JSNA
Joint Strategic Needs Assessment

PLACE

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NOVEMBER 2021

LONDON BOROUGH OF
RICHMOND UPON THAMES

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COVID-19 Impact on the JSNA Report

The COVID-19 pandemic in 2020 has had multiple and wide ranging impacts on the population. It has increased and expanded the role of both statutory and voluntary sector organisations, and other community led services. The pandemic has created a whole new set of challenges for carers, hospitals, GPs and care homes, leaving in its wake health and social care service backlogs, establishment and management of a new and significant vaccination programme. The impacts span the life course and wide-ranging issues from political, economic, social, technology, lifestyle and health.

The pandemic has highlighted more starkly, issues such as health and social inequalities and deprivation, anxiety and mental ill-health, and many others. The JSNA health outcomes and wider determinants data presented in this JSNA generally predate the pandemic and could be expected to deteriorate in areas such as life expectancy, mortality and morbidity rates. Mortality from COVID-19 has had an unequal impact on different population sub-groups and exacerbated health inequalities; however, this will not be fully reflected in this JSNA as the data is not yet available at a local level.

It remains important to monitor pre-Covid time trends to understand the baseline from which to measure the local effects of Covid on key statistics. The Protect Well chapter has more detailed COVID health outcomes and impact. It is expected that the first post-COVID information will be available in the next 12 months as we continue to monitor the available information.

1. Air Quality

1.1 Introduction

Outdoor air pollution has a significant impact on wellbeing, and poor air quality is the largest environmental risk to public health in the UK. The term air pollution is used to refer to a complex mix of particles and gases (contaminant or pollutant substances of both natural and human origin) at concentrations that have harmful effects and interferes with human health or welfare, refer to **Table 1**. It can also contribute to other environmental effects such as Climate Change. Air pollution can be emitted from a range of sources in different localities, regions and continents, **Figure 1** outlines this in context of the UK. Certain harmful air pollutants are emitted directly and locally from vehicles, such as 'primary' Particulate Matter (PM) and Nitrogen Dioxide (NO2). Others, such as Ozone and 'secondary' PM, form in the atmosphere after the emissions of precursor pollutants including Nitrogen Oxide gases (NOX) and Hydrocarbon and Volatile Organic Compounds (VOCs). Different sources of pollution, including transport and non-transport sources, emit different types and ratios of pollutants. The extent to which the population and environment are exposed to harmful levels of air pollution is a complex issue, dependent on how pollutants travel in the atmosphere, their mixing, how they react under different meteorological conditions (**Figure 1** and **Figure 2**).
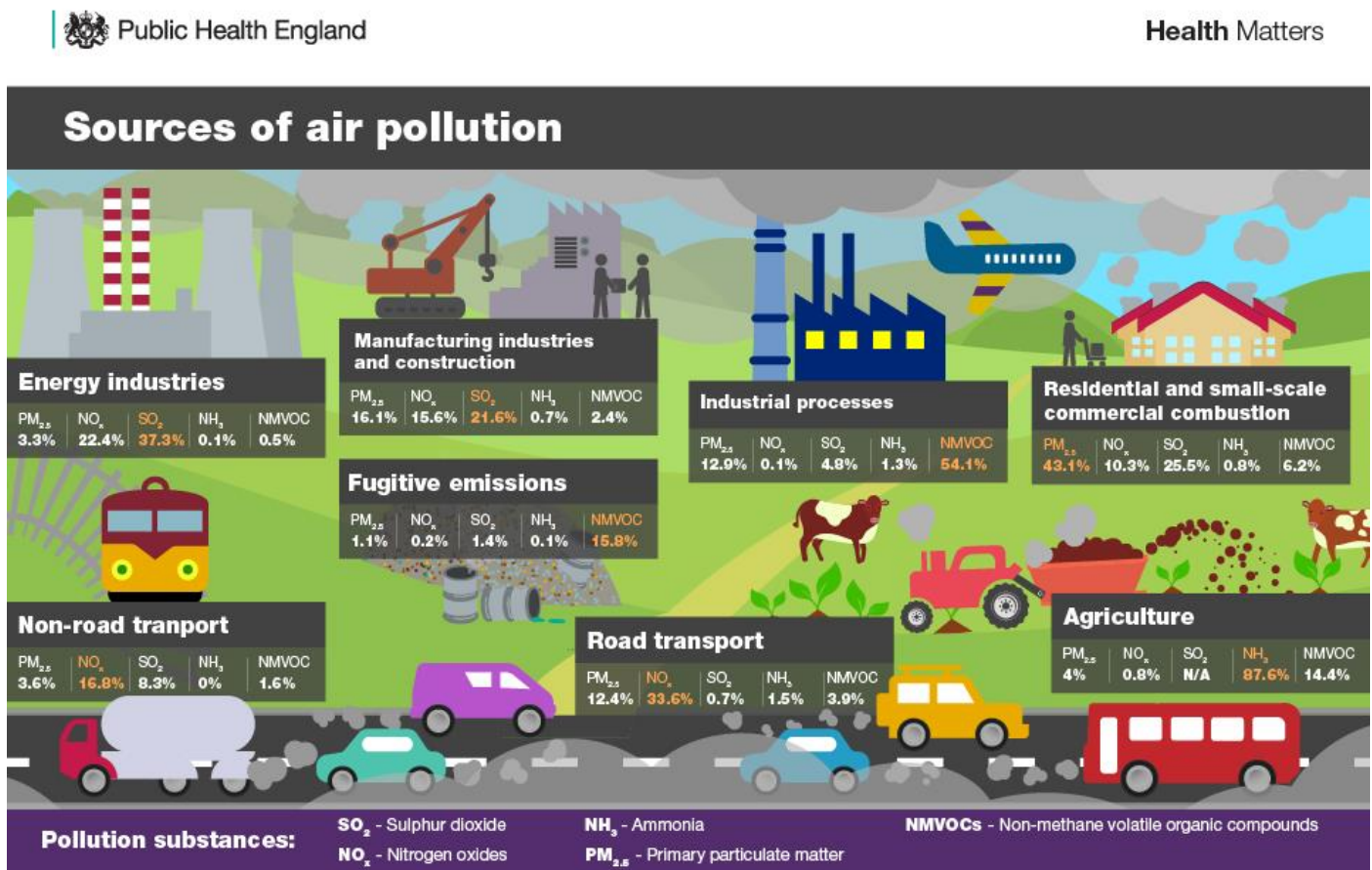
Table 1: Air pollutants and health impacts

Pollutant	Brief description	Health Impacts
Particulate matter (PM10 and PM2.5)	Are a complex mixture of non-gaseous particles of varied physical and chemical composition. It is categorised by the size of the particle (for example PM2.5 are particles with a diameter of less than 2.5 microns while PM10 are particles with a diameter of less than 10 microns). For comparison a human hair is 70 to 90 microns in diameter.	PM10 have been associated primarily with worsening of respiratory diseases, including asthma and COPD. PM10 is more likely to deposit on the surfaces of the larger airways of the upper region of the lung. PM2.5 can penetrate and lodge deep inside the lungs. Chronic exposure to PM2.5 contributes to the risk of developing cardiovascular and respiratory diseases, as well as lung cancer.
Nitrogen Dioxide (NO2)	When Nitrogen is released during fuel combustion it combines with Oxygen atoms to create Nitric Oxide (NO). This further combines with Oxygen to create Nitrogen Dioxide (NO2). Nitrogen Dioxide and Nitric Oxide are referred to together as Oxides of Nitrogen (NOX). NO2 primarily gets in the air from the burning of fuel including emissions from cars, trucks and buses, power plants, boilers, and off-road equipment.	Impacts on respiratory conditions causing inflammation of the airways at high levels. Long term exposure can decrease lung function, increase the risk of respiratory conditions, and increases the response to allergens. NOX also contributes to the formation of PM and ground level Ozone.
Sulphur Dioxide (SO2)	SO2 is a gas, about 99% in the air comes from human sources and industrial activity which use materials that contain Sulphur (e.g. from the generation of electricity from coal, oil, or gas). SO2 can react with other compounds in the atmosphere to form small particulates which can contribute to PM pollution.	When breathed in, it can irritate nose, throat, airways to cause coughing, wheezing, shortness of breath/narrowing of the airways. Most at risk of developing problems if they are exposed to SO2 are people with Asthma or other lung conditions.
Ozone (O3)	O3 is a gas, it occurs both in the upper atmosphere and at ground level. Latter is created by chemical reactions between NOX and volatile organic compounds (VOC). This happens when pollutants emitted by cars, power plants, industrial boilers and other sources chemically react in the presence of sunlight. Ozone forming chemicals can remain the air for many days and be transported over long distances.	High levels of O3 at ground level can irritate and inflame the lungs. It can also irritate the eyes, nose, and throat, which can lead to cough and chest discomfort. In sensitive individuals e.g. Asthmatics, Ozone pollution episodes can make breathing difficulties worse.
Hydrocarbons (HC) and volatile organic	HC belong to a larger group of chemicals known as Volatile Organic Compounds (VOC). HC are compounds of Hydrogen and Carbon only, while VOC may contain other elements. They are produced by incomplete	Can cause eye, nose and throat irritation, shortness of breath, headaches, fatigue, nausea, dizziness, and skin problems. Higher concentrations may cause irritation of the lungs, as well as damage to the liver,

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compounds (VOC)	combustion of Hydrocarbon fuels, and by their evaporation. Because there are many hundreds of different compounds, HC and VOC display a wide range of properties. Some, such as Benzene, are carcinogenic; some are toxic and others harmless to health.	kidney, or central nervous system. Long-term exposure may also cause damage to the liver, kidneys, or central nervous system. Some VOCs are suspected of causing cancer and some have been shown to cause cancer in humans. The health effects caused by VOCs depend on the concentration and length of exposure to the chemicals.
Carbon monoxide (CO)	CO is an odourless, tasteless, and colourless gas produced by the incomplete burning of materials which contain Carbon, including most transport fuels. Even in busy urban centres, CO concentrations in the UK rarely exceed health related standards.	CO reduces the amount of oxygen that can be transported in the blood stream to critical organs like the heart and brain. At very high levels and in enclosed environments, CO can cause dizziness, confusion, unconsciousness, and death. Very high levels of CO are not likely to occur outdoors. However, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. They are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina.

Source: LAQN: Londonair

Figure 1: Sources of Air Pollution in the UK

Source: Public Health England

Figure 2: Air pollution - from emissions to exposure
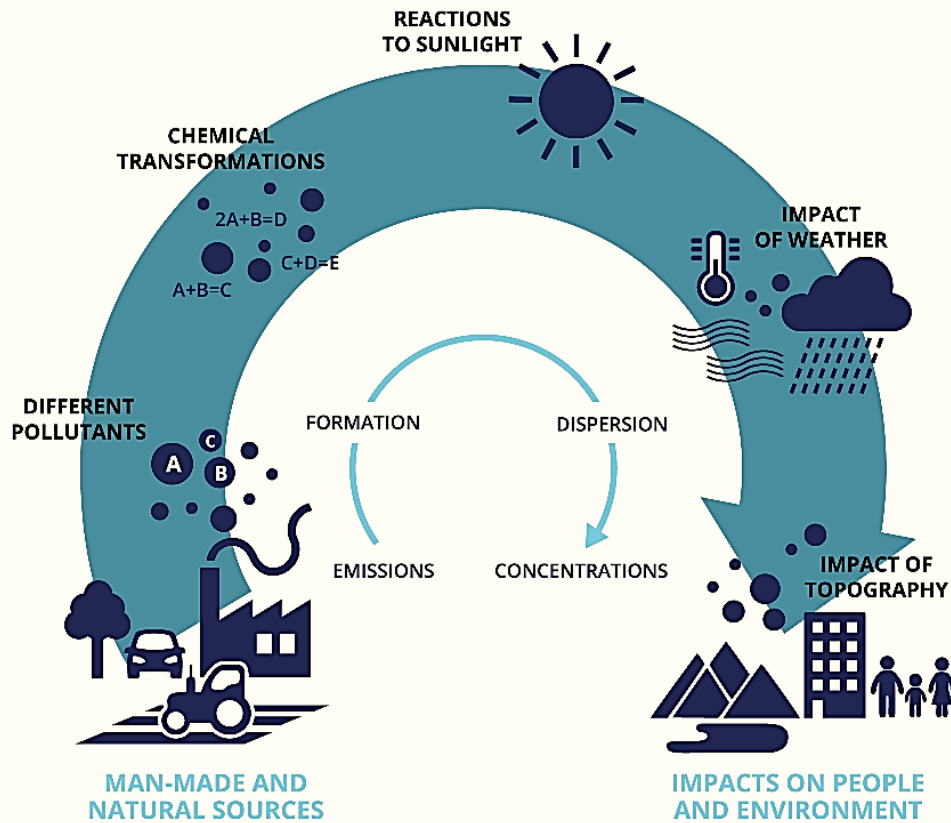
Source: European Environment Agency

1.2 Pollutants and Health Impacts

Local concentration of air pollutants can occur where pollutants build up in significant quantities for example near busy roads. Exposure to high concentrations of pollutants is most likely to result in adverse health impacts. These impacts are cumulative, so it is important to reduce exposure to such pollutants at all stages of life. According to King's College London (the body responsible for the London Air Quality Network - LAQN) the two pollutants of most concern in London are PM and NO2. Both have negative health impacts; they are also a major contributor to urban air pollution in major urban settings such as London. The World Health Organisation (WHO) states that there is no safe level of exposure to PM concentrations however they recommend guideline targets.

Poor air quality can contribute to health problems based on vulnerability and level of exposure. Short term exposure to pollution can aggravate existing health conditions including heart, circulatory and lung conditions. Long-term exposure can cause chronic conditions such as cardiovascular and respiratory disease as well as lung cancer, leading to reduced life expectancy. These short and long-term impacts have consequences in terms of hospital admissions and reduced life expectancy (**Figure 3**). Evidence is emerging that greater exposure to airborne pollutants is associated with increased risk of cognitive decline (Peters et al, 2019). There is also evidence linking air pollution with early life health effects such as low birth weight (Guo et al, 2019).

 The importance of tackling air pollution was recently highlighted this year in context of Ella Adoo-Kissi-Debrah, a nine year old girl in South London who, in 2013 experienced a series of severe asthma attacks, and later died. She lived near some of London's busiest roads. In a landmark decision the Coroner's Court listed air pollution as her contributing cause of death for the first time in the UK. The ruling highlighted the need for continued prioritisation of air quality and tougher control measures.

Figure 3: Short and long-term effects of air pollution
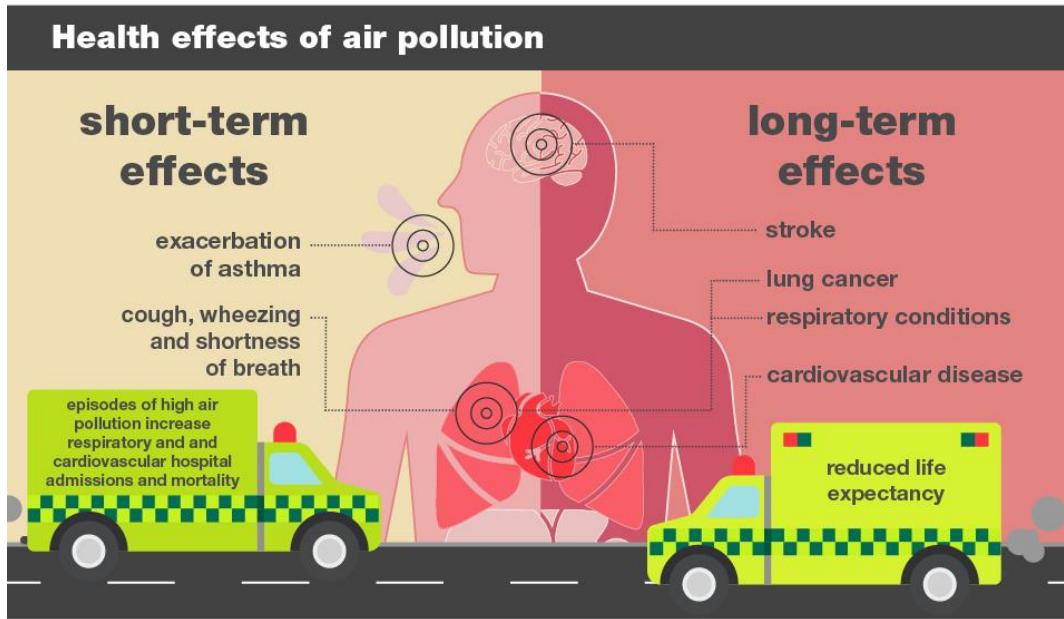
Source: Public Health England

The health impacts of air pollution are significant; long-term effects last for years or for an entire lifetime (**Figure 4**). The report 'Every Breath You Take' (2016) produced by the Royal College of Physicians and the Royal College of Paediatrics and Child Health uses the term 'vulnerability' to express the broad range of determinants whereby the health impacts of pollution are unequal. It includes a person's biological susceptibility as well as environmental, social, and behavioural factors that may make a person susceptible to adverse effects of air pollution. The impacts on health cross all age ranges from children to the elderly.

Figure 4: Air pollution - impact throughout lifetime
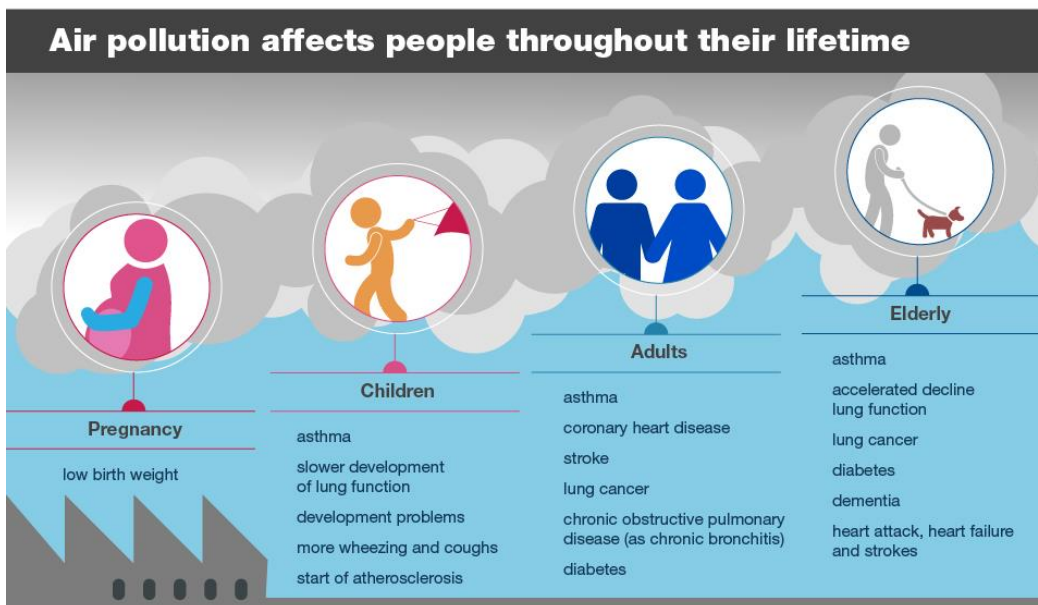
Source: Public Health England

The long-term impacts on health are often represented by a pyramid structure. The frequency of occurrence of a health effect associated with exposure to air pollution is inversely related to its severity. The proportion of the population affected by less severe outcomes is much larger than that affected by the more severe outcomes, according to the WHO. For most of the population the effects of air pollution are not usually immediately obvious. Some individuals may notice symptoms such as irritation to the eyes and throat when pollution levels are elevated, or they are near proximity to a pollution source. However, a small number of the population are more vulnerable to the effects than others. Exposure to pollution, for example, can exacerbate existing health conditions including cardiovascular and respiratory disease. This can lead to restricted activity, hospital admissions and even premature mortality.

Sensitive populations include pregnant women, children, older adults, people with heart or lung diseases such as chronic obstructive pulmonary disease (COPD) or asthma as well as people working near to pollution sources such as bus drivers and traffic wardens. Environmental risk factors include proximity and exposure to busy roads (there is a strong association between long-term exposure to PM and effects on mortality), as well as deprivation (studies suggest areas with high levels of deprivation bear a disproportionate share of poor air quality). The evidence base for health impacts for exposure from varying types of activity and characteristics of an urban environment is not well developed. Part of the reason for this is the difficulty in modelling population health risks from the measurement of individual exposures. However, those who spend more time in highly polluted locations are more likely to be at risk due to high exposure. In addition, because air pollution levels within motor vehicles are typically higher than outside the vehicle, this will include those who drive for a living, as well as those who live and work near busy roads.

For most people, for most of the time, pollution does not interfere with their usual activities. The health benefits of being active will usually be much greater than the harms of air pollution. It is possible, however, that very sensitive individuals may experience health effects even on low pollution days. NICE Guidance NG70 on outdoor air quality and health (2017) advises that vulnerable people should reduce strenuous physical activity outside on highly polluted days or in particularly congested locations, and keep windows and doors closed if they face highly congested streets. The Daily Air Quality Index **Table 2** gives advice from Public Health England and the Department for the Environment, Food and Rural Affairs (DEFRA) on how to stay healthy on days with different levels of air pollution. The index is numbered 1-10 and divided into four bands, low (1) to very high (10), to provide detail about pollution levels in a simple way, like the sun or pollen index.

Table 2: Daily Air Quality Index

Air Pollution Banding	Value	Accompanying health messages for at-risk individuals*	Accompanying health messages for the general population
Low	1-3	**Enjoy** your usual outdoor activities.	**Enjoy** your usual outdoor activities.
Moderate	4-6	Adults and children with lung problems, and adults with heart problems, **who experience symptoms**, should **consider reducing** strenuous physical activity, particularly outdoors.	**Enjoy** your usual outdoor activities.
High	7-9	Adults and children with lung problems, and adults with heart problems, should **reduce** strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also **reduce** physical exertion.	Anyone experiencing discomfort such as sore eyes, cough or sore throat should **consider reducing** activity, particularly outdoors.
Very High	10	Adults and children with lung problems, adults with heart problems, and older people, should **avoid** strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often.	**Reduce** physical exertion, particularly outdoors, especially if you experience symptoms such as cough or sore throat.

Source: DEFRA

1.3 Sources of Air Pollution

Climate Change and air pollution are closely aligned, any sources of air pollution also emit Greenhouse Gases, notably Carbon Dioxide (CO2), including energy generation from fossil fuels and the use of petrol and diesel vehicles. Ground-level Ozone and black carbon (a component of particulate matter produced by the incomplete combustion of biomass and fossil fuels including diesel and wood), also contribute to global warming. The second most important greenhouse gas (GHC) after CO_2 is Methane (CH_4). It is emitted from a number of sources including energy (natural gas, petroleum and coal production), agriculture (including livestock waste), and waste management activities (including landfills and food waste). Methane also leads to the formation of another GHG – Ozone. The latter has harmful effects for people, ecosystems and agricultural productivity. It is a so-called "short-lived climate force. This term refers to pollutants that remain in the atmosphere for a much shorter period than CO2 but have a much greater potential to warm the atmosphere and cause Climate Change. The sources of air pollutants, illustrated in **Figure 1**, all emit Greenhouse Gases. Actions that lead to improvements in air quality can therefore have positive impacts for the climate in the immediate and long-term, as measures that reduce short-lived climate pollutants (such as Ozone and Black Carbon) can significantly decrease the chances of triggering irreversible Climate Change.

The role of human activity has a significant impact on air pollution and Climate Change. This is illustrated by the Coronavirus (Covid-19) pandemic and the lockdown measures introduced, leading to emissions from road and air traffic plummeting, reduced energy demand and a drop-in output from fossil fuel power stations[14]. For instance, Nitrogen Dioxide (NO2) emissions fell by 9-17% across London whilst in certain air pollution hot spot areas, it reduced by half when data from air quality monitoring stations is compared to the year before. Analysis also shows that levels were significantly lower than the levels normally seen during the year in most of the UK's largest cities for both nitrogen dioxide and small particle pollution (PM2.5).

1.4 Air Pollution Trends

Analysis in 2018 by the Department for Environment, Food and Rural Affairs (DEFRA) of air pollution trends (based on National Atmospheric Emissions Inventory data) covering levels in emission of six air pollutants show that there has been a long-term decrease related to all of the major pollutants (**Figure 5**). These include PM2.5, PM10, Nitrogen Oxides, Ammonia, Non-Methane Volatile Organic Compounds, and Sulphur Dioxide covering 1970 to 2018 (Ammonia from 1980 to 2018). The report states that the UK has met most of the current international ceilings for emissions of air pollutants since they were introduced in 2010 apart from limit values for NO2 (40ug/m3). The report outlines some of the factors responsible for the long-term decrease:

- Sulphur Dioxide levels have dropped significantly over recent decades due to a few factors including decreased use of coal, cleaner petrol, and diesel fuels.
- The fitting of flue gas desulphurisation equipment to existing coal-fired power stations has been responsible for long-term decreases in emissions of not only Sulphur Dioxide but also Nitrogen Oxides.
- The reduction in use of coal for domestic heating and power generation has also been a major factor in reducing emission of PM.
- Stricter emission regulations for road transport has contributed towards significant emission reductions for Nitrogen Oxides and Non-Methane Volatile Organic Compounds (NMVOCs).
- Stricter emission limits placed on emissions from solvents also contributed to decreases in NMVOCs.
- Emissions of ammonia were largely influenced by changes to herd sizes and farming practices (note agriculture is the biggest contributor to emissions of ammonia).

In context of other air pollutants, the London Air Quality Network (2018) makes references to:

- Large reduction in Carbon Monoxide over the last 20 years with the introduction of catalytic converters on petrol vehicles[19].
- A 98 per cent reduction of pre-1999 emissions of Lead (Pb) which was added to petrol was phased out. Lead is widely understood to be highly toxic to multiple organs of the body. The main remaining sources of Pb are metal manufacture and industrial combustion of lubricants containing small amounts of lead.

