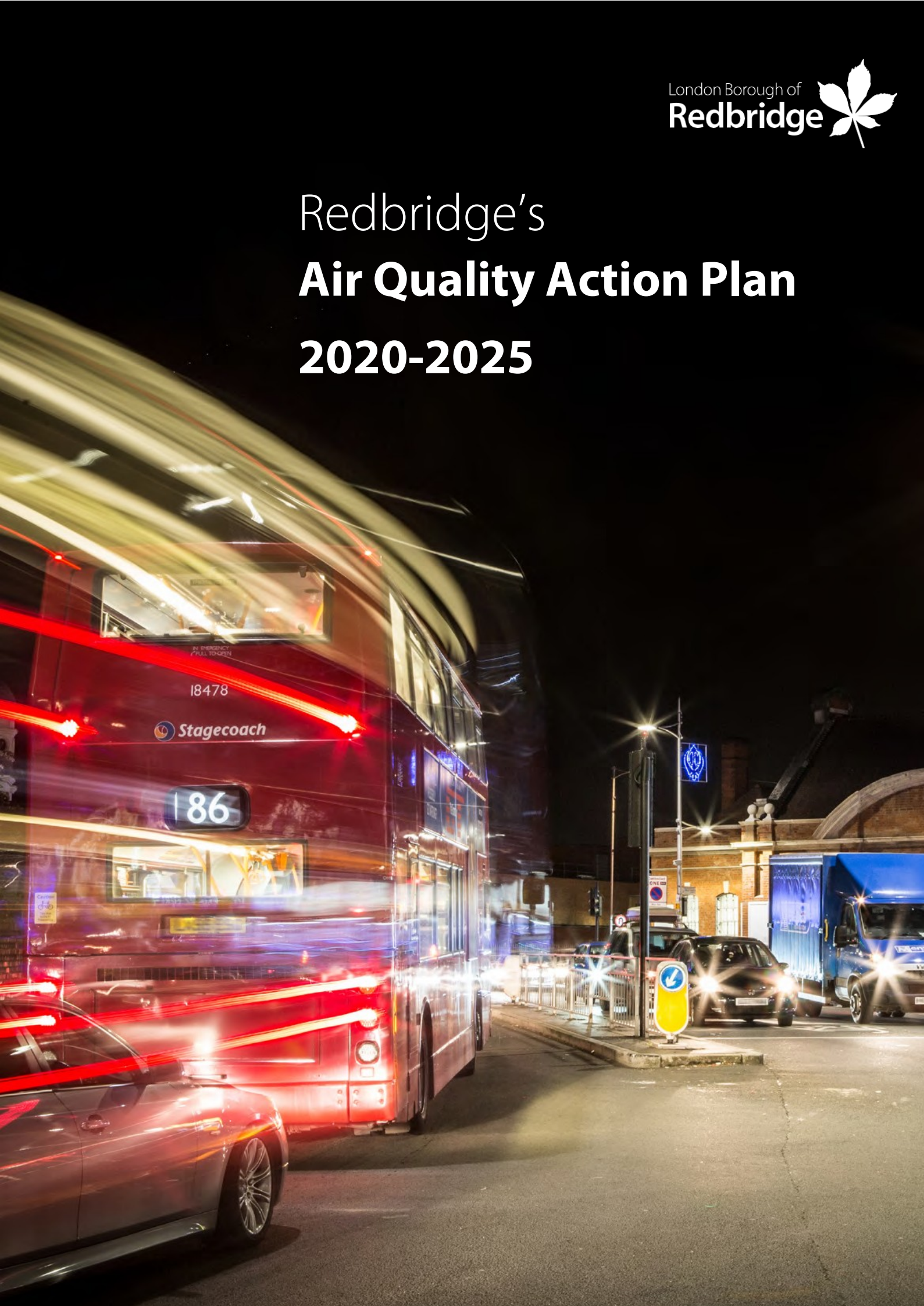
London Borough of Redbridge

Redbridge's **Air Quality Action Plan 2020-2025**



Foreword | Cabinet Member for Civic Pride

Tackling poor air quality is not something any one person or organisation can do alone – it requires commitment and effort at local, regional, and national levels – but it is vital that we all play our part.

We have been working to improve air quality for some time. In 2003 we declared Redbridge an Air Quality Management Area, and delivered some successful projects which we are proud of, but we recognise that we can go further. That's why we have produced this action plan which includes a range of new, bolder measures to improve air quality in the Borough.

The risks of failing to act are clear, both short and long-term exposure to air pollutants can affect people's health, with poor air quality being a contributory factor in respiratory illness, cardiovascular disease, and even some cancers as well as shortening the life expectancy of those who live and work in cities. My ambition, shared with the Council's administration, is to give the highest priority to this issue.

This plan gives further support to the use of sustainable transport such as walking and cycling as an alternative to reliance on travel by car which is the biggest cause of air pollution in Redbridge. We plan to adopt powers to penalise vehicle idling and also reduce emissions from the increasing number of construction sites in the Borough.

This plan is a commitment from the Council to do what we can to tackle these issues and has been developed in close consultation with residents and reflects a clearer set of priorities to manage the impact of future growth in the borough; support healthier lifestyles for residents; reduce the impact of traffic on air quality and congestion; and reduce our own impact on air quality.

Our proposed actions to improve air quality also contribute to a reduction in carbon emissions. With the impacts of unpredictable changing weather being clear to see, we have pledged to implement specific actions which also reduce carbon emissions in our efforts to contribute towards minimising the impacts of climate change.

We also need your help improving air quality. Each of us can make simple changes to our lives to contribute, be that through travel, such as car sharing and cycling, increased walking, and switching the car engine to reduce unnecessary engine idling.

With your continued support we can improve our air quality and help make this borough a cleaner, safer and healthier place to live, work and visit.

Cllr John Howard

Cabinet Member for Civic Pride

Redbridge Updated Air Quality Action Plan 2020-2025

SUMMARY

This Air Quality Action Plan (AQAP) 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 the London Borough of Redbridge from 2020-2025.

This action plan replaces the previous action plan, which ran from 2006. Highlights of successful projects delivered through the past action plan include:

- The council adopted a Green Fleet Policy in 2000. Under this policy, all procured fleet vehicle specifications complied with the latest Euro emission standard progressively giving rise to lower emissions when new fleet vehicles are purchased or leased.

- Holding the sustainable travel awareness campaigns 'In Town Without My Car" and "Walk to School Week" to reduce car use around Ilford Town centre and local schools whilst promoting sustainable travel alternatives such as walking and the use of public transport.

  Delivery of Local Improvement Plan (LIP) funded transport projects implementing sustainable transport initiatives that are consistent with the Mayor of London's Transport Strategy. Many of these initiatives are currently on going. Achievements that have had a positive impact on air quality are:
  - Improvements of bus interchange arrangements at rail stations within the Borough and the bus and walking connections.
  - Improvements of links between stations, local amenities, employment sites and open spaces.

  This has improved public transport and walking accessibility for people to travel sustainably around the borough.

- Facilitating an increase in walking and cycling around key borough corridors, roads and areas.

- Incentivising electric vehicle uptake by offering free parking in Council car parks.

Air pollution is associated with a number of adverse health impacts; it is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of air pollution in the UK is estimated to be roughly £15 billion[3]. Redbridge Council is committed to reducing the exposure of people in the London Borough of Redbridge to poor air quality to improve health.

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010.
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006.
[3] Defra. Air Pollution: Action in a Changing Climate, March 2010

We have considered the priority actions that the Council can take to improve air quality within the borough. We have developed actions that can be considered under seven broad themes:

- Monitoring Air Quality in Redbridge: monitoring and assessing air quality within Redbridge is important to identify pollution levels and areas of exposure. Redbridge is an Air Quality Management Area (AQMA). We have a legal duty to monitor and implement measures to reduce emissions and ambient concentrations of air pollutants which harm human health and contribute to other environmental problems.
- Emissions from developments and buildings: emissions from buildings account for about 15% of the NO_X emissions across London so are important in affecting NO_2 concentrations;
- Public health and awareness raising: increasing awareness can drive behavioural change to lower emissions as well as to reduce exposure to air pollution;
- Delivery servicing and freight: vehicles delivering goods and services are usually light and heavy duty diesel-fueled vehicles with high primary NO_2 emissions;
- Borough fleet actions: our fleet includes light and heavy duty diesel-fueled vehicles such as minibuses and refuse collection vehicles with high primary NO_2 emissions. Tackling our own fleet means we will be leading by example;
- Localised solutions: these seek to improve the environment of neighbourhoods through a combination of measures; and
- Cleaner transport: road transport is the main source of air pollution in Redbridge. We will continue to incentivise a change to walking, cycling and the use of ultra-low emission vehicles (such as electric) as far as possible.

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

In this AQAP we outline how we plan to effectively use local levers to tackle air quality issues within our control.

However, we recognise that there are many air quality policy areas that are outside of our influence (such as Euro standards, national vehicle taxation policy, taxis and buses), and so we will continue to work with and lobby regional and central government on policies and issues beyond Redbridge Council's influence.

RESPONSIBILITIES AND COMMITMENT

This AQAP was prepared by the Environmental Health Service at Redbridge Council with the support and agreement of the following officers and departments:

- Luke Drysdale (Air Quality Lead Officer, Environmental Health Service)
- Themis Skouros (Group Manager, Environmental Health)
- Rogan Keown (Group Manager Transportation Strategy)

This AQAP has been approved by:

- Simon Parker (Interim Corporate Director of Place)
- Jas Lally (Head of Licencing and Consumer Protection)
- Gladys Xavier (Interim Director of Public Health)
- Steve Grayer (Head of Highways and Transportation Strategy)

This AQAP will be subject to an annual review, and an appraisal of progress. Progress each year will be reported in the Annual Status Reports produced by Redbridge Council, as part of our statutory London Local Air Quality Management duties.

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Abbreviations and Glossary

AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
CAZ	Central Activity Zone
EV	Electric Vehicle
ULEZ	Ultra-Low Emission Zone
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LIP	Local Implementation Plan
SCAZ	School Clean Air Zones
ULEZ	Ultra-Low Emission Zone
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM_{10}	Particulate matter less than 10 micron in diameter
$PM_{2.5}$	Particulate matter less than 2.5 micron in diameter
TEB	Transport Emissions Benchmark
TfL	Transport for London
GLA	Greater London Authority

Introduction

This report outlines the actions that Redbridge Council will deliver between 2020-2025 to reduce concentrations of pollution, and exposure to pollution; 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 relevant regulations made under that part and to meet the requirements of the London Local Air Quality Management statutory process[4].

1. Summary of current air quality in Redbridge

The UK Air Quality Strategy (AQS), released in July 2007 and updated in 2019, 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.

These national objectives are the concentrations for each pollutant over a given time period that are considered to be acceptable in terms of what is known about the health effects of each pollutant and its effect on the environment. The key pollutants being considered in relation to the national objectives are NO_2 and PM_{10}

- NO_2 is the toxic gas Nitrogen Dioxide
- PM is particulate matter. This is a mixture of various microscopic solid and liquid particles, some of which are hazardous, suspended in the air.
- PM_{10} is particulate matter smaller than 10 micrometres (μm) in diameter,
- $PM_{2.5}$ is particulate matter that is smaller than 2.5 μm in diameter.

There are a number of objectives for NO_2 and PM_{10} relating to both short term and long term exposure to the pollutants. These are:

- Long term objective: an annual mean concentration of 40 micrograms per cubic metre should not be exceeded for both NO_2 and PM_{10}.

- Short term objective: a 24 hour mean concentration of 50 micrograms of PM_{10} per cubic metre should not be exceeded more than 35 times in one year. An hourly average of 200 micrograms of NO_2 per cubic metre should not be exceeded more than 18 times in one year.

These national objectives take into account EU Directives that set limit values which member states are legally required to achieve by their target dates.

Nitrogen dioxide (NO_2), and particulates (PM) are the air pollutants causing most concern. NO_2 in part comes from the gas compound NOx. NOx is comprised of Nitrogen monoxide (NO), and nitrogen dioxide (NO_2). All combustion processes produce NOx. As NOx easily converts to NO_2 in air, in order to reduce NO_2 concentrations it is essential to control emissions of NOx; therefore, the actions in this plan also focus on reducing emissions of NOx and NO_2.

The data from our monitoring stations shows that we are still failing to meet the national annual average limit for the gas Nitrogen Dioxide (NO_2) and modelling indicates it is being breached at a number of other locations across the borough, most typically areas with heavy traffic.
Levels for Particulate Matter (PM_{10} and $PM_{2.5}$) are lower, but there are still some exceedances, most

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

notably in the south west of the borough, around the Wanstead area and busy main roads in the borough. As particulate matter can be damaging to health at any level, this remains a pollutant of concern that is subject to a number actions in this plan to continuously reduce concentrations.

The Mayor of London is committed to tackling particulate matter in London and is determined to significantly reduce the levels of these dangerous toxic particles, aiming to get $PM_{2.5}$ to within WHO guidelines by 2030 and a range of our actions will contribute to this aim. These are amongst a range of air quality measures within this action plan to control both pollutants across the borough

Redbridge has monitoring stations in Ley Street (north-central Ilford) and Gardner Close (Wanstead). In addition to our monitoring stations, we have numerous diffusion tube monitors deployed around the borough. To find out the locations of and to see data from these monitors, please visit:

http://www.londonair.org.uk/LondonAir/Default.aspx

To see the reports detailing the levels of pollutants over the years within the borough, please visit:

https://www.redbridge.gov.uk/business-and-regeneration/environmental-health/pollution/

London's air quality monitoring network enables air pollution maps to be created for the capital showing areas of better and poorer air quality. The following maps explain the levels of NO_2, PM_{10} and $PM_{2.5}$ in Redbridge in more detail.

Current air quality monitoring and modelling for Redbridge identifies that nitrogen dioxide is exceeding these National Objectives:

- Annual mean air quality objective across the borough (40µg/m^3)
- One hourly mean air quality objective in parts of the south and east of the borough (not to exceed 200µg/m^3 on more than 18 occasions during each year)*

*For diffusion tube monitoring, it can be considered that exceedances of the one-hourly mean objective may occur at roadside and kerbside sites if the annual mean is above 60µg/m^3

The GLA manages the London Atmospheric Emissions Inventory[5] which documents air pollution emissions from various sources. The GLA uses data is used to undertake air quality modelling to predict levels of nitrogen dioxide and particulates across the London Borough of Redbridge in the year 2016.

As can be seen from Figure 1; pollution levels are highest in the most densely built-up areas, and along the borough's busiest main roads.

The close proximity of built up areas to busy main roads can lead to increased pollution exposure and the likelihood of possible effects on people, especially the vulnerable. Away from busy main roads, air quality objectives tend to be met.

Whilst residential and commercial boilers contribute to overall nitrogen dioxide emissions in the borough; the mapping shows it is typically pollution emitted from vehicles on the roads that is the predominant source of nitrogen dioxide contributing to the National Air Quality Objectives being exceeded. NOx emissions significantly contribute to sources of nitrogen dioxide (NO_2) in the borough.

