

Air Quality Action Plan
2022 to 2027

Brighton & Hove City Council
October 2022

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Foreword

Brighton & Hove is a place we are proud to call home. A thriving, vibrant cosmopolitan place where hundreds of thousands of people live and work and millions come to visit every year. It's a city that deserves the very best, and that includes breathing clean air.

We know that poor air quality can have a significant impact on our health, especially for those with heart problems or respiratory conditions like asthma and lung disease.

As awareness of the health impacts of pollution has increased, so has our desire for continued improvement. In 2021 the World Health Organisation set more stringent air quality guidelines which they recommend cities work towards to deliver cleaner, healthier outdoor air. For climate, health, and security of supply it has never been more important to reduce dependence on fossil fuels.

We're making it easier and safer for people to travel actively and sustainably, improving our public spaces, building new walking, and cycling infrastructure, helping people to reconnect with nature and drive down toxic emissions for a cleaner city. We already have an Ultra-Low Emission Zone (ULEZ) for buses and are working with bus companies and rail operators to further reduce emissions from public transport. We are working with schools and businesses to increase active, inclusive, and accessible travel and help people make emission-free travel choices.

We're also re-wilding a former golf course at Waterhall and planting thousands of trees to create a new woodland on Carden Hill.

Local planning policies require developers to seek opportunities to improve air quality in locations where they are proposing new developments. We will continue to run education campaigns to highlight clean home heating and avoid emissions from gas combustion, open fires and stoves.

Air pollution is a major concern for residents and this Air Quality Action Plan will map out how we can work together on long-term solutions to tackle poor air quality wherever it occurs in the city. As part of this we'll be continuing and improving our air quality monitoring and making the results publicly available.

By building sustainable transport infrastructure, an electric vehicle charging network, and offering rewards for walking, cycling, and using public transport we can support people to take action to reduce emissions and improve air quality across the city.

It's great to see the progress we've already made on air quality and reducing pollution, but we know we have much more to do to truly make Brighton & Hove a clean air city.

Amy Heley
Co-Chair of Environment, Transport and Sustainability Committee

Introduction

Brighton & Hove is one of the UK's most attractive and unique cities to live in and visit. The city has a diverse and growing population of around 290,000 and welcomes over 12 million visitors every year. This can create both challenges and opportunities.

The city is tightly constrained and compact, situated between the South Downs National Park and the sea. These 'natural boundaries' define and limit the outward expansion of the city, and the compact built-up area is roughly half of the city's geographical area (8,267 hectares).

The city is a regional transport hub, with the A23/M23 linking it to London/M25, and the A27 providing major east/west links. Car ownership in the city is the lowest in the South East region and one of the lowest nationally. Bus patronage, cycling and pedestrian movements in and out of the city centre have continued to increase since 2000. Progress with active travel can be found at ['Move For Change.'](#)

As well as the natural boundaries of the sea and the South Downs National Park, the city faces further challenges with its historic and ageing Victorian road network and structures, which are not designed to cope with modern traffic demands. The built environment can also contribute to emissions in enclosed spaces. The strategic road corridors of the A270, A23 and A259 converge in the city centre which, together with topography, leads to congestion and high levels of pollution. The city also has regular influxes of visitors and hosts many events, including a month-long arts festival in May and Pride weekend in August.

Air pollution is of concern to residents. The council takes part in the annual National Highways and Transportation (NHT) survey which consists of a randomised sample of residents from across the city. Satisfaction with both traffic pollution and traffic levels and congestion is poor compared to other local authorities around the country. Satisfaction levels for traffic pollution have returned to pre-Covid (2019) levels at 36%, but have fallen for travel levels and congestion, from 38% in 2019 to 33% in 2021.

Many achievements have been delivered since the previous 2015 Air Quality Action Plan (AQAP); these have contributed towards improving air quality in the city and include:

- A bus ULEZ and a cleaner bus fleet
- Development of the city's first Local Cycling and Walking Infrastructure Plan (LCWIP) which identifies routes and areas for active travel improvements
- City Plan (development plan to 2030)
- A joint (BHCC/NHS) Health and Wellbeing Strategy
- Provision of over 200 electric vehicle charging points, including hubs for taxis
- Discounts on parking permits for ultra-low emission vehicles

There is more to do, and we have structured a range of proposed actions under the following five priorities:

Priority 1: Increase active travel, support mode shift and reduce the need to travel

Priority 2: Encourage and support uptake of ultra-low and zero exhaust vehicles

Priority 3: Improve monitoring and public awareness

Priority 4: Reduce emissions from buildings and new development

Priority 5 Partnership working

This revised Air Quality Action Plan (2022-2027) has been produced as part of our statutory duties under the Environment Act 1995, as required by the Local Air Quality Management (LAQM) framework.

Where an area is identified as at risk of non-compliance with legal limits of Nitrogen Dioxide (NO₂), an Air Quality Action Plan is needed.

This plan is required for the six Air Quality Management Areas (AQMAs) that were declared by the council in 2020, because monitoring and modelling showed a risk of non-compliance with toxic NO₂ and therefore a danger to public health.

The plan includes evidence which identifies sources of emissions (gases and smoke) that impact most on life in the city. It outlines actions and priorities to improve air quality which will not only benefit residents and visitors to the city but also the wider Sussex region.

Progress on measures set out within this plan will be reported within the council's annual status reports, and the AQAP will be updated in 2027.

Air quality in context

Air quality, wellbeing and health are dependent on the level of airborne pollutants in the air both in the short term (daily) and longer term (throughout the calendar year). This pollution (emitted locally or somewhere else) is almost entirely man-made eg caused by burning fossil fuels for heating and transport or mechanical processes like demolition, brake and tyre wear.

There are many forms of airborne pollutants that can affect human health, but the main ones today are Nitrogen Dioxide (NO₂), tiny particulate matter (PM_{2.5}) and the coarser PM₁₀ that includes smoke and fine dust. Sulphur Dioxide (SO₂) is also an airborne pollutant which has reduced substantially since measures such as ultra-low sulphur petrol and diesel (2007) and vehicle diesel particulate filters (2011) were introduced. The introduction of additional electric trains instead of diesel and less coal burning, in power stations and domestically, has also contributed to this reduction.

NO₂ is one of the more common forms of airborne pollution which is mainly caused by chemical reactions with hot combustion processes, most notably from older diesel engines, generators, and gas boilers.

Pollution and Health

Air pollution is increasingly more understood and affects our health in a variety of ways. Long term effects on health can, at first, go unnoticed but can reduce life expectancy due to its effects on the body. Airborne pollution is a strong contributor to the 170 early deaths that occur each year in Brighton & Hove.

It can be a contributing factor in the onset of heart disease and cancer, and affects the most vulnerable in society: children, the elderly and those with existing heart and lung conditions. There is no safe level of PM_{2.5}, this can cause stress to the circulatory system leading to heart attacks and has increased association with cognitive decline like the impacts of lead in the 20th century. Fresh clean air is essential for productivity, exercise, learning and sleep.

The weather has a significant short-term effect on air quality. A windy or rainy day can help to disperse and refresh airborne pollution, but a series of calm days can have the opposite effect allowing pollution to become relatively concentrated and more hazardous to health. Periods of cold weather can see pollution levels rise as more households and businesses need to heat buildings and diesel exhausts are less effective at reducing emissions.

The 1956 Clean Air Act was one of the first major pieces of legislation on air quality and was introduced after the infamous London smog of the 1950s which led to the deaths of thousands of people.

Public Health England¹ state that there is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas. More affordable, but poorer quality, housing is often sited next to busy roads and junctions where pollution levels are relatively high. Nine-year old Ella Adoo-Kissi-Debrah died in 2013. In 2020 a coroner determined that air pollution was a contributory cause of her illness and death. This was the first recorded case of its kind in the UK.

In 2017, air pollution in the UK contributed to the deaths of up to 36,000 people with a total estimated healthcare cost to the NHS and Local Governments of £157 million.

The Brighton & Hove context

Brighton & Hove's first Air Quality Action Plan (AQAP) was produced in 2006, with second and third editions in 2011 and 2015. Since 2015, public awareness of poor air quality in the UK has grown substantially.

Details and charts of long-term monitoring results up to the end of 2021 can be found in the council's air quality [Annual Status Reports \(ASRs\)](#). Pollution levels within the

¹Air Quality – A Briefing for Directors of Public Health, 2017

city are assessed against air quality standards which are prescribed in national legislation. Feedback on the AQAP consultation asks that the authority set out timescales to work towards more stringent health base objectives.

This AQAP has been developed in recognition of the legal requirement on the local authority to work towards Air Quality Strategy (AQS) objectives under Part IV of the Environment Act 1995 and to meet the requirements of the Local Air Quality Management (LAQM) statutory process. The plan has also been developed alongside several supporting council strategies which feature air quality as a main strand within them.

BHCC Corporate Plan 2020–2023

Building a sustainable city is one of the six main outcomes identified in the overarching Corporate Plan for the city.

Within this key outcome, actions referenced include developing an active and sustainable travel network, with focus on transport interchanges, ultra-low and zero exhaust buses and investment in walking, cycling and traffic signalling. As well as a commitment to install hundreds of on-street charging points, which is well underway.

More information on the Plan can be found on the council's website [here](#).

Economic Strategy 2018

One of the key themes of the Economic Strategy is building a sustainable city and identifies that 'The Sustainable City' theme will need to respond to a number of the city's key environmental challenges: including using less energy, waste reduction, ultra-low and zero carbon energy generation, availability and use of sustainable transport, jobs and materials and, ultimately, to better balance the demands of an evolving economy within the limits of our environment.

The full Economic Strategy for the city can be viewed [here](#).

Local Transport Plan (LTP4)

In 2015, we published our fourth [Local Transport Plan \(LTP4\)](#) which outlined a number of transport objectives for the city. One of these objectives was encouraging and enabling healthy and active travel choices, with a focus on minimising the impact of transport-related air and noise pollution on local people.

The next [Local Transport Plan \(LTP5\)](#) is currently in development and an initial consultation on the direction it is taking showed that nearly 75% of respondents were concerned about poor air quality or local pollution.

Brighton & Hove Joint Health and Wellbeing Strategy

The latest [Joint Health and Wellbeing Strategy 2019 – 2030](#) outlines ways in which Brighton & Hove can be a place which helps to keep people healthy, and one of the core aspects is that air quality will be improved. The [Joint Strategic Needs Assessment](#) includes a chapter on air quality.

City Plan (Part One)

[City Plan Part One](#) was adopted in 2016 and seeks to create genuinely sustainable communities through encouraging mixed-use developments, high-quality and well-designed places. Developments should enable people to make better choices about their need for travel and City Plan recommends that new developments should take note of the actions set out in the AQAP.

City Plan Part One includes Development Area policies. Since the last AQAP, City Plan Part Two is currently in the later stages of development with an anticipated adoption timescale of autumn 2022. It includes Policy DM40 - Protection of the Environment and Health – Pollution and Nuisance. This requires development to seek opportunities to reduce pollution through appropriate mitigation and cleaner choices; support the implementation of the Air Quality Action Plan and provide Air Quality Impact Assessments.

Air Quality and The Climate Emergency

Air Quality is not the only issue facing the city. Brighton & Hove was one of the first cities in the country to declare a climate and biodiversity emergency, and the council has recently adopted a [Carbon Neutral Programme](#) to deliver our commitment to become carbon neutral by 2030. This sets the direction for action on climate change by the council, partners and residents across the city for the rest of the decade.

The Carbon Neutral Programme

The Carbon Neutral Programme is structured over the following key priority areas:

- Travel and Transport
- Energy and Water
- Waste
- Built Environment
- Nature and Environment (Food, land use and agriculture)

There are sets of actions targeted within each of the key priority areas including many which also cover reducing other air pollutants alongside carbon:

- Promote and facilitate the use of zero exhaust vehicles
- Improve air quality especially in areas of high population density
- Reduce carbon and other emissions from council-owned vehicles
- Secure sustainable development in the city through planning policies and City Plan
- Engagement and behaviour change campaigns

In autumn 2020, the city hosted a [Climate Assembly](#) which brought together a representative group of around 50 residents to discuss how we can reduce transport-related emissions over the next decade.

It is important to note that there are some key distinctions between reducing carbon emissions and improving air quality. Carbon dioxide is not considered to be an air

pollutant, and so the measures in this action plan 2022 to 2027 are not directly aimed at reducing CO₂ levels in Brighton and Hove.

However, moving forward, climate emergency measures to choose alternatives to exhaust and chimney emissions can be beneficial for the quality of the air we all breathe. Action to reduce gas emissions from buildings will be required with the 'future homes standard'. It will be most important to avoid emissions from vehicles and buildings to urban streets where space for ventilation, fresh air and greenery is limited. Activities to increase green infrastructure and green space in urban areas helps reduce particles, increase shade as well as absorbing carbon dioxide.

The requirement to reduce pollutants which can damage human health when inhaled is distinguishable from greenhouse gases that contribute to global warming. This report includes some cross-referencing to requirements to work towards carbon neutrality.

Air Quality in Sussex and Greater Brighton

When a local authority identifies places with relevant human exposure where national standards for the year or short-term are not likely to be achieved, it must declare an Air Quality Management Area. This area could be just one or two streets around a junction, or a much wider area. The number of AQMAs in Sussex are shown in Table 1 below.

