

LOW EMISSION VEHICLE CHARGING STRATEGY 2018-2022

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Lewisham

**PROJECT
CENTRE**

EXECUTIVE SUMMARY

Vision: To ensure that all of Lewisham's residents, businesses and visitors are within 500m of a charging point by 2020, with a range of options available that remain fit for purpose and encourage further uptake of low emission vehicles.

Improving local air quality by reducing emissions from road traffic is a priority for Lewisham. Providing an accessible network of electric vehicle charging points will play a vital role in facilitating the uptake of electric vehicles, which is a necessity to deliver air quality improvements and achieve the Mayor of London's target for a zero emission transport network by 2050.

Electric vehicle ownership in Lewisham is forecast to rise rapidly in the next eight years with an estimated 1,398 plus electric vehicles registered to Lewisham residents and businesses by 2025 (*TfL ULEV Delivery Plan*). This represents a huge rise in ownership levels in the borough from just 129 electric vehicles registered at the start of 2017.

This strategy assesses the main challenges that Lewisham face to achieve including outlining the existing charging offer that exists throughout Lewisham.

A range of electric vehicle charging infrastructure will be required to meet the varied needs of residents and commercial electric vehicle users. These will be located in appropriate locations in residential streets, car parks and popular destinations such as high streets, shopping and leisure centres.

The four key objectives of this strategy are to:

- Support the following types of charging through provision of appropriate infrastructure in the right locations:
 - Charging points in residential areas
 - Charging points in town centres, workplaces and at other key destinations
 - Charging points for car club vehicles
 - Charging points for freight and servicing vehicles
 - Charging points for taxis
- Ensure that provision and maintenance of electric vehicle charging points (EVCPs) becomes cost neutral through the pursuit of infrastructure funding opportunities and income from the charging points;
- Ensure the charging network remains fit for purpose, can cater for future expansion and is adaptable to emerging technologies;
- Encourage the uptake of electric vehicles through supporting policy frameworks, initiatives, and public engagement exercises, drawing on best practise from around the UK and beyond.

This document will assist Lewisham by setting out how it will consider expansion in the future by identifying the most suitable locations and types of charging infrastructure required to encourage electric vehicle uptake and meet growing demand for charging facilities across the borough.

CONTENTS

PAGE NO.

| | |
|--|----|
| CONTENTS PAGE | 3 |
| GLOSSARY | 4 |
| EXECUTIVE SUMMARY | 2 |
| CHAPTER ONE – POLICY CONTEXT | 5 |
| CHAPTER TWO – LEWISHAM CONTEXT | 10 |
| CHAPTER THREE – CHARGING NETWORKS | 17 |
| CHAPTER FOUR – LEWISHAM’S OBJECTIVES & KEY ACTIONS | 25 |
| OBJECTIVE 1 | 26 |
| 1A. CHARGING POINTS IN RESIDENTIAL AREAS | 26 |
| 1B. CHARGING POINTS IN TOWN CENTRES | 26 |
| 1C. CHARGING POINTS FOR CAR CLUB VEHICLES | 27 |
| 1D. CHARGING POINTS FOR FREIGHT AND SERVICING VEHICLES | 28 |
| 1E. CHARGING POINTS FOR TAXIS | 30 |
| OBJECTIVE 2 | 31 |
| OBJECTIVE 3 | 36 |
| OBJECTIVE 4 | 39 |
| CHAPTER FIVE – DELIVERY PLAN & MONITORING | 40 |
| APPENDIX | 43 |

GLOSSARY

- AQMA;** Air Quality Management Area - An area in which each local authority measures air pollution and tries to predict how it will change over the next few years. If a local authority finds any places where UK pollution objectives are not likely to be achieved, it must declare an Air Quality Management Area there.
- CIL;** Community Infrastructure Levy - Planning charge, introduced by the Planning Act 2008 as a tool for local authorities in England and Wales to help deliver infrastructure to support the development of their area.
- CO₂;** Carbon Dioxide - Pollution mostly as a result of the burning of fossil fuels
- EVCPS;** Electric vehicle charging points
- EU;** European Union
- GULCS;** Go Ultra Low City Scheme
- LEZ;** Low Emission Zone
- MTS;** Mayor's Transport Strategy
- NO_x;** Nitrogen Oxide - 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 (NO_x).
- NO₂;** Nitrogen Dioxide
- OLEV;** Office for Low Emission Vehicles
- PHV;** Private Hire Vehicle
- PM;** Particulate Matter - also known as particle pollution, is a complex mixture of extremely small particles and liquid droplets that get into the air. Once inhaled, these particles can affect the heart and lungs and cause serious health effects
- RFID;** Radio-Frequency Identification - the use of radio waves to read and capture information stored on a tag attached to an object, such as a contactless payment card
- TfL;** Transport for London
- ULEV;** Ultra Low Emission Vehicle
- ULEZ;** Ultra Low Emission Zone
- ZEC;** Zero Emission Capable

1. CHAPTER ONE

Policy Context

Air quality has become a priority in recent years as the UK struggles to meet its legal obligations to control levels of pollutants in the air.

CO₂ Emissions

The Climate Change Act 2008 – This Act saw the UK tasked with reducing emissions by at least 80% by 2050, with London being set a target to reduce annual emissions of CO₂ by 60% in the same time frame. The responsibility was placed on all sectors; however the Mayor's Climate Change Mitigation and Energy Strategy (CCMES) suggested the transport sector should contribute to the wider target by making a 48% reduction in transport CO₂ emissions. Considering that the population is expected to increase within London, these tasks will be particularly challenging.

Nitrogen Oxide and Particulate Matter

Road transport is responsible for nearly half of both NO_x and PM emissions across greater and central London, with diesel engines causing around 40% of NO_x emission across the whole city. London still does not meet the legal EU limits for NO₂ and it is argued that following the current policy, the legal NO₂ limit will not be reached until at least 2025.

Future Estimates of London's Air Quality

London is seeing its position in liveability rankings dropping behind cities like Berlin and Paris, who are taking advanced action to minimise air pollution and congestion.

