Camden Clean Air Action Plan
2019-2022

CLEAN AIR FOR CAMDEN

Camden

FOREWORD

"CAMDEN HAS A PROUD, REBELLIOUS SPIRIT THAT THROUGHOUT ITS HISTORY HAS SEEN COMMUNITIES COME TOGETHER TO TACKLE PROBLEMS, AND TO BRING ABOUT REAL SOCIAL CHANGE."

CAMDEN 2025

The twin rebelliousness and ambitiousness of the people of Camden are the driving force behind this new plan to clean up the air of our borough. Everybody is talking about our dirty air: from the Camden People's Theatre staging a show dedicated, almost implausibly, to air quality and performed by local school students; to conversations at bus stops and in homes and cafes across Camden; to debates both online and through our vibrant local newspapers.

The chorus demanding change has been growing for some time, and with just cause. The global news is punctuated by study after study revealing the terrible impact polluted air has on all aspects of our health; like the plastic poisoning our environment, this is a problem that we have lived with too unwittingly and too unquestioningly for too long.

The fact that the problem sits in the background, and that it is, at least in large part, generated by activities that form part of our modern everyday lives mean it will not be easy to solve.

There are good signs ahead. Large-scale policy interventions such as the Mayor of London's Ultra Low Emissions Zone will help us make a big inroad into air pollution, as will improved standards for engines and the ways we heat our buildings. But even the measures we are asked to achieve do not capture the full picture: on the current assessment, Camden, like other London boroughs, is objectively 'compliant' for the 'particulate matter' pollutant.

But particulate matter is dangerous and there is no safe level for it in our air. For this reason, among others, Camden became the first council in the country to rebel against this limited goal and raise the ambition for ourselves and all who live, work and visit. The World Health Organization standards we now aspire to are a truer reflection of the seriousness of the problem and the scale of change we need to bring about.

We are pleased to present the first of three new community designed Action Plans that will take us up to 2030, defining what we all need to do to help reduce pollution levels towards World Health Organization guidelines. This new Clean Air Action Plan closely embraces the shared endeavour understanding that asks all responsible for, and affected by, air pollution to play their part in resolving the problem. For the problem is resolvable, as long as partners also beyond Camden play their part too. Making these important asks of others also forms part of this new plan. And to better understand the difference all of us can make – whether we are in the borough, elsewhere in London, or beyond – we commissioned a special King's College London study into how deep the impact will be of the steps taken by different partners.

This important research shows us just how much difference we can make, but also just how much more we need to ask of others to help us reach our destination of radically cleaner air for all.

The actions contained within this plan are numerous but also more detailed than ever before, reflecting the need now to be both active on all fronts and precise in the tasks we set ourselves. This is a living document: we welcome new partners coming forward to tell us what they can contribute. Camden Council will in turn encourage an ever-wider network of people and organisation committed to the shared endeavour of cleaning up our air. The task ahead is difficult, but there is a route to achieving it. We hope this new plan will ensure we all get there.

Councillor Adam Harrison

Cabinet member for Improving Camden's Environment

Councillor Patricia Callaghan

Cabinet member for Tackling Health Inequality and Promoting Independence and Deputy Leader of Camden Council

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BUS
STOP

1 | SUMMARY

Camden's Clean Air Action Plan has been produced as part of our duty to London Local Air Quality Management. It outlines the action we will take to improve air quality in Camden between 2019 and 2022.

Air pollution does not respect borough boundaries and many factors contributing to poor air quality are often beyond the control of the local authority. Improving air quality is therefore a shared challenge. Unlike previous Camden Clean Air Action Plans, this latest plan has been developed with the help of a new Camden Clean Air Partnership, chaired by University College London and comprised of representatives from the key pollution sectors in Camden, as well as schools, residents, campaign groups and businesses.

Importantly, this Clean Air Action Plan is the first of three plans, which, with the support of residents, businesses and partners, aims to bring Camden into compliance with World Health Organization guidelines for air quality by 2030.

This action plan replaces the previous action plan, which ran from 2016-2018. Highlights of successful projects delivered through the past action plan can be found in the Council's annual status reports which can be found on the Council's website **www.camden.gov.uk/airquality**

Some notable achievements from our 2016-2018 Clean Air Action Plan include:

- Leading the pan-London London Low Emissions Construction Partnership project seeking to drive best-in-class Non Road Mobile Machinery (NRMM) for construction sites.
- Reducing HS2 impacts on air quality by negotiating assurances relating to HGV euro standards, NRMM, monitoring and reporting requirements, and mitigation.
- Installation of a permanent Compressed Natural Gas (CNG) supply at our York Way depot, replacing the previous system that required gas to be transported in by road.
- Encourage modal shift away from diesel vehicles through parking permit charges. Since the introduction of a diesel surcharge, there has been a decline in the uptake of residential diesel permits and market trader diesel permits of 7% and 25% respectively.

Air pollution is associated with a number of adverse health impacts and is understood to be a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. The annual health costs to society of air pollution in the UK is estimated to be £15 billion[1]. Camden is committed to reducing the exposure of people in the borough to poor air quality in order to improve health.

There is also an inequalities dimension to air quality with a strong correlation between areas of deprivation and poor air quality. For example, a 2017 report[2] commissioned by the GLA concluded that 78,665 Camden residents live in areas which are categorised as being among both London's 30% most deprived and 30% most polluted in terms of average NO2 concentration.

The air quality priorities within this Clean Air Action Plan were informed by the work of the new Camden Clean Air Partnership; a University College London-led Clean Air Design Day in July 2018, and our wider engagement with the Camden community. The actions are also informed by the new Camden Transport Strategy, and modelling conducted by King's College London in relation to our targeted World Health Organization pollution guideline values by 2030. Further information on both the community engagement and the modelling can be found in sections two and three of this report.

In this Clean Air Action Plan, we outline how we plan to effectively use local levers to tackle air quality issues within our control. However, we also recognise that there are a large

number of policy interventions outside of our influence (such as vehicle emission standards, national vehicle taxation policy, wider legislation, taxis and buses), and the Clean Air Action Plan therefore articulates how we will continue to work with and lobby regional and national government to affect positive change.

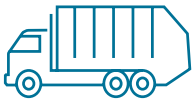
The Clean Air Action Plan is organised around seven broad themes:

Building emissions: emissions from buildings account for about 15% of the NOx emissions across London so are important in affecting NO2 concentrations. Energy efficiency and retrofitting workplaces and homes as well as enforcing Smoke Control regulations are examples of how we will work to reduce these emissions.

Construction emissions: the Greater London Authority estimates that construction and non-road mobile machinery account for around 15% of particulate matter (PM10) and 12% of nitrogen oxide (NOx) emissions. Measures such as enforcing NRMM will help to reduce these emission sources.

Transport emissions: transport emissions account for approximately 50% of Camden's NO2 and PM10 emissions. We need to encourage a shift to more sustainable forms of transport such as walking, cycling and ultra-low emission vehicles (such as electric). Installing more cycle lanes and installing more EV charging points are measures that help to address this.

Communities and schools: Similar to the public health and awareness raising, this theme focusses on schools and our local communities and how we can reduce their exposure to poor air quality. Delivering Healthy School Streets and Play Streets will help to achieve this.



Delivery servicing and freight: vehicles delivering goods and services are usually diesel-fuelled light and heavy goods vehicles with high NO2 emissions. Reducing emissions from our own fleet will lead by example.

Public health and awareness raising: increasing awareness can drive behaviour change to lower emissions as well as reduce exposure to air pollution. Supporting alerts and promoting the Mayor's air pollution forecasts is one measure that will help to raise awareness.

Lobbying: Many measures that could help to improve air quality in Camden, as well as London, are outside the Council's control, for example, limiting the use of wood burners and fireplaces, extending the Mayor's Ultra Low Emission Zone (ULEZ) to the entire borough, and providing a national vehicle scrappage scheme to remove the most polluting vehicles from our roads. We therefore need to use our influence to lobby those who have responsibility for these areas to implement policies that reduce pollution levels and improve the quality of the air we breathe.

It is important to note that tackling fossil fuel sources of air pollution in Camden, both from transport and buildings, also directly supports our ambition to make Camden a low-carbon borough that contributes to national action on climate change. Our goal is to ensure that Camden should be a clean, vibrant and sustainable place where no one experiences poor health because of the air they breathe. We shall strive to ensure this by addressing emissions from the key themes listed.

You will see in this plan that we have worked hard to engage with stakeholders and communities who can make a difference to air quality in the borough. We would like to thank all those who have worked with us and we look forward to working with you and new partners as we deliver this new action plan over the coming years.

This CAAP will be subject to an annual review. Progress will be reported in the Annual Status Reports produced by the London Borough of Camden, as part of our statutory London Local Air Quality Management duties.

If you have any comments on this CAAP please send them to:

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2 | ABBREVIATIONS

AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAAP	Clean Air Action Plan
CAB	Cleaner Air Borough
CAZ	Central Activity Zone
EV	Electric Vehicle
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
NO_2	Nitrogen dioxide
NO_x	Oxides of Nitrogen
PM	Particulate Matter
PM_{10}	Particulate matter 10 micrometers or less in diameter
$PM_{2.5}$	Particulate matter 2.5 micrometers or less in diameter
TEB	Transport Emissions Benchmark
TfL	Transport for London
ULEZ	The Mayor of London's Ultra Low Emission Zone
WHO	World Health Organization

3 | INTRODUCTION

Camden's Clean Air Action Plan outlines the actions that the London Borough of Camden and members of our community will take between 2019 and 2022 to reduce concentrations of pollution, and exposure to pollution in Camden; thereby positively impacting on the health and quality of life of residents and visitors to the borough.

It has been developed in recognition of the legal requirement on the local authority to work towards air quality objectives under Part IV of the Environment Act 1995 and to meet the requirements of the London Local Air Quality Management statutory process[3].

Camden's role has seven main strands:

- Working to reduce emissions from our own estate and operations;
- Helping residents and visitors to reduce emissions and exposure;
- Using planning policy and regulation to reduce air pollution;
- Implementing innovative projects across the borough to improve air quality;
- Using our influence to lobby for increased financial and regulatory support for the mitigation of air pollution;
- Maintaining a monitoring network and ensuring the data is freely accessible;
- Raising awareness on how to reduce emissions and exposure

Supporting Plans and Strategies

A number of Council plans and strategies support the Clean Air Action Plan:

• Camden 2025

Camden 2025 sets out the community's vision for Camden by 2025. Air quality is a key area of focus within this document and within it there is a call to action which states that "no one in Camden should experience poor health as a result of the air they breathe."

• Our Camden Plan

This 5-year plan sets out what the Council will do to support the delivery of the Camden 2025 vision. It commits strongly to improving air quality in Camden by stating "we will use all the resources at our disposal to play our part in improving air quality, one of London's biggest challenges".

• Green Action for Change 2010-2020

Camden's 10-year environmental sustainability plan covers a range of environmental themes including carbon emissions, waste and recycling, green space and air quality. Within this document there is a commitment to continue to work towards compliance for the NO2 air quality objective and remain compliant with the other air quality objectives.

• Camden's Parking and Enforcement Plan

This document acknowledges air quality as an issue and that vehicle emissions remain the primary pollution source and therefore sets out policies designed to reduce car journeys, idling and promotes the uptake of lower emission vehicles.

• Camden's Transport Strategy 2019-2041

This document outlines how the Council will deliver the borough's transport policies and fulfil its environmental objectives which will include reducing car use, reducing road congestion, supporting sustainable modes of travel such as cycling and walking, and implementing the infrastructure to support low emission vehicles.

• Joint Strategic Needs Assessment

Population exposure to particulate matter PM2.5 has been used as the basis of the Public Health Outcomes Framework (PHOF) Indicator 3.014, as such air quality is of material consideration within Camden's JSNA, especially as Camden is above the London and England average for mortality attributed to air pollution.

[3] LLAQM Policy and Technical Guidance. https://www.london.gov.uk/what-we-do/environment/pollution-and- air-quality/working-boroughs

4 | AIR QUALITY IN LONDON

Air quality is a cause of concern across London. While all of the 33 London local authority areas have declared Air Quality Management Areas (AQMA), air pollution is worse in the centre of London, where there is the heaviest concentration of traffic and buildings.

NO2

In central London, NO2 objectives are consistently breached. In outer London, urban background sites tend to be within the limit values but these are still breached at the kerbsides of busy roads. The below map (figure 1) uses data from the monitoring sites across London to model where NO2 objectives have been breached in 2013; yellow, orange, and red signifies areas that are breaching the objective. This demonstrates that air pollution is a London-wide problem.

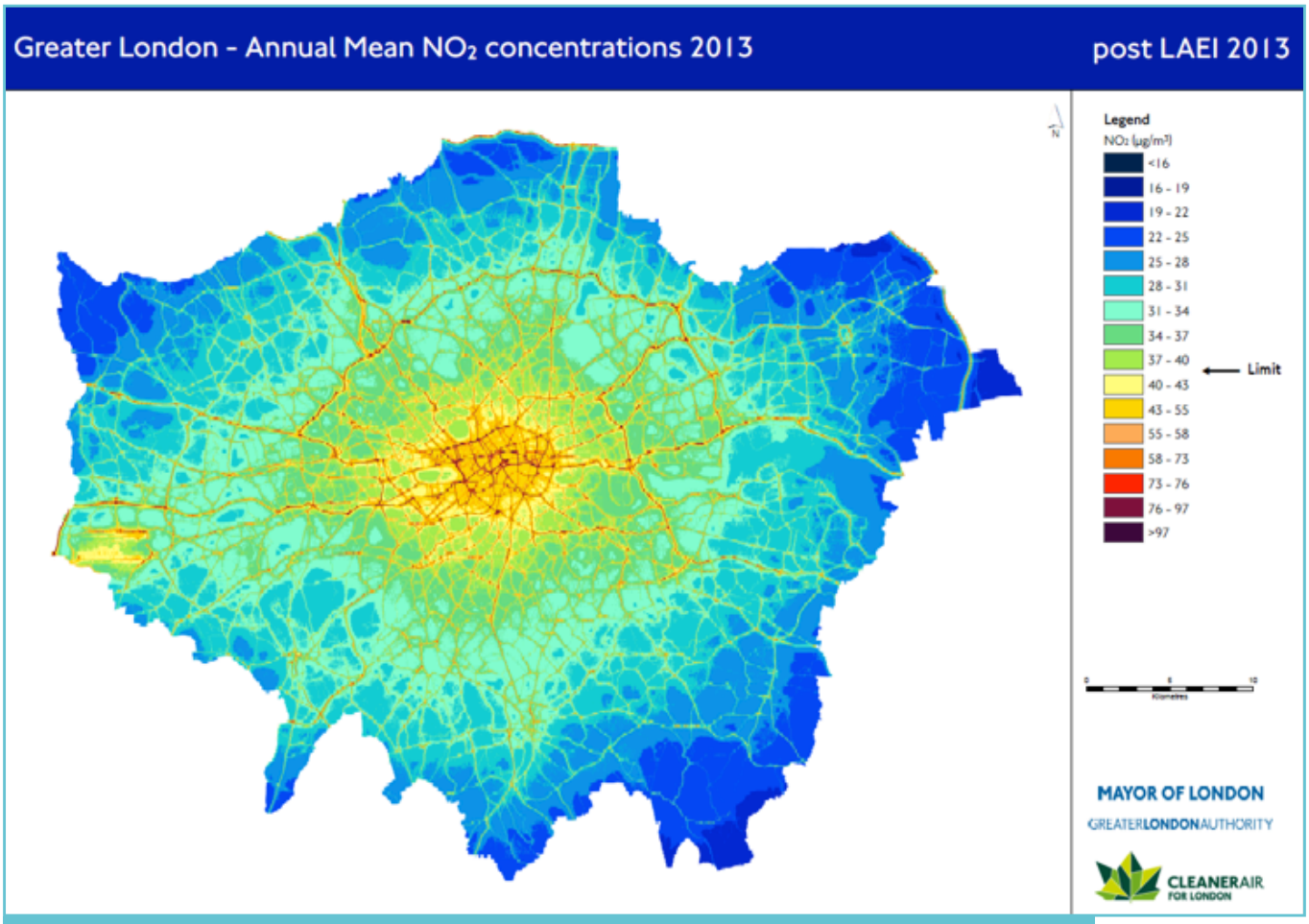


FIGURE 1 MODELLED MAP OF ANNUAL MEAN NO2 CONCENTRATIONS (LAEI 2013, UPDATED IN 2016 BY GLA)

Particulate Matter

The UK national annual PM10 limit value is being met across London, with the limit value for daily mean PM10 concentrations being met at the majority of monitoring locations, but exceeded intermittently at a small number of sites, such as by large junctions on the busiest roads. Figure 2 models the areas (primarily main roads in central London) where the daily mean target for PM10 is sometimes exceeded.

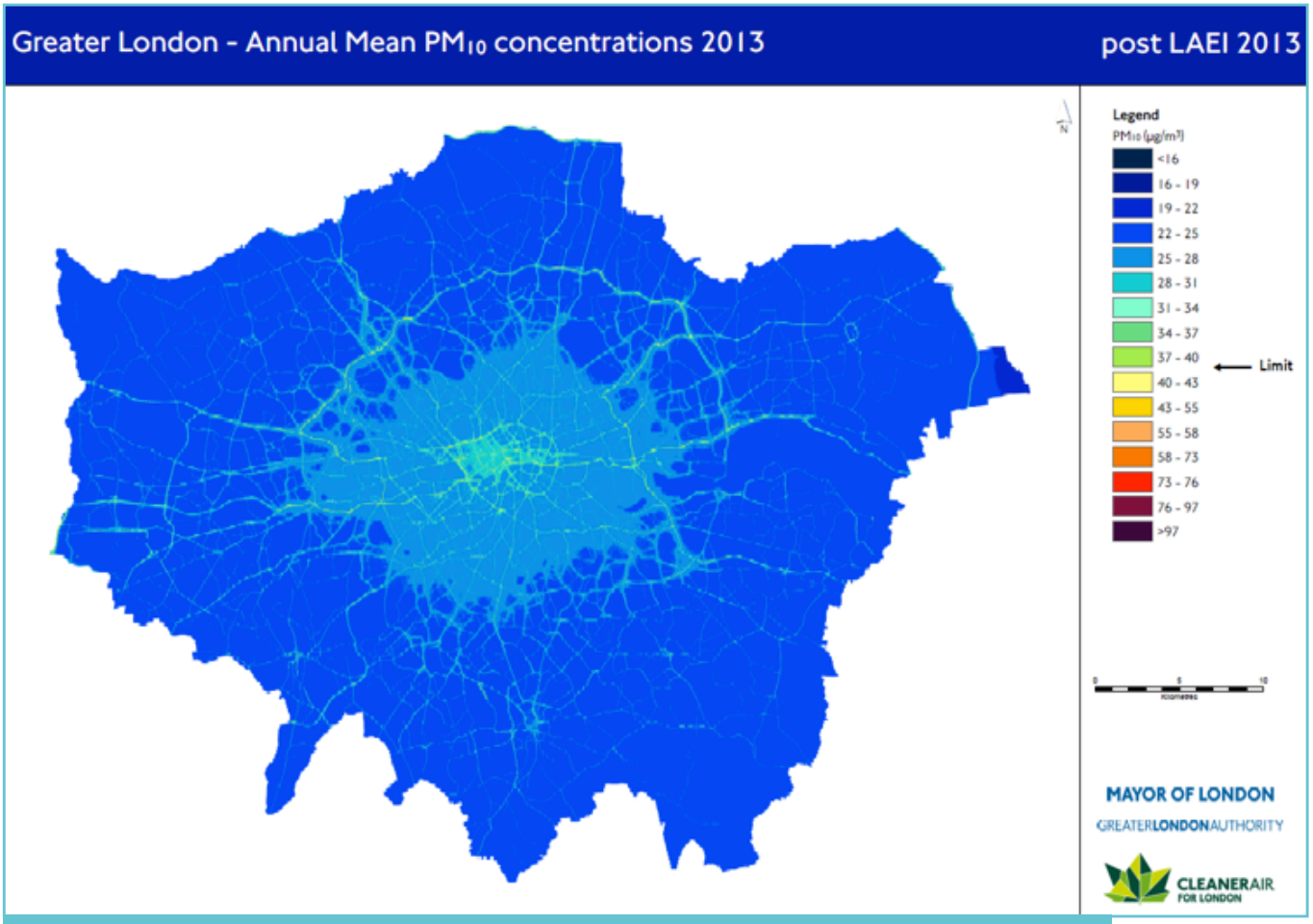


FIGURE 2 MODELLED MAP OF ANNUAL MEAN PM_{10} CONCENTRATIONS (LAEI 2013, UPDATED IN 2016 BY GLA)

Characteristics of the key pollutants

Pollutant	Composition	Sources	Effects
Particulates	PM10 is particulate matter smaller than 10 micrometres (µm, or one thousandth of a mm) in diameter, PM2.5 is that smaller than 2.5 µm. PM10 is considered the threshold below which particles can be drawn into the lungs. Smaller PM2.5 is considered an even greater health risk due to being able to get deeper into the lungs and bloodstream.	Particulate matter is made up from a wide range of substances. It has both man-made and naturally occurring sources. In central London, road vehicles are responsible for around 80% of PM10 and PM2.5.	Strongly linked to health problems, including asthma, cancer and cardiovascular illness. Day to day variations in particulate pollution levels are strongly associated with variations in daily deaths, hospital admissions for respiratory and cardiovascular diseases and asthma.
Oxides of nitrogen	NOx refers to the combination of NO and NO2 (nitrogen monoxide and nitrogen dioxide). During hot and sunny weather, NOx and volatile organic compound (VOCs) emissions (primarily produced by vehicles and industrial processes using solvents), react in the atmosphere to form ground level ozone. Ozone is one of the main constituents of photochemical smog, with higher concentrations in summer when sunlight and temperatures are higher.	Around half of NOx in Greater London comes from road transport. In central London, workplace gas use dominates. In outer London, domestic gas use is a major contributor in more residential parts of the city.	NO2 has been strongly linked with emphysema, bronchitis, and heart disease. Though there is some evidence that hospital admissions are related to concentrations of nitrogen dioxide, it has not yet been considered robust enough to quantify the effect. Overloading of nitrogen has also been connected with the degradation of sensitive habitats and deteriorating biodiversity.

