Ultra-Low Emission Vehicle Action Plan (2019– 2029)

Supporting Haringey's Transport Strategy 2018

Haringey LONDON

Foreword

I am proud to introduce Haringey's first Ultra-Low Emission Vehicle Action Plan. The council is committed to improving the quality of life for all residents in the borough. Haringey is taking action to improve air quality, reduce noise pollution and greenhouse gas emissions, and promote public health. We are supporting the uptake of electric and other ultra-low emission vehicles in the borough. Climate change is a threat to all nations of the world and we have no alternative but to act now for the benefit of future generations. Having clean transport technologies enables us to do this.

We are promoting walking and cycling as our preferred transport choice, but some of our transport needs can only be delivered by vehicles. We want these vehicles to be the least polluting that they can possibly be. The council has been working on supporting electric vehicle uptake for some years, responding to the local demand. In 2014, there were 94 electric vehicles in Haringey, in 2017 there were 225, and by 2020 we expect approximately 1000 electric vehicles in Haringey.

We want to implement and encourage innovative solutions to enable people and businesses to switch to this cleaner future. We are engaging with local businesses, developing Wood Green into a 'Neighbourhood of the Future', and working with academia and start-ups to show support for innovative solutions. Our aim is to ensure that the take up of this technology increases throughout the borough and across all our communities. This Action Plan sets the council's policy position on ultra-low emission vehicles and will monitor our performance in delivering this.

Haringey is a socially varied, multi-cultural, multi ethnic, multi faith borough. We are proud to be home to a diverse LGBTQ community; 21 percent of our population is under 16 and 12 percent over 60; 14 percent have a disability. Equality, diversity and inclusion is at the heart of what we do. We want to ensure everyone can be a part of this transition and that it is accessible to all our residents.

Together we can address the challenge of stopping climate change. The introduction of the inner London Ultra Low Emission Zone, the Mayor's targets for air quality, and the banning of all diesel and petrol sales post 2040 are part of making that change. Our aim is to break down the barriers to electric vehicle uptake and ensure residents and businesses are ready for a positive shift to clean transport. We owe it to our children and future generations to take this action now.

Councillor Kirsten Hearn
Cabinet Member for Environment

Glossary of terms

AP	Action plan
AQAP	Air quality action plan
EV	Electric vehicle
GHG	Greenhouse gas
LBOH	London Borough of Haringey
LIP	Local Implementation Plan
MTS	Mayor's Transport Strategy
NOx	Nitrogen oxides
NO_2	Nitrogen dioxide
PM	Particulate matter
PTW	Powered two-wheeler
SME	Small and medium-sized enterprise
TfL	Transport for London
ULEV	Ultra low emission vehicle
ULEZ	Ultra Low Emission Zone

Contents

Introduction

This Action Plan sets the vision and objectives to deliver Haringey's ultra-low emission vehicle network for the next 10 years (2019 to 2029). Introducing this Action Plan for the first time recognises the growth in ultra-low emission vehicles (ULEVs) and demonstrates Haringey's commitment to staying in-line with regional and national progress, as well as being at the forefront by leading by example.

Approximately 50 per cent of the borough's air pollution comes from transportation. This strategy delivers an effective approach to alleviating air pollution and its knock-on impacts. It delivers benefits in other areas such as health and wellbeing of our community, as well as reduced noise pollution, wider climate commitments, economic benefits to the user and strengthening of national energy security. Decreasing the number of diesel and petrol vehicles will increase quality of life across the borough.

This Action Plan supports Outcome 3 of Haringey's overarching Transport Strategy of 'An improved air quality and a reduction in carbon emissions from transport'. The council aim to have a complementary suite of sustainable travel modes operating in the borough. Reducing the number of petrol and diesel vehicles in the borough can be done through increasing active travel infrastructure to promote walking and cycling; and ensuring public transport is accessible, affordable and reliable. Walking, cycling and public transport are the council's priority, and this is reflected in Haringey's Transport Strategy (March 2018). However, we recognise that some groups may still require vehicles and that these should be zero-emission. Therefore, as we aim for a diminishing number of vehicles on the road, these should be increasingly electric to reduce petrol and diesel miles and emissions caused.

ULEVs are an alternative to conventional vehicles. ULEV is a term to describe any vehicle that uses low carbon technologies, emits less than 75 grams of carbon dioxide from the tailpipe for every kilometre travelled (g of CO_2/km), and is capable of operating in zero-tailpipe emission mode for at least 10 miles[1]. Various technologies are considered ULEV: electric vehicles (EVs), plug-in hybrids, and hydrogen fuel cell vehicles.

This plan is a result of collaboration between the council's services. This Action Plan relates to, and should be read alongside, Haringey's Transport Strategy[2], Air Quality Action Plan[3] and Annual Carbon[4] reports. These documents go into detail of the wider context.

VISION OF THE ACTION PLAN

To facilitate the transition towards an ultra-low emission vehicle Haringey. Through providing infrastructure, education and advice, we will improve local air quality and deliver our climate change ambitions.

The Action Plan also went out for public consultation between 17th December 2018 and 11th February 2019, both online and in person. There were 63 responses which have been taken on board and where appropriate, has influenced the action plan. The full list of consultation responses can be found on the council's website[5].

Key objectives are:

1. Increase public awareness of ultra-low emission vehicles, their benefits and charging technology through public campaigns and education
2. For the council fleet to lead by example and to have an all ultra-low emission fleet by 2025
3. Collaboration with partners to ensure all commercial fleets operating in the borough use only ultra-low emission vehicles by 2040
4. To develop an electric vehicle charging network in line with expected demand over the next 10 years
5. To be a leader in innovation for carbon-friendly and cost-efficient charging technology

1 SMMT, 2018
2 Haringey Transport Strategy, 2018
3 Haringey Air Quality Action Plan 2010 – 2018
4 Haringey Council website – Reducing CO_2 emissions
5 Draft Ultra-Low Emission Vehicle Action Plan: Consultation responses

Background

Air pollution

The need for ULEVs has been heightened due to increasing concern over the dangerous levels of air pollution in London. Concentrations of nitrogen oxides (NOx) and particulate matter (PM) have continued to exceed the healthy limit prescribed by the World Health Organisation. London exceeds the annual limit every year, and some roads consistently surpass the yearly limit in January alone. Dangerously high levels of air pollution have a significant impact on personal health and wellbeing. It is estimated that each year 9,000 lives are shortened in London because of toxic local air[6]. The design of London's streetscape also traps the air pollution as high-rise buildings prevent the air to freely circulate and disperse.

Haringey, like most other London boroughs and urban areas, experiences poor air quality, with the main contributor being road traffic. Since 2001, Haringey has been an Air Quality Management Area (AQMA) for nitrogen dioxide (NO_2) and PM. The dominant source of NOx emissions in Haringey is road transport, making up to more than 50 per cent of emissions, as shown in Figure 1. This trend is similar to that of PM; levels of both in Haringey are much greater than in London as a whole, shown in Figures 2 and 3.

NITROGEN OXIDES - NOx

All combustion processes produce NOx. In London, road transport and heating systems are the main sources of these emissions. NOx is primarily made up of two pollutants: nitrogen oxide (NO) and NO2.

NOx mainly affects 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.

Particulate matter - PM10 and PM2.5

PM is a complex mix of non-gaseous material of varied chemical composition. It is categorised by the size of the particle. The smaller the particles, the deeper they can penetrate into the respiratory system and the more hazardous they are to breathe. Fine particles can be carried deep into the lungs where they can cause inflammation and a worsening of heart and lung diseases.

Most PM emissions in London are caused by road traffic, with exhaust emissions and tyre and brake wear being the main sources. Other sources include construction sites, wood burning stoves, accidental fires and burning of waste.

