particulate matter (PM_{2.5}) emissions in the UK. (Environmental Improvement Plan 2023). Reducing emissions from transport is therefore essential to delivering better air quality.

However, it is also recognised that burning of domestic solid fuels in appliances such as open fires and wood burners is harming local air quality, particularly due to the rise in popularity of wood burners in urban areas.

The Government have recently published their revised Air Quality Strategy (2023) and their Environmental Improvement Plan (2023). The air quality strategy has revised the local air quality management framework which Arun follows and now places a new requirement on Local Authorities without air quality management plans to produce an air quality strategy setting out the action that they will take to improve air quality in their area. Air quality monitoring carried out by the Council continues to indicate that there is good air quality within the District, and in particular the air quality objectives for Nitrogen Dioxide (NO₂) are being met. Thus it has not been necessary to declare an Air Quality Management Area in Arun but we are now required to produce an air quality strategy.

As well as the ongoing work to improve air quality in the District the Council is committed to the following priority actions set out in this strategy:

- 1. Work with West Sussex County Council on road improvements, for example through the planning process.
- 2. Work through the Sussex Air Quality Partnership (SAQP) to seek grant funding and on projects to educate and raise awareness, particularly with schools and community groups

- 3. Continue with our programme to monitor NO₂ across the district and review sites annually
- 4. Investigate the feasibility of making some or all of Arun a Smoke Control Area
- 5. Review the Taxi Licensing Policy and look to consider introducing age and emissions requirements on new vehicle licences
- 6. Continue work related to the declaration of a climate emergency in January 2020.
- 7. Investigate the use of powers to require drivers to switch off their engines while their vehicles are parked and to issue fixed penalty notices to those who refuse.
- 8. Construction dust Arun has a lot of large construction sites across the district which are frequently the subject of dust nuisance complaints. To address this the Council will consider additional ways to deal with dust nuisance.

Introduction to air pollution

Air quality in the UK has improved significantly in recent decades with a decrease in all five major air pollutants. Between 2010 and 2020 emissions of fine particulate matter (PM_{2.5}) decreased by 18%; emissions of nitrogen oxides (NOx) decreased by 44%; sulphur dioxide (SO₂) by 70%, non-methane volatile organic compounds (NMVOC) by 14%, and ammonia (NH₃) by 0.2% (Environmental Improvement Plan 2023).

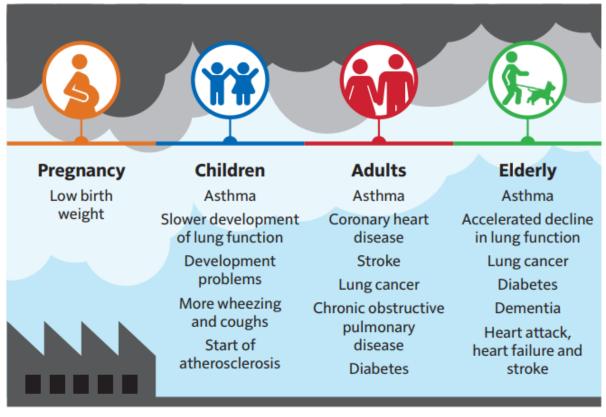
Similarly, NO₂ levels in Arun have remained relatively stable over the last five years with only small fluctuations and a general downwards trend since 2018. These reductions have produced significant benefits for our health and environment. However, air pollution continues to be the biggest environmental risk to human health, disproportionately affecting those who are already vulnerable.

Health impacts

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, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are often less affluent areas.

Figure 1 below shows a summary of the effects of air pollution on health across the age groups.



Source: Adapted from Public Health England (2018)1

Figure 1. A summary of the effects of air pollution on health (Chief Medical Officer's annual report 2022).

The mortality burden of air pollution within the UK is equivalent to between 29,000 and 43,000 deaths at typical ages, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017 (Defra and Public Health England quoted in Arun's ASR).

In Arun in 2010 there were 2061 deaths from all causes in people aged over 25 years, of these, 98 or 4.8% were attributable to particulate air pollution (Data from PHE, Estimating Local Mortality Burdens associated with Particulate Air Pollution 2014).