- There is also a decline in the emissions of Benzo(a)pyrene, also used as a 'marker' for a group of compounds known as Polycyclic Aromatic Hydrocarbons (PAHs) which are carcinogenic. These are emitted to the atmosphere mainly via domestic combustion or fuel use (84 per cent), road transport (3 per cent) which mainly consists of vehicle emissions, tyres, brake wear and road abrasion.
- Benzene mentioned above is part of a group known as Volatile Organic Compounds (VOCs), it comes from vehicle emissions, cigarette smoke, and the production of crude oil. The main reduction in Benzene occurred from the year 2000 when levels fell significantly in urban settings. This was for two reasons. Firstly, cars were fitted with catalysts and secondly, the introduction of unleaded petrol resulted in a huge reduction in Benzene - driven by EU legislation on fuel quality.

Figure 5: Percentage change in emissions 1970 to 2016
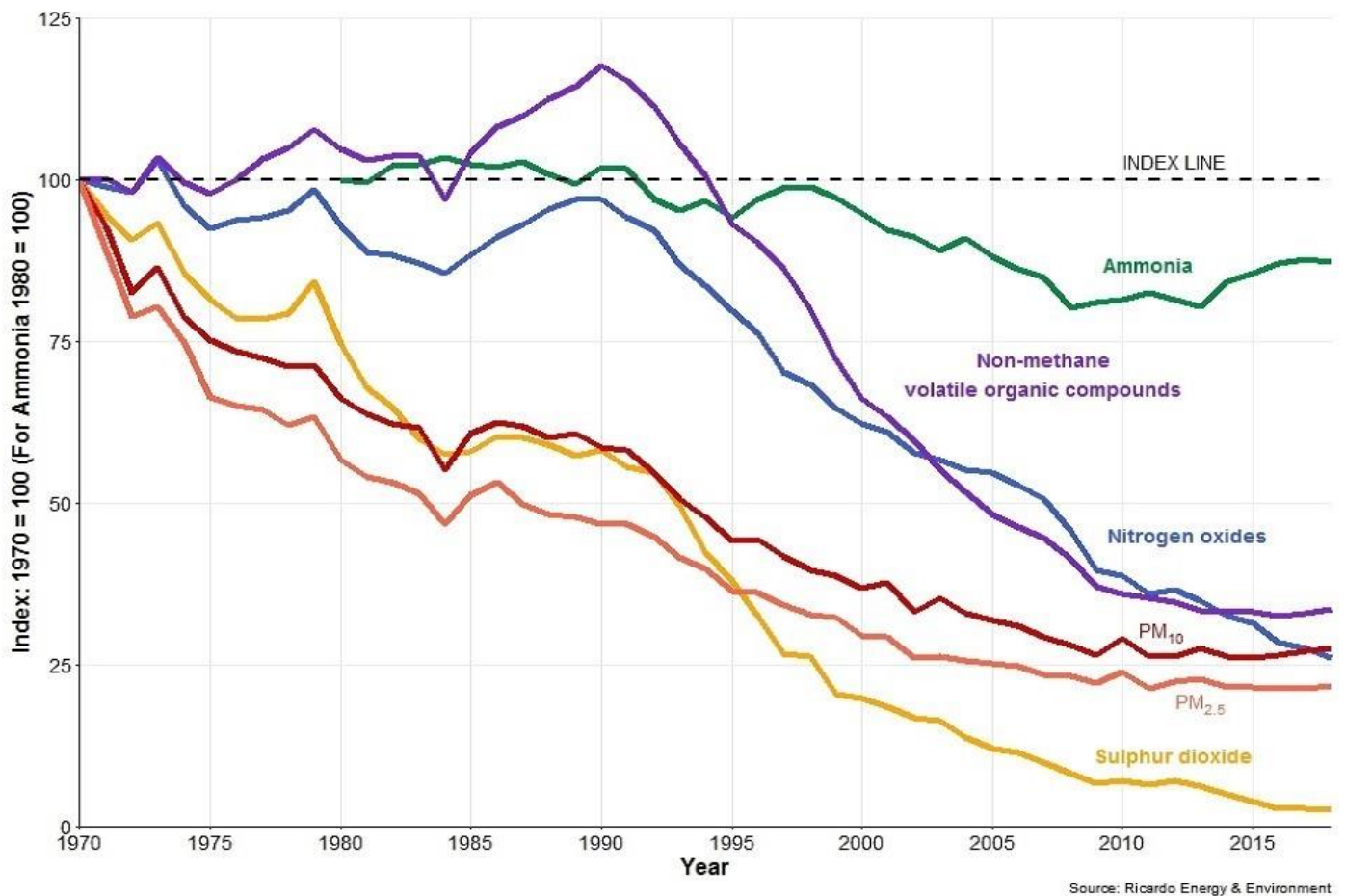
Source: Department for Environment, Food and Rural Affairs

London was able to meet the PM10 limit for first time in 2011. The London Atmospheric Emission Inventory data shows that between 2013 and 2016, total NO2 emissions fell by 9 per cent across London. Although overall trends for air pollution have been going down due to a combination of legislative efforts and technological advances since 1970, it remains a problem in terms of health. There is still much work to be done, NO2 levels are still exceeded in many Town Centres and along main roads, and there are no safe levels for some pollutants including PM even though there are levels specified by current legal limits. In London, there continues to be breaches in air quality limits. For instance, in 2018, London reached its legal air pollution limit for hourly NO2 for the whole year within a one-month period (NO2 levels exceeded average hourly limits 18 times – the maximum allowed under air quality rules). In March 2019 London exceeded limits for the whole year for PM10 with nine months remaining. Carbon emissions in the Power Sector have reduced substantially in recent years, carbon emissions from road transport have been stubbornly high, with only minor reductions over three decades (**Figure 6**). Road-transport is the largest source of carbon emission/air pollution

across the UK as a whole, and a substantial source in London[1] and Richmond, almost half of the Borough emissions according to the Borough's Air Quality Action Plan.

Figure 6: Percentage change in Carbon emissions from transport, UK 1990 To 2018
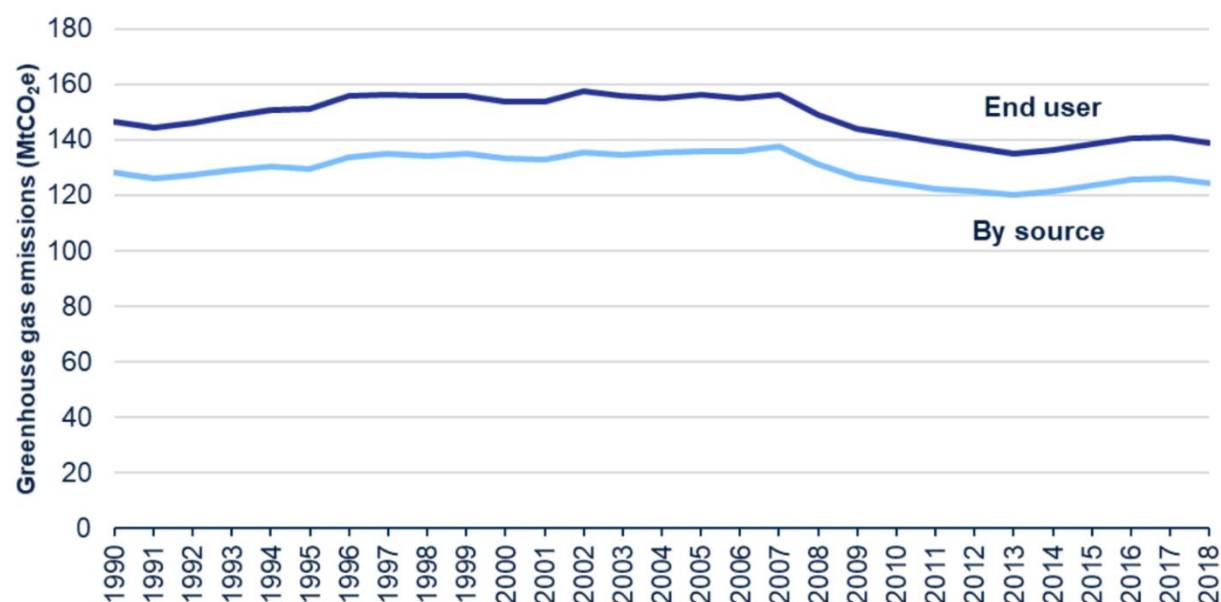
Source: Tables 3 and 19, Final UK greenhouse gas emissions national statistics 1990-2018 Excel data tables

1.5 Current Legislation and Limits

Air Quality Standards Regulations (2010) outlines limits on key air pollutants. These were originally based on the European Union's Air Quality Directive which set targets and mandatory limits. Key pollutants include Sulphur Dioxide, Nitrogen Dioxide, Particulate Matter (PM10 and PM2.5), Lead (Pb), Benzene (C6H6), Carbon Monoxide (CO), Benzo(a)pyrene and Ozone (O_3). The UK intends to set out future air pollution targets through new primary legislation following the exit of the UK from the European Union via a new Environment Bill.

The current overarching framework for UK policy on air pollution is the Clean Air Strategy (2019). The strategy sets out to reduce emissions of five key pollutants including Fine Particulate Matter, Ammonia, Nitrogen Oxides, Sulphur Dioxide and Non-Methane Volatile Organic Compounds by 2020 and 2030. For instance, a cut of 30 per cent by 2020, and by 46 per cent by 2030, of PM emissions, is envisaged. Additional key objectives include:

- providing a personal messaging system for air quality forecasts
- carrying out 'targeted local action' to reduce pollution in 'problem' areas
- commitment to a new target for reduction of harmful nitrogen deposits
- reporting annually on the impacts of air pollution on natural habitats
- the phasing out of coal-fired power stations and moving towards cleaner power sources
- legislation to ban the sale of the most polluting fuels
- by 2022 to ensure only the 'cleanest stoves' will be available to purchase
- giving new powers to Local Authorities to tackle high pollution in the worst areas
- regulation to reduce ammonia emissions from farming
- educating people and organisations on how they can reduce their contribution to air pollution.

The UK Strategy aspires to meet WHO guidelines for PM2.5, PM10 and NO2 in terms of ambient (outdoor) air quality and health. The WHO limits are lower than current UK limits for some pollutants including PM **Table 3**. Note that pollution from vehicle emissions (tailpipe) have so far been regulated under a series of European Directives for all

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[1] [Mayor of London](). Cleaner Vehicles. 2019.

types of vehicles. The standards currently extend from Euro 1 to Euro 6 for cars and vans, and from Euro I to Euro VI for heavy goods vehicles (HGVs), buses and coaches, **Table 4** shows this in the context of cars.

Table 3: UK vs WHO Guidelines

Pollutant	Measure	WHO guidelines	Current UK Targets
PM_{10}	24 hour mean	50 µg/m³	50 µg/m³ not to be exceeded more than 35 times per year
	Annual mean	20 µg/m³	40 µg/m³
$PM_{2.5}$	24 hour mean	25 µg/m³	No current target
	Annual mean	10 µg/m³	25 µg/m³
O_3	8 hour mean	100 µg/m³	100 µg/m³ not to be exceeded more than 10 times a year
NO_2	1 hour mean	200 µg/m³	200 µg/m³ not to be exceeded more than 18 times a year
	Annual mean	40 µg/m³	40 µg/m³
SO_2	1 hour mean	500 µg/m³	No current target, UK current target is based on 15min mean[26]

Table 4: Vehicle emissions – cars

Euro standard	Introduction date		Emission limits		
	New approvals	All new registrations	Petrol NOx	Diesel NOx	Diesel PM
Euro-1	1 July 1992	31 December 1992	0.97g/km*	0.97g/km*	0.14g/km
Euro-2	1 January 1996	1 January 1997	0.5g/km*	0.9g/km* (direct injection)	0.1g/km
Euro-3	1 January 2000	1 January 2001	0.15g/km	0.5g/km	0.05g/km
Euro-4	1 January 2005	1 January 2006	0.08g/km	0.25g/km	0.025g/km
Euro-5	1 September 2009	1 January 2011	0.06g/km	0.18g/km	0.005g/km
Euro-6	1 September 2014	1 September 2015	0.06g/km	0.08g/km	0.0045g/km

Source: The Society of Motor Manufacturers and Traders

1.6 Prevalence and Need

In the UK, the current state of knowledge on the health impacts of air pollution is complemented by London specific studies such as those undertaken by King's College London. In 2018 a report by Kings College London and published by the Committee on the Medical Effects of Air Pollutants (COMEAP), estimated that between 28,000 and 36,000 people die as a result of air pollution every year in the UK, an increase on their 2015 figure of 29,000).

They looked primarily at Nitrogen Dioxide and PM pollution which are produced when petrol or other fuels are burnt. They estimated that the number of deaths would inevitably include the effects of other pollutants that occur simultaneously (e.g., Ultrafine Particles, Polycyclic Aromatic Hydrocarbons and Volatile Organic Compounds) and where prolonged exposure to these chemicals could exacerbate respiratory conditions. To find out what the level of impact would be in terms of reducing levels of air pollution on the population Public Health England commissioned the UK Health Forum and Imperial College London to develop a modelling framework. This model estimated that a 1 µg/m3 reduction in fine particulate air pollution in England could prevent around 50,900 cases of coronary heart

disease, 16,500 strokes, 9,300 cases of asthma, and 4,200 lung cancers over an 18-year period (**Figure 7**). The model suggests that even a small reduction in air pollution can generate significant benefits for health and wellbeing.

Figure 7: Air Pollution - Scale of the Problem
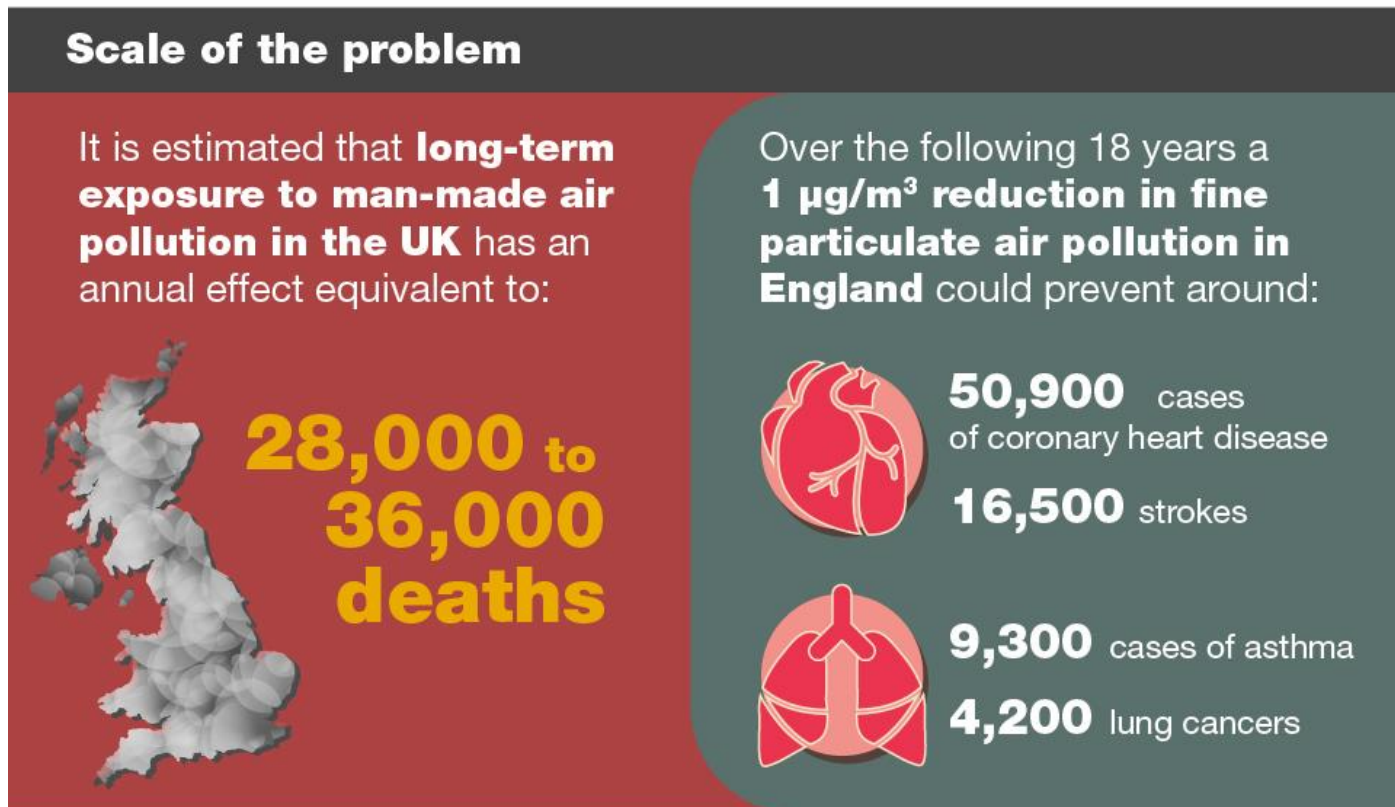
Source: Public Health England

1.7 London Context

London is affected by a high level of air pollution compared to the rest of the country, graphically demonstrated by two key air pollutants in **(Figure 8)**. Traffic related pollution is similar to most other UK cities, however the significant size of London along with dense road networks and built up environments means that London tends to be one of the most polluted places in the UK, especially during still weather conditions. Parts of London have often failed to comply with legally binding limits especially in relation to NO2 and PM.

Figure 8: UK Ambient Air Quality: NO2 and PM2.5 Annual Mean Concentration
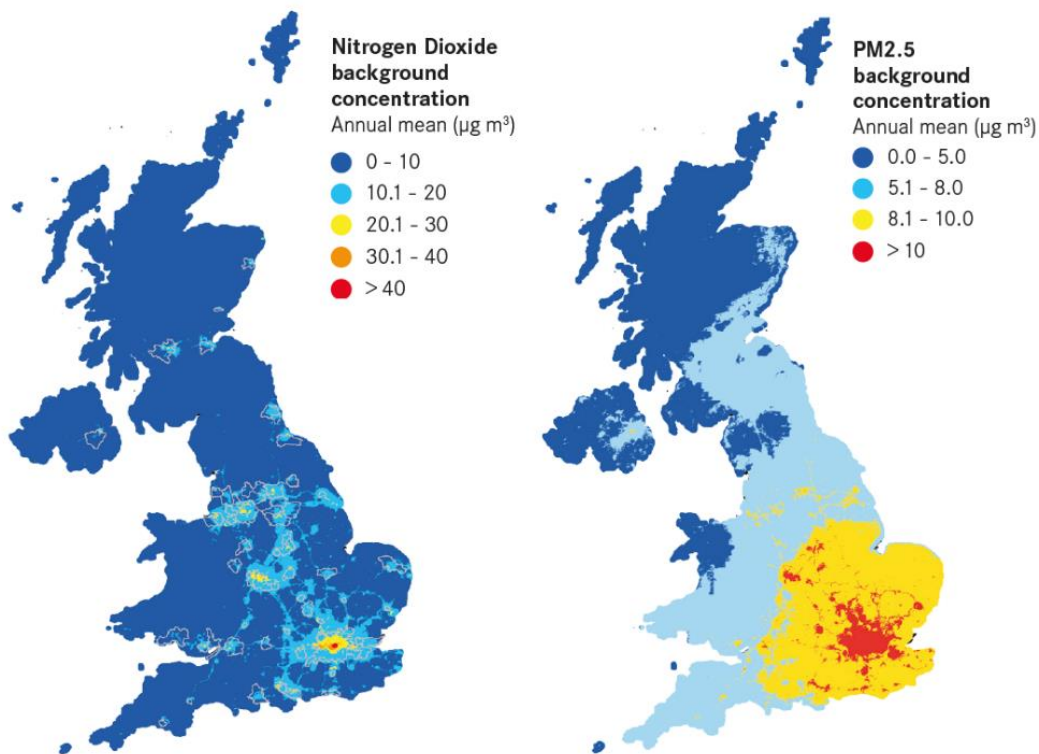
Source: Defra (2017) background mapping for Local Authorities

The maps above (**Figure 8**) demonstrates that NO2 has a clear local pattern and is mostly concentrated where it is emitted in urban areas such as London and by busy roads. PM2.5 which includes soot and dust generated by the burning of fuels and from brake pads being applied to tyres, is more widely spread. As a London Borough, Richmond falls under the jurisdiction of the Greater London Authority (GLA) in context of regional policies, including those linked to air pollution. The key strategies produced by the Mayor of London that impact on air pollution include the Transport Strategy (2018), the Environment Strategy (2018)[45], the London Plan (2019) and to a certain degree the Health Inequalities Strategy (2018).

 Some of the key objectives are summarised below:

- For London to have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities.
- Seeking to make London's transport network zero emission by 2050, contributing towards the creation of a zero-carbon city, including achieving a health-based target of 10µg/m3 for PM2.5 by 2030.
- A key focus on the Healthy Streets Approach to look at how fundamental changes can be made to support people to move around London via walking and public transport in terms of encouraging modal shift. The Healthy Streets Approach provides a framework for putting human health in terms of city and transport planning.
- Introduction of the Ultra-Low Emission Zone (ULEZ) for Central London (including low emission vehicle standards and charges) from 2019, and tighter emissions standards London-wide for heavy vehicles in 2021.
- Extending the ULEZ emission requirements from central London up to the North and South Circular Roads for light vehicles (cars, vans, minibuses, motorcycles, and similar vehicles), introduced on 25th October 2021 and covering a population of 3.8 million.
- All Transport for London buses to meet the Euro VI diesel standards for NOx and particulate matter by 26th October 2020 by accelerating the switch to new vehicles, installing proven retrofit technology, and creating priority Low Emission Bus Zones.

- Creation of a comprehensive alert system to inform Londoners about air pollution episodes and, where appropriate, implementing additional emergency measures to reduce or restrict vehicle use when forecasts or actual periods of very high air pollution risks the potential to cause immediate adverse health effects.
- Development proposals across London needing to use design solutions to prevent or minimise increased exposure to existing air Pollution. This includes making provision to address local problems of air quality particularly in Air Quality Focus Areas in terms of planning conditions.
- New development proposals must be at least Air Quality Neutral while Air Quality Assessments (AQAs) will need to be submitted with all major developments
- Reducing the impact on air quality during the construction and demolition of new developments will be required. This includes developers complying with the Non-Road Mobile Machinery Low Emission Zone and reducing emissions from the demolition and construction of buildings following best practice guidance.

Collective action at a regional level is required and this is explicitly highlighted in 'Our Vision for London' (2019), a report produced by the GLA, PHE, London Councils and NHS England. It advances a need for collective action by various organisation such as Local Authorities and the NHs. It sets (as above) a key aim to reach legal concentration limits of NO2, and work towards World Health Organisation (WHO) limits for PM2.5 by the year 2030. In terms of Climate Change, the Mayor of London has set a target for the capital to become a zero-carbon city by 2050 in the Environment Strategy (2018). In London, buildings, businesses, workers, and residents are all likely to be affected by Climate Change. Health impact includes heat-related deaths which are likely to increase.

1.8 Richmond Context

Existing legislation requires local authorities to monitor local air quality levels. This is largely carried out through the Local Air Quality Management System via real-time air quality monitoring stations and other measures including diffusion tubes used for indicative monitoring of ambient nitrogen dioxide. If an area is identified as breaching legal levels, the Local Authority is obliged to declare such localities as an Air Quality Management Area (AQMA) i.e. an area requiring improvement in air quality. They must also produce an Air Quality Action Plan, which outlines and describes actions or measures to tackle the problem including implementation plans. The whole Borough of Richmond has been designated an AQMA for both Nitrogen Dioxide (NO2) and PM10 since 2000 and remains so.

The major emission sources of climate and air pollution emissions in Richmond are outlined in **Table 5.** The refreshed Air Quality Action Plan (2020–2025) for Richmond was approved in March 2020 and will provide the mechanism by which the Local Authority, in collaboration with others will work towards tackling local air pollution sources using the powers they have available.

Table 5: Emissions by source type – Richmond (2016)

| Sources	Pollutant – Tonnes			
	NOx	PM10	PM2.5	CO2
Road Transport	499	56.8	30.0	163,202
Aviation	216	1.5	1.5	44,773
Rail	1	0.0	0.0	122
River	2	0.1	0.1	223
Industrial/Commercial Heat/Power	102	2.7	2.4	64,443
Industrial Processes	6	2.2	2.2	1,097
Construction	56	52.9	11.2	2,946
Commercial Cooking	-	9.0	9.0	-
Domestic Heat/Power	86	6.3	6.3	219,121
Domestic Biomas (Wood Burning)	-	18.5	18.5	-
Resuspension	-	22.1	0.8	-
Other	4	5.3	4.6	23
Total (tonnes)	972	177.4	86.5	495,950

Source: GLA - LAEI

In July 2019, Richmond Council declared a Climate Emergency, setting a target to be a Carbon Neutral organisation by 2030. At the same time, it published it's draft Richmond Climate Change and Sustainability Strategy which went to consultation in September 2019. In January 2020 the Council approved its revised Richmond Climate Emergency Strategy (RCES), which sets out a roadmap for achieving this ambitious target, alongside a detailed climate action plan for 2020/21, with further plans to be developed and published annually, together with progress reports. As air quality is a core component of climate policies, the RCES expands the Air Quality Action Plan measures, providing a roadmap for transitioning to cleaner buildings, transport, homes, and lifestyles within the Borough.