5 | AIR QUALITY AND PUBLIC HEALTH

A number of studies have established the link between poor air quality and health in urban areas. In particular, it has been established that long-term exposure can contribute to the development of chronic diseases and can increase the risk of respiratory illnesses. In June 2012, the International Agency for Research on Cancer confirmed that fumes from diesel engines are carcinogenic and that exposure can cause lung cancer and possibly tumours in the bladder.

Studies have shown that the greatest burden of air pollution usually falls on the most vulnerable in the population such as the young, elderly and those with pre-existing health conditions such as chronic obstructive pulmonary disease and asthma. The Health Effects Institute panel concluded that the evidence is sufficient to support a causal relationship between exposure to traffic related air pollution and exacerbated asthma. The British Medical Association in 2012 also produced evidence suggesting prenatal exposure to air pollution was associated with adverse outcomes in pregnancy which included low birth weight, intrauterine growth retardation and increased risk of chronic diseases later in life.

More recent research suggests that there may be associations between poor air quality and diabetes and neurological conditions including dementia.

The 2010 Marmot Review indicated that individuals in areas of deprivation experience more adverse health effects a the same level of exposure compared to those from less deprived areas. This was in part due to a higher prevelance of underlying cardio-respiratory and other diseases, as well as greater exposure to air pollution as a result of their homes being closer to busy roads with fewer green spaces.

The links between obesity and air quality continue to be made, as such, Public Health England encourages initiatives that increase cycling and walking to tackle obesity. People may be discouraged to cycle or walk in areas of poor air qualtity, however, studies have indicated that the benefits of physical activity outweight the risks associated with exposure. Addressing pollution hotspot areas and signposting to cleaner walking and cycling routes is one to make active travel more attractive whilst also reducing pollution exposure to the public.

6 | AIR QUALITY IN CAMDEN

The UK Air Quality Strategy (AQS), released in July 2007, provides the overarching strategic framework for air quality management in the UK and contains national air quality standards and objectives established by the Government to protect human health. The AQS objectives take into account EU Directives that set limit values which member states are legally required to achieve.

The London Borough of Camden is meeting all of the national AQS objectives other than for the gas nitrogen dioxide (NO_2). Camden is meeting the current objectives for particulate matter (PM_{10} and $PM_{2.5}$) but as this pollutant is damaging to health at any level, this remains a pollutant of concern. In recognition that there is no safe exposure limit for particulate matter, in January 2018, Camden committed to target compliance with World Health Organization Guidelines for PM_{10} and $PM_{2.5}$ by 2030. There is therefore no intention to remove PM_{10} from our AQMA declaration.

Camden actively monitors pollution concentrations throughout the borough. The network of three automatic monitoring stations and twenty diffusion tubes in Camden confirms that NO_2 concentrations have decreased slightly over the years but still remain over the air quality objectives at locations situated near main roads. This is because vehicles remain the primary pollution source in Camden. Our background monitoring locations also confirm that for most locations, NO_2 levels drop off to below the air quality objective in areas with less traffic such as residential streets.

Our monitoring also confirms that we are meeting the air quality objectives for particulates (PM_{10} and $PM_{2.5}$), however, as will be discussed further in section 8 of this report, we still have some way to go before meeting the stricter WHO guidance values.

As part of our statutory obligations, Camden produces Annual Status Reports, which detail pollution results from our monitoring network. These reports can be found on our Local Air Quality Management page on our website.

As seen from figures 3, 4 and 5, pollution levels in Camden are highest around main roads and to the south of the Euston Road, and lower across the north of Camden, with many areas within EU objective levels for NO_2 and particulate matter. This highlights the impact vehicle emissions have on pollution across our borough. Main roads such as Finchley Road, Euston Road, Kentish Town Road and Kilburn High Road are clearly distinguishable on the maps due their high pollution levels. As many of the main roads in Camden are operated and managed by Transport for London, our ability to limit air pollution from these roads is limited. This highlights the challenge we face in meeting the World Health Organization guidelines across Camden.

AIR QUALITY MONITORING STATION ON EUSTON ROAD

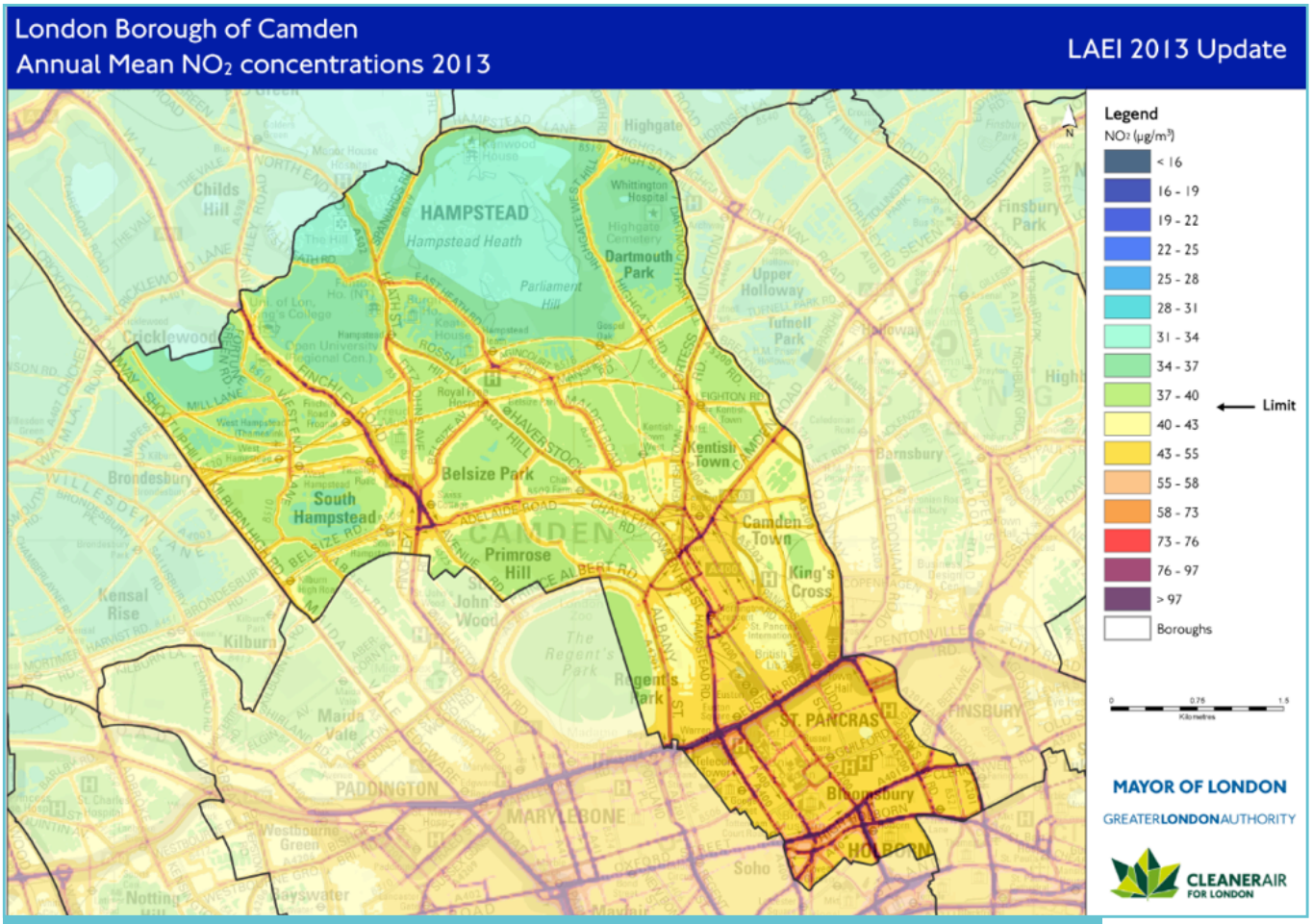


FIGURE 3 MODELLED MAP OF ANNUAL MEAN NO2 CONCENTRATIONS (LAEI 2013, UPDATED IN 2016 BY GLA)

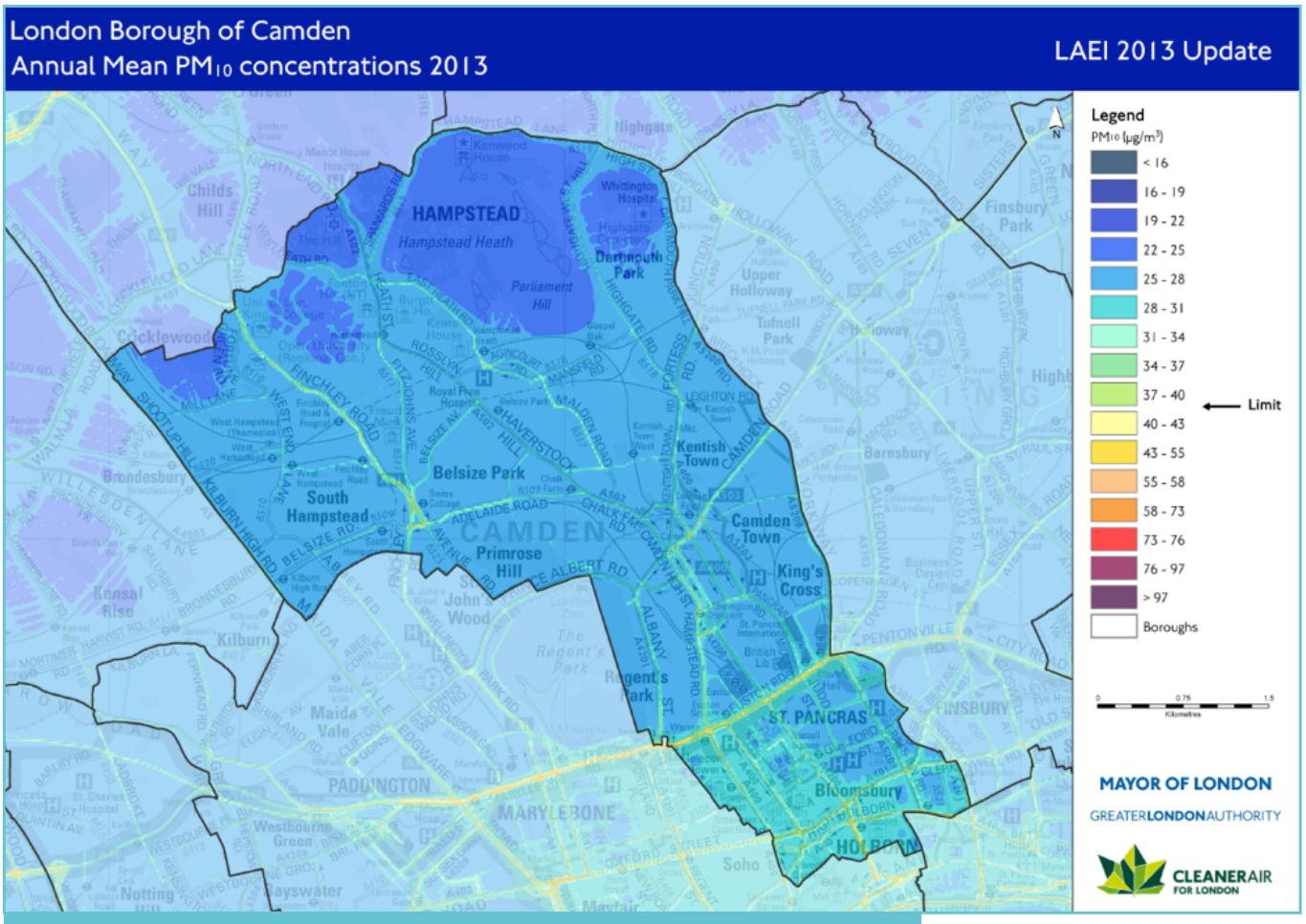


FIGURE 4 MODELLED MAP OF ANNUAL MEAN PM10 (LAEI 2013, UPDATED IN 2016 BY GLA)

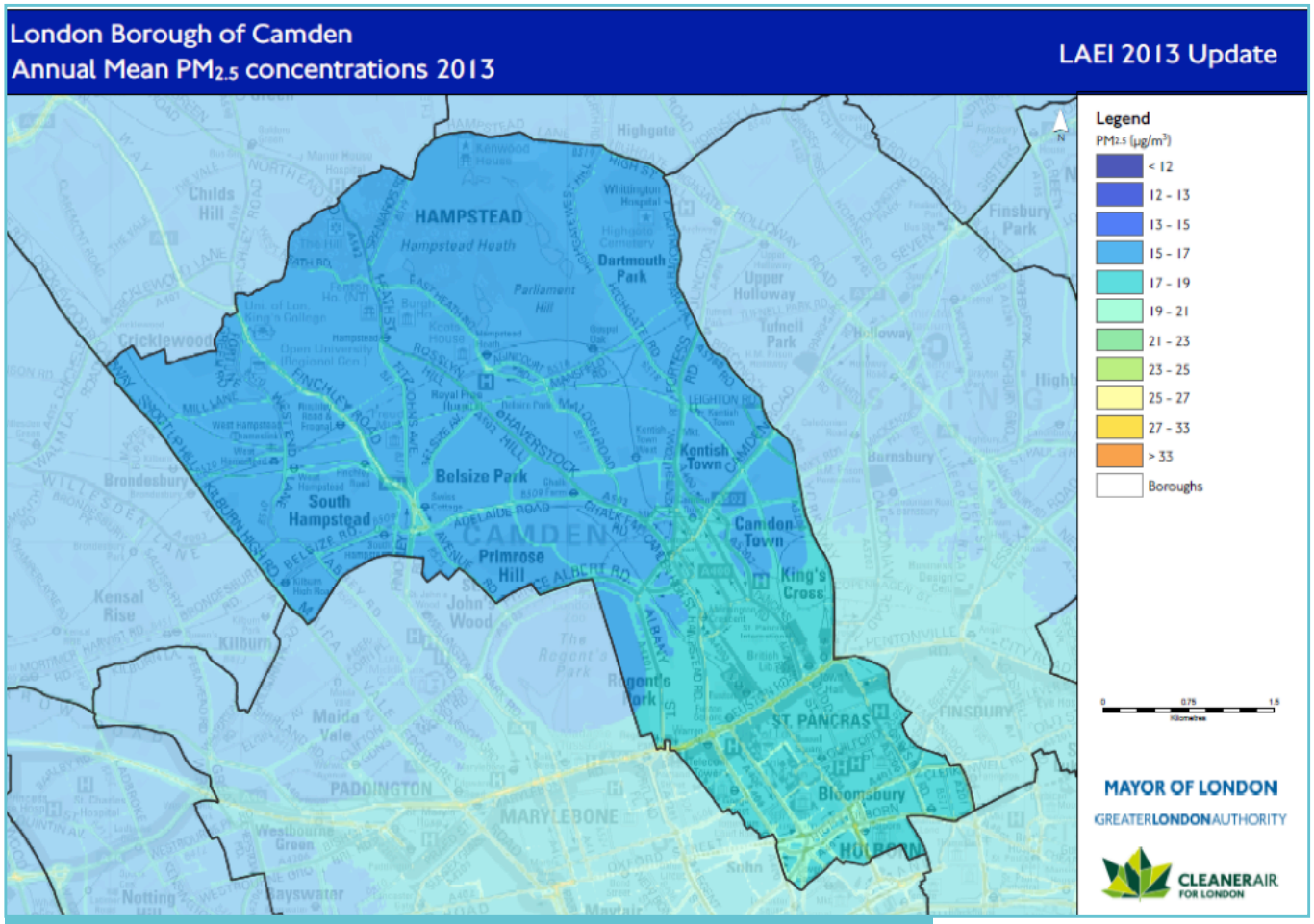


FIGURE 5 MODELLED MAP OF ANNUAL MEAN $PM_{2.5}$ (LAEI 2013, UPDATED IN 2016 BY GLA)

AQMAs and Focus Areas

An air quality Focus Area is a location that has been identified as having high levels of pollution and human exposure. The Focus Areas in Figure 6 were defined by the Greater London Authority to address concerns raised by boroughs within the LAQM review process and forecasted air pollution trends. This is not an exhaustive list of London or Camden's pollution hotspot locations, but rather where the Greater London Authority believes the problem to be most acute. There are 187 Focus Areas in London; the following five are situated in Camden (more regularly used names are used below for two of the areas):

- Camden High Street from Mornington Crescent to Chalk Farm and Camden Road
- Holborn and Southampton Row junction
- Kilburn Town Centre
- Euston Road
- Swiss Cottage from South Hampstead to Finchley Road Station

We recognise that there are other areas of pollution concern to our community, notably Kentish Town Road, residential streets in south of the Euston Road and those locations directly impacted by major infrastructure projects such as High Speed 2. The GLA Focus Areas therefore only partly inform the Council's approach to targeted air quality interventions, with other sources of evidence such as our own monitoring data (referred to in Appendix B) and modelling data, playing an equally important role.

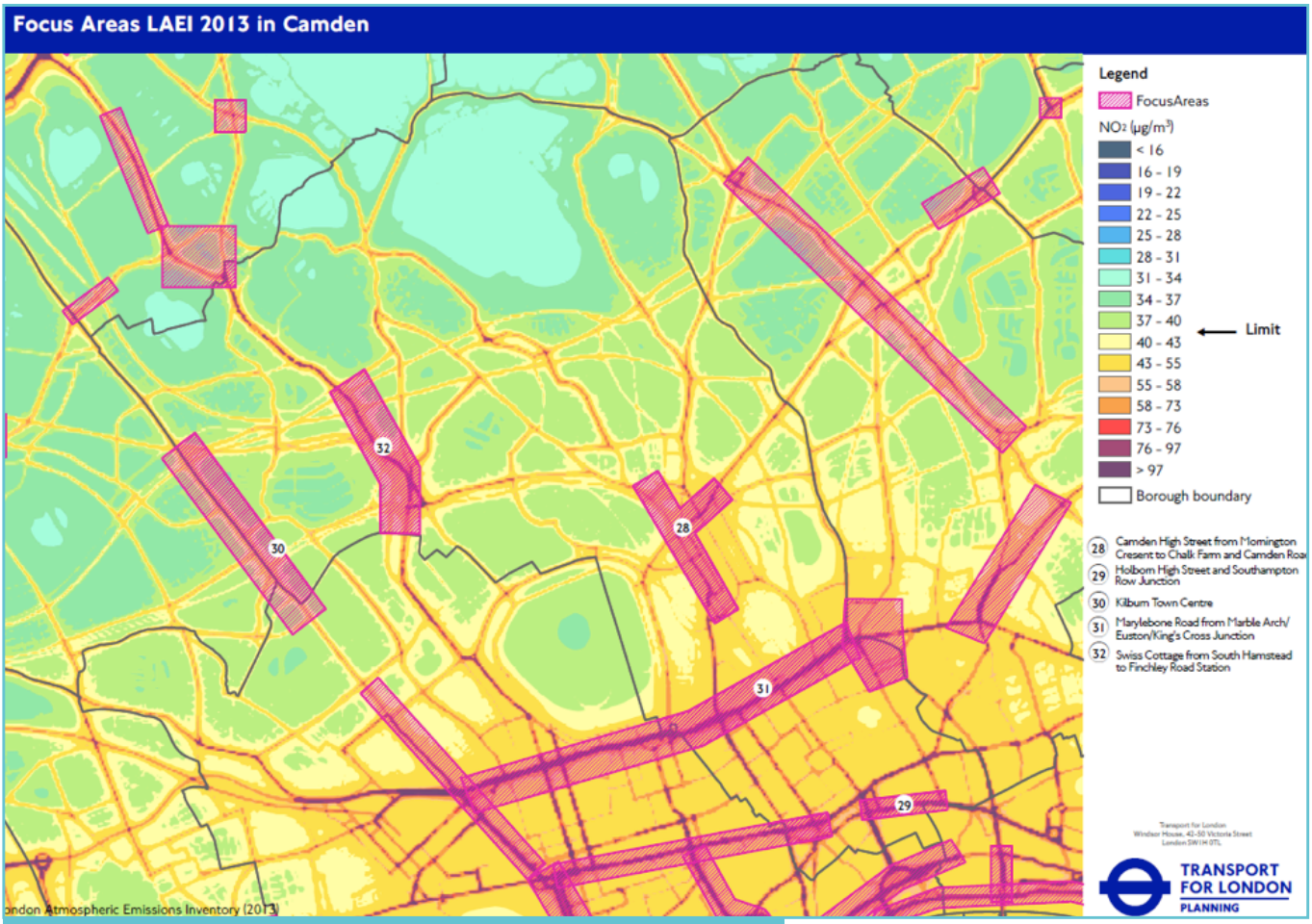


FIGURE 6 AIR QUALITY FOCUS AREAS (LAEI 2013, UPDATED IN 2016 BY GLA)

Sources of pollution in the London Borough of Camden

Pollution in Camden comes from a variety of sources. Sources include pollution from beyond the borough boundaries, and, in the case of particulate matter, sources from beyond London and the UK.