[5] LAEI data is available on the GLA website https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2016

Figure 1 Modelled map of annual mean NO_2 concentrations 2016 (from the LAEI 2016)

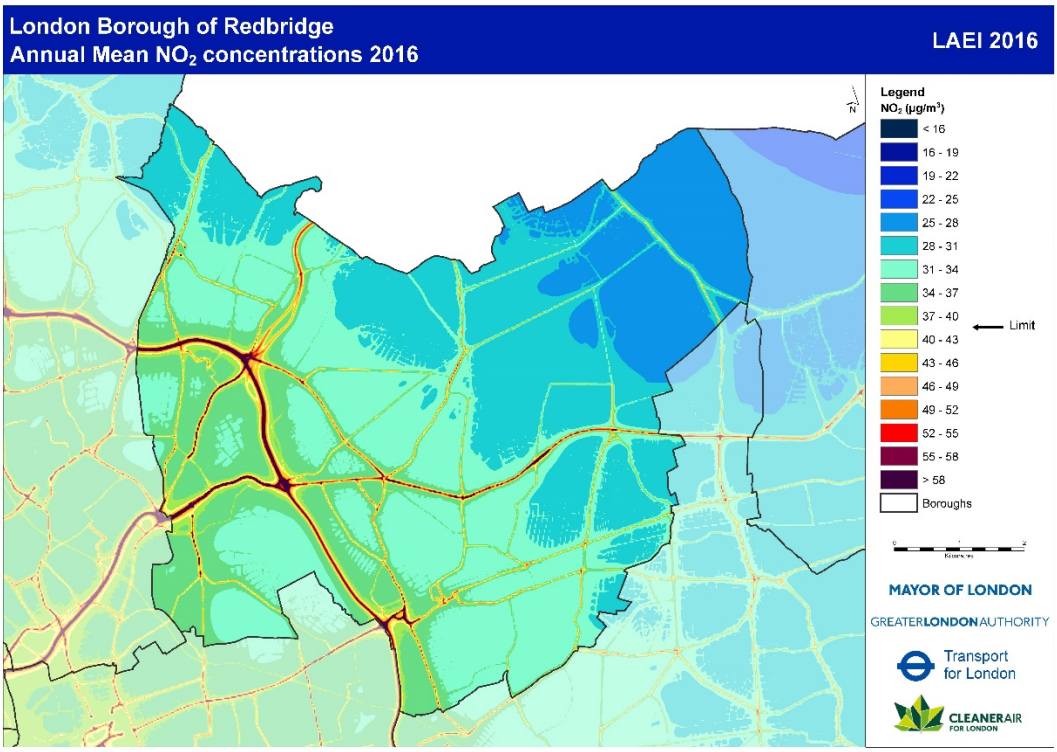
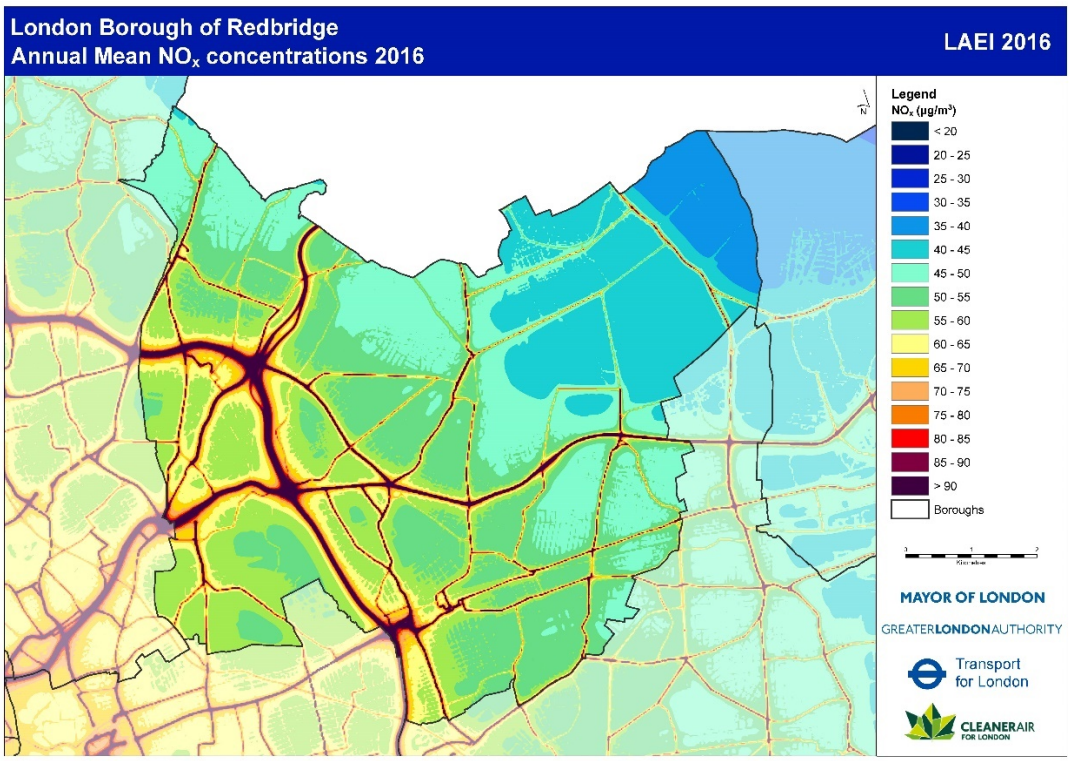


Figure 2 The Annual Mean of NOx Concentrations Within Redbridge in 2016.



The map shows that NOx concentrations are predominantly the highest on and around the borough's busy main roads as a consequence of traffic emissions. Progressively tighter euro standard specifications and emission testing are designed to control motor vehicle NOx emission levels. However recent

emission tests have shown that diesel and some petrol vehicles, once on the road in the 'real world', are far exceeding the euro standard NOx emission limits previously met in the laboratory. Because of these higher 'real world' NOx emissions in conjunction with greater numbers of diesel vehicles on the roads, the annual mean NOx emission concentrations are higher which leads to increased NO_2 formation.

In addition to this, over large parts of the borough, there are non-road sources, such as boiler emissions, that significantly contribute to emissions of NOx and NO_2. Other sources of air pollution such as development sites and larger gas engines, which have not been accounted for in the modelling, will also be far more significant locally and can potentially result in local failures to meet National Air Quality Objectives.

The government has predicted that NOx and NO_2 emissions are expected to decline from 2020 onwards due to a greater number Euro VI and low emission vehicles in fleets. This predicted decline is also due to the implemented Government policies and fiscal measures that are expected to incentivise an increase in the number people using less polluting vehicles and more sustainable forms of transport.

Figure 3 Modelled Map of Annual Mean PM_{10} (from the LAEI 2016)

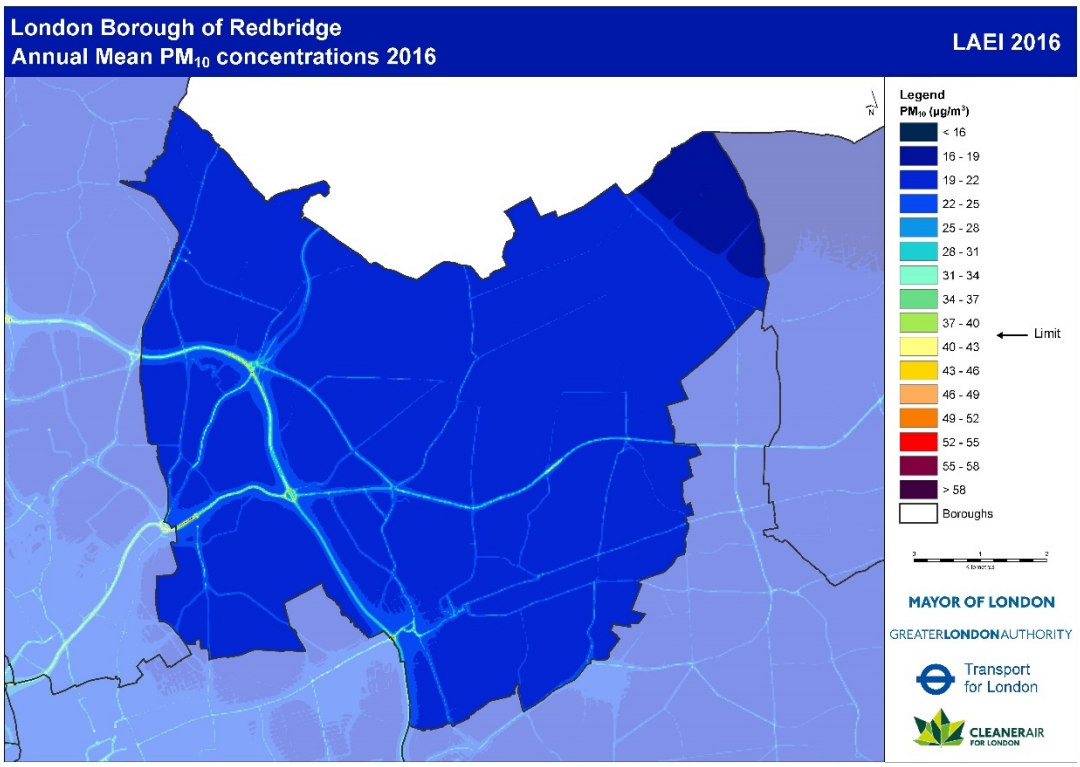


Figure 3 is a modelling map of particulate matter PM_{10} pollution across the London Borough of Redbridge. The map indicates that National Air Quality Objectives for PM_{10} pollution are being met across most of Redbridge however there are exceedances along busy main roads. The map also shows that a significant portion of PM_{10} pollution is generated outside of the borough. This indicates the council cannot reduce particle matter alone and it requires a collective joint effort from other local authorities, and regional and central government.

Figure 4 Modelled Map of Annual Mean $PM_{2.5}$ (from the LAEI 2016)

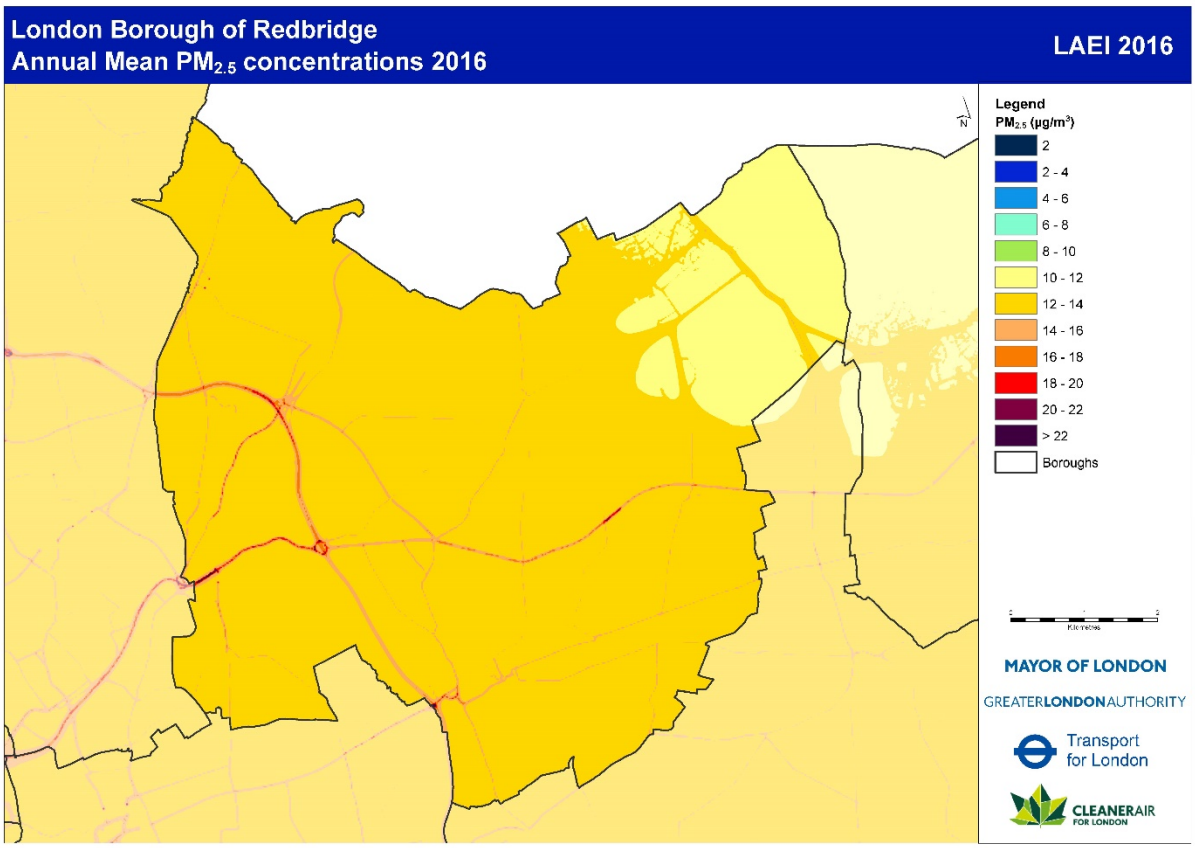
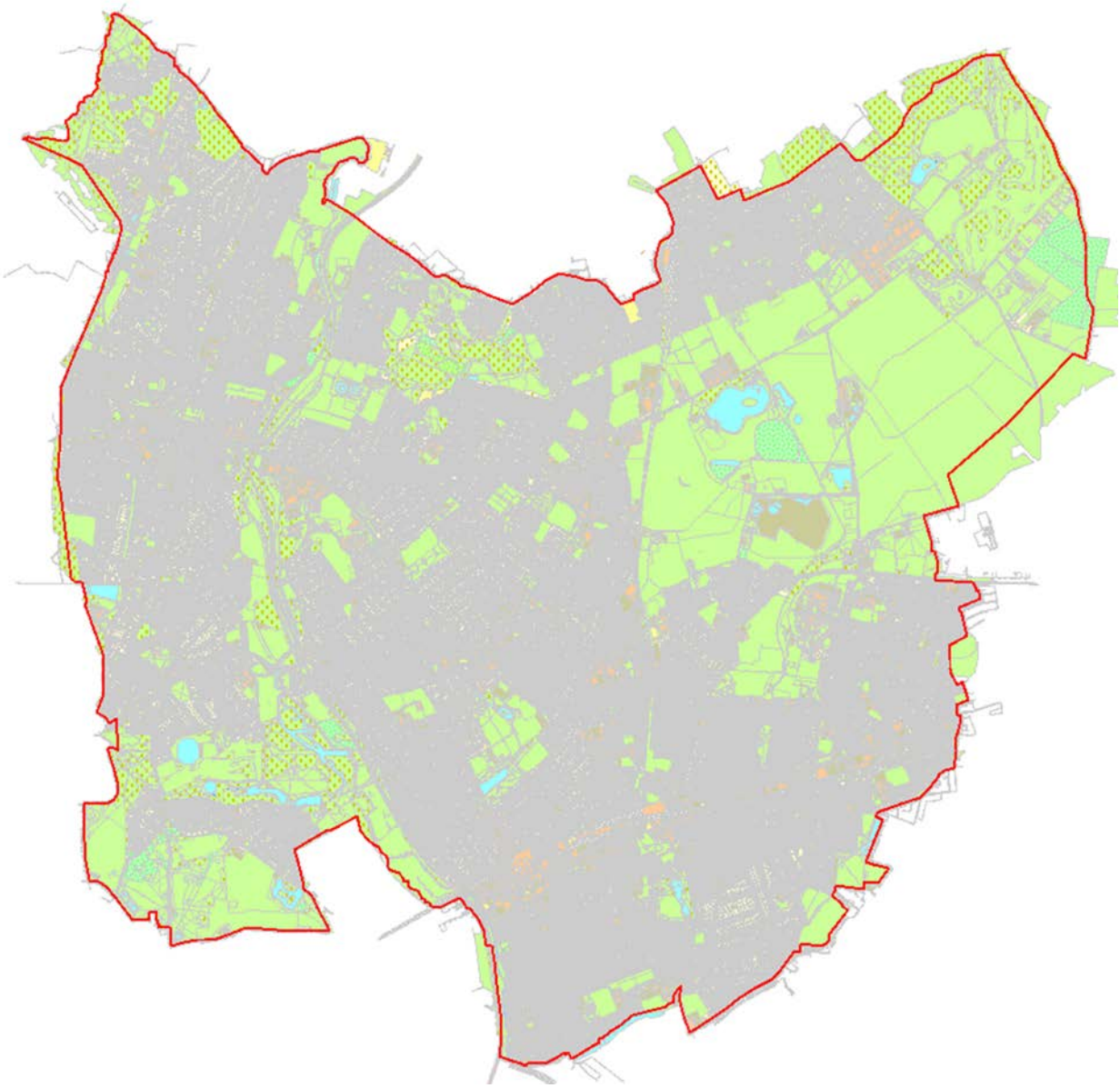


Figure 4 is a modelling map of ultrafine $PM_{2.5}$ particulate matter $PM_{2.5}$ pollution across the London Borough of Redbridge. The map indicates that this is concentrated along main roads. The main sources are the exhaust fumes of diesel engines, construction equipment, and direct-injection petrol engines. $PM_{2.5}$ can contain a number of carcinogenic air pollutants and exposure to low concentrations can contribute to adverse health effects including cancer. Therefore, it is important that Redbridge Council reduce the concentration of this pollutant as low as possible within the borough and lobby Government to implement measures that will reduce emissions of $PM_{2.5}$. Collective $PM_{2.5}$ reduction measures implemented by local authorities and the Government will help support the Mayor's target of London meeting the World Health Organization guideline limit for $PM_{2.5}$ by 2030. It is evident from the map that $PM_{2.5}$ also comes into the borough from sources outside the borough boundary so it is important that local authorities and the Government also work together to reduce emissions of $PM_{2.5}$

1.1 AQMAs and Focus areas

In 2003 LB Redbridge designated the whole of the borough as an Air Quality Management Area (AQMA) due to exceedances in NO_2 and particulate matter (PM_{10})

Figure 5 Redbridge Borough AQMA



The AQMA has been declared for the following pollutants:

Nitrogen Dioxide (NO_2) because concentrations in Redbridge are exceeding the EU annual average limit for this pollutant at some of our measurement monitoring stations/points and modelling indicates it is being breached at a number of other locations across the borough.