6 London Environment Strategy, 2018

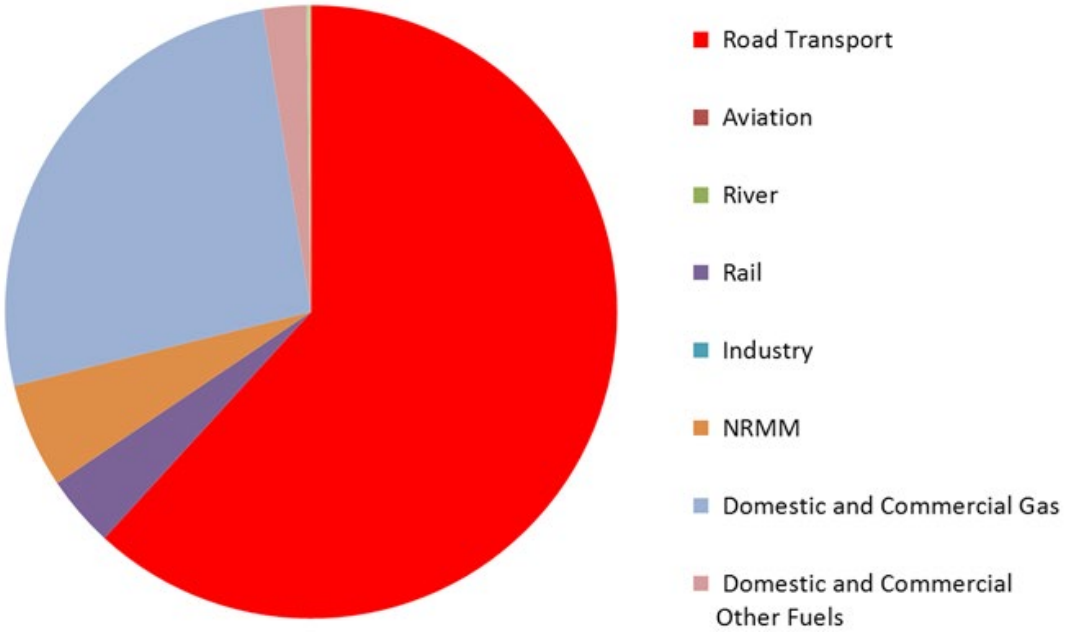

Figure 1. NOx emission sources in Haringey, 2017

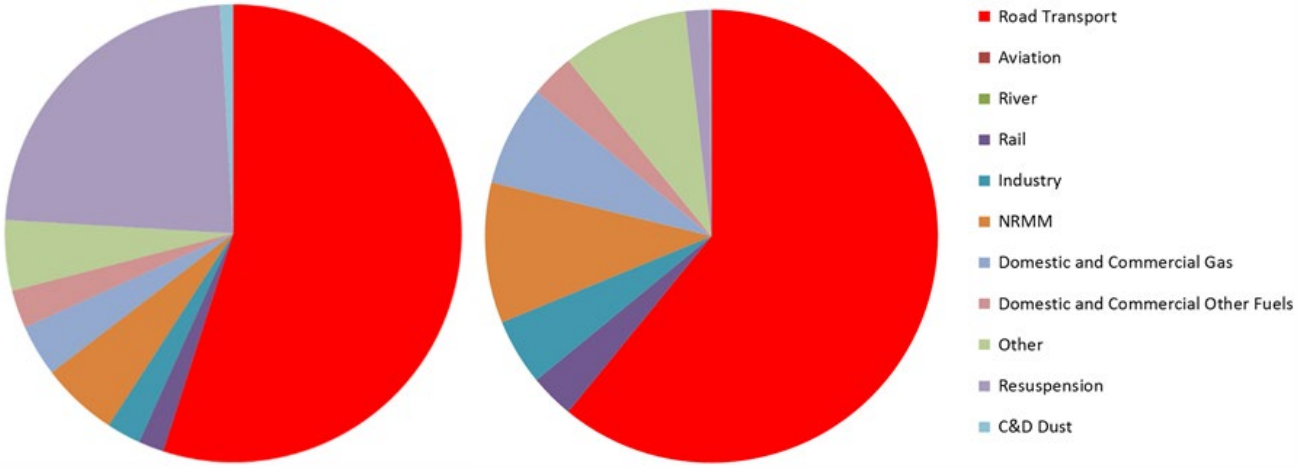

Figure 2. PM10 emission sources in Haringey, 2014 / Figure 3. PM2.5 emission sources in Haringey, 2016

The council has already taken strides in tackling local air pollution, with NOx and PM both decreasing between 2011 and 2017. To measure air pollution, a combination of highly accurate continuous monitoring stations at two locations (one reading roadside emissions on Tottenham High Road and one reading baseline emissions in Priory Park, Crouch End) and indicative diffusion tubes at 13 locations are used. In 2017, levels of NO_2 decreased at our continuous roadside monitoring locations. With the exception of one diffusion tube site, all other sites showed a decrease in NO_2 compared to 2016, showing steady and continued progress.

Monitoring PM10 ceased in 2014 and for PM2.5 in 2016. Overall, monitoring for PM10 across London shows that the current objective values are largely met. The information on air quality in London can be found in our Air Quality Annual Summary Reports.

Climate change

The transport sector is the largest contributor to the UK's greenhouse gas (GHG) emissions, being responsible for 26 per cent of total emissions.[7] Whilst the UK has seen a decline in overall emissions, this is largely from the decarbonisation of the power sector (an increase in renewable energy, which replaces fossil fuels). The transport sector however, is the only sector to fail at curbing emissions and instead, emissions from this sector continue to rise. Road transport specifically makes up the majority of transport-related emissions.

London transport planning over the past decade has focused on reducing car use through encouraging the use of low carbon, sustainable transport, which has induced a modal shift. This has had a positive impact as public and active transport now account for 64 per cent of all one-way commuter movements in London, up 10.4 per cent between 2000 and 2015.[8]

7 BEIS, 2018
8 IPPR, 2017

The demand for ultra-low emission vehicles

To improve air quality, the government has supported the uptake of ULEVs. These efforts have been through education and awareness, and grants for charging points and new EVs bought. A combination of more public on-street charging points available and policy interventions has resulted in an increase in the uptake of ULEVs across the UK.

Electric vehicles

EVs have gained momentum due to their low tailpipe emissions and their applicability in the passenger car sector. They present environmental and health benefits to the local community, as well as economic benefits to the user. Cost savings to residents and businesses are materialised through cheaper 'fuel' and less maintenance. This is because:

- The battery, motor, and associated electronics require little to no regular maintenance;
- There are fewer fluids to change;
- Brake wear is significantly reduced due to regenerative braking; and
- There are far fewer moving parts relative to a conventional gasoline engine.[9]
- Furthermore, economic incentives to an EV owner includes exemption from congestion charges and the upcoming ULEZ.

A large uptake in EVs would significantly decrease NOx emissions. However, there are still air quality issues associated with EVs. For example, from tyre wear and braking. Furthermore, congestion and a lack of active travel are not solved by electrification.

The benefits of electric power in other transport modes is also recognised. Although e-bikes and other electric two-wheeled transport have a greater environmental footprint than conventional bicycles, they have a smaller impact than EVs. Electric cargo bikes also have the potential to replace many journeys currently taken by van.

National context

There has been a tremendous growth in EVs in the UK. Rapid developments in battery technology, coupled with policy support and political will to tackle emissions in the transport sector, have supported the growth of EV demand. These technologies are advancing at a rapid rate, driving the costs of these vehicles down and making them increasingly accessible. Grants are available from the government to alleviate some of the upfront costs. There are also grants available to residents, workplaces and local authorities to reduce some of the costs of installing a charging point.

Haringey context

Haringey is also seeing a steady growth in EVs, in line with regional and national development. In 2014, there were 94 ULEV registrations.[10] In the second quarter of 2019, there were 792, representing a 743 per cent growth in just five years. This trend is predicted to continue up to 2020 and beyond, with every ward having at least 25 EVs, and some having at least 75.[11]

TfL has modelled scenarios of predicted uptake of EVs by 2020 and 2025, based on an average (baseline) scenario and a high scenario (Figure 4). The council are working towards the 'high uptake' scenarios as since 2015, there have been strong policy interventions from both central and local government.

9 Electric Vehicle Infrastructure: Business Case, Edinburgh Council, 2018
10 OLEV
11 TfL, MOSA data

In the 'high uptake 2020' scenario, each ward will have an average of 50 EV users. Most users are expected to recharge at home or close to home. This means that those who have off-street parking facilities may install charging points on their property. However, as approximately two-thirds of Londoners do not have access to off-street parking facilities, significant on-street charging infrastructure will have to be deployed for EV users. Interventions such as the central and inner London ULEZ could bring the reality closer.