Social equity

Areas with poor air quality are often less affluent areas. In Arun there are some areas that are within the most 10% deprived areas in England and Arun is the second most deprived district in West Sussex after Crawley. 6.2% of residents in Arun are universal credit claimants in employment which is greater than the average for England of 5.7% (local insight profile 2022). Additionally, the annual household income in Arun in 2017/18 was below the England average (ONS in Local Insight Profile 2022).

A number of wards in Arun (Marine, Hotham, River, Orchard, Courtwick with Toddington and Rustington East) have a standardized mortality rate above that of England for deaths from respiratory diseases in all age groups. Marine, River and Courtwick with Toddington also have the highest Index of Multiple Deprivation Scores in Arun suggesting that these less affluent areas could be being affected by poor air quality.

Pollution Sources

Road traffic pollution

While emissions from transport continue to decrease, data from 2020 indicates transport is still the source of 41% of NO_2 emissions and 16% of $PM_{2.5}$ emissions in the UK. (Environmental Improvement Plan 2023). Reducing emissions from transport is therefore essential to delivering better air quality. Emissions from road traffic include exhaust emissions such as nitrogen dioxide – a product of combustion as well as tiny particulate matter from tyre and brake wear.

According to the 2021 Census, Arun has a higher proportion of car ownership than the average for England as show below in Table 1 and 4.15 billion vehicle miles were travelled on roads in West Sussex in 2022 (Department for Transport). It is therefore appropriate to focus on reducing transport related emissions in Arun.

	Arun	England average
Households with 0 cars	16.9%	23.5%
Households with 1 car	42.7%	41.3
Households with 2 cars	29.3%	26.1
Households with 3+ cars	11.1%	9.1%

Table 1. Levels of car ownership in Arun compared to the average for England.

Domestic Burning

Until recently much of the public information issued about air pollution has been focused on the emissions from road traffic. However, it is now recognized that burning of domestic solid fuels in appliances such as open fires and wood burners is harming local air quality, particularly due to the rise in popularity of wood burners in urban areas.

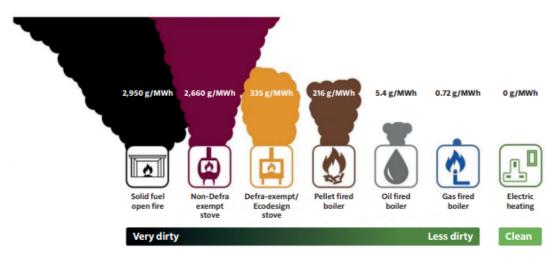
Recent data from Defra suggests that domestic combustion accounted for 16% of primary PM₁₀ and 27% of primary PM_{2.5} emissions in 2021. The burning of solid fuel in nearby homes is regularly cited as a major barrier to opening windows for ventilation. Emissions of PM_{2.5} from domestic wood burning increased by 124% between 2011 and 2021 (Defra, Emissions of air pollutants in the UK – Particulate matter).

In the UK, about 1.5 million households burn wood and just under 400,000 households use coal and other solid fuels (Chief Medical Officer's report). In 2021, 1,010 households in Arun had no central heating (Census 2021) and 6,380 (8.7%) were in fuel poverty in 2020 (OHID Fingertips).

However, although some households depend on this solid fuel burning for space heating, many homes burn solid fuels in conjunction with other space heating methods for heating and for aesthetic purposes, especially in urban areas.

In 2020 a study was carried out to investigate solid fuel burning across Sussex. The results showed that a large majority of respondents (88%) use their stoves to produce some heating, however, over 40% of stove users chose 'cosy atmosphere' as a reason or one of the reasons for using a stove, which may mean that a higher than average proportion of stove users in Sussex are 'recreational' users. The study also found that the vast majority of wood users 'season' their wood by keeping wood in an enclosed store – however the duration of seasoning is unknown and it's important to encourage a 2-summer seasoning period. Clean Burning (sussex-air.net)

Additionally, the kind of appliance (for example, stove or fireplace), how well it is used and maintained and what fuels it burns all make a big difference to how much pollution is produced. A new efficient appliance will produce much lower emissions compared with an old stove or open fire. Figure 2 shows the difference in PM_{2.5} emissions between different appliances.