Of the pollution that originates in Camden, the main sources of NO_2 are road transport and commercial and domestic gas boilers, and the main sources of particulate matter are road transport, the resuspension of particulates and construction-related emissions.

Emissions from road transport account for 49% of Camden's NOx (oxides of nitrogen) and PM10. Boilers accounts for a further 31.5% of Camden's NOx emissions. Figures 7 and 8 show a breakdown of pollution sources within the borough for NOx and PM10, including a further breakdown of road transport emissions.

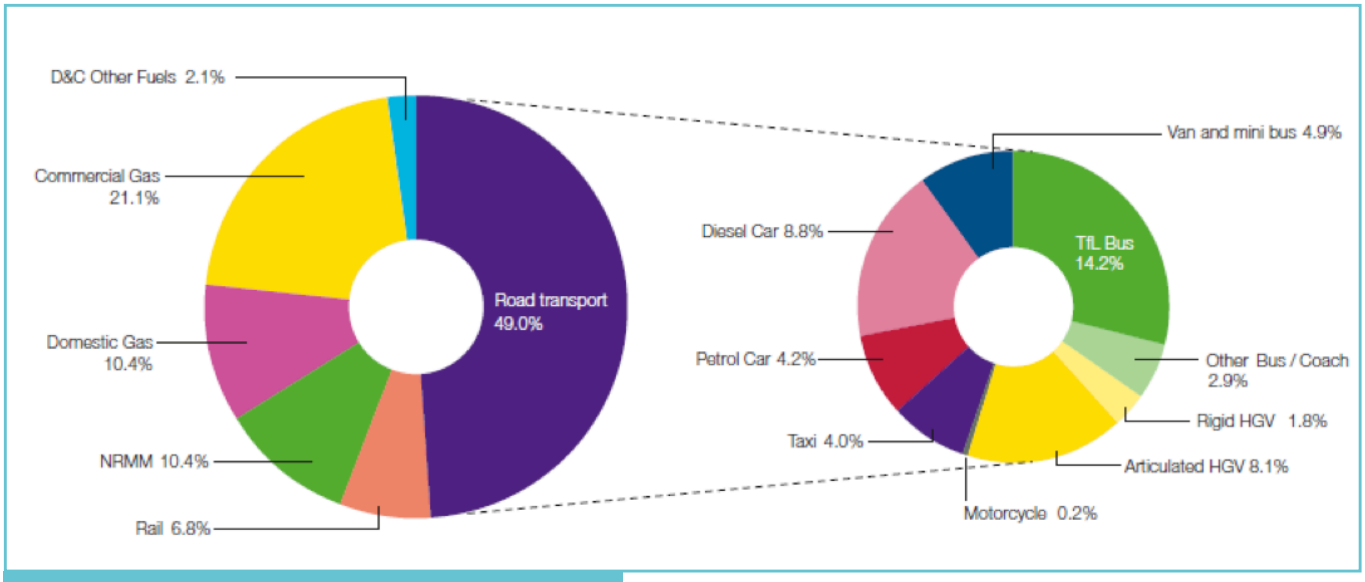


FIGURE 7: SOURCES OF NOx IN CAMDEN (SOURCE: LAEI 2016)

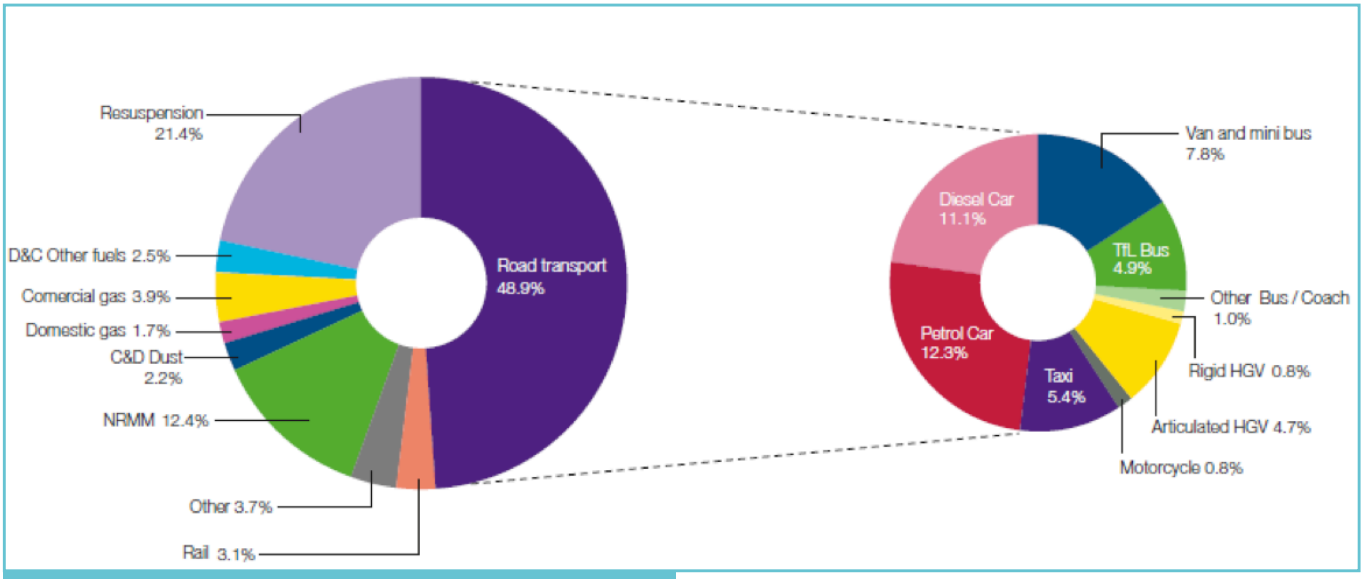


FIGURE 8: SOURCES OF PM10 IN CAMDEN (SOURCE: LAEI 2016)

Note that in Figure 8 'NRMM' represents emissions from Non Road Mobile Machinery, 'D&C other fuels' reflect domestic and commercial other fuels, and 'C&D dust' stands for emissions from construction and demolition sites.

The most disproportionate polluters in Camden are HGVs, buses and coaches. HGVs represent 4% of Camden's vehicle movements but produce 9% NOx and 5.5% PM10 transport emissions, while buses and coaches represent 4% of vehicle movements but emit 17.1% of Camden's NO2 and 5.9% of PM10. Diesel cars are disproportionately polluting compared to petrol cars.

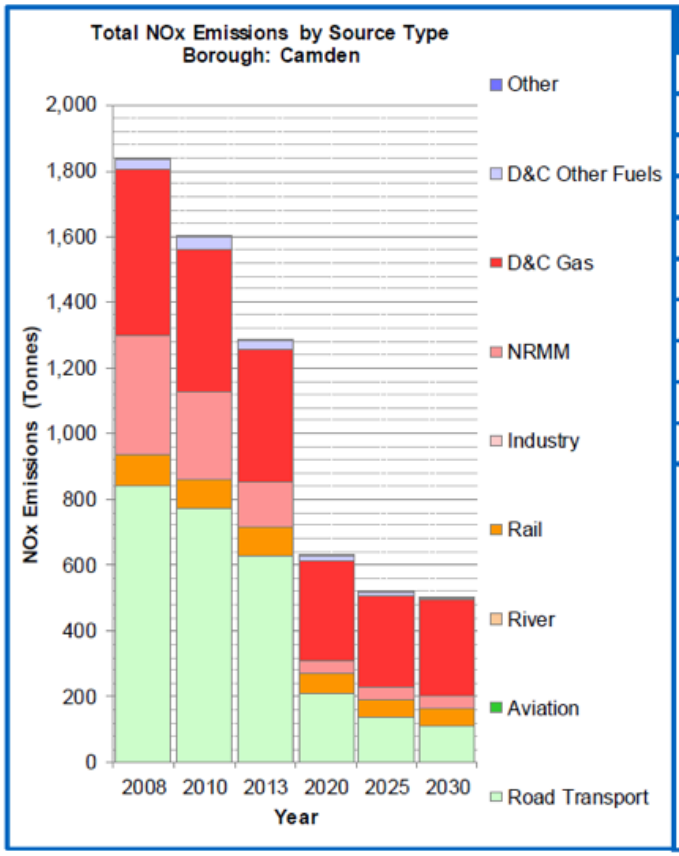
Future air quality in Camden

NO2 concentration across London is expected to decline in response to continued improvements in vehicle engine standards and the electrification of road transportation, replacement of heating plant (domestic and commercial boilers) and increased prevalence of electric heating. However, due to the influence of long-range transportation of PM (such as Saharan dust or emissions from biomass and coal burning in continental Europe) and national climate change policy (for example, incentivisation of biomass burning for power generation), PM concentration is not predicted to fall.

Figures 9, 10 and 11 below provide a breakdown of pollution sources within Camden and their anticipated trajectory to 2030. The graphs highlight the specific long-term challenge posed by particulate matter pollution.

London Atmospheric Emissions Inventory

NOx Emissions - Camden



Emissions (Tonnes) by	2008	2010	2013	2020	2025	2030
Road Transport	844	771	629	211	135	107
Aviation	0	0	0	0	0	0
River	0	0	0	0	0	0
Rail	93	90	88	59	59	59
Industry	0	0	0	0	0	0
NRMM	359	266	133	36	35	35
D&C Gas	505	437	404	309	278	292
D&C Other Fuels	36	34	27	11	8	7
Other	2	2	2	2	1	2
Total	1,839	1,599	1,283	629	517	502

Notes:

(D&C = Domestic and Commercial)

The summary graph represents emissions from each source stacked on top of one another, with the total stack height equalling the total emissions from all sources.

The numbers in the table are those used to plot the graph and represent the tonnes of pollution emitted into the atmosphere in that year (T/y).

The emissions are combined into reasonably self explanatory "Source Types".

However, the categories: "Industry", "NRMM" and "Other" require further explanation:

- **Industry:** is the total emission from Part A and Part B industrial processes, combined.
- **Non-Road Mobile Machinery (NRMM):** is the total emissions from construction and industrial off road machines, combined.
- **Other:** is the total emission from a number of small sources including: agriculture, outdoor fires, garden emissions, forests, waste and waste transfer sites, combined.

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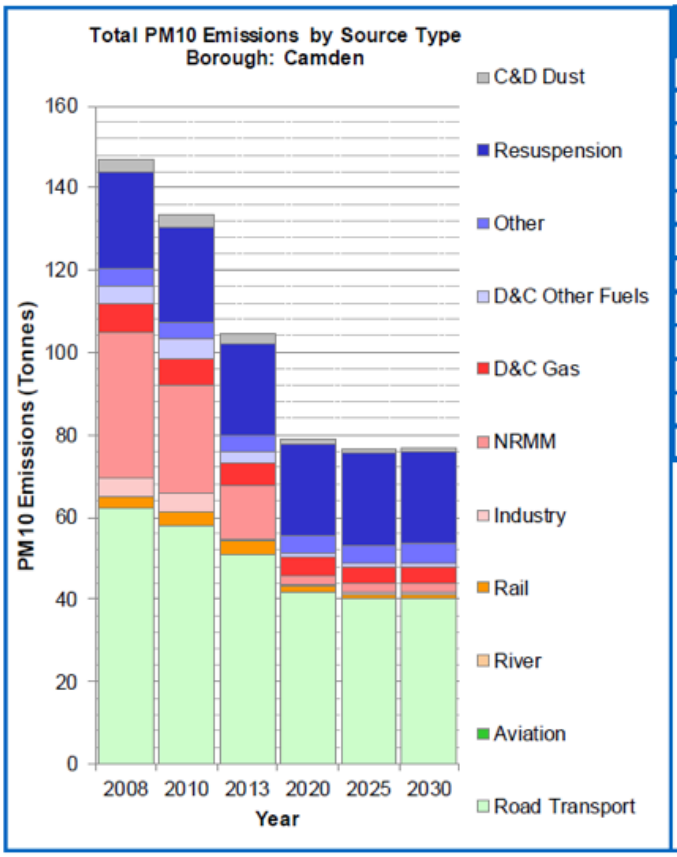
FIGURE 9 NO_x EMISSIONS BY SOURCE AND VEHICLE TYPE (FROM THE LAEI 2016)

London Atmospheric Emissions Inventory

PM10 Emissions - Camden



Emissions (Tonnes) by	2008	2010	2013	2020	2025	2030
Road Transport	61.9	58.0	51.1	41.7	40.1	40.1
Aviation	0.0	0.0	0.0	0.0	0.0	0.0
River	0.0	0.0	0.0	0.0	0.0	0.0
Rail	3.3	3.3	3.2	1.3	1.3	1.3
Industry	4.4	4.4	0.3	0.3	0.3	0.3
NRMM	35.3	26.5	12.9	2.3	2.3	2.3
D&C Gas	7.0	6.3	5.9	4.4	4.0	4.1
D&C Other Fuels	4.1	4.6	2.6	1.1	0.7	0.5
Other	4.6	4.3	3.8	4.3	4.4	4.8
Resuspension	23.3	23.1	22.3	22.3	22.4	22.4
C&D Dust	3.0	2.9	2.3	1.1	1.1	1.1
Total	146.9	133.4	104.5	78.9	76.6	77.0

Notes:

(D&C = Domestic and Commercial – C&D = Construction and Demolition)

The summary graph represents emissions from each source stacked on top of one another, with the total stack height equalling the total emissions from all sources.

The numbers in the table are those used to plot the graph and represent the tonnes of pollution emitted into the atmosphere in that year (T/y).

The emissions are combined into reasonably self explanatory "Source Types".

However, the categories: "Industry", "NRMM" and "Other" require further explanation:

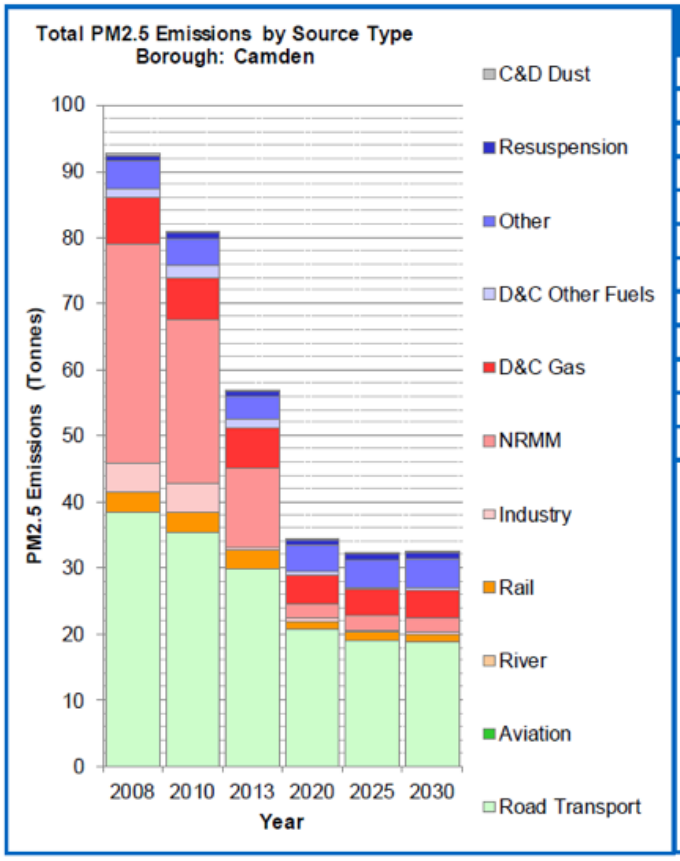
- **Industry:** is the total emission from Part A and Part B industrial processes, combined.
- **Non-Road Mobile Machinery (NRMM):** is the total emissions from construction and industrial off road machines, combined.
- **Other:** is the total emission from a number of small sources including: agriculture, outdoor fires, garden emissions, forests, waste and waste transfer sites, combined.

GREATERLONDONAUTHORITY 2 CLEANERAIR FOR LONDON MAYOR OF LONDON

FIGURE 10 PM_{10} EMISSIONS BY SOURCE AND VEHICLE TYPE (FROM THE LAEI 2016)

London Atmospheric Emissions Inventory

PM2.5 Emissions - Camden



Emissions (Tonnes) by	2008	2010	2013	2020	2025	2030
Road Transport	38.4	35.4	29.8	20.8	19.0	18.8
Aviation	0.0	0.0	0.0	0.0	0.0	0.0
River	0.0	0.0	0.0	0.0	0.0	0.0
Rail	3.0	2.9	2.9	1.2	1.2	1.2
Industry	4.4	4.4	0.3	0.3	0.3	0.3
NRMM	33.2	24.9	12.2	2.2	2.2	2.2
D&C Gas	7.0	6.3	5.9	4.4	4.0	4.1
D&C Other Fuels	1.3	1.8	1.4	0.6	0.4	0.3
Other	4.2	4.0	3.6	4.0	4.1	4.5
Resuspension	0.9	0.8	0.8	0.8	0.8	0.8
C&D Dust	0.3	0.3	0.2	0.1	0.1	0.1
Total	92.6	80.9	57.0	34.4	32.1	32.3

Notes:

(D&C = Domestic and Commercial – C&D = Construction and Demolition)

The summary graph represents emissions from each source stacked on top of one another, with the total stack height equalling the total emissions from all sources.

The numbers in the table are those used to plot the graph and represent the tonnes of pollution emitted into the atmosphere in that year (T/y).

The emissions are combined into reasonably self explanatory "Source Types".

However, the categories: "Industry", "NRMM" and "Other" require further explanation:

- **Industry:** is the total emission from Part A and Part B industrial processes, combined.
- **Non-Road Mobile Machinery (NRMM):** is the total emissions from construction and industrial off road machines, combined.
- **Other:** is the total emission from a number of small sources including: agriculture, outdoor fires, garden emissions, forests, waste and waste transfer sites, combined.

GREATERLONDONAUTHORITY 3 CLEANERAIR FOR LONDON MAYOR OF LONDON

FIGURE 11 PM2.5 EMISSIONS BY SOURCE AND VEHICLE TYPE (FROM THE LAEI 2016)

It should also be noted that although these figures are updated regularly by the GLA, the data in presented above will see some significant changes with the introduction of the ULEZ, which is predicted to result in an additional 11% NOx reduction, 1% reduction in PM10 and 1% reduction in PM2.5 in Camden by 2020.

7 | THE ROLE OF TREES AND AIR QUALITY

Trees and urban vegetation, often collectively referred to as "green infrastructure", play a variety of important environmental roles. They reduce climate change impacts by keeping urban areas cool and reducing flood risk; they help mitigate climate change through carbon storage; and they improve biodiversity and ecological resilience through habitat creation. Trees and urban vegetation also have a role to play in improving local air quality, but they are not a solution to air pollution and in some cases inappropriate planting can worsen local air quality. The route to improving air quality lies in reducing and removing the sources of pollution, notably fossil fuel powered transport, and construction and building emissions.

