Cleaner Air, Healthier Lives

Southwark's Annual Public Health Report 2023

CONTENTS

FOREWORD

This year's Annual Public Health Report highlights air quality as a significant public health concern, and suggests ways we can all contribute to cleaner air in Southwark.

The air we breathe affects us all, even before we are born. Clean air makes our lives healthier and longer. Poor air quality does the opposite, contributing to many health conditions from heart and lung diseases to cancer. Some people are more affected than others, often due to factors outside their control.

However, as individuals, businesses, organisations, and stakeholders working on air quality, there is plenty we can do to make our air cleaner. This report showcases some of the exciting work that is already happening and makes recommendations for further action.

I am thrilled to endorse this year's annual report and look forward to continuing our progress towards cleaner air in Southwark.

Cllr Evelyn Akoto

Cabinet Member for Health & Wellbeing

INTRODUCTION

Clean air helps us to live longer, healthier lives. The air we breathe, both indoors and outside, impacts our health from the moment we are conceived, and continues to affect us throughout our lives. Air pollution contributes to cardiovascular and respiratory illnesses, lung development problems in children, stroke, cancer, and numerous other health outcomes.

The impact of air quality is not felt equally, with children, older people, and those with certain long term illnesses most affected. Systemic issues like poverty and unemployment compound the harms associated with poor air quality. People in lower income neighbourhoods often experience the worst health effects despite typically contributing less to the sources of air pollution and having less ability to control their exposure to it.

The way we live, travel, move goods, and build, all influence levels of and exposure to air pollution. That means there are many levers we can pull to make improvements and there are plenty of incentives to make them. In addition to improving health and reducing health inequalities, measures to improve air quality often benefit other policy areas too. Cleaner air contributes to net zero ambitions, biodiversity improvements, and economic benefits[i].

We can all play a part in making our air cleaner. On an international and national level, air quality targets and a declaration of clean air as a human right drive and motivate the change. At the national, regional, and local level, policies, legislation, strategies, and enforcement embed the change. As individuals, we can try to improve our understanding of air quality, reduce our own emissions, and protect ourselves and others. As businesses and organisations, we can provide healthy buildings, support staff to make air quality-friendly decisions, and lead by example by reducing our own emissions. As stakeholders working on air quality, we can learn from each other, contribute our own strengths, and join forces to accelerate progress.

With a clear momentum and reason for change, there is no better time to build on our achievements and prioritise clean air and the range of benefits it can bring. As the Director of Public Health for Southwark, I encourage you to join us on our quest for cleaner air.

Sangeeta Leahy

Director of Public Health

ACKNOWLEDGEMENTS

Contributors

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SOURCES & TRENDS

OUTDOOR AIR QUALITY

There are many types of outdoor air pollutants. In England, these are set out in the Air Quality Regulations and Environment Act. The focus tends to be on nitrogen oxides and particulate matter[ii]. Nitrogen dioxide and nitric oxide are the main gases of concern. They are often referred to as NO_x and considered in tandem because they frequently convert between each other.

Pollutants in the air that are not gases are referred to as particulate matter. These are classified by size, and smaller particles tend to have a greater impact on health. PM_{10} and $PM_{2.5}$ are the most commonly referenced particulates. PM_{10}, course particulate matter, refers to particles that are 10 micrometres or less in size, while $PM_{2.5}$, fine particulate matter, refers to those less than 2.5 micrometres in size. These are further classified as primary PM, which comes directly from sources, and secondary PM, which comes from chemical reactions.

The main sources of NO_x are combustion from road transport, industrial combustion, and power generation. The main sources of PM_{10} and $PM_{2.5}$ are also combustion – for example from vehicles, power stations, and domestic combustion – as well as industrial processes, and vehicle break and tyre wear. Natural sources of particulate matter include dust and sea salt.[iii] Air quality is also affected by other countries, weather patterns, and natural events.

Figure 1: Key sources of outdoor air pollution

INDOOR AIR QUALITY

Indoor air quality is also important to consider because people tend to spend the majority of their time inside. Indoor air pollution includes outdoor pollutants that move inside, as well as pollutants released inside. Indoor pollutants can also move outside. The main indoor pollutants of concern include carbon monoxide, volatile organic compounds (VOCs), and radon[iv]. These pollutants come from a range of sources such as heating and cooking appliances, cleaning products, personal care products, and building materials[v].

Figure 2: Key sources of indoor air pollution

Damp and mould is often considered to be a component of indoor air quality as spores released into the air can harm people's health. Damp and mould tend to develop due to issues around heating, insulation, condensation, and ventilation. Other bio-aerosols that affect indoor air quality include viruses, bacteria, and pollen[vi].

KEY SOURCES & TRENDS

Despite significant reductions in recent years, air pollution levels are still high across most of Southwark. As in much of London, legal air pollution limits are often exceeded.

Nitrogen oxides are the biggest contributors to local air pollution in Southwark, although local emissions fell by 33% between 2013 and 2019. This trend of falling NO_x emissions is predicted to continue into 2030. Substantial local reductions were also seen for $PM_{2.5}$ (19%) and PM_{10} (13%). The reduction in $PM_{2.5}$ is predicted to continue to 2030, while PM_{10} is projected to increase from its 2019 level.

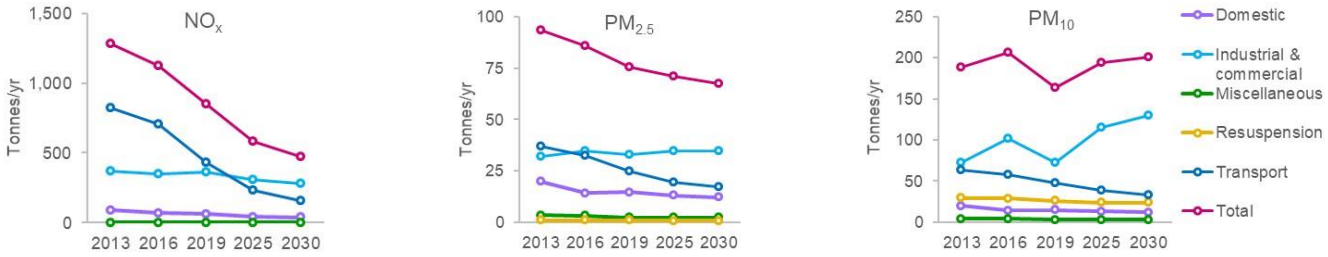


Figure 3: Predicted Southwark total annual emissions of NO_x, $PM_{2.5}$ and PM_{10} (tonnes per year), for 2013, 2016, 2019, 2025 and 2030, from modelled 2019 data, by main source
Source: GLA 2023, London Atmospheric Emissions Inventory 2019 (2023 revision)

The reduction in NO_x and particulate matter is mostly driven by reduced transport emissions. In coming years, industrial and commercial emissions are expected to be the biggest sources of NO_x, PM_{10}, and $PM_{2.5}$. Road traffic is the main source of Southwark's transport-related air pollution.

Figure 4: Predicted Southwark annual transport emissions in 2025 (tonnes), from modelled 2019 data, by source
Source: GLA 2023, London Atmospheric Emissions Inventory 2019 (2023 revision)

Southwark's industrial and commercial air pollution comes from a range of sources, especially heat and power generation, commercial cooking, and construction.

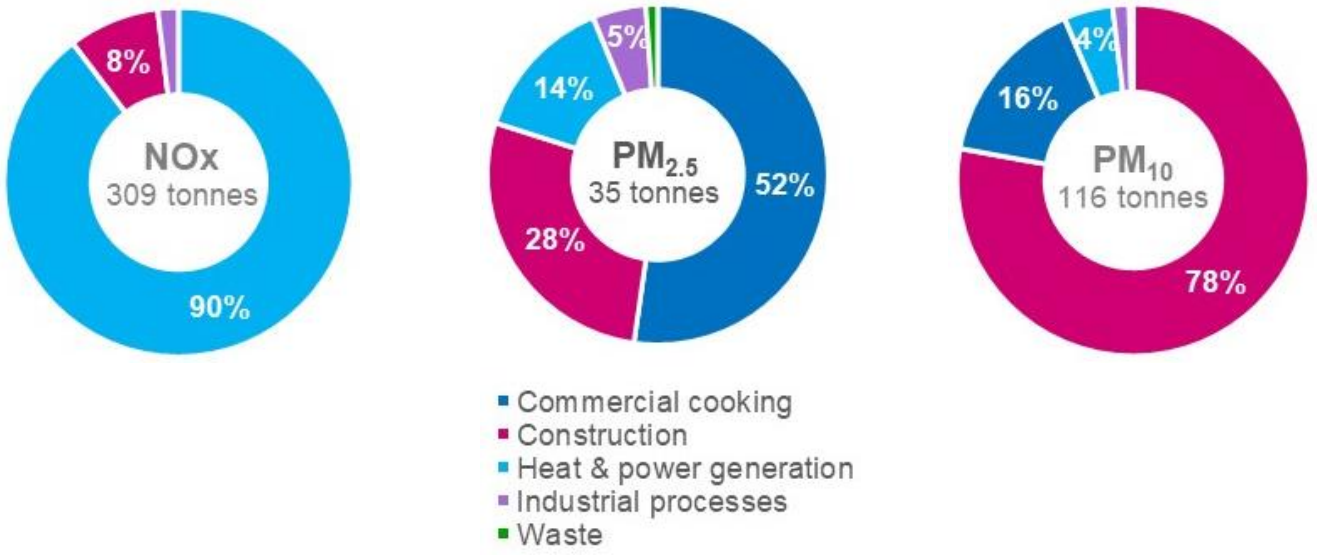


Figure 5: Predicted Southwark annual industrial and commercial emissions in 2025 (tonnes), from modelled 2019 data, by source
Source: GLA 2023, London Atmospheric Emissions Inventory 2019 (2023 revision)