1.9 Impact on Life Expectancy

Clean air is considered a basic human requirement. The Public Health Outcomes Framework (PHOF), produced by Public Health England (PHE), provides an indication of differences in life expectancy between communities. PHE has estimated that the fraction of annual all-cause adult mortality attributable to anthropogenic (human-made) particulate matter (PM2.5), expressed as the percentage of annual deaths from all causes in those aged 30 years plus (Health Protection, Indicator D01, 2018 data) is 6.3% for Richmond, which is lower than London (6.6%), but higher than England (5.2%) averages. This crudely translates into 15.1 attributable deaths per 100,000 population per year. Age mortality rates (under 75 years of age) for all causes stood at 240 per 100,000 population per year (2016 to 2018 data) in context of PM2.5.

Figure 9 and **Figure 10** outline mortality attributable to particulate air pollution. It is important to note that unlike other indicators that are based on recorded mortality data for specific causes of death, the figures for air pollution are estimates of mortality attributable to a risk factor. Deaths are not individually attributed to air pollution, rather, air pollution could be a contributory factor in many deaths, including other causes, such as respiratory disease or cardiovascular disease. Climate Change adds an additional challenge, acting as a risk-multiplier to exacerbate by the health and economic impacts of air pollution. Further due to the small datasets at local level, there are year on year variations in the local annual numbers of deaths therefore caution is needed when considering apparent trend over time.

Figure 9: Fraction of mortality attributable to particulate air pollution by local authority, 2019
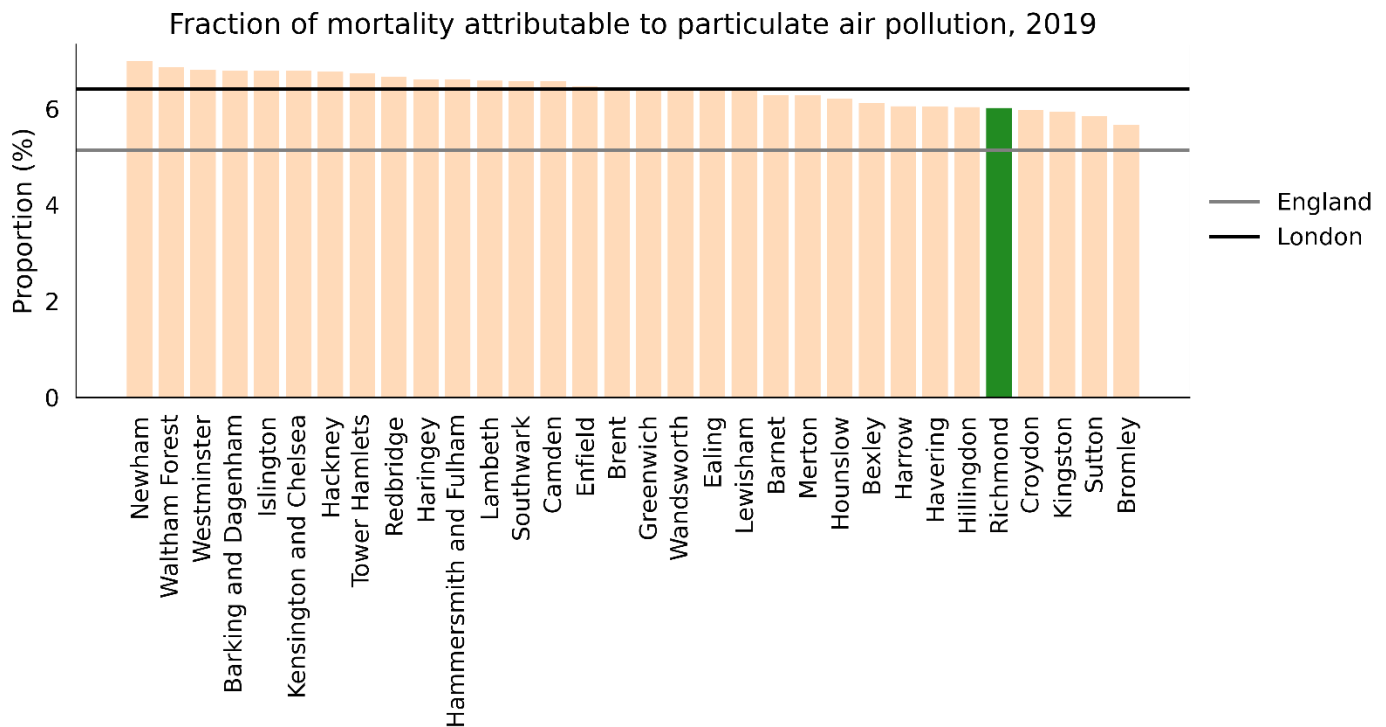
Source: Public Health England (PHOF)

Figure 10: Fraction of mortality attributable to particulate air pollution, 2010–2019
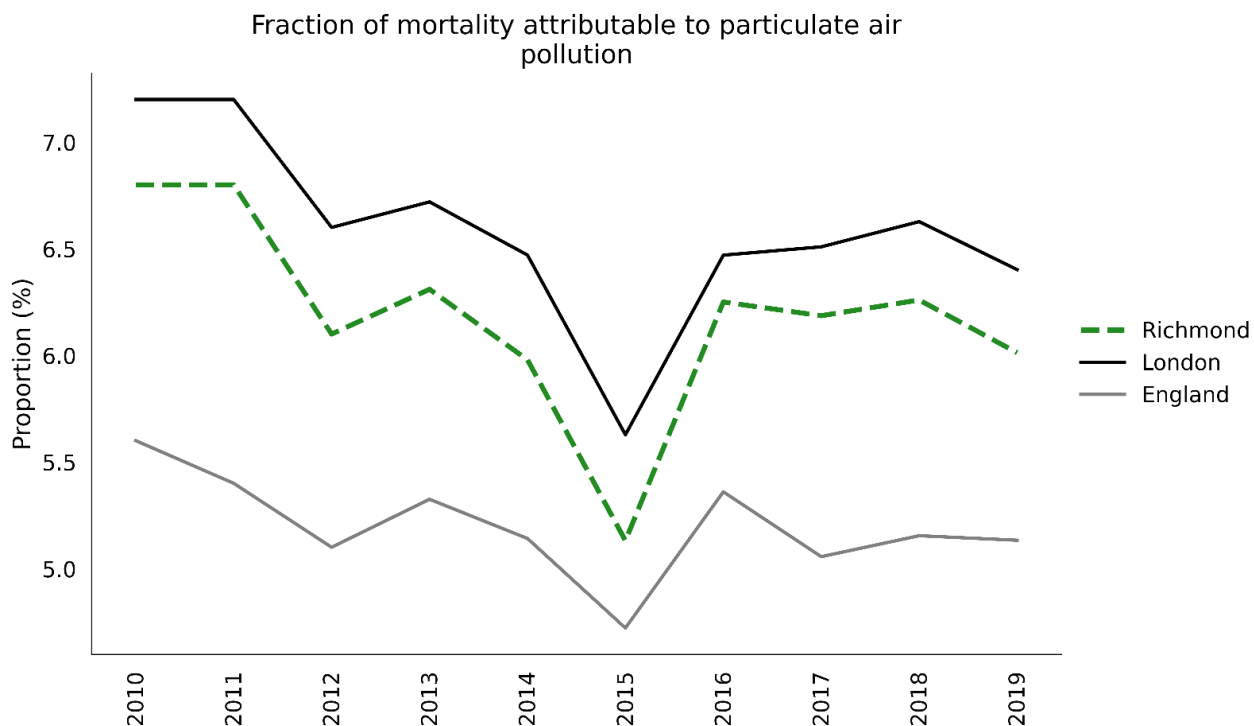
Source: Public Health England (PHOF)

Exceedances of annual mean concentrations level objectives from the London Atmospheric Emissions Inventory (LAEI) provides an estimate of proportion of the total population of Richmond residents that are subject to PM2.5, which was at 3 per cent, the second highest level in South London, Westminster was the highest across London at 15 per cent. The LAEI also provide an estimate of the proportion of the total population of Richmond that are subject to NO2 concentrations more than the annual mean UK AQ objective of 40μg/m3. Based on modelled data for 2016 this was slightly more than 3 per cent. The worst in London (leaving aside the City of London) is Westminster which is at 93.7 per cent. **Table 6** below provides a comparison of this statistic against other Boroughs in the South London Sub-Region and indicates that Richmond has the second highest population exposed to NO2 and PM2.5 more than the legal objectives.

Table 6: NO2 and PM2.5 population exposure

Borough	All Age Groups – NO2 Annual Mean Limit Value (of 40 μg/m3)		Population PM2.5 Annual Weighted Mean Average (μg/m3) Concentration
	Population Exceeding	% Population in Borough > 40μg/m3 (LAEI 2013)	% Population exceeding 25ug/m3 (EU threshold)
Wandsworth	80,900	25.5%.	13.6
Richmond	5,800	3.0%	12.8
Kingston	3,800	2.2%	12.7
Bromley	300	0.1%	12.4
Sutton	-	-	12.7
Merton	4,000	1.9%	13.1

Source: GLA – LAEI

1.10 Areas of Deprivation and Pollution

Links between deprivation and air pollution are acknowledged by NICE NG70 (2017) and others in terms of inequalities and disproportionate impacts from pollution on people living in such areas. NICE states that the way pollution is distributed is not straightforward, pollutant concentrations vary:

- the most deprived areas tend to have higher concentrations of NO2 and PM10
- regardless of socioeconomic status, urban areas tend to have higher pollutant levels than rural areas, which often have larger populations in the mid-range of deprivation

In comparison with the other London Boroughs, Richmond is lower on deprivation scores, however within the Borough there are pockets of deprivation. The most deprived wards according to the Index of Multiple Deprivation (IMD, 2019) include Ham, Hampton North, Heathfield, Mortlake and Barnes Common, and Whitton. The survey shows that there are 33 areas of the Borough graded level 10 (least deprived) and no areas graded level 1. However, there is one area graded level 2 (the western part of Hampton North ward) and two areas graded 3 (parts of Twickenham) on the sliding scale (**Figure 11**). Cumulatively, the wards mentioned above have around an estimated population of 54,128 people (GLA, 2020 estimates) some of whom will be affected by pollution more than other residents due to their level of exposure.

In general, there is little correlation between areas of deprivation and areas with higher levels of air pollution in Richmond according to the pollution data for instance in context of NOx (**Figure 12**). Pollution is highest where traffic queues the longest so most Town Centres and main roads across the Borough. Where pavements tend to be narrow and/or buildings higher, dispersion is more difficult, so levels of pollution tend to be higher. Residents living in properties close to main roads and in Town Centres will be exposed to higher levels of pollution. The Surrey side of the Borough tends to record higher levels than the Middlesex side due to its proximity to London. Certainly, Richmond Town Centre records the highest levels and has done so for at least the last 18 years. Ham and the Hamptons record the lowest levels. Areas of deprivation in Ham tend to be well set back from the main road, hence better air quality. Petersham Road, except where traffic queues into Richmond, complies with EU limit values. The same is true for Barnes.

Many of the deprived areas are better set back from main roads than less deprived areas especially near Castlenau and Rocks Lane. An area of deprivation is likely to front Mortlake High Street. This is a main road route to the South Circular and A316, so levels will be relatively higher than roads in the area which are better set back from the main road. Hampton North ward has exceedances along Hampton Hill High Street and parts of Uxbridge Road but again most areas of deprivation are set back from the main roads where levels of pollution are lower. Some main roads will have a mixture of housing, which will include areas of deprivation. For many residents, their main exposure to higher levels of pollution will be when travelling to places or shopping. Lower pollution backroads are always preferable to minimise exposure.

Figure 11: Index of Multiple Deprivation (2019)
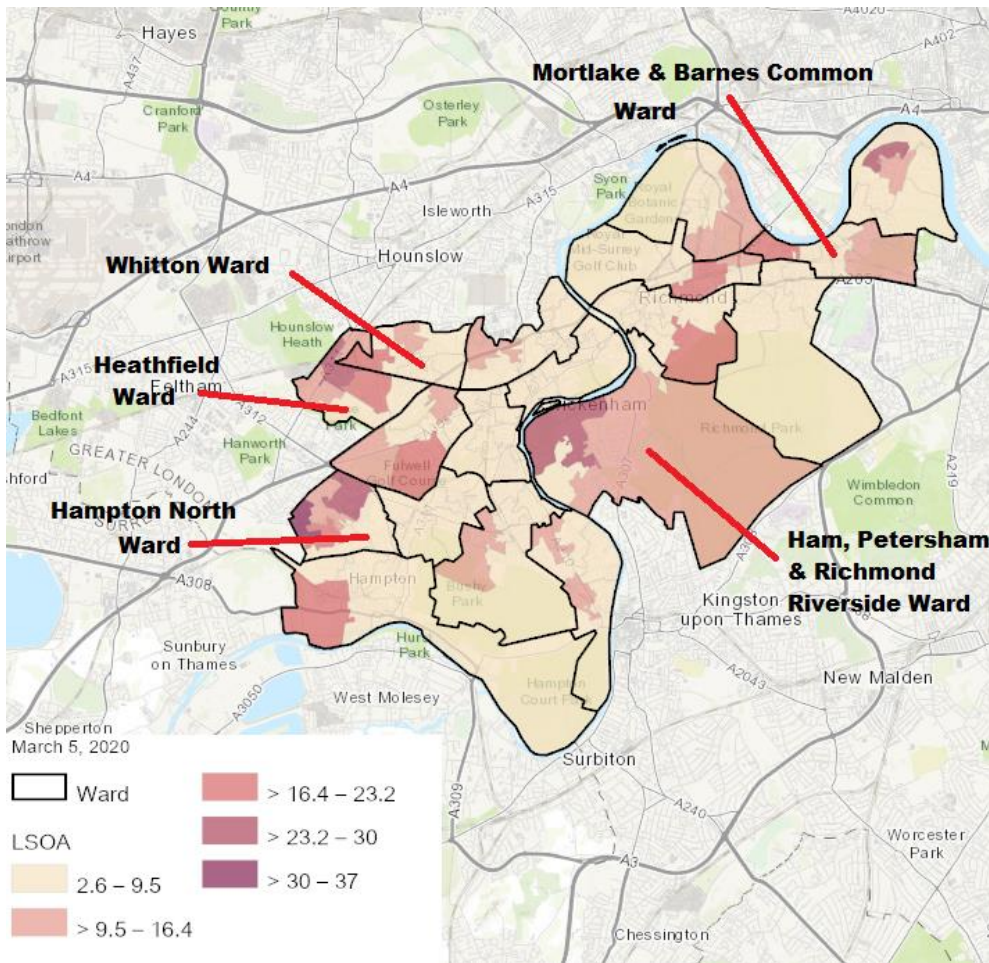
Source: MHCLG – Richmond Council – Datarich

Figure 12: Annual Mean NOx concentrations (2016)
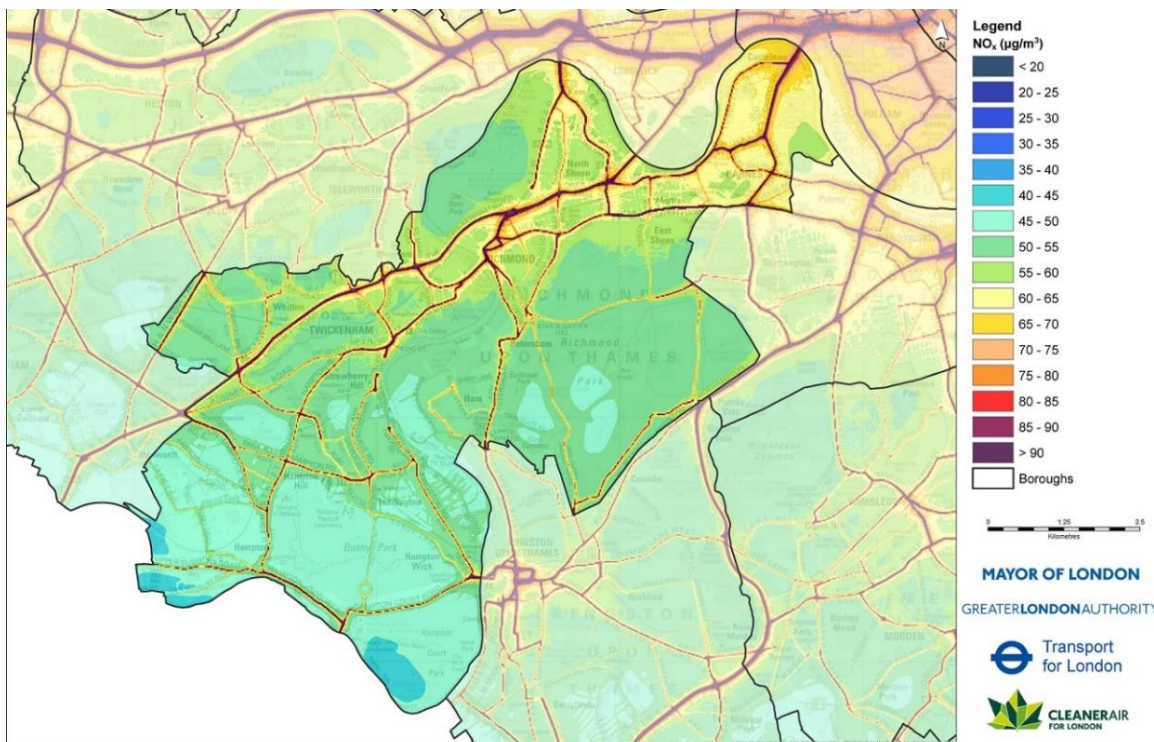
Source: GLA – LAEI

1.11 Limitations to Available Data on Air Pollution

At a regional level London has one of the world's biggest air pollution monitoring networks – the London Air Quality Network (LAQN) which includes real time monitoring of air quality via nearly 100 monitors across the capital. There are four continuous monitoring stations in Richmond, located at Castlenau Library (Barnes), Wetlands Centre (Barnes), Mobile Air Quality Unit (Chertsey Road, TW2) and the National Physical Laboratory (Bushy Park, Teddington, TD5). These stations are highly accurate and measure air quality pollutants in real-time. But they are also expensive so using them for a large coverage of Richmond is cost prohibitive. The Borough also uses diffusion tubes for monitoring levels of nitrogen dioxide (NO2). The tubes are a relatively cheap way of monitoring, which therefore allows samples to be taken across the whole of Richmond and gives a Borough-wide view. The results provide monthly averages and so provide an indication of ambient NO2 pollution levels. The accuracy of the diffusion tube readings can be increased when their results are compared, and then bias adjusted, with data from the more accurate continuous monitors. The Council has a network of 64 diffusion tube sites across the Borough. Three of the diffusion tubes sites are triplicate and collocated with all three Council automatic monitoring sites. All sites are kept under constant review. This provides a robust monitoring system for NO2.

Limitations in terms of monitoring in Richmond include the following:

- accurate real time monitoring is limited by cost to four sites
- monitoring data for PM10 is relatively limited in terms of spatial coverage and monitoring sites do not always represent 'worst-case' locations
- PM2.5 coverage is extremely limited due to lack of analysers and the lack of the existence of a reliable, accurate, low cost alternative, like NO2 diffusion tubes
- reliance nationwide on modelling of PM to forecast air pollution impacts, as opposed to actual data
- confounding factors, including emissions from non-traffic sources, meteorology and vehicle fleet variability.

Further limitations on health-related data compound understanding:

- directly assessing any health impact due to air quality alone because recorded hospital admissions for people with respiratory conditions and coronary heart disease cannot be attributed solely to poor air quality at a local level
- population characteristics and effects of pollution levels and exposure are not well researched
- further information is needed around the effects of different types of air pollution on hospital admissions and mortality
- pollution exposure at the individual scale and lack of research around environmental inequality in different populations
- the quantitative impacts on pollutant concentrations from individual measures to identify those that are the most effective.

Compared to other parts of the country the availability of air pollution data is more extensive in Richmond, PM data is limited here as well as elsewhere. This is partly due to the lack of the existence of accurate low-cost PM monitors; this may change in the future. More air quality stations would require significant levels of investment and may not be able to be sited in certain locations due to space constraints and would not provide further economic or health advantages. From a health perspective, greater granular research is required around exposure levels for different population groups as well as health inequalities. Due to London being so integrated and significant in scale, greater impact and understanding can be achieved through regional bodies such as the GLA, TfL and PHE London through local collaboration.

There is also evidence that indoor air pollution significantly effects health and contributes to the development of respiratory conditions. e.g., asthma[2]. The Government's Clean Air Strategy 2019 considers both outdoor and indoor air pollution and how reducing emissions, pollutant concentrations and exposure, both outside and inside buildings and homes, can protect and improve health. The interactions between indoor and outdoor air pollution on people

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[2] Achakulwisut P, Brauer M, Hystad P, Anenberg SC. Global, national, and urban burdens of paediatric asthma incidence attributable to ambient NO2 pollution: estimates from global datasets. Lancet Planet Health 2019 Apr 10.

remains an issue that needs further investigation. However, the kind of interventions for indoor pollution is different to outdoor air pollution including point sources. NICE (2020) has produced guidance (NG149) for improving indoor air quality focused on advice for action for local authorities, healthcare professionals, as well as architects, designers, builders, and developers.

1.12 Current Services on Offer

Air Quality Action Plan (AQAP)
As the whole Borough is designated an Air Quality Management Area, a refreshed Air Quality Action Plan (AQAP) was produced and adopted in March 2020. This details all the measures that the Borough and partners are undertaking to reduce the levels of NO_2, $PM2.5$ and $PM10$ and other air pollutants. The Borough is required to annually 'review and assess' the air quality within its locality and work towards achieving compliance with Air Quality Standards. This is done through the submission of an annual report to the GLA outlining the progress made with each of the measures in the Action Plan. These reports are available to view on the air pollution pages of the Council's website (www.richmond.gov.uk/air_pollution). As outlined, the key emissions by source type that contribute to pollution and Climate Change are linked to road transport, domestic heating/power, construction, and aviation.

In drawing up the Borough's refreshed Air Quality Action Plan, the Environmental Health and Pollution Team has engaged with Local Authority officers across different departments, including land-use and transport planners, to ensure the actions are supported by all parts of the Authority. In addition, engagement with a wider range of stakeholders, including community groups and organisations, has taken place to ensure that the Plan is appropriate and addresses local air quality issues of concern to all. The consultation process highlighted the need for more work to improve air quality around schools, more encouragement of sustainable transport, and more investment into infrastructure.

Many of the Council's initiatives to address air quality are closely linked to other initiatives including:

- The Active Travel Strategy (2020) looks at the benefits of walking and cycling including uptake as well as introduction of low traffic neighbourhoods. It advances the need for 75 per cent of trips to be via sustainable modes (walking, cycling and public transport) by 2041, from a baseline of 61 per cent. The plan also includes targets for expanding the cycle network, reducing road danger, and increasing the use of public transport.
- The Borough Cycling Strategy (2016-2026) focuses on the infrastructure to encourage people to cycle.
- The Local Implementation Plan (2019)79 is a statutory document on how the Borough will implement the Mayor of London's Transport Strategy which has a key focus on 'healthy streets' at a local level including active, efficient and sustainable travel. Note that due to Covid-19 which emerged in 2020, it is unlikely that the Council will be following the Plan for some time, additionally, there are uncertainties around funding.

There are links to green infrastructure including:
- The Parks and Open Spaces Strategy (2011), providing good quality open and green spaces within the Borough that promote biodiversity, enhances well-being and quality of life of residents

The above strategies have common themes around modal shift and getting people to walk, cycle and use public transport, while green infrastructure such as trees can act as pollution barriers and facilitate low pollution cycle and walking pathways, in addition to improving air quality. Note that due to the Covid-19 pandemic the Council initially discouraged the use of public transport. The risk of this is that there may be a car-based recovery in terms of travel within the Borough, the focus of the Council will continue to be on active travel.

Richmond Climate Emergency Strategy and Action Plan
In addition to and building on the strategies outlined, the Richmond Climate Emergency Strategy (RCES) and Action Plan set out the specific actions that the Council will take in 2020/2021 on its trajectory to net-zero 2030, as well as actions delivered to support and encourage the Borough as a whole to reduce its carbon emissions. The Action Plan is separated into two sections: the first on becoming carbon neutral as an organisation, and the second around

Borough-wide actions. The Action Plan highlights where decarbonisation policies have co-benefits for air quality and implementation of the current Air Quality Action Plan from 2019-2024 reflects the strategy outlined in the RCES.

It underscores the need to reduce emissions in the Council's own fleets and buildings as a large contributor to the Borough's overall emissions, and provides the overarching framework for targeted, integrated actions to improve environmental and human health. Some of the most relevant measures that appear in the RCES Action Plan are outlined below in **Table 7**.