This Clean Air Action Plan takes an evidence based approach to defining actions that maximise the potential for green infrastructure to improve local air quality. One of the key sources of evidence is the 2018 report to Government by the Air Quality Expert Group, chaired by Professor Paul Monks, on the "Impacts of Vegetation on Urban Air Pollution ". The report considers how vegetation inlcuding trees influences atmospheric composition, dispersion and pollution concentrations in urban areas. The report concludes that "the planting of trees may enhance or reduce dispersion; this redistributes pollution but does not remove it. Where vegetation acts as a barrier close to a source, concentrations immediately behind the barrier owing to that source are reduced typically by a factor of about two relative to those which would occur without the barrier, whereas on the source side of the barrier concentrations are increased." In other words, inappropriate planting can lock in pollution to the detriment of people.

In relation to the two key pollutants in Camden, the report goes on to say that, "for practical planting schemes and particulate matter from all sources, the scale of reductions is expected to be no more than a few percent. For NO2, vegetation is not a very efficient sink, and as the deposition occurs in daytime, and primarily in the warmer months, there is little benefit for air quality for most of the time that NO2 is a problem."

This Clean Air Action Plan therefore focusses on improving the quality and appropriateness of trees and urban vegetation in Camden, rather than simply the quantity. We therefore include actions to support Camden's tree service to identify appropriate tree species for polluted streets, to guide our planting target of over 400 new trees every year. We also include initiatives to support the appropriate siting of barriers such as green walls to mitigate pollution impacts, particularly in and around schools.

8 | WORLD HEALTH ORGANIZATION AIR QUALITY GUIDELINES

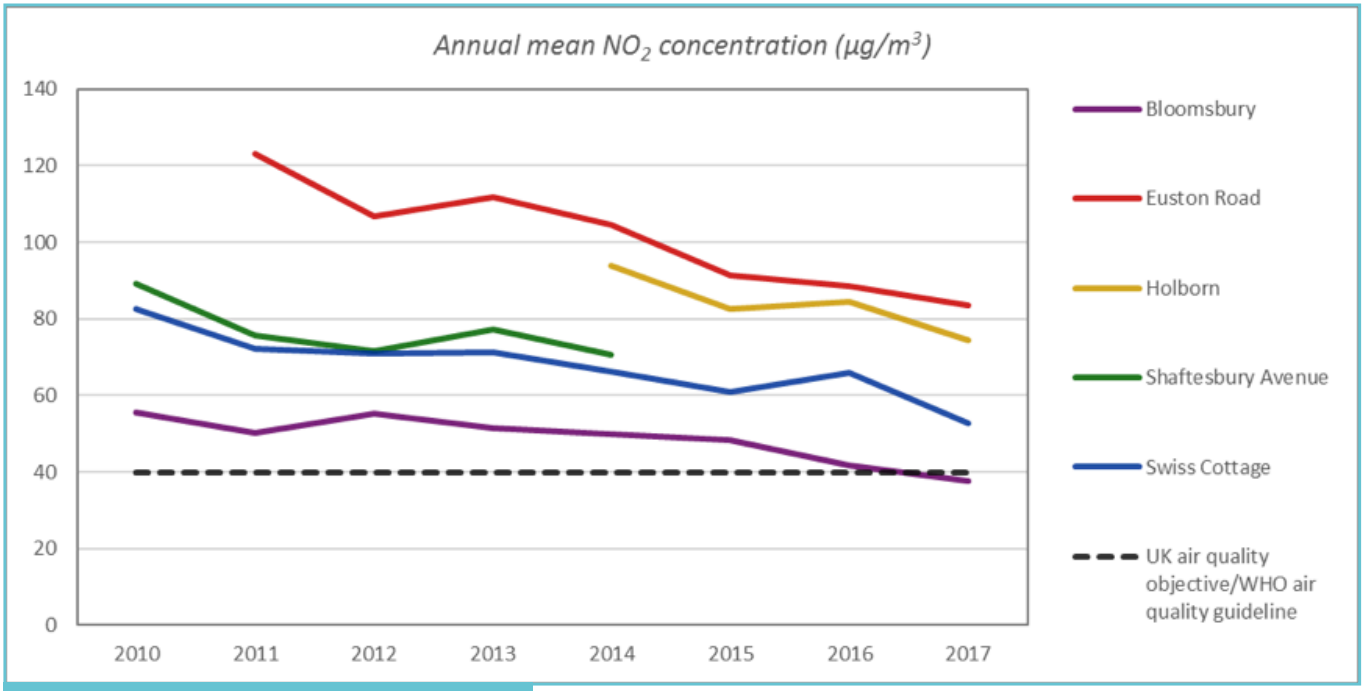
In January 2018, Camden became the first London council to formally adopt the World Health Organization's (WHO) air quality guidelines.

The WHO has campaigned for governments and authorities around the world to adopt strict targets for air quality. Based upon scientific evidence of the health impacts of air pollution, the WHO air quality guidelines are intended to support and drive actions in a local or regional context. The WHO air quality guidelines for NO2, PM10 and PM2.5 and the corresponding UK national air quality objectives are shown in Table 1.

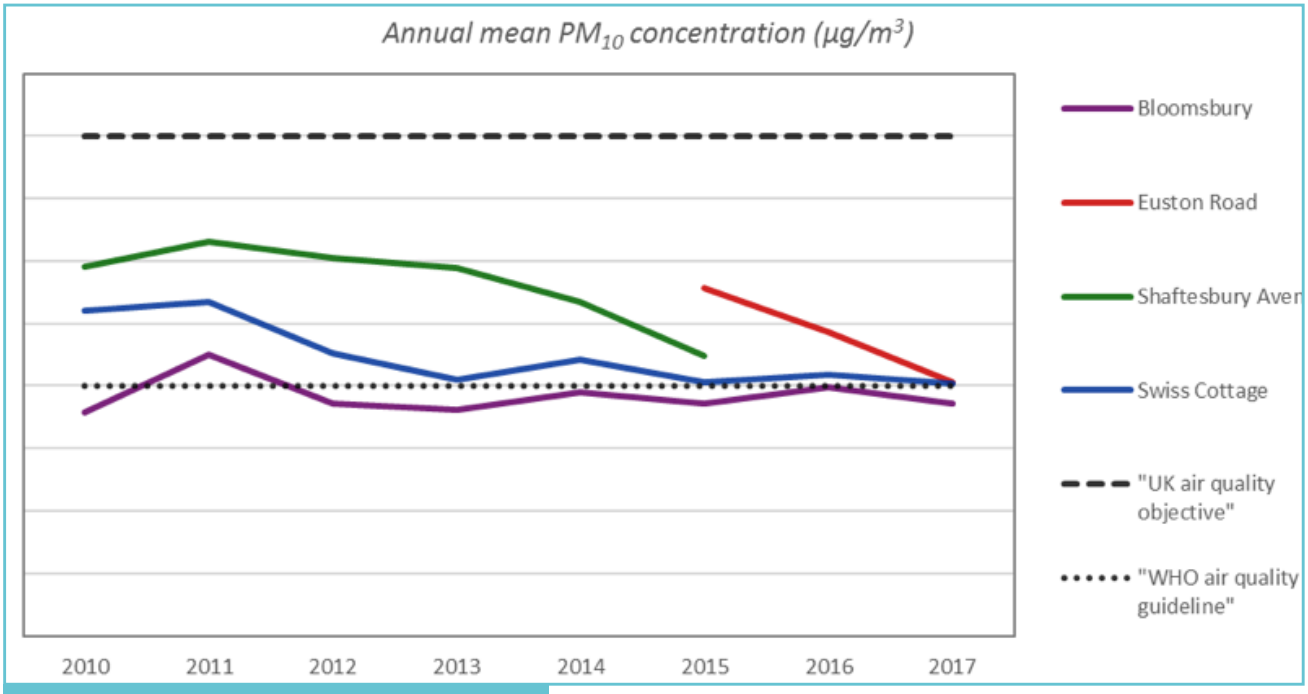
Pollutant	UK national air quality objectives	WHO air quality guidelines
NO2	40µg/m3 (from 1 January 2006)	40µg/m^3
PM10	40µg/m3 (from 1 January 2005)	20µg/m^3
PM2.5	25µg/m3 (from 1 January 2021)	10µg/m^3

TABLE 1: UK NATIONAL AIR QUALITY OBJECTIVES AND WHO AIR QUALITY GUIDELINES FOR ANNUAL MEAN CONCENTRATION OF NO2, PM10 AND PM2.5.

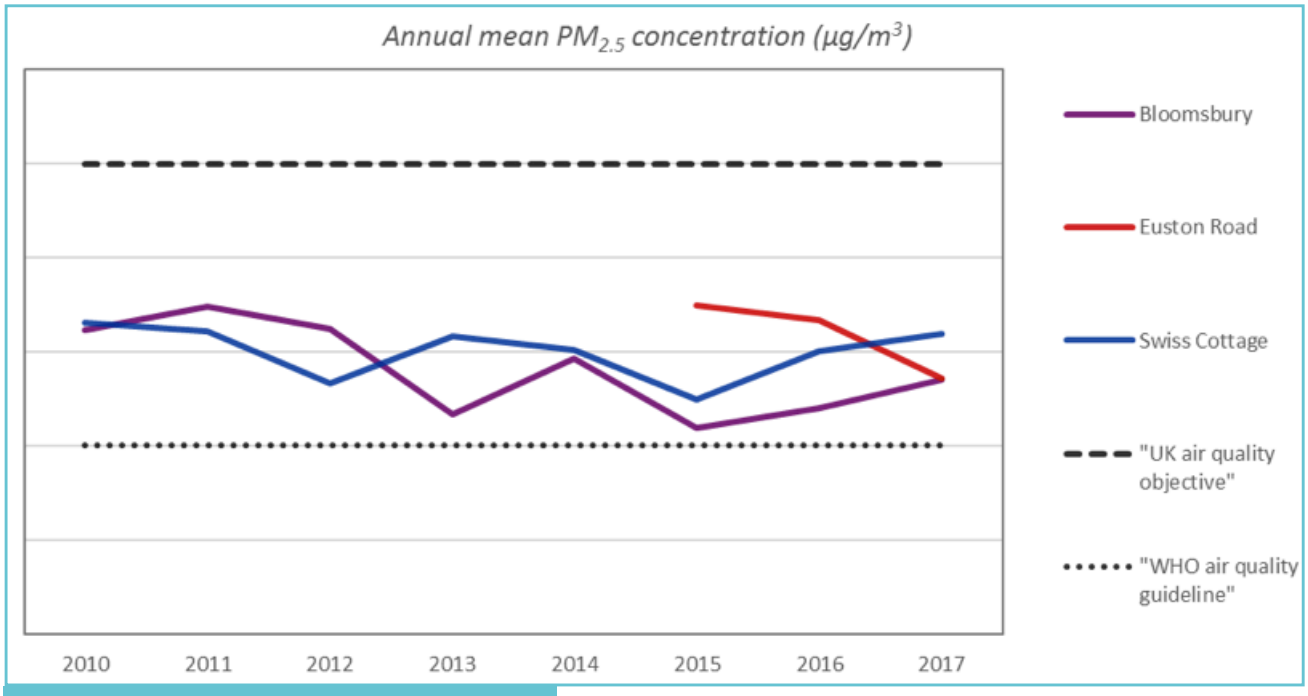
Like many London boroughs, Camden has typically been in breach of the national air quality objective for NO2. However, the national air quality objective for PM10 has been met at all PM10 monitoring locations since 1998. Graphs 1-3 show annual mean NO2, PM10 and PM2.5 concentrations at Camden monitoring sites since 2010 and compares this data to both the national objectives and the WHO guidelines.



GRAPH 1: ANNUAL MEAN NO2 CONCENTRATIONS



GRAPH 2: ANNUAL MEAN PM10 CONCENTRATIONS



GRAPH 3: ANNUAL MEAN PM2.5 CONCENTRATIONS

Although all PM monitoring sites comply with the UK national air quality objectives, two of three sites recorded annual mean PM10 concentrations above the WHO guideline objective (20µg/m3) in 2017, and all three were at least 35% above the objective for PM2.5 (10µg/m3).

Exposure to PM is associated with a range of health impacts, including cardiovascular and respiratory diseases, and the PM2.5 component (fine particulate matter) is classed as carcinogenic. Epidemiological evidence shows that there is likely to be no threshold for PM below which adverse health impacts do not occur. The WHO air quality guidelines take account of the fact that a portion of PM comes from natural sources, and that any reduction in PM concentrations will achieve a reduction in the prevalence of adverse health impacts. Therefore whilst the WHO air quality guidelines for PM do not target zero exposure, they are much more stringent than UK and EU air quality objectives.

In recognition of the inadequacy of the national air quality objectives for reducing the health impacts of PM, Camden has adopted the WHO's air quality guideline objectives for PM10 and PM2.5, which effectively halves the annual mean limit values for these pollutants to 20µg/m3 and 10µg/m3, respectively.

Responsibility therefore rests with us to target actions towards reducing PM in those areas which have higher ambient concentrations and where there is increased exposure.

Interim targets for WHO Compliance

To gauge how effective our actions are at meeting the WHO guideline values by 2030, we have set interim targets for the periods between 2022, 2026, and 2030. These targets have been set to align with our future CAAPs so that if we are short of meeting a target, there will be justification for implementing more stringent actions.

The targets are set against a 2017 baseline for the two monitored sites in Camden which currently experience the worst air quality for particulate matter and NO2 (Swiss Cottage and Euston Road). Achieving WHO guideline compliance at these two worst performing sites by 2030 will mean that all other sites in Camden are also highly likely to be compliant with WHO guidelines. Table 2 describes the limit values for these sites against the key pollutants of concern in Camden.

Interim targets: Annual mean concentration, µg/m³			
Pollutant	2022	2026	2030 (WHO compliance)
NO2 at Euston Road	66.5	53.2	40
PM10 at Euston Road and Swiss Cottage sites	17.1	14.8	12.5
PM2.5 at Swiss Cottage sites	13.7	11.8	10

TABLE 2: INTERIM POLLUTION TARGETS FOR MEETING WHO GUIDELINE VALUES

9 | WORLD HEALTH ORGANIZATION STUDY FOR CAMDEN

To assess the potential impact of measures to improve air quality in Camden, and to optimise the effectiveness of our actions, we worked with King's College London to model air quality in Camden to 2030 in response to different policy scenarios.

Methodology

As a first step, NOx, NO2, PM10 and PM2.5 were modelled modelled to 2030 according to a baseline scenario reflective of the current policy landscape.

The next step was to model the impact of some of the overarching Camden-specific measures which were suggested through the Clean Air Action Plan Design Day, the subsequent engagement process with communities and stakeholders throughout Camden, and key proposals within Camden's new Transport Strategy.

By comparing modelled 2030 air quality in the baseline scenario to modelled 2030 air quality with measures from the Camden Clean Air Action Plan and Camden Transport Strategy included, we were able to examine the overall effect of some of our key quantifiable measures in different parts of the borough.

Air quality was modelled according to anticipated changes in emissions of pollutants from different sources in comparison to the data from the London Atmospheric Emissions Inventory (LAEI) 2013 base year. Meteorological parameters were then introduced to take account of changing weather and climatic conditions. The result of the modelling exercise is a map of pollutant concentrations in Camden in 2030, which we have used to examine the distribution of NO2, PM10 and PM2.5.

Since the model is based upon emissions from different sources, we have also been able to explore how the contribution of these sources varies throughout Camden. For example, the map can be used to distinguish between NO2 from road transportation and NO2 from domestic and commercial boilers, or PM10 from localised biomass burning compared to PM10 from commercial catering premises.

Findings of the WHO study

The initial scenario model, which does not include Camden-specific measures, estimated that the UK national air quality objective and WHO air quality guideline for NO2 would be achieved at almost all locations in Camden by 2030. In contrast, PM10 and PM2.5 concentrations are expected to rise slightly from existing levels and to exceed the WHO guidelines at all locations, although the less stringent national air quality objectives are met throughout the borough.

By far the largest contributor to the modelled concentrations of both PM10 and PM2.5 in 2030 is the 'background' source, which includes all emissions sources outside of Camden and which was predicted to contribute 60-75% of PM10, and 65-80% of PM2.5 concentrations in Camden in 2030. The characteristics of particulate matter make local concentrations highly susceptible to meteorological influences and long-distance transportation from distant sources.

The influence of national climate change policy in increasing the use of biomass for electricity generation is potentially a key factor contributing to the modelled increase in PM concentrations in Camden. Similar assumptions about the use of biomass in continental Europe further contribute to the long-range background source.

When Camden-specific measures from this Clean Air Action Plan and the Camden Transport Strategy were introduced to the 2030 model, the concentrations of NO2, PM10 and PM2.5 decreased at all locations compared to the initial baseline scenario.

It is important to consider that the Camden-specific policy measures in the model included only those 'headline' interventions which were easily quantifiable, such as a reduction in total annual distance travelled by road vehicles, electrification of the Chiltern

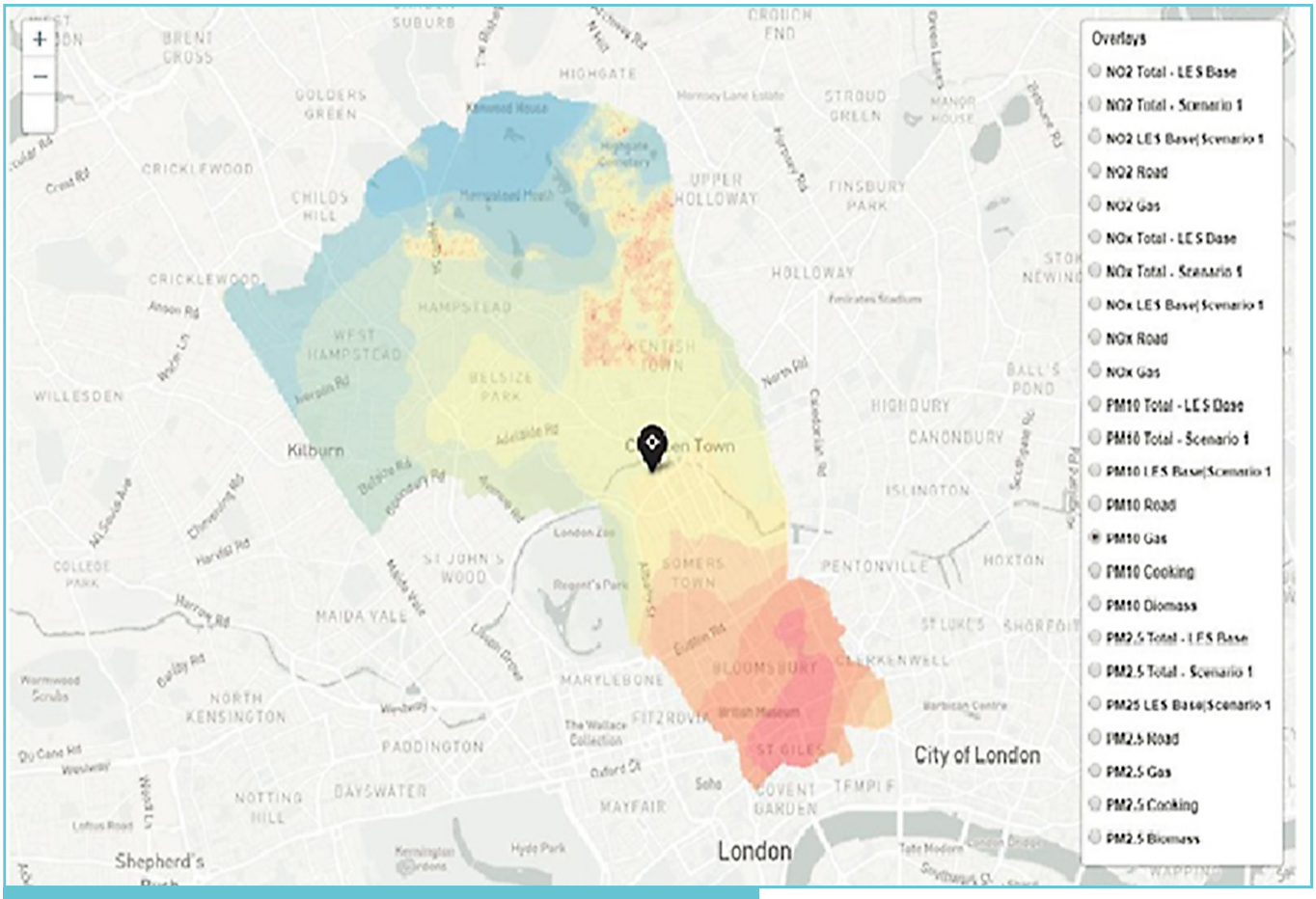
Railway in Camden, and removal of biomass burning in the borough. There are a number of measures included in the Action Plan which are likely to have a significant impact in reducing emissions of NO2 and PM in Camden, but which could not be modelled or mapped in a quantifiable manner. As a result, the 2030 Camden model can be thought of as showing the minimum impact that our measures could have in improving air quality in the borough.