Region	Local Authority ²	Number of AQMAs
West Sussex	Chichester District Council	2
	Horsham District Council	2
	Worthing Borough Council	1
	Adur District Council	2
	Crawley Borough Council	1
	Mid Sussex District Council	1
East Sussex	Lewes District Council	2
Brighton & Hove	Brighton & Hove City Council	6

Table 1: Sussex Air Quality Management Areas (AQMAs) by Local Authority

Each year a Sussex Air Pollution Monitoring Network report is produced to demonstrate the trends and pollutant levels across the area. The latest report (2020) shows the running annual mean concentration for PM₁₀ had a general downward trend over the past decade. Investment in additional monitoring is required to assess long term trends in local and regional PM_{2.5} concentrations. For NO₂ there has also been a downward trend since 2013 or 2017.

More information on which sites are used, as well as reports from previous years, can be found [here](#).

The [Sussex Air Quality Alert](#) is a free air pollution prediction service provided by Sussex-air. It is aimed at supporting those with underlying health conditions in the

² The areas vary by size and population

management of their breathing and wellbeing. Subscription is either by an app or via the Sussex-air webpages. Recipients then receive notifications when pollution predictions have potential to impact on their health. In early 2021 there were 1,171 subscribers across Sussex.

Monitoring air quality data and trends in Brighton & Hove

Using approved regulatory techniques, the council has monitored air quality for more than twenty-five years. Results, trends, and maps are set out in past Progress Reports and [Annual Status Reports \(ASRs\)](#).

There are two roadside and one background automatic monitoring stations across the city. The stations monitor Particulate Matter (PM_{2.5}) and Nitrogen Dioxide (NO₂) and results are reported annually.

The council also has 80 diffusion tubes across the city which are simple cost-effective ways to measure monthly NO₂, derive annual concentrations and identify long-term trends.

As a statutory duty Local Air Quality Management (LAQM) has focused on toxic NO₂. This is because roadside monitoring consistently shows that is the most common air pollutant in Brighton & Hove. The greatest impact can be gained by reducing NO₂ emissions from traffic in urban areas, particularly where there is a high concentration of pedestrians and residential areas.

NO₂ is the principal source of nitrates (NO₃) which combine with other pollutants to make up a common constituent of PM_{2.5} (Particulate Matter with an aerodynamic diameter of less than 2.5 microns).

As outdoor concentrations of airborne PM₁₀ (Particulate Matter less than ten microns) in the city do not exceed current English standards, there has not been a statutory requirement for the council to declare Air Quality Management Areas for PM₁₀. Nationally this situation can be reviewed if standards become more stringent and new policy sets out statutory duties on local authorities. Future English particulate standards and the dates when they need to be met are scheduled to be published by 2023.

Air Quality Data and World Health Organisation Targets

The outdoor pollution targets are what everyone inhales and are different to emission rates from an exhaust such as a vehicle tailpipe or building chimney.

Concentrations of pollutants that people breathe are usually represented as micrograms (one-millionth of a gram) per cubic metre of outdoor air, or in shortened form, µg/m³.

In 2005 the World Health Organisation (WHO) set advisory guidelines for pollutants in outdoor air. The guidelines became more stringent in September 2021³ but have not yet been adopted by national government or devolved administrations. However, it is understood that some London Boroughs are working towards achieving the

³World Health Organisation Air Quality Guidelines 2021 found at: [New WHO Global Air Quality Guidelines aim to save millions of lives from air pollution](#)

WHO guideline for PM_{2.5} by the early 2030s, to provide the extra benefits to public health it is it thought this would bring.

Following consideration of the Environment Bill in October 2021, the House of Commons voted against a Lord’s amendments for inclusion of a PM_{2.5} national target based on the 2005 WHO guideline of 10µg/m³ as an annual mean. Brighton & Hove’s three MPs did however vote for the Lord’s more stringent health standards for air quality⁴. In line with this preference Brighton & Hove City Council proposes to work towards better air quality standards including lobbying for English PM_{2.5} targets sooner than 2040. In the longer term, the council aims to work towards achieving the 2021 WHO guidelines for PM_{2.5} and NO₂ by the mid-2030s.

Therefore, the proposed local NO₂ objective for Brighton & Hove by 2026 is to reach an annual mean of 30 µg/m³ outdoor NO₂, across all residences of the city including long-term hotspots and declared AQMAs. This is 25% lower than the UK legal requirement of 40 µg/m³. These targets are indicative of our commitment within this plan to further improve local air quality by 2027, beyond UK standards, to provide better health protection across the population. In the longer term, the council aims to work towards achieving the 2021 WHO guidelines for NO₂.

The table below shows the main sets of Standards and Guidelines for NO₂ and PM in outdoor air from the UK Government, WHO guidelines and proposed local objectives.⁵

Pollutant	Averaging Period where people spend time	EU & English Limits set 2010	WHO guideline 2005	B&H AQAP objective	WHO 2021 published guidelines
Nitrogen Dioxide NO₂	1 Hour	200 µg/m ³ not to be exceeded more than 18 hours a year. Applies on the pavement.		<150 µg/m ³	n/a
	24 Hours	n/a		50 µg/m ³	25 µg/m ³
	Annual Average	40 µg/m ³ . Applies at residential locations.		30 µg/m ³ by 2026	10 µg/m ³
Particulate Matter PM_{2.5}	24 Hours	n/a		25 µg/m ³	15 µg/m ³
	Annual Average (15% reduction every three years)	25 µg/m ³	10 µg/m ³	<8.7 µg/m ³ by 2024 <7.4 µg/m ³ by 2027	5 µg/m ³
Particulate Matter PM₁₀	24 Hours	50 µg/m ³ not to be exceeded more than 35 times a year	n/a	50 µg/m ³	45 µg/m ³
	Annual Average	40 µg/m ³	20 µg/m ³	15 µg/m ³ by 2024	15 µg/m ³

⁴ Does the House of Commons disagree with the Lord’s amendment for stricter air quality standards? [vote on air quality standards October 2021](#)

⁵ The standards and guidelines are for breathable air and not emissions that are quantified releases to air (atmosphere) from exhausts, chimneys fires or mechanical processes such tyre wear. With good ventilation, emissions mix with fresh air and disperse and dilute in the environment.

Table 2: Air Quality Standards and International Guidelines Brighton & Hove targets

Monitoring and reporting

Reporting takes place annually within the council's Annual Status Report [ASR] to enable the long-term trend in air quality to be tracked. Interim targets for Nitrogen Dioxide NO₂ and Particulate Matter PM_{2.5} will help to monitor the progress of interventions; however, it is important to recognise that yearly progress may be affected by atypical periods such as extreme weather, travel restrictions, active travel allocations, intense construction activity or other abnormal occurrences.

Setting targets outside of the years of the AQAP, 2022-2027, are not a part of the statutory requirements of an AQAP. However, Brighton & Hove Council understand the importance of setting aspirational targets, which align with the more stringent WHO Air Quality Guidelines 2021. Therefore subject to change, Brighton & Hove City Council have ambitions to work towards WHO guidelines for Particles PM_{2.5} and NO₂ by the mid-2030s.

Source apportionment

Government guidance asks that where local authorities have identified outdoor air quality that does not meet legal requirements, source apportionment will determine the contributory sources. This varies for different transport corridors and areas of the city.

Source Apportionment is the identification of emission sources (near or far) and the quantification of their contribution to local pollution levels where people spend time.

Air Quality in Brighton & Hove Detail

The AQAP measures presented in this document are targeted towards the predominant sources of emissions within the city, especially where these contribute to poor air quality in the six AQMAs declared or amended in 2020. Air Quality Management Areas are declared when there is an exceedance, or likely exceedance, of a legally binding air quality standard. It does not include locations where people are not present for the duration of the averaging period, for example the central reservation of a main road or the carriageway.

The six AQMAs within the city are shown below in Figure 1, and their dates of declaration are shown in Table 3.

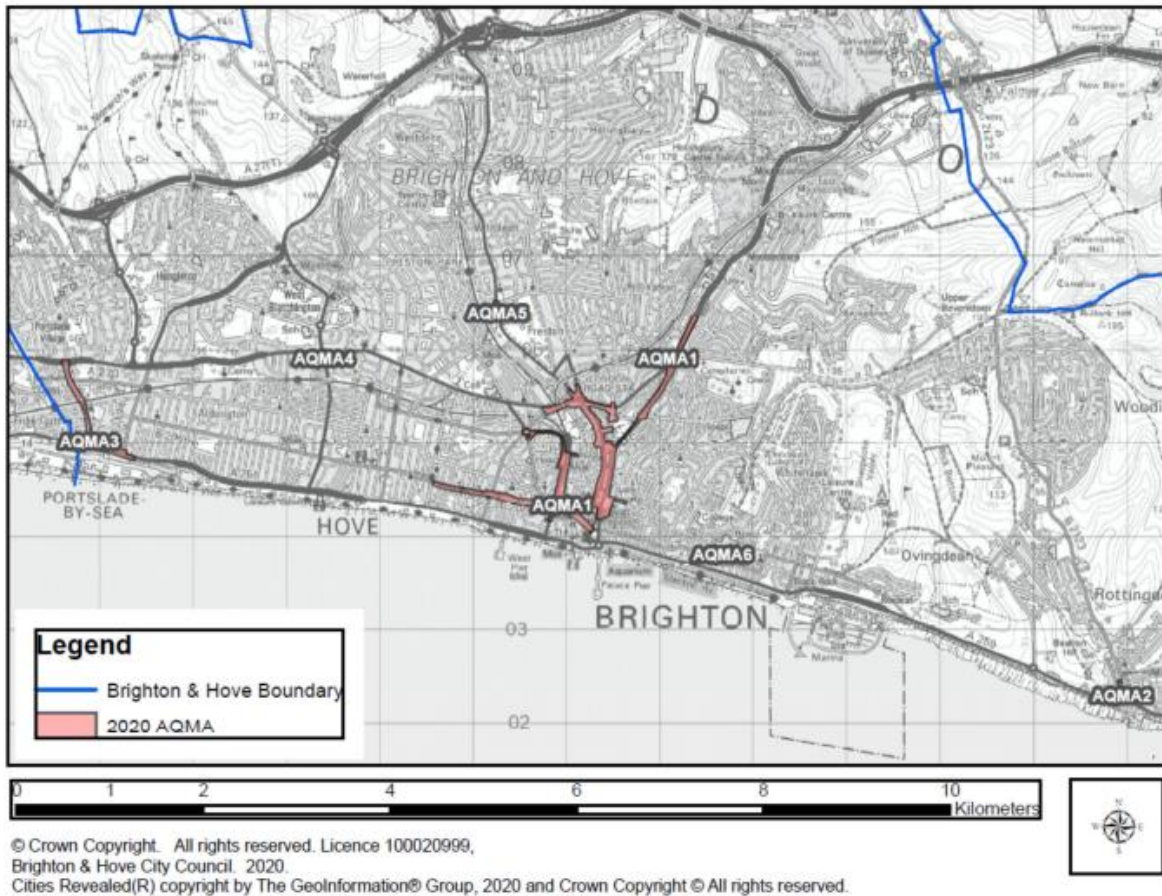


Figure :1 Brighton & Hove NO₂ AQMAs declared or amended in 2020

AQMA ⁶	Location	Date of declaration
AQMA1	Central areas and main routes into the city centre	Declared in 2013, amended in 2020
AQMA2	Rottingdean High Street	Declared in 2013, confirmed 2020
AQMA3	South-West Portslade	Declared in 2020
AQMA4	Sackville Road/Old Shoreham Road junction	Declared in 2020
AQMA5	The Drove-South Road and Preston Road	Declared in 2013, amended in 2020
AQMA6	Eastern Road (Royal Sussex County Hospital)	Declared in 2020

Table 3: Brighton & Hove NO₂ AQMAs declaration dates

⁶ Brighton & Hove's first AQMA was declared in 2004, included the A23 and A270 and was subsequently amended.

Air Quality Assessment

The six declared AQMAs have shown evidence of exceeding national air quality standards for NO₂ or require at least three more typical years of monitoring to be certain that UK air quality standards are met.

AQMA1 – Central areas and main routes into the city centre

AQMA1 covers several kilometres of the city centre including four main arterial routes as well as the current bus ULEZ which is in operation between Castle Square and Palmeira Square. Figure 2 below shows levels of NO₂ in and around AQMA1. The heatmap presents outdoor pollution concentrations prior to Covid-19 which altered the amount and type of traffic.

