Joint Strategic Needs Assessment: Air Quality

623C68

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Camden

Contents

Introduction

Air pollution and air quality

Air pollution is the largest environmental risk for health, globally and in London. Exposure to air pollution is responsible for many thousands of premature deaths, and causes long-term health conditions and degraded quality of life for many thousands more. Additionally, air pollution incurs a financial burden of more than £20bn every year for the UK through health and social care costs and the economic impact of pollution-related productivity losses and staff sickness.(1)

Air pollution can exist wherever we are, outdoors and inside our homes, workplaces, schools and other spaces.

Air quality refers to the amount of pollution in the air that we breathe, and poor air quality means that the air contains an amount of air pollution that is (or has the potential to be) harmful for human health or the environment.

Types of air pollution in Camden

There are four main types of air pollution in Camden that we are most concerned about. These are listed below and are also discussed in more detail later in this document:

- **Nitrogen oxides (NOx)** – invisible gas produced by the combustion of gas and liquid fuels
- **Particulate matter (PM)** – airborne particles of varying sizes and composition, from a range of sources
- **Ozone (O_3)** – invisible gas produced by the reaction of NOx and VOC in sunlight
- **Volatile organic compounds (VOC)** – airborne chemicals from a range of sources

Introduction (continued)

Impact of air pollution in Camden

Key impacts	▪ Between 1,780 and 1,960 years of life are lost each year among Camden residents as a result of air pollution, which is equivalent to between 99 and 109 premature deaths per year.[2]
Inequalities	▪ The 20% most deprived areas in London had 8.6% more PM and 8.1% more NOx pollution compared to the 20% least deprived areas [3]. Reducing air pollution in the most polluted areas will help close this gap. ▪ Children (and unborn foetuses), people with long-term respiratory or circulatory conditions, and older people are more vulnerable to the impacts of poor air quality.[4] ▪ Asthma prevalence is much higher for Asian and Black children than for white children in Camden.
Key policies	▪ Camden Clean Air Action Plan 2023 - 2026, London Environment Strategy (2018), UK Clean Air Strategy (2019)

Air pollution and health inequalities

Air pollution can affect anyone, at any stage in our lives, even if we do not notice it at the time. However, it is especially damaging for children and young people (CYP), older people, and people with existing health conditions.

Furthermore, air quality tends to be worse in lower-income neighbourhoods and in communities with a higher proportion of Black, Asian and minority ethnic individuals. In this way, air pollution has a disproportionate impact upon people and causes and worsens health inequalities and social injustice.

There is no safe level of exposure to air pollution, and Camden was the first local authority to adopt the ambitious World Health Organization air quality standards as part of its commitment to realise the community vision for a borough where **no person experiences ill health because of the air they breathe**.

The health impacts of poor air quality

Prenatal
- Preterm birth
- Low birth weight
- Infant mortality
- Damage to brain development

Childhood
- Asthma development
- Worsening asthma
- Reduced lung function
- Damage to brain development
- Increased risk of heart and lung disease in later life

Adulthood
- Stroke
- Heart attacks and heart disease
- Asthma attacks
- Lung disease (COPD, Cancer)
- Diabetes
- Early death

Later life
- *Adult health impacts plus:*
- Dementia
- Greater decline in lung function
- Heart failure

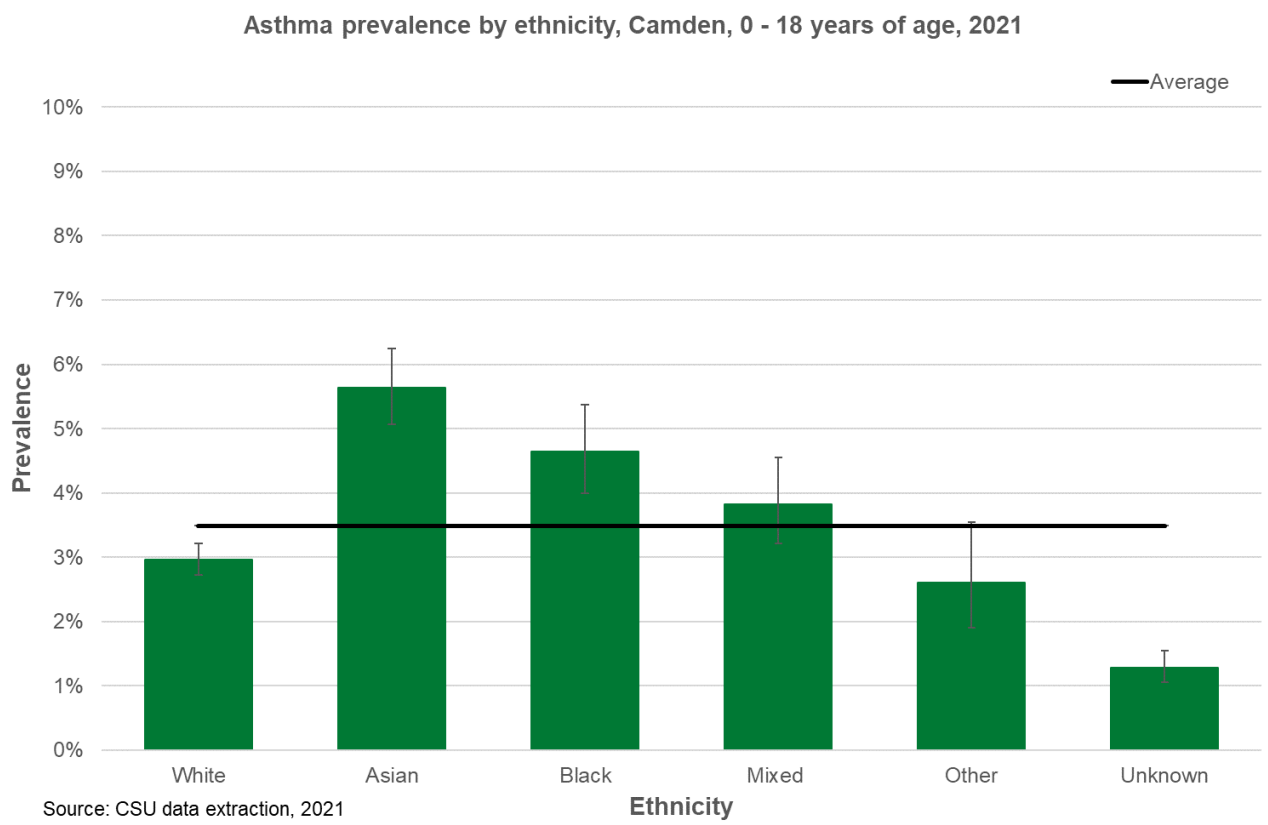
Source: Public Health England, **Health Matters: Air Pollution**, 2018

Around 48 hospital admissions arising from nitrogen dioxide pollution and between 99 and 109 premature deaths attributable to nitrogen dioxide and particulates[(2)] in Camden in 2019

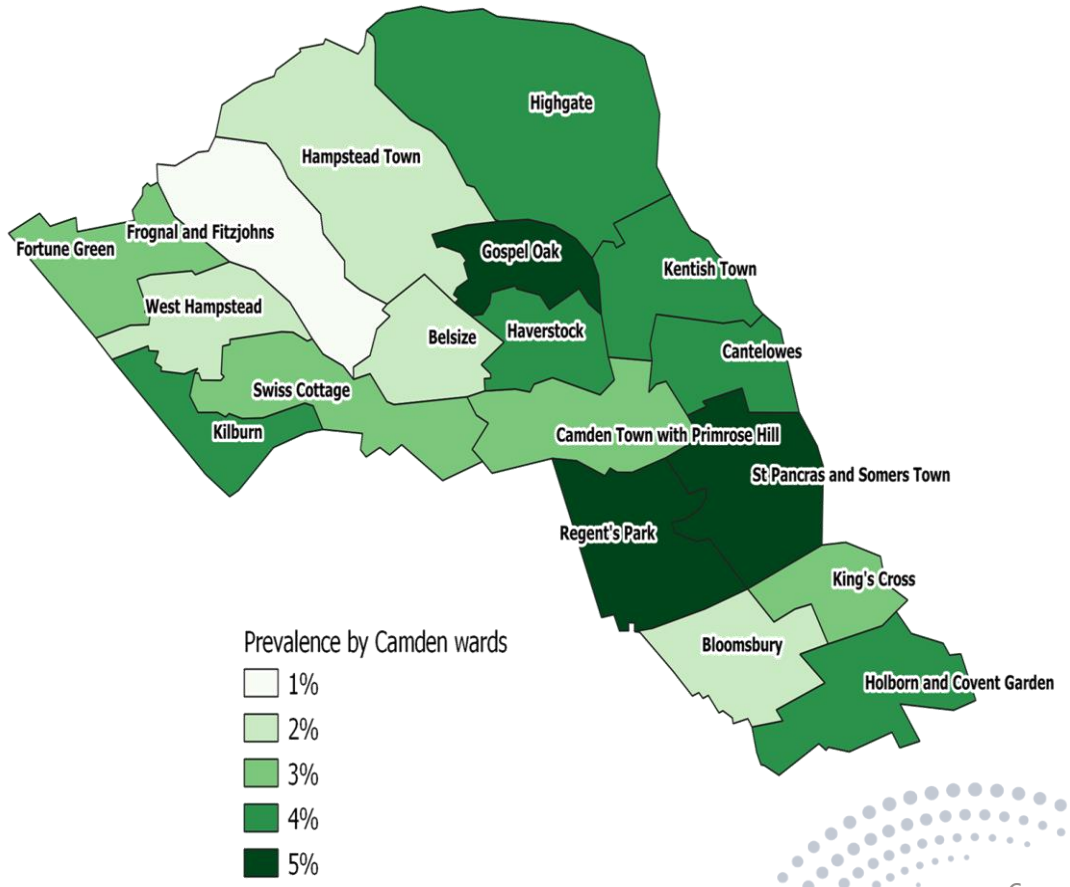
Asthma prevalence in Camden

Asthma is just one of many health conditions linked to air pollution exposure, however there are more data available for asthma diagnoses and so it is easier to examine the distribution and prevalence across a population and between demographic groups to explore how air pollution is contributing to health inequalities.