Taking TfL's high uptake 2020 scenario, the borough will have approximately 950 EV users. On average, there are seven users for every residential on-street charging point and therefore the borough will require around 136 on-street charging points. In the high uptake 2025 scenario, the borough will have approximately 10,300 EV users, and therefore will require approximately 1,480 on-street charging points.

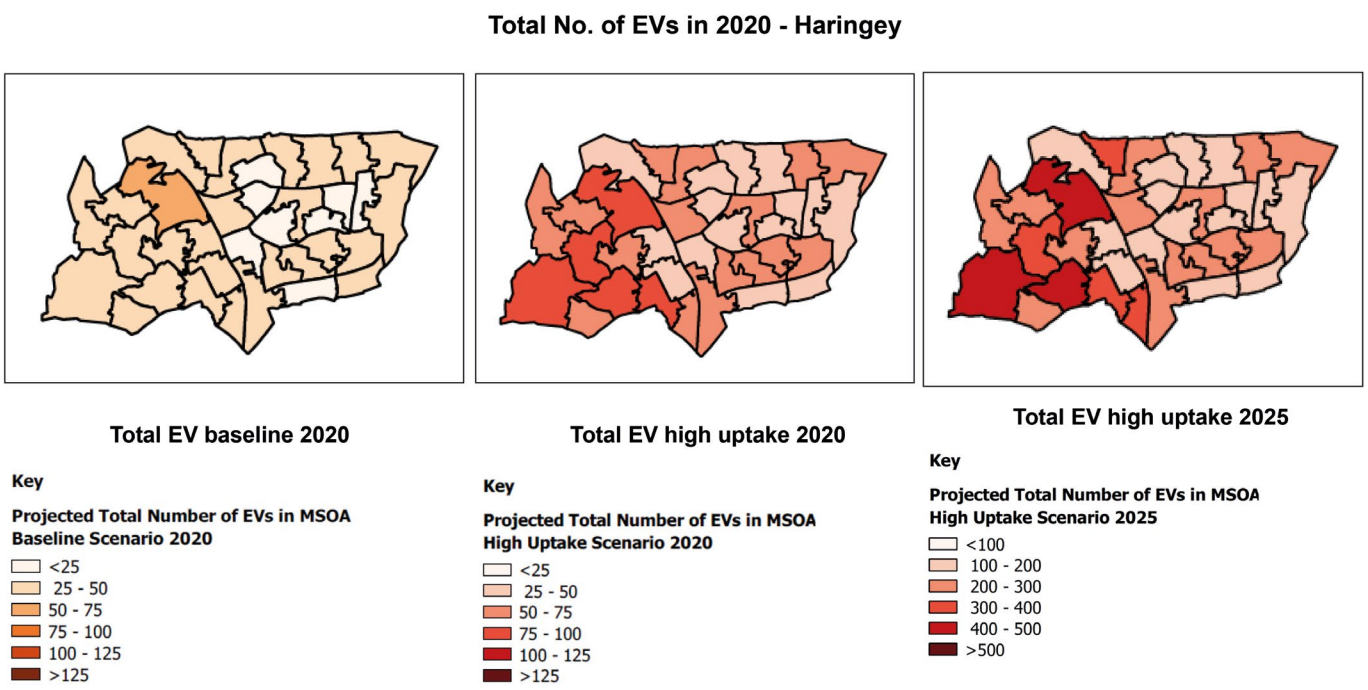

Figure 4. Expected demand of electric vehicles (TfL, 2015)

This expected rise in demand is a strong impetus for the council to provide sufficient infrastructure to accommodate and support the shift to EVs. It is necessary to future-proof the borough if either the baseline or the high uptake scenarios occur.

Electric vehicle charging technologies

Charging technologies

Getting the infrastructure for EVs right is integral to facilitating a greater take up, as range anxiety is the most commonly cited reason dissuading potential EV users. Enabling a well-connected, up-to-date and reliable network of EVCPs can encourage potential EV users to make the switch. Having a range of charging technologies in the mix suits different users and journey types.

Charging points are primarily defined by the power (in kW) that they can produce and the speed they are capable of charging an EV. There are three main EV charging speeds:

- **3 kW:** standard chargers are suited for overnight residential charging as a full charge would take 7-8 hours. These can be installed either off-street or on-street.
- **7 – 22 kW:** fast chargers provide a full charge in 3 to 4 hours, meaning three or four users a day could charge. These EVCPs are most common on-street or in public car parks, as well as at retail locations and workplaces.
- **50 kW:** rapid chargers suit the needs of users who need to charge their vehicle quickly and because their cars are typically in use for many hours in the day. For example, taxis, commercial vehicles or company cars. It can give an 80 per cent charge in 20-30 minutes, allowing a greater number of charges per day. Due to their size and visual impact, they are mostly suited to off-street locations such as carparks and service stations.

Lamp column charging: adapting existing street furniture to accommodate charging facilities reduces street clutter. Lamp columns are easy to retrofit if there is sufficient electricity supply to support charging an EV. A lamp column charger would provide around 3 kW of power. The council is investigating a trial of lamp column charging in 10 locations, with two chargers at each location. During the trial, we will monitor both electricity usage and comments from residents to gather information in order to revise and/or expand the trial.

We want to stay up-to-date with innovative, carbon-friendly and cost-efficient technology to provide the best options to the borough.

Smart-capability

All new charging points in the borough will also be smart-capable, which is legally mandated in the Automated and Electric Vehicles Act 2018. A smart charger means it can receive, process and react to information or signals, such as adjusting the rate of charge or discharge; transmit, monitor and record information such as energy consumption data; comply with requirements around security; and be accessed remotely.

Smart charging will be especially important to relieve added pressure to the grid; if the majority of EV users charge their cars after returning from work (during peak times) this could add stress to local distribution networks. Smart chargers can distribute power when cars are charging (when left plugged in), and shift charging to times with lower electricity demand, thereby alleviating the risk of power shortages in local areas.

Active spaces versus passive provision

Active spaces are fully wired and connected, ready to use, charging points at parking spaces. Passive provision is when the necessary underlying infrastructure is in place (e.g. capacity in the connection to the local electricity distribution network and electricity distribution board, as well as cabling to parking spaces) which allows a simple installation of the actual charging point ("activation") at a future date.[12] These standards should not exclude parking spaces for Blue Badge holders.

12 TfL, 2018

Siting charging points

A network of well-located charging points, encompassing a diverse range of technologies, overcomes range anxiety and people's doubts over if they will be able to charge their car or not. This allows those considering an EV to confidently make the switch to a cleaner vehicle.

When installing charging points, we want to ensure that they do not impede on the pavement and pedestrian movement. Furthermore, pavements should retain a minimum of 1.8 metres to ensure accessibility of both wheelchairs and pushchairs. Street furniture has the ability to make it more difficult for certain groups to get around.

Standard and fast charging points are best suited for residential on-street charging. These points will be installed with regard to the council's design hierarchy:

On build-outs in the carriageway;

- Retrofitting existing street furniture (e.g. lamp column charging);
- On the pavement where there is a minimum of 1.8 m width remaining.

Rapid chargers will be installed with regards to our hierarchy of:

- In off-street locations such as car parks or petrol stations;
- On build-outs in the carriageway;
- On the pavement where there is a minimum of 1.8 m width remaining.

Figure 5 illustrates a rapid charging point on a build-out in the carriageway in Wood Green. It does not interfere with pedestrian movement, or inhibit accessibility of the footway.

Figure 5. Rapid charging point on Gladstone Avenue (N22) on a build-out in the carriageway.

Behaviours and attitudes around electric vehicles

Through previous engagement activities conducted by the council, it has been observed that many people are willing to buy an EV, but there remain questions to be answered or myths to be busted. Having an open dialogue on EV technology, charging and how adopting an EV would differ to a diesel or petrol vehicle can help alleviate doubts people have. The council has conducted a series of education and engagement events through the Neighbourhoods of the Future project in Wood Green, including:

- Half-hour test drives, allowing the local community to drive an EV with an expert;
- Month-long test drives for residents and businesses in Wood Green to gauge whether an EV is best suited to their needs, and also recommends an electric model;
- The use of a device, which fits into the cigarette lighter in a traditional combustion car. This device collects data on driving patterns and can therefore be used to recommend which EV is best suited to the user. This is available to businesses in Wood Green.
- Breakfast briefings for specific business types on electric vehicles.