Furthermore, the modelled improvements in vehicle fleet composition (which forms part of the baseline, non-Camden-specific model) are based upon existing technologies, so research and development in low and zero-tailpipe-emission transportation as well as break and tire wear between now and 2030 may help to reduce emissions of NO2 and particulates in Camden and in other areas of the UK and Europe, which will help to limit the increase background PM.

Limitations of the WHO study

The WHO study used the most recent LAEI data available. However, the 2030 model was projected forwards from the LAEI 2013 base year, which has not been updated since 2016. Therefore subsequent research into source apportionment and projections of future emissions may not be reflected in the Camden 2030 model.

Due to the potential for long-distance transportation of PM, meteorological conditions have a proportionally larger impact on this pollutant than for NO2. The result is that the modelled PM concentrations have a larger margin of error associated with the relative contribution of background sources – those from outside of Camden. Effectively this generates a conservative, worst-case estimate of 2030 PM concentration, and predicted PM is therefore higher than current measured PM concentration at many locations.



WHO STUDY INTERACTIVE MAP AVAILABLE TO THE PUBLIC IN 2019/2020

10 | DEVELOPMENT AND IMPLEMENTATION OF THE CAMDEN CLEAN AIR ACTION PLAN

"WITHIN CAMDEN'S COMMUNITIES THERE IS A STRONG SENSE OF ACTIVISM AND A POWERFUL SHARED UNDERSTANDING THAT WE ARE STRONGER WHEN WE WORK TOGETHER."

CAMDEN 2025

This Camden Clean Air Action Plan has been developed in collaboration with representatives from the key pollution sources in Camden along with residents, schools, businesses and the wider Camden community. The Clean Air Action Plan design process was supported by University College London. The following sections set out further detail about the development process.

CLEAN AIR DESIGN DAY - 9 JULY 2018

Camden Clean Air Partnership

Over 2017/18, hundreds of local people came together over a four-month period to define a new vision for Camden in 2025. The outcome of this work was a new community strategy for the borough called Camden 2025. At the heart of Camden 2025 is a recognition that air quality across Camden must be improved, and a call to action was raised where everyone with the power to make a difference, however small that may be, should be supported.

Most Action Plans are produced with very little input from the external parties that have influence over the key pollution sources, for example the construction industry, residents and regional authorities. As a result, action plans often fail to capitalise on the support and energy of the wider community and those most able to affect change.

We therefore formed a new Camden Clean Air Partnership comprising of key community representatives, organisations, and businesses who not only have influence over specific pollution sources but are also exposed to pollution themselves. From this, the Camden Clean Air Partnership was established, comprising of key representatives from various pollution sectors and residents from Camden, who came together to co-design a new set of actions and inspire a new way of working, where citizens, the Council and others come together to develop new solutions to the environmental challenge of air pollution.

A Clean Air Design Day was held in July with the Camden Clean Air Partnership members, Council officers and members of the community to begin the process of developing this new Clean Air Action Plan. It was chaired by Professor Muki Haklay, Professor of Geographic Information Science, and the director of UCL Extreme Citizen Science. A list of Design Day participants can be found in Appendix A of this report.

The proposed Clean Air Action Plan ideas from the Design Day were then uploaded to an online platform called Commonplace, with the wider Camden community encouraged to comment on the proposals, suggest additional actions, highlight specific pollution issues in their area, and also tell us about air quality measures already being delivered by their community.

Over 750 residents and groups contributed to the development of Camden's Clean Air Action Plan, with the Clean Air Design Day proposals receiving over 300 comments. Within the Commonplace platform, a call to action was also embedded to influence individual behaviour changes. Over 140 commitments were made by visitors to the site to reduce their impact on air quality, for example by improving the energy efficiency of their homes, driving less and starting their own air quality project.

Overall, from those who did leave feedback on the Commonplace platform, 71% was positive in relation to the proposed measures, 22% was neutral and 7% was negative. Figure 12 below illustrates the comment distribution between the air quality themes.

From those who responded, most either live or work in the borough. As seen from figure 13, there was also a surprising number of respondents who shop in Camden and showed concern and interest in air quality in the borough. This clearly demonstrates that air quality has no boundaries and exposure should be thought about in a holistic rather than boundary approach. Figure 14 shows the breakdown of respondents by age group and demonstrates that although most age groups did respond to the engagement, it resonated most with those aged 35-54.

To encourage engagement from other age groups, we also made presentations about the Clean Air Design Day proposals to groups such as Ageing Better in Camden which is affiliated with AgeUK.

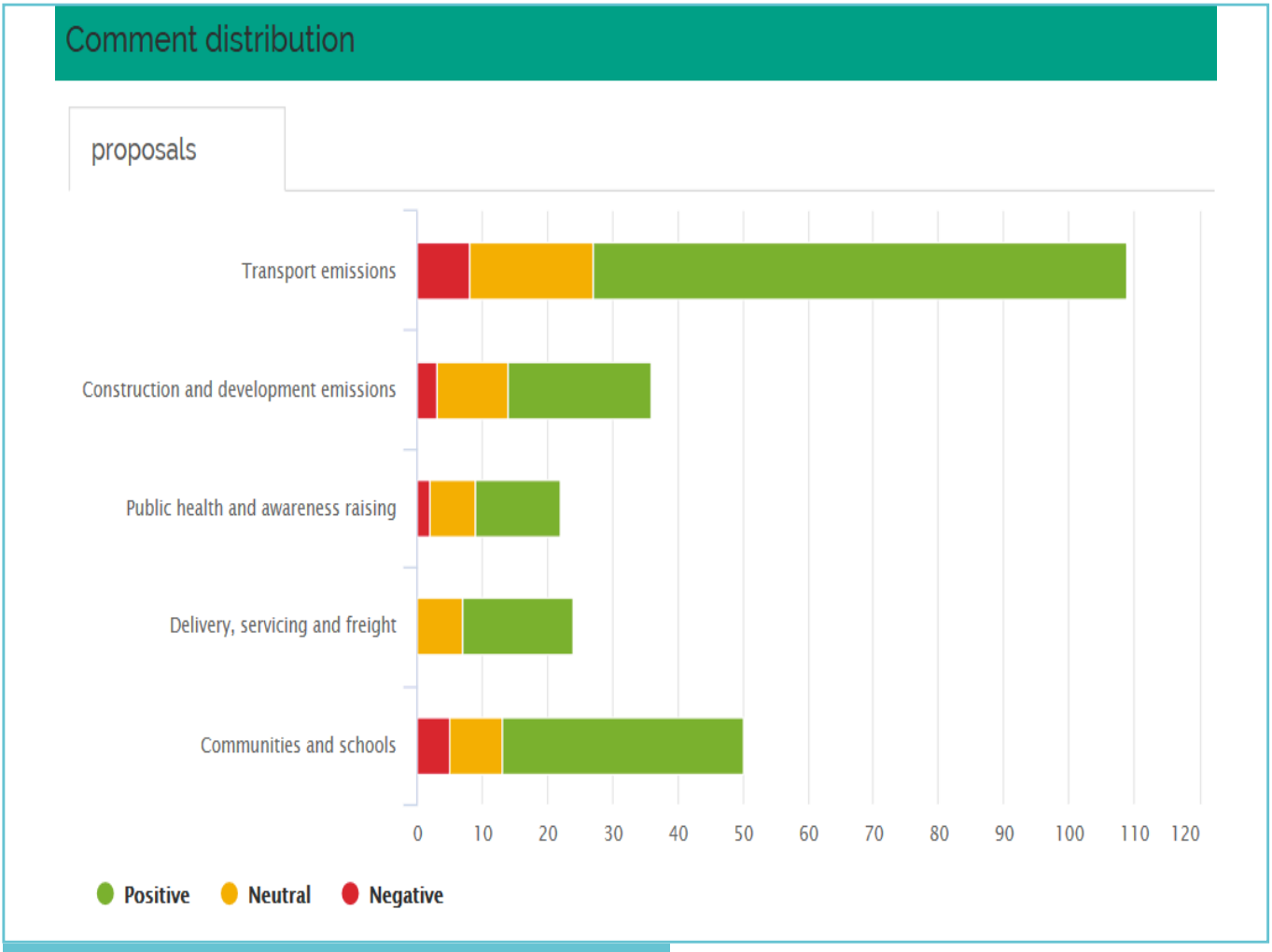


FIGURE 12: COMMUNITY RESPONSE TO PROPOSED MEASURE BY THEME

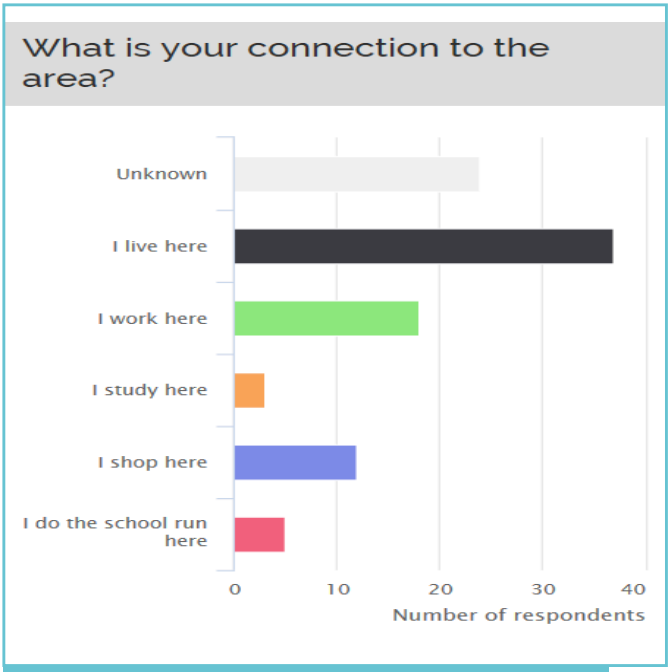


FIGURE 13: RESPONDENTS CONNECTION TO CAMDEN

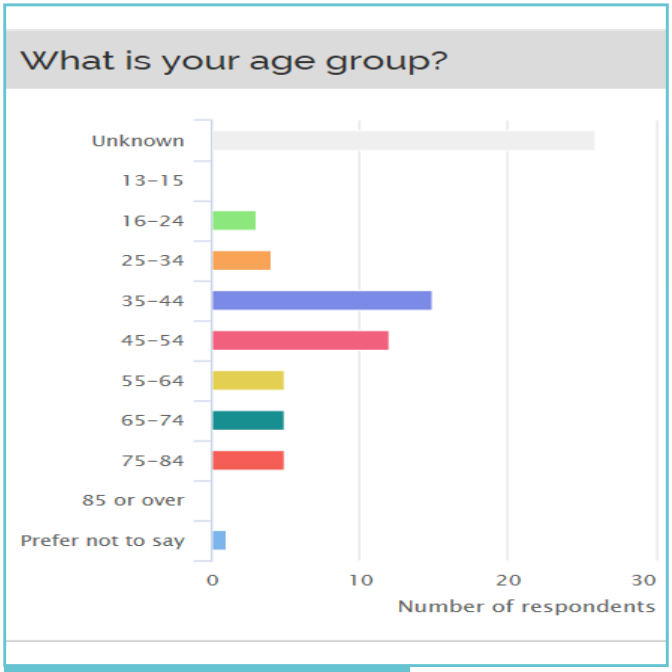


FIGURE 14: RESPONDENTS AGE GROUP

The platform also enabled users to leave comments about specific areas of air quality concern within Camden. Over 100 comments of this nature were provided and the map in Figure 15 below describes the comment distribution.

As a brief summary of the comments received, residents from Kentish Town raised concerns about the high street and cut-throughs to it from residential streets such as Sandall Road and Angler's Lane. There were also specific comments about the need to address idling around the Kentish Town Health Centre. In Camden Town, residents supported further idling enforcement and the creation more space for cyclists. In Euston, there were calls to address bus idling at the station, and wider concerns in Somers Town and the Regent's Park Estate area about the cumulative impact of construction projects, and the particular impact of HS2. The Kilburn area showed support for tackling deliveries at peak times to stop congestion in the area and many areas such as Torrington Place, UCL campus and Laystall Road supported the need for further pollution monitoring.

As far as practically possible we have sought to define actions, or the approach to defining them with further community involvement, that address these concerns within the new Clean Air Action Plan.

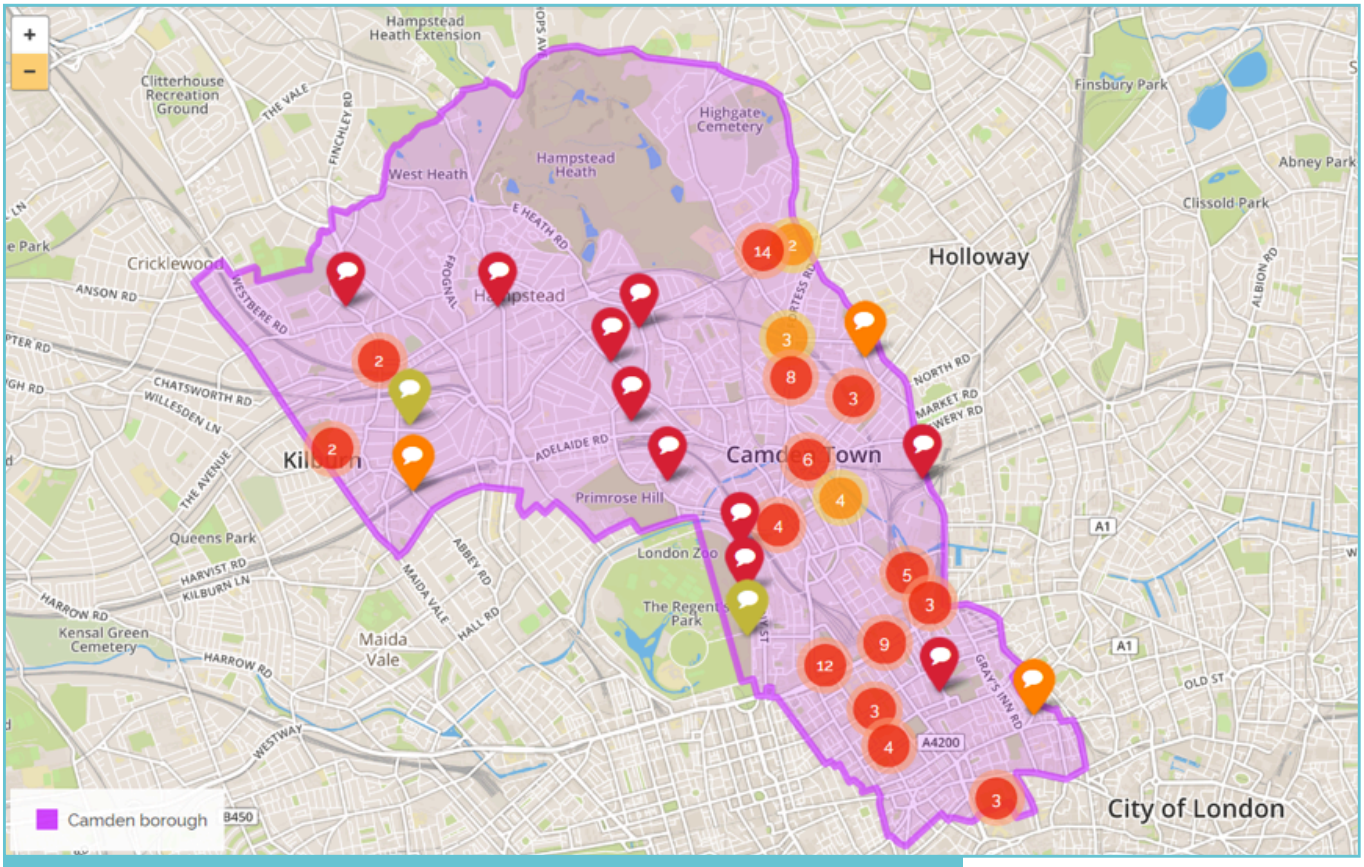


FIGURE 15: DISTRIBUTION OF COMMUNITY COMMENTS TARGETING SPECIFIC AREAS IN CAMDEN.

Steering Group

Many Council departments were consulted on the Clean Air Action Plan prior to public consultation, as the successful delivery of the plan is dependent on inter-department working and mutual support.

The following teams were consulted:

- Camden Accessible Travel Solutions (Fleet)
- Corporate Services
- Housing
- Schools
- Parking Operations
- Public Health
- Procurement
- Planning Policy
- Planning Enforcement
- Planning
- Transport Planning
- Parks and Services
- Environmental Health
- Legal
- Finance
- Communications
- Health and Wellbeing Team

11 | CONSULTATION AND STAKEHOLDER ENGAGEMENT

As noted in the previous section, Camden's Clean Air Action Plan has been developed with the support of residents, businesses and partners, and through the specific guidance of the Camden Clean Air Partnership.

A draft of the CAAP was also subject to formal public consultation between 4 January and 15 February 2019 on the Council's consultation hub "wearecamden". The consultation followed the extensive pre-consultation work outlined in section 10.

Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in table 3 below.

In addition to the statutory consultees, the consultation was publicised to Tenants and Residents' Associations, environmental groups and via the Camden Transport Strategy consultee email list. It was also promoted through social media, Commonplace and We Love Camden. An article was also included in the Camden Magazine and the Voluntary Action Camden newsletter. UCL and the Clean Air Partnership also promoted the consultation.

Paper copies were sent upon request to groups which included the Ageing Better in Camden and the Older People's Advisory Group (OPAG).

We also attended meetings with Camden Air Action/Camden Transition Towns Network. The CAAP was also discussed at Association of London Environmental Health Managers on 29 January to promote an alternative, more inclusive way of producing a Clean Air Action Plan.

In total, 356 responses were submitted via our online consultation and 21 responses sent via mail and email. These responses were in addition to the 750 residents and groups that contributed to the development of the consultation draft. Overall, the CAAP and its actions have been well received with on average 72% of the respondents supporting the actions. In total, the CAAP engaged with over 1,000 people throughout its development and consultation.

All consultation responses have been taken into consideration within this CAAP. Details of the consultation responses can be found in the Council's Single Member Decision report published on the 29 March 2019 titled Camden Clean Air Action Plan 2019-2022 (report ref SC/2019/03) www.camden.gov.uk

Yes/No	Consultee
YES	The Secretary of State
YES	The Environment Agency
YES	The Camden community
YES	Transport for London and the Mayor of London (who will provide a joint response)
YES	Neighbouring local authorities
YES	Other public authorities as appropriate
YES	Bodies representing local business interests and other organisations as appropriate

TABLE 3: LIST OF CONSULTEE BODIES CONSULTED

12 | CAMDEN'S CLEAN AIR ACTION PLAN

Our priorities within Camden's Clean Air Action Plan have been informed by engagement with the Camden community, our work with King's College with regards to meeting the WHO guidance values by 2030 and the overarching priorities of the Mayor of London.

Camden's Clean Air Action Plan identifies initiatives, projects and policies to be implemented by Camden and our partners to reduce NO2 and particulate matter emissions from the key emission sources in the borough – road transport, gas boilers, construction and new developments. Equally, it aims to increase awareness of air quality, and help everyone in Camden understand how they can help reduce air pollution and how they can minimise their exposure when air quality is particularly poor.

This CAAP differs from previous plans. It contains more actions with an increased focus on specific projects such as the Neighborhoods of the Future project in the Fitzjohn's area; and greater attention to anti-idling and awareness raising, as well as air quality audits and toolkits for schools and businesses. The plan also contains community led actions for the first time such as the Great Ormond Street Hospital patient consolidation scheme, the John Lewis Partnership's low emission fleet upgrade and Camden Town Unlimited's continued air quality awareness work and installation of green infrastructure.

In addition to our statutory annual status reporting to the GLA on progress against

the CAAP, the Camden Clean Air Partnership will continue to help oversee and monitor the CAAP's implementation between now and 2022. The Partnership will also continue to expand to other members and continue to deliver actions beyond those listed in this CAAP.

The overarching aim of the Clean Air Action Plan is to:

1. Continue to meet the EU objectives for Carbon Monoxide, Benzene, 1,3-Butadiene, Lead and PM10.
2. Continue to reduce concentrations of PM10 and PM2.5, and to meet the EU Objective for NO2.
3. Drive forward compliance with WHO Guidelines by 2030

The key priorities of the Plan include:

1. Reducing construction emissions

Why is this issue important?

The construction of new developments can produce high concentrations of geographically specific PM and NO2 emissions. The development control planning system plays a key role in managing the environmental impacts of new development and contributes to the protection and long-term improvement of air quality. Camden's requirements for new developments are enshrined within a number of the council's planning policies.