Camden public health show that asthma prevalence in children and young people is higher for Asian, Black and mixed ethnicity than for white ethnicity. There is also a coincidence between CYP asthma prevalence and indices of multiple deprivation (IMD).



Source: CSU data extraction, 2021



Policy context: national and regional

The Air Quality Regulations 2010 set out the maximum concentrations of pollutants (the "limit values").

The UK Government Clean Air Strategy 2019 sets out the UK's air quality objectives and actions at national level. This includes legislation to reduce emissions from industry, transport, farming households, for example switching electricity generation from fossil fuels to cleaner sources such as wind and solar, phasing out petrol and diesel vehicles, regulating to minimise pollution from fertiliser use on farms and phasing out gas boilers.

The **Environment Improvement Plan (EIP) 2023** is first revision of the government's 25 Year Environment Plan and sets out the delivery plan and priorities for improving air quality in the UK, including expectations for local authorities, reducing emissions from farming and permitted activities, supporting the transition to less polluting vehicles, tackling emissions from domestic solid fuel burning, and improving communication with the public.

The **Air Quality Strategy for England** sets out local authorities' powers, responsibilities, and further actions the government expects them to take. This includes having regard to the national Clean Air Strategy, monitoring air quality, and taking action to pre-emptively prevent pollution exceeding legal limits.

The **Mayor of London's Environment Strategy** sets out what the mayor will do to reduce air pollution, for example ensuring that all Transport for London buses will be zero emission by 2037, and accelerating the uptake of cleaner vehicles in London by bringing forward and expanding the Ultra-Low Emissions Zone (the ULEZ). It also sets out support for London Boroughs in improving air quality. Additional detail is presented in the **Mayor's Transport Strategy**.

Policy context: Camden

In January 2018, Camden became the first local authority to adopt the World Health Organization's 2005 air quality guideline for particulate matter air pollution, committing to achieve this target throughout the borough by 2030. When the WHO revised its guideline limits for NO_2 and PM in September 2021, Camden once again became the first local authority to commit to meeting the more lower pollution targets borough-wide by 2034. These targets are significantly more stringent than the UK legal limits.

The **Camden Clean Air Strategy 2019 to 2034** sets out the long-term objectives for realising the community vision for a borough in which no person experiences ill health because of the air they breathe. An accompanying **Clean Air Action Plan**, currently covering 2023 – 2026 describes the actions that the Council will take over the next four years.

The **Camden Health and Wellbeing Strategy 2022-2030** describes the principles, ambitions and priorities for improving health and tackling health inequalities in the borough, including the importance of clean air and the Council's air quality programme for addressing childhood asthma.

Pollutant	UK legal limit (annual mean)	Camden target / WHO limit (annual mean)
NO_2	40 µg/m³	10 µg/m³ (by 2034)
PM_{10}	40 µg/m³	15 µg/m³ (by 2034)
$PM_{2.5}$	10 µg/m³ (by 2040)	5 µg/m³ (by 2034)

Note: Air pollution is typically expressed in micrograms per cubic metre of air: µg/m³

Policy context: Camden

Camden's approach for reducing the health burden of air pollution in Camden includes three distinct strands.

- **Improving outdoor air quality** – by reducing the emission of air pollutants in Camden and working to improve regional and national policy on air quality.

  Skip to **Improving outdoor air quality: what Camden is doing**

- **Improving indoor air quality** – by working with businesses, schools, the healthcare sector, communities and others to promote actions to reduce the emission of air pollutants in indoor environments including workplaces, schools and households.

  Skip to **Improving indoor air quality: what Camden is doing**

- **Reducing population exposure to air pollution** – Camden's air quality programme also seeks to reduce or avoid exposure to air pollution where it is not possible to reduce emissions, and this includes activities to build public knowledge and awareness about the steps that can be taken to protect health.

  Skip to **Improving air quality: public awareness**

Outdoor air pollution: nitrogen oxides (NOx)

Nitrogen oxides (NOx) includes NO (nitric oxide) and NO_2 (nitrogen dioxide). NO_2 is more strongly linked to adverse health outcomes so efforts to improve air quality typically focus on that pollutant, and NO_2 and NOx are sometimes used interchangeably.

NO_2 is a respiratory irritant that causes inflammation of the lungs, so it is a particularly important factor in asthma and chronic obstructive pulmonary disease (COPD). NO_2 also affects the immune cells in the lungs, increasing the susceptibility to respiratory infections and allergens.[5]

NO_2 is produced as a by-product when fossil fuels are combusted, for example in vehicle and machine engines and in gas boilers and cooking appliances.

Concentrations of NO_2 are typically highest along busy roads, although roadside air quality in Camden has improved substantially due to regional and local policy interventions including traffic reduction and emission control measures.

Other important sources include power generation, industrial processes, and heating in commercial buildings and in homes.

The legal annual mean limit for NO_2 in the UK is 40 µg/m^3. Camden has adopted much lower targets: 30 µg/m^3 by 2026, 20 µg/m^3 by 2030 and the World Health Organization guideline limit of 10 µg/m^3 by 2034 .

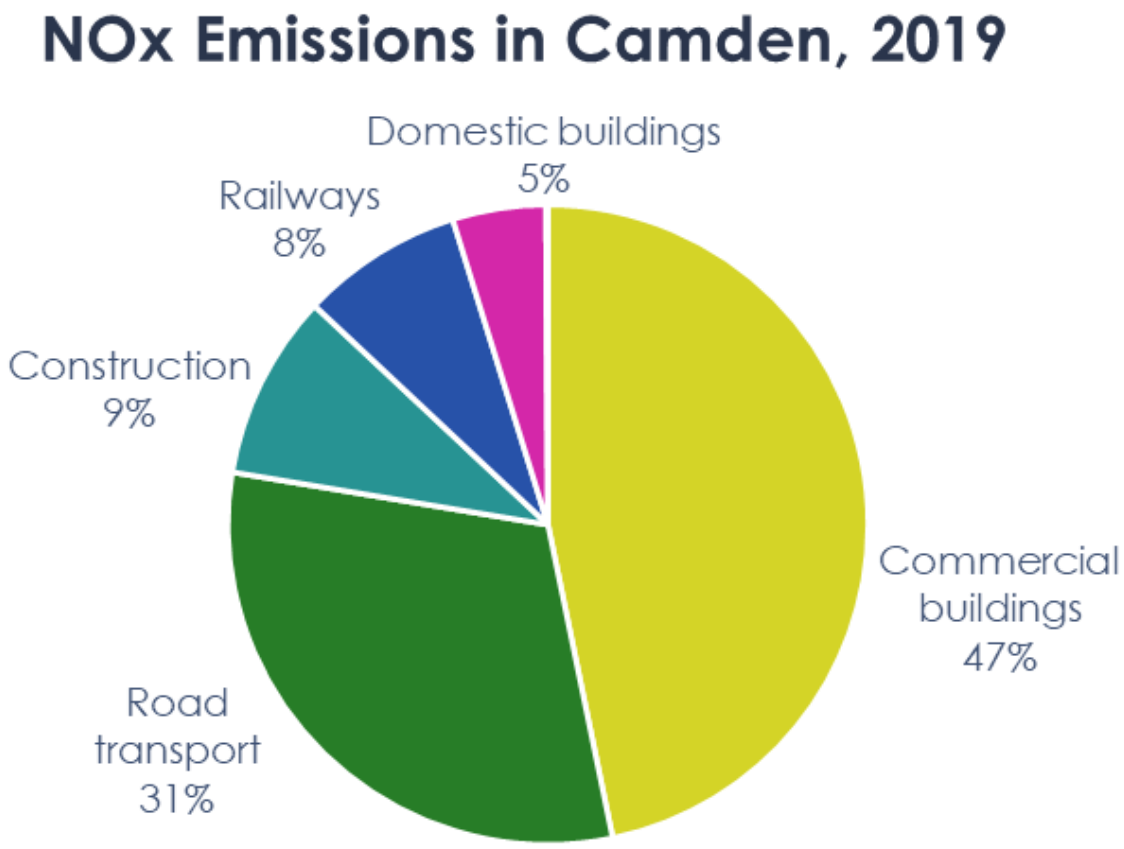
Outdoor air pollution: NOx emissions in Camden