Note: The air pollution emissions will also depend on the age of the appliance, how it is maintained and used and the fuel burned (for example, dry or wet wood).

The following definitions were used: Solid fuel open fire: wood burned in an open fire. Non-Defra-exempt stove: wood in a conventional stove. Defra-exempt/Ecodesign stove: wood in an advanced/ecolabelled stove. Pellet fired boiler: wood in pellet stoves and boilers. Oil fired boiler: fuel oil in a medium (>50KWth <1MWth) boiler. Gas fired boiler: natural gas in a small (≤50kWth) boiler. Source: Emission factors taken from EMEP 2019 Guidebook¹² (1A4 small combustion tables). Adapted from the Clean Air Strategy¹³ with updated data

Figure 2. The relative PM_{2.5} emissions from domestic heating methods.

The Governments Air Quality Strategy

The Government have recently published their revised Air Quality Strategy (2023) and their Environmental Improvement Plan (2023). The air quality strategy has revised the local air quality management framework which Arun follows and now places a new requirement on Local Authorities without air quality management areas to produce an air quality strategy setting out the action that they will take to improve air quality in their area.

Arun does not currently have any air quality management areas and is therefore required to produce this air quality strategy.

The Environment Act 2021 also set down new targets for air quality, which are laid out below. Whilst these are Government targets, local authorities are expected to work towards achieving them.

Long term targets:

- By the end of 2040, we will achieve a maximum Annual Mean Concentration Target (AMCT) of 10 micrograms of PM_{2.5} or below per cubic metre (µg/m³).
- By the end of 2040, we will reduce population exposure to PM_{2.5} by 35% compared to 2018 levels.

Interim targets:

By the end of January 2028:

- The highest annual mean concentration in the most recent full calendar year must not exceed 12 μg/m³ of PM₂₅.
- Compared to 2018, the reduction in population exposure to PM_{2.5} in the most recent full calendar year must be 22% or greater.

Figure 3. Air Quality Targets from the Environment Act 2021

It is worth noting that the World Health organisation suggests a more ambitious Air Quality Guideline of 5 μ g m-3 as an annual mean for PM_{2.5}.

Data from 2020 indicates that, in the UK, emissions from the home, agriculture, industry and transport combined contributed 85% of PM_{2.5}, 87% of NO₂ and 90% of NH3 emissions to the air. Therefore the Government and hence Arun should target our actions at these sources. These are set out in the Delivery plan which forms part of the Governments Environmental Improvement plan and is copied below in Figure 4.

- 1 Reducing emissions in the home by managing domestic burning, which is the biggest source of emissions of fine particulate matter. Much of these emissions were in urban areas, increasing people's exposure to this harmful pollutant.
- 2 Driving effective local action through local authorities. They have the legal responsibility and powers to deliver clean air in their areas and so have the greatest power to support the achievement of the population exposure targets.
- 3 Maintaining and improving our regulatory framework for industrial emissions, which have already reduced significantly.
- 4 Supporting farmers to reduce the impact of ammonia emissions from agriculture on air quality. They are responsible for 87% of the ammonia emissions in the UK.
- 5 Reducing emissions from cars and other forms of transport which are still a major source of NO₂ and PM₂₅ emissions.

Figure 4. The Governments Delivery Plan

An Emphasis on small particulate matter - PM_{2.5}

The Governments environmental improvement plan, air quality strategy and the Chief Medical Officers report all set out a relatively new emphasis on tiny particulate matter or PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less).

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5}. There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Arun does not currently monitor PM_{2.5}, however the Defra background mapping resource identifies the maximum background annual mean PM_{2.5} concentration within the district as 10.2 ug.m³ in 2021. This is below the current objective of 20 ug.m-3 but slightly above the new target (10 ug.m-3) for 2040 and double the World Health Organisation's recommendations of 5 ug.m³.