The council wants to continue, and to expand, its educational activities to reach a wider range of people and businesses in the borough.

Policy context

National context

Clean Air Strategy, 2019[13]

This strategy sets out the comprehensive action that is required from across all parts of government and society to meet these goals. New legislation will create a stronger and more coherent framework for action to tackle air pollution. This will be underpinned by new England-wide powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to take action in areas with an air pollution problem. These will support the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms.

UK's net zero target, 2019[14]

In June 2019, the Government passed a law to be net zero by 2050, compared to a 1990 baseline. It assigns carbon budgets for each sector, in which the Committee on Climate Change advise on and update for every five-year period.

UK plan for tackling roadside nitrogen dioxide concentrations, 2017[15]

This plan sets out the Government's aims and objectives to alleviate excessive air pollution across the UK. This provides local authorities with a £255million Implementation Fund, available to support local authorities to prepare their plans and deliver targeted action to improve air quality.

Clean Growth Strategy, 2017[16]

This strategy prioritises accelerating the shift to low carbon transport. Key steps include:

- Ending the sale of new conventional petrol and diesel cars and vans by 2040;
- Investing £1 billion to support the take-up of ULEVs, including helping consumers to overcome the upfront cost of an electric vehicle (EV);
- Accelerate the uptake of low emission taxis and buses.

London context

Mayor's Transport Strategy, 2018[17]

There are three central themes to this strategy: healthy streets and healthy people; a good public transport experience; and new homes and jobs. The Healthy Streets concept, as shown in Figure 6, has been introduced to the Mayor's Transport Strategy as streets make up to 80 per cent of the city's public space. Of the ten components that make up the Healthy Streets agenda, ULEVs support two: improving air quality and reducing traffic noise.

13 Clean Air Strategy, 2019
14 BEIS, 2019
15 DEFRA, 2017
16 Clean Growth Strategy, 2017
17 Mayor's Transport Strategy, 2018

Source: Lucy Saunders

Figure 6. Mayor's Transport Strategy - Healthy Streets Concept

The Mayor's aims for vehicle emissions are:

- For all taxis and private-hire vehicles to be zero emission capable by 2033;
- For all buses to be zero emission by 2037 and to introduce low emission bus zones;
- For all new road vehicles driven in London to be zero emission by 2040;
- For London's entire transport system to be zero emission by 2050;
- Introduce the Ultra-Low Emission Zone (ULEZ) for central London in 2019 and expand to North and South Circular roads in 2020.

The ULEZ, shown in Figures 7 and 8, imposes financial penalties on non-compliant vehicles to improve air quality. It places a daily charge of £12.50 on the most polluting vehicles to enter central London from April 2019, on top of the Congestion Charge. In 2020, the ULEZ will expand to London-wide for heavy goods vehicles (HGVs) which includes buses, coaches and lorries; and inner London up to the North and South Circular roads in 2021 for cars and vans – which includes Haringey. Buses, coaches and HGVs will be charged £100 per day. ULEVs will be exempt from these charges.[18]

18 TfL, 2018

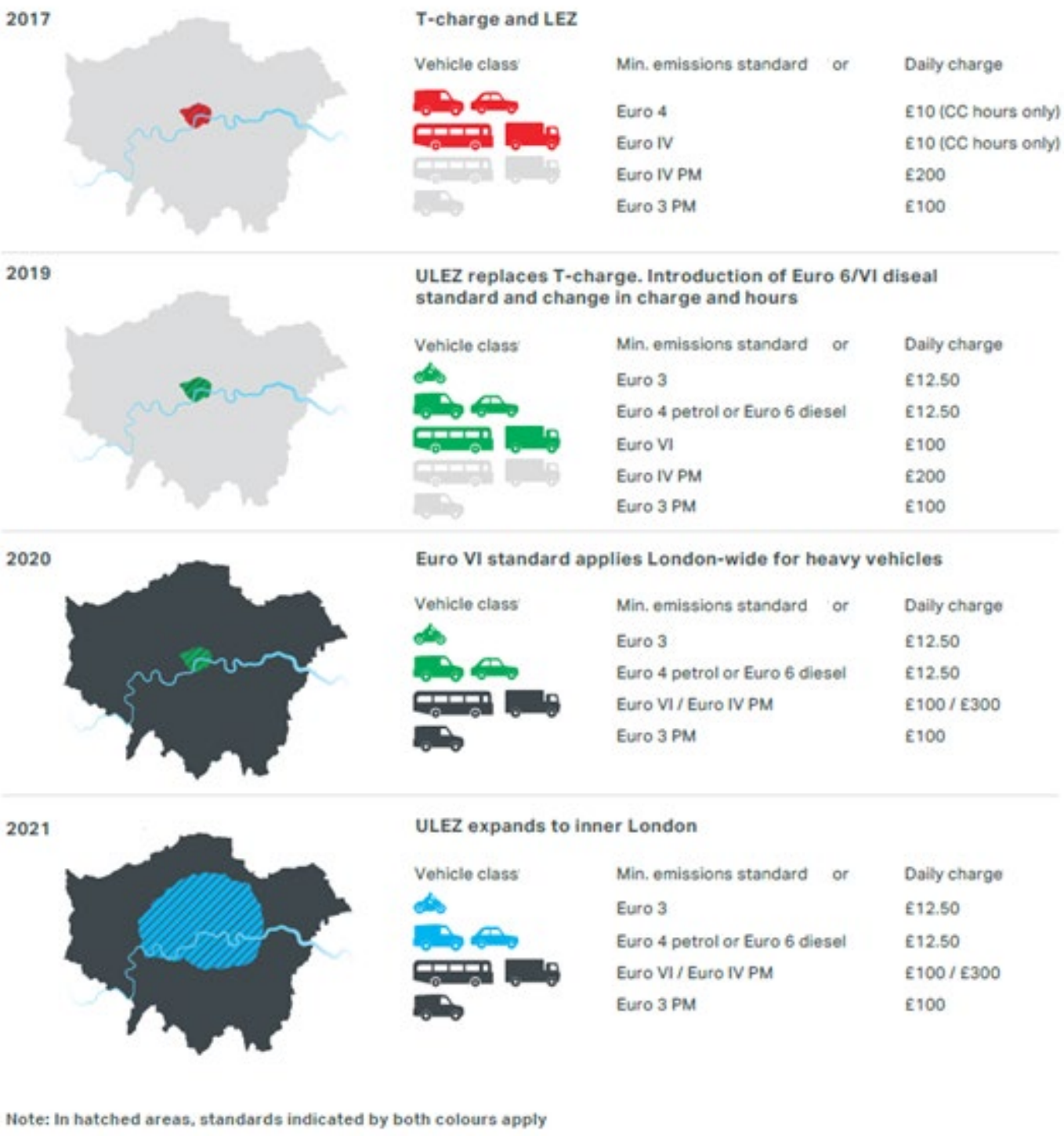

Figure 7. The central and inner London Ultra-Low Emission Zone and financial penalties for different vehicle sectors.