Commercial buildings are the largest source of NOx emissions in Camden, and this is attributed to space and water heating and power generation, industrial processes, waste treatment and commercial cooking.(6)

Road transport is responsible for nearly one-third of NOx emissions in Camden, including private vehicles, public transport, and commercial vehicles.(6)

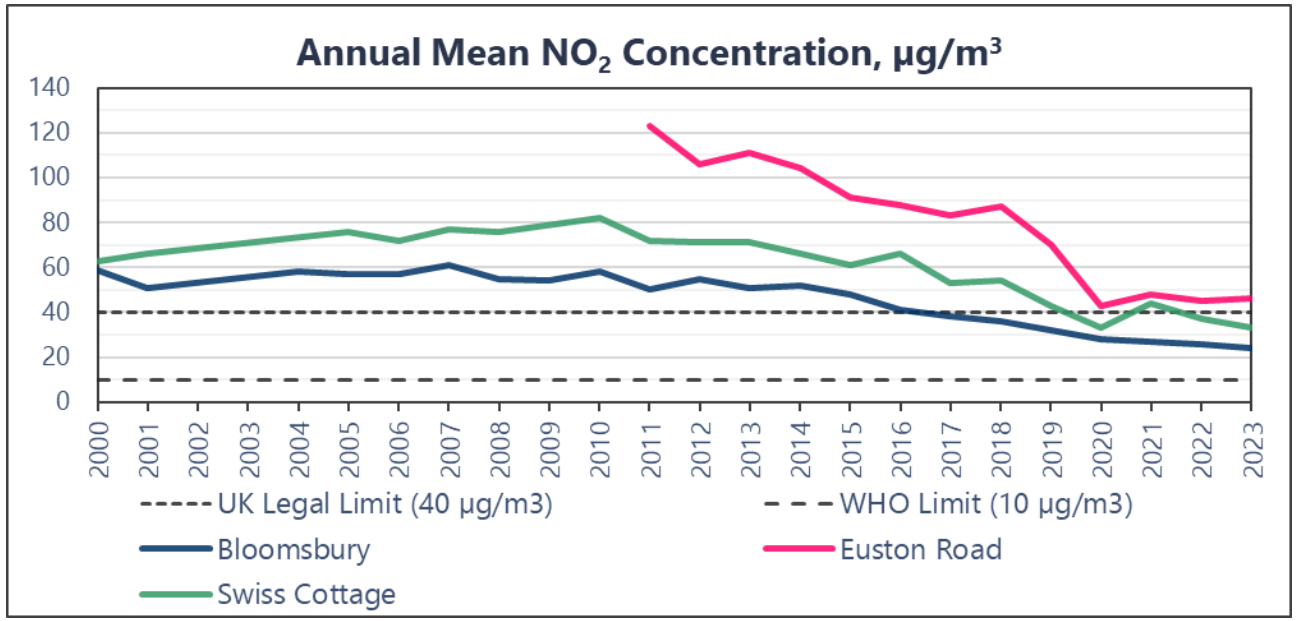
Construction activities contribute nine percent of NOx emissions in Camden, and diesel trains 8%.(6)

Domestic buildings contribute five percent of NOx emissions in Camden, mainly from heating and cooking with gas.(6)

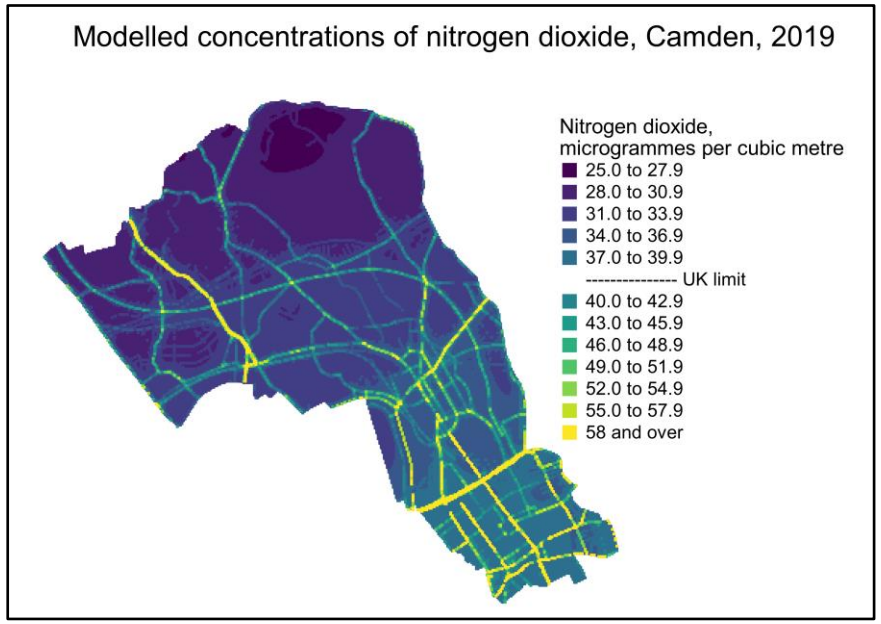


Source: **LAEI, 2019**

Outdoor air pollution: NO_2 trends in Camden



Source: **Camden Council**



Source: **LAEI, 2019**

NO_2 concentrations in Camden have reduced considerably over the past decade and many monitoring sites now meet the 40 µg/m^3 UK legal limit for this pollutant, although all sites still exceed the 10 µg/m^3 World Health Organization guideline limit.[7]

This improvement is largely driven by the transition away from older, more polluting road vehicles and construction machinery due to policy interventions to limit road emissions and pollution from generators and other non-road mobile machinery ('NRMM').

Major roads in Camden still typically have the highest concentrations of NO_2, however this will improve as electric vehicles replace petrol and diesel vehicles. As this happens, commercial and domestic buildings, construction and diesel trains will be responsible for an increasing share of total NO_2 emissions in the borough unless there are equivalent reductions in emissions from these sources.

NO_2 air pollution and the climate crisis can be tackled in tandem by electrifying heating, road vehicles, trains and construction machinery.

Outdoor air pollution: particulate matter (PM)

Particulate Matter (PM) is everything in the air that is not a gas and it comprises a huge variety of chemicals and materials of varying sizes, composition and state.

PM is often categorised by the size of particles because this determines the extent to which PM can be inhaled and moved around our bodies. 'Coarse' PM is particles with a diameter of 10 micrometres (µm) or less and is written as PM_{10}, and 'fine' particulate matter is particles with a diameter of 2.5 µm or less and is written as $PM_{2.5}$. A micrometre is one thousandth of a millimetre; for comparison a human hair is 50 to 70 µm in width.

The small size of PM – especially fine particulate matter $PM_{2.5}$ – means that it can enter deep into the lungs. $PM_{2.5}$ can also enter the bloodstream and be transported around the body, lodging in the heart, brain and other organs.

$PM_{2.5}$ is associated with a range of serious long-term health conditions including respiratory and cardiovascular diseases, neurological conditions and diabetes in particular, although $PM_{2.5}$ can affect any part of our bodies.(4)

The majority of PM in the air is human-made with approximately 55% coming from sources in the UK and about 30% coming from international sources. This includes emissions from fuel and material combustion, construction activity and agriculture. Around 15% of PM comes from natural sources such as dust from soil, pollen and sea spray. (8)

The UK annual mean legal limit for PM_{10} is 40 µg/m^3 and the limit for $PM_{2.5}$ is 10 µg/m^3 (to be achieved by 2040). Camden has adopted much lower targets: 20 µg/m^3 by 2030 and the World Health Organization guideline limit of 15 µg/m^3 by 2030 for PM_{10}; and 10 µg/m^3 by 2030 and the World Health Organization guideline limit of 5 µg/m^3 by 2034 for $PM_{2.5}$.