GEOGRAPHICAL PATTERNS

Air pollution concentrations are highest in north-west Southwark and along major roads. In 2025, it is predicted that NO_2 concentrations that breach legal limits will cover far less of Southwark than in 2016, but pockets will occur along some main roads, especially in the north-west of the borough.

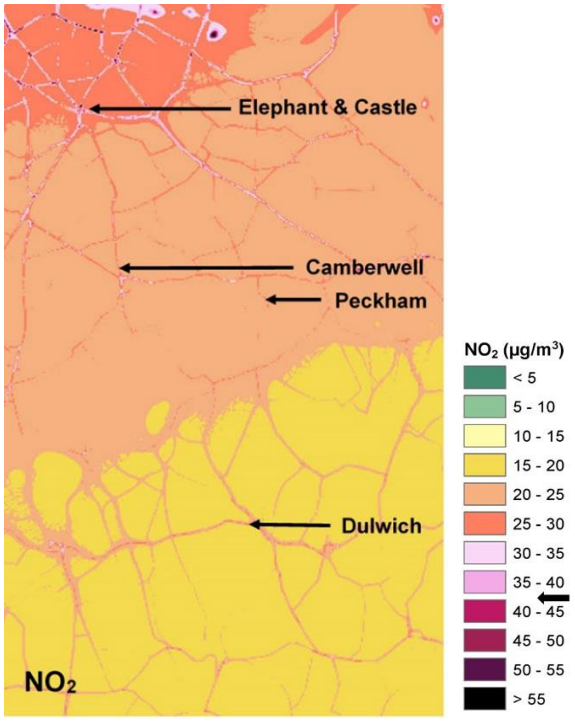


Figure 6: Predicted 2025 ground level concentrations of annual mean NO_2 (µg/m^3; 20 m grid resolution), for Southwark area, from modelled 2019 data. (UK Air Quality Standards state a legal NO_2 limit of 40 µg/m^3, indicated by map legend arrow.)
Source: GLA 2023, London Atmospheric Emissions Inventory 2019 (2023 revision)

$PM_{2.5}$ levels also fell between 2016 and 2019, but 2025 predictions indicate above-guideline levels in north-west and north-central Southwark.

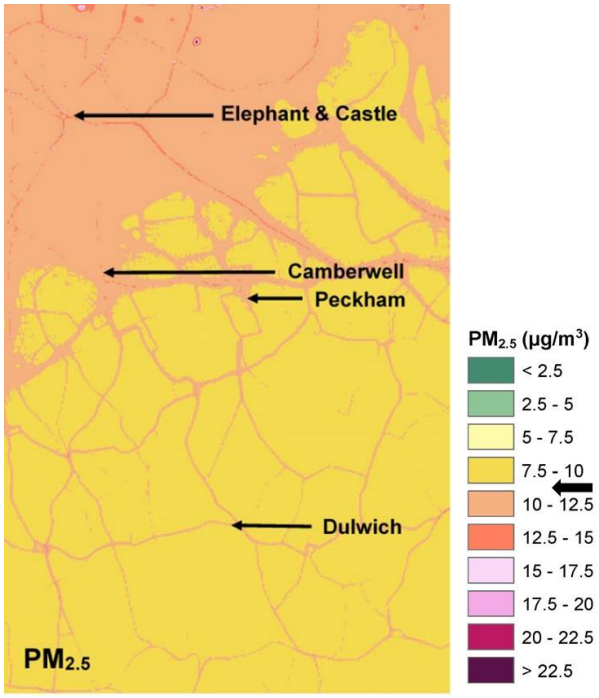


Figure 7: Predicted 2025 ground level concentrations of annual mean $PM_{2.5}$ (µg/m^3; 20 m grid resolution), for Southwark area, from modelled 2019 data. (The London Mayor's Office has committed to levels of $PM_{2.5}$ less than 10 µg/m^3 by 2030; indicated by map legend arrow.)
Source: GLA 2023, London Atmospheric Emissions Inventory 2019 (2023 revision)

Predicted 2025 PM_{10} levels are below guideline limits throughout the borough, apart from in a few isolated pockets along main roads in the north-west.

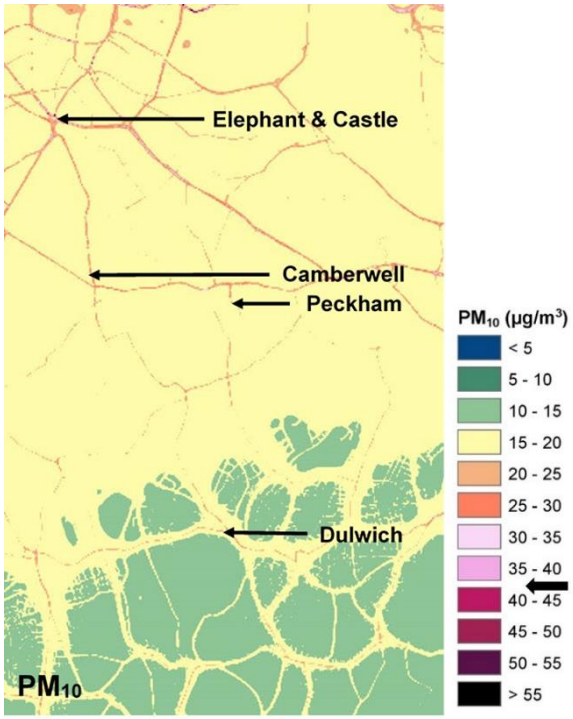


Figure 8: Predicted 2025 ground level concentrations of annual mean PM_{10} (µg/m^3; 20 m grid resolution), for Southwark area, from modelled 2019 data. (The London Mayor's Office has committed to levels of PM_{10} less than 40 µg/m^3 by 2030; indicated by map legend arrow.)
Source: GLA 2023, London Atmospheric Emissions Inventory 2019 (2023 revision)

Although there are geographic differences in air pollution levels in Southwark, the whole borough was designated an Air Quality Management Area in 2023. These are implemented in places where national air quality improvement objectives are at risk.

Southwark also has seven Air Quality Focus Areas, identified by the Greater London Authority (GLA). Each of these has specific objectives to reduce emissions or exposure to air pollution. Most of these areas are in the north-west of the borough.