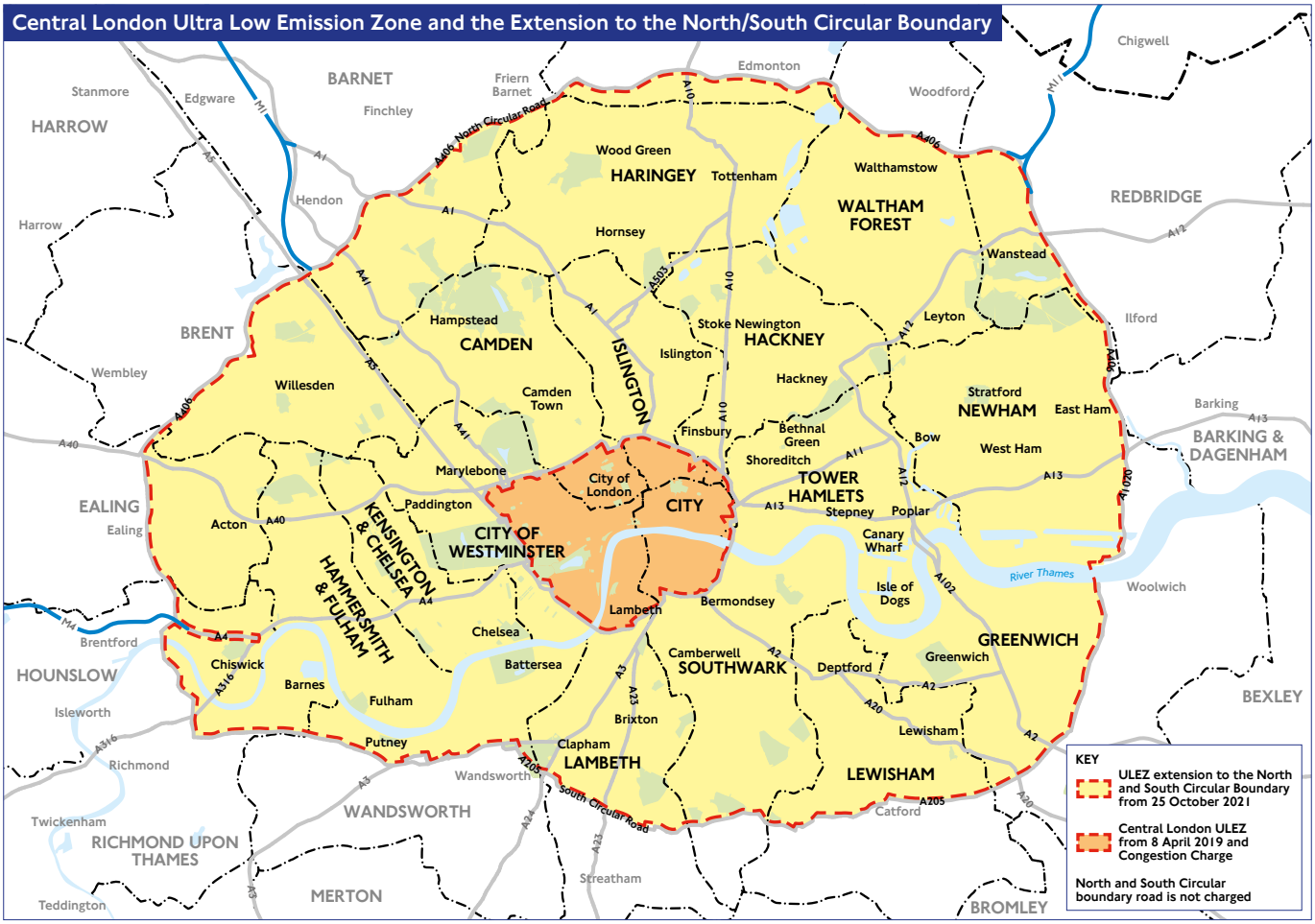

Figure 8. Map of central (orange) and inner (yellow) London Ultra-Low Emission Zone. This shows that all of Haringey's roads will be covered by the ULEZ from Oct 2021

Under the ULEZ, daily charges for vehicles are determined by its impact on air quality. European emissions standards are a set of regulations, which define acceptable limits for exhaust emissions of vehicles sold in the European Union. The aim of Euro emissions standards is to reduce the levels of harmful exhaust emissions. Petrol and diesel engines produce different types of emissions and are therefore subject to different standards. Furthermore, the age of a vehicle determines its emissions standards. The standards for the ULEZ charging system are:

- Euro 3 for motorcycles, mopeds, motorised tricycles and quadricyles
- Euro 4 for petrol cars, vans, minibuses and other specialist vehicles
- Euro 6 for diesel cars, vans and minibuses (and other specialist vehicles), lorries, buses and coaches and other specialist heavy vehicles.[19]

London Environment Strategy, 2018[20]

The Mayor is taking steps for London to be a zero carbon city by 2050, with energy efficient buildings, clean transport and clean energy. Decarbonisation will have to be realised across all sectors. To meet this ambition, the transport sector will have to cut its emissions by 72 per cent by 2050. Efforts to tackle non-road emissions, such as from our waterways, are also included.

Draft New London Plan, 2019[21]

The Mayor of London is keen to tackle GHG emissions, which is reflected in the emerging New London Plan (Intend to Publish version, 2019). Specific policies on providing EV charging infrastructure in new developments are highlighted:

- Policy T6.1 Residential parking: All residential car parking spaces must provide infrastructure for electric or ULEVs. At least 20 per cent of spaces should have active charging facilities, with passive

19 TfL, 2018
20 London Environment Strategy, 2018
21 Draft New London Plan, 2017

provision for all remaining spaces.

- Policy T6.2 Office parking: Operational parking requirements should be considered on a case-by-case basis. All operational parking must provide infrastructure for electric or other ULEVs, including active charging points for all taxi spaces.
- Policy T6.4 Hotel and leisure uses parking: All operational parking must provide infrastructure for electric or other ULEVs, including active charging points for all taxi spaces.

An Ultra-Low Emission Vehicle Delivery Plan for London, 2016[22]

Transport for London (TfL) has set ambitious targets in this delivery plan. Its vision is for London to be the ULEV capital of Europe. Guiding principles to increase ULEV uptake include:

- TfL and Greater London Authority provide strategic direction;
- ULEVs are a part of a sustainable transport system;
- An open, fair accessible market;
- The right infrastructure in the right place;
- Boroughs play a vital supporting role;
- Incentivising early ULEV uptake;
- Working together to maximise benefits.

Haringey context

Haringey Transport Strategy 2018-2028[23]

Adopted in March 2018, this strategy defines our vision as 'to deliver a transport system that matches our growth and prosperity ambitions, whilst also improving our environment, providing accessible choices and making walking, cycling and the use of public transport a first choice for all.' The vision will be achieved through four outcomes:

- A public transport network that is better connected, has greater capacity and is more accessible, supporting our growth ambitions;
- Active travel the default choice, with more people choosing to travel by walking or cycling;
- An improved air quality and a reduction in carbon emissions from transport;

A well-maintained road network that is less congested and safer.

Haringey Air Quality Action Plan 2018-2023[24]

A part of the Mayor's Air Quality Action Fund, funds local boroughs to develop air quality action plans (AQAP). Haringey's AQAP aims to reduce levels of NOx and PM across all sources. This action plan seeks to address vehicular emissions. Specific objectives that this action plan will support in the AQAP are:

- **Public health and awareness raising:** increasing awareness can drive behavioural change to lower emissions as well as to reduce exposure to air pollution;
- **Borough fleet actions:** our fleet includes light and heavy-duty diesel-fuelled vehicles such as maintenance vans and parks vehicles with high NO2 emissions. We want to lead by example and tackle our own fleet;
- **Cleaner transport:** road transport is the main source of air pollution in London. We need to incentivise a change to walking, cycling, public transport and ULEVs as far as possible.

Haringey Climate Action Plan, 2020

The council has committed to cutting the borough's carbon emissions by 40 per cent by 2020 and 100 per cent by 2041. We have achieved a 35.9 per cent reduction in emissions between 2005 and 2017. However, when taking into account Haringey's population growth, and our emissions per capita, emissions have reduced by 44.4 per cent.