Outdoor air pollution: $PM_{2.5}$ emissions in Camden

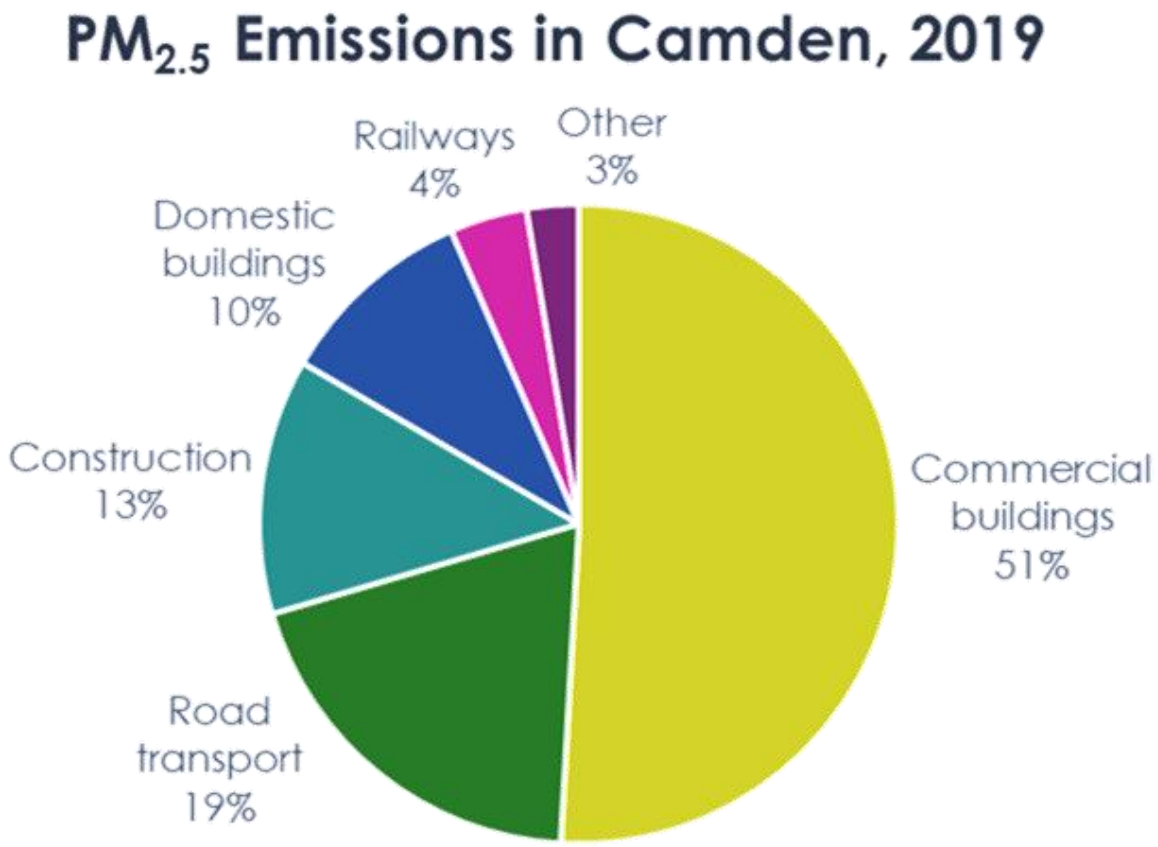
Commercial buildings are responsible for just over half of $PM_{2.5}$ emissions in Camden. The majority of this is from commercial cooking.(6)

Nearly one-fifth of $PM_{2.5}$ emissions in Camden are from road transport, including private and commercial vehicles, taxis and public transport.(6)

Domestic buildings contribute ten percent of $PM_{2.5}$ emissions in Camden with just over half of this from wood burning stoves.(6)

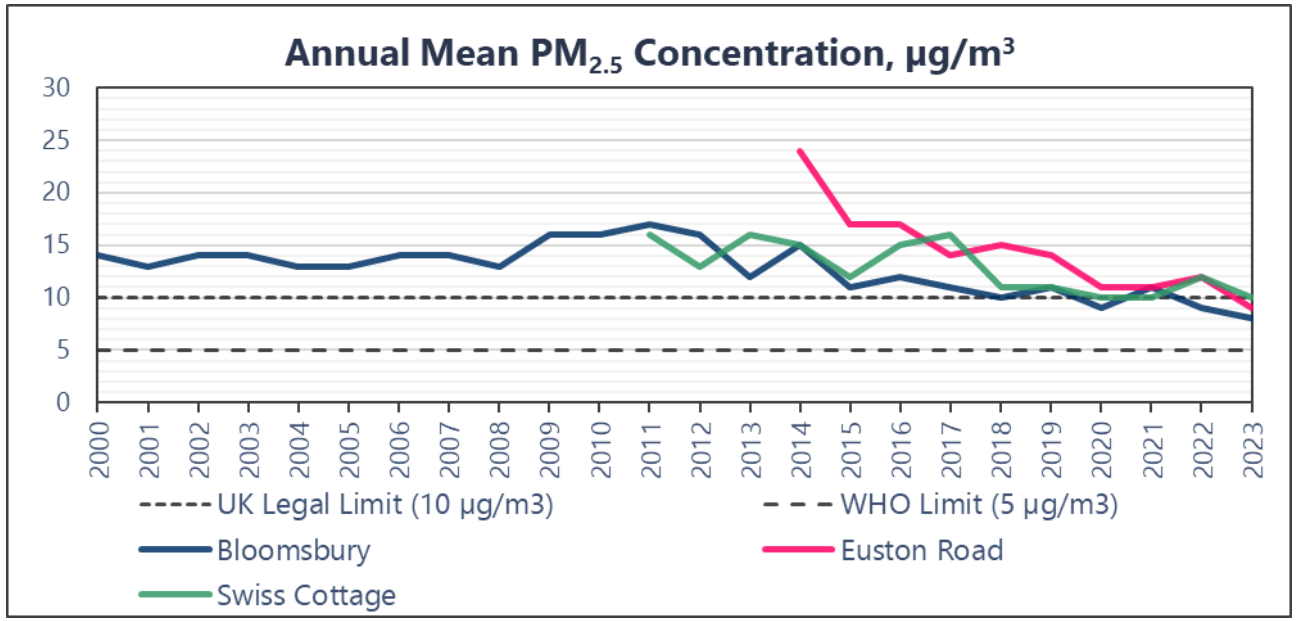
Construction, railways and other sources (including canal boats) contribute 13%, 4% and 3% respectively to $PM_{2.5}$ emissions in Camden.

A significant portion of the $PM_{2.5}$ in the air in Camden comes from sources outside the borough. Some is from elsewhere in the UK, and some from overseas. Sources of this 'transboundary' $PM_{2.5}$ air pollution include agriculture, industry, transport, shipping and buildings in other urban and rural areas, as well as natural sources such as desert dust, wind-blown spoil and sea sprays. Semi-natural sources include smoke from forest fires.

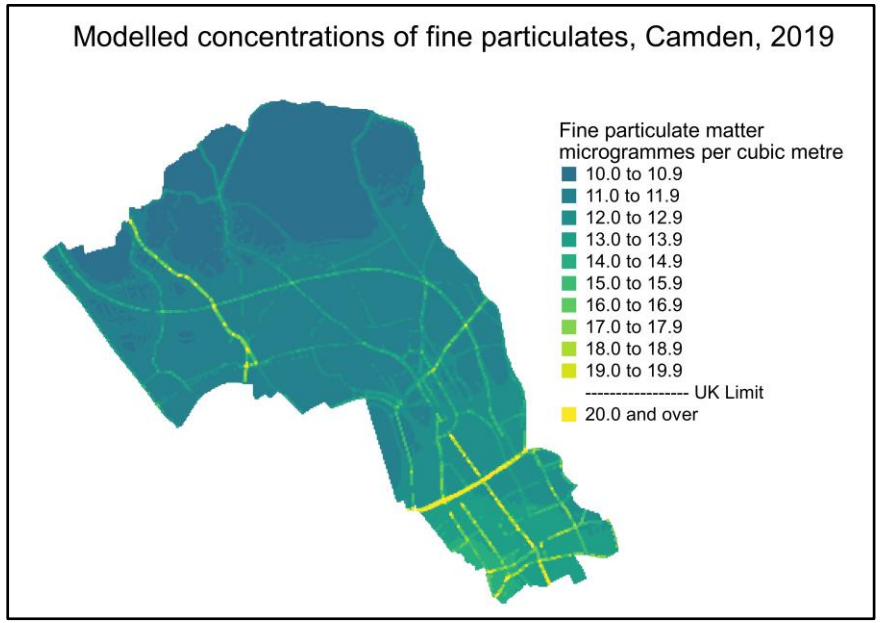


Source: **LAEI, 2019**

Outdoor air pollution: $PM_{2.5}$ trends in Camden



Source: **Camden Council**



Source: **LAEI, 2019**

$PM_{2.5}$ concentrations in Camden declined slightly between 2011 and 2020 but have stabilised at around 9-12 µg/m^3; double the WHO guideline limit for this pollutant. Historically the most polluted roadside monitoring sites have experienced the greatest improvement due to the reduction in $PM_{2.5}$ from vehicle exhaust emissions.(8)

A significant portion of $PM_{2.5}$ in the air in Camden comes from sources outside of London. This transboundary contribution fluctuates with regional weather and leads to the unpredictable inter-year variability in local $PM_{2.5}$ concentrations. Additionally the variability in local weather conditions can either help to disperse pollution (in stronger winds) or to prevent dispersal (in settled conditions).