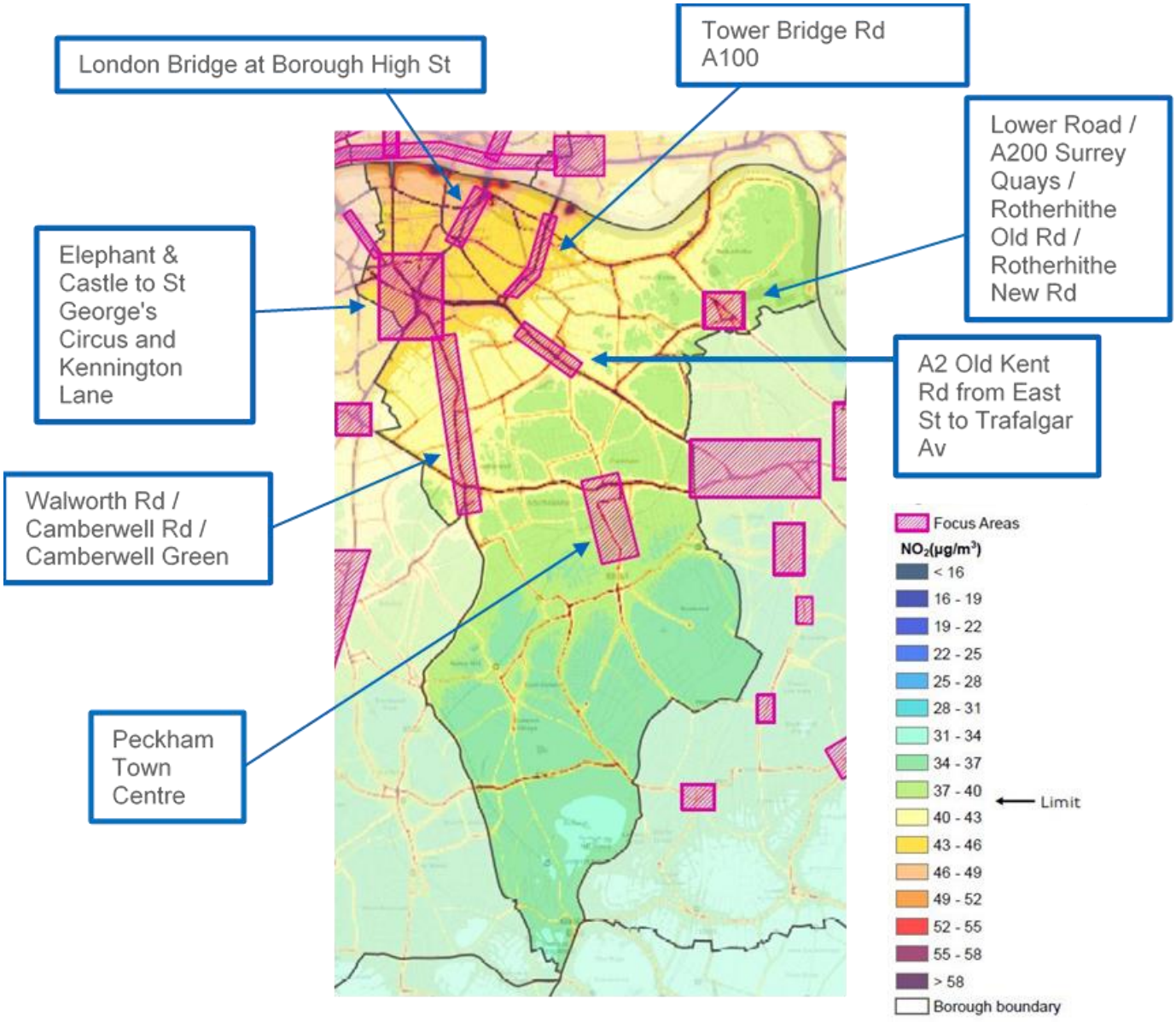


Figure 9: Southwark Air Quality Focus Areas. Map coloration indicates 2016 NO_2 levels.
Source: Southwark Council, 2021. Southwark Air Quality Annual Status Report 2020. GLA, 2022. Air Quality in Southwark: A Guide for Public Health Professionals.

AIR QUALITY & HEALTH

OVERVIEW

Poor air quality is a significant public health challenge that leads to ill health and premature death. It is thought to contribute to one in five deaths globally[vii], to be responsible for between 29,000 – 43,000 deaths annually in the UK, and to cost the NHS and social care at least £1.6 billion between 2017 and 2025 in England[viii].

Air quality affects us throughout our lives[ix], starting in the womb[x]. It can lead to low birth weight and premature birth[xi]. Children are especially vulnerable to the health effects of air pollution because they breathe faster and have organs and immune systems that are still developing[xii]. Air pollution leads to short term, acute health events like asthma attacks, as well as long term effects. Although it particularly affects children, older people, and those with certain long term conditions, it affects everyone, even at low levels[xiii].

In particular, air pollution increases the risk of cancer, respiratory and cardiovascular conditions, and stroke. There is also evidence that links air pollution with dementia, mental health conditions, and cognitive function[xiv].

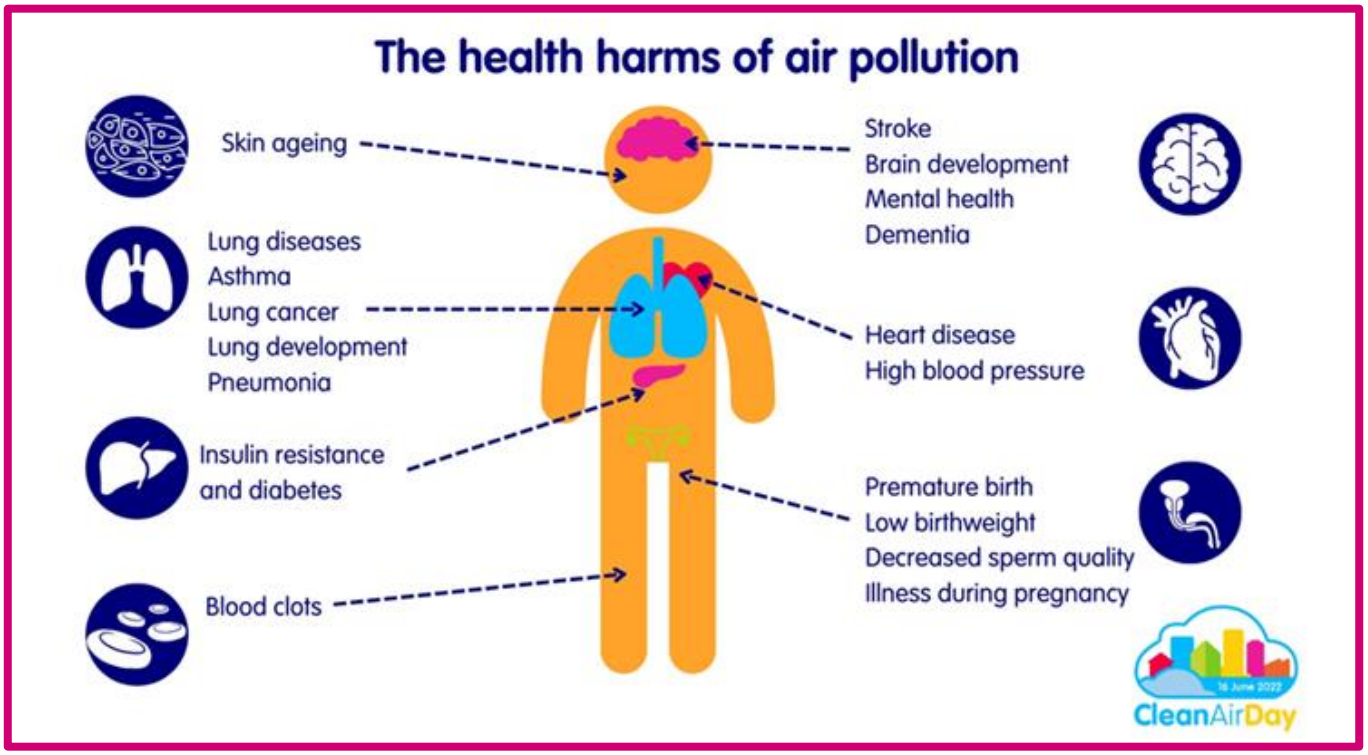


Figure 10: Health harms of air pollution
Source: Global Action Plan, 2022[xv]

Conversely, cleaner air extends lives[xvi] and the tools to clean it exist. If we tap into existing momentum from climate action, we have an opportunity to accelerate air quality progress.

AIR QUALITY & CLIMATE CHANGE

Air pollution and climate change are interlinked and interdependent. Wins for air quality are often wins for climate action too. That gives us more opportunities for effective action. Active travel is a great example of this, as is the shift away from fossil fuels. Movements away from gas boilers and polluting vehicles, and towards green streets and buildings, are all beneficial for both climate action and air quality.

On rarer occasions where action on climate has a neutral or negative impact on air quality, careful consideration is important. Now is the time to make sure current and future policy trends align both agendas. For example, as we make homes more energy efficient, ventilation is an important consideration, and as we shift towards electric vehicles, pollution from vehicle tyres and brakes is important to take into account.

Climate action provides us with an opportunity to accelerate air quality action by tapping into existing momentum. With thoughtful consideration, action on climate and air quality can go hand in hand, driving positive change in each[xvii].

AIR QUALITY & HEALTH IN SOUTHWARK

Air pollution is associated with short and long term health problems. There are significant numbers of residents in Southwark who have been diagnosed with long term conditions known to be related to poor air quality, such as diabetes and asthma. In addition, a significant number of Southwark residents experience multiple health conditions, which can increase their risk from air pollution[xviii].