Air quality in Arun

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

Despite pollution levels being generally low in the District, road traffic exhaust emissions are the major source and they have the potential to cause excessive levels of NO₂ for example where large volumes of road traffic are queuing.

Monitoring in Arun

Data collection is through a diffusion tube network, in 2023 there are 26 diffusion tubes located across the district. Their location is regularly reviewed and altered where data or local knowledge indicate a new location should be investigated. The latest monitoring data shows that levels of NO₂ continue to be well beneath the Government objective of 40 ug.m³ and have decreased slightly since 2018. However, it is also worth noting that the World Health Organisation recommends that levels of NO₂ should be reduced to 10 ug.m³. Further details can be found in the annual reports on the Council's website. <u>Air quality | Arun District Council</u>.

Industrial emissions

The Council currently permits 28 installations across the district, details of which can be found at <u>Arun | Environmental Health Online Services | Licence Register</u>

All the permits are for Part B activities and all are deemed to be either low or medium risk. The Environment Agency also permits seven installations in Arun, details of which can be found at Public Registers Online (data.gov.uk)

What is Arun currently doing to improve air quality?

Arun is a member of the Sussex Air Quality Partnership which is made up of officers from all the Local Authorities in Sussex and aims to assist partners in complying with their statutory local air quality management duties and to contribute to improving air quality and health in Sussex.

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

West Sussex County Council, along with districts and boroughs, have reviewed action plans across the county and have developed a joint air quality action plan 'Breathing Better; a partnership approach to improving air quality in West Sussex'. This was updated in 2020 and 2023. Breathing Better (westsussex.gov.uk)

Annual updates are expected to be reported to the West Sussex Joint Climate Change Board which is chaired by the West Sussex County Council Deputy Leader and Cabinet Member for Environment and Climate change. <u>Our strategy and commitment - West Sussex County Council</u>

General measures to reduce air pollution and prevent the exceedance of the Air Quality Objective in Arun include:

Transport

- Working with the county council to install "Cut Engine Cut Pollution" signs where there are periodic stationary traffic queues at level crossings.
- Working with the county council and assisting with progressing road schemes that
 will provide congestion relief and local reductions in air pollution via the planning
 process. For example, the opening of the A259 Angmering Littlehampton
 improvements and cycle facilities such as the Findon Valley to Findon Village
 route.
- The council has adopted a flexible approach to working from home and in line with this, one of the priorities in the Council's Carbon Neutral Strategy encourages the use of active travel, public transport or car sharing to staff who choose to return to the office.

- Similarly, staff travelling for business purposes are encouraged to use public transport, active transport or virtual meetings before using petrol/diesel cars.
- The Sussex Air Quality Partnership (SAQP) bid for funds to cover projects which included upgrading the exhausts of buses serving Brighton & Hove and surrounding Districts (one route runs into Arun) to reduce the emissions they produce.

Healthy and active

 Arun supports the promotion of sustainable travel and active travel to work by staff, contractors and partners - an interest free loan scheme for the purchase of a bicycle is available to staff and councillors to encourage the use of bicycles to travel to and from work, and on council business where appropriate.

Electric Vehicle's

- To support the Council's vehicle fleet transition to electric vehicles, a total of ten
 electric vehicle charge points have been installed in Arun District Council depots,
 including four at Harewood Road and six at the Civic Centre.
- The Council has worked with other District and Boroughs and the County Council
 to adopt an Electric Vehicle Strategy, establish a partnership and appoint a
 concession contractor to install, operate and maintain a network of on and offstreet EV chargepoints. Chargepoints in phase 1 became operational in 2023
 with Phase 2 locations being consulted on in 2023.
- The Council's vehicle fleet has been reduced to 16 vehicles (from 21), 14 new electric vehicles have been delivered in 2023.
- The Sussex Air Quality Partnership (SAQP) ran a project with taxi operators in West Sussex to facilitate a transition to electric vehicles. <u>Sussex-air :: Promoting</u> <u>better Air Quality in Sussex :: sussex-air.net :: Air Quality Guidance Planning</u>

 The Council will look to encourage alternative methods for business travel to help reduce emissions related to vehicles. This could include electric vehicle pool cars, electric bikes for staff/members and supporting staff/members to travel with public and active transport where possible.