$PM_{2.5}$ concentrations tend to be highest around major roads although there is less variability due to the dispersed nature of PM air pollution and the relatively larger contribution from buildings and from emissions sources outside of the borough.

Outdoor air pollution: ozone (O_3)

At ground level, ozone (O_3) is a harmful air pollutant that can damage human health and the environment.[4] Ozone causes respiratory inflammation and can trigger a range of respiratory health symptoms including chest pain, coughing, shortness of breath, irritation of the throat, nose and eyes, congestion, and increased susceptibility to infection. People with existing lung diseases including asthma are likely to be affected more severely.

Long-term or repeated exposure can reduce lung function, cause or contribute to asthma development, and can permanently scar lung tissue. Ozone also damages plants and vegetation and can affect biodiversity as a result.

Ozone air pollution is produced through the reaction of other primary air pollutants including NOx, other vehicle emissions and volatile organic compounds (VOCs) in the presence of sunlight and heat. For this reason, ozone is a secondary pollutant and NOx emissions from vehicles, buildings, construction machinery and diesel trains all ultimately contribute its formation.[9]

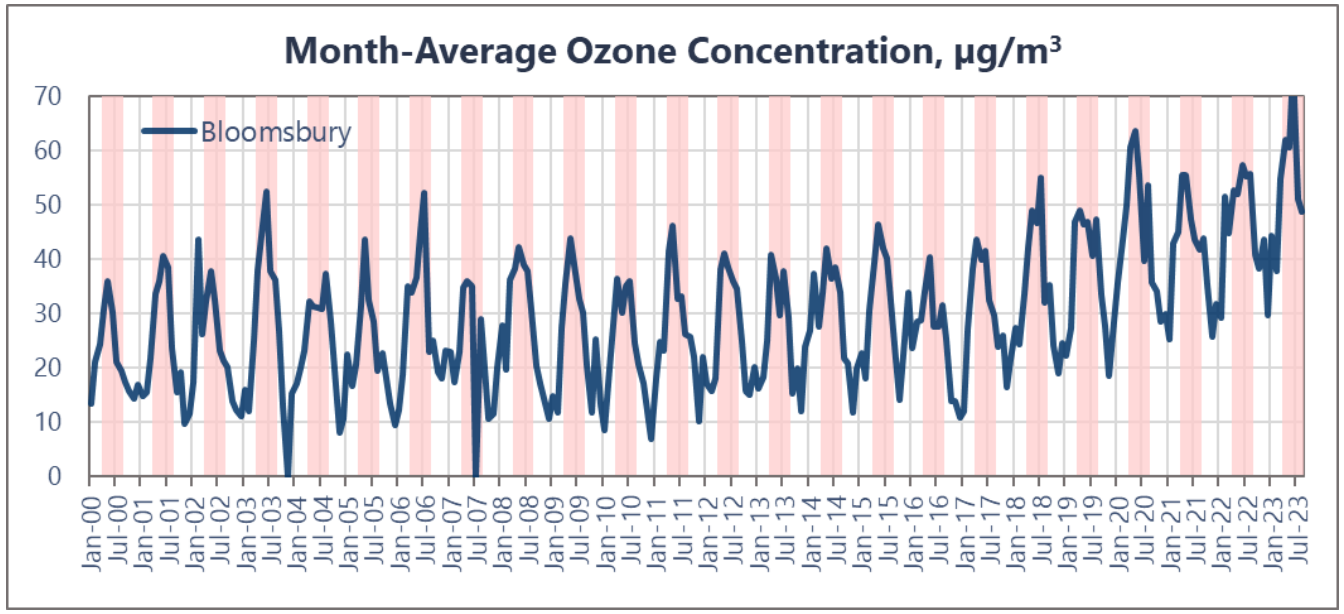
Levels of ozone are usually highest in summer because of the optimal conditions for its formation (sunshine and heat), and during heatwaves it is possible for ozone to build up to levels that can damage health.

In a changing climate with more frequent, longer and more extreme summer heatwaves we can expect to experience worse ozone pollution episodes in London alongside higher $PM_{2.5}$ air pollution from grassland and forest fires.[10]

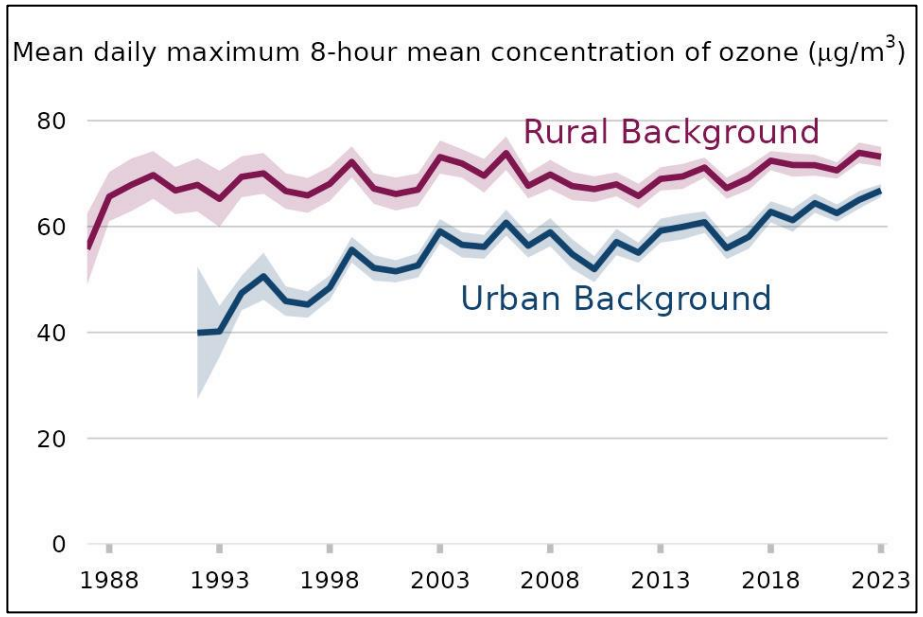
There is no annual mean limit for ozone in the UK, but an eight-hour mean limit of 100 µg/m^3 must not be exceeded more than 10 times each calendar year. The World Health Organization similar recommends a guideline limit of 100 µg/m^3 as an eight-hour average, but not to be exceeded more than three or four times in a year.



Outdoor air pollution: ozone trends in Camden



Source: **Camden Council**



Source: **Defra, 2024**

Ozone concentrations are highest from spring through to late summer because ozone formation requires heat and sunlight. Monitoring data from the Bloomsbury air quality monitoring site show this seasonal variability (above left, with pink sections indicating April to August).

Annual mean ozone concentrations have been increasing both in Camden and elsewhere in the UK (above left and right). This is likely to be due to changes in the complex chemical balance between the precursor pollutants that form ozone – primarily NOx and other vehicle emissions and VOCs – and the environmental conditions that enable its formation (sunlight and heat). As NOx has decreased due to the reduction in emissions from road vehicles, the chemical balance favours the creation and retention of ozone in the air.

Summertime ozone pollution episodes are likely to become more common and more harmful due to climate change-induced heatwaves becoming more frequent, longer in duration, and more severe.[10]

Outdoor air pollution: volatile organic compounds (VOCs)

Volatile organic compounds (VOCs) are a large and diverse group of chemicals. VOCs are emitted into the air as combustion products, as vapour arising from petrol, solvents, air fresheners, cleaning products, perfumes, and numerous other sources related to manufacturing, processing and product use.(11)

Some VOCs may cause short-term and long-term health effects for people who inhale them. These can include irritation of the throat, nose and eyes, headaches, loss of coordination, nausea, damage to the liver, kidneys and central nervous system, and cancer.

VOC concentrations are usually much higher indoors than in ambient (outdoor) air, because of the huge number of sources of VOCs that can be found in everyday settings and because of the reduced ventilation in indoor environments, which allows air pollutants to accumulate.

The dominant sources of VOC emissions in England are domestic solvents (31%), agriculture (primarily animal agriculture; 17%), material coatings (9%), and the fossil fuel industry (9%).

There are UK legal limits for annual mean concentrations of the VOCs benzene (5 µg/m^3) and 1,3-butadiene (2.25 µg/m^3). There are no monitoring sites for these pollutants in Camden, however there are benzene data for nearby Marylebone Road showing an annual mean concentration of 0.6 µg/m^3 in 2022.