It is estimated that by 2020, air quality will have improved as a consequence of the emphasis being placed on technological advances in vehicle design, together with policies and legislation geared at reducing emissions across London and the EU.

Impact on Health

In 2010, short-term exposure to both pollutants in London was associated with 1,990 hospital admissions for respiratory problems resulting from PM_{2.5}, and 420 from NO₂. 740 admissions were for cardiovascular ailments associated with PM_{2.5}. It is estimated that all these health effects imposed an economic cost of between £1.4 billion and £3.7 billion.

For long term exposure, researchers from King's College London found the number of premature deaths in London associated with PM_{2.5} in 2010 was 3,537, while the number of deaths associated with NO₂ was believed to be 5,879 – creating a total of 9,416 premature deaths attributed to local air pollution.

"The Government has set out to ban sale of all diesel and petrol cars and vans from 2040"

- Department for Transport, 2017

Mayors Transport Strategy (MTS3)

The Mayor's aims are for all taxis and Private Hire Vehicles (PHVs) to be zero emission capable by 2033, for all buses to be zero emission by 2037, and for London's entire transport system and all new road vehicles driven in London to be zero emission by 2040.

Three key themes are at the heart of this strategy:

A Good Public Transport Experience

Public transport is the most efficient way for people to travel over distances that are too long to walk or cycle, and a shift from private car to public transport could dramatically reduce the number of vehicles on London's streets.

New Homes and Jobs

More people than ever want to live and work in London. Planning the city around walking, cycling and public transport use will unlock growth in new areas and ensure that London grows in a way that benefits everyone.

Healthy Streets and Healthy People

Creating streets and street networks that encourage walking, cycling and public transport use will reduce car dependency and the health problems it creates.

Healthy Streets Concept



The MTS introduces the concept of healthy streets and suggests that streets make up 80% of the city's public space.

There are 10 components of the healthy streets agenda, two of which directly relate to electric vehicles; improving air quality and reducing traffic noise. Electric vehicles would contribute to achieving both of these goals within Lewisham and across the city.

The Healthy Streets Approach provides a structure for placing human health and experience at the centre of planning the city and recognises improving air quality benefits everyone and reduces unfair health inequalities.

Expected Outcomes

The strategy outlines 9 expected outcomes; three of which relate to increased uptake of electric vehicles:

- London's streets will be healthy and more Londoners will travel actively
- London's streets will be clean and green
- Active, efficient and sustainable travel will be the best option in new developments

Considering charging facilities during the planning stage

The London Plan

The London Plan states that all new developments must provide 20% active provision of parking spaces with electric vehicle chargers and an additional 40% of passive spaces which have the cabling prepared so that chargers can be added when demand increases in the future. Installing passive ducts and cabling greatly reduces the time, cost and disruption of installing additional bays in the future.

Activation is left to the discretion of the landowner except in the case where a travel plan is in place. In this case, the levels of usage should be monitored and new electric vehicle charging points installed when the supply is exceeded.

A draft new London Plan was published for consultation in December 2017, with a final London Plan due to be adopted by late 2019. There will be a need to ensure that any changes in the London Plan are reflected in Lewisham's approach. The current proposal is for all operational parking to provide infrastructure for electric vehicles/ULEVS. Residential developments should provide 20% active provision, with the remainder passive.

TfL Electric Vehicle Charging Infrastructure Location Guidance for London

This document was published in 2017 and provides an evidence based guidance to help boroughs and operators identify where best to locate charging infrastructure, to meet the current and future needs of electric vehicle users across London. The content of the guidance focuses on 4 themes:

- Identification of current demand
- Provision for future uptake
- Installing appropriate charge points in the right locations to ensure the type of charging point installed reflects the needs of the user
- A good geographical spread of charging networks

The guidance focuses on the specific needs of London's key electric vehicle user groups, including residents and visitors without off-street parking, deliveries, local businesses and electric Car Club fleets.

LEZ

The LEZ operates across the whole of Greater London and came into fruition from January 2012, when a charge was levied on the most polluting vehicles. These vehicles included lorries, buses and coaches below the Euro 4 emissions standard, and vans, minibuses and ambulances below Euro 3 standards.

The charge applies 24 hours a day, all year round. Cameras with number plate recognition allow fines to be issued to eligible vehicles not paying the charge.

ULEZ

The ULEZ policy is due to come into force in 2019 and will cover London's current congestion zone area. Vehicles failing to meet the Euro 6 emissions standard for diesel, and Euro 4 for petrol (Euro 3 for motorcycles), will levy a charge.

- £12.50 for cars, vans and motorcycles
- £100 for HGVs, buses and coaches

Fines will be imposed on eligible vehicles not paying the charge. By 2018, all newly registered taxis will be required to meet the same standards, with buses complying by 2020. From 2021, the zone will be extended and be bound by the North and South Circular roads; so for central London from 8 April 2019, and then for Inner London from 25 October 2021, all vehicles (light and heavy) will be subject to relevant ULEZ standards and charges.

An expansion in the ULEZ area covering light and heavy vehicles to Inner London in October 2021, together with the changes to the LEZ to require Euro VI London wide for heavy vehicles after October 2020, will result in significant reduction in NOx emissions; this means more Londoners experiencing the health benefits of improved air quality. As a result, in 2020, it is expected there would be a 20% reduction in NOx from road transport London-wide. In 2021, it is expected there would be a 31% reduction in road transport NOx in inner London and 28% in outer London. All roads in London are expected to see a decrease in road transport NOx emissions as a result of the proposals.

As a result of these emissions reductions, there would be over 100,000 fewer people in London living in areas exceeding legal limits for NO₂ concentrations in 2021, a reduction of 77%.

Lewisham has a key role to play in contributing to these projected figures; the borough will have to plan for the electrification of cars, taxis, buses and freight.

Lewisham's Local Implementation Plan (LIP) 2011-2031

Lewisham's LIP document was published in April 2011 and outlines goals and objectives for the council to meet. With focus on the Mayor's Transport Strategy, the LIP places importance on creating a 'low emissions transport system' and more 'sustainable modes of travel' to tackle transport emissions. Whilst the Council's policies seek to encourage people to walk, cycle or use public transport where possible, it is recognised that this is not always possible for every journey. With this in mind, Lewisham recognises the need to promote the use of electric vehicles and expand the existing network.