Domestic Burning

- Initial research into declaring all or some of the district as a Smoke Control Area
 was carried out in 2022. If this were progressed it provides additional controls
 and enforcement options when smoke is emitted from a chimney and controls the
 sale of unauthorised fuels.
- Every winter the Council promotes Clean Burn Sussex via its website and social media channels. <u>Clean Burning (sussex-air.net)</u>
- In 2023 the Sussex Air Quality Partnership (SAQP) submitted a bid to Defra in partnership with Global Action Plan for a grant to improve knowledge and information about domestic burning and to create a connection between indoor woodburning, air pollution and its harm to health.

Planning

 Policy QE DM3, of the Arun Local Plan shown below sets out the planning requirements related to air pollution.

Policy QE DM3

Air pollution

All major development proposals will be required to assess the likely impacts of the development on air quality and mitigate any negative impacts by:

- Ensuring the development is located within easy reach of established public transport services;
- b. Maximising provision for cycling and pedestrian facilities;
- Encouraging the use of cleaner transport fuels on site, through the inclusion of electric car charging points; and
- d. Contributing towards the improvement of the highway network where the development is predicted to result in increased congestion on the highway network.

Development proposed nearby any Air Quality Management Area (AQMA) declared within the District within the Plan period, will require an air quality assessment to identify likely impacts of development upon the designated area. Developers will be required to ensure delivery of the actions set out within any Air Quality Action Plan.

Industrial development which is regulated by environmental permits (that creates or results in dust, smell, fumes, smoke, heat, radiation, gases, steam or other forms of pollution) must be located in such a position which ensures that the health, safety and amenity of users of the site or surrounding land is not put at risk and the quality of the environment would not be damaged or put at risk.

Developments shall also be consistent with all other Local Plan policies.

Figure 5. Planning Policy QE DM3 of the Arun Local Plan

- Using the Sussex Air Quality Partnership (SAQP) guidance, Arun District
 Council will require an air quality assessment and appropriate mitigation where
 necessary in line with Planning Policy QE DM3 above.
- Environmental health works closely with Planners and other agencies to ensure appropriate mitigation measures are implemented for new developments and due consideration is given to Air Quality issues during both construction and operation of new developments. The Sussex Air Quality Partnership (SAQP) Planning Guidance is used for major developments.
- Requiring dust control in Construction Management Plans for developments through the planning consultation process according to the merits of individual sites
- Publication of a guidance document for small scale construction sites which includes dust control advice <u>Construction Code of Practice (arun.gov.uk)</u>

 Responding to complaints of dust nuisance using investigation and enforcement powers through Environmental Protection legislation.

Education and raising awareness

- Increasing the availability of air quality information and incentivising people to change their travel behaviour via websites and social media.
- The Sussex Air Quality Partnership (SAQP) website has information on clean burning to raise awareness of the health and environmental impact of burning solid fuels and reduce emissions of particulates and the AirAlert service. <u>Sussex-air</u>:: <u>Promoting better Air Quality in Sussex</u>:: <u>sussex-air.net</u>:: <u>Home</u>
- Delivery of the SAQP, Defra funded intervention programme into primary and secondary schools. The project employed Sustrans to deliver the programme, aiming to raise awareness of air quality issues.
- Work with WSCC to promote sustainable transport "Travelwise" schemes to include more car share schemes and alternatives to the car, promotion of school and work travel plans, development and promotion of cycle routes.

Climate change and air quality

The Council declared a climate emergency in 2020 and set a target to become carbon neutral by 2030 across all of its scope 1, 2 and 3 emitters. Additionally, as part of the Council's green agenda a number of other reports have been provided:

- 1) Arun's <u>Carbon Neutral Strategy</u> this sets the direction of travel for the Council and provides an outline on the major emitters
- Arun's <u>Climate Change and Biodiversity Work Plan</u> this provides details on the current list of projects that are being considered or undertaken by the Council to reduce environmental impacts.