Source: **Defra** / **The Guardian**/David Goldman / **Defra** / **NCAS**

Outdoor air pollution: VOC emissions in the UK

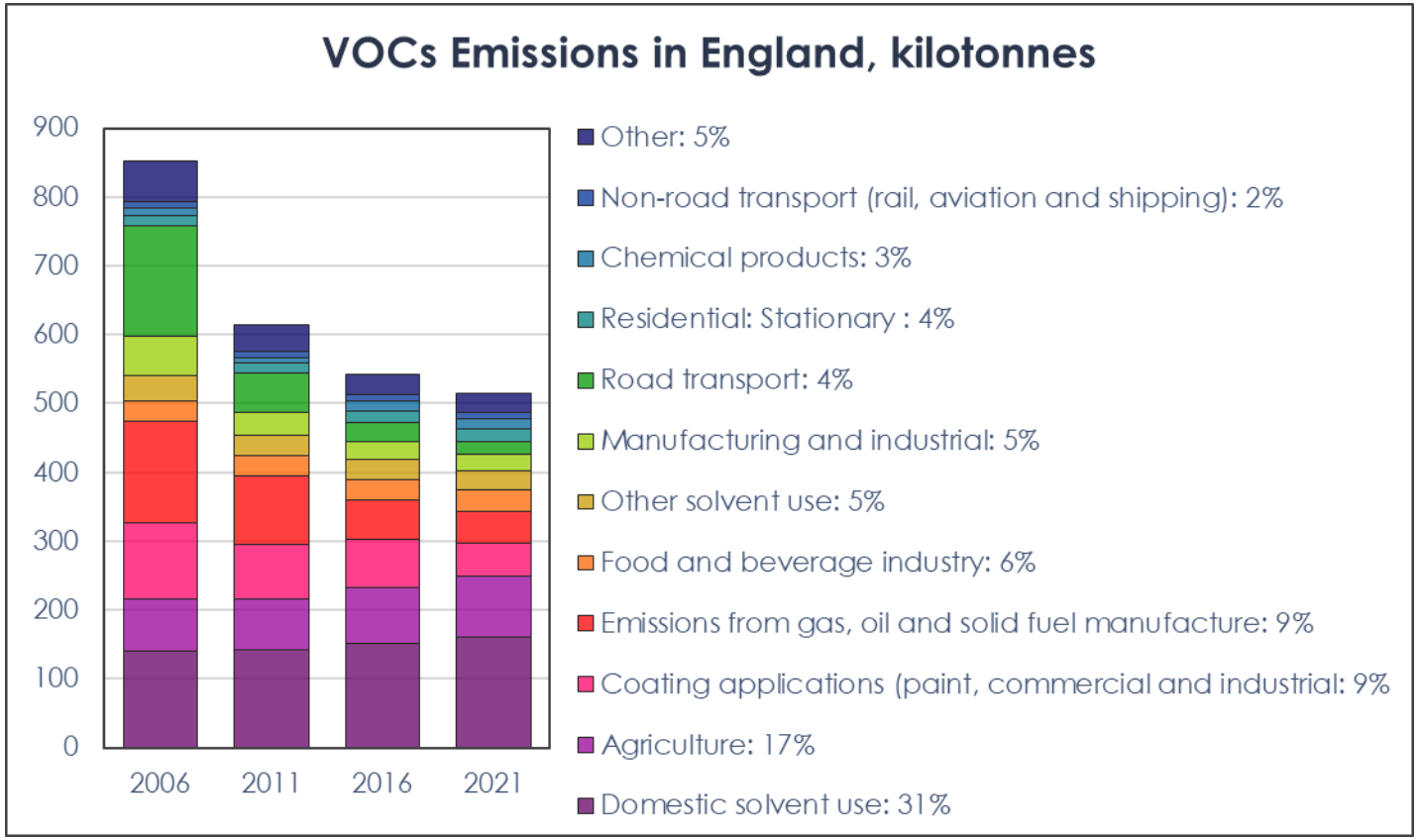
Total emissions of VOCs have reduced in the UK, aided by the introduction of stricter emission standards for road vehicles and for industrial manufacturing processes using solvents. (11)

However, emissions from the domestic use of solvents has increased over time and has overtaken road transport as the single largest source of VOCs. Road transport now only contributes 4% of emissions.

VOCs are widely used indoors in products such as paint, varnish, and solvents, in household products including cleaning products, air fresheners and personal care products, and are also emitted by some electronic devices such as photocopiers or printers.(11)

Reactions between VOCs and other combustion products (from smoking, gas or wood heating, cooking or candle-burning, for example) can produce other chemical pollutants that are harmful to health (for example; ozone).

VOCs are now primarily a concern for indoor air quality.



Source: **NAEI**

Improving outdoor air quality: what Camden is doing

A full description of actions being taken is available in the **Camden Clean Air Action Plan 2023-2026**.

Reducing construction emissions

- Tightening planning controls including the Construction Management Plan process to set higher standards for the management of air quality impacts during construction and demolition activities.
- Monitoring and enforcing standards for construction machinery, dust measurement and air quality management.
- Scrutinising the impact of HS2 in Camden and the performance of its contractors in adhering to assurances relating to air quality and the environment.

Reducing buildings emissions

- Enhancing planning policy for new developments, for example through Air Quality Neutral and Air Quality Positive and by taking a progressively stricter approach towards backup diesel generators and emissions from commercial activities.
- Enforcing smoke control area rules and raising awareness about avoidable air pollution from wood burning.
- Reducing emissions from council buildings and social housing through improved insulation and newer heating systems.
- Working with businesses to reduce emissions from heating and cooking activities.

Reducing transport emissions

- Improving infrastructure for walking and cycling including Healthy School Streets, Safe and Healthy Streets, safer cycling routes and improved public realm and accessibility.
- Installing electric vehicle charging infrastructure.
- Using transport and parking policy to incentivise a shift away from vehicles (particularly older or larger vehicles) towards active sustainable travel.
- Modernising the Council's vehicle fleet by consolidating and replacing vehicles to reduce mileage and emissions.

Improving outdoor air quality: what Camden is doing

Supporting communities and schools

- Promoting the TfL Travel for Life scheme (formerly STARS) to schools.
- Leading Idling Action London to reduce air pollution from vehicle engine idling.
- Installing electrical power supplies for canal boaters and for ice cream vans.

Reducing indirect emissions and advocating for cleaner air

- Building awareness about air quality and health among Camden staff and councillors.
- Using the procurement process to push for improved environmental standards.
- Encouraging and supporting other local authorities to adopt the World Health Organization air quality guidelines.
- Lobbying UK government and other policy-makers for greater action to tackle air pollution and health inequalities, and to provide the funding and support needed for local authorities to create positive change.

Public health and awareness

- Monitoring air quality throughout Camden and publishing monitoring data.
- Promoting **airTEXT** and other pollution alert services.
- Loaning personal air quality sensors to Camden residents.
- Working with Camden Public Health, hospitals, primary care, the ICS, and NHS England to build knowledge about air quality and health and to ensure patients are receiving information about how they can better protect themselves from air pollution.