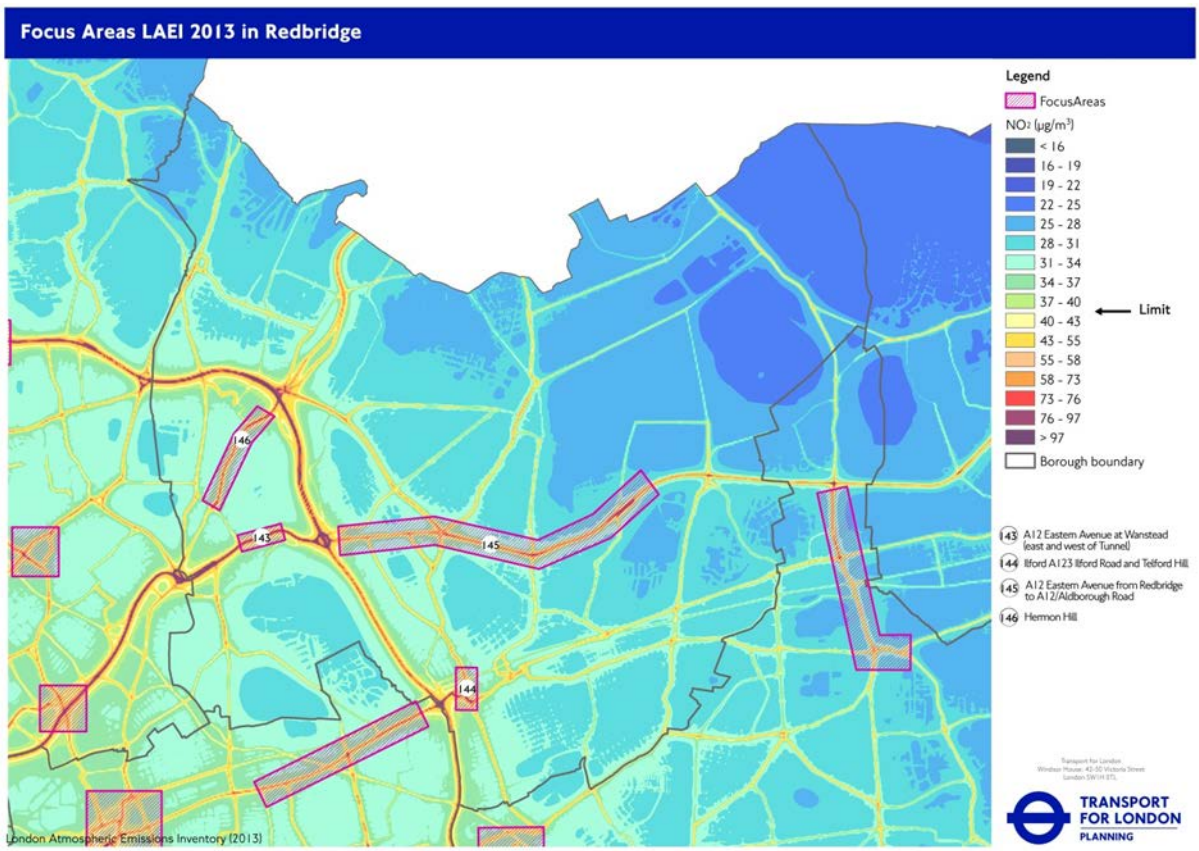
Particulate Matter (PM_{10}) In 2003, exceedances of the EU annual average limit for this pollutant were measured at some of our monitoring stations. At the time of writing, although we are meeting EU Limits, we are exceeding World Health Organisation air quality guidelines for this pollutant, and we have a formal responsibility to work towards reductions of $PM_{2.5}$, which is a fraction of PM_{10}.

Emission concentrations of $PM_{2.5}$ are increasing in Redbridge due to the increase of road transport particularly diesel vehicles. Regional natural and man-made particle sources from outside the borough also contribute to concentrations within the borough increasing.

It is recognised that exposure to particulate matter (PM) can give rise to significant health effects and to date there is no evidence of a safe level of exposure. Therefore $PM_{2.5}$, the finer size fraction of PM, remains a priority issue for the Government and local authorities to reduce the pollutant as low as possible.

An air quality Focus Area is a location that has been identified as having high levels of pollution and human exposure. There are four focus areas in the borough (Figure 6).

Figure 6 Air Quality Focus Areas 2013 Onwards



The focus areas remain the same since 2013 and include:

- A12 Eastern Avenue at Wanstead (east and west of Tunnel)
- Ilford A123 and Ilford Hill

- A12 Eastern Avenue from Redbridge to A12/Aldborough Road
- Hermon Hill

The A12 routes are managed by TfL. Ilford Hill and Hermon Hill are managed by Redbridge Council.

We will prioritise these areas when developing and implementing actions listed in this plan wherever relevant and work with TfL in delivering measures to improve air quality.

1.2 Sources of Pollution in Redbridge

Pollution in Redbridge comes from a variety of sources. This includes pollution from sources outside of the borough, and, in the case of particulate matter, a significant proportion of this comes from outside of London and even the UK.

The greatest amount of air pollutants within the borough arises from road transport emissions, particularly from the heavily trafficked roads. Many of these roads (including the A406, A12, A1400 and M11) come under the jurisdiction of the Transport for London Road Networks (TRLN) and the Highways England (HE). As the Council does not have direct responsibility for roads such as these, any plans to control pollution needs to be in partnership with Transport for London (TfL) and the HE. The Council can however introduce measures on roads within their control and lobby for improvements on others.

There are relatively few industrial sources in the Borough and no large Part A installations (which are facilities which carry out industrial processes like refineries, food and drink factories and intensive farming activities).

The other major sources of emissions in Redbridge include those from residential and commercial premises, which mainly relate to gas boilers used for space and water heating; and construction sites, including dust and Non-Road Mobile Machinery (NRMM) emissions. NRMM are transportable, mobile machinery used in the construction process. They are fitted with a petrol or diesel engine and emission standards vary with the type of NRMM plant used. In recent years, there has been a significant increase in construction activities in the borough, making reducing emissions from construction one of the main Redbridge air quality priorities.

The London Atmospheric Emissions Inventory (LAEI) contains information on emissions from sources of air pollutants in the Greater London area and aims to provide an up to date picture of emissions, taking into account any relevant changes to air emissions behaviour. The latest LAEI baseline data for Redbridge is from 2016 and projected forward with data estimates to 2030. These are shown in the charts below:

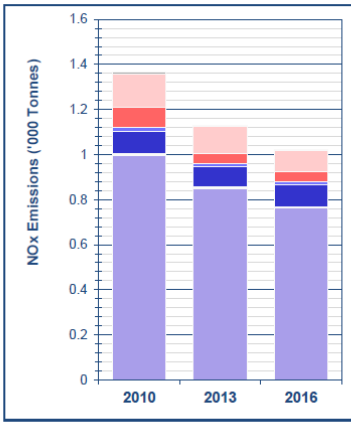
In figure 7 for NOx, it can be seen that road traffic emissions are the most significant source within Redbridge. In addition to this, gas combustion emissions (which come principally from domestic and commercial boilers) are a very significant source of NOx in Redbridge. Industrial emissions from Part B processes (which are processes regulated by the local authority that have the potential to cause only air pollution) and non-road mobile machinery (NRMM) contribute to a smaller extent within the borough.

It is estimated that there will be a fall in NOx in 2020 from road transport attributed to the introduction of the Ultra-Low Emission Zone (ULEZ). Redbridge will be bisected by the current proposed ULEZ boundary and the council disputes that the NOx reduction will be as significant as predicted since the ULEZ only encompasses part of the south-western area of the borough. We continue to lobby the Government to widen the ULEZ to cover all of London including the whole borough of Redbridge, which will deliver greater NOx reductions and air quality benefits. (See page 27 for more information on the ULEZ).

Figure 7 NOx Emissions by Source Type (from the LAEI 2016)

LONDON ATMOSPHERIC EMISSIONS INVENTORY (LAEI)

NOx Emissions by Source Type - Redbridge



Emissions (Tonnes) from	2010	2013	2016
Road Transport	997	849	763
Aviation	2	2	2
Rail	4	5	5
River	-	-	-
Industrial/Commercial Heat/Power	100	92	96
Industrial Processes	17	14	14
Construction	88	45	43
Commercial Cooking	-	-	-
Domestic Heat/Power	151	117	94
Domestic Biomas (Wood Burning)	-	-	-
Resuspension	-	-	-
Other	8	7	6
Total	**1,368**	**1,130**	**1,023**

The bar chart represents emissions from each air pollution source stacked on top of one another, with the total stack height equalling total emissions from all sources across the Borough. The numbers in the table are those used to plot the graph and represent, for each year, the amount of pollutant emitted into the atmosphere (in tonnes/year).
- Industrial Processes: includes emissions from Part A1, A2/B processes, and from Non-Road Mobile Machinery (NRMM) exhaust on industrial sites.
- Heat/Power generation: includes emissions from the combustion of gas, oil or coal in the Industrial/Commercial and Domestic sectors respectively.
- Construction: includes construction dust (PM) and NRMM exhaust on construction sites.

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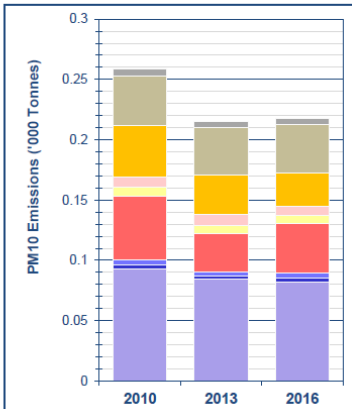
Figure 8 PM_{10} Emissions by Source Type (from the LAEI 2016)

LONDON ATMOSPHERIC EMISSIONS INVENTORY (LAEI)

PM10 Emissions by Source Type - Redbridge



Emissions (Tonnes) from	2010	2013	2016
Road Transport	92.6	84.0	82.0
Aviation	0.0	0.0	0.0
Rail	0.2	0.2	0.2
River	-	-	-
Industrial/Commercial Heat/Power	3.6	3.1	3.4
Industrial Processes	3.7	3.2	3.7
Construction	53.4	31.8	40.8
Commercial Cooking	7.1	7.1	7.1
Domestic Heat/Power	8.5	8.6	7.9
Domestic Biomas (Wood Burning)	42.5	32.8	27.3
Resuspension	40.9	39.2	40.0
Other	5.8	5.0	5.1
Total	**258.2**	**214.7**	**217.6**

The bar chart represents emissions from each air pollution source stacked on top of one another, with the total stack height equalling total emissions from all sources across the Borough. The numbers in the table are those used to plot the graph and represent, for each year, the amount of pollutant emitted into the atmosphere (in tonnes/year).
- Industrial Processes: includes emissions from Part A1, A2/B processes, and from Non-Road Mobile Machinery (NRMM) exhaust on industrial sites.
- Heat/Power generation: includes emissions from the combustion of gas, oil or coal in the Industrial/Commercial and Domestic sectors respectively.
- Construction: includes construction dust (PM) and NRMM exhaust on construction sites.

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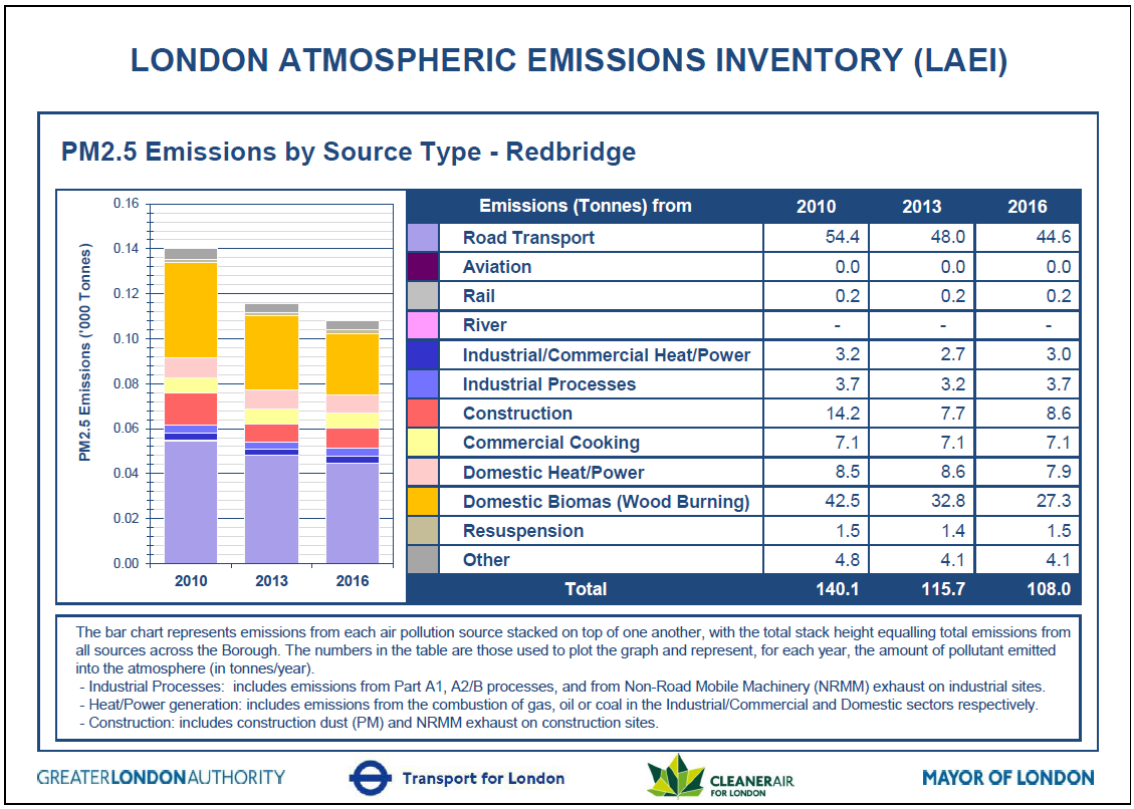
Figure 8 shows that for PM_{10} pollution, road traffic remains the main source of emissions from within

Redbridge. Particulate matter from road traffic also comes from sources other than exhaust emissions, such as tyre wear, brake-wear and vehicle-induced resuspension of road dust. Contributions also come from wind-induced resuspension of particulate matter. Re-suspended particulate matter is the second largest source of particulate matter. The term resuspension is used both for freshly formed particles from abrasion and older deposited road dust lifted into the air. Non-road mobile machinery, domestic and commercial gas and other fuels also contribute to emissions of PM_{10} pollution within Redbridge.