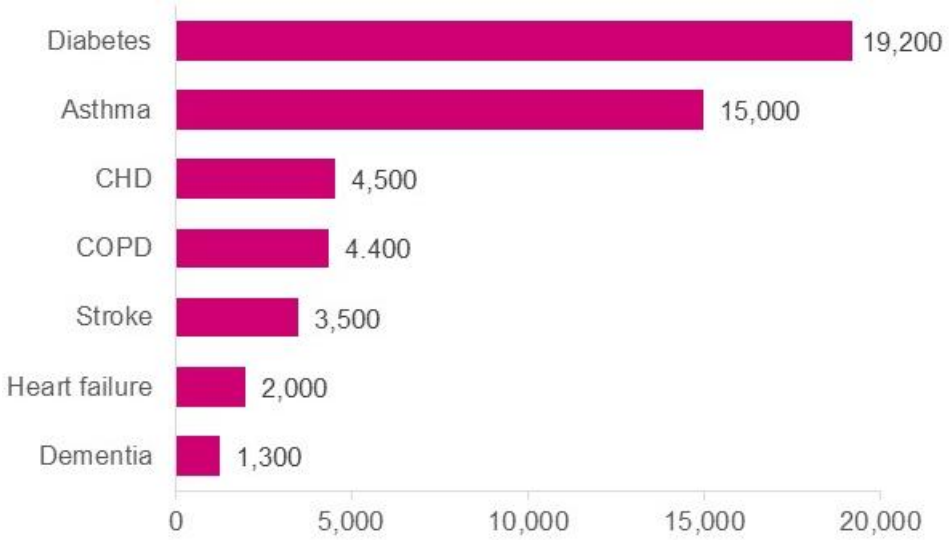


Figure 11: Number of registered Southwark GP patients with diagnosed conditions known to be affected by poor air quality, April 2023
Source: South East London Integrated Care System 2023, Comorbidities Dashboard

Modelling published in 2020 suggested that, if air pollution levels remained static, the local burden of disease would continue to grow between 2020 and 2024. There would be over 15,000 new cases of disease associated with NO_2 emissions, and more than 2,900 new cases of disease associated with $PM_{2.5}$ emissions[xix].

In 2019, almost one in ten Southwark deaths were related to air pollution[xx]. This was mostly due to $PM_{2.5}$, to which 7% of all deaths were attributed. Southwark is in the top third of London boroughs for air pollution mortality burden.

International (Global Burden of Disease) modelling estimates that 1 in 14 Southwark resident deaths in 2019 and 1 in 100 years lived with disability were attributable to air pollution. More specifically, air pollution was responsible for 12% of diabetes-related deaths and 10% of lung cancer and COPD-related deaths.

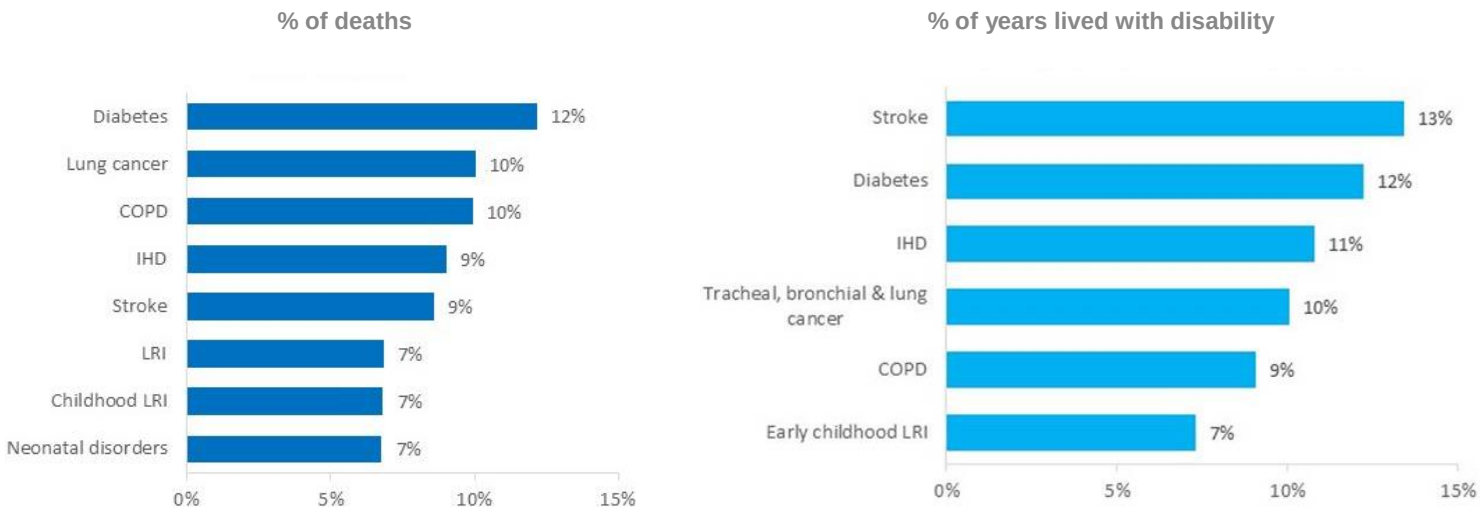


Figure 12: Percentage of 2019 Southwark residents' deaths (left) and years lived with disability (right) which were attributable to air pollution, for the most affected conditions. (Data for all ages unless otherwise specified). COPD = chronic obstructive pulmonary disease; IHD = ischaemic heart disease; LRI = lower respiratory infection; childhood = 5–14 yr; early childhood = 0–4 yr).
Source: Institute for Health Metrics and Evaluation 2023, GBD Compare data tool

HEALTH INEQUALITIES IN SOUTHWARK

The health effects of air pollution are experienced unequally[xxi]. They are influenced by: susceptibility – how likely you are to get sick; and exposure – how much polluted air you breathe in. That means children, older people, people with certain long term health conditions, and those spending more time in high pollution areas are disproportionately affected[xxii]. In turn, susceptibility and exposure are influenced by other wider determinants of health like income, employment, living conditions, and access to green space. It is crucial that interventions to improve air quality are equitable and do not exacerbate existing inequalities.

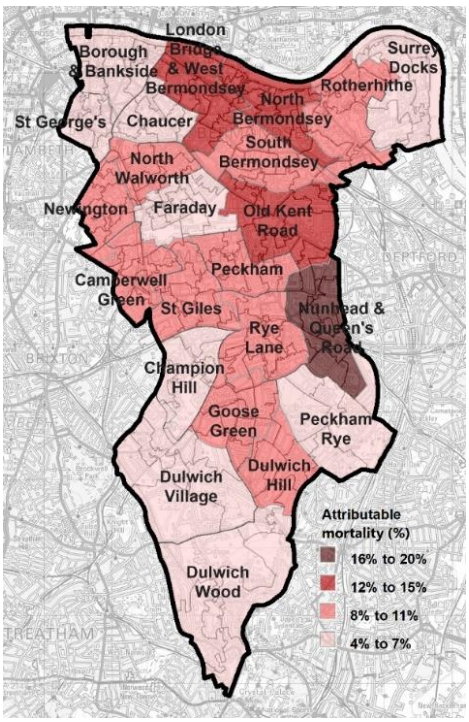
Low income groups are often at greater risk from indoor air pollution because they are more likely to live closer to outdoor pollution sources which leak indoors, live in poorer quality housing with smaller rooms and worse ventilation, and be at greater risk of underlying health conditions[xxiii]. These are the same people who typically contribute the least to air pollution, and have the least control over their own exposure to it.

Wood burning is an example of these differences between people who contribute to air pollution and those who are exposed to it. A major source of air pollution, wood burning is estimated to contribute around 17% of $PM_{2.5}$ levels in London's outdoor air[xxiv]. People who use wood burners are more likely to be wealthy, own a home, and not to rent, compared to people who do not use wood burners[xxv]. In the UK, a relatively small number of people depend on wood burning to heat their home. The most commonly cited reason for indoor burning is aesthetics.

There are racial and socioeconomic components to air quality health effects too. Exposure to air pollution is greater in communities with higher levels of deprivation or a higher proportion of people from a non-white ethnic background[xxvi]. London schools in higher deprivation areas and with a higher proportion of Black, Asian and ethnic minority pupils are exposed to higher levels of air pollution[xxvii]. Air pollution-related pregnancy outcomes are also worse for ethnic minorities and those living in areas of higher deprivation[xxviii].

Geographic differences in the health effects of air pollution are demonstrated by the mortality burden of Southwark wards. In 2019, air pollution attributable mortality was four times higher in the most affected ward compared with the least affected. About 1 in 5 (20-22%) Nunhead and Queens Road ward deaths were attributed to air pollution, which is about 50 extra deaths, versus about 1 in 20 (4-5%) deaths in St George's ward, which is two extra deaths. Although Nunhead and Queens Road residents are slightly older, more deprived, and in worse health, this is unlikely to explain the large mortality difference.