We have already taken strides in tackling emissions; in the domestic and industrial and commercial sector. These sectors saw a decrease in emissions between 2005 and 2017. The borough's emissions contribution by sector in 2017, is shown in Figure 9. Haringey's transport

22 An Ultra Low Emission Vehicle Delivery Plan for London, 2016
23 Haringey Transport Strategy, 2018
24 Haringey Air Quality Action Plan, 2010 - 2018

emissions decreased by 23.3 per cent in this time, which is higher than the 7.6 per cent average decrease across the UK. Between 2016 and 2017, transport emissions in Haringey decreased by 2.6 per cent, which is the 34th highest decrease in transport emissions out of 391 local authorities. This has been achieved despite an increase in the number of passenger vehicles on the road and the vehicle kilometres travelled during the same period.[25]

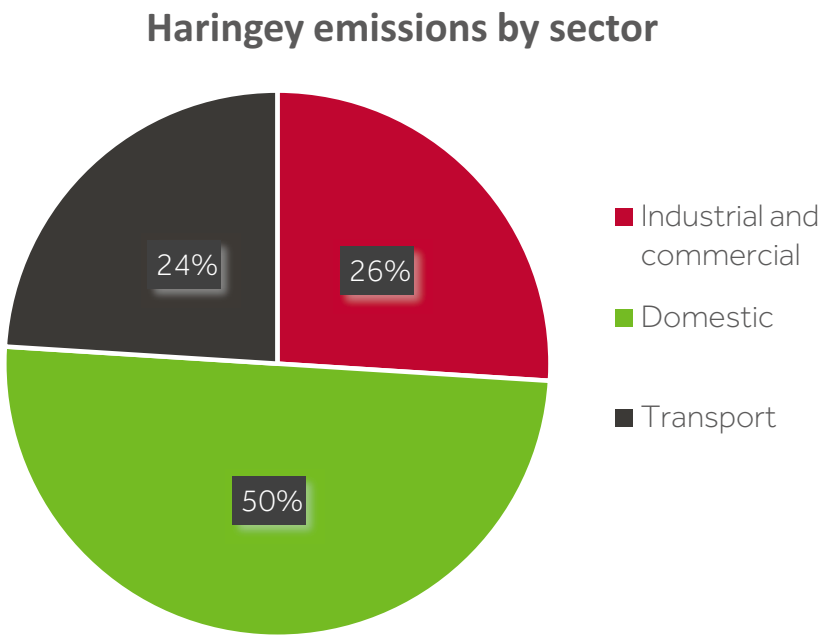

Figure 9. Haringey greenhouse gas emission sources in 2017

The Haringey Climate Action Plan is the latest iteration of the council's efforts to achieve zero emission, by 2041. It commits the council to reducing emissions across all sectors: energy, workplaces, homes and transport. Key transport measures that this action plan will support are:

- Programme to incentivise move to low and zero tailpipe emission vehicles by residents and businesses;
- Expand provision and accessibility of EV charging infrastructure.

Stage 1 reports of the Haringey Climate Action Plan (The Direction of Travel[26] and Technical Report[27]) can be read on the council's website.

Wood Green Area Action Plan (emerging)[28]

The Wood Green Area Action Plan will establish the statutory basis for determining planning applications in Haringey. Once adopted, it will form part of the Haringey Local Plan. Within this document, Wood Green prescribes all new developments to provide 100 per cent active charging points on all new parking spaces delivered.

25 Haringey Annual Carbon Report, 2017
26 Haringey Direction of Travel, 2018
27 Haringey Technical Report, 2018
28 Wood Green Area Action Plan, 2017

Vehicle types

Private vehicles

Vehicle ownership in Haringey is declining, with less than half of households owning a car or a van (approximately 48 per cent).[29] Therefore, the majority of Haringey residents do not own a car or van.

At the end of 2018, there were 622 registered ULEVs in the borough.[30]

Private vehic Taxis and private-hire vehicles les

In 2017, London's black cabs announced that they would be going electric – transitioning to London's Electric Vehicle Company (LEVC). All new taxis bought from 2018 onwards are now zero-emission capable. In line with the Mayor of London's ambition to electrify the taxi fleet, the council aims to also work with the taxi association to identify strategic locations to deploy rapid charging infrastructure. The council already has one rapid charging point on Gladstone Avenue (N22) for the exclusive use of taxis.

Buses

From 2020, all new double decker buses will be hybrid, electric or hydrogen to green London's bus fleet. In central London, double decker buses will be hybrid by 2019 and single decker buses will emit zero exhaust emissions by 2020. Whilst buses operate separately to the council, we can still work closely with bus fleet operators to ensure there is a smooth transition in the electrification of buses – in line with the Mayor of London's ambitions.

TfL and bus operators are working closely to deliver electric buses and routes. There are currently seven routes that have fully electric buses.

Whilst buses operate separately to the council, we can still work closely with bus fleet operators to ensure there is a smooth transition in the electrification of buses – in line with the Mayor of London's ambitions.

Haringey hosts two Low Emission Bus Zones (High Road to Green Lanes and Edmonton to Seven Sisters), as shown in Figure 10. The buses on these routes are a combination of hybrid and clean buses that meet Euro 6 standards, reducing NOx emissions in the zones by 84 per cent. These buses will travel further past these routes, extending benefits to the wider community and area.

Figure 10. Low Emission Bus Zone routes in Haringey

Council fleets

The council-owned vehicle fleet has diminished due to outsourcing, with only a handful of council owned vehicles remaining. Currently, the council owns two EVs and an e-bike, which are available for staff use. All vehicles in council ownership are currently compliant with the requirements of the ULEZ. However, we recognise that being ULEZ compliant still allows for petrol and diesel vehicles. We therefore want to increase the number of EVs where applicable and economically viable. This is currently being done via

29 2011 Census data
30 Dataset VEH0132 from: https://www.gov.uk/government/statistical-data-sets/all-vehicles-veh01

a technology that can provide a fleet review, which outlines alternative vehicle options (including electric vehicles), lifecycle costs and where to charge. This is joint with four week trials of an electric van (eNV200), to overcome psychological barriers around EVs. Both the technology and trials are being used as and when a service area is seeking to buy new vehicles.

The council also have fleets through its partner contracts, such as waste services (Veolia) and Homes for Haringey. Our partners can also utilise the fleet review and trials. We can further influence uptake of EVs where applicable, through criteria in procurement contracts to favour cleaner vehicles.

SMEs and commercial vehicles

Commercial vehicles, including those that are in use most of the day, will produce significantly more emissions than a private car. It is therefore integral to support businesses to make their fleets more carbon and air quality friendly. There are approximately 13,000 SMEs in the borough, with 93 per cent of these being microbusinesses (having less than 10 employees). These businesses often have competing priorities and therefore, adequate support is required to help these smaller companies understand their options and switch to a zero-emission vehicle.

There are various ways we can work with businesses: providing free fleet reviews; EV trials; guidance on alternative vehicle options; advertising grants available from the GLA; and package deals for mopeds with GreenMo. The council will work with businesses in Wood Green's Business Improvement District, Crouch End's Liveable Neighbourhood scheme, and make efforts with SMEs and larger businesses across the borough.

We will also seek to install charging points in various locations to support businesses: fast and rapid charging points in strategic locations (e.g. near town centres or industrial land) and slow charging in residential areas to support employees charging business vehicles at home.

Car clubs

Car clubs provide socially inclusive, low emission mobility, which helps to break dependency on private car ownership. They offer affordable access to individuals and at the same time, reduce congestion, reduce emissions, and improve air quality.

Three car clubs operate in the borough: **Zipcar**, **Enterprise Car Club** and **DriveNow**. Zipcar and Enterprise operate on a fixed bay model, meaning there are designated bays for these vehicles to park in. There are 72 **Zipcar** bays at 54 locations across the borough, with around 80 vehicles. This does not include those on private developments. Enterprise Car Club has 3 vehicles in the borough. These car clubs provide round trip services.

DriveNow is a floating car club, which does not require fixed bays. There is approximately 80 in the borough and 18% of these are electric. **DriveNow** provides one-way journeys and cars can be picked up and parked in any legal parking bay in the borough.

The council will give prioritisation for car clubs which operate ULEVs within their fleet in Haringey. Any new permits will prioritise ULEVs. Furthermore, when existing permits for fleets are up for renewal it is expected that fleet operators will increase the number of ULEVs within their fleet.

E-Bikes, electric powered two wheelers and motorcycles

Electric bicycles (e-bikes) and powered two-wheelers (PTWs) are excellent alternatives to vehicle use. Powered two-wheelers (PTWs) cover a wide range of vehicles and includes mopeds and motorcycles, as well as other vehicles. Their main benefit, aside from being having zero tailpipe emissions and lower lifecycle emissions, is that they take up less road space and therefore decrease congestion. This is especially important in Haringey and across London, where congestion is prominent.

E-bikes have rechargeable batteries that can last two to four hours and can reach 30 or 40 kilometres without recharging. E-bikes are considered as regular bicycles in the UK and therefore require no tax, insurance MOT or license, and therefore saves money to the user. They also incorporate active travel.