Figure 9 $PM_{2.5}$ Emissions by Source Type (from the LAEI 2016)



Emissions (Tonnes) from	2010	2013	2016
Road Transport	54.4	48.0	44.6
Aviation	0.0	0.0	0.0
Rail	0.2	0.2	0.2
River	-	-	-
Industrial/Commercial Heat/Power	3.2	2.7	3.0
Industrial Processes	3.7	3.2	3.7
Construction	14.2	7.7	8.6
Commercial Cooking	7.1	7.1	7.1
Domestic Heat/Power	8.5	8.6	7.9
Domestic Biomas (Wood Burning)	42.5	32.8	27.3
Resuspension	1.5	1.4	1.5
Other	4.8	4.1	4.1
Total	140.1	115.7	108.0

Figure 9 shows that for $PM_{2.5}$ pollution comes from similar sources as PM_{10}.

2. Redbridge Air Quality Priorities and Air Quality in Context

Redbridge's air quality priorities in this action plan focus on reducing NO_2 and particulate matter emissions from the key emission sources in the borough – road transport, gas boilers and new developments. It also aims to increase awareness of air quality, and help everyone in Redbridge understand how they can help reduce air pollution and how they can minimise their exposure when air quality is particularly poor. We are committed to reducing concentrations of PM_{10} and $PM_{2.5}$, and to meet the EU Objective for NO_2.

Our key priorities are to:

- Reducing pollution in and around schools
- Installing Ultra Low Emission Vehicle charging infrastructure
- Lead by example and reduce NO_2 and PM_{10} emissions associated with the Council's own transport fleet services.
- Promote Car Free Days and temporary road closures that will promote transport mode shifts to more walking, cycling and use of public transport.
- Promoting and delivering energy efficiency retrofitting projects in workplaces and homes .
- Promote and enforce smoke control zones
- Support the pollution alert services Airtext and promote the Mayor's air pollution forecasts
- Enforce the Non-Road Mobile Machinery (NRMM) Low Emission Zone for controlling construction emissions
- Improve walking and cycling infrastructure
- Reduce pollution from sources we can control in Redbridge through our planning and transport policies.
- Raise awareness of what Redbridge residents and business can do to reduce their own emissions and how to avoid exposing themselves to existing pollution
- Work with the GLA and TfL to make the improvements needed to reduce pollution in the borough and across London.

The contextual key drivers for the council prioritising the above actions to improve air quality are:

Air Quality and Health

The adverse impact of air pollution on human health is the key driver for our action to improve air quality in Redbridge.

Air quality has direct implications for human health, with both short-term and long-term exposure to outdoor air pollution known to adversely affect health, leading to acute and chronic health effects or the exacerbation of existing medical conditions.

Studies show that the greatest burden of air pollution usually falls on the most vulnerable in the population, in particular the young and elderly.

The Committee on the Medical Effects of Air Pollutants (COMEAP) is an advisory committee of independent experts that provides advice to government departments and agencies, via the Department of Health's Chief Medical Officer, on all matters concerning the effects of air pollutants on health. COMEAP advises that health impacts associated with long and short term exposure to air pollution can include:

- Shortening of lifespan
- Worsening of respiratory diseases (such as asthma, Chronic obstructive pulmonary disease (COPD) and bronchitis),
- Acute symptoms (such as wheezing, coughing and respiratory infections),
- Increased risk of cancers

The health effects of air pollution experienced vary between individuals and various groups of the population due to differing susceptibility. Additionally, various health effects experienced are also determined by the type of exposure (e.g. short or long term exposure).

Short term exposure to elevated levels of air pollution can cause a range of acute health problems, including the exacerbation of asthma, effects on lung function, increases in hospital emissions and increased morbidity.

Long term exposure to air pollution is associated with a significant health burden on the population and is a contributory factor in the initiation, progression and exacerbation of diseases. Epidemiological studies have shown that long-term exposure to air pollution lowers the resistance of our immune system, and reduces life expectancy, mainly due to increased risks from cardiovascular and respiratory causes and from lung cancer.

In 2015, Kings College, the GLA and TFL published the report "Understanding the Health Impacts of Air Pollution in London". This report estimated how many people have died from long term exposure to man-made $PM_{2.5}$ and Nitrogen Dioxide NO_2 concentrations in 2010. These numbers of deaths were calculated for London and at Borough level also.

The report indicated that the number of deaths in Redbridge from long term exposure to NO_2 concentrations was 273 and there were 5,879 deaths in total across London.

It was also indicated that the number of the deaths from long term exposure to $PM_{2.5}$ across London was 3,537 deaths and 123 deaths in Redbridge.

From this data, the estimated annual health burden on London was 9416 deaths and in Redbridge 396 deaths were attributable to air pollution in 2010.

Air Quality is one of a total of 68 Public Health Outcomes Framework indicators compiled by the Department of Health to measure how each local authority is addressing health determinants. The Framework includes a benchmark tool that enables the comparison of the fraction (%) of mortality attributable to long term exposure to $PM_{2.5}$ in each local authority. The Framework details that in 2014, 6.4% of mortality in Redbridge was attributable to long term exposure to $PM_{2.5}$ which was 1.5% higher when compared to the UK average of 5.1%.

The available data shows that the impact of air pollution exposure in Redbridge, across London and across the UK is very profound. Increasingly more epidemiological studies are showing air pollution is a major cause of death and illness in the UK. In 2010 the Department of Health Committee on the Medical Effects of Air Pollution concluded that:

"Removing all anthropogenic (human made) particulate air pollution (measured as $PM_{2.5}$) could save the UK population approximately 36.5 million life years over the next 100 years and would be associated with an increase in UK life expectancy from birth".

In 2016 the Royal College of Physicians concluded in the report "Every breath we take: the lifelong impact of air pollution" that each year in the UK, around 40,000 deaths are attributable to exposure to outdoor air pollution. The report made a number of proposals that included the following:

Put the onus on polluters. Polluters must be required to take responsibility for harming our health. Political leaders at a local, national and EU level must introduce tougher regulations, including reliable emissions testing for cars.

Local authorities need to act to protect public health when air pollution levels are high. When these limits are exceeded, local authorities must have the power to close or divert roads to reduce the volume of traffic, especially near schools.

The impact on air quality on public health underlines the importance of taking measures to reduce air pollution. Therefore, Redbridge council has placed emphasis on the actions in this AQAP for reducing exposure to air pollution and reducing emissions across the borough.

Other drivers for Redbridge Council pursuing the actions within this plan lie within the following various supportive plans and strategies:

The Council's Strategy and Borough Plans

In 2018, the Council and its partners published a new borough partnership plan called 'Growing a New Redbridge'. This sets out Redbridge Council and its partners' priority areas for the next five years. In addition, the Council published its strategic delivery plan, 'A Great Place To Live', which details how the Council will deliver on the commitment in the borough plan.

The five priorities across the borough plan and strategic delivery plan are:

- Regenerate the borough to benefit our residents and integrate new communities
- Keep the borough clean and safe
- Be a great place to live as a family
- Tackle the root causes of social challenges
- Build a brilliant Council

Our work to tackle air quality feeds into a number of these priorities. Having clean air that is safe for our children to breathe is an important part of keeping the borough itself safe and clean. Additionally, improving air quality is an important factor in tackling some health issues amongst residents. In order to regenerate the borough for the benefit of all residents, we must ensure that the benefits of regeneration are not cancelled out by construction- and traffic-related pollution.

Regional Supportive Plans and Strategies:

The Mayor of London produces a number of regional and strategic documents that all London Boroughs are required to have regard to when undertaking their air quality work.

The following regional plans and strategies support the Air Quality Action Plan:

The New Draft London Plan:

The New Draft London Plan is the overall spatial strategic plan for London, and it sets out a fully integrated economic, environmental, transport and social framework for the development of the capital to 2041. It forms part of the development plan for Greater London. London boroughs' local plans need to be in general conformity with the London Plan, and its policies guide decisions on planning applications by councils and the Mayor.

The London Plan documents the Mayor of London's recognition of the importance of tackling air pollution and improving air quality to London's development and the health and well-being of its

people. It documents how the Mayor will work with strategic partners to ensure that the spatial, climate change, transport and design policies of this plan support implementation of his Air Quality and Transport strategies to achieve reductions in pollutant emissions and minimize public exposure to pollution.

The Draft New London Plan states planning decisions should:

a) minimise increased exposure to existing poor air quality and make provision to address local problems of air quality (particularly within Air Quality Management Areas (AQMAs) and where development is likely to be used by large numbers of those particularly vulnerable to poor air quality, such as children or older people) such as by design solutions, buffer zones or steps to promote greater use of sustainable transport modes through travel plans

b) promote sustainable design and construction to reduce emissions from the demolition and construction of buildings following the best practice guidance in the GLA and London Councils' 'The control of dust and emissions from construction and demolition'

c) be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs). The development of large-scale redevelopment areas, such as Opportunity Areas and those subject to an Environmental Impact Assessment should propose methods of achieving an Air Quality Positive approach through the new development

d) ensure that development proposals demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance

e) ensure that where provision needs to be made to reduce emissions from a development, this is usually made on-site. Where it can be demonstrated that on-site provision is impractical or inappropriate, and that it is possible to put in place measures having clearly demonstrated equivalent air quality benefits, planning obligations or planning conditions should be used as appropriate to ensure this, whether on a scheme by scheme basis or through joint area-based approaches

f) where the development requires a detailed air quality assessment and biomass boilers are included, the assessment should forecast pollutant concentrations. Permission should only be granted if no adverse air quality impacts from the biomass boiler are identified

The London Plan states that London Boroughs Local Plans should have policies that embody the above measures and that:

a) seek reductions in levels of pollutants referred to in the Government's National Air Quality Strategy having regard to the Mayor's Air Quality Strategy

b) take account of the findings of their Air Quality Review and Assessments and Action Plans, in particular where Air Quality Management Areas have been designated.

Council Position Statement:

Redbridge Council will continue to implement all measures required of London Boroughs in the Draft London Plan.

The Mayor's London Environment Strategy (LES) 2018

This strategy details the integration of every aspect of the environment. It sets out a range of actions being taken by the Mayor to improve the environment and provide a better future for London.

The strategy integrates the following areas:

- Air Quality
- Green infrastructure
- Climate change mitigation and energy
- Waste
- Adapting to climate change
- Ambient noise
- Low carbon circular economy

The air quality chapter of the LES set out policies and proposals that will meet the Mayor's ambitions for air quality in London and zero emission transport by 2050

The Mayor will do the following:

- Work with boroughs to safeguard the existing air quality monitoring network and enhance it by exploiting new technologies and approaches such as personal and localised monitoring
- Reducing emissions from London's road transport network by phasing out fossil fuelled vehicles, prioritising action on diesel, and enabling Londoners to switch to more sustainable forms of transport
- Promote and prioritise more sustainable travel in London including walking, cycling and public transport, as part of the Healthy Streets Approach
- Through TfL, will clean up the bus fleet by phasing out fossil fuels, prioritising action on diesel, and switching to zero emission technologies
- Through TfL, will reduce emissions in the taxi and private hire fleet by phasing out fossil fuels, prioritising action on diesel, and switching to zero emission technologies
- Aim to reduce emissions from private and commercial vehicles by phasing out and restricting the use of fossil fuels, prioritising action on diesel
- Aim to reduce emissions from freight through encouraging a switch to lower emission vehicles, adopting smarter practices and reducing freight movements through better use of consolidated trips
- Through TfL and the boroughs, and working with government, will implement local zero emission zones in town centres and aim to deliver a central London zero emission zone from 2025, as well as broader congestion reduction measures, to pave the way to larger zero emission zones in inner London by 2040 and then London-wide by 2050
- Reduce emissions from non-road transport sources, including by phasing out fossil fuels
- Work with the government, the London boroughs and other partners to accelerate the achievement of legal limits in Greater London and improve air quality

- Use the London Local Air Quality Management (LLAQM) framework to assist and require boroughs to exercise their statutory duties to improve air quality and will exercise statutory powers as required
- Work with the government to achieve full legal compliance with UK and EU limits as soon as possible

Redbridge Council supports and will continue to implement all measures required of London Boroughs in the Mayor's London Environment Strategy 2018.

The Mayor's Transport Strategy 2018:

The Mayor's new Transport Strategy sets out his transport vision for London and details how Transport for London and partners will deliver the plan over a 20-year period. London's population has grown significantly and is set to grow more over the next 20 years; this growth is contributing to a number of problems. Increased vehicle ownership and use has led to traffic dominance and increased air pollution. Too few people are walking and cycling. Public transport is overcrowded. Too many people still use private cars because the alternatives are unappealing or do not meet their needs. The new strategy takes the following approach to solving these problems

There are three key themes are at the heart of the strategy.

- Healthy Streets and Healthy People: creating streets and street networks that encourage walking, cycling and public transport use will reduce car dependency and the health problems it creates.

- A good public transport experience: public transport is the most efficient way for people to travel over distances that are too long to walk or cycle, and a shift from private car to public transport could dramatically reduce the number of vehicles on London's streets.
- New homes and jobs: more people than ever want to live and work in London. Planning the city around walking, cycling and public transport use will unlock growth in new areas and ensure that London grows in a way that benefits everyone.

With the Healthy Streets approach, the Mayor will:

- design streets that people will enjoy using, encourage less car use and get more people walking or cycling
- make public transport better with stops or stations that link to foot paths or cycling paths, so that it is easier and quicker to make these trips than taking the car.
- make sure that new homes and jobs are close to public transport stops and stations and where people walk or cycle

So as London grows the number of cars will not increase, air quality and health consequently will improve. Local Authorities are required to take the lead on reducing traffic in their local areas.

Council Position Statement:

Redbridge Council will implement the Mayor's Transport Strategy at a local level through the Local Implementation Plan and future Local Implementation Plans.

Low Emission Zone:

In 2008, the Mayor of London introduced a traffic pollution charge scheme called the Low Emission Zone (LEZ), to improve London's air quality. The zone covers most of Greater London including the borough of Redbridge with the aim of reducing the tailpipe emissions of diesel-powered commercial vehicles in London. The objectives of the proposed LEZ are to move London closer to achieving compliance with national and EU air quality objectives and to improve the health and quality of life of people who live and work in London, through improving air quality. Redbridge Council supported the introduction of the LEZ during the consultation phase. Between 2008 to 2012, the LEZ has undergone a series of progressive phased tightening of standards. The LEZ was set up to reduce PM_{10} emissions from vehicles entering Greater London by requiring specific vehicle emission standards (Euro standards). The Council continues to be supportive of the LEZ as London's most significant measure for reducing PM_{10} concentrations. However, the scheme will not solve all of London's air quality problems.

The LEZ has proved insufficient to achieve compliance with the NO_2 air quality objectives across London. Therefore, the Mayor has proposed the introduction of an additional charge scheme called the Ultra-Low Emission Zone.

Ultra-Low Emission Zone:

Following consultation, the Mayor of London has implemented an Ultra-Low Emission Zone (ULEZ), a traffic pollution charge scheme that aims to cut harmful emissions from the most polluting lorries, coaches, buses and private motor cars.