It will be essential now that the Mayor's Transport Strategy 2018 is finalised to develop the next LIP (2019-2041) to reflect the council's priorities. The LIP3 will support the implementation of electric vehicle charging points. A draft LIP will be consulted on in Autumn 2018, with a final version submitted to TfL and approved by March 2019.

In 2017, London breached its annual air pollution limit within 5 days of the New Year

- London Councils

"Lewisham support the uptake of Low Emission Vehicles and will aid the further expansion of charging infrastructure throughout the borough"

- London Borough of Lewisham
Air Quality Action Plan

2. CHAPTER TWO

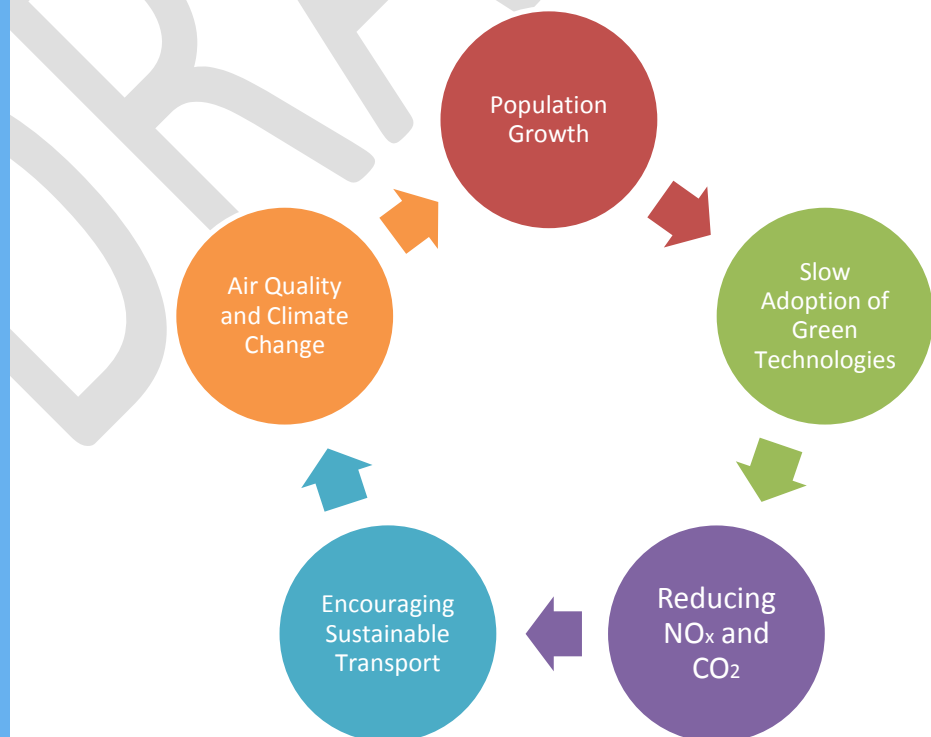
Lewisham Context

Lewisham acknowledges that the increased uptake of electric vehicles is only part of the solution to improve air quality and needs to consider others avenues that will support the objectives of this strategy.

Lewisham's Air Quality Action Plan for 2016-2021 confirms that the borough is failing to meet the Nitrogen Dioxide EU annual average limit in some of the Air Quality Management Areas. Although the borough is meeting the EU limits for Particulate Matter, they are exceeding air quality guidelines from the World Health Organisation, for this particular pollutant.

Lewisham is currently undergoing significant regeneration, particularly around Catford, Deptford and New Cross and Lewisham Town Centre, with residential, commercial, utilities and transport network improvements; the reduction of emissions from road traffic is a priority of these changes.

Lewisham's key challenges



“Lewisham is changing, with major development and regeneration to support economic growth and London’s increasing population.”

- *Lewisham Local Implementation Plan 2011-2031*

Population and Growth

Figures from the Office for National Statistics show the population of London increased by 5.7% between mid-2011 and mid-2015, compared with growth of 2.9% for the UK as a whole. London’s population is anticipated to grow from around 8.2 million to over 10.5 million by 2041, which will only emphasise the increasing demand for travel.

Over the last decade or so, we have witnessed an ever increasing emphasis being placed on the need for sustainable transport; a modal shift which appears to have had a positive impact. According to the Greater London Authority, public and active transport now accounts for 64% of all one-way commuter movements in London.

Having said this, there is still a long way to go in ensuring that goods and people flow freely through our capital without exacerbating air quality and its associated impacts. 33% of journeys are still made by private transport (ULEV Delivery Plan, 2015).

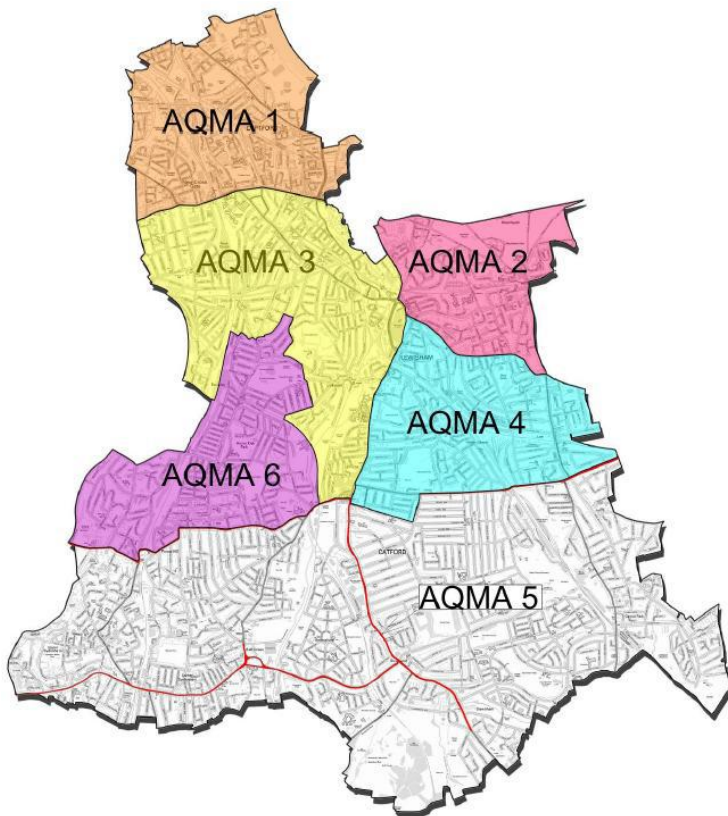
Environmental Challenges

Air Quality and Climate Change

Lewisham’s Mayor and Cabinet in July 2017 approved details of an air quality campaign which aims to galvanise borough-wide action to address air quality issues in Lewisham. It seeks to both reduce emissions to improve air quality, and reduce exposure to poor air quality. To achieve this, the campaign states it will:

Show the Council as a best-practice example to inspire other organisations to take action, which includes provision of electric vehicle charging points. As part of the campaign one of the five air quality pledges we’re asking residents to sign up to commits to ‘Make your next car an electric or a hybrid’.

The Council has also launched the Lewisham Air App, which allows users to receive news and alerts about air quality, check the air quality in the borough and plan low-pollution walking and cycling routes using a specially-designed map. To get the app visit Google Play or the Apple App store and Search for 'Lewisham Air App'.



The Air Quality Management Areas for the Borough of Lewisham declared on 01/07/2001 consist of four large AQMAs, which cover the area to the north of the South Circular and a series of ribbon roads, which comprises AQMA5. Since this date, a subsequent 6th AQMA 'Crofton Park and Honor Oak Park Air Quality Management Area' was declared on 10 April 2013.

These areas seek to tackle problem areas where air quality regularly exceeds statutory limits. Electric vehicles offer a solution to this problem as they operate with no tail pipe emissions and road transport is a key contributor to air pollution. The introduction of electric vehicle charging points in the AQMAs will support Lewisham's aim of improving air quality.

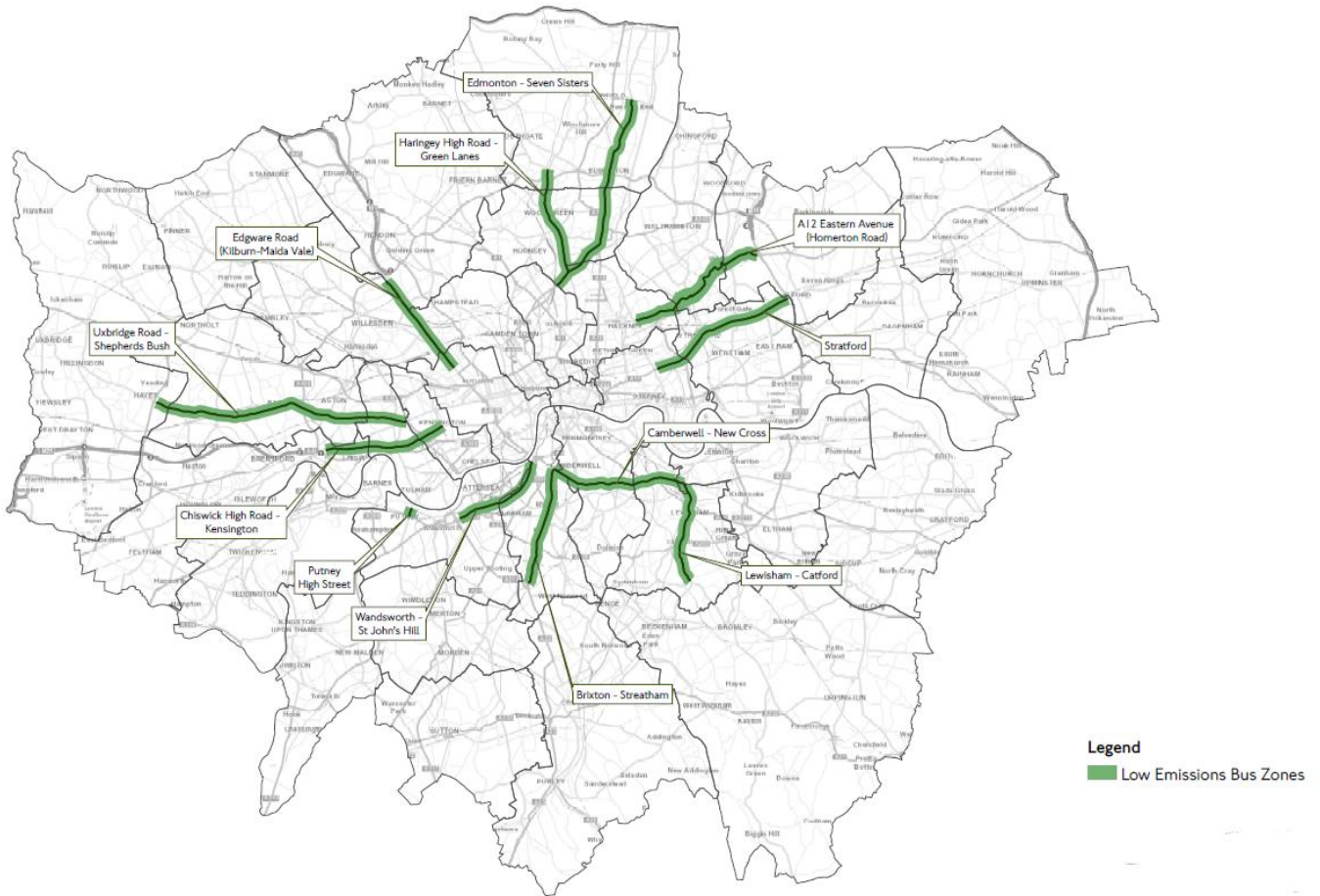
Low Emission Bus Zone

In addition to the advances in electric vehicle charging infrastructure, a low emission bus zone is being introduced from Lewisham to Catford (from Bromley Road, along Lewisham High Street to Lewisham Road). The Mayor has announced 10 new low emission bus zones, which will see the deployment of clean buses across the capital's most polluted routes, as shown on the map overleaf.