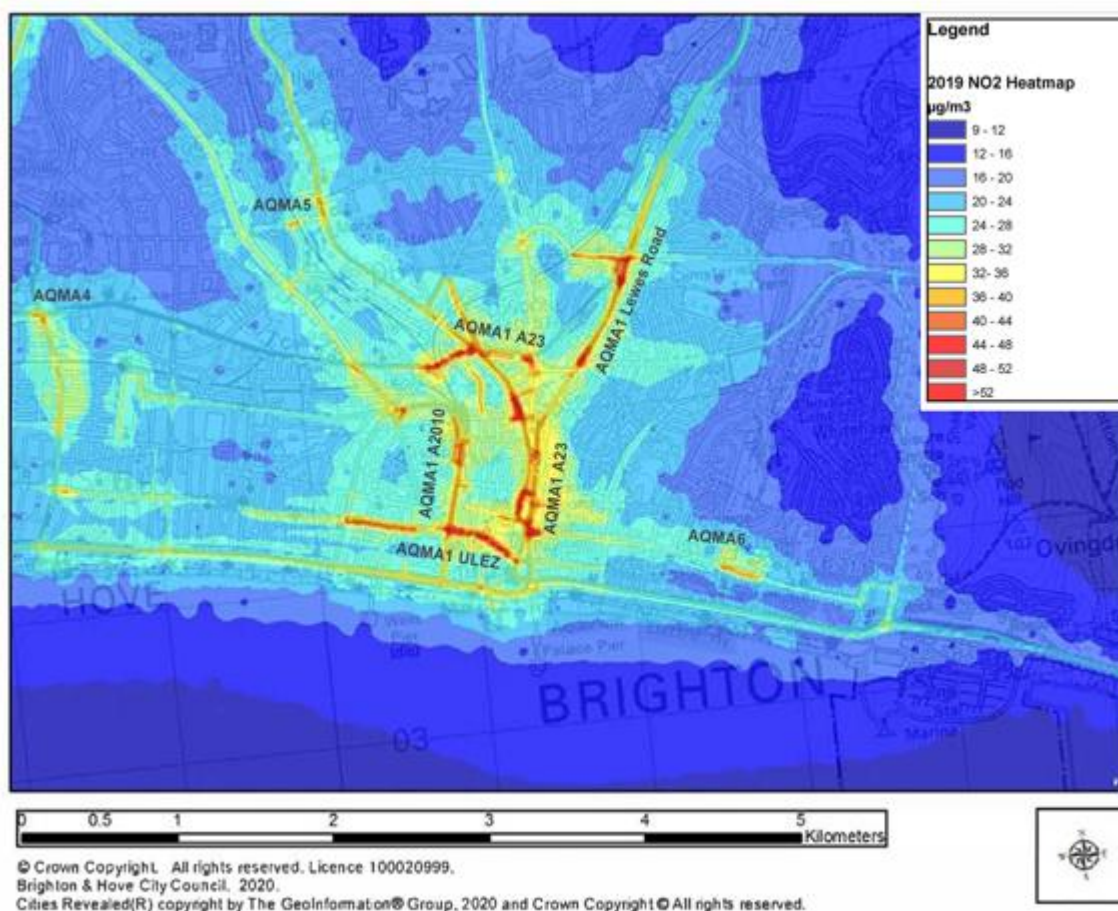


Figure 2: Brighton & Hove AQMA1 NO₂ levels

As this area covers a broad range of arterial routes and central locations with differing vehicle types, it is discussed in five distinct areas below. The map labels

show established diffusion tube monitoring site names in the area and annual levels of NO₂ recorded at these sites.⁷

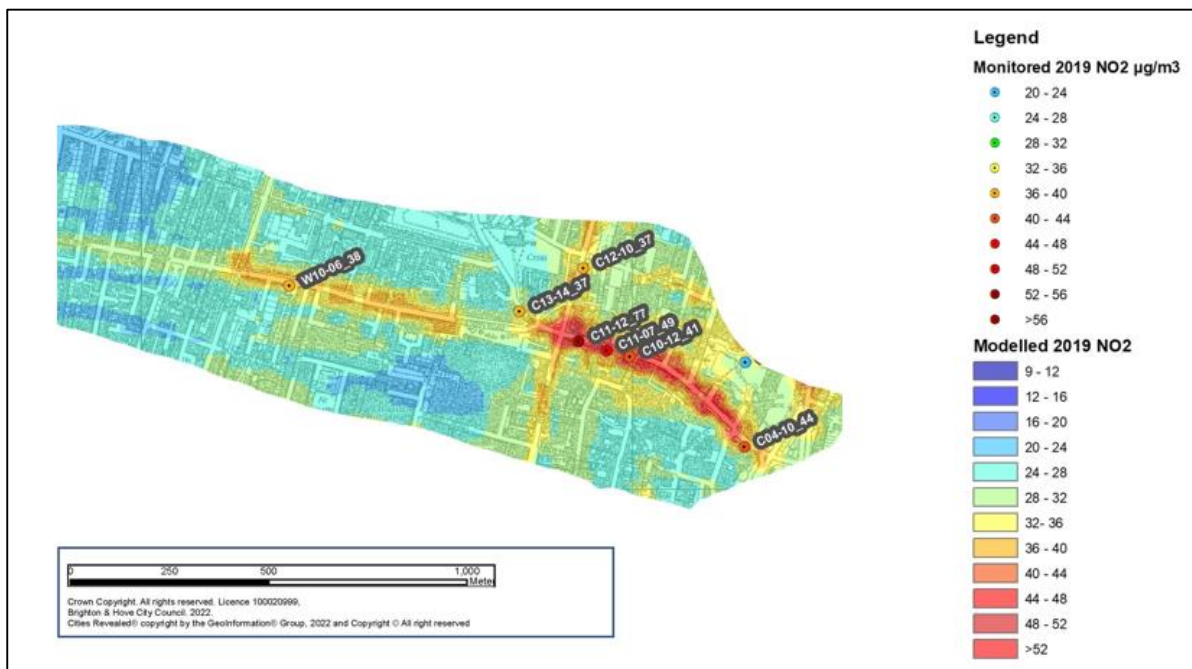


Figure 3: AQMA1 North Street and Western Road (ULEZ)

Some of the highest UK NO₂ levels south of London have been recorded along North Street which is part of the city centre ULEZ. The area has very high visitor numbers with mostly commercial units and some residential and hotel use.

The introduction of cleaner diesel and hybrid buses in this area has led to reductions in bus emissions which has helped to improve air quality in this area substantially. North Street has seen the biggest falls in NO₂ compared to anywhere in Sussex, with half as much noxious pollution compared with 2013/14.

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction since 2019 needed to meet UK legal requirement by	Reduction needed to meet local objective by
North Street	49µg/m ³	28%	26%	39%
Western Road	38µg/m ³	24%	5%	21%

Table 4: AQMA1 ULEZ area NO₂ improvement required

⁷ Labelled points are diffusion tube monitor names with NO₂ concentrations prior to Covid-19 travel restrictions. Pollution maps are based on a computer-based dispersion model and pre Covid traffic flows.

To surpass the UK air quality standard for NO₂ and reach our local target of 30 µg/m³ a 39% reduction in NO₂ is required on North Street and a 21% reduction is required on Western Road compared to 2019 levels.

There has been progress towards these aims during 2021 and the council has been successful in its recent bid for almost £700,000 of public-private funds to continue with exhaust upgrades to the bus fleet during 2022/23.

Prior to the pandemic, source apportionment indicated that buses accounted for the majority of NO₂ along North Street (63%). Similarly Western Road was modelled with NO₂ contributions from buses at 43%. Source apportionment prior to the pandemic is apportioned as shown in Figure 4.

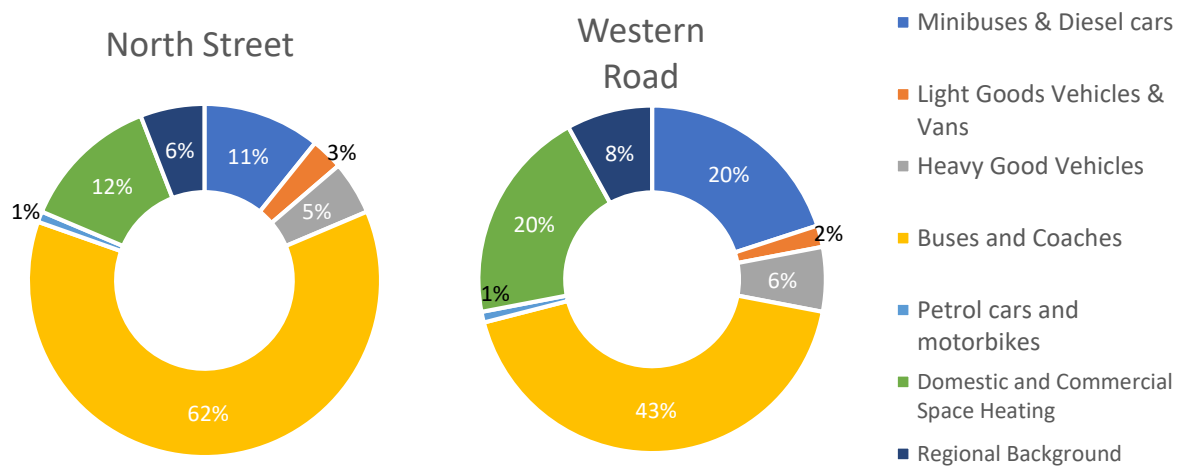


Figure 4: Source Apportionment AQMA1 ULEZ Area 2019

AQMA1 Brighton Station and Queens Road Area

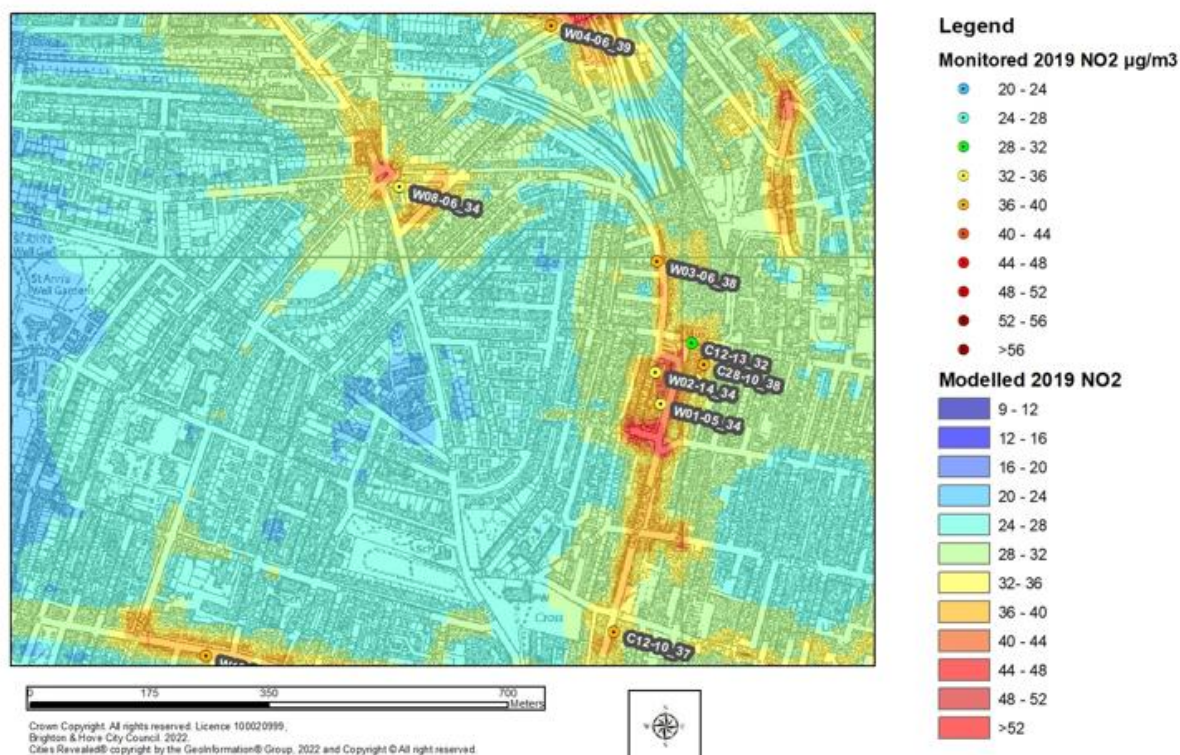


Figure 5: AQMA 1 Brighton Station and Queens Road Area

This part of AQMA1 covers the main arrival point for rail passengers into Brighton station, Queens Road down to North Street, as well as the route along Terminus Road up to Seven Dials.

Taxi pick-up and drop-off at the station frontage was moved to the east side of the station in 2019, meaning lower emissions from taxis are now in a more open area with lower pedestrian footfall and general traffic.

NO₂ levels have improved substantially around Queens Road (which includes the front of the rail station) and early indications show sustained improvement and compliance with national standards for the majority of this area.

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction since 2019 needed to meet UK legal requirement	Reduction needed to meet local objective
Terminus Road	38 µg/m ³	30%	5%	21%
Frederick Place	38 µg/m ³	15%	5%	21%

Table 5: AQMA1 Brighton Station and Queens Road area NO₂ improvement required

Continued improvement is still required in this area to achieve our targets prior to 2027. In particular, for the hill climb on Terminus Road and the NO₂ hotspot on Frederick Place, North Laine; where a further 21% reduction in outdoor NO₂ is required in order to surpass the local objective.

For Queens Road prior to the pandemic, source apportionment modelling indicated 27% of NO₂ was from buses, 22% from diesel cars, 6% from HGVs and 9% from vans, with the remainder from gas boilers, petrol cars and other sources as shown below.

Some diesel trains still operate on routes to the west. Most other trains are powered by electric so their contribution to local pollution is negligible.