Canal boats

There are approximately 80 permanently moored canal boats on Haringey's stretch of the River Lea. Whilst they comprise a small percentage of Haringey's total fleets, they represent a small but significant proportion of vehicular emissions.

Objectives and actions

Outlined below is the scope of Action Plan and how its proposals will be measured in terms of cost, impact and timescales.

Scope	Within the Action Plan, the council will target different vehicle sectors to ensure there is a greater proportion of ULEVs across all vehicle types, including private cars, SMEs and commercial fleets, buses, taxis, car clubs, e-bikes, PTWs and canal boats.
Cost	The cost of each action is as follows: £ = less than £10,000 ££ = between £10,000 and £50,000 £££ = above £50,000 Actions are funded through various means: The council: relevant service area budgets including LIP funding, and Section 106 agreements External parties: Transport for London (Go Ultra Low City Scheme, Neighbourhoods of the Future, Local Implementation Plan), private operators, the commercial sector and developers.
Impact	The impact of the action is measured in terms of how the action will lead to a greater uptake of ULEVs in the borough: High = contributes significantly to achievement and success of the objective Medium = somewhat contributes to the achievement and success of the objective Low = contributes a little to the achievement of the objective
Timescale for implementation	The time to deliver the action is categorised by: Immediate = an action that can be implemented on as soon as the Action Plan is adopted Short term = actions that can be implemented within 1-2 years Medium term = actions that can be implemented within 2-5 years Long term = actions that can be implemented after 6+ years

Monitoring and review

The Action Plan will be reviewed and assessed on an annual basis. This is to ensure that the council is still on the right track to deliver a borough with clean transport options, as well as to re-align with regional and national progress on ULEVs.

Objective 1: Increase public awareness of ultra-low emission vehicles, their benefits and charging technology through public campaigns and education

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation is monitored
1	Create promotional material on ultra-low emission vehicles and disseminate across the borough and on the council website.	This material will be for various mediums: online and physical e.g. an article in the council newsletter. This will include advertising the Government's grant schemes available. Promoting use of a charging point locating app or website.	Haringey Council (Carbon Management, Communications)	£ Transport for London – Neighbourhoods of the Future	Low	Short	Adverts disseminated across the council's channels.
2	Host events open to the public to promote electric vehicles.	Work with partners to deliver test drive events (for cars, vans, e-bikes, e-cargo bikes, motorcycles). Make aware the benefits of an ultra-low emission vehicle. Including economic benefits to the user, public health and local air pollution advantages.	Haringey Council (Carbon Management, Communications) Partners (EV manufacturers, Haringey Cycling Campaign)	£ Carbon Management budget, Transport for London – Neighbourhoods of the Future	Medium	Short	Two events per year held.
3	Issue a series of Planning Advice Notes for installing electric vehicle charging points for different user groups.	This guidance aims to make the process of installing charging points easier for developers, highway engineers, residents and businesses.	Haringey Council (Carbon Management, Planning)	£ Transport for London – Neighbourhoods of the Future	Low	Short	Guidance uploaded to Council website and shared with other local authorities.

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation is monitored
4	Lead a media campaign aimed at changing boating culture. Share good practice to help boaters avoid diesel engines.	Through articles in the local press, which are known to be read by boaters. Promote and support blogs, vlogs and podcasts on the Council's social media platforms. The content of this would include helping boaters avoid diesel engine through better design and maintenance.	Haringey Council (Carbon Management, Communications) Partners (Canal and River Trust)	£ Carbon Management budget and Canal and River Trust	Low	Short	Media campaign completed.
5	Raise awareness through our social media platforms and hold open sessions on the ULEZ.	Communicate the impact of the ULEZ and the options residents have to circumnavigate daily charges. This will be done in conjunction with TfL's communications programme on the ULEZ.	Haringey Council (Carbon Management, Communications) Partners (Transport for London)	£ Transport for London – Neighbourhoods of the Future	Medium	Short	Social media platforms utilised to convey messages on the ULEZ. At least 1 open house session on the ULEZ for residents and 1 for businesses.
6	To lobby for a single universal connection for all vehicles.	Work with Office for Low Emission Vehicles to mandate a universal connection.	Haringey Council (Carbon Management) Partners (Office for Low Emission Vehicles, EV manufacturers)	£ Carbon Management budget	Low	Short	Continued dialogue with Government bodies and EV manufacturers.

Objective 2: For the Council fleet to lead by example and have an all ultra-low emission fleet by 2030

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation is monitored
7	Increase the number of electric, hydrogen, hybrid and cleaner vehicles in the boroughs' fleet.	Review Council fleet to identify possible vehicles that could be replaced by cleaner vehicles. This includes bicycles, e-bikes and e-cargo bikes	Haringey Council (Client and Commissioning, Pollution Team, Procurement, Transport Planning)	Unknown Further work to analyse cost savings to the council (cost of vehicles and running costs)	Low	Short to medium	Number of ULEVs in council fleet. Review and investigation outcomes.
8	Review use of staff car club cars and investigate viability of buying more.	The Council can use two electric hybrid Toyota Prius vehicles, provided by Zipcar.	Haringey Council (Client and Commissioning, Pollution Team, Procurement, Transport Planning)	Unknown Further work to analyse cost savings to Council (cost of vehicles and running costs)	Low	Short to medium	Review and investigation outcomes.
9	Review Staff Travel Plan and staff travel payments to incentivise use of cleaner vehicles.	Investigate tax benefits of electric vehicles – consider incorporation in travel plan. Cleaner vehicles include electric vehicles, e-bikes and e-motorcycles.	Haringey Council (Client and Commissioning, Pollution Team, Procurement, Transport Planning)	Unknown Further work to analyse cost savings to Council (cost of vehicles and running costs)	Low	Short to medium	Review and investigation outcomes.

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation is monitored
10	Increase the number of ULEVs in partner fleets through procurement process.	To incentivise providers to use ULEVs.	Haringey Council (Client and Commissioning, Pollution Team, Procurement, Transport Planning) Partners (Veolia, Homes for Haringey, passenger transport and other partners)	Unknown	Medium	Short to medium	Number of ULEVs in partner fleets.
11	Install charging points in Council car parks and depots.	This is for the encouragement of staff to switch to an EV, as well as to aid the Council fleet to electrify.	Haringey Council (Carbon Management, Operations)	££	Low	Short to medium	Number of charging points available to Council staff.

Objective 3: Collaboration with partners to ensure all commercial fleets operating in the borough use only ultra-low emission vehicles by 2040

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation is monitored
12	Car clubs: Implement a financial mechanism to encourage car clubs in the borough to increase their electric fleet.	The Council will give prioritisation for car clubs, which have ULEVs within their fleet in Haringey. Any new permits will be prioritising ULEVs. Furthermore, when existing permits for fleets are up for renewal it is expected that fleet operators will increase the number of ULEVs within their fleet. This will be enforced where the Council or its providers have installed EVCPs into bays.	Haringey Council (Carbon Management, Transport Planning, Operations)	£ Transport for London - Local Implementation Plan	Medium	Long	By 2020 - at least 50% of all permits given out to car clubs will be for ULEVs. By 2023 - at least 70% of all permits given out to car clubs will be for ULEVs. By 2026 - at least 90% of all permits given out to car clubs will be for ULEVs. By 2030 - 100% of permits given out to car clubs will be for ULEVs.
13	Car clubs: Work with car clubs to identify opportunities to access charging points.	Investigate designating bays for electric car clubs.	Haringey Council (Carbon Management, Operations)	£ Transport for London – Local Implementation Plan Infrastructure funded by car clubs.	Low	Medium	Investigation complete.

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation is monitored
14	Buses: Investigate potential locations for bus recharging hubs, electric bus needs, and electric bus charging patterns.	Work with bus operators to deliver electric bus routes and electric support vehicles.	Haringey Council (Carbon Management) Partners (UK Power Networks, Arriva, Go Ahead, Transport for London)	£££ Transport for London (joint work between UKPN and Transport for London)	High	Medium	Investigation complete.
15	Service stations: Support planning applications for rapid charging.	Service stations are a good location for rapid charging points as it mimics current refuelling patterns and behaviours.	Haringey Council (Carbon Management, Planning, Development Management)	£ Commercial sector	High	Medium	Number of planning applications with electric vehicle charging points at service stations approved.
16	Canal boats: Support the transfer to cleaner technologies.	Look for opportunities to achieve scrappage schemes, or through bulk buying environmentally friendly products that could be offered at a discount to boaters, thus designing out emissions. Work with partners.	Haringey Council (Carbon Management) Partners (Canal and River Trust)	£ Carbon Management budget and Canal and River Trust	Low	Medium	Number of permanently moored canal boats in Haringey that have switched to cleaner technologies.