The new greener buses, which will be a combination of hybrid and clean buses that meet Euro VI standards, are part of an improvement programme to 3,000 buses outside central London.

The zones are expected to reduce NO_x emissions from buses along the routes by around 84% and will fulfil the Mayor's manifesto commitment to introduce Low Emission Bus Zones by 2020. One of the fundamental benefits of these zones will be the thousands of school children breathing cleaner air (there are 172 schools located within 100 metres of the new zones).

Low Emission Bus Corridor Map

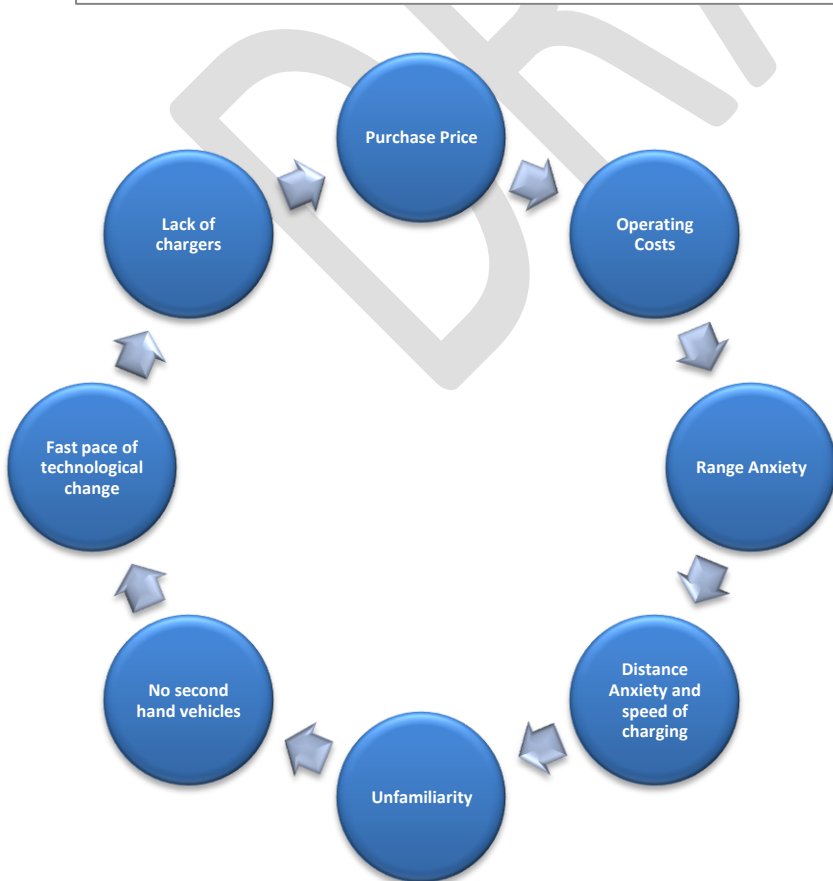
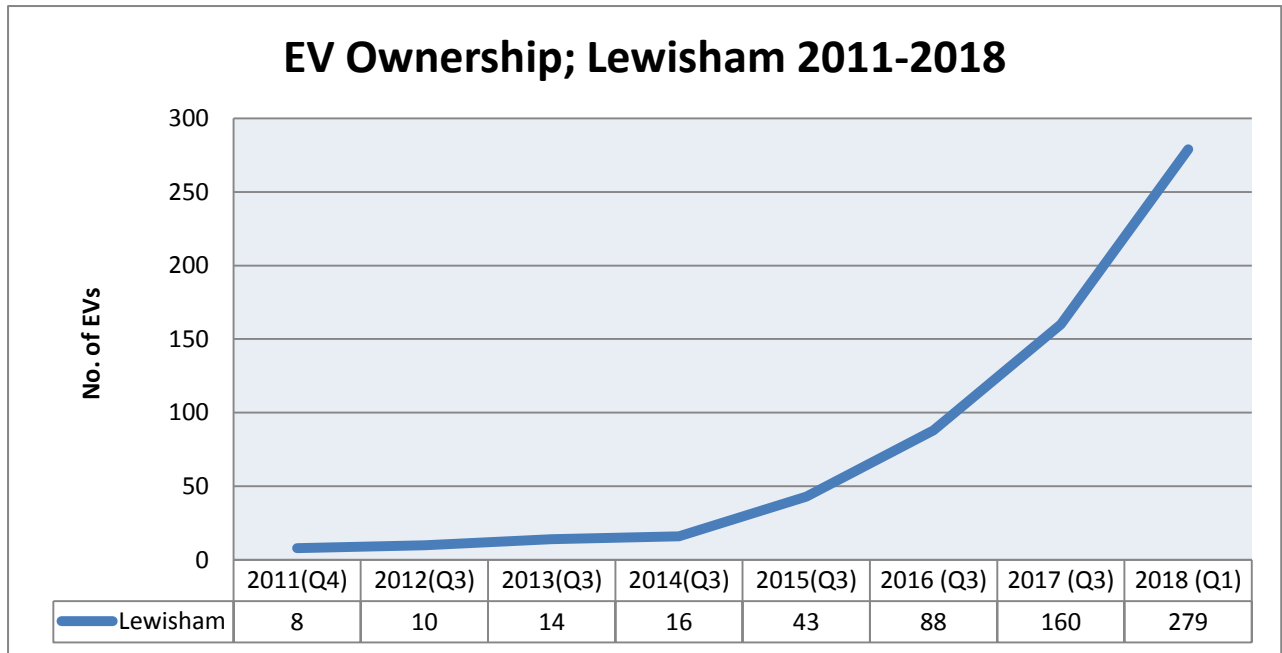


Lewisham Electric Vehicle Ownership; Current

Lewisham acknowledges that general vehicle ownership is decreasing in the borough, and indeed much of London, as more people choose to walk, cycle, use public transport and car clubs, as an alternative to car ownership. However, this strategy recognises that some people still choose to own and travel by car for at least some of their journeys. The ownership data overleaf highlights that electric vehicle ownership is rising; businesses are also increasingly considering electric vehicle options for their fleets. It is therefore essential that the Council provides the necessary on-street infrastructure to facilitate this transition.

| | 2011(Q4) | 2012(Q3) | 2013(Q3) | 2014(Q3) | 2015(Q3) | 2016 (Q3) | 2017 (Q3) | 2018 (Q1) |
|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|
| Lewisham | 8 | 10 | 14 | 16 | 43 | 88 | 160 | 279 |
| London | 895 | 979 | 1,270 | 2,259 | 4,422 | 7,255 | 11,977 | 18,597 |
| UK | 2,440 | 4,256 | 7,614 | 17,610 | 42,761 | 77,363 | 118,342 | 157,304 |

The table above shows the number of plug-in vehicles licensed at the end of the quarter in the UK, from 2011 to 2017 and at the end of Q1 of 2018. Of the 18,597 vehicles registered in London (Q1 of 2018), only 1.5% (279 vehicles) are from within Lewisham.