Min NO_2/$PM_{2.5}$ mortality burden (%)



Min years of life lost due to NO_2/$PM_{2.5}$

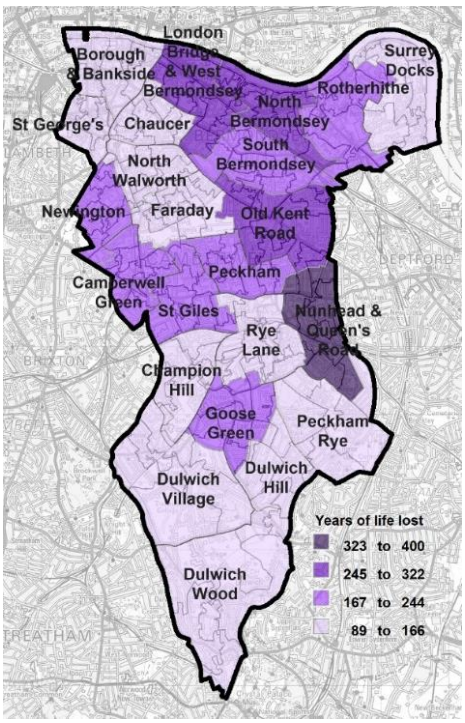
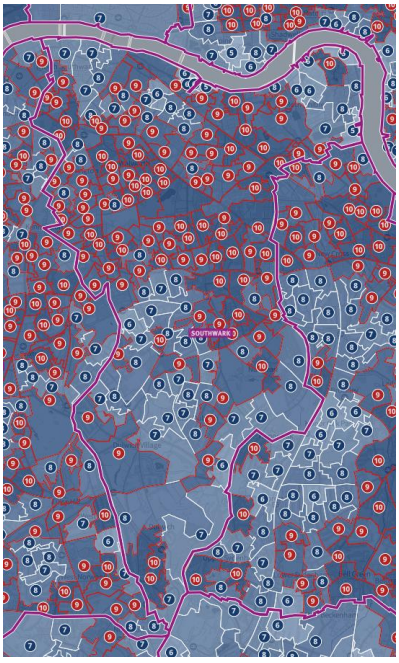


Figure 13: Air pollution mortality burden and life years lost calculated for 30+ yrs population. Min = minimum. Source: GLA, 2022. Air Quality in Southwark: A Guide for Public Health Professionals.

Furthermore, well over half (61%) of Southwark neighbourhoods fall within the most vulnerable fifth of English neighbourhoods for air pollution harm. This is based on modelled 2018 NO_2 and $PM_{2.5}$ concentrations, deprivation, and vulnerable populations and sites.



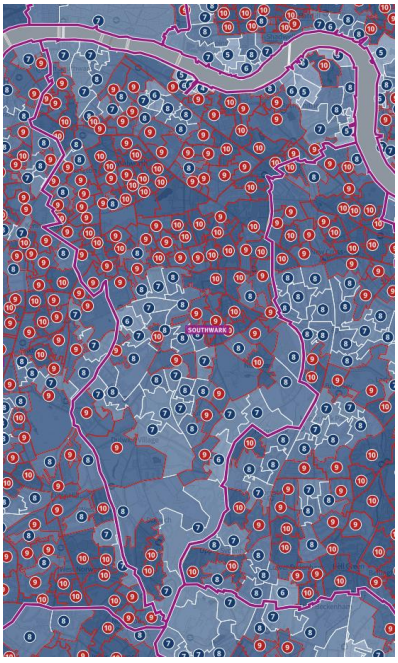


Figure 14: Vulnerability to NO_2 and $PM_{2.5}$. Neighbourhood = Lower Super Output Area. Score of 10 = most vulnerable 1/0th of England neighbourhoods; score of 9 = next most vulnerable 1/10th of England neighbourhoods.
Source: OHID, 2022. SHAPE Place Atlas.

COMMUNITY VIEWS ON AIR QUALITY

The Council recognises that people living and working in Southwark understand their needs best. We reach out to communities and local partners for feedback on strategies, help to explore certain topics further, and participation in research projects.

For example, the Council set up a Climate Change Citizens' Jury to involve residents in shaping climate action[xxix]. Air pollution was a component of this process. The jury recognised the air quality benefits of walking and sustainable travel, and asked the Council to do more. They also recognised that, often, people are not fully aware of the harm air pollution can cause.

This is a finding echoed across other forms of research. The airTEXT discovery research sought views on the airTEXT air pollution alert service. It was clear that awareness of air pollution was lacking and, even when it was present, taking action competed with other priorities such as needing a house within budget. These barriers to action are compounded by a common feeling that people cannot make a difference or have their voice heard.

Our partners' A Breath of Clean Air report[xxx] found that as people become more aware of air pollution, they are eager to engage with the issue. However, people struggle to find information and may lack confidence to take action.

ACTION TO IMPROVE AIR QUALITY

OVERVIEW

Air quality is recognised as a health concern internationally, nationally, regionally, and locally. In 2022, the United Nations (UN) declared clean air a human right[xxxi], and the World Health Organisation (WHO) has published Air Quality Guidelines, a set of evidence-based recommendations for air pollutant limit values.

The UK set its own less ambitious air quality targets in the Environment Act 2021, which are regulated by the Air Quality Standards Regulations. These include legally binding limits for concentrations of sulphur dioxide, nitrogen oxides, particulate matter, lead, benzene, carbon monoxide, and ozone in outdoor air. There is separate legislation for air pollutant emissions, which are set out in the National Emissions Ceiling Regulations 2018. This covers sulphur dioxide, oxides of nitrogen, ammonia, non-methane volatile organic compounds, and $PM_{2.5}$. In addition to this, the Government must create a national Air Quality Strategy for the UK, with a review due to be published in 2023[xxxii]. There is also a National Clean Air Strategy, published in 2019, which articulates the need for action and sets out key proposals to tackle indoor and outdoor air pollution.

There are a number of other agencies and frameworks that amplify the case for action on air pollution in the UK. The Public Health Outcomes Framework includes the number of deaths attributable to air pollution as part of its assessment of the state of public health. The UK Health Security Agency, which prevents and responds to health threats, listed air pollution in their set of priorities, while the latest annual Chief Medical Officer's report focused on the public health impacts of air pollution.

At the London level, much of the action on air pollution comes from the GLA and local authorities, alongside partners. Key documents include the Mayor's Environment Strategy (2018)[xxxiii], which sets an ambition that "London will have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities." The Mayor's Transport Strategy[xxxiv] sets out Transport for London's vision, The London Plan[xxxv] considers air quality throughout, and supplementary guidance[xxxvi] helps with the air quality of new developments.

IMPROVING AIR QUALITY IN SOUTHWARK

As set out in the Environment Act 1995, and through the Local Air Quality Management process, local authorities must review air quality in their areas. In places that are, or are likely to be, above legal air quality limits, local authorities need to declare an Air Quality Management Area and develop an Air Quality Action Plan to improve the situation. As of 2023, all of Southwark is an Air Quality Management Area[xxxvii].

Air quality features in many of Southwark's local strategies, projects, and plans, and underpins the key principles – fairer, greener, safer - set out in the Council Delivery Plan[xxxviii]. From the Climate Change Strategy[xxxix], Movement Plan[xl], and emerging Streets for People Strategy to the Nature Action Plan[xli], and Southwark Plan[xlii], the mitigation of air pollution has crossovers with, and is integrated into, many existing policies and projects. The South East London Integrated Care System, of which Southwark Council is a part, also includes a section on air quality in their Green Plan[xliii].

The bulk of the Council's work on air quality is set out in the recently published Air Quality Action Plan 2023 – 2027[xliv]. The next section of this report is based on the themes in the action plan:

- monitoring air quality;
- developments and buildings;
- cleaner transport;
- schools, health services, and communities;
- awareness raising;
- inspiring and influencing; and
- indoor air pollution.

Monitoring Air Quality

"***Until you know what's happening around, you can't make a change***."

Respondent, Southwark airTEXT Air Quality Discovery

Southwark Council monitors air quality in a number of ways. The most robust of these are six continuous Air Quality Monitoring Stations that measure NO_2, PM_{10}, $PM_{2.5}$ and, in Elephant and Castle, also ozone. Southwark also measures NO_2 with diffusion tubes located across the borough, and is part of the Breathe London network of air pollution sensors.