Camden also has an important role in reducing emissions from significant infrastructure projects that fall outside the planning process. High Speed 2 is a high profile example of a project where Camden will play a key role in minimising air quality impacts across a number of sites over a proposed 18-year construction period.

Headline actions from our CAAP:

- Enforcing NRMM via our planning regime
- Ensuring all major sites have a demolition management plan (DMP) and a construction management plan (CMP)
- Ensuring all medium and high-risk sites have real-time PM monitoring on site and that the information from this monitoring is easily accessible to the public
- Support the development of community-led Neighbourhood Construction Site Watch groups to assist in monitoring construction sites in line with air quality CMP requirements
- Ensuring HS2 assurances with respect to air pollution and green space are complied with

2. Reducing building emissions

Why is this issue important?

Domestic and commercial heating contributes to over 30% of NO2 emissions in Camden and buildings in Camden account for 90% of carbon dioxide emissions that drive climate change. Improving the energy efficiency of buildings is the most effective way of reducing energy demand and therefore minimising emissions from gas boilers. Camden has been actively promoting the benefits of energy efficiency measures for several years, primarily focusing on saving heat in homes in response to statutory requirements to improve energy efficiency and reduce fuel poverty.

Industrial processes also contribute to particulate matter emissions in Camden. The Council has a statutory duty to regulate emissions to air from industrial processes in accordance with the Environmental Permitting Regulations.

Headline actions from our CAAP:

- Promoting and enforcing smoke control legislation
- Promoting and delivering energy efficiency retrofitting projects in workplaces and homes
- Enforcing Air Quality Neutral and Air Quality Positive policies for new developments
- Ensuring adequate, appropriate and well-located green space and infrastructure is included in new and existing developments
- Ensuring master planning and major regeneration areas such as the Kentish Town Goods Area are low emission zones with zero combustion from on-site plant
- Continue to control emissions from permitted process via inspections and enforcement

3.Reducing transport emissions

Why is this issue important?

Road transport accounts for approximately half of NO2 and PM10 emissions in Camden, as well as contributing to around 10% of the borough wide carbon emissions that contribute to climate change. The geographically specific nature of road-related air pollution means that transport emissions also heavily contribute to air pollution hotspots in the borough.

Headline actions from our CAAP

- Increase the amount of electric vehicle charging infrastructure in Camden
- Improving walking and cycling infrastructure
- Discouraging unnecessary idling by taxis and other vehicles
- Using parking policies to reduce pollution emissions
- Offer a parking permit scrappage scheme where a free two-year membership to a car club is provided.

4.Supporting communities and schools

Why is this issue important?

Air pollution has a significant impact on the health of children and yet the school run is a major source of localised pollution in Camden. It is therefore important to work with schools to reduce the extent to which children are exposed to poor air quality and to encourage parents to take their children to school through more sustainable forms of transport such as walking and cycling. We also want to reduce pollution in quieter residential areas and along our canals.

Headline actions from our CAAP:

- Reducing pollution and pollution exposure in and around schools, and extending school clean air audits to all schools in Camden
- Delivering a Neighbourhoods of the Future low emission zone in the Fitzjohn's area working with the independent schools in this neighbourhood to improve air quality and improve the electric vehicle charging infrastructure.
- Supporting and facilitating Play Streets and Healthy School Streets which temporarily close off roads to vehicles
- Encouraging schools to join TfL STARS school travel plan initiative
- Implement a borough-wide traffic management order (TMO) to enable more robust enforcement of vehicle idling and higher fines
- Produce guidance for canal boat users on the impact of wood and coal burning on local air quality and disseminate with the support of the Canal and River Trust.

5. Reducing emissions from delivery, servicing and freight

Why is this issue important?

The growth in online shopping is increasing the number of household deliveries across Camden and at the same time economic growth continues to drive freight movements in and around the borough. Given the prevalence of diesel-fuelled goods vehicles, these transport movements have a disproportionately large impact on NO2 and PM emissions in Camden.

Headline actions from our CAAP:

- Creating an online signposting hub on Camden's website that highlights funding opportunities for air quality positive technology (electric vehicles, EV charging, cargo bikes, etc.)
- Ensuring air quality is included in all procurement processes and favours suppliers with low or beneficial impacts on air quality.
- Promote Camden's freight consolidation centre to other boroughs, business improvement districts and private companies.
- Reducing emissions from council fleets, with a fully low emission fleet targeted by 2022
- UCL to deliver a logistics plan for the Bloomsbury campus, consolidating deliveries and reducing vehicle emissions and congestion

6. Continuing public health and awareness raising

Why is this issue important?

Informing people about local air pollution can help to protect those who are most sensitive to its health impacts. Increasing public understanding of the sources and effects of air pollution can also motivate lifestyle changes, which can help improve air quality, for example promoting sustainable travel as method of reducing air pollution.

The impacts of awareness raising projects on actual behaviour are difficult to quantify. However air quality is a problem that affects us all, and by educating and informing people about local air quality Camden can help residents change their behaviour and improve the health and wellbeing of the borough.

Partnering with Public Health is particularly important as a way to increase awareness around air pollution, especially as health professionals are a trusted voice on these kinds of issues.

Headline actions from our CAAP:

- Supporting alerts services such as Airtext, and promoting the Mayor's air pollution forecasts
- Expand the air pollution monitoring network in Camden and provide the monitoring information in an easy-to-access freely accessible on OpenData and through London Air
- Increasing the role of the Public Health department in air quality policy decisions
- Promote cleaner walking routes and signposting to free air quality route mapping apps and websites.
- Raising awareness about indoor and outdoor air quality

7. Lobbying

Why is this issue important?

There are a large number of air quality policy areas that are outside of direct Council control (such as engine emission standards, national vehicle taxation policy, legislation, and policies governing taxis and buses), and so we will continue to work with and lobby regional and national government to influence policy changes that support air quality improvements in Camden.

Headline actions from our CAAP:

- Lobby national government to tighten smoke control regulations and ban the use of fireplaces and wood burners in areas well-serviced by cleaner heating sources
- Support national Governments proposal to phase out diesel trains by 2040 and lobby to implement this measure sooner To support the Mayor's ULEZ
- To take forward lobbying initiatives identified through the WHO study to drive national action to support compliance by 2030

13 | CLEAN AIR ACTION PLAN MATRIX

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
	Description of action to be implemented	Name of Council department(s) with responsibility for action implementation	Anticipated cost of action implementation £ = 0-50k ££ = 50-100k £££ = >100k	High = 3 Medium = 2 Low = 1	Proposed timescale for implementation	What the Key Performance Indicators for implementation will be e.g. 5 rapid chargers installed in year 1 etc.	Provide details on the implementation plan for the proposed action. This could be a link to a separate document, or a reference to an appendix
REDUCING CONSTRUCTION EMISSIONS							
1	Secure additional funding from developers through s.106 agreements to manage and enforce construction impacts	Sustainability and Air Quality Planning	£	2	2019	Annual Report Reduction in number of complaints relating to construction projects	Determine if the funding could support a dedicated construction management officer.
2	Ensure all major development sites have a demolition management plan (DMP) and/or a construction management plan (CMP) approved by the air quality officer.	Sustainability and Air Quality Planning	£	2	2019	Annual Report To include number of DMP's and CMP's that have been reviewed compared with the number of major sites approved to ensure that all relevant sites have been captured.	All major sites to have a construction bond which will be used to fine developers for non-compliance with the DMP/CMP requirements.
3	Ensure all medium and high-risk sites have real-time particulate monitoring on site and that the information from this monitoring is easily accessible to the public	Sustainability and Air Quality Planning	£	3	2019	Annual Report To include reporting of number of sites that required monitoring compared with the number of major sites approved (to ensure that all relevant sites have been captured). Report will include number of exceedances per year.	Ensure number of exceedances decrease annually. Risk is assessed via air quality assessment in support of a planning application.

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
4	Ensure that policies and assurances agreed with HS2 in relation to air quality and green space are complied with during the course of the project.	Sustainability and Air Quality Planning HS2 Green Spaces	£	3	2019-2022	Annual Report To include update on compliance with assurances as detailed in the next column	Air quality assurances include: • HGV & light duty vehicles comply with Euro engine standards • NRMM compliance (Stage IIIb and IV compliance) Note that HS2 needs to be Stage V in CAZ from 2020. • transporting spoil by rail • green infrastructure (trees and green spaces)
5	Produce a construction code of practice for small developments to be used as an informative	Sustainability and Air Quality Planning	£	1	2019	Annual Report Number of informatives issued annually	Informative to be secured to either planning consent or S106 agreements
6	Create clean air zones (areas of exclusion for construction vehicles) around schools/ hospitals.	Sustainability and Air Quality Planning Transport Planning	£	2	2022	Annual Report To include amount of clean air zones created.	If the area needs to be entered, the developer will be required to install extra measures for the duration of the project to protect the schools / hospitals for example: • green infrastructure (screen screens, bushes, trees) • air filtration systems at vulnerable receptor locations
7	Improve communications with local communities about the pollution impact of large construction projects, how impacts will be minimised, and how residents can report concerns.	Sustainability and Air Quality Planning Construction industry	£	1	2019	Annual Report Aim to reduce number of complaints received.	Ensure dust monitoring data for construction sites is made public via an online platform and/or via hard copies on site. Update Council website to include section on construction and air quality.
8	Support the development of community-led Neighbourhood Construction Site Watch groups to assist in monitoring construction sites in line with air quality CMP requirements.	Sustainability and Air Quality Planning	£	2	2019	Annual Report Aim to reduce number of complaints received.	Groups would be briefed on agreed DMP/ CMP protocols and helped to identify and report on breaches.
9	Develop and implement a power generator hierarchy for construction sites with the aim of reducing the number of diesel generators.	Sustainability and Air Quality Planning	£	1	2019	Annual Report	To be included as an informative for either planning conditions or S106 agreements relating to air quality.
10	Require cumulative impact assessments for developments in order to identify the impact on local air quality and identify methods to reduce impact on local communities.	Sustainability and Air Quality Planning	£	2	2019	Annual Report	Cumulative impact to be taken in areas of regeneration as well as in areas where the development crosses borough boundaries

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
11	Control construction lorry delivery times through s.106 agreements and/or planning condition to reduce impact on local communities and air quality.	Transport Planning Planning	£	2	2019	Annual Report To include how many CMPs required time-controlled deliveries and estimation of the emissions benefits of these (where possible).	Currently, the highest concentrations of construction traffic tends to be between 8 - 9am. We would look to control deliveries to avoid these times via DMP/CMP and also control deliveries during school drop off and pick up times
12	Reduce the impact of Council-led infrastructure projects by requiring the control mechanisms noted in the Further Information column for all Community Investment Programme development.	Camden Engineering Transport Planning Procurement Sustainability and Air Quality Community Investment Programme team	£	2	2020	Annual Report To include how many contracts are issued under these requirements.	Control mechanisms to include: • All HGVs to be Euro VI or cleaner • Low emission vehicles • Demolition management plans • Construction management plans • FORS silver accreditation (progression scale allowing for company to meet silver within 180 days will be considered) • Use of cleaner equipment (hybrid, electric, hydrogen, etc) • Ensuring contracts incorporate air quality • Anti-idling and driving behaviour
13	Enforcement of Non Road Mobile Machinery (NRMM) air quality policies	Sustainability and Air Quality Planning	£	2	Immediately	Annual Report To include number of NRMM conditions/S106 as a proportion of total relevant sites, number of interventions and how many sites were audited.	Accomplished via our planning system (S106/conditions) and joining the pan – London NRMM project which will include site audits.
14	Monitor air quality for Council transport infrastructure projects to inform the scheme design, evaluate project impact, and enhance future schemes	Sustainability and Air Quality Transport Planning	£	2	Immediately	Annual Report To include number of road-based schemes assessed.	
15	To support construction industry-led initiatives that demonstrate best practice and drive improvement across the sector	Construction industry supported by Camden	£	1	2019-2022	Annual Report	This includes:Production of best in class (best practice) for the construction industry

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
REDUCING BUILDING EMISSIONS							
16	Ensure all major domestic and non-domestic developments achieve zero carbon status through exemplar energy efficiency standards and renewable energy installations.	Sustainability and Air Quality Planning	£	2	2019	Annual Report To include how many developments have complied with this requirement.	This promotes cleaner renewable energy sources (solar, wind, underground heat, etc) and less energy demand through improved energy efficiency measures such as insulation. Minor developments will be required to incorporate renewables where feasible
17	Ensure major regeneration planning policy framework documents are developed to specify low emission zones with zero on-site combustion	Planning Sustainability and Air Quality	£	3	2019-2022	Annual report	The most recent planning framework for the Kentish Town Goods Area defines the site as a low emission zone with zero combustion from on-site heating and car free housing. Euston regeneration framework will be developed to include the same.
18	Promote and deliver energy efficiency retrofitting projects in workplaces and homes using the GLA RE:NEW and RE:FIT programmes and the Camden Climate Fund	Sustainability and Air Quality Planning	£	2	Immediately	Annual Report To include summary of how many businesses and homes benefited from these programmes.	To also include: • Better Homes which improve the condition and insulation of Council housing flat roofs and windows. Projects are published on Camden's Open Data platform: https://opendata.camden.gov.uk/dataset/External-Better-Homes-Programme/yas3-u9wc/data • Better Homes Mechanical & Electrical Programme which upgrades current heating systems across the borough. To also create a communications campaign that promotes and signposts to: • Camden's Energy efficiency planning guidance for conservation areas • Energy efficiency advice online: https://beta.camden.gov.uk/energysavingtips?inheritRedirect=true#dfmo • The free phone Green Camden helpline on 0800 801 738 (Mon – Fri, 9am to 5pm), more information on https://beta.camden.gov.uk/energy-efficiency-grants?inheritRedirect=true • Well and Warm free home energy visits for eligible residents: https://beta.camden.gov.uk/energy-efficiency-grants?inheritRedirect=true#rttu . The Green Doctors conducting home visits are also qualified to do a WISH plus assessment. • WISH plus – access to a range of warmth, income, safety and health services (WISH): https://beta.camden.gov.uk/wish-plus?inheritRedirect=tru

19	Enforce CHP and biomass air quality planning policies for new developments.	Sustainability and Air Quality Planning	£	2	Annual Report To include number of CHP/biomass conditions	Annual reporting on number of CHP/biomass conditions	Deter the use of biomass & CHP whenever possible through the planning system
20	Enforce Air Quality Neutral and Air Quality Positive planning policies for new developments.	Sustainability and Air Quality Planning	£	2	Immediately	Annual Report To include the total number of planning applications assessed for air quality neutral and air quality positive as a proportion of total planning applications	Via planning system
21	Ensuring adequate, appropriate, and well located green space and infrastructure is included in new developments	Green Space Team Planning Sustainability and Air Quality Planning	£	1	Immediately	Annual Report To include how many new developments installed green infrastructure	Produce guidance to inform Camden's tree planting programme that ensures that tree species and green infrastructure choices are informed by their ability to mitigate air pollution. Guidance to be informed by 2018 air quality expert group report "Impacts of Vegetation on Urban Air Pollution" and other relevant guidance. In this action, green infrastructure refers to trees and other vegetation.
22	Maintain and increase the amount of green infrastructure in Camden including the number of trees.	Green Spaces Planning	££	1	Immediately	Annual Report Target to plant and maintain 400 trees per year, which will include a minimum of 50 new locations	In this action, green infrastructure refers to trees and other vegetation.
23	Ensure that Smoke Control Zone regulations are communicated and enforced with the support of residents' associations.	Sustainability and Air Quality Environmental Health Residents' Associations	£	2	Immediately	Annual Report To include how many smoke control complaints were received and enforced as well as summary of communication methods used.	Communication will include social media and flyers sent during winter heating season. Based on the WHO 2030 model, this activity within Camden account for 4% of our total PM10 and 7.2% of PM2.5. Figure for 2019-2022 are higher. Defra estimate that approximately 38% of UK primary particulate matter emissions come from burning wood and coal in domestic open fires and solid fuel stoves. This compares with industrial combustion (16%) and road transport (12%).
24	Continue to control emissions from permitted process via inspections and enforcement.	Environmental Health	££	2	Immediately	Annual report To include how many enforcement notices were served.	These are facilities regulated under the Environmental Permitting Regulations.

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
Reducing Transport Emissions							
25	Increase the amount of electric vehicle charging infrastructure in Camden	Transport Planning Transport for London Office of Low Emission Vehicles (pending funding availability)	£££	2	2019-2022	Annual Report To include number of charge points installed. Target: • Minimum of 89 EV charge points installed in 2019 • Minimum of 10 Source London EV charging points per year. • 10 lamp column charge points per year • 2-4 rapid charge points at taxi ranks in partnership with TfL every year	To include electric vehicle charging points for residential, commercial, rapid, regular, and lamp columns. Help signpost businesses to external ultra-low emission vehicle infrastructure funding pots. In line with the Camden Transport Strategy's EV Action Plan and using funding sourced from the Office of Low Emission Vehicles and the linked Go Ultra Low City programme.
26	Undertake feasibility, consultation and implementation of on-street rapid charge points at taxi ranks, in partnership with TfL.	Transport Planning TfL	£££	2	2019-2022	Annual Report Target: install 2-4 rapid chargers every year	Most ranks will fall under TfL jurisdiction, however, Camden will work with them to support the installation of rapid EV charge ranks.
27	To use all relevant forms of parking restrictions and charges to help reduce total overall traffic levels and help improve air quality.	Transport Planning Parking	£	2	2019-2022	Bi-Annual Report Aim to increase sustainable transport mode share by Camden residents from 85% in 2017 to 88% by 2021, to 90% by 2031 and to 93% by 2041.	This includes resident, housing and business parking permits as well as dynamic paid-for parking based on pollution/congestion at the time. This is based on Camden's Transport Strategy.
28	Undertake a feasibility study into a workplace parking levy (WPL) in Camden and implement if feasible	Transport Planning Parking	£	1	2019-2022	Annual Report	This is based on Camden's Transport Strategy.
29	Keep cycle routes open (if safety is not an issue) when road closures are planned	Transport Planning	£	1	2019-2022	Annual Report To include how many road closers permitted cycle access in comparison to how many did not	

30	Trial replacement of parking spaces near junctions with cycle storage or other green measures that don't impair pedestrian or driver visibility, to improve junction visibility and safety.	Transport Planning	£	1	2019	Annual Report	Based on Measure 2e of Camden's Transport Strategy
31	Continue to provide additional bicycle parking in the borough including Business Improvement Districts.	Transport Planning Business Improvement Districts	££	1	2019-2022	Annual Report Aim to deliver a minimum of 15-20 cycle hangar units each year, plus numerous 'Sheffield Stands'	Based on Camden's Transport Strategy.
32	To offer travel plans to businesses and Camden Climate Change Alliance members.	Camden Climate Change Alliance Business Improvement Districts Transport Planning	£	1	2019-2022	Annual Report	
33	Continue to discourage unnecessary idling through anti-idling campaigns and enforcement activity.	Sustainability and Air Quality Transport Planning Parking Environmental Services	££	1	2019-2022	Annual Report Aim to deliver a minimum of 8 idling events per year. Increase enforcement fine from the current £20 and create a borough wide traffic management order (TMO) which will further support the enforcement of engine idling	Introduce formal anti-idling signage throughout Camden to support TMO. To take part in the Mayor's pan-London idling project
34	Work with the LTDA to establish a jointly executed anti-idling campaign targeted at taxi drivers.	Sustainability and Air Quality LTDA Transport Planning Environmental Services	£	1	2020	Annual Report summarising how many drivers were spoken to	
35	To improve walking and cycling infrastructure through projects such as the proposed Prince of Wales Road and Camden Road cycle routes	Transport Planning	£££	2	2019-2022	Annual report	
36	To offer a parking permit scrappage scheme where a free two-year membership to a car club is provided.	Transport Planning	££	1	Immediately	Annual Report	

37	Ensure the Clean Air Action Plan and Camden Transport Strategy have overlapping and supporting policies in relation to air quality	Transport Planning Sustainability and Air Quality	£	3	2019-2022	Annual Report	Our Camden Transport Strategy (CTS) sets pollution reductions for Nitrogen Oxide (NOx) and Particulate Matter (PM10) from road transport, of 95% and 61% respectively by 2041 (compared to 2013 data). This assists the Borough in meeting World Health Organisation targets for both. The CTS runs from 2019 to 2041
38	Install collapsible bicycle posts around the Hatton Garden Business Improvement District	Hatton Garden BID	££	1	2019-2022	Annual Report	
39	Consolidate patient transport to reduce the number of vehicles on the road (subject to health and safety of patients)	Great Ormond Street Hospital	£	1	2019-2022	Annual Report	