Table 7: Richmond Climate Emergency Strategy and Action Plan

Overarching action	Specific Action(s)
Our vehicles	
Reduce emissions of vehicle fleet	Replace all our fleet vehicles so they are ULEZ compliant
	Develop a plan for all Council vehicles to be powered by electric or renewable fuel sources by 2030
Our buildings	
Seek to strengthen the carbon emission reduction and other sustainable design and construction policy requirements as part of the new Richmond Local Plan	Developments should maximise opportunities for on-site electricity and heat production from solar technologies (photovoltaic and thermal) and use innovative building materials and smart technologies
	As part of Local Plan CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that there is no impact on local air quality
Our streets	
Increasing and improving electric vehicle infrastructure	Install EV Charging points subject to resourcing, commissioning and approvals required
Changing our approach to parking	Change our parking policies to persuade people to use fewer polluting vehicles and to lower the number of vehicles on the road. Pilot reallocation of kerbside on streetcar parking to alternative uses, such as cycle parking and storage; parklets and trees. Explore increased differential parking permit charges to discourage higher polluting and carbon emitting vehicles
Improving access to car clubs	Working with car club providers to improve availability of car club vehicles subject to the market and any approvals required
Our partners	
Targeting fuel poverty	Work with NHS, energy providers and retrofit organisations to support those vulnerable to ill health from cold homes or effect of severe weather events
Promoting sustainable transport for schools	Implement School Streets programme and develop plans for expansion
	Work with schools to encourage use of public transport, walking and cycling to school.
Air Quality	
Maintain and improve our air quality monitoring	Maintain extensive monitoring regime in
	the Borough and present quarterly updates through the air quality action plan
	Invest in new monitoring equipment as new technology moves forward

Encourage and support citizen science activities that identify and tackle Air Pollution	Positively encourage and support citizen science activities where these actively contribute to identifying and tackling Air Pollution in the Borough, including the provision of Diffusion Tubes and handheld monitoring
Our streets	
Implement Clean Air Zones	Identify high pollution areas and potential implementation of Clean Air Zones in those areas
Reducing Air Pollution from deliveries	Develop plans to place restrictions on delivery vehicles in busy high streets.
	Identify funding opportunities and suitable areas for pilot e-bike deliveries
Our communities	
Enforce allotment bonfire ban	Maintain ban on bonfires in allotments and ensure enforcement action is taken where necessary.
Introduce diesel surcharge for parking	Consult on the introduction of a diesel surcharge on CPZ parking permits and review and evaluate experiences of other Boroughs who have trialled diesel surcharges
Opposing Heathrow expansion	Continue opposition to Heathrow expansion by working with other councils, Greenpeace and the Mayor of London.
Our pollution	
Target idling vehicles	Deliver training to civil enforcement officers to issue fixed penalty notices to drivers who are idling.
	Raise awareness and promote behaviour change around idling
Our green infrastructure	
Urban greening and green infrastructure	As part of Local Plan review promote green infrastructure as playing a critical role in increasing London's capacity to adapt to Climate Change (e.g. during droughts, heatwaves, heavy rainfall events etc). Plant more trees.
Green walls	Work with TfL and National rail to identify opportunities for installing green walls near railway lines and in schools.

1.13 Tackling the Unmet Need

The Air Quality Action Plan (AQAP) sets out a series of measures to try to improve air quality and reduce localised pollution sources, it covers various elements of intervention linked to identified pollution sources as well as the monitoring process. In looking at unmet need, this is principally focused on population groups and localities allied to point sources and exposure. The AQAP takes a wide approach to tackling air pollution and is focused on: Firstly, the sources of pollution, secondly awareness raising and thirdly behaviour change. Significant engagement takes place in the context of school children, schools, and the public in terms of rising awareness and behaviour change through events such as Clean Air Day and Car free Day, publicity around Active Travel and behaviour change e.g., anti-idling.

Some areas of gap include the need to do more work and engage with vulnerable groups including the over 60 year olds, pregnant women, nurseries, those with health conditions as well as those living in more deprived communities. These require more targeted and joint work with others within the Council, partner organisations such as the NHS and private entities. Key focus should continue to be on localities with high levels of NO2 and PM, including those near busy roads within the Borough where most of the pollution originates via vehicle traffic which go through these areas.

Increasingly it is known that health impacts occur at pollutant concentrations below the National Air Quality Objective Targets (which are below WHO objective levels). While Richmond's Air Pollution monitoring is good compared to areas outside London, there continues to be a lack of effective health impact analysis especially in context of local schemes to reduce emissions. In order to address this, efforts at a pan-London level are needed. At individual Borough levels there are issues with limited resources and expertise.

This JSNA focuses on outdoor air pollution. However, there is evidence that indoor air pollution also significantly effects health and contributes to the development of respiratory conditions. e.g., asthma. The government's Clean Air

Strategy 2019 considers both outdoor and indoor Air Pollution and how reducing emissions, pollutant concentrations and exposure, both outside and inside buildings and homes, can protect and improve health. The interactions between indoor and outdoor air pollution on people remains an issue that needs further investigation. However, the kind of interventions for indoor pollution is different including point sources. NICE (2020) has produced guidance (NG149) for improving indoor air quality focused on advice for action for local authorities, healthcare professionals, as well as architects, designers, builders, and developers.

1.14 Interventions and Approaches According to the Evidence Base

Public Health England Review of Interventions

PHE (2019) produced a review of interventions that local government and others can take to improve air quality and health. The review identified five key areas for potential action, **Table 8**. These included vehicles and fuels, spatial planning, industry, agriculture, and behavioural change (note agriculture is left out as the Borough does not have commercial agricultural activities). In terms of evidence, the report acknowledges the fact that few existing studies directly examine the effects of interventions on environmental concentrations or the resulting health outcomes. The benefits of intervention must therefore be inferred from the reductions in emissions. They were also unable to stratify interventions by costs and health benefits. Evaluation of effectiveness focussed on whether there was evidence that the intervention worked (such as reducing local or national emissions, concentrations, or exposures), and not the relative level of effect, which according to PHE was typically uncertain.

Table 8: Potential interventions and level of evidence of what works – Public Health England

Intervention area	What works
Prevention	• At plan making and planning application stages including the imposition of planning conditions to address and deal with air pollution at source
Mitigation and reduction	• Implementation of structural design and driving restrictions. These can contribute towards large and consistent reductions in air pollution levels in terms of traffic.
	• Interventions that encourage the uptake of low and zero-exhaust emission vehicles can contribute towards positive local impacts (particularly electrical vehicles, and associated charging points) however Particulate Matter (PM) emissions from brake and tyre wear remain an issue.
	• Traffic management interventions including access restrictions have the potential to improve air quality and encourage the public to consider travel behaviour change and active travel options.
	• While active travel interventions on a limited scale do not generally improve air quality significantly, it benefits public health outcomes in terms of physical activity.
	• Low Emissions Zones (LEZs) are potentially effective at reducing air pollutant levels in cities such as London especially if combined with new emission standards for road vehicles.
	• Road pricing has the potential to produce reductions in the volume of traffic but not necessarily significant improvements in air quality due to localisation of emissions, for instance via displacement of traffic.
	• The public health 'co-benefits' of speed limitations (traffic calming measures) outweigh benefits associated with reduction of exposure to air pollution alone with reduced risk of pedestrian injury and traffic collisions.
	• The development of green infrastructure can deliver multiple benefits to the community, for instance not only supporting improvements in air quality it can also impact positively on urban 'heat island' effects and reduce the negative impacts of localised flooding as well as help to address climate change.
Avoidance (behavioural interventions)	• Raising awareness is not enough to effect change on its own. The highest potential to improve air quality and public health outcomes is associated with combining behavioural interventions with other policy or infrastructure-based interventions, e.g., improved cycling or walking infrastructure and then using behavioural interventions to maximise their use.
	• Promotion of eco-driving through smooth driving, speed reduction and anti-idling can help to reduce traffic emissions and support improvements in other areas, such as fewer traffic collisions and economic savings in fuel consumption
	• Large-scale annual awareness campaigns such as Clean Air Day have the potential to reach a large audience and encourage collaborative working. Such campaigns can help to support behaviour

	change if they are tailored to the context, values, language, and resources available to local audiences.
	• There are limited evidence around alternative methods of transport as having a direct impact on air pollution or health outcomes. PHE however state that such initiatives should not be discounted, as there is a wealth of evidence showing that removing vehicles from roads can reduce emissions, and the health benefits of modal shift towards active travel.

Source: Public Health England

The review by PHE did not identify any papers that contained information on the impact of behavioural interventions on health inequalities. It also found little direct evidence of public health benefits from any individual intervention or group of interventions. To achieve significant changes in behaviour (and associated reductions in emissions), a wide range of soft and hard measures need to be combined to maximise the effectiveness of the overall package of interventions. For example, within the transport context the evidence suggests that the greatest impact on reducing emissions from road transport and improvement in public health outcomes, is from the co-implementation of a package of policy measures (transport and non-transport related interventions) designed according to the local area's requirements.

National Institute for Health and Care Excellence

The National Institute for Health and Care Excellence (NICE) in their guidance (NG70) published in 2017, also refer to the need to take number of actions in combination, because multiple interventions, each producing a small benefit, are likely to act cumulatively to produce significant changes. The areas for potential intervention are outlined in **Table 9**. NICE also advises that special consideration should be given to those at particular risk, including children, older people, and people with chronic health problems. It refers to the need for healthcare professionals to be aware of vulnerable groups particularly affected by poor outdoor air quality. This includes giving general advice to these groups on how to minimise exposure including the provision of informational resources.

Table 9: Several areas for consideration – air pollution

Intervention area	Brief detail
Planning	Including zero and low emission travel for cycling and walking as well as provision of charging points for electrical vehicles in workplaces and residential areas, supporting car sharing or car clubs. Designing of new buildings and facilities to reduce the need for motorised travel and minimising the exposure of vulnerable groups to air pollution. It also mentions the need to avoid the creation of street and buildings configuration such as deep street canyons (i.e. a street which is flanked by buildings on both sides) that encourage pollution to build up where people spend time.
Development Management	Including ways to mitigate road-traffic related pollution such as incorporation of air quality outcomes in travel plans, supporting car clubs, active travel, use of zero and low emission vehicles including provision of charging facilities. It also recommends managing streets and vegetations (including appropriate choice of species) to reduce the risks of restricting street ventilation and the use of Community Infrastructure Levy to help fund initiatives.
Clean Air Zones	This includes restrictions or charges on certain classes of vehicles, targets to progressively reduce pollution levels below limits and to meet WHO air quality guidelines. Identify which classes of vehicles to restrict or charge in a clean air zone. Encourage public and private sector organisations to use zero or low emission vehicles for deliveries in the clean air zones. Development of integrated public transport networks based on low-emission vehicles.
Reducing emissions from public sector, services, and vehicle fleets	This includes introducing fuel-efficient driving as part of any test for staff who drive as part of their work, elements include correct gear selection to improve fuel consumption, switching off engines when parked or dropping off, tyre pressure, consideration of telematics technology to help provide information about driving style, fuel efficiency as well as monitoring the fleet's fuel consumption. Public sector procurement should consider low vehicle emissions when making routine procurement decisions.
Smooth driving and speed reduction	Examples include smooth driving style by using speed limits and average speed technology, real-time information to inform drivers of optimum driving speeds, having 20mph limits with associated measures to reduce speeds in urban areas to avoid unnecessary accelerations and decelerations.

Walking and cycling	Examples include support for active travel, a choice of cycling routes, including routes that avoid highly polluted roads and use of quiet streets or segregated routes. Provision of space between cyclists and motorised vehicles, use of foliage to screen cyclists from motor vehicles without stopping air pollution from dispersing and considering personal safety as well as reducing the time cyclists spend at highly polluted sites.
Awareness raising	Actions to raise awareness of road-traffic related air pollution and contribute towards changing people's behaviour including use of behaviour change approaches. Ensure that healthcare professionals are aware that information on air quality ability, what it means for patients and recommend actions.

In terms of Climate Change and air pollution, national policy remains critical to supporting local measures, driving electrification across the transport and energy sectors, and stimulating green solutions across the market and the built environment. Reflecting many of these actions, **(Figure 13)**, produced by the UK Health Alliance on Climate Change (UKHACC), illustrates the core interventions that produce co-benefits for both human and environmental health. The UKHACC) report "Moving Beyond the Air Quality Crisis" focuses on realising the health benefits of acting on air pollution and mitigating Climate Change. The Lancet Countdown Report also justifies the requirement for health to be considered as a major theme of the UK's climate policy, placing health at the centre of the transition to net-zero, yielding dividends for the public and the economy, with cleaner air, safer cities, and healthier diets.

Figure 13: Health and Climate co-benefits
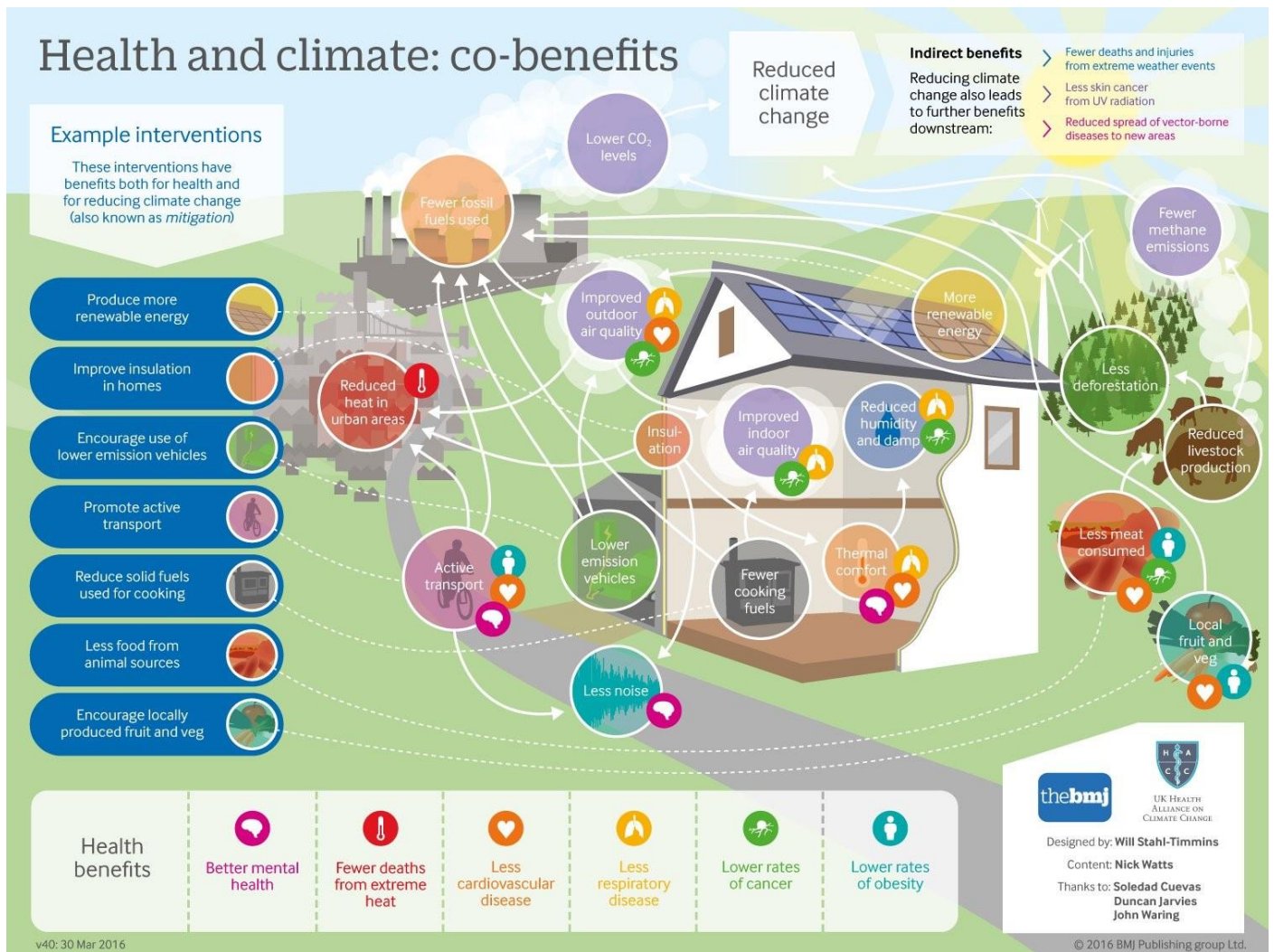

Source: UK Health Alliance on Climate Change

Air Pollution is a significant challenge for public health and the community, a multisector approach is needed to develop and effectively implement long-term policies that reduce and mitigate impact. Due to the transboundary nature of air pollution, it is important to acknowledge that action at a Borough level context is not enough alone, a

joined-up international, national, and regional programme of action is needed. Local authorities and other organisations have a role to play in empowering residents, organisations, and others to contribute to improving air quality while maximising the health benefits gained. There is also alignment of the overarching framework provided by the RCES and its Action Plans, updated on an annual basis, and its progress reports that will track carbon reductions and highlight improvements in air quality

Robust evidence in terms of specific local interventions remains an issue. Further reducing the impact of air quality on health outcomes requires a combination of efforts to decrease the amount of pollution generated, and to mitigate its effects on human health with attention paid to vulnerable groups.

Reducing or eliminating point sources of air pollution at local levels continues to be an important contributor towards the overall impact on health and wellbeing. This is referenced by PHE via three key principles (**Figure 14**), these include: 1) emission; 2) concentration; and 3) exposure (including susceptibility and vulnerability). It is critical that primary efforts are prioritised with regards to prevention or if that is not possible reduction of polluting activities including emission reduction. Where pollution is already present or occurring, efforts should focus on mitigation through various steps to reduce levels of concentration. Thirdly, efforts should assist individuals (especially those who are vulnerable) to reduce their levels of exposure through initiatives such as low pollution walking routes, stay indoor notices during high pollution episodes.

Figure 14: Air pollution intervention hierarchy
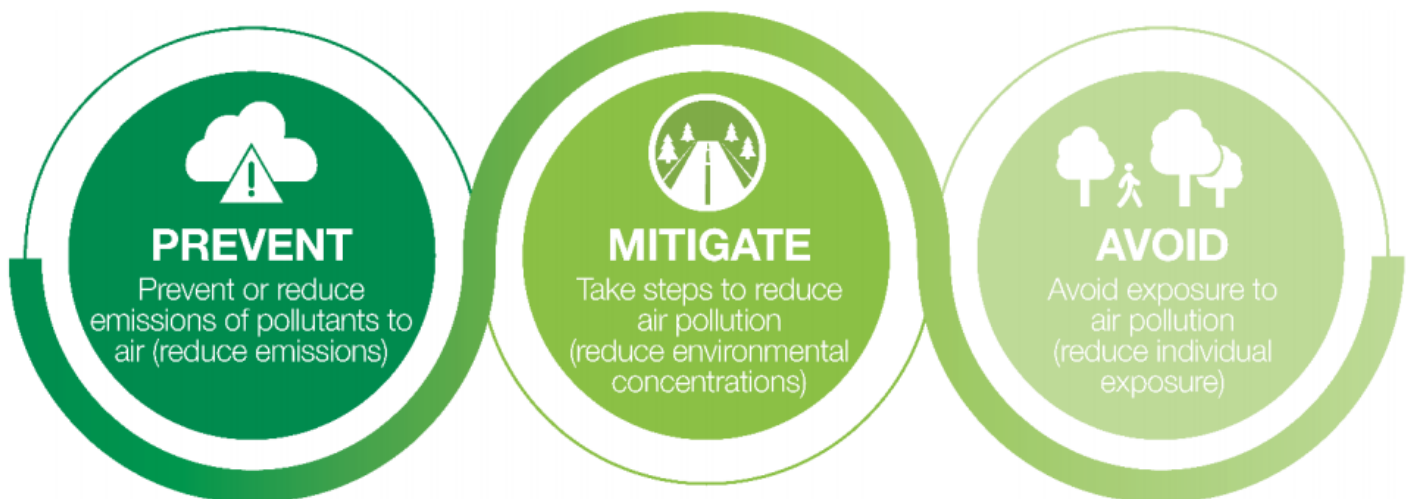
Source: Public Health England

There are ongoing initiatives in place to support the promotion of vehicles with zero emissions, progression of driving restriction initiatives, information on eco-driving, and the promotion of events such as Clean Air Day to raise awareness. Informative elements include school-based programmes as well as advice guidance through the air quality alert system. Interventions to improve air quality have 'co-benefits' for people's wider health and wellbeing. Such initiatives include the integration of walking and cycling activities into daily life as well as for leisure, promotion of cycle hire and cycle lanes, access to green spaces, and tree planting. All the practical measures available to tackle air quality as a health issue at a Borough level will only have a notable impact on population health outcomes if delivered at scale incorporating soft and hard measures.

2. Climate Change

The threat of Climate Change is both local and international and, while the direct impact of Climate Change for Richmond may not be as severe as in developing countries or some coastal areas, there is a need to ensure that the Borough is prepared for the adverse impacts of climate change such as extreme weather events, increased temperatures with risks to health from heat waves, greater pressure on water resources, damage to existing natural habitats, as well as demand for increasingly limited resources.

Extreme weather and climate events can inflict huge human and financial costs on society. A report by Christian Aid showed that in 2018 there were losses totalling $84.8 billion from the 10 most expensive extreme weather-related events, which does not include the myriad of other weather events and climate shifts that impact on people. The United Nations Framework Convention on Climate Change suggests that climate change will particularly affect poorer members of communities as they are more vulnerable to the negative impacts of climate change and have fewer resources to adapt.

2.1 Action to Tackle Climate Change

Climate Change is also a public health priority and should be a consideration for all health partners of the Council. The possible adverse impacts of Climate Change on the health and well-being of the population is well known and becoming ever clearer (see the Health Protection Agency's report, "Health Effects of Climate Change in the UK 2012"). At a national level, Public Health England (PHE) evaluate the effects of climate change through their research programmes, feeding into national plans and policies such as the Cold Weather Plan and Heatwave Plan. People's health and well-being can be impacted a web of interconnected factors, including increases in air pollution (which causes chronic conditions such as cardiovascular and respiratory diseases and lung cancer), aeroallergens, water shortage and flooding, heatwaves and other adverse weather conditions (extreme cold spells), as well as increases in food and vector/ water-borne diseases. Worsening indoor environments (overheating buildings, including homes, care homes and hospitals) and heightened UV risks can also impact negatively on our health.

There is a global consensus that we must take urgent action to tackle climate change before irreparable damage is done to our environment, which would have huge knock-on impacts for society and for the other species with which we share our planet. Successive reports published by the Intergovernmental Panel for Climate Change (the United Nations body charged with looking at climate change) as well as EU level reports, national reports and overwhelming scientific consensus, have all highlighted the need for immediate and decisive action to address the causes of climate change and to plan for the impacts it will likely have on the planet and society.

On the 1st of May 2019 the House of Commons passed a motion declaring a national climate change emergency, following on from climate change emergency declarations by both the Welsh and Scottish governments. On 28th November 2019 the European Parliament declared a global "climate and environmental emergency", urged all EU countries to commit to net zero greenhouse gas emissions by 2050, and asked the European Commission to ensure that all relevant legislative and budgetary proposals are fully aligned with the objective of limiting global warming to under 1.5 °C.

While there is an undeniable need to reduce energy consumption and emissions of greenhouse gases, there are also a number of associated issues that need urgent action. Addressing climate change is not simply about reducing CO2 emissions but is about looking at the needs of future generations as well as residents today and seeking to mitigate problems in the future by acting responsibly now. This includes looking at our capacity to support human activity and taking decisions that respect environmental limits as well making sure that there is a balance in decision-making between immediate financial needs for the Borough and long-term sustainability. It is generally recognised that economic, social and environmental issues are interlinked and that tackling them in an integrated way will achieve the best solutions. Climate change increases health inequalities due to rising fuel and food prices and a reduction in access to cooling or heating, leading to cold related deaths in winter and heat related deaths in summer, as well as costlier

insurance. These factors will have a greater impact on those who may already be disadvantaged or vulnerable in our communities

2.2 Data on Climate Change in Richmond

Carbon dioxide (CO2) is the most common greenhouse gas emitted by human activities, in terms of the quantity released and the total impact on global warming, accounting for about 81 per cent of the UK greenhouse gas emissions in 2017. As a result, the term "CO2" or "carbon" is sometimes used as a shorthand expression for all greenhouse gases.

The Department for Business, Energy & Industrial Strategy (BEIS) produces a breakdown of carbon dioxide emissions by Local Authority area as a subset of its annual inventory of greenhouse gas emissions. This publication combines data from the UK's Greenhouse Gas Inventory with data from a number of other sources, including local energy consumption statistics, to produce a nationally consistent set of carbon dioxide emissions estimates at local authority level from 2005 to 2017 [3].

The BEIS data shows that carbon emissions from the Borough as a whole have reduced from 1035.7 kilotons of CO2 (ktCO2) in 2005 to 617.3 ktCO2 in 2018, a reduction of 40.4%. When looking at per capita emissions (the amount of CO2 per person in the Borough) we have gone from 5.7 tons per person in 2005 to 3.1 tons per person in 2018, a reduction of 45%. In the last 5 years, from 2014 to 2018, total emissions have reduced by 18.6% and per capita emissions have reduced by 20%. The majority of these emission reductions have come from electricity usage (65% of total reductions since 2005), which is linked to the decarbonisation of the electricity grid and the shift to renewable energy generation nationally.

Half of the total Borough emissions (50%) come from domestic sources, which means the electricity and gas use in homes, with 22.6% coming from industry and commerce and 27.4% coming from transport. Of domestic carbon emissions, nearly three quarters (73.7%) comes from gas use for heating and cooking, which highlights the importance in improving the energy efficiency of homes in the Borough and moving from using gas to heat our homes and towards much wider use of heat pumps as a source of heating.

A detailed breakdown analysis of carbon emissions can be found here.

2.3 Tackling Climate Change in Richmond

On 9 July 2019, Richmond Council declared a climate emergency. While many solutions to climate change will need to be tackled at a national or international level, all levels of government, communities, businesses and individuals have a role to play in addressing climate change. In declaring a climate emergency, Richmond Council rejects the idea that such a declaration is a symbolic gesture and will give substance to its commitment. Richmond Council therefore resolved to become recognised as the Greenest London Borough.

Richmond Climate Emergency Strategy sets out six main areas of focus around climate change and sustainability. As set out in the Richmond Climate Emergency Strategy these are:

1. Our Council: Becoming carbon neutral as an organisation by 2030. We will embark on a radical change programme that encompasses our buildings, services and staff and ensure that we will become carbon neutral as an organisation by 2030. We will reduce the energy demands from our estate, generate our own renewable energy, minimise waste and eliminate single use plastics from our operations. We will purchase goods and services in a responsible and sustainable way, minimising the carbon impact of the money we spend and ensure that our staff have the knowledge, skills and resources needed to go about their work in a low carbon and sustainable way.

   Key target is to become carbon neutral as an organisation by 2030.