The ULEZ will cover the congestion charging zone area for all vehicles (Central London ULEZ) from the 8th April 2019 and will be extended up to the North and South Circular roads for all vehicles (Inner London ULEZ) from 25 October 2021. Strict emission standards will also apply to buses, coaches and lorries across the whole of London from 26 October 2020.

The new ULEZ will cover an area 18 times larger than the Central London Ultra Low Emission Zone and will affect large numbers of polluting vehicles that don't comply with strict emission standards. It is estimated that 100,000 cars, 35,000 vans and 3,000 lorries might be affected by the expanded zone and tighter standards every day

These bold measures will deliver a major improvement to Londoners health by reducing the toxic air quality that is currently responsible for thousands of premature deaths and other serious conditions. Research demonstrates these effects disproportionately impact the poorest Londoners.

Recent studies by the University of Oxford have shown the health damage from cars and vans costs £6 billion annually to the NHS and society, with the bill from London vehicles totaling £650 million a year.

Expanding the ULEZ beyond central London and strict standards for heavy vehicles across London will result in more than 100,000 Londoners no longer living in areas exceeding legal air quality limits in 2021, a reduction of nearly 80 per cent compared to without expansion. All areas of London are expected to

see reductions in pollution, including on the North and South Circular Roads and only 4 per cent of roads in Outer London are expected to exceed legal limits in 2021.
The expanded zone will be managed in the same way as the central London ULEZ, and will operate on top of the congestion charge, 24 hours a day, seven days a week, 365 days a year.

The minimum vehicle emission standards required to be exempt from the charge are Euro 4 petrol and Euro 6 Diesel.

The ULEZ charge is based on Euro standards that set top limits for polluting nitrogen oxides and particulate matter from car engines.
There are six stages of Euro standards have been published since 1992 – with the most recent Euro 6 framework released in 2014.

According to ULEZ standards, vehicles must meet the following Euro frameworks to be exempt from the charge:

Euro 3 for Motorbikes – engines must not produce more than 2.3g/km of carbon monoxide and 0.15g/km of nitrogen oxide

Euro 4 for petrol cars, minibuses, vans – engines must not produce more than 1g/km of carbon monoxide or 0.08g/km of nitrogen oxide.

Euro 6 for diesel cars, minibuses, vans – engines must not produce more than 0.5g/km of carbon monoxide, 0.08g/km of nitrogen oxide or 0.005g/km of particulate matter

The charges that non-compliant vehicles will be subject to in various parts of the ULEZ are as follows:

- The daily charge for a car that does not meet new emissions standards is £12.50, in addition to the congestion charge. ULEZ charges are in effect 24/7, 365 days a year. Most vehicles are subject to the £12.50 rate, including vans, minibuses and motorcycles. If you fail to pay the ULEZ charge, you will face a penalty of £160 (reduced to £80 if you pay within 14 days).

- Lorries, buses, coaches and larger vehicle will face a much higher daily ULEZ charge at £100. If this charge is not paid, lorry drivers face a penalty of £1000 (reduced to £500 if paid within 14 days).and the ULEZ standards:

The expanded Inner London ULEZ will affect the London Borough of Redbridge because through being extended to the North Circular road it bisects the borough around the Wanstead and South Woodford area. This means residents, businesses that own and use non-compliant vehicles within the ULEZ areas will be subject to ULEZ controls and charges. The Inner London ULEZ can be seen in figure (10)

As a number of Redbridge residents and businesses may be affected by the current ULEZ proposals, the council advises that concerned parties read the following Mayoral pages:

Further information on the ULEZ and the Mayor of London's air quality proposals can be found at:

https://tfl.gov.uk/modes/driving/ultra-low-emission-zone

https://tfl.gov.uk/corporate/about-tfl/improving-air-quality

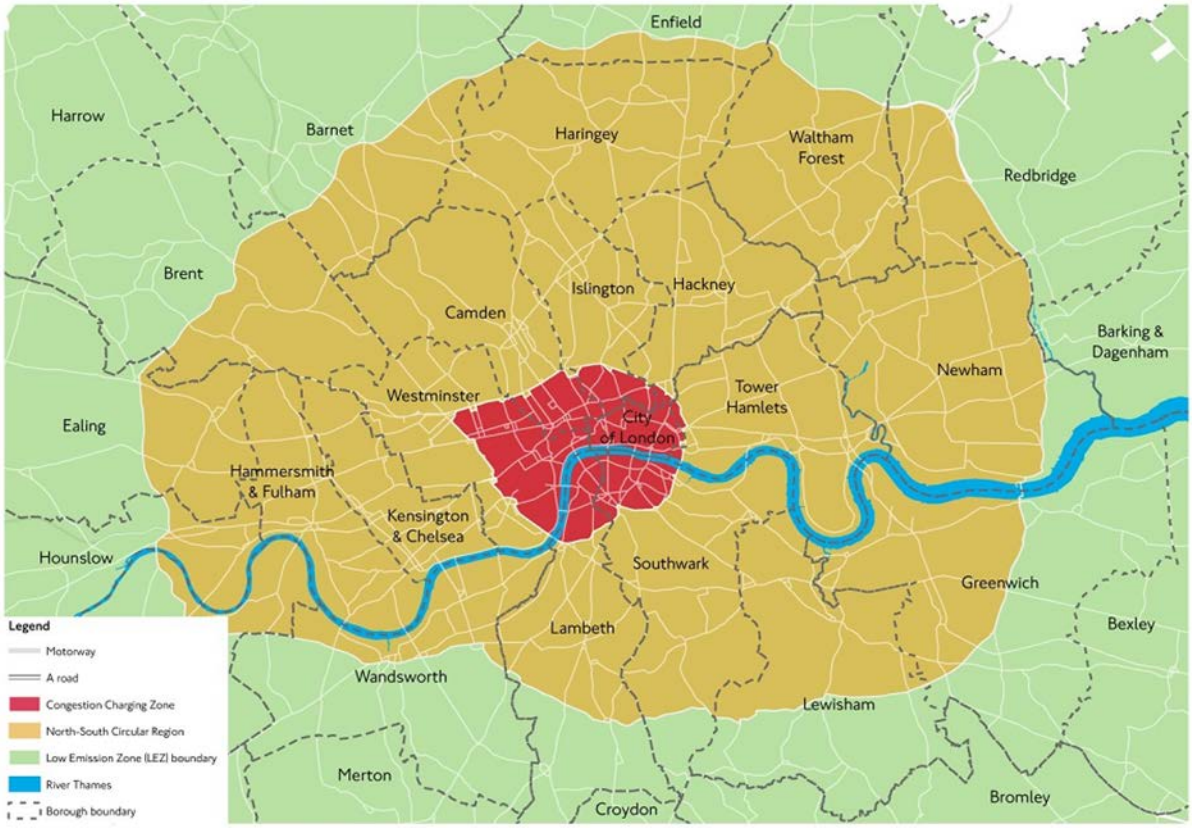
If you are unsure about whether your car will be exempt from the charges, you can enter your vehicle registration number on the Transport for London website to find out if you need to pay the ULEZ charge. This can be done here:

https://tfl.gov.uk/modes/driving/ultra-low-emission-zone/vrm-checker-ulez

More information on vehicle discounts and exemptions from ULEZ charges can be found here:

https://tfl.gov.uk/modes/driving/ultra-low-emission-zone/discounts-and-exemptions

Figure (10) The proposed Inner London ULEZ extended to the North and South Circular Roads



The Mayor of London's Air Quality Proposals:

The Mayor of London has outlined a range of bold proposals to combat air pollution. These include:

- Implementing an Emissions Surcharge (called the T-charge) on older polluting vehicles entering central London in Congestion Charging hours from October 2017
- Bringing forward the introduction of the ULEZ in central London from 2020 to 2019
- Extending the ULEZ beyond central London in 2021: for motorcycles, cars and vans, to the North and South Circular roads; for lorries, buses and coaches, London-wide in 2020.
- Lowering emissions from buses by procuring low emission fleet and a wider expansion of the ULEZ retrofit programme to 5000 buses so that they meet a lower emission standard (Euro VI).

- Calling for Government to implement a National Diesel Scrappage Scheme
- Roll out of rapid electric vehicle charging point facilities across London
- £10 million of funding to London Boroughs for local air quality projects such as delivery of Low Emission Neighbourhoods and Mayors Air Quality Fund objectives.

The Mayor of London has also taken a number of measures to lower the emissions of buses, taxis and private hire vehicles (PHVs) across London that will improve air quality in Redbridge and across London. These include:

- Measures to introduce hybrid and hydrogen buses to fleets whilst phasing out diesel buses. Diesel buses that remain operational will meet the ULEZ emission standards
- Introducing 12 Low Emission Bus Zones across London, (of which one will cover a short section of the A12 Eastern Avenue in Redbridge).
- Establishment of Bus Priority Schemes to reduce engine idling.
- From 1 January 2018, new diesel taxis will no longer be licensed in London and newly registered taxis from 2018 need to be zero emission capable.
- From 1 January 2018, all vehicles licensed for the first time as PHVs must be Euro 6, unless petrol hybrid when the minimum standard is Euro 4
- From 1 January 2020, new vehicles (those up to 18 months old) licensed for the first time as a PHV must meet the approved zero emission capable requirements. Used vehicles (those over 18 months old) licensed for the first time as a PHV must be Euro 6
- From 1 January 2023, all vehicles licensed for the first time as PHVs must be zero emission capable
- In October 2019 Mayor published a report on the Central London ULEZ which shows significant reductions of roadside nitrogen dioxide (NO2) concentrations in its first six months of operation. More information on the impact of the ULEZ can be found here: https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/central-london-ulez-six-month-report

Redbridge Council support the Mayor in his actions to bring about improvements to the bus, taxi and PHV fleets that will benefit local air quality.

Council Position Statement:

Redbridge Council supports the new mayoral proposals including the ULEZ and its future planned phases. We welcome continued funding support for the delivery of local level projects in Redbridge to improve air quality and reduce exposure. The Council supports the Mayor in his actions to bring about improvements to the bus, taxi and PHV fleets that will benefit local air quality.

Local Supportive Plans and Strategies:

The following Redbridge Council local plans and strategies integrate with and support the Air Quality Action Plan:

The Redbridge Environmental Action Plan 2010-2018 (REAct) sets out the Councils policies and measures to create a cleaner, greener Borough, whilst reducing atmospheric pollutants, CO_2 emissions, waste and other environmental impacts.

The Local Development Framework and Redbridge Local Plan 2015-2030 details the spatial development strategy for managing growth and development within Redbridge. This conjunction with

the London Plan, sets the framework for determining planning applications in Redbridge.
Redbridge's Parking Strategy 2015 to 2020 sets out policies designed to reduce car journeys within the borough and to encourage the use of more sustainable transport.

Redbridge's Third Local Implementation Plan 2019-2041 – A Strategy for Great Neighbourhoods details how the Council will deliver the borough's transport policies in line with the Mayor's Transport Strategy for London, reducing pollutant emissions from transport by promoting sustainable travel.

Health and Wellbeing Strategy

The Redbridge Health and Wellbeing Strategy sets out a long-term vision for the health and wellbeing of our borough's communities. This vision reflects our responsibility to both our resident communities and the wider visitor and commuter populations. It also sets out where Redbridge will target efforts and resources for a three-year period based on chosen priorities which reflect the most critical needs set out in the Redbridge Joint Strategic Needs Assessment (JSNA). Through the Health and Social Act (2012) reform, there are opportunities for the Health and Wellbeing Strategy to provide further integration between the wider determinants of health such as transportation, air quality, housing and education.

Climate Change and Air Quality

The observed rise in global temperatures over the last century has been associated with increases of man-made emissions of greenhouse gases, in particular carbon dioxide CO_2. If the current trend continues this could result in important changes in global weather patterns leading to more frequent extreme weather events, hotter and drier summers, increased flooding and rising sea levels. This in turn would have detrimental social, economic and environmental effects globally.

Climate change will have an impact on both local air quality and human health. Warmer temperatures and more frequent hot sunny days will result in an increase in ground level ozone concentrations. Ozone is an irritant and can exacerbate the effects of existing respiratory and cardiovascular health conditions.

Air quality and climate change are intrinsically linked. Air quality is dependent on weather factors such as wind speed and direction, which influences how pollutants are dispersed, and temperature and humidity. Greenhouse gases and air pollution share common sources, notably the combustion of fossil fuels, and therefore measures to tackle climate change are often likely to be beneficial to air quality and vice versa. However, this is not always the case, as in the use of diesel fuel and the firing of boilers with biomass. Diesel vehicles are more fuel efficient than petrol and produce less CO_2, however they emit more particles and NO_2. Similar considerations apply to biomass; in certain situations, using biomass as a fuel for boiler furnaces may be more sustainable, but its emissions will contain more particles and polycyclic aromatic hydrocarbons. There are also practical difficulties in using biomass efficiently as a fuel.

These types of possible conflicts and issues must be carefully considered when setting policies and measures to address climate change and air quality.

Climate change is one of the four overarching priorities in the Redbridge Sustainable Community Strategy and the council have developed a climate change strategy as part of the Redbridge Environmental Action Plan. Redbridge council is reducing its carbon footprint, focusing on council buildings, fleet vehicles, and lighting. In 2019, the Council signed up to Climate Change Declaration and is committed towards putting together a plan with specific actions that will contribute towards achieving carbon neutrality by 2030.

Working in Partnership

Air pollution is a complex problem with a wide variety of sources, solutions and areas of responsibility, which sit across the three tiers of UK Government (local, regional and national), as well as with the EU. The sources of air pollution mean the role of companies such as vehicle manufacturers, those with significant fleets, developers and construction firms, and major building owners; have an equally important part to play. The key air quality responsibilities of the three tiers of national Government are:

Central Government

The Department for Environment Food and Rural Affairs (Defra) manages air quality nationally. It is responsible for the UK Air Quality Standards and for reporting to EU on progress with meeting the European limit values. Defra also provides guidance, support and some funding for boroughs to manage air quality locally, while central Government is also responsible for large scale policy interventions that could have massive impacts on local air quality.

Greater London Authority (GLA) and Transport for London (TfL)

The Mayor of London has a legal responsibility to prepare and to keep under review an Air Quality Strategy for the Greater London area. The GLA is responsible for delivering the Mayor's Air Quality Strategy, and manage the London Local Air Quality Management framework, which guides boroughs in fulfilling their statutory duties to work to improve air quality. The GLA is working closely with London boroughs on joint initiatives to improve air quality.

The GLA coordinates London Atmospheric Emissions Inventory, which outlines the sources of the key pollutants across London and at the borough level. TfL is part of the GLA group. It is responsible for planning and running London's public transport services including the bus network, maintains key strategic roads (such as the A12 and A406) and regulates London taxis and private hire vehicles.

The GLA provides significant amounts of funding and guidance support to London local authorities to assist them in addressing a wide range of air quality problems.

Local Government

Councils are responsible for Local Air Quality Management, which involves monitoring and reporting on air pollution, and delivering on the parts of the Action Plan that lie within their control.

Redbridge will continue to both challenge and work in partnership with a variety of public and private organisations to improve air quality. Partnership working forms a strand that can be found throughout many of the actions and policies set out in this Action Plan.

Redbridge council is part of East London Air Quality Cluster Group. This group comprises of East London local authority officers working in partnership with the GLA, Environment Agency and Kings College Environmental Research Group (ERG) to develop good practices, respond to government guidance and undertake air quality projects.

Supreme Court Ruling 2015 and High Court Judicial Review 2016

The air quality objectives have not been achieved across the whole of the UK including Redbridge. Exceedance of the NO_2 objective is an extensive problem, with many areas of the UK failing to achieve the required concentration levels. In 2011, the NGO Client Earth challenged the government in court on its failure to protect UK citizens' health from the harmful impacts of air pollution.