CLEAN AIR FOR CAMDEN

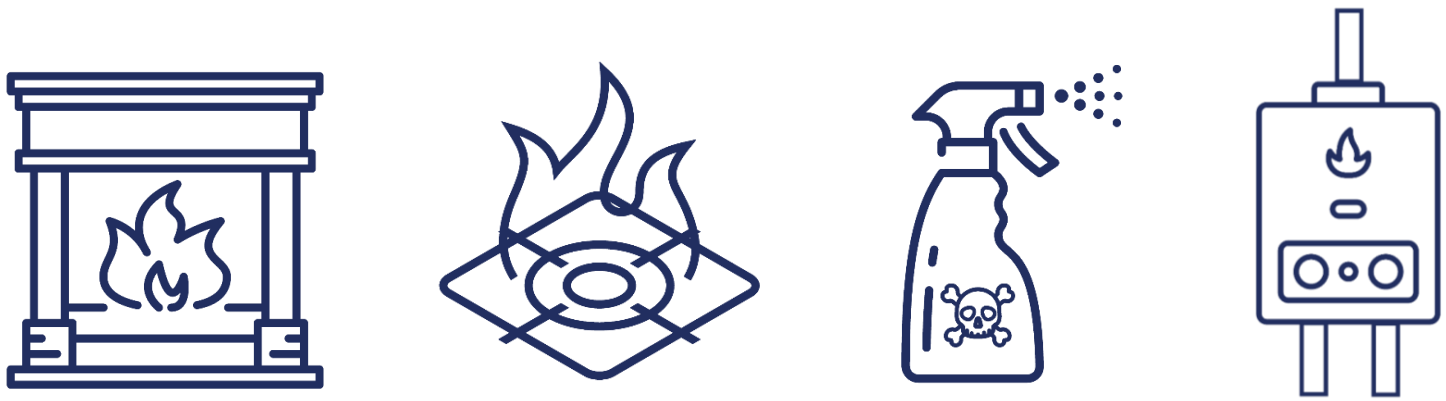
Camden

Indoor air quality: at home

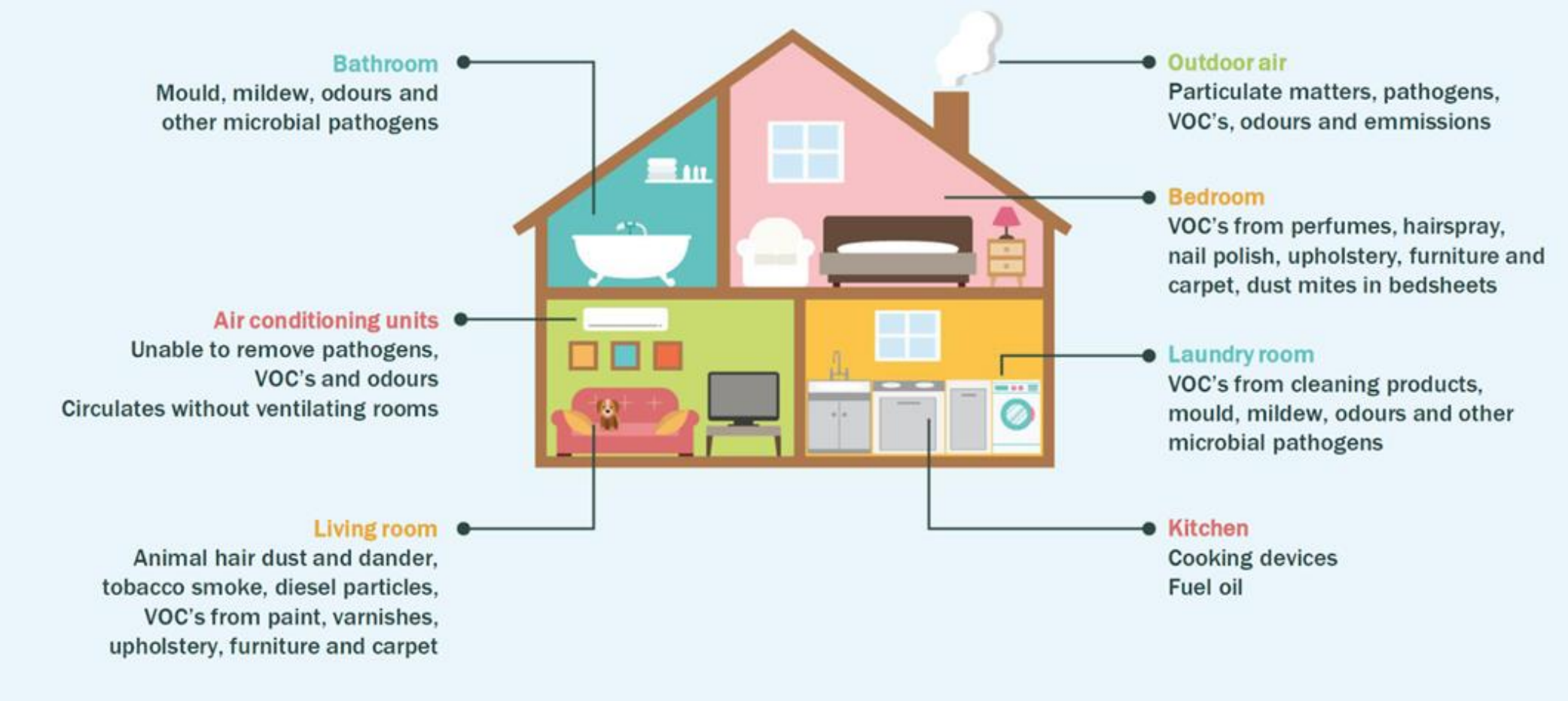
Air pollution isn't just about the outdoor world; it can exist in indoor environments and it can affect our health wherever and whenever we breathe it in. We can be exposed to air pollution indoors inside our homes, workplaces, schools, universities and other public spaces. Some indoor environments can be substantially more polluted than the streets outside.[12]

Sources of indoor air pollution at home

- Particulate matter ($PM_{2.5}$) and nitrogen oxides (NOx) from **domestic heating appliances** (boilers, gas room heaters, wood burners, open fireplaces).
- PM and NOx from **cooking** (NOx and PM from gas hobs and ovens; PM from cooking and burning food and cooking oils).
- PM from scented **candles and incense**.
- Volatile organic compounds (VOCs) from the **chemicals** contained in cleaning and personal care products, decorative and building materials and household consumer products (paints, carpets, laminate furniture, air fresheners, polishing).
- Allergens from **pets, dust mites, and black mould**.
- PM, VOCs and carbon monoxide from **smoking**.



Sources of indoor air pollution at home



Source: [The Home Atlas]

Indoor air quality: occupational and educational environments

Sources of indoor air pollution at work

- Particulate matter ($PM_{2.5}$) and nitrogen oxide (NOx) from **cooking** (charcoal grills, pizza ovens, fryers, gas hobs and ovens).
- PM and NOx from **vehicles and machinery** (road vehicles, trains, boats, construction machinery).
- PM from **materials** (demolition and construction, manufacturing).
- Volatile organic compounds (VOCs) from **chemicals** (cleaning products, dry cleaning, fuels, manufacturing, workshops).
- Ozone from **printers, scanners and photocopiers**.

Sources of indoor air pollution in schools

- PM and NOx from **cooking** (charcoal grills, pizza ovens, fryers, gas hobs and ovens).
- NOx from **heating** (boiler flues).
- VOCs from **chemicals** (furnishings, decorations, art supplies and workshops).
- Ozone from **printers, scanners and photocopiers**.

Standards for indoor air quality

In contrast to the ambient (outdoor) environment, there are no established standards for indoor air quality in the UK, with the exception of limits for carbon dioxide (CO_2) concentration and standards for ventilation rates in enclosed workplace settings, homes and schools.

Local authorities have limited control over the pollution that people are exposed to indoors at home, school or at work, but Camden Council is determined to work with partners and other stakeholders to explore opportunities and push for new standards and best practice in managing and reducing indoor air pollution and occupational pollution exposure.

Improving indoor air quality: what Camden is doing

Improving indoor air quality in homes

- Producing an **Indoor Air Quality: Advice for Homes** guidance document to provide information about indoor air pollution and recommendations for reducing exposure, with related updates to the Council air quality webpages.
- Supporting the London School of Economics and University of Southern California in running the **Camden Household Air Monitoring Project** (CHAMP) to research how Camden residents respond to indoor air quality data displays, with more than 300 households taking part in the project.
- Running an **indoor air quality sensor loan programme** for Camden residents, initially as part of the Somers Town Future Neighbourhoods 2030 project, and subsequently as a borough-wide initiative.
- Working with Camden Public Health, hospitals and NHS partners to produce **informative materials** about indoor (and outdoor) air pollution and the steps that can be taken to improve indoor air quality at home.
- Working with colleagues in the Housing Retrofit service to maximise benefits for indoor air quality improvements in Camden households, by promoting the replacement of gas cooking hobs with electric or induction appliances.

Reducing occupational exposure to air pollution

- Commissioning research to measure indoor air pollution inside commercial kitchens, as part of the Camden Town Low Emission Neighbourhood project.
- Producing guidance for kitchen operators to provide information about indoor air pollution in kitchen environments and the broader impact on outdoor air quality and public health, and to promote recommendations for reduce air pollution from cooking.
- Engaging with businesses through the **Camden Climate Alliance** to promote measures to reduce air pollution and occupational exposure.

Improving air quality: public awareness

Public awareness about air pollution and health

There is a **low level of public awareness about air quality** and its impact upon human health and wellbeing, despite air quality affecting everyone and these impacts being broadly understood by the health and social care systems.

A survey commissioned by Impact on Urban Health found that only 12% of respondents mentioned air pollution as a concern when unprompted.[13] However, London Councils public polling has found that air quality awareness has improved, and that the majority of survey respondents think that tackling air pollution should be a priority.[14] This may suggest that **people become more concerned about air pollution once they are informed about it** and recognise the significance for their own health.

One of the largest sources of particulate matter (PM) air pollution is domestic wood and solid fuel burning. In a survey commissioned by the **London Wood Burning Project** only 23% of Camden-based respondents stated that they had seen information about solid fuel burning and air pollution in the borough. The average was 14% across the 15 boroughs participating in the Project. The data reveal that **Camden scores better than other boroughs in terms of awareness about air pollution from wood burning**, but that there is significant room for improvement in building public knowledge about solid fuel burning and air pollution, and about air quality in general.

Camden Clean Air Action Plan 2023-2026: public consultation and engagement

116 people responded to the consultation on the Camden Clean Air Action Plan 2023-2026, with the majority submitted via the online We Are Camden consultation hub.

The majority of respondents stated that they thought every day about the pollution they were breathing in, and a majority were also concerned about the effect on their health. **75% of consultation respondents thought that Camden should take more action to tackle air pollution**.

38% of respondents thought that air quality in Camden was worse than five years previously, compared to 18% who thought it had improved. (Air quality had improved considerably during that period.)

Improving air quality: public awareness (continued)

Improving public awareness

The information presented in the previous slide highlights the fact that that the general public has a limited understanding of air pollution as an important determinant of health.

An improved public awareness about air quality and air pollution will help to:

- Reduce avoidable exposures.
- Strengthen efforts to reduce emissions from individual and collective actions.
- Build a broader consensus for policy interventions to support cleaner air.

For this reason, **a core purpose of Camden's air quality programme is to improve public knowledge** about air quality and to encourage and empower behaviour change.