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[3] URL: https://www.gov.uk/Government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017

2. Our Legacy: Climate Change Mitigation and Energy Efficiency – We will work with our residents, communities, businesses and partners to engage, involve and support them in tackling the climate emergency. We will share knowledge and approaches with them, ensure that the built environment is sustainable and can support them as climate change occurs and that they can live their lives in ways that reduce carbon emissions. We will ensure Richmond is able to plan, measure and respond proactively to the effects of climate change and the implications of resource scarcity.

   Key target is to create an environment where Richmond is able to be sustainable and low carbon by default.

3. Our Waste: Waste and Plastics and the Circular Economy – We will embed reduce, reuse, recycle into everything Richmond does around waste. We will work with our residents, businesses and schools to reduce the overall amount of waste generated in the Borough and will aim to be one of the top performing Boroughs in London for recycling. We are committed to supporting residents to reduce the amount of single use plastic they consume and to promote the Circular Economy across the Borough.

   Key target is to reduce the amount of waste generated in the Borough.

4. Our Air: Improving Air Quality – We will develop and deliver an ambitious air quality plan that will make a meaningful change to air quality in the Borough with an emphasis on reducing air pollution, particularly around schools and town centres. By 2024, we aim to have less polluting traffic on our roads, contributing to an improvement in air quality across the Borough.

   Key target is to improve the air quality in the Borough.

5. Our Nature: Green Infrastructure and Biodiversity – We will improve and protect the biodiversity and ecology of our green spaces and protect them against the negative impacts of climate change. We will facilitate and support quality networks of green infrastructure capable of supporting biodiversity and resilience against climate change and ensure the consideration of biodiversity both in policy and practice across the Council's services. We will maintain the parks and open spaces of Richmond as centres of excellence, make them fully accessible, ensuring high standards across all parks and opens spaces managed by the Council.

   Key target is to plant more trees.

6. Our Water: Water Management and Flood Abatement – We will ensure that development across Richmond addresses flood risks and promotes sustainable drainage. We will promote and encourage development to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property, including risks of flooding, water shortages and the effects of overheating.

   Key target is to be fully prepared for flooding.

In order to deliver the Strategy, an Annual Action Plan has been produced, which looks to reduce the Council's emissions, support the reduction of the Borough's emissions and deliver the strategic aims set out above. This plan sets out the co-benefits of actions including their impact on air quality. The 2021 action plan can be found here. The Strategy and the Action Plan are delivered by all Officers across the Council who are supported by a dedicated Climate Change Policy Team.

In order to maintain the rapid pace needed to deliver climate change an annual update is published. The update on the 2020 action plan can be found here.

The work planned and delivered through the Richmond Climate Emergency Strategy is linked very strongly with action to improve air quality, active travel and parks.

There are strong links between reducing energy usage and tackling fuel poverty. In order to support residents to make their homes more energy efficient the Council successfully bid for Green Homes Grant funding in 2020 and 2021.

3. Healthy Communities; Community Safety; Crime and Anti-Social Behaviour

3.1 Culture

The Council uses the term culture administratively, to collectively describe local arts, library, parks and sport & fitness services. Key local information related to the cultural infrastructure and services are listed below.

Cultural infrastructure:
- 57% of the Borough is open space, compared with an average of 38% of open space for an outer London Borough[4]
- Richmond has 21 miles of river frontage and is the only Borough to span both sides of the River Thames
- has 12 libraries
- The council manages 130 parks and open spaces, 64 playgrounds, 6 sport & fitness centres and 11 public tennis courts
- There are 8 accredited museums and heritage sites
- 6 theatres and arts centres[5]
- Richmond has the largest dedicated rugby union venue in the world: Twickenham Stadium

Cultural services:
- 1,074,655 physical items borrowed from libraries during 19/20
- 199,817 e-library items borrowed from libraries during the COVID-19 pandemic (March 20-March 21)
- 1,164,487 attendances at sports facilities in 19/20
- 67.7% of young people aged 5–16 physically active[6]
- 62,535 bookings for sports facilities and tennis courts within LBRUT parks during 20/21
- 31,485 visits to Orleans House Gallery in 19/20
- 400+ voluntary cultural organisations
- 100+ community events in parks annually
- 23,000 bike journeys per day[7]
- £8,828,400 total annual spend on London Borough of Richmond upon Thames cultural services 19/20.

Cultural fixtures, arts, religious and leisure facilities have a positive impact on health and wellbeing of local communities.

Landmarks: There are also many landmarks in the Borough which can be enjoyed, including Kew Garden, Syon House, Hampton Court Palace, Richmond Park, Richmond Riverside and Bushy Park. Art galleries in Richmond in Orleans House Gallery and Riverside Gallery.

Libraries: There are 12 libraries in the Borough offering local residents various local services, with further electronic library services (e.g., e-books, audiobooks) available across the Borough.

Places of worship: There are 74 places of worship in Richmond. Beyond their religious role, many of these places act as gathering places for community events. This may be as underestimate as other places of informal gatherings may not be listed. The detailed breakdown by group can be found on the Councils website[8].

Theatres: There are 4 theatres in Richmond Upon Thames; The Exchange in Twickenham, Normansfield Theatre, Orange Tree theatre and Richmond Theatre.

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[4] GiGL
[5] Cultural Infrastructure Map Mayor of London
[6] London & national average is 46% Data Rich (Public Health England)
[7] 2nd out of 33 London Boroughs DataRich
[8] Richmond Government website. Licensed religious buildings.

Vibrant town centres: Vibrant town centres offer easy access to services, foster social interactions and support local economy. Having easy to reach and diverse services also encourages residents to walk to run errands and meet-up with friends and family. These offer an alternative to cars, increasing physical activity and help keep our air clean. The Borough has 5 town centres, Richmond; Twickenham; East Sheen; Teddington and Whitton with Richmond town centre being the largest centre in the Borough[9].

Sports and Leisure Venues: Locally there are 6 sports centres, five leisure centres. There are 2 main swimming pools, Pools on the Park (outdoor pool that is open in the summer months only) and Teddington Pools. The Borough has 44 public tennis courts across 11 sites and a large amount of equestrian activity, including Horse Rangers Association and Ham Polo club[10].

Richmond has a unique cultural infrastructure and a reputation for quality and leadership particularly in parks, sports and heritage. Local parks were rated 5th out of 32 London Boroughs in the 2020 Good Parks for London annual report and received a 97% satisfaction rate from residents in the 2019 Parks Satisfaction Survey. The Borough is home to internationally renowned sports venues and heritage sites which contribute to the cultural life of the residents and visitors to London and the UK[11], and to St Mary's University, Twickenham which is a prominent centre for sporting excellence. Richmond is also where parkrun originated, with the very first event taking place in Bushy Park in 2004.

The arts are well served by award-winning venues including the Orange Tree Theatre and Orleans House Gallery and local 12 libraries continue to be vibrant and engaging community venues that provide high quality services to residents across the whole Borough, including the fastest reservation service in London and the 3rd fastest in Britain[12].

When asked to describe Richmond's cultural offer, *safe* and *limited* were two of the most popular words used, with many residents travelling into central London or elsewhere for more diverse and innovative cultural experiences, particularly the younger generation. Only 2% of people described culture in Richmond as *exciting[13]*.

Public programmes and events such as the Rugby World Cup, *Dance in Libraries*, *Richmond Lit Fest* & *The Streets* have brought distinctive cultural experiences to Richmond in recent years. The evidence of the positive impact arts, libraries, parks and sports and fitness have on health and wellbeing, the economy and local communities is far reaching, and the restrictions related to COVID-19 pandemic has led to a greater overall appreciation of the role of parks and open space for our health and wellbeing.

Programmes and facilities including *Chat & Draw*, Health Walks, Heathfield Recreation Ground's Fresh Air Fitness Centre, community reading groups and our home library service have aimed to improve health & wellbeing in the Borough, with a specific focus on supporting residents 70+ years who are less physically active and at risk of loneliness and isolation.

The Council has worked with Borough schools, colleges and other partners to inspire young people with the cultural curriculum. Creative schools workshops at Orleans House Gallery; the Teacher's Art Forum; *Cover Story* & *Battle of the Books*; curriculum- time swimming lessons; after school coached sporting activities; Richmond Music Trust's high quality music tuition and the London Youth Games have all focused on developing skills in young people whilst fostering an interest in culture.

The COVID-19 pandemic has severely impacted opportunities for young people. 1 in 3 Londoners aged 18 – 24 years have been furloughed or made redundant with youth unemployment in Richmond has increased by 215%[14]. This is

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[9] London Borough of Richmond: Town Centre Health Checks 2013 Full report
[10] Wikipedia London Borough of Richmond Upon Thames.
[11] London Plan 2021 (7.5.12)
[12] Reservations supplied within 7 days. CIPFA
[13] Richmond's Culture Review Dec 2020 – March 2021
[14] Those in the Borough aged 18 – 24 years claiming benefits as of March 2020 - 2021. Nomis Labour Market Profile

reflected in the culture and creative industries which saw more than a quarter of people aged 25 and under leaving creative occupations during 2020[15].

More information on local cultural infrastructure and plans for culture in Richmond can be found in Culture Richmond 2021 – 2031 document[16].

3.2 Community Safety

Substance Misuse Support for Dual Diagnosis (Integrated Care/Treatment)
The Community Safety Service in support of the statutory requirement on the Community Safety Partnership around substance misuse will support key partners in further developing a substance misuse strategy. In addition, the Community Safety Service will be looking at mapping the provisions for substance misuse across the Borough - this will include the pharmacies who are available to administer scripts to individuals. There will need to be further work with Public Health and other substance misuse colleagues through the Partnership Forum once all the data has been obtained so support is available for those who need it.

Homelessness and Rough Sleepers
The Community Safety Service currently supports the Housing Service within Richmond around problematic rough sleepers. Housing has the responsibility for homelessness and rough sleeping and currently provide a Partner's Forum. This forum will then refer the most problematic individuals to Community Safety to be part of a specific problem-solving plan. Further details on the subject can be found under Housing.

Community Multi Agency Risk Assessment Conference CMARAC & Community Trigger
The Community Safety Service with the local police oversee the Community Multi Agency Risk Assessment Conference (CMARAC) which looks at high risk and complex residents who are at greatest risk of harm to put together a multi-agency plan to provide support and intervention. Referrals can be received from professionals where an individual is causing harm to themselves or others in the community.

The agencies present also have the option for enforcement in the using a Community Protection Notice Warning (CPNW), Community Protection Notice (CPN), Injunction, Possession proceedings, Closure Notices, Closure Orders and Criminal Behaviour Order (CBO). Although we would always consider alternative options of support first to tackle the behaviour, enforcement action usually involves positive requirements for an individual to engage with services such as substance misuse or mental health for a wrap-around service.

The Community Trigger (also known as the ASB Case Review), gives victims of persistent anti-social behaviour reported to any of the main responsible agencies (such as the council, police, housing provider) the right to request a multi-agency case review of their case where the local threshold is met under the Anti-social Behaviour, Crime and Policing Act 2014.

If a case meets the threshold, then an Independent Panel Hearing will be convened by the Community Safety Team on behalf of the relevant partners. This is to put recommendations forward to those agencies involved with the case to ensure that a solution is met effectively. This does not replace the usual Complaints Process.

3.3 Crime and Disorder
This Crime and Anti-social Behaviour (ASB) section has been included within this document as it has a direct impact on people's health, well-being and lifestyle.

Becoming a victim of crime can affect people differently. The recovery following a crime can be challenging especially if the criminal justice process is lengthy. Also, if the person already live with an existing mental health need then this could impact their recovery time and the impact of the crime could feel even worse.

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[15] Centre of Cultural Value: Impact of Covid-19
[16] URL: https://www.richmond.gov.uk/council/how_we_work/policies_and_plans/culture_richmond

Violence Against Women and Girls (VAWG)

Violence against Women and Girls (VAWG) is both a form of discrimination and a violation of human rights and was defined by the United Nations Declaration as: 'Any act of gender based violence that results in or is likely to result in physical, sexual or psychological harm or suffering to women [or girls], including threats of such acts, coercion or arbitrary deprivation of liberty' (1993, Article 1).

This includes:

- Sexual violence, abuse and exploitation
- Sexual harassment and bullying
- Stalking
- Trafficking
- Domestic violence and abuse
- Coercive and controlling behaviour
- Female genital mutilation (FGM)
- Forced marriage
- Crimes committed in the name of 'honour' (so-called 'honour' based violence).

There is a considerable gap in the local understanding of the current VAWG situation, across the breadth of this subject. The police report instances of sexual violence at their fortnightly tasking meeting, and the local authority is only able to conduct limited analysis from data that is available.

Examination of data for locally reported volumes for rapes and sexual offences shows that there were circa 230 sexual offences reported in Richmond during the last year that includes c80 rapes. However, these totals include offences that had occurred historically and those that related to crimes in the domestic environment.

It is not possible to provide data in respect of wider VAWG such as FGM.

National VAWG data

- Each year nearly 2 million people in the UK suffer some form of domestic abuse - 1.3 million female victims (8.2% of the population) and 600,000 male victims (4%). 1.2 million domestic related incidents are reported to the police with 40% of incidents not reported.
- An estimated 4.6m women (28% of the adult population) have experienced domestic abuse at some point since the age of 16[17]
- 79% of teenage victims of domestic abuse experienced physical abuse, and 19% sexual abuse
- A quarter of 13-18 year old girls report experiencing physical abuse in their own intimate partner relationships, and one-third sexual abuse
- At least a fifth (18%) of children in domestic abuse households are injured as a result of the abuse
- 20% of women and 4% of men have experienced some type of sexual assault since the age of 16, equivalent to 3.4 million female and 631,000 male victims[18]
- 3.1% of women (510,000) and 0.8% of men (138,000) aged 16 to 59 had experienced a sexual assault in the last year[19]
- Only around 15% of those who experience sexual violence report to the police[20]

Domestic Abuse

The demand and call upon services has risen across the system, when comparing financial years of 2019/20 with 2020/21. **Table 10** below summarises reported crime, advocacy and MARAC[21] demand for Richmond for the financial years 19/20 and 20/21. The percentage increases in crime reported are in excess of the London average at 5.9%. The

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[17] Source: How widespread is domestic abuse and what is the impact? | Safelives

[18] Source: Statistics about sexual violence | Rape Crisis England & Wales

[19] Source: Statistics about sexual violence | Rape Crisis England & Wales

[20] Source: Statistics about sexual violence | Rape Crisis England & Wales

[21] MARAC: Multi Agency Risk Assessment Conference, a forum that co-ordinates activity for victims at the highest risk of Homicide or serious harm.

reported crime levels for the previous three years had been relatively static in Richmond. There is no currently available data that describes the increases in demand in respect of advocacy or MARAC demands across London, England, or Wales.

Table 10: Domestic violence crime and incidents in Richmond, 2019/20–2020/21

Borough	Reported Crime (2019) 2020	Non-Crime Incidents (2020/21 only)	Advocacy IDVA (2019) 2020	Complex Needs Advocacy (2019) 2020	MARAC (2019) 2020
Richmond	(1246) **1333** +7%	965	(331) **408** +23%	(99) **128** +29%	(246) **388** +57%

Source: MARAC

Demographic Characteristics of Domestic Abuse Victims
Domestic abuse is a gender biased crime with around 70% of victims being women. Examination of individual data shows that there is an over-representation of Black, Asian and Ethnic Minority communities as victims of crime (23% in Richmond) when compared with overall population/census data. Conversely, Richmond showed significant under-representation for the elderly when compared to the overall population levels.

The rate of domestic abuse rises to over 25 per 1,000 residents in deprived areas, as opposed to around 7 per 1,000 residents in least deprived areas of Richmond.

Domestic Abuse – Kingston & Richmond Multi-Agency Risk Assessment Conference (MARAC) Data
The proportion of MARAC cases where at least one child is present, has decreased from 62% to 32% in Richmond. Notwithstanding the reduction in Richmond, the numbers of children exposed to high risk domestic abuse has increased. It is further reported that the escalation in risk of cases being heard has been swifter, and this is typified by an uptick in 'Emergency MARAC' meetings that cannot wait until the monthly cycle.

The proportion of Black, Asian and Minority Ethnic groups and MARAC cases heard has also increased from 25% to 27% of all cases in Richmond.

Domestic Abuse – Children's Services Data

The majority of repeat alerts in Richmond relate to domestic abuse. The volume of domestic abuse factors as a proportion of overall demand has remained fairly static over the financial year. It is noted that Safelives reported that nearly 2 in 3 children (62%) exposed to domestic violence were also directly harmed. In 90% of cases of domestic abuse, children or young people are in the same or next room. In 40% to 66% of domestic abuse cases, the same perpetrator is also directly abusing the children[22].

Domestic Abuse – Adult Services Data
There has been an increase in referrals where domestic abuse is flagged in Richmond, from 59 to 71 (+20%). Of the 72 enquiries, 36 of these enquires related to people with mental health and substance misuse issues and 5 enquiries were related to historic abuse. Adult services report that the level of enquiries where domestic abuse was flagged underwent a gradual increase, that may be explained by the cumulative effect of lockdown and/or the level of training given to council officers and other professionals, alerting them to domestic abuse.

Domestic Abuse – Housing Data
There have been modest increases in housing admissions owing to domestic abuse, from 1.3% to 1.4% (8%). There have been significant increases in homelessness admissions where the reason is domestic abuse.

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[22] Source: https://safelives.org.uk/node/450

Richmond provides 15 units of accommodation that run at capacity throughout the financial year. These units are base budget funded.

Crimes Against the Elderly

In Richmond, the Community Safety Service have supported the implementation of projects to support the crime against the elderly work as one of our priorities for the service. This has involved working closely with both Richmond and Kingston Accessible Transport (RaKAT) and Dial-a-ride Christmas Bus Project which was to provide a safer ride and transport system for potential victims of crime. Community safety also worked with Bluebird Carers to provide scam advice, prevention and training to staff to ensure that the clients they work with across Borough are given the best possible advice and support on never becoming a victim of crime.

Offenders and Reoffending

A minority of individuals are responsible for a disproportionate number of offences committed in the Borough therefore reduction of reoffending is of major importance. Ministry of Justice data shows that the re-offending rate for adult offenders in Richmond was 23%, which was lower than last year (26%). The current year proportion was also below that of London (27%) and England and Wales (28%).

In November 2018, the CRC caseload for Kingston and Richmond was 379 cases, a reduction of 8.5% on the previous year. The latest data (January 2019) from the Ministry of Justice (MoJ) shows that 23% of adult offenders in Richmond went on to reoffend, this was a lower proportion than both London and England, and a reduction compared to the previous year's cohort **Table 11**. The rate of reoffences per reoffender in Richmond fell between cohorts and remained below the London and England rates which increased between the same cohorts.

Table 11: Proven Adult Reoffending, Apr 2015 - Mar 2016 and Apr 2016 - Mar 2017, Richmond, London, England and Wales

Apr 2015 - Mar 2016					
	Offenders	Reoffenders	Reoffend Rate (%)	Reoffences	Reoffences per Reoffender
Richmond	1015	263	26%	907	3.4
London	83,429	23,186	28%	79,115	3.4
England & Wales	485,042	138,191	28%	522,962	3.8
Apr 2016 - Mar 2017					
	Offenders	Reoffenders	Reoffend Rate (%)	Reoffences	Reoffences per Reoffender
Richmond	913	211	23%	629	3.0
London	73,563	20,041	27%	70,492	3.5
England & Wales	440,075	125,245	28%	502,468	4.0

Source: MoJ, Proven Reoffending Statistics, 31/01/2019

Limitations:
- In October 2015, there was a change in Source used by the MoJ that could affect comparisons.
- Substance dependence and misuse contribute to offending and reoffending, as well as mental health problems and Personality Disorders.
- For those individuals drug tested by police upon arrest, 58% (n=101) tested positive.
- Ambulance services continue to respond to large numbers of events in Richmond where drug overdoses (n= 290) and alcohol (n=1,005) are a factor in injuries, violence or intoxication.
- Locally, from April 2017 to March 2018, 33.3% (n=20) of adults with a substance misuse treatment need were engaged in community-based structured treatment following release from prison, higher than London (21.9%) and similar to England (32.1%).

Integrated Offender Management (IOM)

The Integrated Offender Management, IOM programme continues to manage some of the most persistent and problematic local offenders in the Borough, though a joint agency approach aimed at reducing offending and its impact.

IOM is an evidence-based approach which provides a framework for partner organisations to manage and support violent offenders at highest risk of reoffending. The members of IOM partnership are statutory agencies involved in Offender Management include Police, National Probation Service, Community Rehabilitation Company, together with some departments of the Borough Council including Community Safety Services, Housing Department and Social Services. Third Sector organisations include Battersea Art Centre and the Ace of Clubs. IOM aims to reduce reoffending and increase social inclusion of offenders by working with identified offenders to challenge their behaviour and address the underlying issues that lead to reoffending. This is achieved by assessing individual need and supporting access and engagement with services across the seven pathways to prevent reoffending, as recommended by MOPAC.

The seven pathways are:
- Attitudes, Thinking and Behaviour
- Accommodation
- Children and Families
- Drugs and Alcohol
- Education, Training and Employment
- Finance, Benefit and Debt
- Physical and Mental Health

Additional issues that affect women on IOM scheme are domestic violence and sexual abuse.

The IOM Scheme works with a target group of offenders. This includes offenders classified as causing repeated high harm to others and communities. They are domestic violence perpetrators, robbers, burglars, knife carriers. In the financial year 2018/19 Richmond the IOM cohort was comprised of 30 offenders.

The high-risk prolific offenders who are on IOM cohort often have complex needs such as dual diagnosis, combination of drugs misuse and mental health problems, or personality disorders. It is still not clear what is the provision of coordinated services for this client group. We need to understand the provisions across the Borough to meet the needs of dual diagnosis clients or those with complex needs. This is going to require better joint working between all the IOM partners. There is also lack of behavioural change programmes for violent perpetrators. Without this provision the effectiveness of reducing re-offending will be limited.

Serious Violence

The Mayor's Office for Policing and Crime (MOPAC) refers to serious violence as a Public Health issue that causes ill-health through fear, injury and loss, affecting individuals and whole communities. In order to tackle serious violence and the devastating impact it has on families, victims and communities in the Borough, Richmond Council Community Safety has successfully received Violence Reduction Unit funding to support multiple key projects to address the root causes of serious violence.

Serious violence is defined by the South West Basic Command Unit (BCU) and the Community Safety Partnership as the crime types of violence with injury and knife crime, with some overlap between the two:
- Violence with injury is comprised of serious wounding (GBH) and assault with injury (ABH)
- Knife crime is comprised of knife violence and knife robbery.

Crossover between the two strands e.g., knife violence will feature within serious wounding or assault with injury. Serious Violence Performance and Trend Data. This overview provides a brief analysis of Police Crime Data and London Ambulance Service callout data, both correct to December 2019 (**Table 12**).

- Reported violence with injury fell by 12% during 2019, 3% rise over 5 years, however, Richmond has the lowest rate of Violence with Injury in Outer London. There have been 6 homicides in 2 years vs. 0 the previous 3 years.

- There were 176 assaults requiring the attendance of an ambulance during 2019, a fall of 26% on 2018 (London fall of 10%).

- Richmond had the 5th lowest rate of knife crime in outer London during 2019, having been placed 1st or 2nd for the previous 4 years. The total increased by 121% since 2015 (+99).

Table 12: Trends in Violence with Injury, and percentage change over time in Richmond upon Thames, London and Outer London, 2015-2020

	YEAR	VIOLENCE WITH INJURY					
		Richmond	London	Outer London	Rank O. London	London Average	O. London Average
TOTAL	**2019**	**892**	**76982**	**44026**	**1**	**2405.7**	**2201.3**
	2018	1015	77128	44318	1	2410.2	2215.9
	2017	1023	77928	45026	1	2435.2	2251.3
	2015-2019	4710	379705	218662			
% CHANGE	vs. 2018	-12.1%	-0.2%	-0.7%			
	vs. 2015	2.8%	5.8%	5.3%			

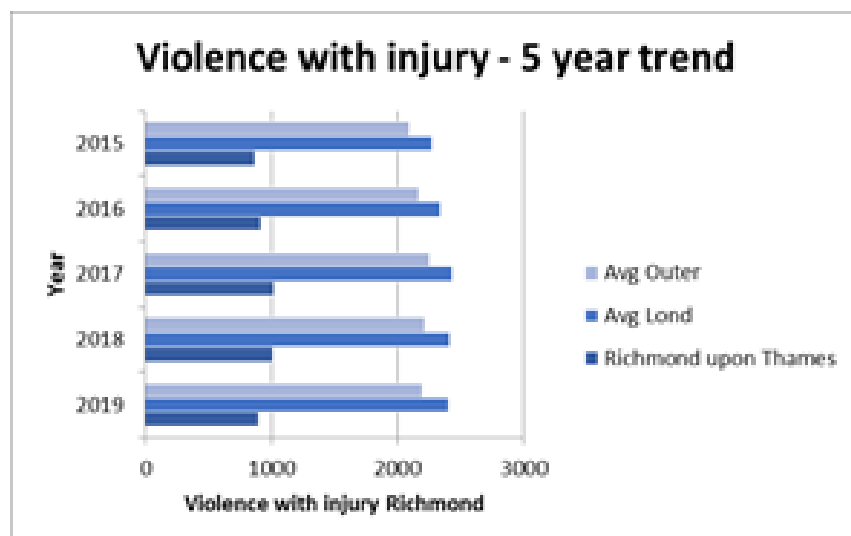*Source: Metropolitan Police Service, Crime Data Dashboard, February 2020*
Note: Rank O. London shows Richmond rank compared to the 19 other Outer London Boroughs. 1 = lowest rank

Figure 15: Violence with Injury by Month, Richmond upon Thames, 2017-2019

Source: Metropolitan Police Service, Crime Data Dashboard, February 2020

Figure 16: Violence with Injury 5-year comparison, Richmond total vs. London (32 Boroughs) and Outer London (20 Boroughs) average, 2015-2019

Source: Metropolitan Police Service, Crime Data Dashboard, February 2020

Table 13: Trends in Homicide, and percentage change over time in Richmond upon Thames, London and Outer London, 2015-2020

	YEAR	HOMICIDE					
		Richmond	London	Outer London	Rank O. London	London Average	O. London Average
TOTAL	**2019**	**3**	**146**	**79**	**12**	**4.6**	**4**
	2018	3	135	69	15	4.2	3.4
	2017	0	141	78	2	4.4	3.9
	2015-2019	6	655	357			
% CHANGE	vs. 2018	0.0%	8.1%	14.5%			
	vs. 2015	NA	21.7%	23.4%			

Source: Metropolitan Police Service, Crime Data Dashboard, February 2020
Note: Rank O. London shows Richmond rank compared to the 19 other Outer London Boroughs. 1 = lowest rank

Over the past three years,21% of recorded violence with injury has taken place in the wards of South Richmond and Twickenham Riverside **Table 14**.