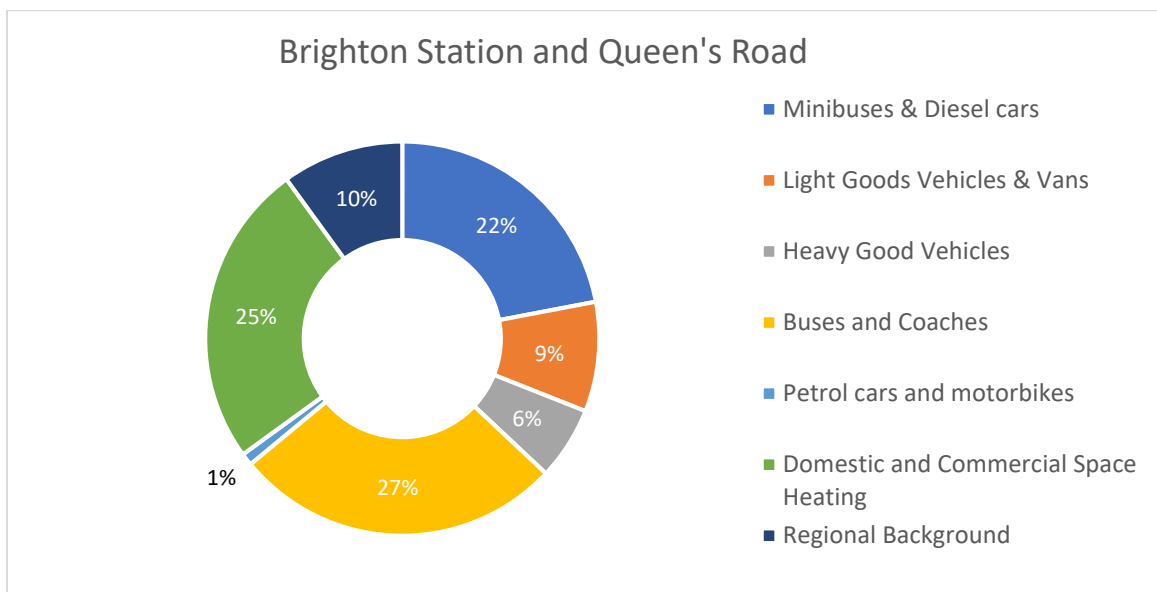


Figure 6: Source Apportionment AQMA1 Brighton Station and Queens Road Area 2019

AQMA 1 A23

The area is a major bus route as well as being part of the main north-south route through the city centre, meaning it is used by a range of vehicle types.

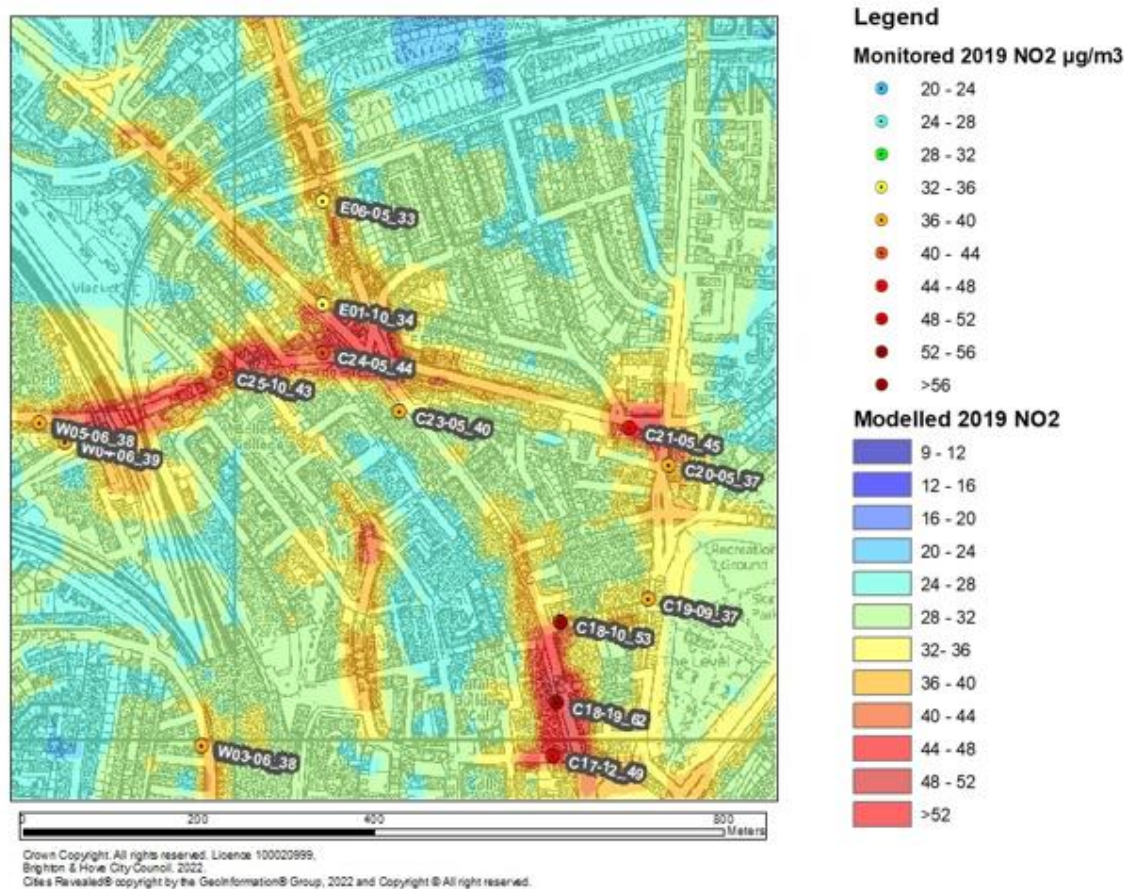


Figure 7: AQMA 1 A23

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction needed to meet UK legal requirement	Reduction needed to meet local objective
London Road	53µg/m ³	31%	32%	44%
New England Road	44 µg/m ³	17%	18%	32%
Beaconsfield Road	33 µg/m ³	15%	Already reached	9%
Viaduct Terrace	45 µg/m ³	28%	20%	33%
Grand Parade	44 µg/m ³	16%	18%	31%

Table 6: AQMA1 London Road and Preston Circus area NO₂ improvement required

A 44% reduction in annual NO₂ on London Road is required to achieve our local target.

For New England Road a 32% in annual NO₂ is required to achieve 30 µg/m³ NO₂.



Figure 8: AQAM1 New England Road – London Road and Preston Circus area

Prior to the pandemic, source apportionment on London Road (between Cheapside and Oxford Street) indicated the largest proportion of NO₂ emissions came from buses (39%) with significant contributions from medium sized diesel vehicles. Gas combustion in boilers is also an important contributor to NO₂ in the area. Full source apportionment is shown below:

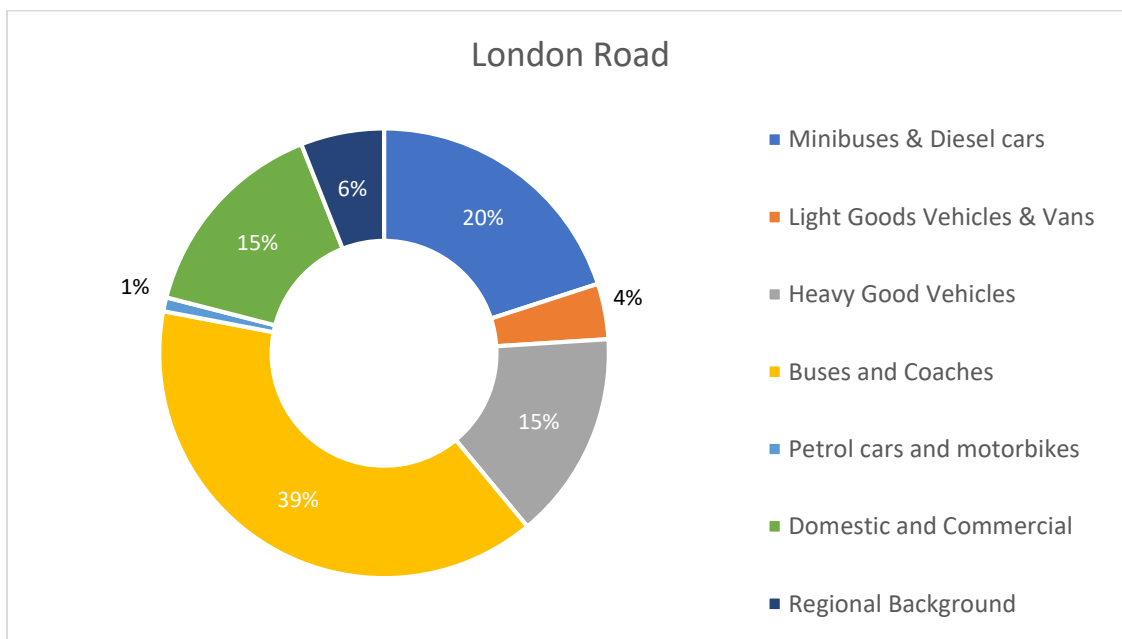


Figure 9: Source Apportionment AQMA1 London Road 2019

Prior to the pandemic, for roads connected with the busy junction at Preston Circus, NO₂ was apportioned as follows:

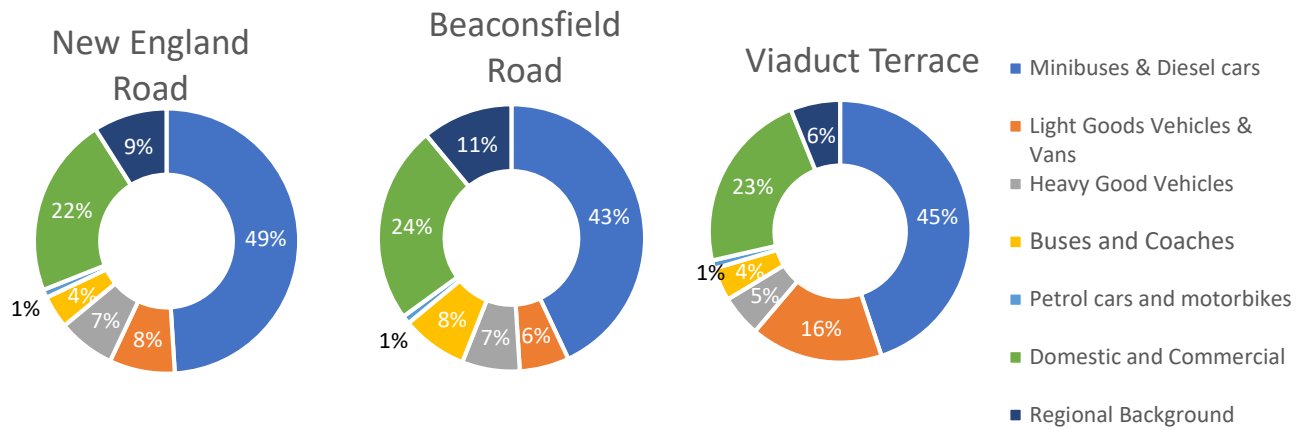


Figure 10: Source Apportionment AQMA1 Preston Circus Area 2019

AQMA1 Lewes Road and Hollingdean Road

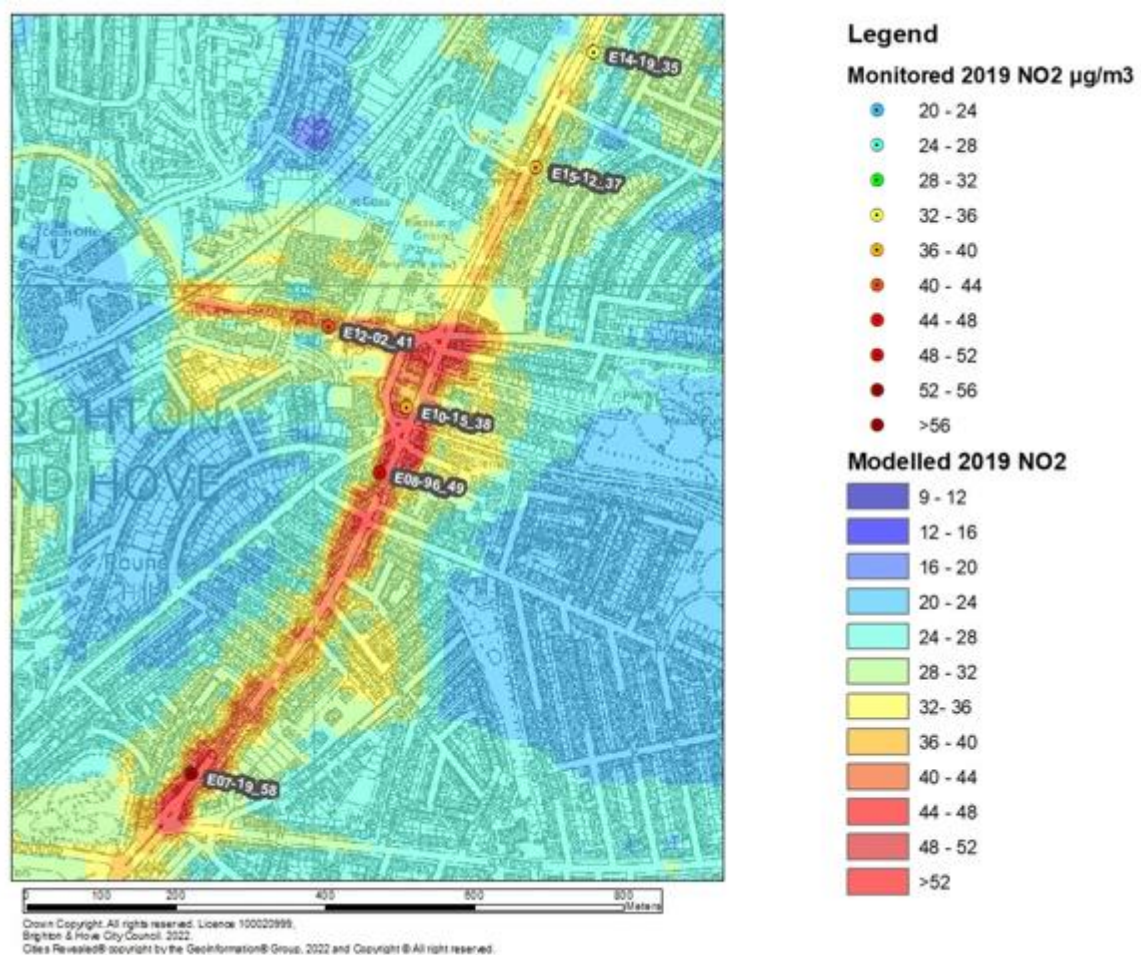


Figure 11: AQMA 1 Lewes Road and Hollingdean Road Area

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction needed to meet UK legal requirement	Reduction needed to meet local objective
Lewes Road (north of Elm Grove)	58µg/m ³	Monitor in different place	40%	48%
Lewes Road Coombe Terrace	37µg/m ³	17%	5%	19%
Hollingdean Road	41µg/m ³	13%	12%	27%

Table 7: AQMA1 Lewes Road Hollingdean Road area NO₂ improvement required

For NO₂ hotspots on Lewes Road (north of Elm Grove) an improvement of 40% is required to meet UK air quality standards. Additional improvement beyond that will be required to achieve the local target set out in this AQAP.