In April 2015, Client Earth won its five-year legal battle with the government over illegal levels of air pollution in the UK, when the Supreme Court ordered the Secretary of State for Environment, Food and Rural Affairs to come up with NO_2 plans that would bring air pollution in the UK within legal levels as soon as possible.

The government's NO_2 plans, produced in December 2015, still did not envisage compliance with legal limits until 2025 in the worst affected areas. In response to the plans, Client Earth brought a fresh legal challenge.

Client Earth subsequently won its second court case against the Government. The High Court ruled that the government's 2015 Air Quality Plan failed to comply with the Supreme Court ruling or relevant EU Directives and said that the government had erred in law by fixing compliance dates based on over optimistic modelling of pollution levels. The Court ordered that the government must draw up an improved plan by July 2017 which must bring NO_2 air pollution within legal limits.

The Localism Act 2011 enables the Government to pass on European Union (EU) financial sanctions to the Mayor of London and local authorities whose areas exceed NO_2 legal limits. Failure to achieve the air quality objectives could lead to the government facing an estimated £300 million in fines.

There is the potential for any EU fines for failing to achieve NO_2 air quality objectives to be passed down in part to Redbridge Council. The procedure of passing down fines would be subject to an extended process, during which the local authority breaching the objectives would be given time to take actions to avoid a fine, but would be under pressure to prove its commitment through specific actions.

3. Development and Implementation of Redbridge's AQAP with Local Actions:

Developing and prioritising solutions to poor air quality requires a complex balance between national, regional and local measures, with local authority air quality actions being an important part of the solution.

It is the duty of all local authorities to work towards meeting air quality objectives in their own area. They can do this by reducing emissions by their own actions and by implementing actions to reduce emissions from residents and businesses within the borough. The Council cannot improve air quality alone and so will need to work in partnership with many others including the Greater London Authority (GLA), Transport for London (TfL) and the local community.

Action can be taken on a number of levels, from lobbying Government and influencing regional policy to direct local action, and this is reflected in this Air Quality Action Plan. Where it is considered that a source of air quality emissions can be or is best affected by national or regional actions, 'Council Position Statements' have been given. Council Position Statements will not form part of the formally reported Air Quality Action Plan since the air quality impacts of such actions are not measurable in any quantitative way.

Redbridge Council will support their Position Statements through actively responding to national/regional consultations and/or through other appropriate mechanisms.

Monitoring Air Quality in Redbridge:

Monitoring air quality in Redbridge is undertaken to comply with Redbridge's formal duties as Air Quality Management Area (AQMA). By monitoring the air quality around the borough, we can assess our compliance with air quality objectives, evaluate the effectiveness of policies and projects, and help provide information and alerts to Redbridge's residents, workers and visitors when pollution levels are high.

Levels are monitored to provide information on long-term trends in pollution levels, also to provide highly detailed and complex information, often in real time. As well as collecting data on air quality levels, sharing it is also important. By reporting on pollution levels, our efforts and our partner's efforts can be evaluated and learnt from. Providing data in near real-time on pollution levels also provides members of the public with information to help them to reduce their exposure to potentially harmful pollution.

Redbridge Actions:

What is currently being done:

- Air pollution is monitored in Redbridge through diffusion tube, automatic monitoring stations. We also use a combination of LAEI data; LLAQM tools pollution maps and modelling to give us information about local pollution concentrations.
- Portable air quality monitors have enabled the evaluation of Mayor's Air Quality Fund projects around schools in the borough.
- Real-time information and advice on air pollution by airText and the Kings College London Air Quality Network website has been publicly promoted by Redbridge council.

Actions:

- Will publish on Redbridge's website of an annual report of Redbridge's air quality data
- Data from Redbridge's automatic monitors has been made available to the public through the London Air Quality Network website.
- To review annually the monitoring requirements of Redbridge and update

Emissions from developments and buildings:

In the borough of Redbridge there are increasing conflicts between the need for growth, and the pressures that this growth creates on the environment. Space is at a premium with pressure to build more. In recent years, this has resulted the building of an increased number of new developments.

The construction phase of new developments can produce high intensity PM_{10} and NO_2 emissions, with the impacts being generally very geographically specific, albeit influenced by the size and location of the development.

The Mayor of London is responsible for the strategic planning of London, including the preparation of the London Plan which forms part of the statutory development plan for Redbridge and our Local Plan must be in general conformity with the London Plan.

The land-use planning system plays a central role in managing the environmental impacts of new development and contributes to the protection and long-term improvement of air quality. This is achieved by ensuring that new developments do not have a negative impact on local air quality, and

that public exposure to air pollutants is reduced in new developments in areas which breach the National air quality objectives. By ensuring that the proposed work and plant that will be utilised during the construction process meets best practice standards specified in construction and demolition guidance, NRMM and Air Quality Neutral policies. More information can be found here these standards can be found here:

http://nrmm.london/
https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and

Domestic and commercial heating are the second largest sources of NO_2 and a significant source of PM_{10} emissions in Redbridge. Minimising emissions from gas boilers can be achieved by reducing gas consumption and improving energy efficiency in buildings. Redbridge 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. More recently this has also been linked to requirements to reduce the borough's CO_2 emissions in line with targets set out in the Redbridge Environmental Action plan. (REAct).

Redbridge Council receive an increasing volume of planning applications which vary in scale from small home extensions to larger developments such as housing projects, new schools and Crossrail developments and land use applications such as mineral extraction from quarries.

Redbridge's requirements for new developments are enshrined within a number of the council's planning policies which informed by various regional plans and strategies.

Redbridge Actions:

- Redbridge is currently refurbishing its building Lynton House with a range of energy efficient improvement measures.
- Redbridge is working in partnership with the Mayor of London's RE:FIT programme installing solar panels in 6 Redbridge schools. The council and the RE-FIT team are also exploring the options to take forward energy efficiency measures in council buildings identified in the Redbridge Environmental Action (REAct) plan. The installation of new low emission boilers will be part of these measures. Residents on low incomes who are eligible for disabled facility grant aid will be eligible for financial assistance to replace their old boiler with a new low NOx boiler.
- Redbridge enforces the borough's Smoke Control Areas and fully promotes them to reduce emissions.
- Redbridge ensures that new major developments are air quality neutral in line with the London Plan, the Mayor of London's Sustainable Design & Construction Supplementary Planning Guidance, and the GLA's 2014 Control of Dust and Emissions during Construction and Demolition SPG. We will continue to use planning conditions and obligations to minimise emissions from construction and land use processes such as mineral extraction from quarries.
- Redbridge will continue to use planning conditions and obligations to require developers to adopt measures which will reduce transport emissions during the operational phase of developments.
- Redbridge requires developers to undertake an air quality assessment in circumstances where a new development could have a negative impact on air quality where the development is adjacent to sensitive receptors such as schools, nurseries, hospitals and doctors' surgeries, or where the development will introduce new receptors into an area of existing poor air quality.
- Redbridge enforces emission standards for combined heat and power (CHP) and biomass plant in accordance with the Mayor of London's Sustainable Design & Construction Supplementary

Planning Guidance (SPG). We will also review the potential impacts of other types of heat and electricity generation.

- Redbridge raises awareness of and encourages compliance of Non Road Mobile Machinery (NRMM) air quality policies amongst developers and contractors in accordance with guidance set out in the Control of Dust and Emissions during Construction and Demolition SPG and any superseding best practice guidance.
- Redbridge ensures that adequate and appropriate green space and infrastructure is included and protected in developments in accordance our current Local Plan.

Public Health and Awareness Raising:

Informing people about local air quality can help protect those members of the community who are most sensitive to the health impacts associated with air pollution. 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 a method of reducing air pollution.
We can help our residents to reduce their exposure by advising how they can travel differently. We can also help residents to understand how they can make positive changes in their own behaviour to reduce pollution.

The first steps of awareness raising towards cleaner air is for those contributing to pollution to understand what they can do to reduce their impact. This is relevant for every one of us that drives a car, bus, van, truck or taxi.

Additionally, small changes to behaviour can also help members of the public reduce their exposure to poor air quality- for example by taking quieter routes away from roads; personal exposure to air pollution can be halved.

Redbridge council has undertaken and is currently undertaking a number of awareness raising projects in partnership with the Mayor of London, Transport for London, and Parose Projects. These projects aim to facilitate modal shifts (changing from a more polluting form of transport to a more environmentally friendly, sustainable mode of transport). By educating and informing people about local air quality in Redbridge, we are helping residents and visitors to change their behaviour to improve local air quality and wellbeing of the Borough by choosing sustainable travel.

Redbridge Actions:

- Redbridge is actively promoting airText throughout the borough and on the council's website. airTEXT is a free air pollution forecasting services that provide air quality alerts and health based advice to the public for moderate, high and very high air pollution days. Information is provided via mobile phone, a website or through social media.

The services are particularly aimed at those most affected by poor air quality and temperature including those suffering from ill health, the young and the elderly. However, the scheme is also useful for healthy individuals who may start to suffer the effects of air pollution at high and very high levels.

For further information see the airTEXT website – http://www.airtext.info/.

In conjunction we also actively promote the London Air website which gives real-time pollution readings across London including Redbridge. For further information see the London Air website – https://www.londonair.org.uk/LondonAir/Default.aspx

- Redbridge is in the process of updating its website where we will disseminate up to date information about air quality. We also investigate new methods of informing the public about air pollution levels.

- The Council is seeking to incorporate air quality in to the Redbridge Health & Wellbeing Strategy. Many of the key measures that we are taking to reduce air pollution have the potential to improve health. Actions to tackle air quality in Redbridge focus primarily on promoting active travel, reducing traffic, and encouraging the take up of low emission vehicles. There are associated benefits to public health issues such as reduced obesity from increased levels of cycling and walking. Additionally, increased public awareness of days with higher pollution levels will reduce air quality related admissions to hospital.

  We are also taking actions to reduce exposure, these include walking and cycling on quieter routes (which can be up to 50% less polluted than the busiest and most congested routes), and signing up to free pollution alerts

  It is therefore important that the significance of air quality is fully recognised within future Health & Wellbeing Strategy development, linked to key priorities set out in this document.

- In Redbridge, children in schools that are situated on or near to busy roads may be exposed to higher levels of air pollution from congestion and idling. The Council has worked closely with schools across the borough to develop tailored travel plans, install green walls and plant trees to mitigate pollution; and promote awareness for children and teachers travelling to and from school more sustainably and to reduce car usage by delivering 'modal shift' awareness training. We are implementing projects funded by Redbridge Council and the Mayor of London's Air Quality Fund to tackle air pollution issues associated with schools including:

  1. Air quality promotion and anti-idling campaign
  2. Air quality impact assessments
  3. Teaching children about air quality
  4. Promoting greener travel
  5. Increase the participating schools STARS accreditation and annually updating the Borough's Sustainable Modes of Transport strategy addressing travel associated with schools.
  6. Getting children to monitor air quality at their school
  7. A competition to design an air pollution poster/banner
  8. Compose air quality songs
  9. Delivering air quality campaigns in partnership with the council's public health and smarter travel teams. This will engage with the local community on effective strategies to reduce their environmental impact and exposure.

Part of the school projects contains an interactive pollution show produced by the Big Wheel Theatre Company. The popular show provides strong environmental messages to develop awareness of key air pollution and transport issues at primary school level. The show begins with the global challenge posed by air pollution, delivering clear explanations of how air pollution is caused, the key pollutants, their effect and what can be done to minimise one's impact and exposure. It continues by exploring local environmental sustainability, with detailed reference to the area around the respective schools. Finally, children are encouraged to consider their own personal transport choices, with particular reference to how their journey plans to and from school may affect their health and well-being.

The school projects were organised by the Environmental Health team. Here are some of our previous successful projects:

The Winston Way Primary School Green Wall. This green infrastructure was installed to help mitigation against PM_{10} vehicle pollution and reduce the children's exposure.

Pupils interactively learning about air pollution strategies with the Big Wheel Theatre Company.

Redbridge Air Action Glade Primary School 2019

Children at William Torbitt primary school measuring Nitrogen Dioxide (NO_2) outside the school.

Winston Way pupils perform their air quality song for the Mayor of London at City Hall.

- Redbridge Environmental Health Department is working in partnership with the Council's Public Health Team to ensure that vulnerable populations are better aware of high pollution days and actions they can take to reduce their exposure.
- The Director of Public Health is fully briefed on the issues of air quality in Redbridge. The Joint Strategic Needs Assessment (JSNA) includes air quality as a key theme and we seeking to integrate air quality in the revised Health and Wellbeing Strategy.

Delivery Servicing and freight:

Emissions from HGVs are higher than from cars and other small vehicles, and in areas with large numbers of freight journeys they typically contribute a significant proportion of the total emissions. Redbridge has looked at the delivery service to council buildings and have identified that reducing a proportion of HGV delivery journeys would reduce HGV emissions and would achieve tangible local air quality benefits. Therefore, the council is looking at feasibility of using a Consolidation Centre which is a facility that channels suppliers' deliveries into one central point.

The goods are then sorted onto fewer vehicles for the final 'leg' (last mile) of the journey to Council sites. The use of fewer vehicles will lead to lower NOx emissions in the AQMA which will contribute towards improving local air quality.

Redbridge Actions:

- Redbridge is actively exploring the use of the London Boroughs Consolidation Centre so that fewer vehicle deliveries are made to council buildings to lower NOx emissions in the AQMA.
- We will seek to update our procurement policies to ensure fleets that supply council buildings to have acquired at least bronze level Fleet Operator Recognition Scheme (FORS) accreditation.
- We will seek to update our procurement policies to give preferential scoring to bidders delivering goods and services with zero or low emission vehicles.

Borough Fleet Actions:

Emissions from HGVs are higher than from cars and other small vehicles, and in areas with large numbers of freight.

Redbridge Council's fleet policy sets environmental standards for its fleets.

The fleet policy seeks to ensure that vehicles of the latest emissions standards are procured within the budget available, whilst still being fit for purpose. In line with the fleet policy, the Council ensures that all new vehicles purchased comply with Euro VI standards from Sept 2014.

The council fleet is currently 100% Low Emission Zone (LEZ) compliant in terms of their emission standard and comprises of mixture of electric hybrid and diesel vehicles. All new council vehicles purchased since September 2009 are of Euro V emission standard and Euro 1 and 2 vehicles have been completely phased out from the council fleet.

Redbridge Actions:

- Redbridge is seeking to further upgrade its fleet so that it is fully compliant with the forthcoming ULEZ and will be looking to do this with the support of Defra funding. This will include procuring vehicles of Euro VI emission standards and converting some vehicles to electric.
- We will continue to ensure all fleet vehicles are fitted with an aftermarket technology called Econo-Speed which not only lowers fuel consumption but also reduces emissions.
- The Council will continue to ensure that all drivers of Redbridge fleet vehicles undergo training to improve safe and fuel efficient driving skills consequently reducing emissions.
- Redbridge's own fleet is a member of the Freight Transport Association with Truck Excellence accreditation; which is equivalent to bronze (FORS) accreditation. The council will explore the possibility of obtaining the Fleet Operator Recognition Scheme (FORS) Silver accreditation for its own fleet.

Localised Solutions:

Local Implementation Plan

Much of the air pollution in Redbridge results from road traffic, both within the borough and from the rest of London so our air quality action plan (AQAP) needs to reflect and help to progress the mayor's air quality and transport strategies.