Table 14: Richmond wards with the highest and lowest total violence with injury over 3-year period 2017–2019 and percentage change 2019 vs. 2017

Ward	2017-2019		
	3Y Total	Rank (1 is lowest)	% change 2019 v 2017
South Richmond	315	18	-11%
Twickenham Riverside	298	17	-27%
Heathfield	195	16	-19%
Barnes	118	3	-12%
Fulwell & Hamp. Heath	106	2	-8%
East Sheen	82	1	-28%

Source: Metropolitan Police Service, Crime Data Dashboard, February 2020

Over 3 years, knife crime classified as robbery has been most common in South Richmond, Mortlake & Barnes Common, and Twickenham Riverside wards. Knife crime classified as violent was most common in Mortlake & Barnes Common, Heathfield and Hampton North. Over 3 years, ambulance callouts for assault are most common in South Richmond, Heathfield and Hampton Wards.

Overview of serious violence crime reports (Police data extract):
- Approximately 35% of violence with injury crime reports are domestic in nature.
- In the past year, 69% of knife crime was classified as robbery and 31% as violence. This has gradually shifted over the past 5 years (2015 saw 40% robbery, 56% violence).

Table 15: Yearly knife crime incidents, sub-divided into major crime type, Richmond, 2017-2019, 5-year total 2015-2019 and percentage change over 12 months and 5 years

YEAR	EVENTS	CRIME TYPE					
		ROBBERY	%	VIOLENCE	%	OTHER	%
2019	149	103	69.1%	46	30.9%	0	0.0%
2018	105	64	61.0%	39	37.1%	2	1.9%
2017	115	957	49.6%	55	47.8%	3	2.6%
2015-2019	482	263	54.6%	211	43.8%	8	1.7%
vs. 2018	-8.1%	+60.9%	-	+17.9%	-	-100%	-
vs. 2015	105.8%	+415.0%	-	+64.3%	-	-100%	-

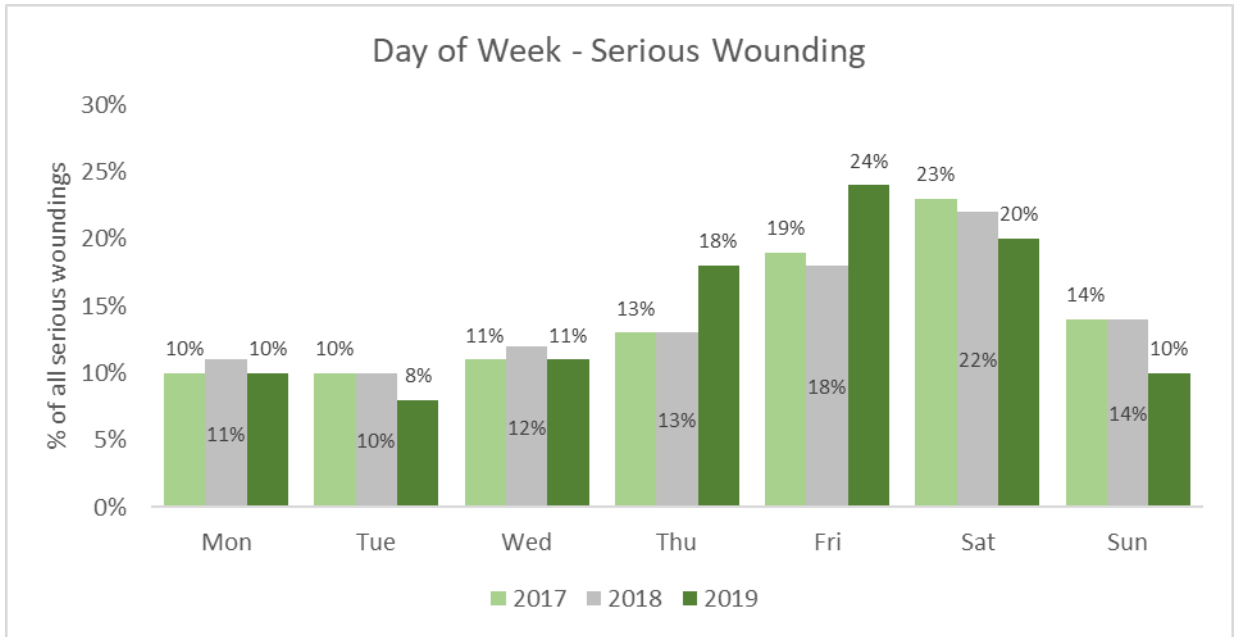*Source: Metropolitan Police Service, CRIS (Crime Recording Information System) data extract, March 2020*

- Over 5 years, 93% of knife robbery involves the use of a knife as a threat or intimidation. 53% of knife violence involves the use of a knife in an attempt to injure (41% knife threatened).

- One or more suspects are known to one or more of the victims in approximately 59% of violence with injury crime reports. However, this proportion may be higher as approximately 8% of crimes have no recorded suspect details.

- Serious wounding offences are most common between 2000 and 0159, with Friday and Saturday seeing experiencing higher levels of crime reports (**Figure 17** and **Figure 18**).

Figure 17: Yearly Proportion of Serious Wounding Incidents by 6-Hour Time Period - Richmond, 2017-2019
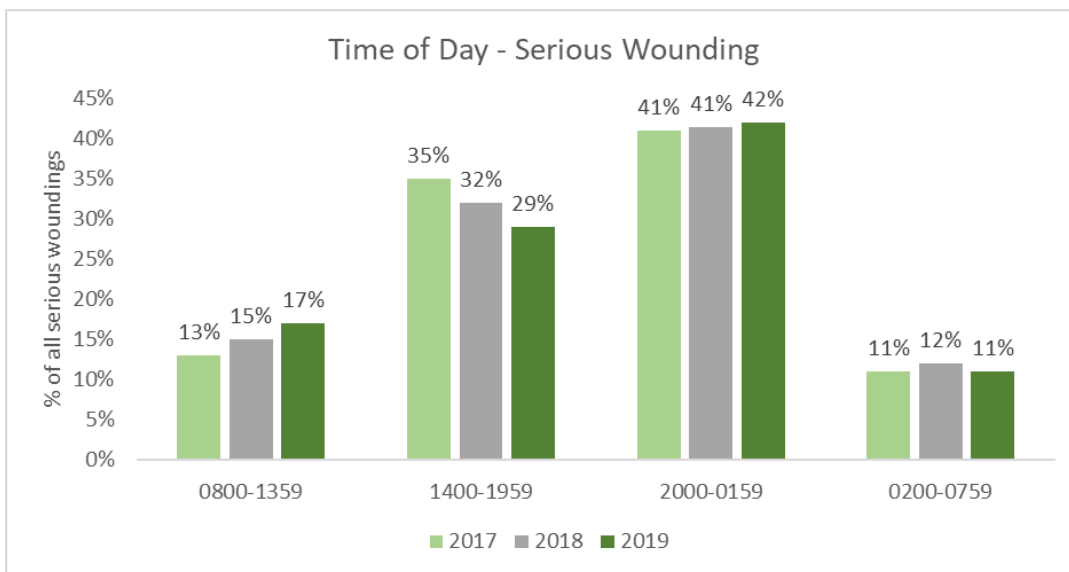
Source: Metropolitan Police Service, CRIS (Crime Recording Information System) data extract, March 2020
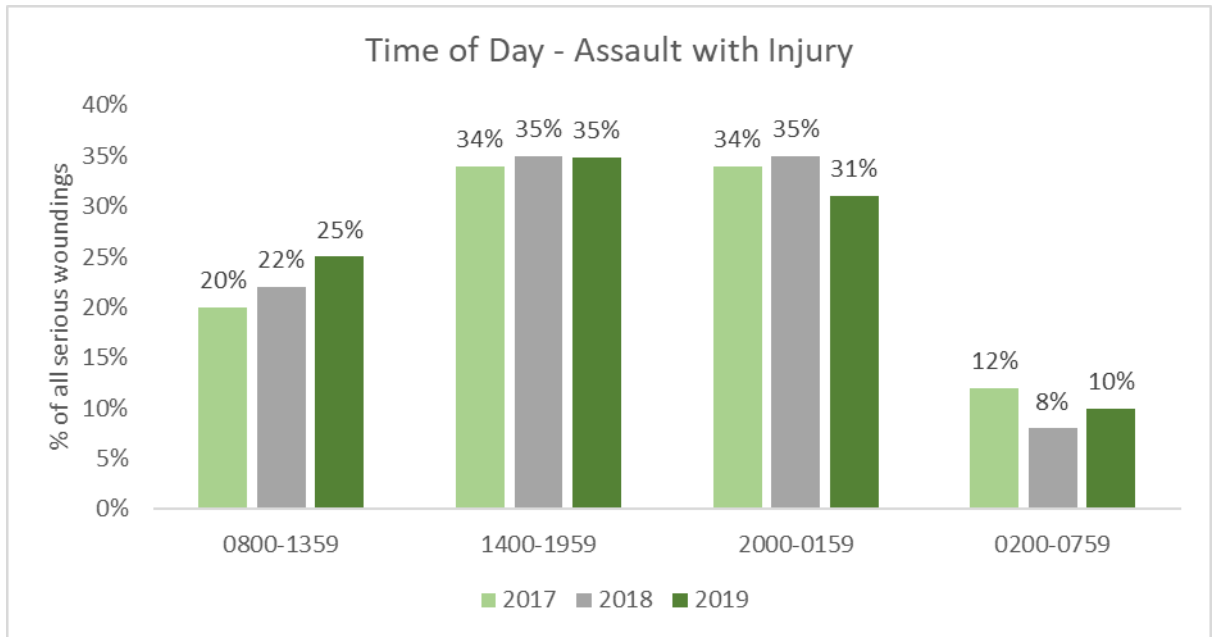
Figure 18: Yearly Proportion of Serious Wounding Incidents by Day of Week - Richmond, 2017-2019

Source: Metropolitan Police Service, CRIS (Crime Recording Information System) data extract, March 2020

In the past year, assault with Injury offences have been slightly more common between 1400 and 1959 hours. For the past three years, Saturday has generally been the most frequent day for offences (**Figure 19** and **Figure 20**).

Figure 19: Yearly Proportion of Assault with Injury Incidents by 6-Hour Time Period - Richmond, 2017-2019

Source: Metropolitan Police Service, CRIS (Crime Recording Information System) data extract, March 2020

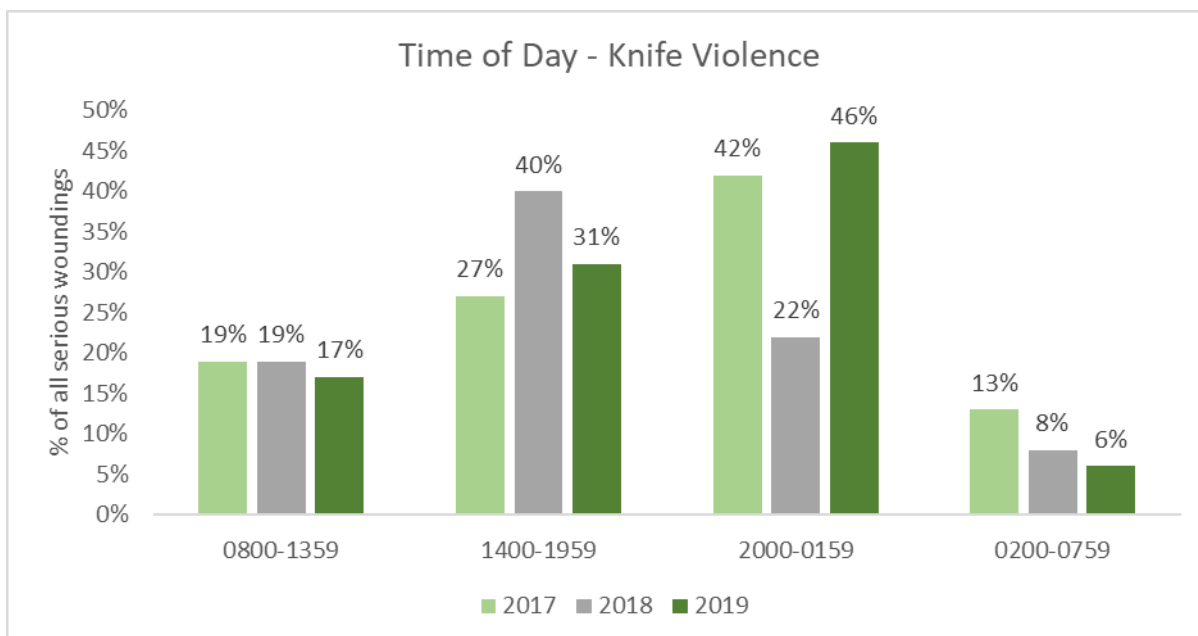**Figure 20: Yearly Proportion of Assault with Injury Incidents by Day of Week - Richmond, 2017-2019**
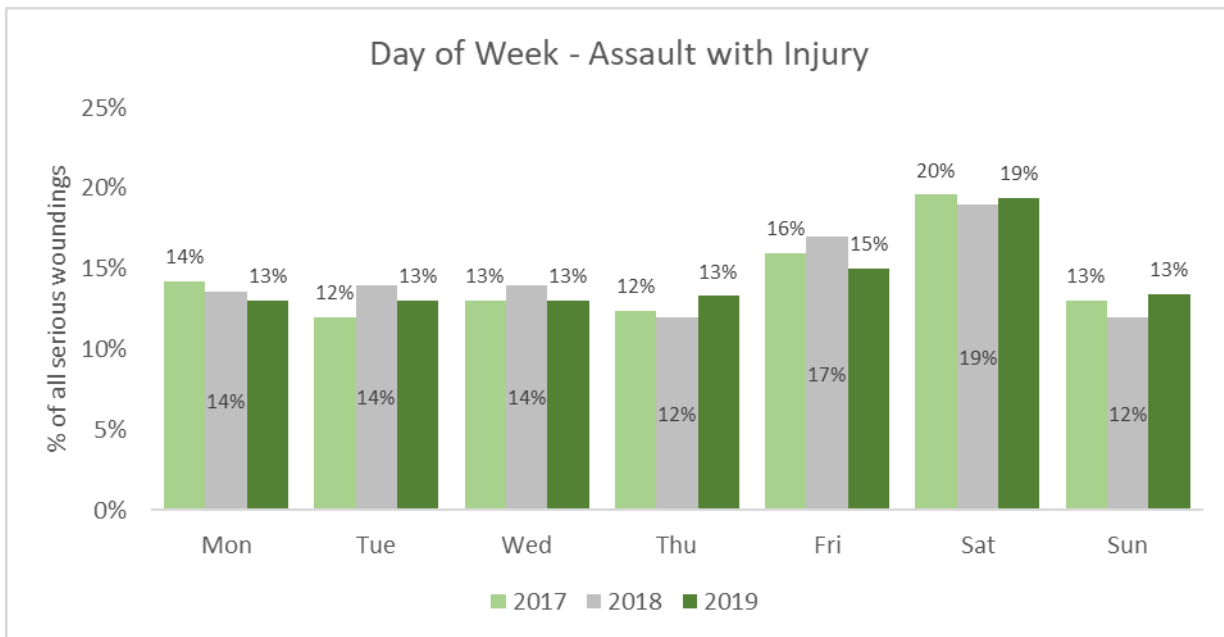
Source: Metropolitan Police Service, CRIS (Crime Recording Information System) data extract, March 2020

Ambulance callouts for assault are most common between 2000 and 0159 hours, on a Friday or Saturday.

During 2019, there was a notable shift in time trends for knife crime. 43% of knife robbery has taken place between 1400 and 1959 and 46% of knife violence has taken place between 2000 and 0159 (**Figure 21**).

Figure 21: Yearly Proportion of Knife Violence Incidents by 6-Hour Time - Richmond, 2017-2019

Source: Metropolitan Police Service, CRIS (Crime Recording Information System) data extract, March 2020

Analysis of suspect demographics should be interpreted with caution due to:

- missing data (crimes with no suspect recorded**)**
- partial data (crimes with limited suspect data e.g., estimated age but no ethnicity)

The analysis below has been conducted on a per crime report basis i.e., percentage number of crimes with a victim or suspect in a demographic group (age, ethnicity or gender). Therefore, percentages can tally to more than 100 due to the potential for multiple victims and suspects.

Over five years, approximately 43% of violence with injury crime reports had one or more victims aged 25-44 years **Table 16**. 17% of reports had one or more victims aged 18-24 years (6% of population)**.**

Table 16: Age Of Recorded Victims For Serious Wounding And Assault With Injury Incidents, Richmond, 2015-2019

Crime Type	Victim Age				
	<18	18-24	25-44	45-64	65+
Serious Wounding	13%	21%	42%	26%	5%
Assault with Injury	19%	16%	44%	21%	4%
Overall	**17%**	**17%**	**43%**	**23%**	**4%**

Source: Metropolitan Police Service, CRIS (Crime Recording Information System) data extract, March 2020
Note: Does not include those victims where demographic details were not captured

Approximately 18% of violence with injury crime reports had one or more non-white victims.

Approximately 67% of serious wounding had a male victim (27% female, 6% both), in contrast to assault with injury which was more evenly split (45% male, 51% female, 4% both).

Over five years, approximately 47% of violence with injury crime reports had one or more suspects aged 25-44 19% of reports had one or more victims aged 18-24 (vs. 6% of population), **Table 17**.

Table 17: Age of Recorded Suspects For Serious Wounding And Assault With Injury Incidents, Richmond, 2015-2019

Crime Type	Suspect Age				
	<18	18-24	25-44	45-64	65+
Serious Wounding	15%	25%	47%	20%	2%
Assault with Injury	14%	17%	46%	23%	3%
Overall	**14%**	**19%**	**47%**	**22%**	**3%**

Source: Metropolitan Police Service, CRIS (Crime Recording Information System) data extract, March 2020
Note: Does not include those suspects where demographic details were not captured

Approximately 21% of violence with injury crime reports had one or more non-white suspects. Over the past 12 months, 30% of serious wounding crime reports had a non-white suspect, compared to 21% the previous year. 80% of serious wounding and 70% of assault with injury offences had one or more male suspects.

Over five years, victims of knife robbery are most likely to be under the age of 25 years, 48% of reports with at least one victim aged less than 18 years, and 28% of reports with at least one victim aged 18-24 years. Victims of knife violence are older, 41% aged 25-44 years and 30% 18-24 years. The 18-24 year old age group is disproportionality represented, (only 6% of population).

There is a disproportionality within ethnicity, particularly knife violence, where 27% of crime reports have a non-white victim.

Male victims are most common, particularly within knife robbery (87% vs. 61% knife violence). Similar trends exist within suspects of knife crime, with a younger cohort of suspects and over-representation of the 18-24 years age group and males. However, within ethnicity, while the same disproportionality is seen, it is greater within knife robbery (54% reports with a Black, Asian minority Ethnic suspect) than knife violence (28%).

Over the past 3 years, the 15-29 age cohort accounted for 47% of ambulance callouts for assault (compared to 14% of the population).
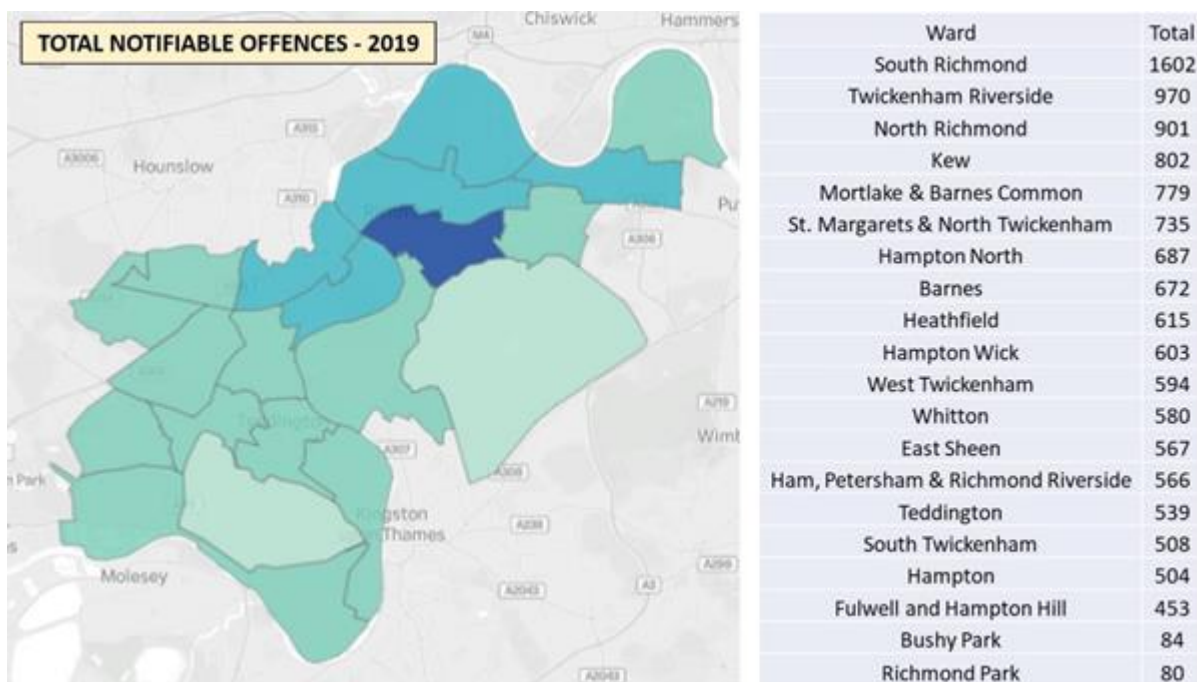
Anti-Social Behaviour (ASB)

Anti-Social Behaviour (ASB) affects lots of people and can have an impact on a person, their home and their community. People may think that an incident is small to start with, but anti-social behaviour can go on for a long time and become very serious.

Richmond Council produce an Annual Community Safety Strategic Needs Assessment which is a statutory annual analysis of crime and disorder that informs the Community Safety Partnership Plan. The following priorities were taken from the 2019 needs assessment with data covering a 5 year period Jan 2015 – Dec 2019:

- Residential Burglary
- Motor Vehicle Crime
- Anti-Social Behaviour.

Not all anti-social behaviour is classed as crime but some of it can lead to it becoming a crime. The Annual Strategic Needs Assessment concludes Richmond was the lowest crime rate in London during 2019. Crime was relatively stable during 2019 (+1.2% vs. London +8.7%).

Figure 22: Total Notifiable Offences (all crime), by Ward, Richmond upon Thames, Jan – Dec 2019

Ward	Total
South Richmond	1602
Twickenham Riverside	970
North Richmond	901
Kew	802
Mortlake & Barnes Common	779
St. Margarets & North Twickenham	735
Hampton North	687
Barnes	672
Heathfield	615
Hampton Wick	603
West Twickenham	594
Whitton	580
East Sheen	567
Ham, Petersham & Richmond Riverside	566
Teddington	539
South Twickenham	508
Hampton	504
Fulwell and Hampton Hill	453
Bushy Park	84
Richmond Park	80

Source: Metropolitan Police Service, Crime Data Dashboard, December 2020

Reports of Anti-Social Behaviour received by the Police in Richmond increased by 14% in 2019, total of 3,874. In comparison, London increased by 12%. The wards that had the highest reports were North Richmond and South Richmond Wards (**Figure 23**).