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
Supporting Communities And Schools							
40	Assess the feasibility of creating an air quality app that allows users to report air quality issues to the Council.	Sustainability and Air Quality Sustainability and Air Quality Environment Services Parking services	££	1	2019-2022	Annual Report	Issues to include: • Idling • Smoke Control infractions Based on Clean Camden App: https://play.google.com/store/apps/details?id=uk.co.organise.cleancamden&hl=en_GB
41	Deliver a Neighbourhoods of the Future project in the Fitzjohn's area in partnership with independent schools to encourage more sustainable forms of transport.	Transport Planning Sustainability and Air Quality	£££	2	2019-2022	Annual Report Target: • 10 lamp column charge points for local residents' use • 10 on-street Source London points, • 10 (5, 22KW 'fast' and 5 standard 7KW) EVCPS on school car parks in the study area; • An additional 8 lamp column charging points at the home end of school journeys • Implement minimum of 3 Healthy School Streets • Convert 4 car club bays to EV car club bays	Deliver a Clearway investigation as part of this project which may include the installation of double red lines in school areas that are on main routes.
42	Produce and promote a School Air Quality Audit toolkit to schools in Camden.	Sustainability and Air Quality Camden Climate Change Alliance	£	2	2019-2022	Annual Report All primary schools to have received toolkit by 2022	Audit toolkit to be based on the Mayor's Air Quality Toolkit. Target pollution hotspot areas first

43	Work with Public Health to develop a school superzones pilot that tackles health and air quality in the Kilburn area.	Public Health Sustainability and Air Quality	£	2	2019-2022	Annual Report Aim to deliver one pilot school superzone by 2022	Superzones aim to protect children's health and encourage healthy behaviours through targeted interventions on: • unhealthy food and drink sales • advertisements • alcohol • smoking • gambling • air quality
44	Continue to encourage schools to join the TfL STARS accredited travel planning programme by providing information on the benefits to schools and supporting the implementation of such a programme.	Transport Planning	£	2	Immediately	Annual Report	Report to be broken down by bronze, silver and gold status.
45	Continue to promote the uptake of Play Streets to local residents.	Transport Planning	£	2	2019-2022	Annual Report	Temporary road closures are part of this scheme
46	Work with Universities to investigate the potential for a new university-led community air quality monitoring project	Sustainability and Air Quality University College London	£	1	2019-2020	Annual Report	UCL's Chemistry department to explore the potential for a pollution monitoring project with primary schools UCL's Electronic and Electrical Engineering department to deliver citizen science projects measuring local air quality with communities and schools.
47	Increase the number of Healthy School Streets in key pollution areas.	Transport Planning	££	2	2019-2022	Annual Report To implement at least two Healthy School Streets per year.	Temporary road closures are part of the scheme.
48	Develop bespoke clean air routes for schools in Camden highlighting clean routes to and from school as well as to relevant places such as libraries, community centres and parks.	Sustainability and Air Quality Transport Strategy	£	2	2019-2022	Annual Report All primary schools to have a bespoke route map by 2022	
49	To continue to work in partnership with London authorities, the GLA, TfL, London Councils and Defra on air quality projects.	Sustainability and Air Quality	£	2	Immediately	Annual Report Aim: To deliver at least 2 joint projects with other London authorities. To attend at least 4 cluster group meetings per year To respond to all GLA, TfL and Defra air quality consultations	

50	Continue to work with schools on air quality engagement, awareness and behaviour change.	Sustainability and Air Quality	£	2	Immediately	Annual Report Aim to deliver a minimum of four anti-idling events per year at a school.	Working to incorporate air quality into the curriculum, provide air quality toolkits and to offer air quality assemblies
51	Support the NW3 Green School Run project which aims to reduce pollution from the independent school run.	Sustainability and Air Quality	£	1	2019-2022	Annual Report	Project includes promotion of new car share app, the potential for a bus shared between schools and general awareness raising.
52	Determine whether local by-laws could be introduced to address pollution sources currently controlled by not fit for purpose legislation.	Sustainability and Air Quality Legal	£	1	2019	Annual Report To include the outcomes from investigation.	For example: banning the use of fireplaces and wood burning stoves.
53	Implement a borough-wide traffic management order (TMO) to enable more robust enforcement of vehicle idling and higher fines.	Parking Sustainability and Air Quality Transport Planning	£	2	2019	Annual Report	TMO to enable higher fines and allow for more options in terms of officers with powers to enforce.
54	Apply to Mayor's Air Quality Fund (MAQF) and Defra funding to deliver air quality projects.	Sustainability and Air Quality	£	1-3	2019-2022	Annual Report Apply for: 1 LEN MAQF project every 3 years 1 solo MAQF project every 3 years 2 joint MAQF projects every 3 years 1 Defra fund project annually	
55	Produce guidance for canal boat users on the impact of wood and coal burning on local air quality and disseminate with the support of the Canal and River Trust.	Sustainability and Air Quality Canal and River Trust	£	2	2020	Annual Report	Investigate installing electricity hubs at mooring locations to replace the need for wood/coal burning for heat and to replace generators for electricity.
56	Continue to install green infrastructure in Euston Town Business Improvement District (BID) area.	Euston Town BID	££	1	2019-2022	Annual Report	Green infrastructure here means vegetation. Part of the Business Low Emission Neighbourhoods provided by the Mayor of London.

57	Create an air quality art installation at the Camden Peoples' Theatre to absorb pollution and help raise awareness of pollution.	Euston Town BID	£	1	2019-2022	Annual Report	
58	Create a green walkway on North Gower St and a cleaner air walk from Euston Station to Regent's Park along Drummond Street and Longford Street	Euston Town BID	£	2	2019-2022	Annual Report	
59	Support Great Ormond Street Hospital to produce and promote a Clean Air Hospital Framework for use by other NHS and public Health based organisations.	Great Ormond Street Hospital supported by Camden Council	£	2	2019-2022	Annual Report Aim: Framework to be shared with all health trusts operating in Camden by 2022	
60	Continue to work with the Camden Clean Air Partnership to ensure actions are delivered and further initiatives are developed.	Camden Council Clean Air Partnership Members	£	1	Immediately	Annual Report Minimum 2 partnership meetings per year	Additional actions developed after the implementation of this CAAP to be included in annual status reports. Ensure the partnership continues to expand and welcome new members
61	To create a sustainability steering group (The Sustainers) for year 8 and 9 school children Camden to support air quality improvements in and around schools.	Camden Climate Change Alliance Transition Town Camden	£	1	2019-2022	Annual Report Deliver at least 3 projects for 2019-2020	This pupil-led steering group will have two key responsibilities, contribute to the identification of local environmental priorities as well as potential solutions and, take a lead on the development of a sustainability project(s) in their schools and the local community. In early summer students will have the opportunity to present their project proposals to local business in a 'dragon den' style event with the aim of raising funds for their projects.

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
Reducing emissions from deliveries, servicing and freight							
62	Promote Camden's freight consolidation centre to other boroughs, business improvement districts and private companies.	Finance Procurement	££	3	2019-2022	Annual Report	Membership subject to specific requirements that must be met. To also develop a template for companies to use to consolidate their own deliveries and services.
63	Assist local businesses and BIDS to consolidate services such as deliveries and waste collection	Sustainability and Air Quality Business Improvement Districts Finance and Procurement Environment Services Transport Planning	££	2	2019-2022	Annual Report	
64	Create an online signposting hub on Camden's website that highlights funding opportunities for air quality positive technology (electric vehicles, EV charging, cargo bikes, etc.)	Sustainability and Air Quality Transport Planning Camden Climate Change Alliance	£	1	2020	Annual Report	
65	Signpost Council suppliers and external businesses to the DfT Clean Van Commitment scheme, the Logistics Emissions Reduction Scheme (LERS) and the Freight portal	Sustainability and Air Quality Procurement Camden Accessible Travel Solutions (Fleet) Environmental Services Camden Climate Change Alliance	£	1	2019-2022	Annual Report	
66	Trial using cargo bikes in our own freight consolidation project.	Sustainability and Air Quality Finance and Procurement	£	2	2019-2022	Annual Report	
67	Reduce emissions from Council fleet, targeting a low and zero tailpipe emission fleet by 2022.	Camden Accessible Travel Solutions Finance and Procurement	£££	3	2019-2022	Annual Report Aim: To have a diesel free fleet by 2022	
68	Open our compressed natural gas facility at York Way to third party businesses.	Camden Accessible Travel Solutions	£	2	2019-2020	Annual Report Aim: To have at least one new external user by 2022	

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
69	Ensure air quality is included in all procurement processes and favours suppliers with low or beneficial impacts on air quality.	Finance and Procurement	£££	2	2019-2022	Annual Report	Ensure Camden's procurement policies include a requirement for suppliers with large fleets to have attained silver Fleet Operator Recognition Scheme (FORS) accreditation and includes a score for tenders based on emissions of their fleet. Progression scale allowing provider to reach silver within 180 days of contract being awarded will be considered. Suppliers will also be signposted to the Logistics Emissions Reduction Scheme (LERS), the Freight portal and the Clean Van Commitment
70	Promote the use of low/zero tailpipe emission delivery services through the Camden Climate Change Alliance.	Sustainability and Air Quality Camden Climate Change Alliance	£	2	2019-2022	Annual Report	
71	Create a low/zero emission servicing, delivery and freight action group with other London authorities to ensure a joined-up approach to limit impact on servicing, delivery and freight providers.	Sustainability and Air Quality London Councils Other London authorities	£	3	2019-2022	Annual Report	
72	Provide Smarter Driver Training for drivers of vehicles in the council fleet, i.e. through training in fuel-efficient driving and providing regular re-training for staff.	Camden Accessible Travel Solutions	£	2	2019-2022	Annual Report Aim: To ensure all Council drivers obtain this training annually.	
73	Investigate creating a waste consolidation programme for businesses in the Hatton Garden and Fitzrovia areas.	Hatton Garden BID The Fitzrovia Partnership BID	£	2	2019-2022	Annual Report	
74	UCL to deliver a logistics plan for the Bloomsbury campus, consolidating deliveries and reducing vehicle emissions and congestion	University College London	£	2	2019-2022	Annual Report	

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
75	Power supply upgrade and installation of Smart Grid technology at the Kentish Town UPS depot to support the electrification of UPS's central London fleet of 170 vehicles.	UPS	£££	3	2019-2022	Annual Report	
76	Fit Microlise routing and scheduling software to optimise routing and load consolidation and reduce the number of vehicles entering the capital.	John Lewis Partnership	££	2	2019-2022	Annual Report	
77	Waitrose to use lorries which are run entirely on biomethane gas generated from food waste.	John Lewis Partnership	££	3	2019-2022	Annual Report	
78	John Lewis Partnership to work towards converting all standard heavy trucks to gas upon renewal.	John Lewis Partnership	££	3	2019-2022	Annual Report	Intend to convert all standard heavy trucks to gas upon renewal; this will be circa 500 vehicles.

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
Continuing Public Health And Awareness Raising							
79	Ensure Directors of Public Healthare fully briefed on the scale of the air quality problem in Camden; what is being done, and what further action is needed.	Sustainability and Air Quality Public Health	£	1	Immediately	Annual Report	This will include an update of the Annual Status Report and annual update on the progress of the actions within this plan.
80	Directors of Public Health to have responsibility for ensuring their Joint Strategic Needs Assessment (JSNA) has up-to-date information on the health impacts of air quality impacts on the population.	Public Health Sustainability and Air Quality	£	1	2019	Annual Report	
81	Require the Public Health Teams to support engagement with local stakeholders (businesses, schools, community groups and healthcare providers).	Sustainability and Air Quality Public Health	£	1	Immediately	Annual Report	
82	Work with Public Health to strengthen engagement with Camden's Clinical Commissioning Group and Camden's GP surgeries	Sustainability and Air Quality Public Health	£	1	2019	Annual Report	
83	Ensure that the Leader of the Council, Cabinet Members for Health and Transport and the Head of Transport Strategy have been fully briefed on the Public Health duties and the fact that all Directors are responsible for delivering them, as well as on air quality opportunities and risks related to transport in the borough.	Sustainability and Air Quality Transport planning Public Health Parking Operations	£	1	2019	Annual Report	Provide a briefing which can be disseminated amongst all relevant teams.
84	Strengthen co-ordination with Public Health by ensuring that at least one Consultant- grade public health specialist within the borough has air quality responsibilities outlined in their job profile.	Public Health	£	1	Immediately	Annual Report	
85	Require the Director of Public Health to sign off Statutory Annual Status Reports and all new Clean Air Action Plans.	Public Health Sustainability and Air Quality	£	1	Immediately	Annual Report	

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
86	To work with Public Health and council resilience teams to ensure that vulnerable people are aware of high pollution days and the action they can take to reduce their exposure.	Sustainability and Air Quality Public Health	£	2	2019	Annual Report	Vulnerable people include: children the elderly, those with pre-existing health conditions and those in areas of deprivation
87	Deliver community-led air quality monitoring projects annually.	Sustainability and Air Quality	£	1	2019	Annual Report Aim: To deliver at least four per year	
88	Promote and support airText pollution alerts system.	Sustainability and Air Quality Public Health	£	2	Immediately	Annual Report	Increase in number of Camden users annually
89	Promote cleaner walking routes and signposting to free air quality route mapping apps and websites.	Sustainability and Air Quality Public Health Transport Planning	£	2	Immediately	Annual Report	
90	Send out air pollution alerts via various council communication outlets (Facebook, Twitter, etc)	Sustainability and Air Quality Communications	£	2	Immediately	Annual Report Target: to send alerts within 24hrs of a pollution incident being predicted	Supporting the Mayor's air pollution forecasts by publicising them on our social media networks
91	To continue to deliver our Clean Air for Camden engagement programme.	Sustainability and Air Quality Public Health Communications	£	1	Immediately	Annual report summarising progress	
92	Deliver anti-idling engagement via community-led projects.	Sustainability and Air Quality Transport Planning Parking	£	1	2019	Annual Report Aim: To deliver at least eight anti-idling events annually	To create community idling "angels" who engage with idling vehicles Continue to take part in the pan-London anti idling project
93	Camden staff who are regularly out and about will be encouraged to engage with idling vehicles in the promotion of best practice in driving.	Camden	£	2	2019	Annual Report	Consider giving powers to Camden Enforcement Officers (CEOs) to issue fines once TMO is established.
94	Produce a toolkit on indoor air pollution and how to reduce personal exposure.	Sustainability and Air Quality	£	2	2019	Annual Report	For businesses, schools, and residents
95	Produce a toolkit for businesses on how they can reduce pollution and pollution exposure.	Sustainability and Air Quality Camden Climate Change Alliance	£	2	2020	Annual Report	

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
96	Promote and deliver air quality projects on National Clean Air Day and National Car Free Day.	Sustainability and Air Quality Camden Climate Change Alliance	£	1	Immediately	Annual Report Aim: to deliver at least one project per year on National Clean Air Day and National Car Free Day	
97	Provide anti-idling banners for primary schools in Camden.	Sustainability and Air Quality Parking Transport Planning	££	1	2019-2022	Annual Report Aim: To offer banners to all primary schools in Camden by 2022	
98	Improve signposting for cleaner air walking routes	Sustainability and Air Quality Cross River Partnership Business Improvement Districts	£	1	2019-2022	Annual Report	
99	Expand the air pollution monitoring network in Camden and provide the monitoring information in an easy-to-access freely accessible on OpenData and through London Air.	Sustainability and Air Quality	£	1	2019-2022	Annual Report	
100	Provide air quality information at healthcare facilities, libraries, pharmacies and other frequently used public buildings.	Sustainability and Air Quality Public Health Communications	£	1	2019-2020	Annual Report	
101	Make accessible King's College modelling on WHO guidelines in Camden to explain the future trajectory of pollution.	Sustainability and Air Quality Transport Planning	££	2	2020	Annual Report	
102	Support the monitoring and delivery of the Children's Health in London & Luton (CHILL) project	Sustainability and Air Quality Public Health Netley Primary School Christopher Hatton Primary School	£	2	2019 - 2022	Annual Report	
103	Promote the Euston BID's dedicated air quality page signposting to air quality information, projects, forums, clean walking routes, zero-emission delivery services, etc.	Euston Town BID	£	2	2019 - 2022	Annual Report	

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
104	Signpost members to deliverBest which provides practical proven solutions that allow business deliveries to be more efficient and reduce impact on air quality.	Euston Town BID	£	2	2019-2022	Annual Report	
105	John Lewis Partnership to encourage use of electrically-powered fridge units by showcasing their demonstration truck for other organisations.	John Lewis Partnership	£	2	2019	Annual Report	The truck is also gas powered. Introduce JLP to Freight Transport Association to help showcase electrically powered fridge units.

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
Lobbying							
106	Lobby national Government to tighten smoke control regulations and ban the use of fireplaces and wood burners in areas well served by cleaner heating sources.	Camden	£	3	2019-2022	Annual Report	According to the King's WHO study, the use of fireplaces and wood burners accounts for 1% of the total $PM_{2.5}$ in Camden. According to Defra, approximately 38% of UK primary particulate matter emissions come from burning wood and coal in domestic open fires and solid fuel stoves but only around 2% of households are using these to heat their homes.
107	Support national Government's proposal to phase out diesel trains by 2040 and lobby to implement this measure sooner.	Camden	£	2	2019-2022	Annual Report	Currently, the Chiltern Railways operates diesel trains and contributes to NO2 and particulate emissions in the local area.
108	Lobby national Government to provide a robust vehicle scrappage scheme to accelerate the shift towards ultra-low emission vehicles and electric vehicles.	Camden	£	3	2019-2022	Annual Report	Diesel is the biggest and most problematic source of NOx emissions. A credible national air quality plan needs to accelerate the pace at which this fuel is no longer used, both in transport and non-transport uses. A national vehicle scrappage fund is essential if compliance costs to people and businesses of such action is to be minimised. It is only right that the Government provides this help, given that national fiscal policy has encouraged dieselisation over many years, meaning many people bought polluting vehicles in good faith. Source: Mayor of London's Environment Strategy
109	Support the Mayor's ULEZ but keep lobbying for a London wide ULEZ.	Camden	£	3	2019-2022	Annual Report	By 2021 ULEZ is expected to reduce NOx emissions in Camden by 18%, PM10 by 3% and PM2.5 by 5%.
110	To work with other London authorities in lobbying large delivery companies such as Amazon to reduce their environmental impact.	Camden Camden Clean Air Partnership London local authorities	£	3	2019-2022	Annual Report	
111	Continue to support measures introduced by the Mayor of London and national Government to improve air quality.	Camden	£	1-3	2019-2022	Annual Report	Both the GLA and national Government have expressed an interest in working towards the WHO guideline values for air quality and have proposed measures to contribute towards achieving compliance with these objectives

Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale for implementation	How implementation will be monitored	Further information
112	Lobby national Government to reduce the amount of biomass burning throughout the UK, and avoid coal-to-biomass power plant conversions for decommissioned coal power stations.	Camden	£	2	2019-2022	Annual Report	
113	To continue to work with GLA and other London authorities to take a stricter stance on construction and building emissions.	Camden	£	3	2019-2022	Annual Report	According to the Mayor's Control of Dust and Emissions during Construction and Demolition SPG, construction and non-road mobile machinery account for around 15% of particulate matter (PM10) and 12% of nitrogen oxide (NOx) emissions in London.
114	Lobby national Government to put pressure on continental European countries to reduce the burning of coal, biomass and other fossil fuels.	Camden	£	2	2019-2022	Annual Report	
115	To provide a way for citizens and local businesses to join in support of the lobbying actions within this plan.	Camden	£	1	2019-2022	Annual Report	
116	To take forward additional lobbying actions determined by the WHO study to drive national progress towards WHO compliance.	Camden	£	3	2019-2022	Annual Report	This action is intentionally broad to allow for new lobbying opportunities.