Though climate change is not fully focused on improving air quality, many actions will share a co-benefit of reducing air pollution and improving the air we breathe.

Priority actions for the future

- 1. Work with West Sussex County Council on road improvements for example through the planning process.
- 2. Work through the Sussex Air Quality Partnership (SAQP) to seek grant funding and on projects to educate and raise awareness, particularly with schools and community groups
- 3. Continue with our programme to monitor NO₂ across the district and review sites annually
- 4. Investigate the feasibility of making some or all of Arun a Smoke Control Area.
- 5. Review the Taxi Licensing Policy and consider introducing age and emissions requirements on new vehicle licenses
- Continue work related to the declaration of a climate emergency in January 2020, specifically encouraging active travel by updating planning policies regarding road infrastructure, reviewing the vehicles it lease's and aiming to change to 100% electric fuelled vehicles. <u>Climate change | Arun District Council</u>
- 7. Investigate the use of powers under Regulation 98 of the Road Vehicles (Construction and Use) Regulations 1986 and Regulations 12 and 13 of the Road Traffic (vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 to require drivers to switch off their engines while their vehicles are parked and to issue fixed penalty notices to those who refuse. This could be targeted at areas around schools and level crossings, particularly those in areas that have higher pollution levels or increased deaths from respiratory conditions.
- 8. Construction dust Arun has a lot of large construction sites across the district which are frequently the subject of dust nuisance complaints. To address this the Council will consider additional ways to deal with dust nuisance such as:

- a. Adoption of supplementary planning guidance for the control of dust and emissions from construction and demolition.
- Adoption of a code of construction practice, including minimum emission standards for non-road mobile machinery used in construction.
- c. Set up minimum emissions standards for equipment used by Council contractors.
- d. Investigate methods for dust monitoring around large construction sites.

What can you do to help improve air quality?

We all need to play a part in reducing air pollution. Please consider whether you can do any of the following:

- Walk or cycle on shorter journeys
- Join a car-sharing scheme see <u>West Sussex Car Share community part of the</u>
 Liftshare network
- Turn your engine off when you're not moving
- If you know anyone with asthma or other breathing difficulties, let them know about "airAlert" <u>Sussex Air Quality Service for Sussex - Sussex-air :: Promoting</u> better Air Quality in Sussex
- Find out from your child's school about available travel options for getting to school
- Consider switching to a less polluting vehicle next time you change your car. For example: <u>Green cars UK - Guide to low emission cars - Next Green Car</u>
- Make use of the Energise network's electric vehicle charging points in the District
 Map of charging points for electric car drivers in UK: Zap-Map

- Consider whether you need to burn solid fuels to heat your home
- Review guidance on how to burn solid fuels to reduce air pollution <u>Open fires and</u>
 <u>wood-burning stoves a practical guide (defra.gov.uk)</u>

References and useful information

Chief Medical Officer's Annual Report 2022 (publishing.service.gov.uk)

Air Quality Strategy - Framework for local authority delivery (publishing.service.gov.uk)

Environmental Improvement Plan (publishing.service.gov.uk)

Road traffic statistics - Local authority: West Sussex (dft.gov.uk)

Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017 in <u>Air Quality Annual Status Report 2023 (arun.gov.uk)</u>

Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006 Air Quality Annual Status Report 2023 (arun.gov.uk)

Air quality | Arun District Council

<u>Local Health - Office for Health Improvement and Disparities - Indicators: maps, data and charts</u>

Estimating Local Mortality Burdens associated with Particulate Air Pollution 2014 PHE-CRCE-010 (publishing.service.gov.uk)

Local Insight Profile for Arun District area. www.ocsi.co.uk

Emissions of air pollutants in the UK – Particulate matter (PM10 and PM2.5) - GOV.UK (www.gov.uk)

LAQM-Policy-Guidance-2022.pdf (defra.gov.uk)

Sussex-air :: Promoting better Air Quality in Sussex :: sussex-air.net :: Home

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