Figure 23: Anti-Social Behaviour, by Ward, Richmond upon Thames, Jan – Dec 2019
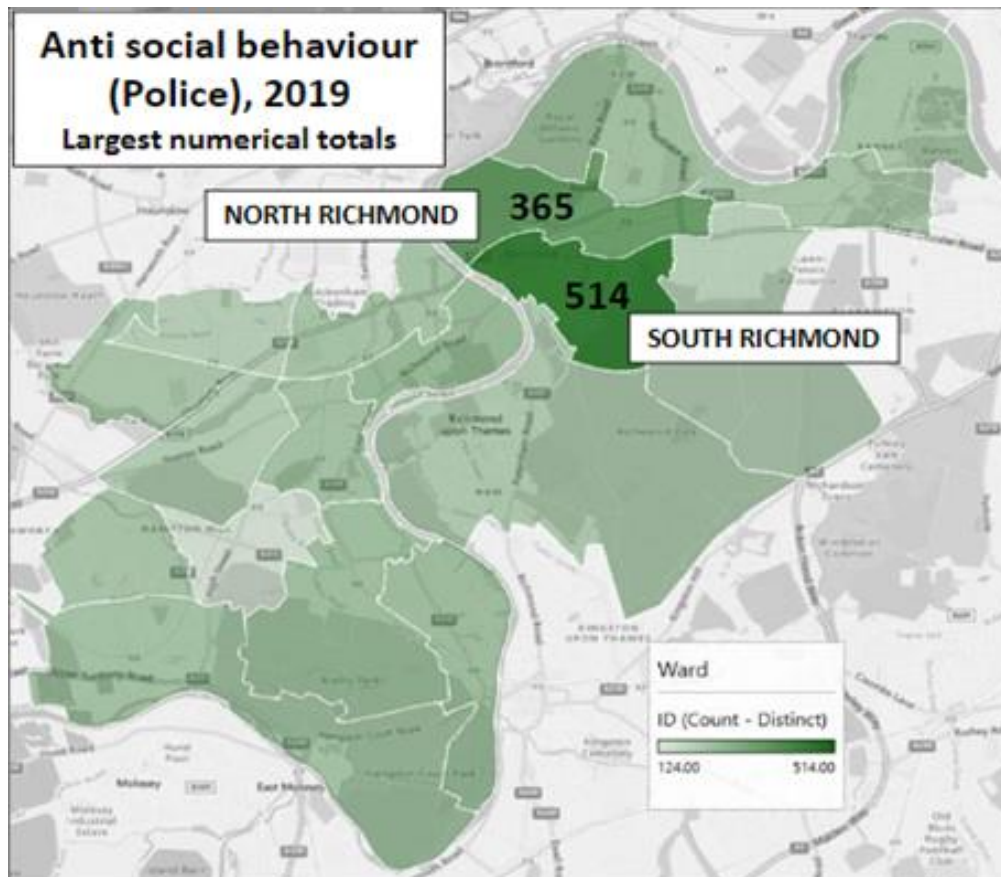
Source: Metropolitan Police Service, DARIS (Demand And Resource Information System) data extract, March 2020

Current Services

ECINS & Online Watch Link OWL

The Community Safety Service commissioned two digital products to tackle crime and disorder across the Borough, a new Online Watch Link (OWL) system which residents can sign up to and receive alerts messages straight from their local police and council officers on issues happening in their area, and a new CCTV Watch through this system which has supported the police in their investigations.

The Borough has an ECINS, a case management system that allows agencies to share information on both locations such as crime hot spots and also high-risk individuals.

The high-risk cases that are often referred to the Community Safety Team, to be presented at a forum such as the Community MARAC, often have complex needs such as dual diagnosis.

ASB Partnership Working

The council works closely with its partner organisations to share information in order to keep residents safe. A part of this work is planning for upcoming events or seasonal crime trends known to impact those living in Richmond. In the past year this has involved developing an Autumn and Winter Nights Plan which looks at targeted patrols in hot spot locations, test purchases, licensing visits, and communication with residents and businesses.

The partnership also prepares for the next seasonal trends during the summer period using multi-agency problem solving plans, led by Community Safety Officers to prepare for the potential and anticipated issues

The partnership works with the Park Guard Team who manage the Richmond Public Spaces Protection Orders PSPO, on ASB issues at locations across Richmond. Since 2017, all parks and open spaces have been controlled by Public Spaces Protection Orders (PSPOs). These orders impose various restrictions to dog control and antisocial activities in Richmond parks and open spaces to ensure that public spaces are safe and enjoyable for everyone to use. The Orders were renewed on Thursday 15 October 2020 for a further three years.

Serious Violence Projects

Tackling Serious Violence is a Community Safety Partnership Plan commitment. Community Safety is coordinating a number of projects through Violence Reduction Unit (VRU) funding to provide a holistic approach to addressing serious violence through a number of youth and young adult mentoring and engagement programmes.

Tackling Crime and anti-social behaviour within our communities requires a problem-solving approach, and joint working of agencies across different sectors. The Crime and Disorder Act 1998 requires the Local Authority to form a statutory partnership which is known as the Richmond Community Safety Partnership Board. The Board has developed a strategy to deal with the prevention of crime, reducing reoffending, serious violence, substance misuse and anti-social behaviour. This will be refreshed for the following three years in line with the next Mayor's Policing and Crime Plan.

4. Social and Economic Environment

Health care system plays an important role in our health but the largest contribution to our health of illness is made by social and economic factors and the environment. Some factors that determine our health, such as age, gender and hereditary, cannon be modified. Other factors, such as health behaviours or impact of social or economic factors, can be modified or mitigated through individual and collected action and effective programs and policies.
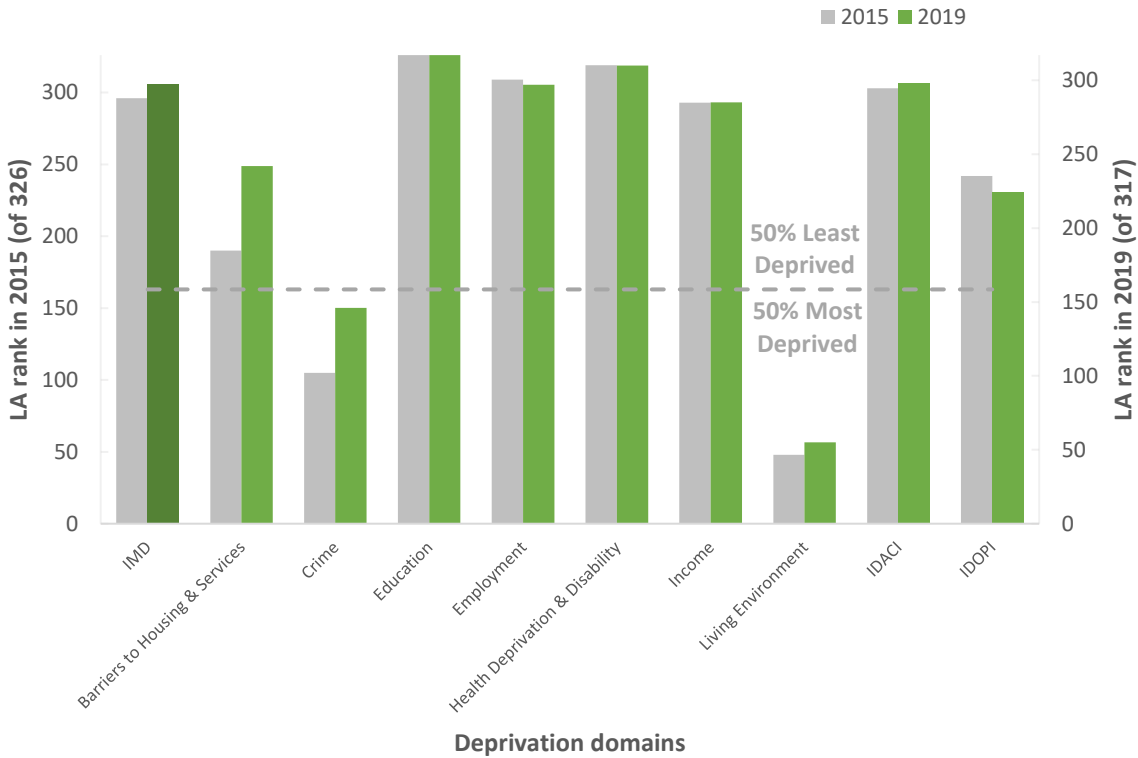
4.1 Deprivation

The Index of Multiple Deprivation 2019 provide a set of relative measures of deprivation for small areas (LSOAs) across England. An LSOA of rank 1 is the most deprived in England and an LSOA of rank 32,844 is the least deprived. Using these rankings, we can group LSOAs into quintiles of deprivation (1 being the most deprived and 5 the least). More information on deprivation in Richmond, including heatmaps and area reports can be found on the DataRich website[23].

The Borough ranks within the least deprived third of Local Authorities nationally for five of the seven deprivation domains (Barriers to Housing & Services; Education, Skills & Training; Employment; Health Deprivation & Disability; Income). Amongst these, Richmond has become relatively less deprived in the Barriers to Housing & Services domain, ranking 242/317 in 2019 compared to 190/326 in 2015. Like 2015, Richmond is the least deprived LA in England in terms of Education, Skills & Training, securing the highest rank of 317 in 2019.

Richmond ranks as relatively more deprived against other Local Authorities in England for the Living Environment and Crime domains (**Figure 24**). Despite a slightly higher ranking compared to 2015 (48/326), the Borough ranks amongst the 20% most deprived Local Authorities nationally (55/317) within the Living Environment domain. For the Crime domain, Richmond ranks amongst the 50% most deprived LAs nationally (146/317) again, despite a slightly higher ranking compared to 2015 (146/326).
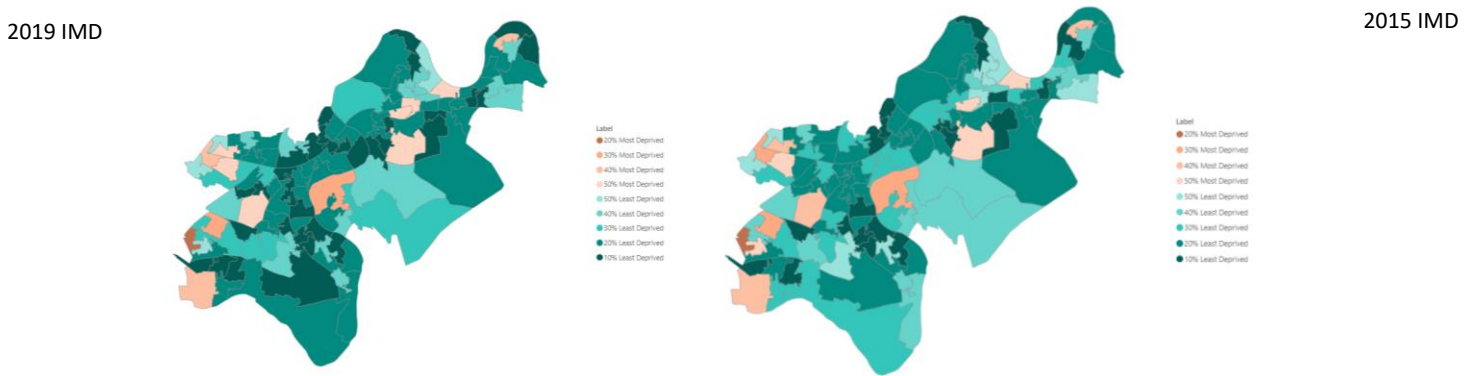
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[23] DataRich. Deprivation reports. 2019. Data used: 2019.

Figure 24: Richmond rank against other local authorities in England for IMD

Source: Index of Multiple Deprivation via Gov.uk, 2015-2019

Figure 25: Index of Multiple Deprivation, comparison of 2019 with 2015

Table 18 compares Richmond deprivation to the rest of England, where the quintiles represent the most to least deprived groups across England. The figures show that less than 1% (0.8%) (n=1,468) of the Richmond population are living in areas that are ranked in the 20% most deprived in England[24]. This makes up only one small area (LSOA) in Richmond, which is placed within the Hampton North ward[25]. There are no areas in Richmond ranked in the top 10% most deprived in England.

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[24] Gov.uk. File 1: index of multiple deprivation. 2019. Data used: 2019.
[25] Office for National Statistics. Lower Layer Super Output Area (2011) to Ward (2015) Lookup in England and Wales. 2015. Data used: 2011-2015.

Table 18: Richmond population grouped by England deprivation quintiles – 2019

Deprivation quintiles (England)	Total population n (%)	Children aged 0-15 n (%)	Adults aged 60 and over n (%)
1 (highest – most deprived)	1,468 (0.8)	286 (0.7)	309 (0.8)
2	8,830 (4.5)	1,913 (4.8)	1,666 (4.4)
3	18,796 (9.4)	3,979 (9.9)	3,519 (9.2)
4	39,452 (20.2)	7,999 (19.9)	8,205 (21.5)
5 (lowest – least deprived)	128,358 (65.0)	26,123 (64.8)	24,514 (64.2)

Source: Index of Multiple Deprivation via Gov.uk, ONS population estimates (mid-2018)[26]

Using the same IMD rankings, we can also group the LSOAs in Richmond into quintiles of deprivation for Richmond only. This means comparing deprivation scores within Richmond, rather than to the whole of England.
Table 19 displays that there are 39,404 people living in the most deprived areas of Richmond. These are small areas that fall into the top 20% of deprivation compared to the rest of Richmond. Of these people 8,593 are children and 7,529 are adults over 60 years.

**Table 19: Richmond population grouped by Richmond deprivation quintiles – 2019**

Deprivation quintiles (Richmond)	Total population n (%)	Children aged 0-15 n (%)	Adults aged 60 and over n (%)
1 (highest – most deprived)	39,404 (20.0)	8,593 (20.7)	7,529 (19.3)
2	39,597 (20.1)	8,222 (19.8)	8,540 (21.0)
3	40,164 (20.4)	8,139 (19.6)	7,602 (19.8)
4	39,167 (19.9)	8,435 (20.4)	7,860 (19.3)
5 (lowest – least deprived)	38,572 (19.6)	8,062 (19.5)	8,351 (20.5)

Source: Index of Multiple Deprivation via Gov.uk, ONS population estimates (mid-2018)

Health conditions are poorer in the top quintile for deprivation in Richmond. 5.2% of people living in the most deprived areas of the Borough have bad or very bad health (**Figure 26**). This is compared to 3.3% in all other areas of Richmond. In addition, 50% living in these areas consider themselves to have very good health. This is lower than the remaining population in Richmond 57.3%[27].

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[26] ONS. Lower layer Super Output Area population estimates. 2019. Data used: 2018
[27] Data Rich. Custom Area Reporter – Custom Health Report. 2011. Data used: 2011

Figure 26: Self-reported health by deprived and not deprived areas of Richmond, 2011
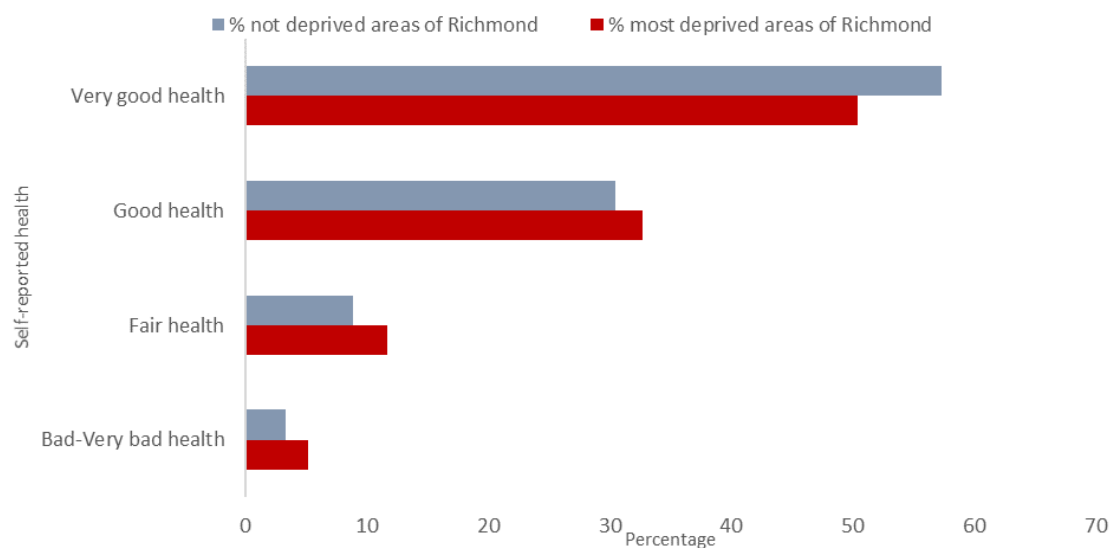
Source: Custom area report via DataRich

4.2 Social Mobility Index

The Social Mobility Index provides local level estimates for 533 parliamentary constituencies in England. It provides an indication of how likely a person from a disadvantaged background in each constituency is to progress to a higher social status later in life. It compares constituencies in England using 14 variables which represent the four life stages: early years, school age, youth and adulthood. Standardised scores for each life stage were added together to give an overall Social Mobility Index (SMI) score.

In 2017, London Boroughs generally scored well on the SMI. Richmond ranked 31 of 324 (within the top 10% best performing) local authorities in England[28]. In 2018, of 533 constituencies in England, Twickenham's SMI score was 44.70, ranking it 72nd and Richmond Park's SMI score was 43.26, ranking it 74[29].

Richmond Park ranked considerably lower in the youth stage index (359) than Twickenham (100), falling amongst the bottom 20% constituencies for those reaching a positive destination after KS4. Twickenham ranked notably lower in the school stage index (209) compared to Richmond Park (41), largely attributed to Richmond Park ranking amongst the top 20% of constituencies for school quality and secondary school attainment. Both constituencies came amongst the bottom 20% nationally for the Housing Affordability ratio.

4.3 London Output Area Classifications (LOAC)[30]

London Output Areas Classifications (LOAC) are based on 60 variables from the 2011 census and help to summarise the sociodemographic characteristics of an area. CDRC visualises the LOACs in an interactive map.

Table 20 demonstrates the differences between Richmond, Outer London and London with respect to the major classification categories. The London Life-Style classification dominates in Richmond, accounting for 63% (385) of the Borough's 615 Output Areas (OAs), the only London Borough where this group dominates so strongly. The second largest classification is the Ageing City Fringe, and the third largest is Intermediate Lifestyles. The descriptions below explain the key attributes of these classifications. Please note that these are area-based classifications that provide a broad overview, they will not apply to every individual.

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[28] Social Mobility Commission Social mobility index: 2017 data
[29] House of Commons Library Constituency data: Social Mobility Index by constituency (SMIC), 2018
[30] London Data Store, London Output area classification,2014.

Compared to London, Richmond has a notably lower proportion of areas classified as High Density & High Rise Flats, Urban Elites, and City Vibe. The Borough also has notably lower proportions of Settled Asians and Multi-Ethnic Suburbs compared to Outer London. Across these groups, there are several similarities that are disparate to Richmond's key characteristics including a younger age structure (including more school-age children and students), a large representation of BME groups and a higher population density. Where City Vibe and Urban Elites do exist, these tend to be in the east of the Borough, in the Richmond wards, Kew and Barnes. There is also a cluster of Settled Asians and Multi-Ethnic Suburbs in Heathfield and Whitton.

London Life-Cycle: Predominantly White ethnic composition with households covering the full family life-cycle, fewer households with students or dependent children compared to London. Residents are highly qualified, employment rates are high and employment is concentrated in technical, scientific, finance, insurance and real-estate industries. 69% (267) of London Life-Cycle OAs (or 43% of the total 615 OAs) fall within the 'City Enclaves' subcategory, defined as having a younger age structure and evidence of residents from pre-2001 EU states. London Life-Cycle defines much of the Borough, particularly the internal areas (less prominent in outer wards).

Ageing City Fringe: Many residents aged over 45 years and many above the state pension age. High levels of marriage and established white residents very much in evidence. Relative to London, representation of ethnic minorities and EU migrants is low. Levels of qualifications are low, as might be expected for these age cohort. Levels of unemployment are very low.

The Ageing City Fringe is most prominent in the outskirts of Richmond, namely in East Sheen, Whitton, Heathfield, Hampton North and Hampton.

Intermediate Lifestyles: Predominantly those in later stages of Life-Cycle, White and born in the UK with few dependent children. Employment is average for London and tends to be in intermediate occupations. Levels of highest qualifications are below the average.

Intermediate Lifestyles are scattered throughout the Borough with no clear geographical pattern.

Table 20: London Output Area Classification, Based on 2011 census variables.

	Richmond OAs (n)	Richmond OAs (%)	Outer London (%)	London (%)
A. Intermediate Lifestyles	66	10.7	17.2	12.9
B. High Density & High-Rise Flats	6	1.0	3.8	12.5
C. Settled Asians	10	1.6	18.4	11.6
D. Urban Elites	23	3.7	2.5	9.5
E. City Vibe	23	4.1	5.0	14.1
F. London Life-Cycle	385	62.6	14.2	12.9
G. Multi-Ethnic Suburbs	5	0.8	20.4	14.8
H. Ageing City Fringe	95	15.5	18.4	11.7
	615			

Source: London Data Store, London output area classifications

5. Place and Built Environment

The place we live in influences our health. Built environment is the human-made environment that provides a setting for human activities i.e. work, live and play. These range in scale from park, houses, factories to highways. Healthy built environments are walkable and bikeable, access to diversity of essential and desired services, include green spaces and places for people to meet and mingle. Such environments support physical and mental health of local population by providing a desirable and safe place to live, and allow making healthy life choices easier (e.g. exercise, walking, healthier food options, cycling).

Richmond upon Thames is an Outer London Borough composed of eighteen wards that cover an area of 22.2 square miles - 57% of this area is made up by over [100 parks and open spaces](#)[31]. A number of these are synonymous with the plentiful heritage sites and attractions that the Borough offers such as Kew Gardens, Hampton Court Palace, Richmond Park, and Bushy Park. Richmond also has 21 miles of river front and is the only Borough where residents live on both sides of the river.

The Borough has five larger town centres: Richmond, Twickenham, East Sheen, Teddington and Whitton, as well as several local centres including Barnes, Kew, St Margarets and Hampton Village. These centres host between 10 and 15km of high street offering a variety of retail outlets and eateries.[32].

As an Outer London Borough, Richmond residents tend to use personal vehicles more than the London average. Despite this, fewer kilometres are being travelled by cars on Richmond roads, and the Borough has more active commuters than elsewhere in Outer London. This has had the effect of on air quality/emissions and over time improving physical health.

Air quality is a London wide issue with 6.2% of Richmond's mortality being attributed to air pollution; this is higher than England but lower than London. Since 2010, the Borough has seen a decrease in emission of CO_2, NOx and other pollutants. The largest sources of pollution locally were road transport, construction, and industrial and domestic health and power.

Richmond is one of the safest London Boroughs. London has seen four consecutive years of crime increase and this is also the case in Richmond. This increase has been driven by rises in violent and vehicle crime. However, within the last year the Borough saw a decrease in the number of offences apart from robbery which saw an increase of 35%. Personal robbery increased by 25% in 2017/18 from the previous year and victimisation of the elderly increased with Richmond town centre being a prominent location.

Hate crime was lower than London with those existing offences being racist or religious in nature.

The majority of Richmond's residents own their property with a mortgage and 1 in 3 own their property outright. Median house prices are the highest in outer London, and the Borough ranked 6th highest across London with the median house price being £650,000- higher than the London and England.

The rate of homelessness in the Borough was lower than the London rate but similar to England. Rough sleeping numbers in the Borough increased from the previous year to 128 rough sleepers, with three-fifths being of UK nationals.

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[31] [Greenspace Information for Greater London (GiGL)](#) Richmond upon Thames Data, 2019.
[32] [Ordinance Survey.](#) OS Maps Britain's High Streets. 2019.

5.1 Access to Healthy Assets and Hazards Index[33]

The Access to Health Assets and Hazards (AHAH) index from the Geographic Data Science Lab is designed to measure how "healthy" neighbourhoods are. The index is multi-dimensional with data being drawn from several sources and used to create an overall AHAH index, as well as four constituent domains:

- Retail Environment Domain (proximity to fast food outlets, gambling outlets, pubs/bars/nightclubs, off-licences, tobacconists)
- Health Services Domain (proximity to GPs, hospitals, pharmacies, dentists, leisure services)
- Physical Environment Domain (accessibility of passive and active green spaces including parks and recreational spaces; blue space including rivers, canals and lakes)
- Air Quality Domain (level of Nitrogen Dioxide, Particulate Matter and Sulphur dioxide)

The AHAH is produced for Lower Super Output Areas but when these measures are averaged across Local Authorities (LAs), Richmond ranks within the bottom third (219/326) of all Local Authorities in England. Although the Borough has good access to healthy lifestyle choices, ranking within the top 2% of LAs in the Physical Environment domain (4/326) and the top 10% of LAs in the Health Services domain (25/326), unhealthy environments are also accessible to residents, ranking within the bottom 10% of LAs for Retail Environment (295/326) and Air Quality (296/316).

5.2 Healthy Streets[34]

The London Boroughs Healthy Streets Scorecard is designed to measure progress towards meeting the Mayor's Transport Strategy 'healthy streets' targets. The scorecard considers sustainable travel, road safety, road characteristics and traffic.

Amongst other areas in Outer London, Richmond ranks within the bottom third of London Boroughs (24/32) on the Healthy Streets Scorecard. Relative to other areas, the Borough could improve most by increasing its proportion of 20mph speed limit roads, increasing its proportion of protected cycle tracks, and reducing the number of cars per household.

5.3 Transport and Modes of Travel

Richmond's transportation assets include the SWR Mainline into London Waterloo, the London Underground District Line and London Overground services from Richmond station. Major roads running through the Borough include the A316 (between Hampton and Mortlake) and the A205 (between Kew and Barnes), which amongst other routes, support major bus services. There are also several bridges that allow easy access between the north and south side of the river and various bike hire schemes.

5.4 Modes of Travel to Work

The majority of the Borough's residents use public transport to commute to work (44.2%). Although this is a smaller proportion than in Outer London and London **Table 21**, Richmond has the highest rate of active travel (walking and cycling) in Outer London. In combination, the proportion of local residents using either public transport or active travel for work (59.9%) is greater than the Outer London average (55.5%). Still, a third of residents commute by car and van (35.7%), proportionately this is less than Outer London (39.8%) but more than London (29.5%). This could be attributed to variable access to frequent public transport services across the Borough.