Although electric vehicle ownership appears to be increasing, Lewisham are aware of barriers potentially preventing residents and business owners from transitioning from the conventional fuel vehicles. These barriers and concerns are expected to be overcome in time, for instance, as the second hand vehicle market for electric vehicles takes off, electric vehicles will be more affordable for all.

At the end of Quarter 3 of 2017, there were 160 registered EVs within Lewisham

There are 10 existing charging point locations in the borough, and a further 16 locations ready to be programmed, which are both on and off-street

There are 21,000 registered diesel cars in Lewisham. Changing the minds of just 1% will more than double the amount of current EV owners

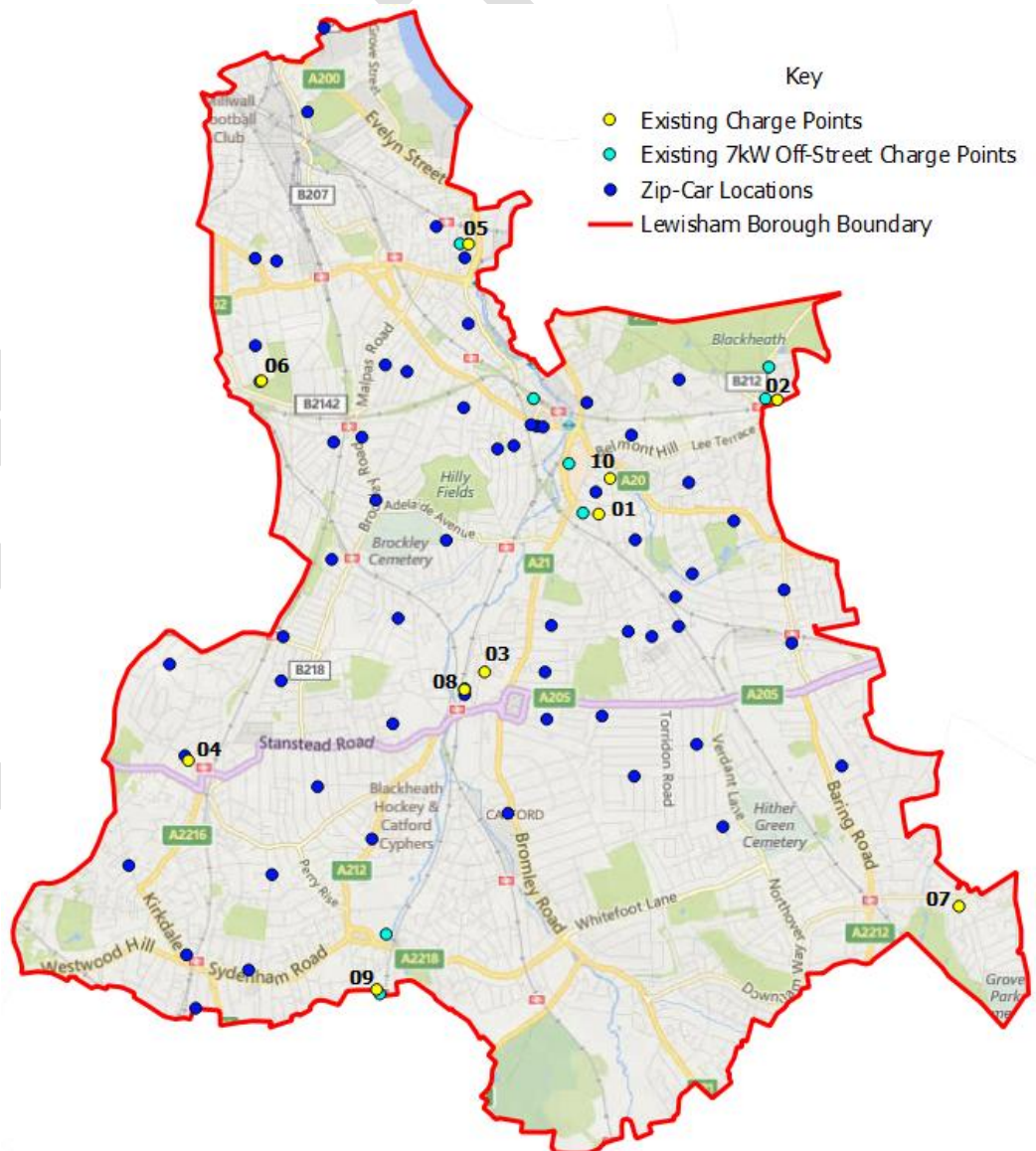
255 taxi drivers live in the borough (additional 107 registered to companies) and could make use of rapid charging points