The Mayor of London's transport strategy sets out a vision for sustainable transport in London and will be implemented at a local level through the Council's Third Local Implementation Plan 2019-2041 – A Strategy for Great Neighbourhoods. Traditionally many of the objectives set out within the Council's air quality action plan are taken from the LIP document. Further information on our Third LIP can be found here:

https://www.redbridge.gov.uk/media/6914/lb-redbridge-local-implementation-plan-june-2019.pdf

We are working closely with Transport for London to make Redbridge an exemplar sustainable Borough across the transport, public health and regeneration sectors and a healthier place to live and work in. This is being done through the implementation of the following localised measures:

Low Emission Neighbourhood

Congestion and pollution from transport are not only huge problems on a national scale; they are also significant problems locally within Redbridge. In pursuit of local solutions to these problems; the council is working in partnership with the Mayor of London and Newham Council to implement a Low Emission Neighbourhood within the borough. This is an area based scheme, which has received £1 million funding from the Mayor of London; and includes a package of measures focused on reducing vehicle emissions (and promoting sustainable living more generally). The scheme will focus on creating a green gateway in the area of (the Ilford Garden Junction) on the Redbridge and Newham border at the junction of the A406 North Circular Road and A118 Romford Road.

The junction underneath the A406 north circular flyover between Ilford and Manor Park.

Amongst measures that will be delivered are:

- Upgrades to footways and crossing points
- Implementation of a segregated two-way cycle route through the junction to improve safety.
- Alterations to the carriageway to reduce the number and width of the lanes.
- Lighting upgrades and statement light installations
- Bus stop upgrades
- Improved Roding Valley Way connections
- Enhanced green landscaping to the area including trees, shrubs, and planted buffers between pedestrians and vehicles.

Green Infrastructure

Scientific studies from Imperial College and Southampton University have proven that specific green vegetation species which have dense hairy leaf surface characteristics can capture significant quantities of health-damaging particulate matter from the atmosphere. Vegetation used for this purpose has the potential to improve local air quality.

With the aim of improving the local air quality around the school (as mentioned earlier in this air quality action plan), green walls were installed at the Winston Way Primary and Cleveland Junior Schools and pine trees were planted at William Torbitt School. At all schools, the vegetation was positioned on the front facade been between the school and the main road to maximise particulate capture coming primarily from motor vehicle exhaust fumes.

Redbridge have also undertaken a number mass tree planting projects across the borough. Trees not only act as a buffer against particulate pollution, they are excellent 'carbon sinks' absorbing carbon dioxide emissions from the atmosphere helping mitigate against climate change.

Redbridge also uses the planning process to require some developments that do not meet 'air quality neutral benchmarks' to offset emissions by introducing green walls or screens.

School Streets Clean Air Zone Scheme (SCAZ)

Tackling poor air quality around schools is a priority in Redbridge and requires a range of measures. We work with schools and the wider community to raise awareness and make changes to improve the air our children breathe.

A School Streets Clean Air Zone Scheme (SCAZ) is where a road with a school temporarily closes to become a pedestrian and cycle zone during the school's opening and closing times. By temporarily closing roads outside schools this will help to reduce congestion and pollution at the school gates as well as making it easier and safer for children to get to and from school.

Redbridge Council is planning to introduce a number of School Streets Clean Air Zone Schemes to improve air quality around schools and to create a safer, more pleasant environment for everyone.

Redbridge Actions:

- Redbridge will implement a Low Emission Neighbourhood at the junction of the A406 North Circular Road and A118 Romford Road with the aim of reducing motor vehicle impact to the more sustainable forms of transport such as cycling and walking occurring at this location.
- Redbridge is considering introducing green walls as part of the Ilford Town Centre public realm scheme to mitigate particulate emissions.
- The Council will continue to plant and encourage the planting of green infrastructure as a means of mitigating emissions.
- In line with the Redbridge Policy Our Streets - A Strategy for Great Neighbourhoods 2017 - 2022, the Council will focus on delivering streets and communities that are healthy clean and accessible for our residents. This will be achieved through a combination of measures such as reducing car movements and rat running, creating 20 mph zones, installing more infrastructure for cycling, walking and electric vehicles. The council aims to improve walking and cycling access to schools, commuter hubs and local places of interest

Cleaner Transport:

Transport plays a significant part in our daily lives so it is essential that policies and plans regarding transport integrate with other Council initiatives in supporting the achievements of the Council's priorities.

Road transport constitutes the largest combined source of emissions in the borough with a significant proportion of PM_{10} and NOx emissions coming from road vehicles. This area has been and continues to be the main focus of attention for this AQAP. Many London-wide policies and measures, such as the introduction of the Congestion Charge, Low and Ultra Low Emission Zones have also been implemented to mitigate the impacts of vehicle emissions on air quality. The Mayor of London's Transport Strategy and Air Quality Strategy are also aimed at reducing traffic and emissions from road transport. Despite all these measures, pollution levels are not improving significantly and air quality objective levels have not been achieved. It is, therefore, important to consider new areas for improvement.

As already highlighted, the greatest amount of air pollutants arises from road transport emissions, particularly from the heavily trafficked roads. Many of these roads (including the A406, A12, A1400 and M11) come under the jurisdiction of Transport for London and the Highways England (HE). As the Council does not have direct responsibility for these roads, any plans to control pollution from vehicles on these roads needs to be in partnership with Transport for London (TfL) and the HE. The Council can however introduce measures on roads within their control and lobby for improvements on others. We have responded to the Mayor of London's air quality consultation to extend the ULEZ to cover the whole

borough. Air quality in areas such as around the Charlie Brown's roundabout that is served by the A406 and M11 will benefit from stricter emission controls if the final ULEZ boundary were to provide London wide coverage for all vehicles.

Although these particular roads benefit the Borough's business and residential communities, they carry a large proportion of traffic originating outside Redbridge, some of which merely passes through, to their respective destinations. Additionally, an increasing population within Redbridge is contributing to increased motor vehicle ownership and use. These combined factors increase pressure on road capacity and often result in road congestion and increased emissions within the borough.

Such pressure on the streets of Redbridge means that road transport emissions remain a key source of air pollution.

Older Diesel and Petrol engines are the primary cause of Redbridge's pollution. Some diesel cars produce less CO_2 than petrol cars but on average they emit more local pollutants, NO_2 and PM_{10}. Even modern diesel engines produce far greater emissions of NOx than petrol engines, which form NO_2 emissions in the air.

Therefore, we must go further than ever before to reduce reliance on these vehicles. This means using our influence and resources to improve and develop every branch of the borough's transport network so people have viable, convenient alternatives to using their cars.

Improving transport options and addressing vehicle pollution issues is central to improving air quality. Examples of our approach include

Walking and Cycling

In the last few years there has been resurgence in the number people interested in cycling and walking across London. Redbridge Council recognises the need to encourage people to walk or cycle more and reduce car usage for the purposes of reducing pollution and improving health.

In addition to our on-going schools project work and low emission neighbourhood scheme which both facilitate increased walking and cycling; the Council vigorously promotes walking and cycling throughout the borough and provides relevant training and advice on the council website as well as hosting dedicated events throughout the year.

The Council is currently installing cycle parking provision at all main council buildings and shopping parades across the borough to enable more cycling by residents, shoppers and employees.

We are implementing dedicated cycling routes within the borough to support and encourage safe cycling for all ages and abilities. A recent example is the installation of the Quietway cycle route between Wanstead Flats and Barkingside designed to encourage increased levels of cycling along quiet streets and parkland.

For 2018/19, £260,000 will be spent on cycle schemes including development of a new scheme between Woodford and Hainault.

We continue to recognise the importance of providing safe, good quality and decluttered streetscapes, particularly around our main centres and shopping parades, and to encourage increased use of sustainable transport modes to access them.

Residents and visitors can use the webpage Walkit and associated app to plan a less busy, less polluted route to their destination within the borough and around London.

Low Emission Vehicles

Low Emission Vehicles are those that do not use petrol or diesel, but instead use other cleaner fuels, produce less pollution and help improve poor air quality. Cleaner fuels include electricity, liquid petroleum gas (LPG), compressed natural gas (CNG) and certain biofuels including bio-methane. Lower emissions can also be achieved by using alternative technology such as electric, hybrid and hydrogen fuel cell vehicles. The Council is keen to support the uptake of low emission vehicles because of the benefits to local air quality and carbon reduction.

Different types of low emission technologies and fuels offer different benefits in terms of reducing air pollution emissions. Electric vehicles run on batteries and have zero emissions at the point of use. Hybrids are vehicles that have more than one source of power; in commercially available cars this is usually an electric battery and a petrol engine. Both sources may operate in parallel to simultaneously provide power or in series where one source is used to provide drive and the second being used to augment the first's power reserve. A plug-in hybrid is a hybrid vehicle with rechargeable batteries that can be restored to full charge by connecting a plug to an external source usually a wall socket or specifically designed charging point. All hybrid technologies lead to lower emissions of carbon dioxide and air pollutants than from ordinary petrol or diesel vehicles but are more polluting than a fully electric vehicle.

Redbridge Council has introduced a range of incentives for electric vehicles. Anyone with an electric vehicle who either lives in the borough is entitled to a free residential permit. We have recently run a scheme in partnership with the Office for Low Emission Vehicles (OLEV) and Nissan to incentivise electrical vehicle uptake amongst council employees. OLEV give a number of different subsidy grants to offset the initial costs of purchasing an electric vehicle and installing optional home charging facility.
Improving infrastructure for low emission vehicles is key to encouraging the uptake of alternatively fuelled vehicles. The more options there are for recharging or refuelling low emission vehicles in the borough, the more attractive they will become to purchasers.

The borough currently has a number of electric car charging points and we are exploring the options with charging service providers to extend charging networks as well as examining the options for the take up of other low emission vehicles. We are also working with TfL to explore installation of rapid charging points within various Council-owned car parks and on street pay and display parking locations. More information for support in purchasing electric vehicles can be found here: https://www.gov.uk/plug-in-car-van-grants/what-youll-get

Electric vehicle charge points within the borough can be found here: https://www.zap-map.com/

Transport Links

Buses provide vital links across the Borough to Underground and mainline railway services as well as to local shopping centres, places of entertainment and work. There 34 main bus routes across the Borough, and there is potential to increase bus frequency, provide new links and improve accessibility at bus stops, and we are working with TfL to pursue this. Most recently the Council persuaded TfL to reroute bus service 462 to serve Forest Road in summer 2016 to help reduce reliance on car travel to the various leisure facilities there.

The council is also working with Crossrail to bring about greater connectivity from the Borough to Essex and the west of London, but specifically towards employment centres in central London and Docklands and to improve links towards Heathrow Airport.

Car Clubs

Redbridge Council encourages its residents to use car clubs. The aim of this is to facilitate a reduction in car ownership and residents driving less overall.

The use of a car club saves residents from having to own a vehicle and meet the associated costs of running a car - such as capital costs, depreciation, insurance, tax and maintenance. The car club scheme offers residents the convenience of being able to use a clean, modern, reliable and safe vehicle for those trips that they make by using public transport, cycling or walking.

Car clubs also play a role in supporting London Mayoral targets across a number of key strategy areas:

- Economic - they help reduce congestion and parking pressures, particularly in new low-car housing developments.

- Social - they complement the public transport system by providing accessibility to key services and facilities without the related costs of car ownership.

- Environmental - they help reduce associated pollution of older vehicles.

The Council is seeking to expand the car club in the Borough to facilitate more journeys able to be made by low emission vehicles.

Vehicle Idling and Air Pollution.

The entire borough of Redbridge has been declared an air management area (AQMA) because it does not meet the air quality objectives for two key traffic pollutants, namely, nitrogen dioxide (NO_2) and fine particles (PM_{10}). Idling engines contribute emissions of both these pollutants unnecessarily. Furthermore, carbon dioxide emissions from idling engines also contribute towards global warming and climate change.

The council has received complaints that relate to buses idling at bus stands and near residential homes, and parents' vehicles idling outside schools. This exposes residents and visitors to unnecessary pollution.

The Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 enables local authorities to issue Fixed Penalty Notices (FPNs) to drivers who commit a "stationary idling offence".

We are proposing to adopt this legislation. Action taken in respect of idling offences will be:

- Signs will be installed at problem locations. As appropriate, steps will also be taken to inform drivers about the issues and in the case of commercial operators, we will also communicate with the organisation. We will be working with TfL regarding implementation of anti-idling measures,
- Authorised Council officers will advise drivers of idling vehicles that they are committing an offence and request that they turn their engine off. Drivers that ignore the request will be liable to the issue of a fixed penalty notice.
- In order to enforce this law more effectively the Council will also seek to issue Penalty Charge Notices (PCNs) as an alternative to fix penalty notices. This will be done via a Traffic Management Order (TMO) made under the provisions of the Road Traffic Regulation Act 1984 (As amended by section 87 of the Environment Act 1995) for the purpose of managing air quality. In effect this means that engine idling is considered to be a road traffic contravention and as such is subject to civil enforcement.

Further information on vehicle idling and the law can be found:

http://www.legislation.gov.uk/ukdsi/2002/0110423887

Parking and enforcement

Parking supply and charging policies for both on and off street parking can significantly influence parking demand, parking space turnover and ultimately car use and ownership.

The Council's Parking Strategy balances the need of regulating car parking facilities and not adversely affecting town centre economies.

Controlled Parking Zones (CPZs) are in place in many areas of the Borough around town centres, shopping areas and rail stations and rail stations to help keep traffic moving, enable parking space turnover and deter localised commuter parking on-street.

The council also uses the planning process and public transport accessibility level (PTAL) to reduce parking for new development in areas of the Borough with good transport links.

Schools and Cleaner Transport

In line with the Mayor of London's plans to help protect children from toxic air, the council is committed to identifying and implementing ways to improve air quality around schools. We are proposing to take actions that may include:

- Changing local roads, including better road layouts, restricting the most polluting vehicles around schools through road closure or reduced access and pedestrianisation around school entrances.
- Moving entrances and play areas away from busy roads.
- 'no idling' schemes to reduce emissions from cars
- Continued encouraging walking and cycling and improving cycle and walking routes
- Using greenery like 'barrier bushes' along busy roads and in playgrounds to help filter toxic fumes

Redbridge Actions:

- Redbridge is seeking to discourage unnecessary vehicle idling through anti-idling campaigns and enforcement. We will enforce anti-idling policies at idling hotspots and review areas where enforcement is undertaken
- The Council will encourage the uptake of electric and low emission vehicles in its car clubs and continue the promotion of such technology to the public.
- Diesel vehicles are more polluting than other vehicles and are the largest contributors to local pollution levels, so the Council, in line with government policy is seeking to discourage the use of older, polluting diesel vehicles in favour of cleaner transport alternatives. Consequently the Council will seek to implement a diesel parking surcharge in addition to the cost of the existing parking permit fee for diesel vehicles. This proposed surcharge will only be applicable to diesel vehicles that are below the Euro 6 emission standard i.e: (diesel vehicles registered before September 2014).
- Redbridge will continue to offer free residential parking permits for electric vehicles and explore extending this to other low emission vehicle types.

- Redbridge will continue to use the planning process to implement residential and commercial charging points and promote OLEV funding options supporting EV infrastructure installation. Redbridge will explore other options to fund residential and rapid charging electric vehicle infrastructure, e.g. the Go Ultra Low City Scheme (GULCS).
- Redbridge will continue to manage road and parking space to discourage car use and facilitate modal shifts to more sustainable transport. We will continue to support the increase of walking and cycling in the borough.
- Redbridge will continue to identify and implement measures to improve air quality around schools
- The Council will implement a variety of road measures across the borough to improve traffic flow and consequently local air pollution.
- The Council will implement a cycle route from Barking to Ilford. The route will support the planned residential development at Barking Riverside, by providing an enhanced walking and cycle link to local amenities, residential areas, the new Cross Rail connection at Ilford Station and the wider town centres of Barking and Ilford.

3.1 AQAP Steering Group

Redbridge intends to set up an AQAP Steering Group to ensure clear governance and ownership of this plan. The Steering Group will consist of representatives from Environmental Health, Public Health, Planning, Transport and other relevant teams. Representatives from TfL, the GLA and other interested organisations will also be asked to join. The group will meet periodically to evaluate AQAP progress. We will also answer any questions posed on AQAP progress by residents and representatives from local community and business groups through our local forum meetings.