In particular, it is crucial that a concerted effort is made to build awareness among groups and for individuals who are likely to be exposed to higher levels of air pollutants and/or are more vulnerable or susceptible to adverse health outcomes as a result of exposure to air pollution.

Additionally, it is essential that individuals, businesses and organisations with a relatively larger impact on air quality are encouraged to take action wherever possible to protect collective health and wellbeing. This would apply where there is a usage of private or company vehicles, a usage of wood and solid fuel burning appliances, or where there is an operation of premises or otherwise undertaking of activities that have the potential to emit a substantial amount of air pollution.

Finally, and critically, **it is necessary to raise awareness about air pollution and health outcomes within the health and social care professions**, the education sector, and among policy-makers and other people in a position to contribute to efforts to improve public awareness and deliver tangible improvements to air quality through policy and projects.

Improving air quality: next steps

This slides describes planned and proposed activities to improve indoor and outdoor air quality in Camden, including projects that are dependent upon external funding.

Outdoor air quality

- Leading a public awareness-raising and behaviour change campaign about pollution and health risks associated with wood and solid fuel burning (the London Wood Burning Project).
- Installing infrastructure to reduce emissions from street trading (market stalls and vans).
- Reducing emissions from filming and public events.
- Conducting research projects and developing engagement materials to support businesses to reduce emissions from commercial kitchens.
- Delivering a schools engagement programme to build awareness among school communities about air quality and health.
- Exploring policy levers for reducing emissions from standby diesel generators.

Indoor air quality and occupational exposure

- Working with colleagues across the organisation to highlight the importance of housing and indoor air quality at home as a major determining factor for overall air pollution exposure.
- Building stronger relationships with the NHS including primary care, hospitals and NHS administration, as well as services commissioned by public health and the Council, to ensure patients, service users and residents are receiving information about air quality in relation to their health.
- Establishing a network of community 'air quality champions' to facilitate citizen science projects, build public awareness about indoor and outdoor air pollution and empower local action to improve air quality.

Recommendations

The recommendations in this Joint Strategic Needs Assessment are intended to complement the actions in the Clean Air Action Plan 2023-2026. They are specifically aimed at partners on the Health and Wellbeing Board as well as other stakeholders with the ability to support Camden's air quality programme and the associated work to better protect public health from the effects of air pollution whilst addressing health inequalities.

Recommendations for Camden's Health and Wellbeing Board

ID	Recommendation
(HWB-1)	The Health and Wellbeing Board should **recognise that air quality is a significant determinant of health** and that access to clean air is an fundamental requirement for living a healthy life.
(HWB-2)	The Health and Wellbeing Board should **support efforts to ensure that patients seen in GP practices, medical centres, hospitals and home visits are educated on the health impacts of air pollution** and referred to further resources about air quality and support services available from the Council.
(HWB-3)	The Health and Wellbeing Board should **help to promote and build general awareness about the health risks associated with personal and household exposure to air pollution in indoor and outdoor environments**, including the importance of individual and collective action to reduce emissions and exposure wherever possible (including from travel, how we heat our homes, how we shop, from cooking and cleaning, from our workplaces and as employers or educators).
(HWB-4)	The Health and Wellbeing Board should **support efforts to ensure that all health and social care professionals are provided with training about the associations between air quality and health, and mitigations to protect health**.
(HWB-5)	The Health and Wellbeing Board should **support and encourage air quality engagement with community organisations, resident associations, schools and businesses**, and help to advocate for healthy workplace and learning environments.

Recommendations (continued)

Recommendations for Camden Health and Wellbeing Board (continued)

ID	Recommendation
(HWB-6)	The Health and Wellbeing Board should **support and facilitate partnership working with community groups and the private, public and third sectors to advocate for clean air projects and policies**, and to empower local action to reduce emissions and protect people from exposure to air pollution.
(HWB-7)	The Health and Wellbeing Board should **support efforts to ensure that Camden's housing services consider indoor air quality alongside damp and mould risk in the quality rating for housing stock**, and that vulnerability to health conditions associated with poor air quality is factored into housing allocation (for example, asthma, COPD and cardiovascular diseases).
(HWB-8)	The Health and Wellbeing Board should **ensure alignment with Camden's Health and Wellbeing Strategy by integrating and embedding air quality in the focus areas of the strategy** (Start Well, Live Well, Age Well).
(HWB-9)	The Health and Wellbeing Board should **promote Camden projects to improve air quality or reduce population exposure to air pollution**, including the Indoor Air Quality Monitor Loans scheme, both to the wider public and also to health and social care professionals who work with people with respiratory or cardiovascular conditions (or those at risk of developing such conditions, such as people who smoke). This might include doctors, nurses, pharmacists, health visitors, and social and family workers.
(HWB-10)	The Health and Wellbeing Board should **help to ensure that air quality, climate resilience and health and wellbeing are considered in an integrated manner** and recognised as being inextricably related to health equality and social justice.

Recommendations (continued)

Recommendations for other stakeholders and strategic partners

ID	Recommendation
(SSP-1)	Stakeholders and strategic partners should **ensure that environmental health enforcement is effective in protecting the health of council, housing association, and private sector tenants from indoor pollution sources** (for example: faulty gas-burning appliances and gas leakage from boilers/hobs; smoke from open fires and stoves; dust, chemicals and carbon monoxide; and damp and mould). The health benefits from enforcement activity should be recorded where possible and reported to show the value of this approach and the interventions. **Relevant for:** Camden Housing service (Landlord Services, Leaseholder Services, Private Sector Housing, Housing Environmental Health teams), housing associations, landlord associations, property developers and managers, maintenance service providers.
(SSP-2)	Stakeholders and strategic partners should **help to ensure housing associations and landlord associations receive adequate training to mitigate air pollution** in housing environments. **Relevant for:** Camden Housing service (Leaseholder Services, Private Sector Housing), housing associations, landlord associations.
(SSP-3)	Stakeholders and strategic partners should **help to ensure people living in Camden across all housing tenures are aware of and able to access information and advice about indoor air quality**, the impact of air pollution on health, and the mitigation measures and support services available (for example, the Indoor Air Quality Monitor Loans scheme). **Relevant for:** Camden Housing service (Landlord Services, Leaseholder Services, Private Sector Housing), housing associations, landlord associations, health and social care professionals, health and wellbeing outreach services, tenant and resident associations, Camden Federation of Private Tenants.

Recommendations (continued)

Recommendations for other stakeholders and strategic partners (continued)

ID	Recommendation
(SSP-4)	Stakeholders and strategic partners should **help with promoting the uptake of sustainable and low-pollution home heating systems and cooking appliances, and access to home energy-saving support services**. **Relevant for:** Camden Housing service (Landlord Services, Leaseholder Services, Private Sector Housing, Housing Environmental Health teams), housing associations, landlord associations, tenant and resident associations, Camden Federation of Private Tenants.
(SSP-5)	Stakeholders and strategic partners should **work with Camden Council, local businesses and business networks to promote clean air workplace environments and air quality-friendly business practices** to reduce occupational exposure to air pollution and tackle air pollution from commercial sources. **Relevant for:** Camden Climate Alliance, Camden Inclusive Economy service, Business Improvement Districts, trade bodies and advocacy organisations.
(SSP-6)	Stakeholders and strategic partners should **help with promoting health messaging around air pollution in Camden schools** (for example, promoting active transport, sustainable and low-pollution heating and cooking), and empowering schools and their communities to advocate for clean air and healthy streets. **Relevant for:** Transport Strategy, Camden School Nursing Service, Camden Learning, PTA groups.

Recommendations (continued)

Recommendations for other stakeholders and strategic partners (continued)

ID	Recommendation
(SSP-7)	Stakeholders and strategic partners should **support efforts to ensure that health and social care professionals understand how air pollution affects health** (including indoor air pollution) and are aware of recommended mitigation measures and referable support services and guidance for Camden residents (for example, signposting to the Indoor Air Quality Monitor Loans scheme and home energy-saving support services). **Relevant for:** Camden Primary Care Network, North Central London ICB, Camden pharmacy networks, NHS Training Hubs, the Royal Colleges, London Air Quality and Health Programme Office.
(SSP-8)	Stakeholders and strategic partners should **help with building public awareness about (and the usage of) freely available air quality data and pollution exposure mapping, air quality forecast and pollution alert services** (such as airTEXT). **Relevant for:** Health and social care professionals, Camden Primary Care Network, North Central London ICB, Camden pharmacy networks, health and wellbeing outreach services.
(SSP-9)	Stakeholders and strategic partners should **ensure that air quality, climate resilience and health and wellbeing are considered in an integrated manner** and recognised as being inextricably related to health equality and social justice (for example, by ensuring that health-protective advice for summer heatwaves is accompanied by advice about reducing air pollution exposure, which itself is likely to be exacerbated during heatwaves). **Relevant for:** Health and social care professionals, Camden Primary Care Network, North Central London ICB, Camden pharmacy networks, health and wellbeing outreach services.

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