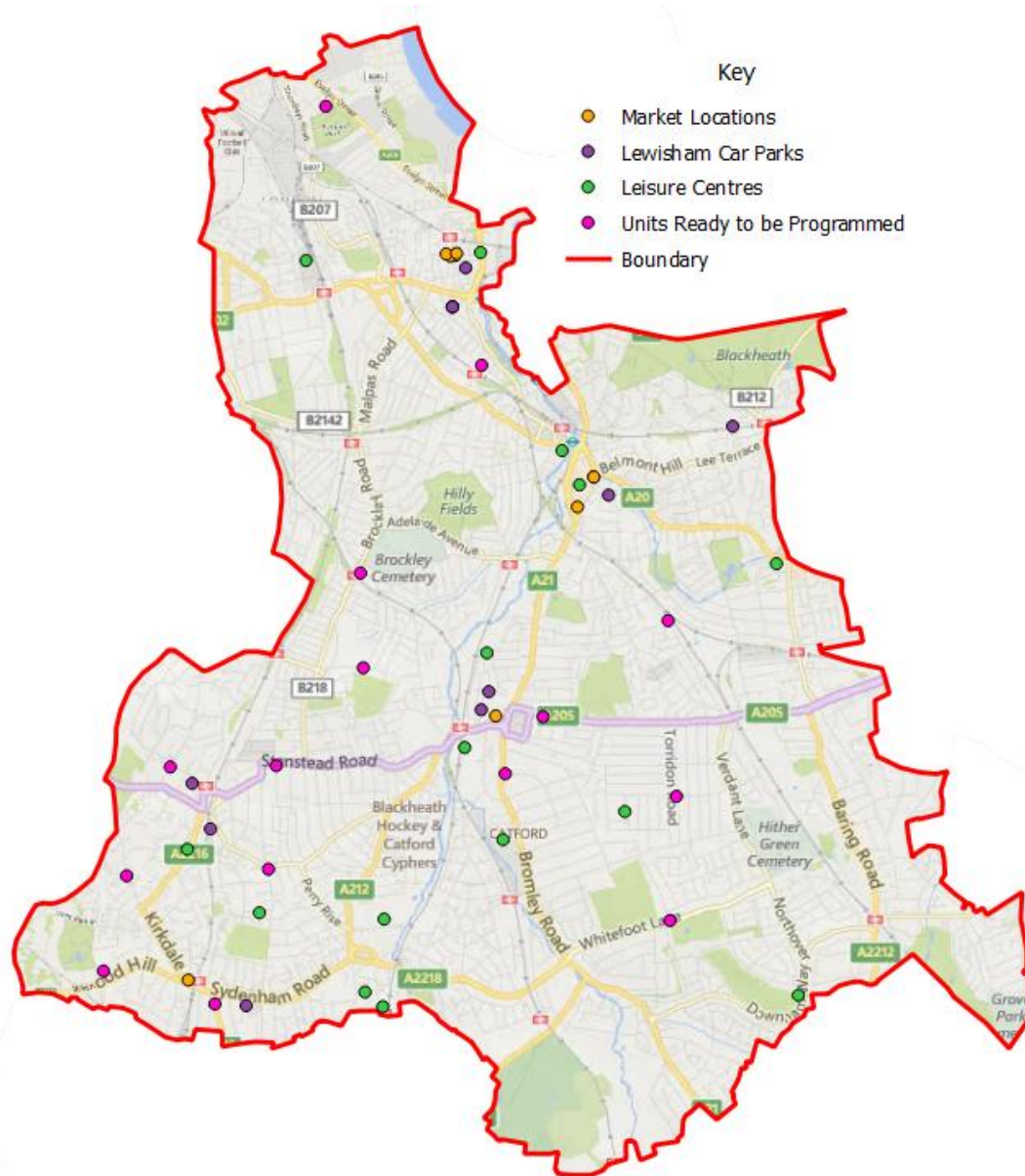
Currently 0.14% (160) of vehicles registered in the borough are electric, placing Lewisham 30th out of 33 boroughs in London

Existing Charge Points; Lewisham Map

The map pinpoints 'completed' charge point locations, existing off-street 7kW charging points and also highlights the 50 locations (Blue Dots) at which Zip-Car have car club bays within the borough (the numbers correspond to Table 2 in the Appendix).

If the evident increase in ownership is anything to go by, Lewisham's increasing uptake of electric vehicles will create more demand for charging points. The borough should endeavour to support the rapidly increasing use of electric vehicles by providing a greater number of reliable and user friendly charging points across the borough.





The map above highlights key locations across the borough, all of which are high visibility and high footfall areas especially around the town centres. Also displayed are locations where electric vehicle charging points are ready to be programmed. Lewisham intend on serving drivers visiting these high footfall areas by ensuring charging infrastructure is in place. Eventually, the objective is to create a network, spread relatively evenly across the borough.

If you would like more information or to register a request, please visit our website; www.lewisham.gov.uk/electricvehicles

3. CHAPTER THREE

Charging networks

| | | |
|---------------------------|-----------------------------------|-------------------------------|
| Rapid (50kw) 30-40 min | Standard (7-22kw) 3-4 hours | Trickle (3kw) 7-8 hours |
|---------------------------|-----------------------------------|-------------------------------|



There are a variety of charge points that may be introduced to meet the different needs of electric vehicle users. Lewisham is at a relatively early stage in the adoption of electric vehicles and it will be particularly important that a network of public chargers are introduced to help drive uptake. Those considering whether to convert from traditional vehicles to ULEVs are often concerned with 'range anxiety' and having public chargers visibly installed on-street helps to dispel this fear.

When considering the expansion of a charging network, thought must be given to the potential reduction of on-street parking bays to accommodate charging points.

Trickle or Residential 3-7kW (7-8 hour charging time)

This type of charging draws charge from existing infrastructure and is not currently offered in Lewisham.

Why?

Lewisham acknowledges that there is a need to consider a suite of charging offers to meet the needs of Lewisham residents. The majority of charging occurs at home, in residential areas. In order to support the uptake of electric vehicles amongst these residents in Lewisham, it is important that on-street chargers are installed. Lamp post chargers are a different approach to the majority of the existing car chargers. Primarily, they are intended to address the challenge of charging electric vehicles when owners do not have access to off-street parking and haven't been able to secure a standard floor mounted charge point, perhaps due to limited footway widths.

Lamp column chargers could be installed in clusters, increasing accessibility to points and meaning that the adjacent spaces do not necessarily have to be dedicated to electric vehicle users only.

How do they work?

Lamp post chargers tap into the existing power network created for street lighting and are either integrated into the lamp column or are attached to it; making them a less expensive alternative to floor-mounted units. As they piggyback on an existing power grid, they are limited in the power they can supply but are sufficient for overnight charging.