Prior to the pandemic, modelling source apportionment for NO₂ along this transport corridor was as follows:

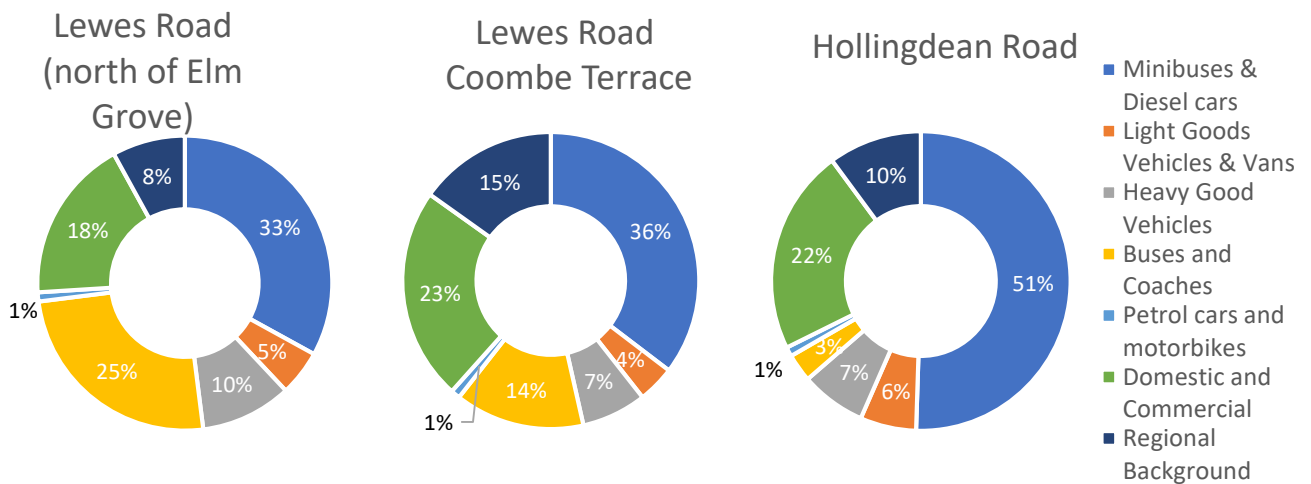


Figure 12: Source Apportionment AQMA1 Lewes Road Hollingdean Road Area 2019

There are a mix of emission sources influencing the air quality along this major transport corridor and development area. Diesel cars and vans are the main contributors to NO₂ along the corridor. A key action of the AQAP is to further reduce bus emissions which will benefit air quality especially along the route, that has a variety of business uses, retail, residential and high-rise student accommodation.

AQMA 2 – Rottingdean High Street

The coastal village of Rottingdean is surrounded by part of the South Downs National Park and has good clean air quality in the surrounding countryside. AQMA2 is influenced by road traffic emissions from the key routes of the A259 and the B2123 along Rottingdean High Street.

Most emissions are from diesel vehicles and often associated with waiting at, and pulling away from, the junction where the two main routes meet.

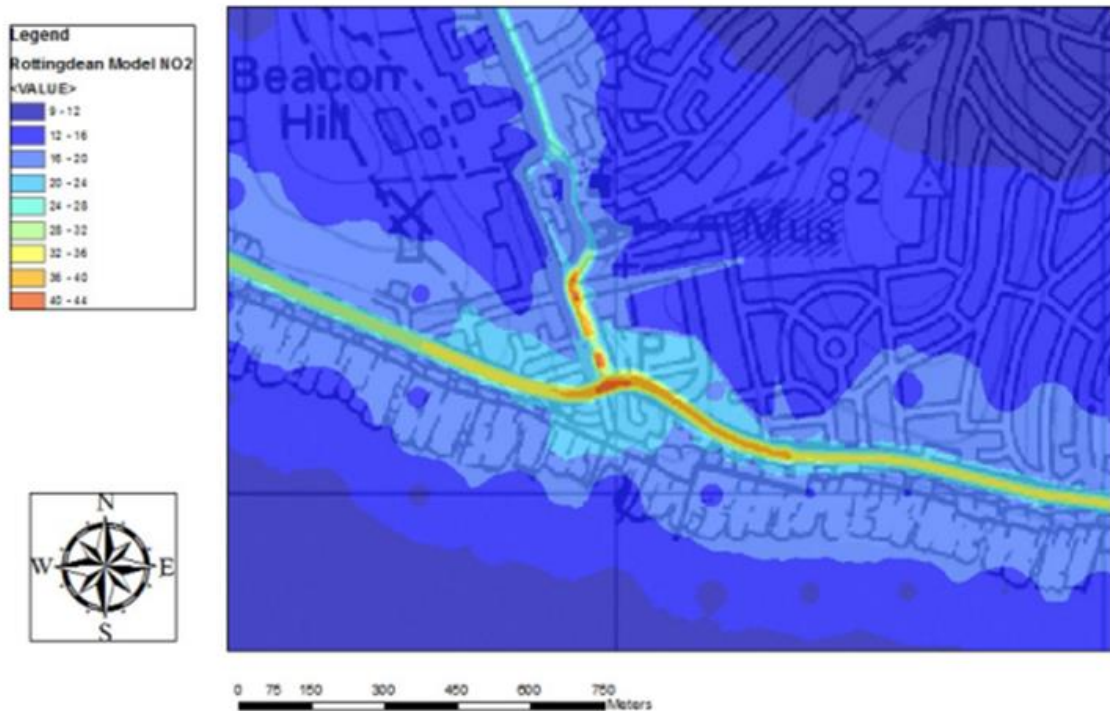


Figure 13: AQMA 2 Rottingdean High Street

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction needed to meet UK legal requirement	Reduction needed to meet local objective
Rottingdean High Street East	33µg/m ³	17%	Already reached	9%
Rottingdean High Street West	35µg/m ³	15%	Already reached	17%
Rottingdean Marine Drive	32µg/m ³	Monitoring started 2018	Already reached	6%

Table 8: AQMA 2 Rottingdean area NO₂ improvement required

Sustained improvement is still required in this area to achieve our local target. This AQMA declaration is scheduled for review from 2025.

When compared to results from the monitor located on the seafront at Rottingdean, NO₂ is twice as concentrated at the monitoring positions in the south of the High Street and next to Marine Drive.

AQMA3 South West Portslade

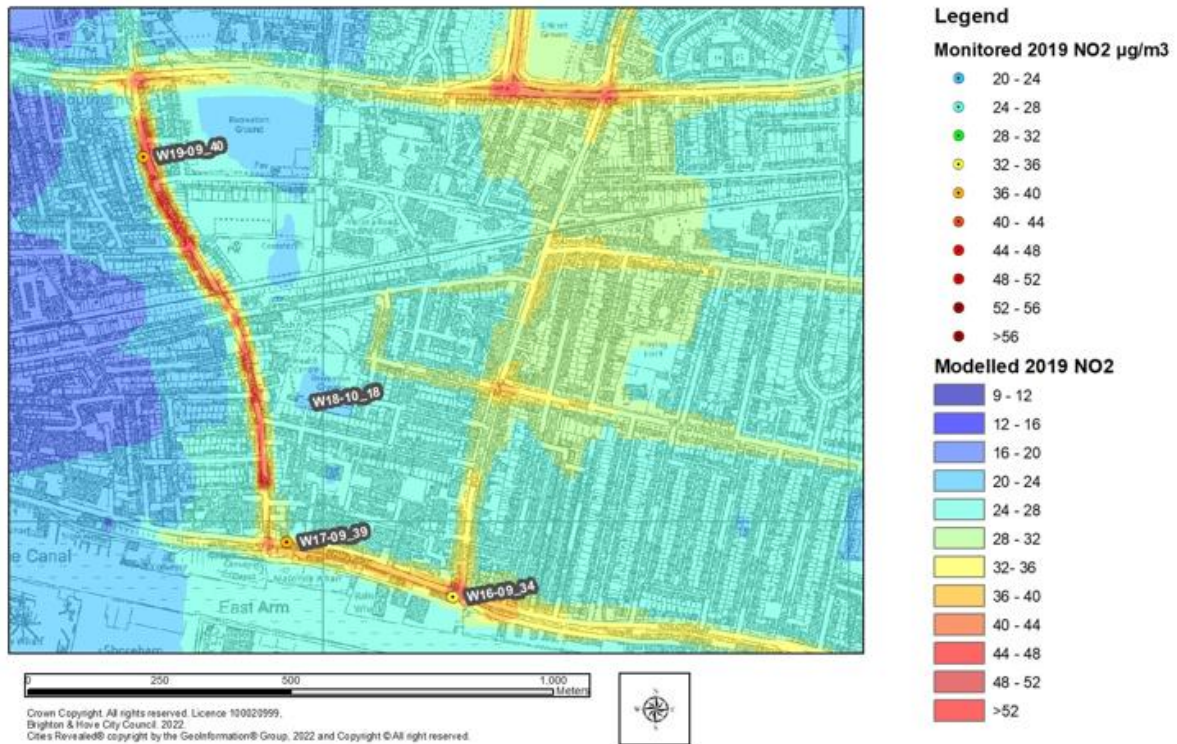


Figure 14: AQMA 3 South West Portslade

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction needed to meet UK legal requirement	Reduction needed to meet local objective
Trafalgar Road	40 µg/m ³	11%	10%	25%
Wellington Road	39 µg/m ³	14%	8%	23%

Table 9: AQMA 3 South West Portslade area NO₂ improvement required

NO₂ levels are close to exceeding UK standards on Trafalgar Road and Wellington Road, especially at the western end, near Church Road. Improvement is still required in this area to achieve the 30 µg/m³ local target.

Pre pandemic source apportionment is as follows:

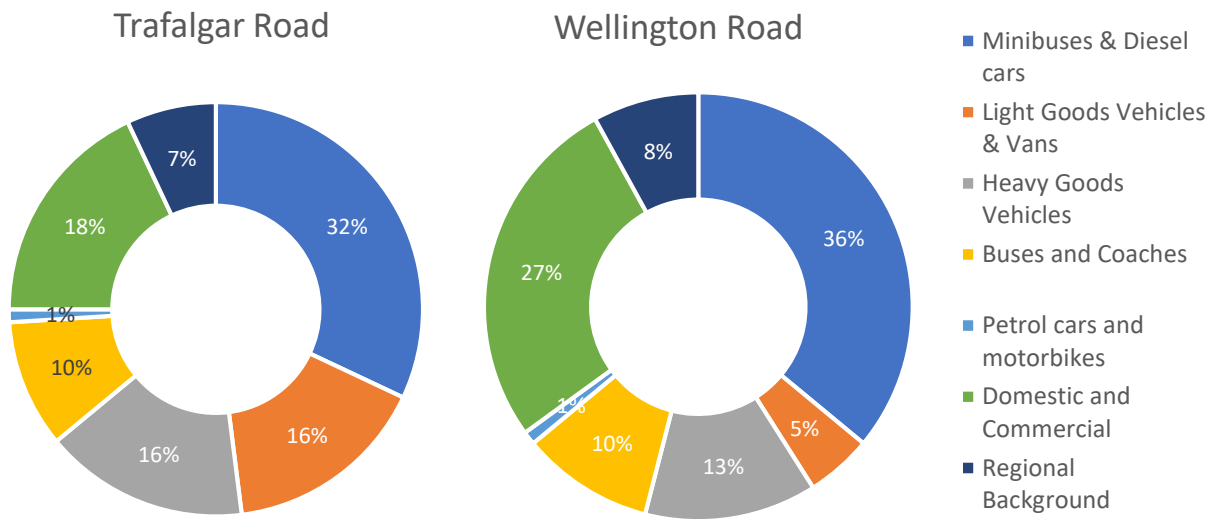


Figure 15: Source Apportionment AQMA 3 South West Portslade Area 2019

AQMA 4 - Sackville Road/Old Shoreham Road junction

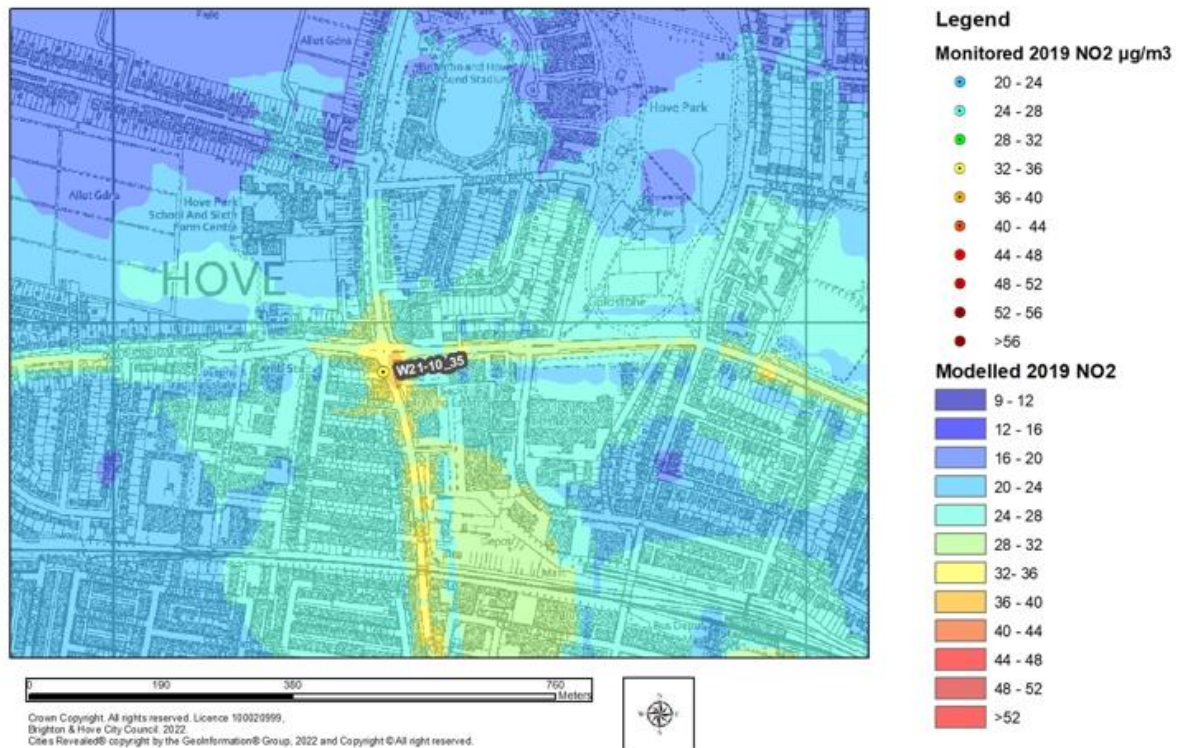


Figure 16: Sackville Road/ Old Shoreham Road junction

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction needed to meet UK legal requirement	Reduction needed to meet local objective
Sackville Road/ Old Shoreham Road	35 µg/m ³	21%	Already reached	14%

Table 10: AQMA4 Sackville Road/Old Shoreham Road junction NO₂ improvement required

Monitoring in 2019 suggests compliance with air quality standards around this junction. That said, it will be important that new development buildings do not further encroach on the junction, making exhaust emissions more concentrated.

Sustained improvement is still required in this area to achieve the 30 µg/m³ ambient NO₂ local target. This will need to be further monitored as the AQMA is adjacent to construction and development sites.

AQMA 5 - South Street and Preston Road

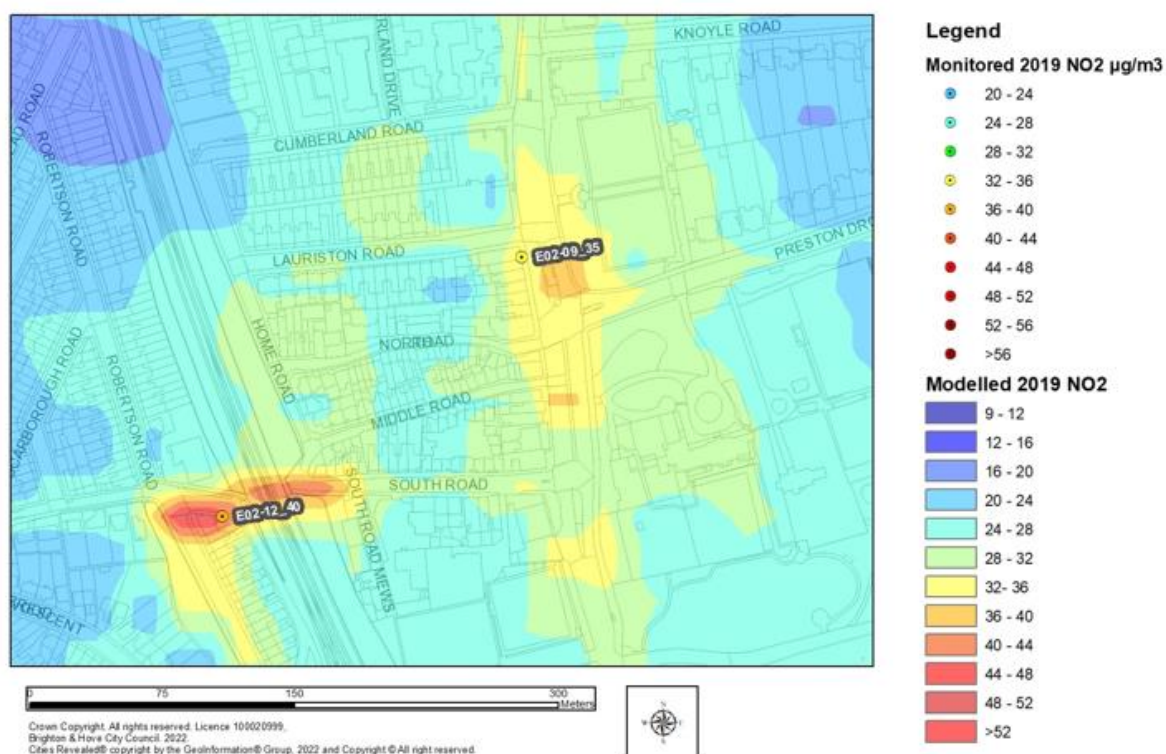


Figure 17: South Street and Preston Road

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction needed to meet UK legal requirement	Reduction needed to meet local objective
Preston Road (near Preston Drive)	35µg/m ³	15%	Already reached	14%
South Street (near The Drove)	40µg/m ³	0%	10%	25%

Table 11: AQMA 5 South Street and Preston Road area NO₂ improvement required

Monitoring indicates past exceedance of the NO₂ UK air quality standards to the west of the railway bridge, where space is limited for buses and lorries. On South Street, levels have remained static and an improvement of 25% in roadside NO₂ is required (compared to 2019 levels) to surpass UK air quality standards.

AQMA 6 - Eastern Road (Royal Sussex County Hospital)

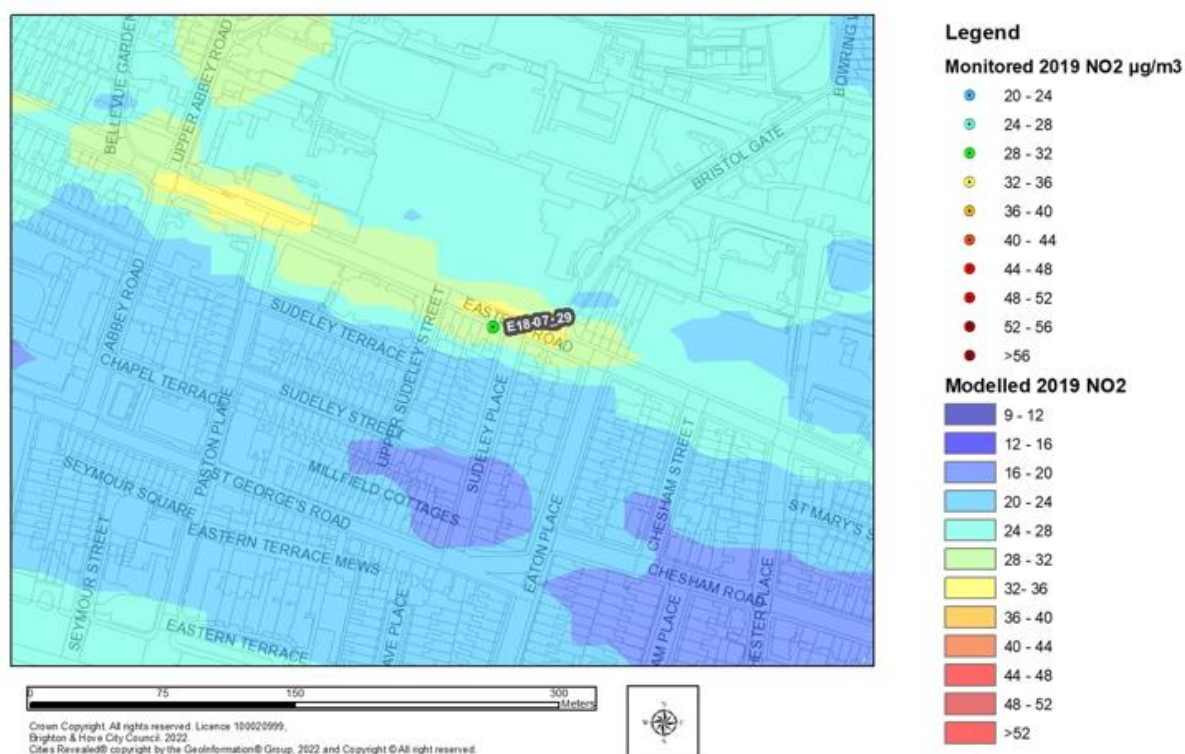


Figure 18: AQMA 6 Eastern Road (Royal Sussex County Hospital)

Location	2019 NO ₂ Level	Improvement between 2014-2019	Reduction needed to meet UK legal requirement	Reduction needed to meet local objective
Eastern Road near Hospital	29µg/m ³	28%	Already reached	Already reached

Table 12: AQMA 5 Eastern Road (Royal Sussex County Hospital) area NO₂ improvement required

Monitoring since 2018 suggests air quality has improved substantially since the peak phases of construction for the Royal Sussex County Hospital expansion.

Perceptions of Air Quality

Alongside the monitoring and modelling shown above, we also need to consider the views of residents to demonstrate the support for further work in this area.

The council takes part in the annual NHT survey which consists of a randomised sample of residents from across the city.

In 2021, just 13% of respondents said they felt very well or fairly well informed about air quality alongside local roads while 70% feel not very well informed or not at all informed about this. Whilst some find the annual reports an invaluable reference, it suggests many people have not connected with the council's reports on local air quality.

As well as this, 34% of respondents felt very well or fairly well informed about the level of pollution caused by traffic in the local area, whilst 57% feel not very well informed or not at all informed about this.

In terms of council priorities, 60% of respondents said it would be acceptable to improve the level of service by spending more on levels of traffic pollution, placing it amongst the top five priority areas for spending more.

Satisfaction with both traffic pollution and traffic levels and congestion is poor and has decreased from 2020.

Indicator	BHCC 2021 satisfaction score	BHCC 2020 Satisfaction score	Year on Year Change	Difference to NHT 2021 mean	Authority Rank (out of 111)
Traffic Levels and Congestion	33%	35%	+2%	-7%	109
Traffic Pollution	36%	34%	+2%	-10%	106

Table 13: NHT Results of Benchmark Indicators

For the public consultation in autumn 2021 on the LCWIP and initial LTP5 direction of travel document, respondents were asked to state how concerned they were about various issues in the city. Highest levels of concern overall relate to climate change (76.7% of respondents were extremely or moderately concerned about this) following the climate assembly, air pollution (73.3% of respondents were extremely or moderately concerned about this) and traffic congestion (68.6% of respondents were extremely or moderately concerned about this).

There were some variations in the level of concerns according to the type of journeys undertaken by respondents, including:

- Respondents who travel longer distances are more concerned about traffic congestion than those travelling more locally
- Air pollution, noise pollution, climate change and road safety are of least concern to those respondents using a car or van for all distance journeys.
- Personal safety is of most concern to respondents who walk or cycle for all journeys lengths asked about (around local neighbourhood, into city centre, across the city and leaving the city).

Our Priorities

The actions we want to take have been split into the following 5 priorities:

Priority 1: Increase Active Travel, Support Mode Shift and Reduce the need to travel

Road transport accounts for over 30% of greenhouse emissions in Brighton & Hove and more than 80% of NO₂ in the AQMAs. In order to reduce this, we need to encourage and facilitate active travel for short journeys (or as part of a longer journey) especially in the city centre, in combination with a reduced need to travel.

Active travel reduces sedentary time, gives the human body a range of postures and exercises the heart and lungs. This helps raise individual and population level immunity and reduces the health risks associated with breathing in allergens and pollution. Active outdoor movement is an opportunity for everybody to breathe fresh air that helps improve sleep quality.

An increase in active travel such as walking and cycling or a switch to more sustainable modes eg public transport, can support a reduction in transport emissions from private cars and vans. Reducing the need to travel can have similar effects eg encouraging and enabling working from home or more locally-based shopping. Every individual vehicle trip that can be replaced by walking, cycling or public transport helps free up limited road space for trades and public transport including buses, taxis, internet deliveries, trades-people, carers, disabled drivers, and food distribution.

In the UK, 58% of car journeys are under five miles and in urban areas, more than 40% of journeys are under two miles. In some instances, these journeys can be suited to cycling and walking. Some residents however, in particular some disabled people, may always need to use their cars for short journeys.

Redesigning streets would allow us to give more space back to people through, for example, local community mini gardens or pocket parks, with trees or vegetation, or squares, to provide more space for relaxing, street markets or local events.

Although not suitable for everyone, we have seen during the pandemic how it is possible to study or work from home and have good online access to health, financial, retail and other services. This can have a huge part to play in avoiding the need to travel, especially where we can reduce longer vehicle journeys.

Since the last AQAP we have introduced the BTN Bikeshare scheme, which now has a fleet of over 600 bikes and members have cycled over 3 million miles. Smarter public transport ticketing has been introduced, with fare caps and contactless payments to make travelling by bus and train quicker, easier, and cheaper.