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[33] CDRC Maps Indicators: Access to Healthy Assets & Hazards Index 2 (Geographic Data Science Lab), 2017
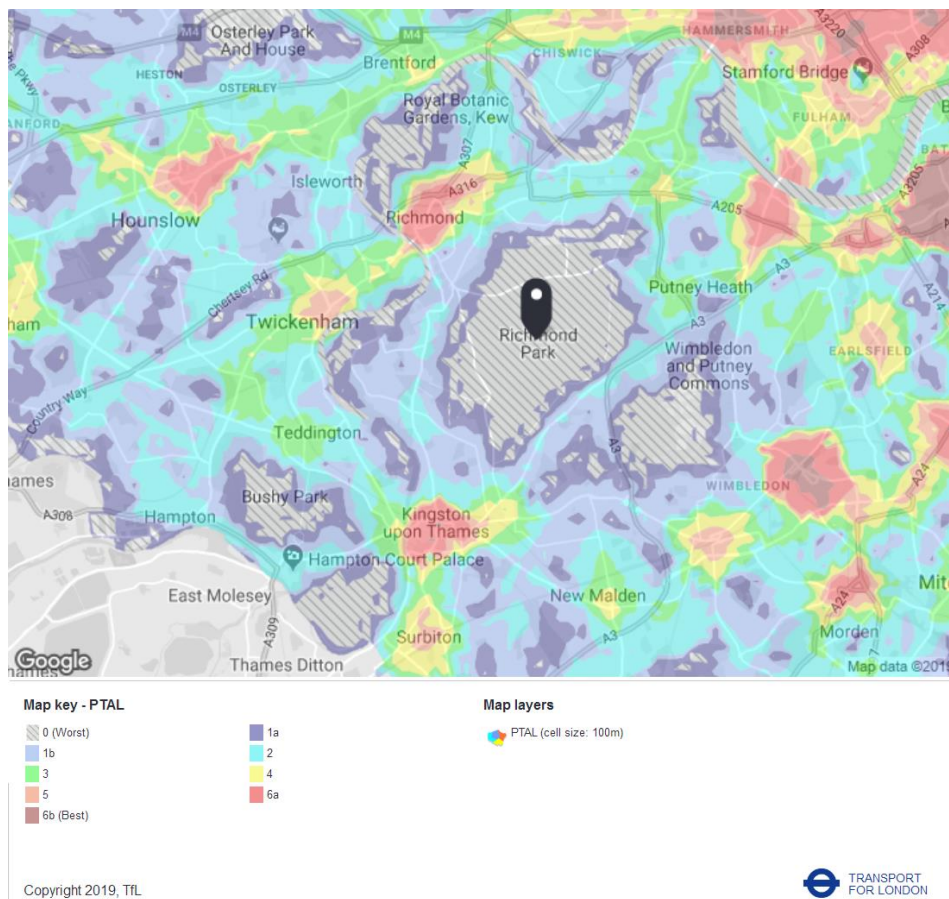[34] CPRE London Boroughs Healthy Street Scorecard, July 2019

Table 21: Mode of travel to work among those aged 16-74, employed and non-home workers.

Mode of Travel	Richmond (%)	Outer London (%)	London (%)
Underground, Train, Bus	44.2	45.9	52.6
Driving car or van	35.7	39.8	29.5
Cycling	6.7	2.3	4.3
On foot	9.0	7.3	9.3
Other	4.4	4.7	4.3

Source: Census 2011 via Nomis

Public Transport Accessibility Levels (PTALs) are a TfL measure that rates locations by distance from frequent public transport services. Richmond is amongst the six Boroughs with the worst average PTAL score across London[35]. Although residents in Richmond and Twickenham benefit from a variety of regular services, large areas of the Borough (e.g., across Ham, Petersham and Richmond Riverside, Hampton and Heathfield) are less well served (**Figure 27**).

Figure 27: Public Transport Accessibility Levels (PTALs) across Richmond upon Thames.

Map key - PTAL		Map layers
0 (Worst)	1a	PTAL (cell size: 100m)
1b	2	
3	4	
5	6a	
6b (Best)		

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TRANSPORT FOR LONDON

Source: TfL WebCAT Tool [36]

Vehicle Ownership and Traffic

According to the 2011 Census, a quarter of households in Richmond do not have access to a car or van. Half of the Borough's households have a single car, a larger proportion than both London (41%) and England (42%), whereas multi-vehicle households are more common in Richmond (25%) than in London (18%) but less common than England (32%)[37].

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[35] London Data Store. Public Transport Accessibility Levels, 2008-2014. Data used: 2014.
[36] Transport for London WebCAT Tool, PTALs.
[37] Census 2011 via DataRich Environment Profile.

There were 553 (1%) more Private or Light Goods vehicles registered in Richmond in 2018 (79,062) compared to 2008 (78,509). The majority of these were private cars, for which registrations increased by 2% over the 10-year period [38]. Although this is not the reduction that some Boroughs have seen (e.g., 21% reduction in Wandsworth), it is also not the increase that other Boroughs have experienced (e.g., 16% increase in Barking and Dagenham) and is likely to be fewer cars per household given the increase in housing stock over the period (see housing section below).

Additionally, 83 million fewer kilometres were travelled by cars on local roads in 2018 (590 million km) compared to 2008 (673 million km), a decrease of 12%. This was amongst the top half of London Boroughs for reductions in car flows[39].

6. Housing

Tenure: In Richmond, the majority of residents own their own property **Table 22**[40]. In 2019, 34% of dwellings were owned outright, which is higher than the London proportion for the same year. This rate has risen from 2012 where 31% of dwellings were owned outright. Those owning with a mortgage followed a similar pattern, with 30% of Richmond dwellings being owned with a mortgage in 2019, compared to 25% in the London region.

Locally, the proportion who rent from the council or housing associations (11.7%) is almost half as much as the London region (22%). Equally, those renting from a private landlord (23%) is less than the London average (27%).

Table 22: Tenure type of Richmond and London dwellings in 2012 and 2019.

	Richmond 2012 (%)	Richmond 2019 (%)	London 2019 (%)
Own outright	25,920 (31.3)	29,156 (34.1)	25.4
Own with mortgage	27,888 (33.7)	26,143 (30.55)	25.5
Rented from council or housing association	9,806 (11.9)	9,972 (11.7)	22.0
Rented from private landlord	19,077 (23.1)	20,293 (23.7)	27.0
Total	**82,961 (100)**	**85,564 (100)**	**100**

Source: ONS

House prices: The median house price in Richmond in 2020 was £675,000, which is the highest median price compared to Outer London Boroughs. Richmond ranked 6th highest in London for median house price, the highest being Kensington and Chelsea with £1,265,000. Richmond was also higher than the London and England median house price of £483,000 and £249,000 respectively. The latest data from December 2020 shows that the highest house prices were seen within Barnes where the median price was £1,500,000. The lowest was seen in Hampton North where the median house price was £430,000[41].

Affordability (Buying): In 2020, the median ratio of house prices to resident earnings in Richmond was 18.66. This is higher than the value for London at 11.78. This data is collected by the Office for National Statistics where the median property price/income is determined by ranking all property prices/incomes in ascending order. The point at which one half of the values are above and one half are below is the median[42].

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[38] London Datastore. Licensed Vehicles - Numbers, Borough. 1997-2018. Data used: 2018.
[39] London Datastore. Traffic Flows of all vehicles and cars only. 1993-2018. Data used: 2018
[40] London Data Store. Housing Tenure by Borough (ONS Annual Population Survey). 2019.
[41] Office for National Statistics. Average House prices by Borough and Ward, 1995-2020. Data used: 2020.
[42] Office for National Statistics. Ratio of house prices to earnings, Borough. 1997-2020. Data used: 2020

Affordability (Private Renting): The Office for National Statistics provides a summary of the annual monthly rents recorded per a 12 month rolling period per Borough. This report found that between 2020-2021, the average price for private rented properties was £1,837 per month, which is higher than the average for London at £1,623 per month and higher than England £864 per month[43].

Home building: In 2019, there were 85,564 dwellings in Richmond, a 3% increase since 2012[44]. The latest data as of 2020 shows that the number of dwellings per hector in Richmond is 14.96, lower than both Outer London 16.62, and London 23.12.

Council Housing: As of 2021 there were no council properties in the Borough as all housing stock was transferred to the Richmond Housing Partnership, a private registered provider of social housing. This has been consistent since 2011, prior to that in 2010 there were 46 of these property types[45]. The number for households waiting for local authority housing in Richmond on the 1st April 2021 was 4,893[46].

7. Homelessness and Rough Sleeping

Good quality and stable housing is vital to the health and wellbeing of the Borough's population. Homelessness remains a significant challenge in Richmond and across London as a result of several factors, including difficulty accessing and maintaining private sector accommodation. Whilst renting costs in Richmond are lower than they were in 2016, housing in the Borough remains less affordable than across London. The Council is undertaking a range of work to tackle homelessness and rough sleeping, as set out in its Housing and Homelessness Strategy 2018-2023, with a focus on preventative measures.

London Councils are seeing an increased demand from households approaching homelessness. In April 2018, the Homelessness Reduction Act significantly changed homelessness legislation by placing new duties on Councils and an increased emphasis on prevention. The act brought challenges for Richmond Council, but also provided an opportunity to tackle homelessness proactively at the earliest possible stage.

Rough sleeping is also a significant challenge in the Borough and across London. In 2018, the Government published a National Rough Sleeping Strategy which aims to end rough sleeping by 2027, accompanied by £100 million funding. The COVID-19 pandemic has put additional pressures in tackling homelessness in the Borough, and ensuring rough sleepers are protected. This has presented the Council and local partner agencies with a unique opportunity to properly assess the needs of individuals, and tailor the support and housing offer to meet those needs. Following the outbreak of COVID-19, new legislation was put into the place to accommodate all rough sleepers as part of the Government's "Everyone In" campaign. The protocol has seen entrenched rough sleepers, who have previously not engaged with rough sleeping services, taking up offers of temporary housing, and people new to rough sleeping, not becoming entrenched.

7.1 Who is at risk and why? What are the predictive factors?

In 2020/21 the biggest cause of homelessness, measured by temporary accommodation TA admissions was eviction by friend or relative (31%, **Figure 28**). This figure highlights the number of residents reliant on friends or family for a place to live.

Due to emergency legislation suspending any evictions by social or private rented accommodation during the pandemic, there have been a very small number of TA admissions due to loss of privately rented accommodation. The impact of this suspension is especially evident when comparing the figures to previous years, with 34% of admissions in 2018/19 due to private evictions next to only 5% in 2020.

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[43] Office for National Statistics. Average private rents, Borough. 2020-2021. Data used: 2021

[44] MHCLG. Live tables on dwelling stock (including vacants). 2020.

[45] London DataStore. Local Authority Housing Stock (MHCLG). 2019

[46] Housing Services Statistics, Richmond Council. Households on Local Authority Waiting List. 2021.

Figure 28: Reasons for admissions into temporary accommodations, 2020/21

Reasons for temporary accommodation admissions (2020/21)

- Eviction by friends / relatives
- Private eviction
- Other
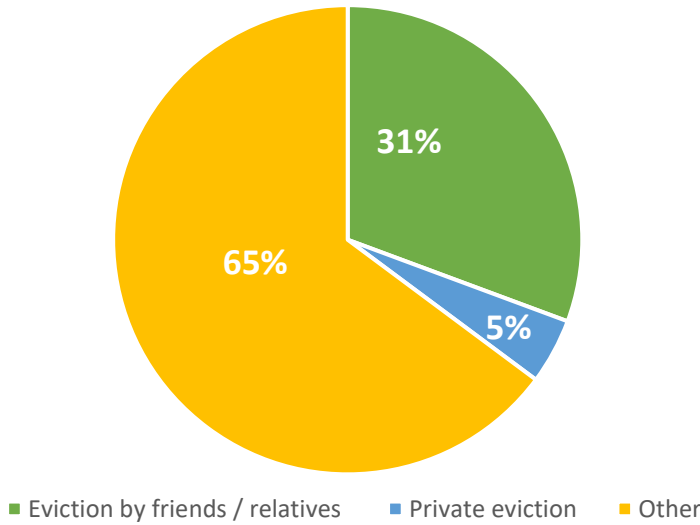
Source: Housing Services statistics, 2020/21

Under homelessness legislation, a household must be assessed as being in priority need to be assisted under the main housing duty by a Local Authority. For cases considered under this main housing duty in 2020/21, dependent children or pregnancy was the most common way households met this criterion (45%, **Figure 29**). Significantly, almost a quarter of households were considered in priority need due to mental health issues or learning disabilities, increasing the risk of losing their accommodation.

Figure 29: Reasons for being in priority need for housing, 2020/21

Reasons for Priority Need, 2020/21

- Dependent Children and Pregnancy
- Physical Dissability
- Mental Illness
- Other
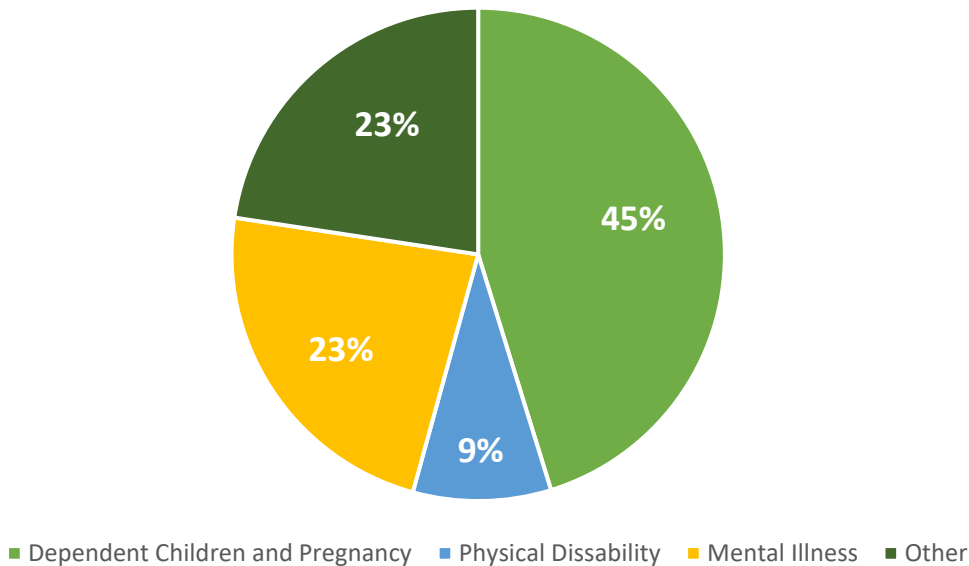
Source: Housing Services statistics, 2020/21

7.2 Current Services on Offer

The Council has statutory duties under the Homelessness Reduction Act to undertake work to prevent or relieve homelessness. This includes working with applicants to develop a personalised housing plan, helping to maintain current accommodation where appropriate, and identifying other housing options available. Further to this, the Council has a statutory duty to provide accommodation to those deemed to be eligible due to immigration status, homeless, and in priority need, under the Housing Act 1996.

The Council successfully bid for Government funding to further develop the rough sleeping pathway in the Borough. Local rough sleeping charity SPEAR has operated in Richmond for over 30 years and the Borough boasts a well-established rough sleeping service. Additional funding has been used to build on these existing local provisions including the expansion the outreach service and greater assistance with accessing health and substance misuse services. The new 'navigator' roles and in-house interventions such as the local lettings service also help rough sleepers access and maintain private accommodation. The Council continues to bid for Government funding streams to maintain and enhance this model.
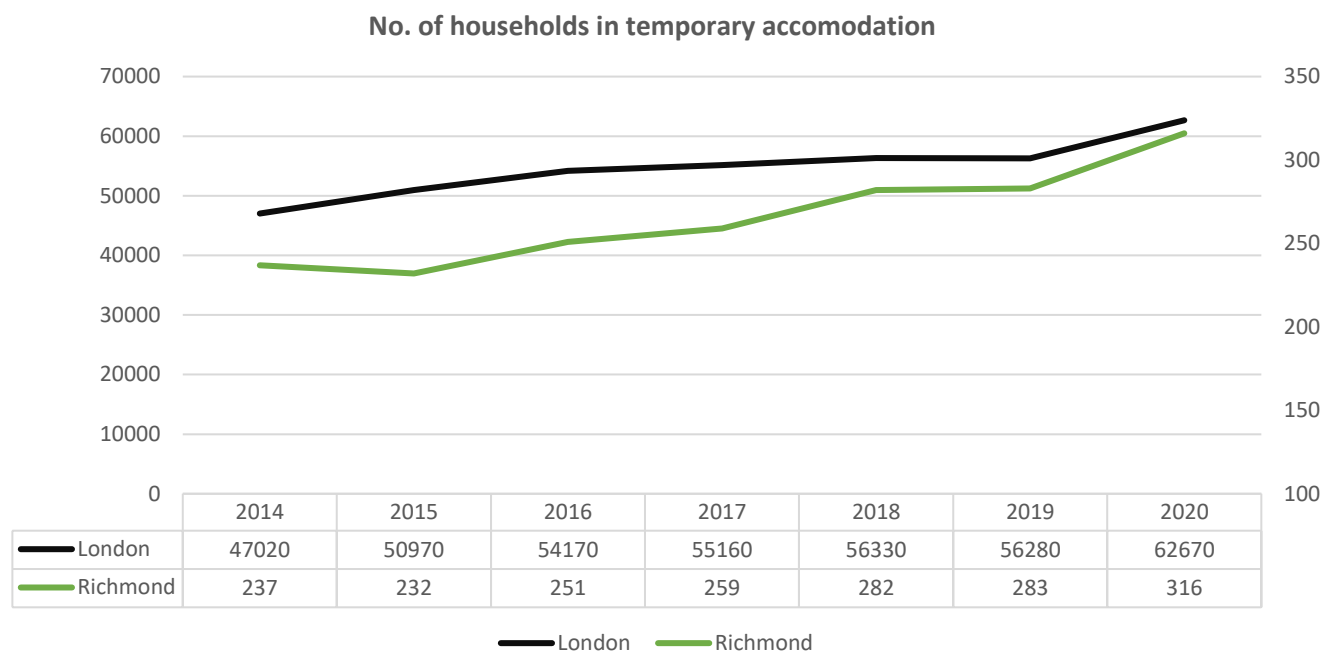
Since April 2019, the Borough's rough sleeping provision has increased exponentially as the Council maximised resources made available through Government initiatives such as the Rough Sleeping Initiative (RSI) and Rapid Rehousing Pathway (RRP). In response to Government guidance, the Council has ensured rough sleepers have been protected from the effects of COVID-19. In particular, the Council has ensured levels of rough sleeping have remained low during the three lockdown periods (23rd March to 1st June 2020, 1st November to 2nd December 2020 and 19th December 2020 onwards) by offering emergency accommodation to individuals verified as bedded down, regardless of clinical vulnerabilities or immigration status.

The introduction of a Rough Sleeper Team in January 2021 has proven invaluable, and as of 1st April 2021, the Council had successfully rehoused 55 rough sleepers into settled accommodation. Furthermore, the introduction of the Rough Sleeper Team has enabled a rapid housing and support needs assessment in house and forms the basis of the new rough sleeping pathway.

7.3 Unmet Needs

There has been an increase in the use of temporary accommodation with 311 households in temporary accommodation at the end of 2020/21, compared with 283 in 2018/19 (**Figure 30**). However, it remains a challenge for the Council to place homeless applicants within the Borough, with 43% located in other south-west London Boroughs, and 5% elsewhere. This is often problematic for families with children attending school, and single people accessing specialist services.

Figure 30: Number of households in temporary accommodation, 2014–2020

No. of households in temporary accomodation

	2014	2015	2016	2017	2018	2019	2020
London	47020	50970	54170	55160	56330	56280	62670
Richmond	237	232	251	259	282	283	316

Source: Housing and Regeneration Department Data and Government Statistics (MHCLG)

8. Local Economy and Business

8.1 Local Business and Employers

In 2018, Richmond was home to 15,115 local business units; of which 93.1% were micro (employing less than 10 employees) and 0.3% are large companies (employing over 250 employees). Of those enterprises that formed in 2012, 44% survived up to 5 years.

Additional information on local business and employers can be found on DataRich.
- By industry, the largest number of enterprises in Richmond were Professional, Scientific and technical (n=4,040; 30.1%), Information and Communication (n=2,270; 16.9%) and Business Administration and Support Services (n= 1,285; 9.6%).

Gross value added (GVA) is a measure of the increase in the value of the economy due to the production of goods and services. The Borough's total GVA in 2017 was £6,123 million. The largest industry group was real estate which contributed £2,048 million to the total GVA. Apprenticeships are paid jobs that incorporate on-and off-the-job training, leading to nationally recognised qualifications. They can earn as they learn and gain practical skills in the workplace. In 2017-18, 32% of Richmond's apprenticeships were achieved in Business, Administration and Law, 20% were achieved in Health, Public Services and Care, and 20% in Retail and Commercial Enterprise.

8.2 Richmond Workplace zones

The following analysis is extracted from the 2011 Census based on the workplace population. The workplace population in a Local Authority is defined as the population were individuals who live and work in the Local Authority, and individuals who work in the Local Authority but live outside the Borough.

Compared to London, Richmond had a higher proportion of residential services, almost 2.5 times more than London. Which include occupations such as classroom assistants, domestic assistants and self-employed cleaners. The

Borough had a lower proportion of integrating and independent service providers (these are characterized by high levels of self-employment and a significant number working part-time), and city focus compared to London **Table 23.** GLA Data Store hosts an interactive visualization tool.

Table 23 Workplace Zone Classification for Richmond and London, 2011.

Sector Type	Richmond	London
Metropolitan destinations	17%	18%
Integrating and independent service providers	4%	22%
Infrastructure support	17%	18%
City focus	10%	20%
Residential services	51%	22%

Data Source: London Data Store, https://data.london.gov.uk/census/lwzc/visualisation-tool/

Notes:
- *Metropolitan destinations-high street destinations and domestic employers; and accessible retail, leisure and tourist services;*
- *Integrating and independent Service providers-healthcare support staff and routine service occupations; locally sources home helps and domestic or manual workers and travelling or home-based general service providers*
- *Infrastructure support-younger customer service workers in wholesale or retail occupations and blue collar, manufacturing and transport services*
- *City Focus-professional, retail and leisure services in dynamic central locations*
- *Residential services-classroom assistants, domestic assistants and self-employed cleaners*

9. Health care assets

The Borough has a range of health care assets:

- **Primary Care**: There are 48 pharmacies and 31 GP practices, including 5 health centres, in Richmond. 92% of the Borough's population have access to GP by 15 minutes of walking or public transport. There are also 33 dental services and 28 optician services.
- **Care Homes** - There are 43 residential and nursing care homes in the Borough.

9.1 Voluntary Sector and Volunteering

Richmond upon Thames has a thriving and vibrant voluntary sector with over 800 local voluntary organisations providing services and activities.

In Richmond, the percentage of people reporting volunteering in the past 12 months dropped to 28% (2013/14–2015/16) compared to 49% (2010/11–2012/13). In London the percentage has stayed steady around 25%[47].

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[47] London Data Store. Volunteering Work Among Adults , 2008-2016. Data used: 2016

Acronyms

ABH	Assault with Injury
AHAH	Access to Health Assets and Hazards
AQA	Air Quality Assessments
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
ASB	Anti-Social Behaviour
BAME	Black, Asian and Minority Ethnic Groups
BCU	Basic Command Unit
BEIS	Business, Energy and Industrial Strategy
BEIS	Business Energy and Industrial Strategy
C6HC	Benzene
CBO	Criminal Behaviour Order
CCG	Clinical Commissioning Group
CDRC	Customer Data Research Centre
CH4	Methane
CMARAC	Community Multi Agency Risk Assessment Conference
CO	Carbon Monoxide
CO2	Carbon Dioxide
COMEAP	Committee on the Medical Effects of Air Pollution
COPD	Chronic Obstructive Pulmonary Disease
CPNW	Community Protection Notice Warning
CRC	Community Rehabilitation Company
DAQI	Daily Air Quality Index
DEFRA	Department of the Environment, Food and rural Affairs
ECINS	Empowering Communities with Integrated Network Systems
ELC	Enable Leisure and Culture
FGM	Female Genital Mutilation
GBH	Gross Bodily Harm
GHC	Greenhouse Gas
GIS	Geographic Information Systems
GLA	Greater London Authority
GVA	Gross Value Added
HGV	Heavy Goods Vehicles
IDAOPI	Income Deprivation Affecting Older People Index
IOM	Integrated Offender Management
IPCC	International Panel on Climate Change
KT	Kilotons
LA	Local Authority
LAEI	London's Atmospheric Emissions Inventory
LAQN	London Air Quality Network
LEZ	Low Emissions Zones
LFB	London Fire Brigade
LGBTQ	Lesbian, Gay, Bisexual, Trans, Questioning
LOAC	London Output Area Clarification
MARAC	Multi Agency Risk Assessment Conference
MARVE	Multi-Agency Risk, Vulnerability and Exploitation
MOJ	Ministry of Justice
MOPAC	Mayor's Office for Policing and Crime

NH2	Amonia
NICE	National Institute for Clinical Excellence
NMVOC	Non-methane Volatile Organic Compounds
NMVOCs	Nitrogen Oxides and Non-methane Volatile Organic Compound
NO2	Nitrogen Dioxide
NOX	Nitrogen Oxide
O3	Ozone
OWL	Online Watch Link
PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PHE	Public Health England
PHOF	Public Health Outcomes Framework
PM	Particulate Matter
PSPOs	Public Spaces Protection Orders
PTAL	Public Transport Accessibility Levels
RaKAT	Richmond and Kingston Accessible Transport
RCES	Richmond Climate Emergency Strategy
RGS	Roehampton Garden Society
RRP	Rapid Rehousing Pathway
RSI	Rough Sleeping Initiative
SMI	Social Mobility Index
SO2	Sulphur Dioxide
SPA	Single Point of Access
SWL	South West London
TA	Temporary Accommodation
UCL	University College London
UKHACC	UK Health Alliances on Climate Change
ULEZ	Ultra-Low Emission Zones
UV	Ultra Violet
VAWG	Violence Against Women Review
VOCs	Volatile Organic Compounds
VRU	Violence Reduction Unit
WHO	World Health Organisation

Acknowledgements