Expansion of air quality monitoring in Southwark

Project: Ongoing air quality monitoring

Objective: To review and assess Southwark's air quality

Overview: Before 2019, Southwark Council operated two air quality monitoring stations (AQMS) at Old Kent Road and Elephant and Castle. For a more accurate representation of air quality in Southwark, coverage was increased to six sites. The newer sites are on Tower Bridge Road, Vicarage Grove, South Circular Road, and Lower Road.

The monitoring stations all measure NO_2, PM_{10}, and $PM_{2.5}$. The Elephant and Castle AQMS also monitors ozone. The data from these stations can be found on the London Air Quality Network website. The data is also reported in the Defra statutory Air Quality Annual Summary Report, alongside a narrative on Southwark's progress on the Air Quality Action Plan.

Southwark Council also monitors air quality with 86 NO_2 diffusion tubes and a network of low-cost sensors. The data from these is only indicative, but helps to highlight air pollution hotspots where interventions could be targeted.

Paul Newman, Team Leader in Southwark Council's Environmental Protection Team said, *"Increasing the number of monitoring locations in Southwark has provided better quality data, and helped us to target air quality project resources towards parts of the borough with the greatest need to improve air quality."*

Developments & Buildings

"We don't have a garden so we go to the local park to get fresh air […] It would be nice if there were more."

Respondent, Southwark airTEXT Air Quality Discovery

The Council plays an important role in constructing, demolishing, retrofitting, and maintaining buildings. These processes can create air pollution in the form of dust and other particulate matter, as well as emissions from on-site machinery.

The Southwark Plan 2022 sets out how air quality should be tackled through the borough's planning system. The aim is for developments to meet or exceed air quality neutral standards to ensure they mitigate against poor air quality due to construction and operation of the buildings. To deliver this, Southwark is implementing the GLA Air Quality Positive and Air Quality Neutral London planning guidance, and is developing supplementary planning documents to support the implementation of these policies.

In terms of construction, when the Council delivers new build homes, contractor proposals are reviewed to consider emissions and air quality on sites, in line with Southwark's guidance and the London Plan. The main part of this involves ensuring on-site requirements are in line with building regulations and other statutory requirements like the Non-Road Mobile Machinery Low Emission Zone.

Once constructed, buildings continue to affect air quality due to emissions from heating and cooking. Southwark Council is aware of our offices' impact on greenhouse gas emissions and monitors our carbon footprint. A number of partner organisations are developing a tool to take this a step further and record not only carbon, but also air quality emissions from organisations, as outlined in the case study below.

Recording air quality emissions from buildings

Project: Air quality footprint tool development and testing

Objective: To develop a framework for company reporting of emissions relevant to air pollution, alongside existing carbon reporting, and to test the tools developed.

Overview: Organisational carbon measurement and reporting is common, but there are no systems in place to allow the same assessments of air quality, even though most combustion sources contribute to both air pollution and carbon emissions. Environment consultancy, Ricardo, reviewed the existing carbon reporting systems and developed tools consistent with these methods to enable organisations to record their air quality emissions. Southwark Council took part in a trial of the tools and is supporting Ricardo to launch them publicly.

Partners: Ricardo, Impact on Urban Health, Costain, TP Bennett, and Guys and St Thomas NHS Foundation Trust

During a business engagement survey conducted by Ricardo, 86% of businesses said that air quality is either 'very' or 'extremely' important as an environmental health concern.

Cleaner Transport

"Air quality is a big issue, especially with most of the pathways being located directly next to the road. Maybe planting more greenery between the pedestrian pathways and the road could make a difference too."

Respondent, Southwark Climate Change Citizens' Jury

Transport is the main source of air pollution in Southwark. As a result, it is an important area to address, especially given the strong co-benefits with climate action. The Council's priority is to reduce traffic, stemming from the movement of people and goods. In turn, this reduces vehicle emissions. The Council does this by encouraging active travel and public transport among those who are able to use it. Active travel also benefits residents' mental and physical health, and is an important part of climate action.

The Council has supported active travel by developing infrastructure that makes it easier, safer, and more enjoyable to choose these options. For example, we implemented various street improvements, created new cycle routes, introduced traffic reduction schemes, developed walking maps, and improved walking routes, including by widening pavements and planting along streets[xlv]. We engaged with communities on interventions like Healthy Streets[xlvi], and regularly speak to stakeholders via forums like the Walking Joint Stakeholder Group. We are also keen to make the most of different forms of transport like shared mobility services, and bicycle and e-scooter hire, alongside appropriate regulation.

Other measures Southwark has introduced include Low Traffic Neighbourhoods, emission-based vehicle parking charges, and a new fleet procurement policy that ensures diesel is a last resort. We are also exploring

novel transport options like river freight coupled with more sustainable last-mile deliveries[xlvii]. A shift to electric vehicles may also be important in the context of climate change, but it is also important to recognise that, while tailpipe emissions are reduced, these vehicles still contribute to particulate pollution.

Southwark has also benefitted from London-wide measures like the Ultra Low Emission Zone, and the trial e-scooter rental scheme. We also have free online cycle skills courses, and Quietway routes that help cyclists travel on quieter streets.

Supporting businesses to switch to clean, healthier deliveries

Project: Bikes for Business

Objective: To support businesses to switch from using traditional, more polluting delivery methods - like vans - to cargo bikes.

Overview: The movement of goods and services is a major contributor to air pollution in cities, and online parcel services are projected to exponentially increase. We, at Impact on Urban Health, have been learning how to shift cargo bikes into the mainstream by supporting businesses to make the switch. There are barriers for businesses who want to make the switch to cargo bikes so we have recommendations for how local authorities and policy makers can play a role in supporting businesses. Those insights and recommendations will be published later this year.

Partners: Team London Bridge and MP Smarter Travel

Ben Pearce, Portfolio Manager at Impact on Urban Health said "*Cargo bikes are a cleaner, healthier, more efficient, and cheaper way to transport goods and services around cities. Not only do they help improve air quality in cities, but they're good for businesses too*."

Schools, Health Services & Communities

"What we are asking vulnerable groups to do should still allow them to live their full and free life."

Rob Day, Asthma and Lung UK

Although air pollution affects everyone, it does not affect everyone equally. That is why some of the Council's work has targeted specific places and communities like schools, health services, and residents from ethnic minority backgrounds.

Following the London-based air quality audit, Southwark Council introduced its own scheme. Schools were offered a free audit and funds to implement recommendations such as school streets, green screening, and facilities for scooter and cycle parking. We also offered schools in the worst air quality areas, as well as care homes, funding to install air filter units to clean the air in classrooms or common areas. An evaluation for this air filter pilot is underway.

Separately, a small number of Southwark schools are participating in the Schools' Air quality Monitoring for Health and Education project (SAMHE). Through this project, schools are given air quality monitoring equipment which is used to create a dataset to help researchers better understand indoor air quality[xlviii].

Southwark also participates in the GLA's School Superzones initiative, which includes air quality as one of its central aims. In one of the schools, children co-designed walking maps, and attended a series of fix-a-bike workshops intended to boost pupils' cycling confidence. In the second school, students are having workshops with the Council's Highways team. Their aim is to plan potential traffic and anti-idling measures outside their school.

Neighbourhood-based air quality interventions have also been an important area of work for the Council. For example, as a high-pollution, low-income area, Walworth was chosen as a setting for a Low Emission Neighbourhood (LEN). The aim of the LEN is to reduce air pollution and encourage active travel.

Campaigning for better air quality in Southwark

Project: Live and Breathe

Objective: To campaign for better air quality in Lambeth and Southwark with musician, Love Ssega.

Overview: Young people and those from Black, Asian and ethnic minority backgrounds are among the groups most disproportionately affected by air pollution. The Live and Breathe campaign brings together young people, community artists, and cultural organisations to give people a platform to demand clean air.

During the campaign, we learned that art, sport, music, and the theme of community pride are all excellent ways to engage younger audiences on the issue of air pollution. Community workshops brought new audiences directly into the campaign and significantly shifted knowledge, beliefs, and engagement on the issue of air pollution, as well as on air pollution's disproportionate effect on people of colour.

Partners: Purpose and Love Ssega

Musician, artist and campaigner, Love Ssega, said *"It's shameful and unacceptable that young people, and specifically people from minoritised ethnicities, are disproportionately affected by air pollution in cities like London. Our LIVE + BREATHE campaign makes the links between air pollution and social justice clear. We're giving young people a chance to have their voices heard on this crucial public health issue."*

Awareness Raising

"Climate change is higher on the agenda, but air pollution is a threat here and now."

Rupert George, UK100

Despite being one of the biggest environmental threats to health, many people do not fully understand the extent of the harm posed by air pollution, or how to protect themselves from it. Southwark Council is keen to increase public awareness through communications, campaigns, and other forms of engagement. The aim is to increase people's understanding of the health risks, as well as how they can protect themselves and others, and reduce emissions. As part of this, the Council commissioned a piece of research into residents' views of air pollution in order to help us deliver tailored, effective messaging.