Figure 19: BTN Bikeshare on A259 Seafront Cycle Lane

Many of the actions we could take to reduce car use and encourage a shift to alternative and more sustainable forms of transport have been outlined in the emerging Local Transport Plan 5 (LTP5). Alongside the expansion and continuation of current projects, these will include options for introducing local and strategic mobility hubs, creating a liveable city centre and beginning more localised programmes of liveable neighbourhoods and school streets projects. More detail on all of these potential options can be found on our [Local Transport Plan web pages](#).

Key actions:

- Deliver the priorities in the Local Cycling and Walking Infrastructure Plan (LCWIP)
- Develop Liveable Neighbourhood schemes
- Continue the rolling schedule of School Streets
- Expand the BTN Bikeshare scheme
- Promote and enable greater public transport use

A full list of actions is set out in Table 14.

Priority 2: Encourage and support uptake of ultra-low and zero exhaust vehicles

This priority focuses on encouraging and facilitating use of cleaner vehicles eg motorcycles, cars, vans, minibuses, buses and lorries.

The council will continue to support the switch to ultra-low, hybrid or zero exhaust vehicles by assisting and providing incentives for residents and businesses to switch to advanced euro-6 emission standard, electric, hydrogen or other clean energy. We will work with businesses, energy and transport companies and neighbouring authorities to provide the infrastructure required such as hydrogen refuelling stations.

Options for an expanded ULEZ will be developed further, these include a physical extension to cover a larger area and different types of vehicles. An expanded ULEZ or a Zero Exhaust Zone could significantly cut transport emissions in busy central areas. One option is for an expanded ULEZ to include the built-up area south of the A27 trunk road, to include all vehicle types (motorcycles, cars, vans, lorries and buses) with exemptions in place for some vehicles for access. Any option will be subject to further consultation before any implementation. A UK ULEZ requires that petrol vehicles meet the euro-4 emission standard and diesel vehicles meet the euro-6 emissions standard⁸.

Access to ultra-low or zero exhaust vehicles needs to be improved, and increased charging points or further incentives should be put in place to help make the switch.

⁸ Contributions to local pollution are mostly from older vehicles. Euro -4 emission standard cars are registrations from late 2006. Euro-5 diesel cars registered from 2011 are much lower for exhaust particulates. Cars registered from 2015 are approved as euro-6. Vans registered from 2016 are approved as euro-6. Diesel cars and vans registered after 2018 or 2020 (advanced euro-6) tend to be lower for NOx emissions.

Since the last AQAP, measures we have taken to encourage use of low or zero exhaust vehicles include the installation of more than 200 new lamp post column electric vehicle charging points, offering drivers of low emissions vehicles a 50% discount on parking permits and supporting the introduction of sustainably fuelled vehicles within the public transport network. The local taxi fleet has 13% of its vehicles fuelled by alternatives to diesel, with four licenced electric taxis, and slightly more than one fifth of the local bus fleet is diesel-electric hybrid including 54 double decker buses capable of operating on their battery through the ULEZ, through AQMAs and when pulling away from bus stops.



Figure 20: Electric Vehicle charging in the city-centre

As well as supporting the choices of individuals, the council supports local businesses and organisations to switch to low emission vehicles, such as electric cargo (e-Cargo) bikes for deliveries of goods and services. We also have a programme in place to switch our refuse collection and other large servicing vehicles from diesel to electric or other low-carbon fuels such as green hydrogen during the term of this AQAP.



Figure 21: Local business use of an e-cargo bike

The uptake of zero exhaust vehicles in the city is increasing but is still very low. We recognize that for ultra-low and zero exhaust vehicles to be available to more people, manufacturing rates of new cars and vans would need to increase substantially, which is anticipated over time. Until then providing cleaner vehicle options on our public transport network and council fleets, and also supporting cleaner freight movement will help to bring down emissions and improve air quality for everyone.

Key actions:

- Develop and deliver an expanded ULEZ for all vehicles in the city centre by 2025
- Ensure over 95% of the city's bus fleet meets Euro-VI standard in 2022, working towards 100% soon after
- Increase the availability of on and off-street electric vehicle charge points
- Increase uptake of electric taxis and provision of taxi-charging sites

A full range of measures are in Table 14.

Priority 3: Improve Monitoring and Public Awareness

We will continue to monitor air quality at key sites across the city to assess our compliance with national legal requirements and our own local targets.

An improvement in air quality monitoring is required across the city especially:

- In and around the Air Quality Management Areas
- Development Areas
- Long term construction sites
- In the vicinity of port activities
- Areas where residents are concerned about domestic burning causing smoke

As well as supporting the individual choices and responsibilities of our residents and visitors, we can communicate our own data more effectively and more transparently to them. Increasing the public's understanding of the sources and effects of air pollution can also influence changes in behaviour which can help improve air quality. This is especially important given over 70% of residents feel uninformed about local air quality. Plans are in place, and contributory funding has been secured, to upgrade the Greater Brighton air quality monitoring network to provide verified results to the public. Brighton & Hove and Sussex will integrate its Nitrogen Dioxide (NO₂) and Particulate Matter (PM_{2.5} and PM₁₀) monitoring capability into one verified network for Sussex.

Alongside a continuation of our existing behaviour change campaigns and events, including Car Free Day and Clean Air Day, we will produce promotional campaigns about specific causes of air pollution.

Key actions:

- Improve monitoring quality including real time information
- Deliver behaviour change campaigns, eg travel to school, seasonal awareness of woodburning stove use
- Share information with Director of Public Health, GPs and NHS
- Promote AirAlert System

A full range of measures is in Table 14.

Priority 4: Reduce emissions from buildings and new development

The council will continue to mitigate and minimise emissions from both existing buildings and from new developments, through a combination of conditions within our planning process and work towards improving heat retention and providing information on smoke control. New developments will start to be fully electric without gas combustion which is the city's second source of oxides of nitrogen after road traffic. This helps to reduce medium term reliance on fossil fuel natural gas which is likely to have supply challenges.

This AQAP recommends that where practicable, developments improve existing buildings and structures, or consider options for change of use, instead of opting for new builds. This stops, or defers, demolition and rebuilding which leads to new materials being manufactured and shipped each time land is redeveloped.

Local, regional and national policies and guidance require air quality to be a material consideration in the planning process. Our existing planning policies will continue to promote low emissions from new developments. Key planning policies already state that mitigation is required for all developments that have potential to cause pollution. New developments will need to facilitate and promote active, sustainable travel and avoid emissions from travel eg by installing secure cycle storage or being car free.

On the occasions where demolition is the preferred option, the opportunity should be taken to widen pavements, create shared amenities and provide space for ventilation and cleaner air. New builds need to be sufficiently durable and sustainable to last several generations and should be designed for adaptations, extensions, or future changes of use.

The planning process is a mechanism to assess what will change compared to the existing planning permissions, for example changes to traffic, gas combustion or confined spaces, and these changes are considered in accordance with national guidance.

In Brighton & Hove, domestic burning tends to supplement central heating and be intermittent according to stay at home choice, the season and temperature. Further work is required to determine the contribution domestic burning has on local air quality, however open fireplaces and stoves (coal and wood for heating) tend not to be sufficiently hot to emit NO₂ but at times eg midwinter or evenings, are the main source of neighbourhood smoke, particularly in residential areas.

The council will consider a citywide smoke control area with the aim of reducing smoke from chimneys. Where a smoke control area is designated it is against the law to emit persistent visible smoke from a building chimney.

It is the homeowner or tenant/occupier responsibility to comply with the law on smoke control. This includes avoiding persistent visible smoke from a chimney. Certain fuels and stoves are classed as smokeless, however solid fuel burning is likely to produce smoke with intermittent use. Burning coal, wood and waste is not the best option amongst populated neighbourhoods. Where wood burners and flues are installed, they need to comply with building regulations. Room ventilation, chimney sweeping, smoke alarms and carbon monoxide monitors are recommended.

Smoke from bonfires is dealt with by regulatory services under nuisance legislation.

Key actions:

- Deliver options to discourage smoky domestic burning activities
- Develop and deliver a citywide Smoke Control Area by 2023
- Enable more car free/low car developments
- Continue seasonal promotion about the risks of smoke on health
- Electric developments supplied by a clean grid, in order to reduce emissions of oxides of nitrogen from heat and power and ongoing reliance on fossil fuel

A full range of measures is in Table 14.

Priority 5 Partnership working

Brighton & Hove cannot tackle air quality alone, and pollution experienced is often created outside of the city. Working with our neighbouring authorities is key to improving air quality across the whole region.

Brighton & Hove is already involved in several working partnerships as follows:

The Sussex Air Quality Partnership (SAQP), formed in 1999, includes all local authorities across Sussex with strong links to universities such as Imperial College London, University of Sussex, and University of Brighton. The group meets quarterly to share knowledge and best practice on air quality and collaboratively develop and deliver projects to improve air quality and reduce people's exposure to pollution. A small team drawn from across the county have worked together to submit bids to DEFRA's air quality grant, often led by the city council. The group works collectively to tender contracts and achieve good value for money, for example we aim to improve integration of the air monitoring network across the county.

East Sussex County Council and Brighton & Hove City Council have worked together to submit preliminary bids and an expression of interest to government's Department for Transport's (DfT's) Zero Emission Bus Regional Area (ZEBRA) grant. Brighton & Hove Buses' preference is a hydrogen-fuelled bus fleet within a few years and the DfT funding could help pay for infrastructure, new vehicles or the retrofit of the existing fleet to zero tailpipe.

As well as working in partnership with neighbouring authorities, we need to work closely with transport providers, businesses and local stakeholders to maximise the impact our actions can have.

There is a need for shared information on clean air and pollution, for example with the Director of Public Health, clinical professionals, GPs and the NHS.

In June 2021, councillors agreed that the council should start the process of forming an Enhanced Partnership in response to the National Bus Strategy. This will replace our existing, informal but highly successful Quality Bus Partnership which has been in place since 1997. Together with local bus companies, our latest Bus Service Improvement Plan (BSIP) was produced in late 2021 and submitted to government to help secure additional funding.

Other crucial actions are to continue close working with schools and workplaces to encourage and facilitate active travel and support them to implement their own travel plans. This will take place alongside working with local community groups to develop schemes which will most benefit them.

Key actions:

- Work closely with public transport operators, businesses and business groups to tackle emissions from deliveries and vehicle fleets
- Work with DEFRA on air quality policy
- Lead neighbouring authorities for future funding bids and improved awareness
- Work with Director of Public Health to share information with GPs and NHS
- Work with BHCC planning to deliver cleaner developments
- Engage with community groups to help support the development and introduction of liveable neighbourhoods including those next to main roads

A full range of measures is in Table 14.

Air Quality Action Plan Measures

The table below outlines the plans and measures ongoing and for delivery during the AQAP term up to 2027. Actions in this plan partly align with the Local Transport Plan 5, the Climate Assembly and any future planning projects and guidelines. Subject to further funding and prioritisation some measures will be completed or widened in scope and size.

Measure No.	Measure	Category	Classification AQAP Priority	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation	
1a	Active travel access	Promoting travel alternatives	Priority 1	2018	2025	BHCC City Transport	DfT	£1 million - £10 million	Implementation	1 to 5 µg/m ³ NO ₂ long term	Increased active travel leisure and travel	A259 cycle lanes	LCWIP to take forward	
1b	Expanded bikeshare scheme and inclusion of e-bikes	Transport planning and infrastructure		2018	2023		Public / Private	£500k to £1 million	Implementation	1 to 3 µg/m ³ NO ₂	Uptake in Bikeshare usage and new members	High patronage and trip numbers	Planned expansion to suburbs and to neighbouring authorities with e-bikes	
1c	On street bike storage	Parking		2021	2025		BHCC	£100k - £500k	Ongoing	1 µg/m ³ NO ₂	Increased bike use	Implemented on several streets	Not every request can be met	
1d	Encourage and facilitate home-working remote access to health, services, education	Promoting travel alternatives		Increase active travel	2019	2027	Citywide Businesses	Various	< £10k to £100K	Implementation	1 to 5 µg/m ³ NO ₂	Reduced traffic levels	Changes in working patterns	Working from home continues after 2020 travel restrictions
1e	Lift share and car club / hire	Alternatives to private vehicles and diesel		Support travel mode shift and reduce the need to travel	2017	2027		Private	£100k - £500k	Ongoing	1 to 2 µg/m ³ NO ₂	Viable car clubs with electric	Good uptake companies and households	Established
1f	Bus access improvements	Transport planning and infrastructure		Reduce energy demand and fuel burn	2015	2027	BHCC City Transport Bus Companies	BHCC, Bus operators, DfT	> £10 million	Ongoing	1 to 2 µg/m ³ NO ₂	Bus priority and accessibility	New phase to start	Bus Service Improvement Plan
1g	Transport mode Interchanges			Less commuting reduction in AM and PM peak traffic since 2020	2018	2027	BHCC City Transport Schools and businesses	Various	£1 million - £10 million	Ongoing	1 µg/m ³ NO ₂	More sustainable travel	Work on main station delivered	Transport interchanges more accessible. Declined rail use since 2020
1h	Develop Assessment Framework for Low Traffic Neighbourhoods (LTN)			2002	2023	1 to 2 µg/m ³ NO ₂		Reduced traffic levels, emissions, and air quality	Under development		Ensure no adverse impact on AQMA corridors			
1i	School Travel Plans			Travel plans	2022	2027		BHCC	£100k - £500k	<1 µg/m ³ NO ₂	Behavioural change	Annual travel survey results to look at travel modes	Permanent schemes	
1j	Workplace travel planning				2022	2027				< 1 µg/m ³ NO ₂			Helped by reduced levels of commuting since 2018/19	
1k	School Streets	Promoting travel alternatives		2022	2027		£100k - £500k	Six schemes per year	< 1 µg/m ³ NO ₂		Permanent schemes Home to			