14 | RESPONSIBILITIES AND COMMITMENT

Camden's Clean Air Action Plan was prepared by the Sustainability, Air Quality & Energy team of Camden Council with the support and agreement of the following officers and departments:

- Josephine Allman - Head of Camden Accessible Travel Solutions (Fleet)
- Jayne Brown - Principal Policy and Projects Officer, Corporate Services
- Karen Corkery - Schools Policy and Investment Manager
- Andrea Jones - Operations Manager (Parking)
- Michael Lawrence – Transport Manager
- Peter Mardell - Head of Parking Operations
- Louise McBride - Head of Transport Strategy
- Gill Morris - Senior Health and Wellbeing and Cross Phase Adviser
- Mohammed Negm - Business Development and Contract Manager (Procurement)
- Brian O'Donnell - Strategic Lead - Planning Policy, Supporting Communities
- Ian Sanford - Public Health Strategist
- Jacqueline Saunders - Principal Transport Planner
- Andrew Triggs – Principal Planner
- Nina Rusowicz - Acting Energy Efficiency and Performance Team Leader

In addition to the above Camden teams, this Clean Air Action Plan was produced with the support of the following members of the Camden Clean Air Partnership and other local authority officers:

Sector	Organisation	Representative /Designation
1.Resident Association	Somers Town Neighbourhood Forum	Slaney Devlin, Resident
2.Regeneration and Development	Argent LLP	Steven Kellett, Sustainability Manager
3. Construction	Kier Group	Liz Kijewski, Senior Environmental Manager
4. Air Quality Group	Camden Air Action	Rachel Wrangham, Resident
5. University	UCL	Richard Jackson, Director of Sustainability
6. Prep Schools	Independent Association of Prep Schools (Sarum Hall)	Christine Smith, Headmistress
7. Public/Private Influence	Cross River Partnership	Brendon Harper, Air Quality Project Manager
8. Taxis	Licensed Taxi Drivers' Association	Richard Massett, Chairman
9. Rail	National Rail (HS2)	Neil Earnshaw, Environmental Manager

10. Rail	National Rail (HS1)	Joanne Lewis, Health, Safety and Environment
11. Hospital	UCL Hospital	George Gebski, Sustainable Development Manager
12. Couriers	UPS	Sarah Bell, Public Affairs
13. Neighbourhood Association	Fitzrovia Neighbourhood Association	Linus Rees, Director and Trustee
14. Primary School	Fleet Primary School	Donald McGibbon, Head Teacher
15. Hospital	Great Ormond Street Hospital for Children NHS Foundation Trust	Nick Martin, Head of Sustainability & Environmental Management
16. Regional Government	Greater London Authority	Poppy Lyle, Principal Policy and Programme Officer (Air Quality)
17. Business Improvement Districts	Hatton Garen BID	Sarah Nelson, Programme Director
18. Business Improvement Districts	Hatton Garden BID	James Sackley, BID Manager
19. Public Transport	TfL	Simon Roberts, Principal Policy Advisor (Environment Team)
20. Business Improvement Districts	Camden Town & Euston Town BID	Georgie Street, Project Manager
21. Primary School	Netley Primary School and Centre for Autism	Alan Murphy, SENDCO
22. River Canals	Canal & River Trust	Sorwar Ahmed, Waterway Boating Manager
23. Age UK	Older People's Advisory Group	Anne Ward
24. University	UCL	Ben Stubbs, Senior Sustainability Manager
25. River Canals	National Barge Travellers Association	Marcus Trower, Deputy Chair
26. Rail	Network Rail	Martin Bano, Consents Manager
27. River Canals	Inland Waterways Association	Paul Strudwick, London Chair
28. Freight	Freight Transport Association	Rebecca Kite, Environment Policy Manager

APPENDIX A – CLEAN AIR DESIGN DAY ATTENDEES

Clean Air Design Day - Attendee list
Camden Clean Air Partnership members

	Name	Title	Organisation
1	Alan Murphy	SENDCO	Netley Primary School and Centre for Autism
2	Andrew Ford	Environmental Pollution Manager	LB Islington
3	Anne Ward	Representative	Older People's Advisory Group
4	Ben Stubbs	Senior Sustainability Manager	University College London
5	Brendon Harper	Air Quality Project Manager	Cross River Partnership
6	Caroline Gladstone	Community Representative	
7	Christine Smith	Headmistress	Independent Association of Prep Schools (Sarum Hall)
8	Donald McGibbon	Head Teacher	Fleet Primary School
9	George Gebski	Sustainable Development Manager	University College London Hospitals NHS Foundation Trust
10	Georgie Street	Project Manager	Camden Town & Euston Town BID
11	Gianfranco Gliozzo	Research Assistant	Imperial College London
12	Ian Sanford	Public Health Strategist	LB Camden
13	James Sackley	BID Manager	Hatton Garden BID
14	Jacqueline Saunders	Principal Transport Planner	LB Camden
15	Katherine Welch	Head of External Engagement and Partnerships	University College London
16	Linus Rees		Fitzrovia Neighbourhood Association
17	Liz Kijewski	Senior Environmental Manager	Kier Group
18	Lorraine Hinds		Transport for London
19	Kate Findlay		Transport for London
20	Marcus Trower	Deputy Chair	National Bargee Travellers Association
21	Martin Bano	Consents Manager	Network Rail
22	Melissa Mead		University College London
23	Michael Lawrence	Transport Manager	LB Camden

	Name	Title	Organisation
24	Michelle Jamieson	School Travel Plan Officer	LB Camden
25	Neil Earnshaw	Regional Environment Manager	Network Rail
26	Neil Wait	Air Quality Manager	HS2 Ltd
27	Nick Martin	Head of Sustainability & Environmental Management	Great Ormond Street Hospital for Children NHS Foundation Trust
28	Olivia Stevenson	Head of Public Policy and Engagement	University College London
29	Oludeji Durojaiye	Community Representative	
30	Paul Strudwick	Chairman	Inland Waterways Association - London Region Chair
31	Poppy Lyle	Air Quality Manager	Greater London Authority
32	Rachel Wrangham		Camden Air Action
33	Romy Brandeis	Community Representative	
34	Sarah Nelson	Programme Director	Hatton Garden BID
35	Rebecca Kite	Environment Policy Manager	Freight Transport Association
36	Simon Roberts		Transport for London
37	Slaney Devlin		Somers Town Neighbourhood Forum
38	Stefanie Hughes	Air Quality Officer	City of London Corporation
39	Steve McNamara	General Secretary	Licensed Taxi Drivers Association
40	Steven Kellett	Sustainability Manager	Argent LLP

Speakers

Name	Title	Organisation
Professor Muki Haklay (chair)	Professor of Geographic Information Science	University College London
Cllr Georgia Gould	Leader of Camden Council	LB Camden
Dr Celia Caulcott	Vice-Provost for Enterprise & London	University College London
Khadija, Adam and Stina	School children speaking about CHILL	Netley Primary School

Other representatives

Name	Title
Ana Ventura	Senior Air Quality Officer, Camden
Andrea Jones	Parking operations manager, Camden
Andrew Triggs	Principal Place Shaping Officer, Camden
Cllr Adam Harrison	Cabinet Member for Improving Camden's Environment
Harold Garner	Strategic Lead - Sustainability, Air Quality & Energy, Camden
Jayne Brown	Senior Policy and Project Officer, Camden
Jenny Rowlands	Executive Director, Supporting Communities, Camden
Ben Gascoyne	Senior External Affairs Officer, UCL
Noemi Drew	EU Liaison and Constituency Support Manager for Keir Starmer MP

APPENDIX B – AIR QUALITY MONITORING IN CAMDEN

As part of our statutory duty to regularly monitor air quality, Camden has three automatic monitoring stations currently operating in the borough, which monitor for particulates (PM10 & 2.5) and nitrogen dioxide (NO_2). In addition to these pollutants, our Bloomsbury site also monitors for ozone (O_3) and sulphur dioxide (SO_2). We also monitor NO_2 at twenty locations throughout the borough using diffusion tubes. Although not as accurate as automatic monitoring stations, diffusion tubes provide a cost effective method of assessing NO_2 at various locations around the borough. Annual mean data for both our automatic monitoring stations and diffusion tubes can be found in table 4 of this document.

In terms of pollution trends as seen in graph 1 of this document, NO_2 levels have shown long term improvements at urban background (Bloomsbury), kerbside (Swiss Cottage) and roadside (Euston) locations, however, this decrease has gradually plateaued with levels remaining above the air quality objective at road and kerbside locations. Notably, concentrations of this pollutant tend to be higher in the winter months because of increased boiler and car usage.

As seen in graphs 2 and 3 of this document, particulate matter (PM10 & 2.5) just like NO_2 has shown long term improvements at with levels remaining below the air quality objective. As mentioned earlier on in this document, Camden has adopted the World Health Organization guidance values for particulates as these are stricter limits and it is widely accepted that there is no safe exposure level for this pollutant.

In addition to our statutory monitoring, we also monitor pollution across the borough in a variety of ways:

- Short term PM10 monitoring takes place at major construction sites to help control dust emissions from site and also to ensure that the sites are using appropriate control techniques to limit emissions from their works.
- Community diffusion tube monitoring projects are offered to residents, schools and businesses in Camden.

These projects often run for a short period of time and provide a snap shot indication of pollution concentrations in areas of concern to the community. These projects are aimed at raising awareness and empowering local communities to get involved and help to influence behaviour change from within their community spheres of influence. From this monitoring, if locations are identified as potentially exceeding the air quality objective, further community based projects are considered to help reduce pollution, raise awareness and reduce pollution exposure in the local area.

Most recently, Camden worked with 23 individuals and community groups to monitor at 47 locations across Camden between July 2017 and March 2018. Table 5 below provides further details of monitoring locations and indicative NO_2 pollution concentrations. From this exercise, it was determined that traffic and idling vehicles were a concern at some of the locations where exceedances of the annual mean were expected. Because of this, Camden is working with the communities to deliver anti-idling events and install anti-idling signage.

Diffusion tube and real time monitoring at roadside locations to provide an indication of how Camden road infrastructure projects influence local air quality. Most notably, this monitoring is being used to assess the impact of HS2 around key residential and school areas. It is also being used as an indicative tool to assess the introduction of the Ultra- Low Emission Zone (ULEZ) on local schools that are taking part in the Children's Health in London and Luton (CHILL) study which is being led by Queen Mary University of London with the support of the Greater London Authority. Automatic monitoring locations for the HS2 project can be found on figure 16 below and air quality and dust 64 reports can be found on: **https://www.gov. uk/government/collections/monitoring- the-environmental-effects-of-hs2**

ANNUAL MEAN NO_2 RATIFIED AND BIAS-ADJUSTED MONITORING RESULTS (µG/M3)

Site ID	Site type	Annual Mean Concentration (µg m^{-3})						
		2011	2012	2013	2014	2015	2016	2017
LB: London Bloomsbury	Automatic	50	55	44	45*	48	42	38
CD1: Swiss Cottage	Automatic	71	70	63	66	61	66	53
CD3: Shaftesbury Avenue	Automatic	76	71	74	69*	–	–	–
CD9: Euston Road	Automatic	122*	106	106	98	90	88	83
CA4 Euston Road	Diffusion	93.12	82.05	107.75	89.74	86.76	82.71	92.45
CA6 Wakefield Gardens	Diffusion	45.61	39.29	40.32	36.44	35.80	31.31	–
CA7 Frognal Way	Diffusion	31.46	28.89	31.95	28.55	27.78	27.91	32.26
CA10 Tavistock Gardens	Diffusion	47.56	40.12	49.37	46.50	44.57	39.68	–
CA11 Tottenham Court Road	Diffusion	91.67	83.30	88.09	86.75	85.61	83.57	–
CA15 Swiss Cottage	Diffusion	73.17	72.66	83.08	74.34	69.28	73.86	–
CA16 Kentish Town Road	Diffusion	57.19	58.97	65.32	57.83	63.55	58.72	74.92
CA17 47 Fitzjohn's Road	Diffusion	58.39	61.20	65.24	60.30	55.80	56.38	–
CA20 Brill Place	Diffusion	50.79	50.00	49.37	52.34	48.94	47.53	57.30
CA21 Bloomsbury Street	Diffusion	76.73	71.66	76.08	80.82	71.43	72.20	80.67
CA23 Camden Road	Diffusion	72.21	67.40	77.85	72.21	63.33	61.74	75.42
CA24 Chetwynd Rd	Diffusion	44.12	43.67	47.75	44.76	46.52	41.96	55.02
CA25 Emmanuel Primary	Diffusion	41.5	45.94	57.91	48.36	47.70	52.18	55.16
WITT Wittanhurst Lane	Diffusion	–	–	53.10	48.26	45.03	43.11	48.88

TABLE 4: ANNUAL MEAN NO_2 RATIFIED AND BIAS-ADJUSTED MONITORING RESULTS

2017-2018 Community Monitoring Project Results

Project	Site number	Site name	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Site mean NO2 (µg/m3)
1	1	Swain'sLane roundabout	36.56	37.63	48.30	47.44	53.82	47.84	44.93	44.88	59.05	**45.32**
2	2	Swain's Lane (Hillway)	23.85	23.45	29.46	31.49	18.26	35.80		37.25		**27.92**
	3	Swain's Lane (Chester Rd)	21.03	27.62	29.05	26.43	16.53	34.70	35.80	36.21	42.62	**29.10**
	4	Brookfield Primary school	24.73	29.00	32.57	29.57	19.66	42.80	40.77		44.33	**30.85**
3	5	Parliament Hill School	38.28	42.45		41.72	52.31	54.95	49.79	51.57	61.28	**45.04**
	6	Gospel Oak Station	49.49	52.50	49.08		56.53	55.04	58.43	74.82	60.69	**52.02**
4	7	Leighton Road (nr Kentish Town Rd)		32.68	40.05	46.50	46.76	47.75	47.55	44.04	51.22	**40.09**
5	8	Willes Rd (nr Anglers Lane)	26.94	32.28	21.48	28.64	41.50	34.53	38.25	40.47		**30.72**
6	9	Camden Square	20.92	28.24	26.87	28.48	35.69	37.29	31.87	42.24	34.96	**30.89**
7	10	Camden Rd (nr Camden Sq)	31.42	36.03	35.74	13.46	42.91	38.80	28.41	53.12	50.18	**35.57**
8	11	Briardale Gardens	60.04	42.49	47.13	45.17	48.75	44.68				**47.85**
9	12	Royal College Street	36.93	52.38	46.10	54.93	54.48	77.67	50.91	54.80		**49.81**
10	13	Chalk Farm Road (Harmood St)	59.64	68.87		63.84				69.24	72.51	**70.83**
11	14	Prince of Wales Road	35.07	36.46		45.89	47.34	46.87			42.87	**41.46**
12	15	Priory Terrace (Abbey Rd)	20.07	26.15	27.09	25.69	33.92	35.20	35.21	43.75	35.06	**30.41**
13	16	Rowley Way (Abbey Rd)	21.77	32.35	39.87	31.96	41.84	46.09				**35.51**
	17	Boundary Road (Ainsworth Way)		30.41	37.53		44.34	42.63				**35.43**
	18	The Meadow' Alexandra Park Road	11.69		17.08	27.94	39.11	38.58				**26.12**
14	19	Charing Cross Rd Road	47.27	52.22	50.42	48.38	56.20	49.10	51.69	57.33	63.20	**51.28**
15	20	Denmark Street	74.99	69.42	72.80	70.04	57.07					**71.41**
16	21	Colville Place (Whitfield)		33.77	36.88	37.98	45.93	45.47	44.47	52.22		**37.90**
	22	Charlotte Street		52.68	54.00	58.96	58.63	51.81	81.95	74.66		**55.26**
	23	Whitfield Street (Chitty)		39.35	40.51	39.80	45.41	46.48	52.68	51.34		**40.30**
	24	Torrington Place (Huntley)		42.58			53.25	49.89	46.82	64.07		**42.81**
17	25	Holly Bush		35.11	31.42		45.74	38.45	38.57	41.56	47.02	**34.69**
	26	Holly Hill		35.36				48.11	44.16	47.40	53.59	**39.99**
	27	Romney's House			35.43		47.14		43.49	40.31	39.46	**34.71**
18	28	Tapper Walk			45.08	55.25	54.03			56.88	43.21	**47.44**
	29	Camley Street				37.58	39.51	43.77			51.02	**38.26**
19	30	Bisham Gdns			22.48	41.44	52.93		32.43	27.43		**30.74**
20	31	Bacton tower			19.69	35.39			44.40	35.62	43.27	**32.59**
	32	Vicar's Road (Wellesley)			26.59							**26.59**
	33	Haverstock Road (Wellesley)			26.90	40.89				39.95	55.97	**40.70**
21	34	Frederick Street								34.63		**34.63**
	35	Grays Inn Road (Calthorpe)								34.08		**34.08**
	36	Grays Inn Road (Churston)				47.53				49.80		**48.66**
	37	Clerkenwell Road (Cavendish)								73.21		**73.21**
	38	Rosebery Avenue				53.42				67.71		**60.57**
	39	Mount Pleasant (Warner Street)				55.38				50.12		**52.75**
	40	Christopher Hatton School (a)				55.89				43.16		**49.52**
	41	Christopher Hatton School (b)				52.36				34.88		**43.62**
	42	Pakenham Street (Cubitt Street)				25.02				52.81		**38.92**
	43	Fleet Square				26.96				50.60		**38.78**
	44	Wren Street								69.95		**69.95**
22	45	Handyside Street			36.40	36.92	56.50	37.74	43.96	41.86		**36.44**
	46	Goods Way			50.81	55.63	52.73	69.16			68.56	**54.54**
23	47	King's Cross Academy								41.26	48.92	**45.09**

Damaged/ missing/ nul data

Month not monitored

TABLE 5: 2017-2018 COMMUNITY DIFFUSION TUBE MONITORING PROJECT

HS2 Automatic Monitoring Locations in Camden

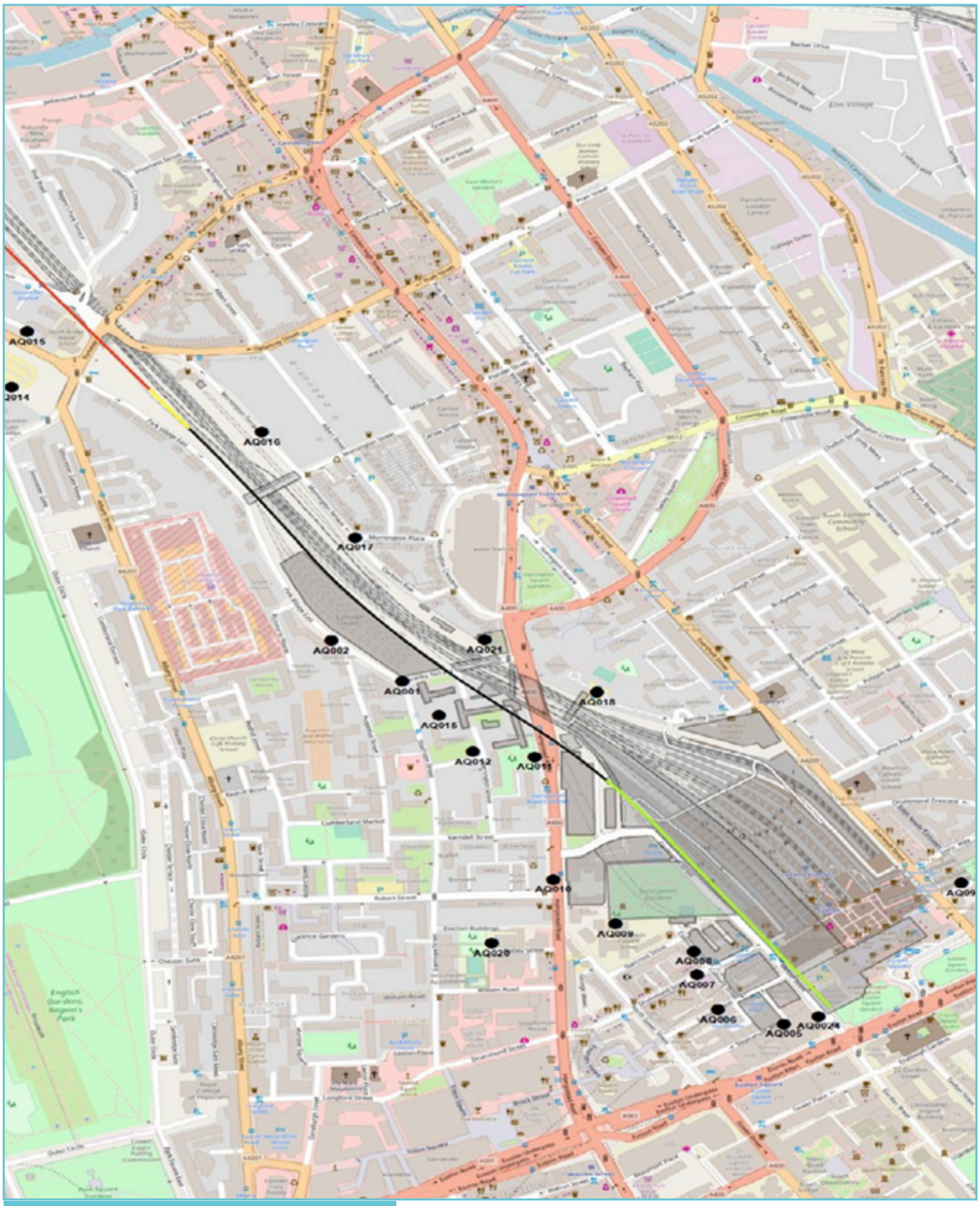


FIGURE 16: HS2 AUTOMATIC MONITORING LOCATIONS

If you have any comments on this CAAP please send them to:

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