To raise awareness and support those at highest risk, the Council is exploring communication channels between the Council and health practitioners. We are also investigating working with Southwark's libraries to share information more widely.

Supporting people to access air quality information

Project: airTEXT

Objective: To improve the delivery and use of air quality information and associated health messages, and to reach vulnerable groups and communities who are most susceptible to the adverse effects of poor air quality.

Overview: Studies have shown that airTEXT air quality alerts have low reach and penetration among people vulnerable to the health effects of poor air quality, particularly among Black, Asian and ethnic minority

communities. A discovery phase project indicated that co-designing the service with the target communities and relaunching could help to reach more of those at greatest risk and improve health outcomes. The redevelopment phase of the project seeks to conduct community research followed by user acceptance testing on a redesigned interface of the airTEXT service.

Partners: Lambeth Council, Impact on Urban Health, Guys and St Thomas NHS Foundation Trust, Cambridge Environmental Research Consultants, Rooted by Design, dxw, and Defra

During the discovery phase of the project, research partners found that residents who seemed more isolated demonstrated a greater need for support to find and understand information, and felt there wasn't enough information getting to them.

Inspiring & Influencing

"Feel like my voice won't make a difference."

Joseph, survey respondent

As valuable as local action can be, air pollution, at its core, also needs national action. It is compounded by systemic issues like poverty and unemployment, and is transboundary in nature. For the biggest improvements, there must be action locally, nationally, and globally.

The Council sees it as part of our role to influence and inspire positive change. Sometimes this is by responding to consultations and taking part in research. Other times, it is by contributing to the evidence base by piloting projects others can learn from or adopt. For example, in 2022, the Council piloted putting smart home sensors in local estates to test their use in determining a property's risk of condensation mould. We also tested best practice in reducing pollution from demolition and construction alongside design consultants, Arup, on the Tustin Estate.

Inspiration and influence work the other way around too. We want to be inspired by the communities we work in, and by other stakeholders working on air pollution. As a result, the Council commissions extensive community research and prioritises partnership working. We also coordinate networks like the London Healthy Places Network and London Public Health and Housing Network which bring together researchers and practitioners to explore topics like air quality and sustainability.

Air pollution and construction

Project: Air quality and emissions in construction

Objective: To understand what people who work in and with the construction industry think about air pollution, and to hear their recommendations for ways to reduce air pollution from construction.

Overview: Construction is a major source of air pollution in cities. The project team surveyed people working in and with the industry – including regulators, suppliers, and developers – to better understand attitudes toward air pollution and, ultimately, develop practical recommendations to improve air quality. The next phase of this project will involve working with Southwark Council to enhance compliance with existing regulations related to air pollution from construction.

Attitudes towards air pollution within the sector reflect the scale of this public health crisis: 97% of people surveyed said that air quality is an "extremely or very important environmental health concern". We also found that the construction industry wants clear advice and regulation from policymakers to provide clarity and a level playing field.

Partners: Centre for Low Emission Construction

Daniel Marsh, Programme Manager at the Centre for Low Emission Construction said, *"The construction industry contributes significantly to air pollution, which affects the health of both on-site workers and the people living in cities. This important research highlights the need for all stakeholders to come together and tackle the impacts of construction activity and machine emissions on health and the environment."*

Indoor Air Quality

"I would also like to see the creation/introduction of more green, eco-friendly buildings. This would mean […] good indoor environmental air quality, use of materials that are non-toxic, ethical and sustainable, consideration of the environment in design, construction and operation, [and] consideration of the quality of life of occupants…"

Respondent, Southwark Climate Change Citizens' Jury

Indoor air quality is becoming a priority for the Council because people spend a large proportion of their time inside. The relationship between indoor and outdoor air pollution is fluid, with each influencing the other. That means many of the interventions mentioned previously will benefit indoor environments too. There are also pollutants released indoors - for example, from burning wood, cooking, and cleaning - which are, in turn, influenced by regulations, education, and human behaviour.

Damp and mould is one such source of poor indoor air quality. Last year, the Council revamped its approach to damp and mould, guided by the Housing Ombudsman report on the topic[xlix]. The Council created a dedicated team to inspect every report of damp in our housing stock, and to provide meaningful advice and remedies without blame, recognising the complex causes of damp and mould. Ventilation is a key way to manage damp, mould, and indoor air pollutants. As important net zero ambitions drive the Council's upcoming retrofitting projects, balancing ventilation with energy efficiency measures will be an important consideration.

Airborne pathogens can also be considered a component of indoor air quality. Well ventilated spaces and air cleaning technology can help. To test this technology in care home settings, the Council offered funding to install air filter units in common areas. An evaluation is due to take place this year.

Domestic wood burning is another source of air pollution that is of interest to the Council due to its significant impact on air quality. The Council has some ability to address wood burning, for example through smoke control areas where fines can be imposed.

Reducing air pollution from wood burning

Project: Air pollution and wood burning research

Objective: To work with data analytics and market research agencies to explore how to reduce health harms caused by wood burning. We want to understand motivations and behaviour around burning wood, as well as the most effective ways to communicate about wood burning. The intention is to reduce new take-up of wood burning and talk to current burners about burning less.

Overview: Wood burning has become the primary source of fine particulate matter – the most damaging of all air pollutants – in cities like London. Research shows that, of people who burn wood, most burn for aesthetic reasons rather than out of necessity. This has severe implications for public health so we want to know the best ways to communicate with people about the health harms of burning in cities.

The work showed that both non-burners and burners have low awareness of the polluting effect of burning wood. Both groups are keen to learn more if they are engaged in the right way. There is potential to reduce wood burning if the link between reduced domestic burning and improved air quality is clearly communicated. These insights are being finalised into a toolkit.

Partners: Kantar and Global Action Plan

Quote from someone who burns wood who was speaking at a focus group: *"The first thing I'm going to do after this group is Google 'burning' and 'pollution' and start my own research! All of these ads need something that tells you 'find out more' or 'if you're worried, go here for the facts'…"*

RECOMMENDATIONS

Action on air quality involves increasing awareness of the issue, effects, and potential action; reducing exposure to unclean air; and reducing the sources of unclean air. Some interventions should be targeted towards those most at risk.

Any intervention should be founded on three key principles. First, health and health inequalities should be at the forefront of decisions. Often those exposed to the most air pollution produce the least, and have the least ability to reduce their exposure to it. Second, we must listen to communities about their experiences and concerns around air quality. Finally, we should work in partnership, sharing skills to achieve better outcomes faster.

While tackling poor air quality requires systemic change, there are also things we can do as individuals, businesses, organisations, and stakeholders working on air pollution, as outlined below.

INDIVIDUALS

As individuals, we can play a role to address air quality concerns. We can take action to reduce our own exposure to poor quality air, reduce the amount we each contribute to it, and increase our understanding of air quality and its health effects.

Everyone's circumstances are different, which affects our capacity to take action and adjust our behaviour. Some people are less able to move away from busy streets, or reduce car use, for example. That is why individual action, while important, can only go so far. The key drivers to address air quality must be systemic, addressing underlying issues like poverty, employment, and housing. Below are some ideas of how to get started on individual action.

Ten tips for individuals

1. **Reduce your car use**. Swap to more active travel journeys if you can.
2. **Don't idle your engine**, especially around schools, care homes, and hospitals.
3. **Choose clean delivery** options, and click and collect, when shopping.
4. **Use clean fuels** to heat your home and cook. Avoid wood burning if you can.
5. **Sign up for airTEXT** alerts to know when air pollution levels are high. Adjust your behaviour to contribute less to air pollution on these days. If you are particularly vulnerable to the health effects of air pollution, you may wish to avoid high pollution areas on these days.
6. **Learn more about air quality**, improving it, and protecting yourself and others. Find out more at Clean Air Hub.
7. **Use your voice.** Speak to stakeholders in your community – like schools and employers - about air quality improvements. Respond to government consultations.
8. **Take collective action** by joining air quality movements like Clean Air Day.
9. **Consider the products you use in your home** such as air fresheners, candles, and cleaning products**.** Try to reduce use or use in well-ventilated rooms to improve indoor air quality.
10. **Consider the materials you use when renovating your home.** Try to look for low VOC paint, furniture, or flooring, and keep rooms well ventilated to reduce the health impacts of VOCs like formaldehyde.

BUSINESSES & ORGANISATIONS

Businesses and organisations also have a role to play in improving air quality. They can support staff to choose options that are good for air quality, opt for measures that improve air quality in work spaces, and make wider decisions that reduce their contribution to air pollution.