Measure No.	Measure	Category	Classification AQAP Priority	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			Priority 1 Increase active travel										school services Ultra-low or zero
1l	Continue higher cost for resident parking permits for additional vehicles	Parking		2022	2024	BHCC Parking Services		£100k - £500k	Ongoing	Trace levels	Fewer car trips	Implemented	Budgetary decision
1m	Explore Park and stride. Park and ride, strategic mobility			2022	2027	BHCC City Transport and Planning	BHCC	£10k to £100K	Feasibility study started	2 to 7 µg/m ³ NO ₂	Vehicle trips saved through AQMAs	Options considered	Identifying suitable sites
1n	Explore workplace parking levy	Travel Planning		2022	2025			< £10k to £100K	Possible option	1 to 2 µg/m ³ NO ₂	Reduced car commuting		Consideration in LTP5 Example Nottingham
1o	Liveable City Centre	Urban realm		2022	2024			£500k to £1 million	Feasibility study	1 to 5 µg/m ³ NO ₂	Improved urban realm ensure no pollution increase for AQMA corridors	Master plan to be developed	Prioritised by Climate Assembly and part of LTP5
1p	20-minute neighbourhoods			< £10k to £100K	Pilot project			Trace levels	Less road emissions	Pilot project	Proposed in LTP5		
1q	Develop re-wilding and tree planting areas and parklets, reduce fire risk of habitats			£100k - £500k	Ongoing			Slight benefit for particles	Improved urban realm and a safer more attractive environment for walking and cycling	Valley Gardens, Waterhall rewilding, Carden Hill tree planting, LTNs	Trees will benefit from cleaner air, less likely to mitigate pollution		
2a	Working towards a zero-exhaust council fleet for vehicles and machinery	Promoting zero emission council fleet	Priority 2 Encourage and support uptake of ultra-low and zero exhaust vehicles	2019	2027	BHCC City Clean and City Transport	Low Interest Loan	£1 million - £10 million	Implementation	1 to 4 µg/m ³ NO ₂	Zero Emission Council Fleet	Electric waste vehicle	Investment required beyond 2027
2b	Ultralow and zero emission zone for buses	Promoting Ultra-low emission public transport		2019	2027		DEFRA, BHCC, private bus operators	>£1 million - £10 million	Implementation	15 to 35 µg/m ³ NO ₂ estimations	>90% bus ULEZ compliance. Less NO ₂ next to roadside	Advance beyond 2015 LEZ. Meet and surpass bus emission standards set by the 2019 ULEZ	Parts availability
2c	Exhaust retrofit on middle age buses (oldest vehicles retired)			2013	2023	Local Bus Operators and BHCC, Air Quality	Defra, BHCC, local bus operators	£1 million - £10 million	Implementation	5 to 20 µg/m ³ NO ₂ estimations	Lower NO ₂ kerbside and roadside	Implementation on-going	Fourth and final phase scheduled for winter 22/23
2d	Better aligned wheel tracking			2021	2025	Brighton & Hove CC University of London	University	£100k - £500k	Planning	1 to 3 µg/m ³ PM _{2.5}	Saving particles from road and tyre wear	Study ongoing	Benefit for particles and CO ₂
2e	Ultralow or zero zone for all vehicle types	Ultra-low emission all vehicles		2020	2025	BHCC City Transport	BHCC with DEFRA bid application 2022	£500k >£1 million -	Review of options	5 to 15 µg/m ³ NO ₂	Fewer polluting vehicles	Review of options	Cost benefit analysis
2f	Promoting e-cargo bikes	Freight and delivery		2020	2023	Citywide businesses	DfT	£100k - £500k	Implementation	1 to 2 µg/m ³ NO ₂	Increased cycle-use and	30 businesses switched from	Continuation of grant funding

Measure No.	Measure	Category	Classification AQAP Priority	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			Priority 2 continued								reduced vehicle use	petrol or diesel delivery vehicles	
2g	Geo-referenced hybrid buses and taxis	Bus and taxi fleet fuel savings		2018	2022	Local bus and taxi operators, BHCC and Ricardo, University of Sussex	Innovate UK Bus Operators	>£1 million - £10 million	Completed	1 to 7 µg/m ³ NO ₂	NO ₂ Reduction	Second phase	Relevant to 54/350 regular buses
2h	Fast & rapid electric chargers for taxis and cars	Promoting zero emission cars and taxis		2019	2021	City Transport Parking Services	Office of zero emission vehicles, BHCC	£500k - £1 million	Implementation	1 to 3 µg/m ³ NO ₂	On-Street facilities	More than 200 fast chargers installed. 3 rapid charging hubs for the taxi installed.	Further charging facilities 2022/23
2i	Zero exhaust emissions for last mile deliveries	Freight and delivery		2022	2027	BHCC City Transport	BHCC	£100k - £500k	Under consideration	1 to 6 µg/m ³ NO ₂	Reduced number of freight vehicles	Increased use of e-bikes and e-vans	Land availability for goods transfer
2j	Anti-Idling	Avoiding vehicle emissions		2017	2023	BHCC air quality and communications	Sussex Air BHCC	< £10k	Ongoing	1 µg/m ³ NO ₂	Increased public awareness	>70 signs installed.	Changes in behaviour
2k	Explore emission-based parking charges	Parking		2022	2023	BHCC Parking Services	BHCC Parking Services	< £10k to £100K	Requires committee decision	1 to 2 µg/m ³ NO ₂	Fewer diesel vehicles in city	Options under consideration	Structure to be determined.
3a	Air quality monitoring and annual reports	Public information	Priority 3 Monitoring and Public Awareness	2020	2027	BHCC air quality and Sussex Air	BHCC, DEFRA air quality grant	£100k - £500k	New automatic analysers	1 µg/m ³ NO ₂	Increased awareness	Funding allocated in 2022	Installation of new equipment, quality assurance of data and maps
3b	Real-time sensors			2021	2024	BHCC air quality and communications		£50k - £100k	Procurement of new equipment	1 µg/m ³ NO ₂ PM _{2.5}	Data from automatic analysers and sensors		
3c	Community Engagement Schools and Events			2019	2025			£100k - £500k	Implementation	1 µg/m ³ NO ₂	Promote awareness active & zero emission travel	Interactive across Sussex	Air quality at Brighton & Hove schools is relatively low
3d	Communications on reducing domestic smoke			2019	2027	BHCC	£50k - £100k	Media releases and web updates	1 to 2 µg/m ³ PM _{2.5}	Increased awareness	Spring and autumn statements issued	Continued solid fuel burning	
3e	Public Information campaign on air quality and health			2022	2027		BHCC Public Health and air quality		< £10k	1 to 2 µg/m ³ NO ₂ and PM _{2.5}	Increased percentage of residents informed	Options under consideration	Liaison with clinical health, GPs, NHS and Director of Public Health
3f	Promote air alert			2022	2027	Sussex Air	Sussex Air	< £10k	Established	-	Increased sign-up for app	Continued promotion	Reduced hospital admissions
3g	Move for change campaign			2022	2027	BHCC Travel Behaviour Change Team	BHCC, Better Points	10k - £50k	Ongoing	< 1 µg/m ³ NO ₂	Change in travel decisions	3000 people signed up	Engagement in activity
4a	Ensure development has positive influence on air quality			Planning	Priority 4 Reduce emissions	2022	2027	BHCC Planning, developers	Development/private sector	£100k to £10 million	Ongoing	1 to 7 µg/m ³ NO ₂	Develop design achieves better than negligible impact and/or avoids emissions

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			from buildings new developments energy production and construction sites									spaces, charging points, electric heating etc	
4b	Improve street air flow and avoid enclosure of emissions	Planning	Priority 4 Reduce emissions from buildings new developments energy production and construction sites and events	2022	2027	BHCC Planning, developers	Development/private sector	£100k to £10 million	Ongoing	1 to 5 µg/m ³ NO ₂	Number of developments requiring air quality mitigation.	Ensuring good design avoids creating or reinstating street canyons by designing gaps and setbacks	Delivering high density development in constrained locations and providing public amenity space
4c	Construction Environment Management Plans [CEMPs]	Freight and delivery management		2021	2027	BHCC Planning, developers, planning consultees	Developers	£50k - £100k	Implementation	1 to 2 µg/m ³ PM _{2.5} and NO ₂	Reduction of HGV emissions in the AQMA and reduced of diesel generators	Ensuring Euro-VI HGV's with route plans	Compliance with CEMP requirements
4d	Improved Emission Standards for Non-Road Mobile Machinery	Planning		2022	2025	BHCC Planning and air quality	Developers	£100k - £500k	Phase in more stringent standards	1 to 4 µg/m ³ PM _{2.5} and NO ₂	Compliance with planning conditions for machinery on construction sites	Conditions attached to major planning applications.	Funding required to enforce more stringent 2025 standards
4e	Adoption and application of Planning Policy	Policy guidance and development management		2016	2027	BHCC Planning and Transport	BHCC Planning	£50k - £100k	Completed	1 to 5 µg/m ³ NO ₂	Adoption of City Plan Part 2 and planning policies	Adoption of City Plan Part 2 and review of Part 1 planned.	Established
4f	Development provides active and zero exhaust infrastructure			2022	2027	BHCC Planning	BHCC Planning	£1 million - £10 million	Ongoing through planning process	1 to 2 µg/m ³ NO ₂	Reduction in emissions	High proportion for City Centre	Requires on- and off-site provision
4g	Ensure certain developments produce a travel plan			2022	2027			£100k - £500k		1 µg/m ³ NO ₂		Travel plans secured as part of planning permissions	Ensuring compliance with planning condition
4h	Ensure development meets Part S of the building regulation for electric charging points			2022	2027			£50k - £500k		1 to 2 µg/m ³ NO ₂		Conditions applied to planning permissions	New legislation was introduced in 2021
4i	Ensure that major developments avoid emissions in accordance with energy hierarchy for net carbon and avoid oxides of nitrogen emissions in and around AQMAs.			2022	2027			£50k - £500k		1 to 2 µg/m ³ NO ₂		Improvement in reduction of emissions from energy and vehicles from approved planning applications.	Work towards Future Homes standard

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4j	Smoke Control and Cleaner Home Heating	Smoke Control	Priority 5 Partnership working	2020	2023	BHCC Air Quality, Legal, Communication, Trading Standards, Environmental Health	BHCC	£100k - £500k	Ongoing development	1 to 4 µg/m ³ PM ₁₀	Delivery of citywide Smoke Control Area and increased awareness	Discussions with DEFRA. Legal and Trading Standards advice sought.	New legislation in 2021. Guidance published in 2022
4k	Citywide smoke control area and training for officers to enforce domestic smoke emissions			2022	2023	BHCC Air Quality, Legal, Communication, Trading Standards, Environmental Health	Bid to DEFRA grant	£50k - £100k	To be considered	1 to 4 µg/m ³ PM ₁₀	Completion of training	Dependent on declaration of citywide Smoke Control Area	Requires additional resources
4l	Reduce emissions from events in the city	Event Management		2022	2027	BHCC Event Management, event organisers	BHCC, event organisers	£50k - £100k	Ongoing	1 µg/m ³ NO ₂ 1 to 2 µg/m ³ PM _{2.5}	Reduced use of diesel generators, reduced lorry and van emissions and firework use	Infrastructure installed in event locations (plugged-in places) and drone displays	Significant number of events can contribute to reduce emissions
4m	Alternatives to combustion or ultralow NOx gas boilers with permitted flue heights	Planning and buildings		2018	2027	BHCC Planning and Air Quality	Developers, householders	£500k - £1 million	Ongoing	1 to 2 µg/m ³ NO ₂	Increased number of ultralow emission boilers and zero emission alternatives	Alternatives secured within planning permissions	Avoidance of gas, biomass, oil, diesel, coal combustion in and around AQMAs
4n	Shoreham Power Station Permit to control emissions	Environmental Permits		2010	2027	Environment Agency	Scottish Southern	£50k - £100k	Ongoing	1 to 3 µg/m ³ NO ₂	Permit renewed annually	Established annual process	Permit condition for ultralow NOx.
4o	Crematorium Permit to control emissions	Environmental Permits		2010	2027	BHCC Environmental Health	BHCC Bereavement Services	< £10k	Ongoing	1 to 2 µg/m ³ NO ₂	Permit renewed annually. Reduced mercury emissions	Established annual process	Incorporate effects into dispersion modelling
5a	Partnership Working Internal	Stakeholder Engagement		Priority 5 Partnership working	2015	2027	BHCC Air Quality, Transport, Communications, Education, Regulatory Services, Public Health	BHCC	£10K to £50K	Ongoing	N/A	Continued joint working and collaboration	Participation in various BHCC projects, communication and awareness raising
5b	Partnership Working External		2015		2027	BHCC Air Quality, Universities, Sussex Air, Bus Operators, Environment Agency DEFRA, DfT, National Highways, NHS	£10K to £50K		Ongoing	Continued joint working and increased number of funding bids		Participation in/leading funding bids to DEFRA	Requires significant officer time and access to funding
5c	Continue to lobby government to	Government Engagement	2022		2023	BHCC	BHCC	< £10k	Ongoing	Adoption of 2021 WHO		Lobbying completed in response to	Announcement from government

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	adopt 2021 WHO guidelines for PM _{2.5} and NO ₂										guidelines by government	national consultation on air quality standards.	expected during 2022/23

Table 14 - Actions to improve indoor and outdoor air quality