In addition, we have undertaken the following stakeholder engagement:

- The AQAP will be advertised on the Redbridge Council Website
- An Action Plan Engagement day will be arranged where we will meet with interested parties in the community to answer questions regarding our proposals. Further information regarding this will be published on the council website.

In evaluating the action plan, the steering group will seek to identify the following:

- If there are existing programmes in other council service areas that will contribute to emissions reductions (or increases) that should be accounted for within the AQAP
- What may influence local pollution in the borough in the near future (i.e. 5 to 10 years)
- The future trends that are likely to contribute (regional emissions trends as well as local factors)
- If more technical assessment may be required before proceeding to update the AQAP
- If traffic management interventions are required

The AQAP Steering Group will be headed by the Cabinet Member for Civic Pride.

Air Quality Action Plan Matrix Introduction

The Mayor of London has issued an Action Plan Matrix that all London boroughs are expected to utilise and deliver locally as part of their London Local Air Quality Management (LLAQM) action planning obligations. We have set out the actions that we are taking in the London Borough of Redbridge to improve air quality and reduce exposure to areas of poor air quality.

These actions have been assessed according to how easy they are to deliver, their potential air quality benefits and priority rating for each action.

The key for the Action Plan Matrix can be seen in Table 4.1

Table 4.1 Air Quality Action Plan Matrix Key

The actions have been grouped into seven categories: Monitoring, Emissions from developments and buildings; Public health and awareness raising; Delivery servicing and freight; Borough fleet actions; Localised solutions; and Cleaner transport.

Key for reading the Action Plan:

Responsibility: name of council department responsible for this action	Environmental Health: Planning: Estate Management: Public Health: Smarter Travel Team Procurement Engineering Services
Ease of delivery (EOD)	Straightforward 1-2 Medium 3-4 Most difficult 5
Magnitude of emissions/air quality benefits	High 1 Medium 2 Low 3
Priority level (PL)	High 1-5 (*actions marked selected are key priority actions for the council for effective emissions and exposure reductions) Medium 6-10 Low 11-15
Timescale	The year (or month) this action will be implemented or completed or if this is an ongoing commitment

Action category	Action ID	Action description	Responsibility	Cost	Expected emissions/ concentrations benefit	Timescale	Outputs, Targets and KPIs	Further information
Monitoring and Core Statutory Duties	1	Maintain the borough's 2 automatic and 26 diffusion tube monitoring sites.	Air Quality Officer	£25K per annum	No. Data from monitoring will assist in identifying the impact of action taken	Ongoing for maintenance of monitors, and target to install new monitors subject to available funding.	All monitors maintained and over 90% data capture	Details of our monitoring can be found here: https://www.redbridge.gov.uk/media/5495/asr_london_2018_final-report.pdf
Reducing Emissions from Developments & Buildings								
Emissions from developments and buildings	2	Ensuring emissions from construction and operation of new developments are minimised by requiring developers to adhere to current and any superseding best practice guidance and supplementary planning guidance. Ensuring major sites have a dust management plan (DMP) and construction management plan (CMP) and appropriate real-time monitoring in accordance with the identified risk of the site.	Planning	Within existing resource.	2	2020 - ongoing	Number of planning applications conditioned for dust management best practice and automatic air quality monitoring in line with SPG guidance. EOD = 2 PL = 4 (High)	This information is reported on in our ASR which can be found here: https://www.redbridge.gov.uk/media/5495/asr_london_2018_final-report.pdf

Emissions from developments and buildings	3	Adoption of a Planning Obligations SPD and securing additional funding from developers through s.106 agreements to manage and enforce construction impacts	Planning		2	2020	Reduction in complaints relating to construction projects.. Amount of money generated for AQ from s.106 agreements EOD = 2 PL = 4	
Emissions from developments and buildings	4	Educate, raise awareness and enforce Non-Road Mobile Machinery (NRMM) air quality policies.	Planning	£4000 match funding requirement for participation in the Pan-London NRMM project	2	Immediately	Number of eligible planning applications conditioned for NRMM in line with SPG Guidance. Number of sites visited by NRMM enforcement project. Number of sites compliant after follow visit. EOD = 2 PL = 4 (High & Selected)	This information is reported on in our ASR which can be found here: https://www.redbridge.gov.uk/media/5495/asr_london_2018_final-report.pdf Further NRMM information can be found here http://nrmm.london/

Emissions from developments and buildings	5	Enforcing CHP and biomass air quality policies for new developments	Planning	Normal Business	1	Immediately	Annual reporting on number of planning applications conditioned for CHP or biomass in line with SPG Guidance. **EOD** = 4 **PL** = 4 (High)	This information is reported on in our ASR which can be found here: https://www.redbridge.gov.uk/media/5495/asr_london_2018_final-report.pdf
Emissions from developments and buildings	6	Enforcing Air Quality Neutral and Air Quality Positive policies for new developments and require Air Quality Assessments where necessary. Adopt an Air Quality SPD.	Planning	Normal Business	2	Immediately	Number of air quality neutral assessments completed in accordance with GLA commissioned guidance. **EOD** = 2 **PL** = 4 (High)	This information is reported on in our ASR which can be found here: https://www.redbridge.gov.uk/media/5495/asr_london_2018_final-report.pdf
Emissions from developments and buildings	7	Ensuring adequate, appropriate, and well located green space and infrastructure is included in new developments	Planning	Normal Business	3	Immediately	Local Planning Policy is in place to adequately cover this measure. **EOD** = 2 **PL** = 6 Medium	The Redbridge Local Plan is available to view at: https://www.redbridge.gov.uk/planning-and-building/planning-policy/local-plan/

								has a number of Borough wide policies on green space and infrastructure: Section 1.22-23 Quality of Environment Section 4: Promoting a Green Environment Policy LP19 Climate Change Mitigation. Policy LP24 Pollution. Policy LP 32 Sustainable Design and Construction. Policy LP37 Green Infrastructure Policy LP38 Protecting Trees and enhancing landscape Policy 39 Nature Conservation

Emissions from developments and buildings	8	Ensuring the Borough Smoke Control Zone requirements are fully enforced and that information about the requirements are readily available to the public. Awareness will be raised with residents and fuel suppliers through direct engagement.	Environmental Health	Normal Business	1	Immediately	Annual reporting on number of smoke control complaints received and enforced. Report on engagement with suppliers and residents EOD = 2 PL = 2 (High & Selected)	Further information provided to residents and on the council website can be found here: https://www.redbridge.gov.uk/business-and-regeneration/environmental-health/pollution/
Emissions from developments and buildings	9	Promoting and delivering in the Council's own stock energy efficiency retrofitting projects in workplaces and homes (Including using the GLA RE:NEW and RE:FIT programmes) to replace old polluting heat and energy plant with new low emission plant (e.g. old boilers with new ultra-low-NOx boilers); in combination with other energy conservation measures.	Estate Management	Normal business and support from GLA funding streams	1	Immediately	Number of eligible buildings to benefit from these programmes and delivery date. EOD = 3 PL= 3 High and selected	The council has signed up to take part in Re-fit for the corporate estate (more information on RE:FIT is available at https://www.london.gov.uk/what-we-do/environment/energy/energy-buildings/refit

Public health and awareness raising								
Public health and awareness raising	10	Director of Public Health (DsPHs) has been fully briefed on the AQ problem in Redbridge; on what is being done, and what is needed.	Public Health and Environmental Health	Normal business	2	Immediately	Director has been fully briefed and will be re-briefed annually and at interim AQ meetings/projects that require public health input. AQ problems are in the council JSNA and amongst Health and Well Being Board priorities. New Air Quality Action Plan is to be reported to the Health and Well Being Board in March 2020 and periodically thereafter. This is to shape local strategy to effectively tackle local AQ issues. The Public Health team	

							contributes to all MAQF school projects in Redbridge through awareness raising through local GP surgeries and local schools. EOD: 1 PL: 2	
Public health and awareness raising	11	Public Health and Environmental Health Teams are supporting engagement with local stakeholders (businesses, schools, community groups and healthcare providers).	Public Health and Environmental Health	Normal business and MAQF	2	Immediately	Annual reporting summarising engagement progress. EOD: 3 PL: 6	
Public health and awareness raising	12	Joint Strategic Needs Assessment (JSNA) has up to date information on air quality impacts on the population. Revised Health & Well Being Strategy to integrate air quality objectives.	Public Health and Environmental Health	Normal business	1	2020	Annual reporting summarising progress	
Public health and awareness raising	13	Strengthening 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	Normal business	1	Immediately	Annual reporting summarising progress	

Public health and awareness raising	14	Engagement with businesses: disseminate information to Redbridge's GP surgeries and pharmacies on how to help improve air quality and reduce exposure for patients and employees. Disseminate information to other businesses	Public Health and Environmental Health	Normal business and MAQF	1	Immediately	Number of GP surgeries/pharmacies to receive information by Dec 2020 Number of businesses engaged with by June 2021	
Public health and awareness raising	15	Promotion of availability of airTEXT and the Mayor of London's air pollution forecasts	Public Health and Environmental Health	£1000	2	Immediately	Increase in number of Redbridge users annually. Continue to support dissemination of airTEXT EOD = 2 PL= 4 High and selected	Air Text information can be found here: https://www.airtext.info/ Mayor of London forecasts can be found here: https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/monitoring-and-predicting-air-pollution
Public health and awareness raising	16	Encourage schools to join the TfL STARS accredited travel planning programme	Transport	Normal business and MAQF	. 2	Immediately	Annual reporting summarising	

		and retain/improve STARS rating through the MAQF school projects. Promoting sustainable travel and cleaner walking routes with supported mapping.					STARS progress: Target number of schools to be signed up to STARS and level at sign up. STARS awarded level progress and targets per school EOD = 2 PL= 4 High	
Public health and awareness raising	17	Reducing pollution in and around schools to improve local air quality at schools. MAQF Project to implement anti-idling and road closure measures around targeted schools. Extending Mayor's school audits to all polluted schools.	Transport	Normal business and pending MAQF funding.	1	2020 to 2024	Report on number of polluted schools using Mayor's school audit toolkit to undertake their own audit EOD = 4 PL= 4 High & Selected	Develop audit toolkit using guidance from the Mayor and support from TfL STARS programme and issue to schools between 2020-2021.
Delivery servicing and freight								

Delivery servicing and freight	18	Update Redbridge procurement policies to reduce pollution from logistics/servicing and to include a requirement for suppliers with large fleets to have attained Bronze Fleet Operator Recognition Scheme (FORS) accreditation	Procurement	Normal business	3	2020	Annual reporting summarising FORS accreditation and improvements procured service vehicle standards EOD = 2 PL= 6 Medium	
Delivery servicing and freight	19	Update Redbridge procurement policies to preferentially score bidders delivering goods and services with zero or low emission vehicles.	Procurement	Normal business	3	2020	Annual reporting summarising number procured services delivering to Redbridge using low emission/zero emission vehicles. EOD = 2 PL= 6 Medium	
Delivery servicing and freight	20	Reducing emissions from deliveries to local businesses and residents. Evaluate transport being used services such as Age UK Redbridge (Daisy Fresh) for potential emission reductions.	Procurement and Transport	Normal business	2	2020 -2024	Annual reporting summarising comparative delivery numbers, frequency and emission standards of vehicles used EOD = 3	

							PL= 6 Medium	
Borough fleet actions								
Borough fleet actions	21	Redbridge's own fleet is a member of the Freight Transport Association with Truck Excellence accreditation; equivalent to bronze (FORS) accreditation.	Waste and Fleet	Normal business	2	2020-2022	Annual report summarising FTATE accreditation EOD = 2 PL= 2 High and selected	
Borough fleet actions	22	Increasing the number of electric, hybrid and cleaner vehicles in the boroughs' fleet. Redbridge will comply with the ULEZ standard.	Waste and Fleet	Normal business with support from Defra and GLA funding streams.	1	2020-2022	Annual report summarising progress Number ULEV by Dec 2021 EOD = 2 PL= 2 High and selected	
Borough fleet actions	23	Increase the uptake of new Euro VI vehicles in borough fleet.	Waste and Fleet	Normal business	1	2020-2022	Annual report summarising progress Number of Euro VI by Dec 2021 EOD = 2 PL= 2 High and selected	
Borough fleet actions	24	Smarter Driver Training for drivers of vehicles in Borough Own Fleet i.e. through training of fuel efficient driving and	Waste and Fleet	Normal business	2	Immediately	Annual report summarising progress EOD = 2 PL= 4 High	

		providing regular re-training of staff						
Localised solutions								
Localised solutions	25	Green Infrastructure projects	Environmental Health, Transportation and Planning	Normal business and MAQF funding	3	Immediately	Annual report summarising number of green infrastructure projects implemented by the council. EOD = 2 PL= 6 Medium	
Localised solutions	26	Low Emission Neighbourhoods (LENs) Ilford Garden Junction	Transportation	GLA LEN funding and council match funding	1	Immediately	Report summarising LEN progress and emission reductions achieved by completion date March 2020. EOD = 4 PL= 4 High	
Cleaner transport								

Cleaner transport	27	Discouraging unnecessary idling by taxis, coaches and other vehicles through participation in the Pan London anti-idling campaign and through targeted education and enforcement activity around schools in the borough.	Environmental Health	Normal Business and MAQF funding for Pan London anti-idling work	3	2020-2025	Annual report summarising informal and formal enforcement action and response to anti-idling education initiatives. EOD = 1 PL= 3 High	
Cleaner transport	28	Promote and deliver projects with Car Free Days and Road Closures.	Transportation and Environmental Health	Normal business and pending MAQF	1	2020-2024	Annual report summarising number of car free days held and road closures implemented and their effect on the targeted area/community. EOD = 3 PL= 3 High and selected	
Cleaner transport	29	Promote the existing free residential parking permit scheme for electric vehicles (EV) to encourage increased uptake	Parking Services	Normal business	1	Immediately	Annual report summarising number of permits issued for EV EOD = 3 PL= 3 High and selected	

Cleaner transport	30	Installation of (EV) residential electric charge points	Transportation and Planning	LIP, GULCS and OLEV funding support	1	2020-2021	Annual report summarising progress/ number of chargers installed per year EOD = 3 PL= 3 High and selected	10 EVCPs in South Woodford, Wanstead Village and Wanstead Park March 2020 5-10 EVCPs within the A406 detailed in the MAQF Ley Street LEN bid.
Cleaner transport	31	Installation of rapid chargers to help enable the take up of electric taxis, cabs and commercial vehicles (in partnership with TfL and/or OLEV)	Transportation	LIP and GULCS funding	1	2020	Annual report summarising progress number of chargers installed per year EOD = 3 PL= 3 High and selected	2 EV rapid charging points to be installed in the Council's Ley Street Depot detailed in the MAQF Ley Street Bid 1 TfL rapid charger in Cranbrook Road car park, Gants Hill.

								6 Fast Chargers to be installed at Lynton House as part of the Workplace Travel Project
Cleaner transport	32	Provision of infrastructure to support walking and cycling	Transportation	LIP and LEN Funding	1	2020-2025	Annual report summarising progress in key schemes implemented from the LIP EOD = 4 PL= 4 High and selected	
Cleaner transport	33	Introduce parking surcharge on diesel vehicles below Euro 6 standards for Resident and Controlled Parking Zone permits	Parking Services	Normal business	1	2021	Annual report summarising impact of the policy EOD = 3 PL= 3 High	
Cleaner transport	34	Reallocation or restriction of road space around schools located in areas of high pollution.	Transportation	Normal business and MAQF	1	2020-2024	Annual report summarising progress EOD = 3 PL= 3 High	A significant amount of road space restriction around schools have been proposed and detailed in the current MAQF and LEN bids.