Many organisations already take climate change seriously. Given the crossover with air quality, linking these agendas can be a quick win. Below are some actions businesses and organisations may wish to consider to improve air quality in work places and practices.

Ten tips for businesses and organisations

1. **Make your organisation's transport and deliveries greener.** Consider using cargo bikes.
2. **Don't idle vehicles**, and encourage anyone visiting your organisation - especially if it is a school, health service, or care home - to do the same.
3. **Make it easier for staff to travel by foot, bike, or public transport.** Consider bike buying schemes, cycle storage facilities, and flexible work hours.
4. **Use clean fuels** to heat work spaces.
5. **Monitor your organisation's air quality emissions** alongside greenhouse gas emissions. See this air pollution reporting pilot.
6. **Support staff to learn more about air quality.** Find out more at Clean Air Hub.
7. **Make the air in work places cleaner.** Maintain ventilation and air cleaning systems. Take steps to eliminate or minimise indoor air pollution sources like damp and mould, and choose lower VOC cleaning products and building materials. Consider home working environments too.
8. **Consider the air pollution impact** of all work. Embed more clean air-friendly options where possible.
9. **Inspire others by sharing examples of your good practice.** Consider partnerships to pilot innovative ideas, for example with Impact on Urban Health.
10. **Incorporate air quality into a workplace or wellbeing job role.**

WIDER STAKEHOLDERS

Learning from each other, contributing our own strengths, and working in partnerships is a great way to accelerate progress on air quality, as demonstrated by many of the case studies in this report. Below are some actions stakeholders working to improve air pollution, like the Council and others, may wish to consider.

Ten tips for stakeholders working on air pollution

1. **Integrate action on air pollution and climate.** Focus on actions that provide a win-win scenario for both. For example, encourage active travel and prioritise green spaces.
2. **Involve communities** in project planning and decision-making. Use culturally aligned human stories to engage and represent the community in any air quality information that is produced or shared.
3. **Ensure interventions do not reinforce existing inequalities** and sources of ill health.
4. **Target interventions** towards places where people who are more vulnerable to the health effects of air pollution spend their time, for example schools, health services, and care homes.
5. **Trial innovative pilot projects.** Share learnings and invite others to take on similar work. Engage with researchers to continue to build the evidence base, especially around indoor air quality.
6. **Enforce existing regulation** to ensure that policy translates into practice.
7. **Make use of available data and evidence** on air quality, for example LAQN, Breathe London, and airTEXT.
8. **Provide information about and raise awareness** of the health effects of air pollution, how to protect ourselves from it, and how to reduce sources.
9. **Pursue partnerships** to accelerate progress and share skills. Strengthen collaboration with local health partners.
10. **Focus on particulate matter emissions**, in particular, because NO_2 is trending down. Include interventions related to construction, commercial cooking, and domestic wood burning.

SUMMARY

Indoor and outdoor air quality are important health issues in Southwark. Although there have been significant improvements in recent years, air pollution levels are still extremely high. The social justice aspect of air pollution compounds its importance, while links with climate action offer opportunities to accelerate progress.

The Council and partners are well placed to drive change in this area through our work monitoring air pollution; raising awareness of the health effects and solutions; cleaning up our buildings, transport, and processes; working alongside communities; and inspiring change through pilot projects and partnerships.

While truly addressing air pollution and its systemic causes requires national and global action, there is much we can do as individuals, businesses, organisations, and stakeholders working on air quality. Indeed, it is clear from the case studies in this report that a great deal of important, innovative work is already happening in the borough. Now, as ever, there is a need to ensure that equity, community engagement, and strong partnerships continue to be central to our approach.

Find out more

- Southwark Council's Air Quality Joint Strategic Needs Assessment
- Southwark Council's Air Quality Action Plan 2023 – 2027
- Chief Medical Officer's annual report 2022: air pollution
- Air quality and emissions in construction
- Air pollution and climate change: two sides of the same coin

PROGRESS ON LAST YEAR'S ANNUAL PUBLIC HEALTH REPORT

Last year's Annual Public Health Report focused on the value of partnership working through the COVID-19 pandemic. The report made five key recommendations. Progress against them is summarised below.

Recommendation 1: Work more closely with residents to listen to their concerns about health and wellbeing, and work together to design and implement solutions. In order to make collaboration part of residents' everyday life, we should meet our residents in community venues such as mosques, churches, local shops and youth centres.

Progress:

- A community research project was commissioned, delivered by Social Finance and Centric. It focused on developing strategic approaches to building trusting relationships between health and wellbeing partners and local communities. Recommendations from this work have been fed into the health and care system via Partnership Southwark.
- Southwark Council's public health division recruited more community health ambassadors, creating a valuable feedback loop between local communities and health services. The network members are broadly representative of the residents of Southwark (around 70% from ethnic minority backgrounds). They are well connected in their communities, with over 80% involved in a VCS (Voluntary and Community Sector) organisation, and over 50% in a faith group.
- Other examples of work involving co-production involve workshops with men over 45 from ethnic minority backgrounds to inform the design and delivery of the men's healthy weight services, and the age-friendly borough project. For the latter, community engagement events (including visits to local community groups and a shopping centre) have been used to engage older residents in conversations about how the Council can make Southwark more 'age-friendly'.
- Partnership Southwark have a number of specific programmes of work that involve closely working with residents. For example, through 1,001 Days, a series of community workshops were held in local venues in Camberwell. Through the Age Well work stream, leg ulcer clinics were visited to speak to people and understand the support they are currently accessing.

Recommendation 2: Build on the excellent work of our COVID-19 Community Health Ambassadors to broaden their work across health and wellbeing. This will support a community-led approach to health improvement.

Progress:

- Since the beginning of the Community Health Ambassador programme in October 2020, the network has grown in both size and scope. Originally the Ambassador network focussed on COVID-19. Since then, the range of topics covered has widened significantly to include mental health, cost of living and financial wellbeing, healthy eating and healthy weight, healthy lifestyle support, wider vaccination programmes, and cancer awareness and screening.
- The network now has over 140 volunteer Ambassadors, many of whom support local events and activities, such as Southwark Warm Spaces, wellbeing kiosks in libraries and other public spaces, and public events organised by VCS and statutory sector partners.
- Recent developments include developing paid Ambassador roles that will offer an opportunity to develop their own interests and projects. There is also a wider offer to the network to support events that Ambassadors would like to design and deliver.
- Funding for the network is currently in place until March 2024.

Recommendation 3: Continue to support our schools, universities and care settings with a wider focus on health and wellbeing. For example, support schools with promoting healthy eating and support care homes with seasonal vaccination programmes.

Progress:

Schools: Strengthened the relationships with schools during COVID-19, working with the education team to:

- Support school leaders to improve uptake of school aged immunisations
- Offer support and guidance to facilitate communications with parents
- Provide logistical support to the immunisation teams, including during the 2022 surge Polio vaccination campaign and the 2022/23 surge in Strep A cases.

Universities: Supported universities through student engagement and information around immunisation, and raising awareness of Monkeypox during the UK outbreak in summer 2022.

Adult Social Care: Worked with providers and system partners to improve the health and wellbeing of staff and residents by:

- Providing funding for care homes for air filter units to improve indoor air quality and reduce the spread of infectious disease.
- Providing resources and information to manage extremes of weather and keep staff and residents safe.
- Promoting annual flu vaccinations and COVID-19 boosters through in-person visits.
- Offering free support services to staff for mental health, cost of living concerns, and stop smoking advice.

Recommendation 4: Build on the existing relationships that have strengthened over the pandemic, with partners such as primary care and local hospitals, to deliver NHS services in innovative ways to maximise uptake, especially amongst Black, Asian and Minority Ethnic groups and those living in areas of social and economic disadvantage.

Progress:

- Relationships with primary care continue to strengthen. Examples include additional funding to deliver NHS Health Checks. There has been a particular focus on reducing inequalities from COVID-19, recovering from the pandemic and long-COVID, and improving uptake amongst ethnic minority communities.
- Public Health are working closely with GPs on the Digital Health Check pilot project that is currently being evaluated by Bristol University as part of a National Institutes for Health Research (NIHR) bid.

Recommendation 5: Support voluntary and community sector organisations to always have a seat at the table and to play a principal role where statutory services have in the past traditionally led.

Progress:

- Health Ambassadors support a wide range of public events organised by VCS and statutory sector partners.
- Partnership Southwark funded VCS sector representatives to be heavily involved in their work, including by representation at the Strategic Board and Partnership Executive.
- Partnership Southwark are developing a pilot grant scheme with Community Southwark and United St Saviours to tackle inequalities.

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