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation is monitored
17	SMEs: Develop a package of measures to support SMEs to switch to electric vehicles, including e-cargo bikes.	Provide business advice note on EVs, e-bikes and e-cargo bikes, and charging infrastructure. Provide free fleet reviews for businesses. Conduct EV trials for the use of businesses. Install charging points on Council industrial land. Source funding to support SMEs switch to cleaner technologies	Haringey Council (Carbon Management, Economic Development, Property) Partners (Energy Saving Trust, UKPN, GLA, EV providers, Wood Green Business Improvement District, Crouch End Liveable Neighbourhood, CleanCar)	£££ Carbon Management budget and Transport for London - Neighbourhoods of the Future	High	Medium	Number of SMEs with electric fleets.
18	Work with the biggest commercial fleet operators in the borough to increase uptake of EVs.	The Council will identify the top 10 biggest fleet operators based in Haringey. We will work with them to phase out conventional fleets.	Haringey Council (Carbon Management, Economic Development)	£ Carbon Management budget	High	Medium	Number of top 10 largest commercial fleets with electric fleets.

Objective 4: To develop an electric vehicle charging network in line with expected demand over the next 10 years

Action ID	Action Description	Further Information	Responsibility	Cost (£/££/£££/)	Impact (H/M/L)	Timescale (S/M/L)	How implementation is monitored
19	Deliver charging infrastructure in line with EV registrations in the borough and Transport for London EV demand data.	Work with Transport for London and charging point companies to identify hotspots and EV growth rates to be able to allocate EVCPs accordingly. This includes Homes for Haringey properties.	Haringey Council (Carbon Management, Operations) Partners (Transport for London, charging point companies)	£££ Transport for London (Go Ultra Low City Scheme and Local Implementation Plan), commercial sector, S106 agreements	High	Medium	Review Transport for London's predictions on an annual basis. Have a publically accessible charging point no more than a 5-minute walk away from an EV user. For Blue Badge holders this would be as close as possible.
20	Deliver rapid charging units in suitable locations in line with demand.	Rapid charging is ideal for fleets, taxis and private hire vehicles that need to be on the move. Rapid charging units will allow businesses to charge their fleets with confidence that their fleets will not be recharging for too long. Rapids will be installed at taxi ranks or at rest facilities. Suitable locations include taxi stands, resting facilities, stations, and in cultural hotspots in the borough.	Haringey Council (Carbon Management, Planning, Development Control, Operations) Partners (Transport for London)	£££ Transport for London – Go Ultra Low City Scheme and operators	Medium	Short to medium	Number of rapid charging hubs.
21	To open up the tender process to many suppliers to ensure best-value charging for users is achieved.	Having a range of charging operators allows for competition and better prices to the customer.	Haringey Council (Carbon Management)	£ Commercial sector	Low	Short	Number of charging point operators in tender process.

Action ID	Action Description	Further Information	Responsibility	Cost (£/££/£££/)	Impact (H/M/L)	Timescale (S/M/L)	How implementation is monitored
22	Ensure that new developments deliver the required number of recharging points in line with policy.	London Policy requires that 40% of all new parking spaces having recharging infrastructure in place. In Wood Green this is 100%.	Haringey Council (Planning)	£ Developers. If policy requirements are not fulfilled, charging points will be installed in the vicinity, funded through S106 agreements	Medium	Immediately	Number of electric vehicle charging points.
23	Prioritise EV bays when delivering new parking bays on the public highway and public car parks.	All new parking bays will be electric where possible, and will come with standard chargers at the minimum.	Haringey Council (Operations, Planning)	£ Carbon Management budget	Medium	Long	Number of electric vehicle charging bays.
24	Minimise impact on the streetscape when installing charging points.	Ensure there is less street clutter through integrated feeder pillars. Charging points should not impede the footway and should ensure there is clear access for wheelchair users and pushchairs. Where necessary and feasible, charging points will be installed on the carriageway. For rapid charging points, the Council will first seek to install them in car parks, and if not possible, then build out the footway to ensure accessibility of the streetscape is maintained.	Haringey Council (Operations, Planning)	£ Operations budget	Low	Short	A minimum of 1.8 m wide space on the footway is maintained.

Action ID	Action Description	Further Information	Responsibility	Cost (£/££/£££/)	Impact (H/M/L)	Timescale (S/M/L)	How implementation is monitored
25	Investigate the potential of towpath charging infrastructure for canal boats.	There is a lack of charging infrastructure for canal boats, inhibiting the shift to electric engines. Work with partners to identify electricity needs and infrastructure.	Haringey Council (Carbon Management) Partners (UK Power Networks, Canal and River Trust)	£ Carbon Management, Air Quality and Canal and River Trust	Low	Short	Analyses of towpath infrastructure complete.
26	Review planning policy with ambition to move to 100% active across the borough in all new developments.	Where not feasible or viable, the Council will seek to claim remuneration and re-invest it into EV infrastructure through Section 106.	Haringey Council (Carbon Management, Planning)	£ Carbon Management budget	High	Long	Review and consultation on this policy.
27	Ensure all charging points are income generating and low-cost to the Council.	Income generated will be reinvested into sustainable transport schemes.	Haringey Council (Carbon Management, Operations)	Income-generating	Low	Short	Added economic benefit to Council.

Objective 5: To be a leader in innovation for carbon-friendly and cost-efficient charging technology

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation will be monitored
28	Retrofit or replace existing electrical street furniture to accommodate charging, including 2 lamp column chargers at 10 locations.	Lamp column charging provides immediate access to the electricity supply. The Council will conduct a lamp column charging trial. This will be trialled in a suitable ward over a period of 1 year with aim to further adapt existing street infrastructure and to reduce localised parking pressures, depending on results.	Haringey Council (Carbon Management, Operations)	£ Transport for London - Go Ultra Low City Scheme and Local Implementation Plan	Medium	Short	Number of street furniture retrofitted or replaced. 20 lamp column chargers delivered.

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation will be monitored
29	Seek ways to harness the benefits of smart charging networks.	OLEV's Automated and Electric Vehicle Act 2018 mandates all new chargers are smart. This can provide benefits around demand management.	Haringey Council (Planning, Operations) Partners (academia, charging point companies)	£ Private operators	Low	Immediately	Percentage of new points that are smart-capable.
30	Install a solar-powered charging station.	To encourage the relationship between low carbon power and clean transport for public awareness.	Haringey Council (Carbon Management, Planning, Wood Green Regeneration, Tottenham Regeneration)	£££ Transport for London - Neighbourhoods of the Future	High	Short	1 solar canopy charging station installed in the borough.
31	Investigate the hydrogen refuelling needs and opportunities to deliver this infrastructure.	Research shows hydrogen fuel is most suited to power HDVs due to power needs and range. We will identify the opportunities and requirements to develop a hydrogen-refuelling network/ depot on industrial land in the borough. A feasibility assessment and business case will be developed. Work with our contractor fleets to identify if hydrogen vehicles are necessary, and what their needs are. Keep up-to-date with research, academia and technology to stay ahead of hydrogen developments.	Haringey Council (Carbon Management) Partners (North London Transport Partnership, Transport for London)	££ Carbon Management budget	Low	Short to medium	Investigation and report complete.

Action ID	Action	Description	Responsibility	Cost (£/££/£££)	Impact (L/M/H)	Timescale (S/M/L)	How implementation will be monitored
32	Trial a new and emerging charging technology.	This could be either on the public highway or in private car parks and could include vehicle to grid technology.	Haringey Council (Carbon Management, Operations, Economic Development)	Unknown Funding options: Transport for London – Go Ultra Low City Scheme/Local Implementation Plan; OLEV; private operators	Unknown	Medium	Trial and analysis of at least one new technology complete.