For lamp posts that are at the back of the footway, bollards could be placed at the front of the footway with the power being drawn from an adjacent lamp post, as seen below. However, this adds additional clutter to the street environment.



Site Criteria & General Principles for Lewisham to Consider

Civils/Network Capacity

One of the advantages of lamp column charging is that they can be retrofitted or alternatively, chargers may be attached using a 'backpack' style. Regardless, the chargers will use the existing power supply.

Street Furniture

Lamp column charging units do not require an electricity feeder post as they are installed in or on existing lamp columns. As a result, the street scene is not affected. The lamp columns need to be located at the front of footway, unless separate bollards are used as shown on the previous page.

Accessibility

Lamp column chargers are designed for residential use, so accessibility is vital. Units should be installed in clusters to ensure the facilities can match demand.

Road Space

Sites should avoid blocking any junctions and ensure passing traffic can navigate the road as normal.

On/Off-Street

Lamp column chargers are designed to facilitate those who have no access to off-street parking. Therefore, units will be on-street.

Distribution

A trial conducted in the London Borough of Hounslow deduced that lamp column chargers should be installed in clusters. For each request for a charger, Hounslow installs three chargers on the same street. The idea is that by oversupplying the chargers there is no longer a need for a dedicated EV charging bay. The benefit of this approach is that it removed the cost and time involved with TMOs and the advertising/appeals process. This also adheres to the active/passive provision as stipulated in the London Plan.

Safety/ Liability

Cables from charge points create a trip hazard. To minimise this small risk, lamp columns must be at the front of the footway. This reduces the length of cable and ultimately reduces the risk of tripping over it.

Concerns

- Lamp columns must be at front of footway and meet specific criteria
- Resident concerns over security of the smart cable, which holds all metering and billing information
- Passing charging cost back to the user
- Slower charging speeds
- Large numbers of units required

Additional Notes

- Lamp column chargers do not required marked bays or Traffic Management Orders
- Anybody can use the bays

Trickle Lamp Column Chargers

3kW (7-8 hours)



Standard 7-22kW

Why?

Standard 7kW-22kW chargers make up the vast majority of electric vehicle charging points in Lewisham and are most widely available across London and will cater for the vast majority of electric vehicle users. Lewisham will consider introducing a range of suppliers to create a mixed network, and to provide a wider range of options to electric vehicle drivers. Standard chargers can be installed in public and residential locations as either floor standing units or wall mounted units. A single unit will generally offer two sockets which allow vehicles in two adjacent bays to charge simultaneously. The key challenges are funding, loss of general parking and how to reserve bays just for residents.



“The use of new EVCPs will be closely monitored to determine levels of usage and the best locations for further charging facilities”

7-22kW



Civils/Network Capacity

An EV charge point requires a connection to the local power grid. To establish this connection, ducting and cabling will have to be laid. The DNO (Distribution Network Operator) must determine the amount of available capacity in the local grid which can be allocated to an EV charge point. Planning permission is required.

Street Furniture

These units must be accompanied by a bay marking and sign post/plate. Power for each charge point is fed from a feeder pillar which will need to be incorporated into the street-scape. Consider visual impact and consult design guidance.

Visibility/Accessibility

Chargers should be highly visible and accessible, installed in locations which are busy with a high footfall (desirable).

Road Space

Sites should not be too close to junctions or be in a position which could disrupt traffic flow. It's also important to consider whether introducing a charging point would reduce the amount of footway space to a point where the width is unacceptable. 1.8m of footway clearance is desirable.

On/Off-Street

These units may be installed on or off-street, though most floor-mounted trip destination chargers are located on-street where a TRO and consultation is required. On-street locations would be more visible. These chargers can however be installed in off-street car parking facilities and at retail, leisure, and commercial premises where visitors are likely to park.

Distribution

A study commissioned by TfL found that a key consideration for EV drivers when choosing an EV charge point was the proximity to their end destination. It is also of particular importance to attempt to install more than one EV charger at each location. Passive provision should be installed where possible to future proof sites against rising demand in the future. Consideration should also be given to the locations of existing chargers; analysing their data usage may provide insight into additional distribution and geographical spread. In areas where EV drivers may spend less time, 22kw units could be installed. In locations where users may spend more time, 7kw units would suffice.

Passive/Active Provision

It is best practice to install both passive and active provision. That is power supply for the chargers which will be immediately installed and cabling for additional chargers which may be installed in the future when demand increases.

Safety/ Liability

Cabling from charge points can create trip hazards. To minimise this small risk EV charge points should be designed to minimise the cable extension. TfL guidance recommends that bays and chargers should be laid out to achieve a maximum of a 45 degree angle on a cable in operation.

Concerns

- Enforcement of vehicles being plugged-in but not charging
- Current lack of interoperability
- Concerns over future upgrades to power infrastructure

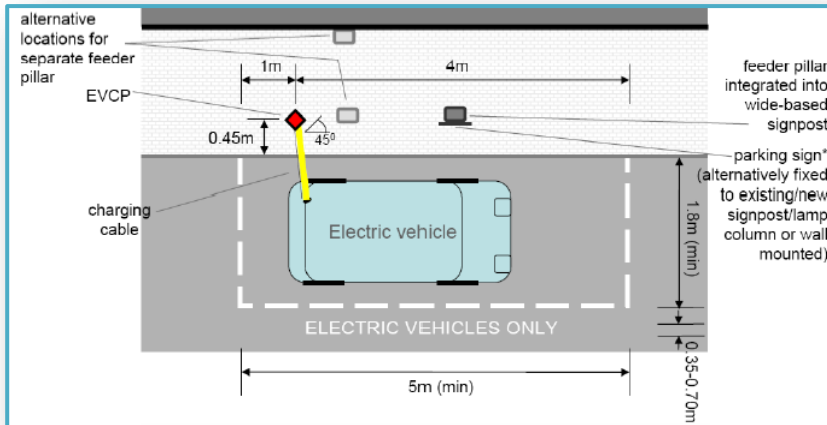


Design of Charge Point Locations

When designing or introducing charge points, there are fundamentals to consider both on and off-street to ensure sites are suitable.

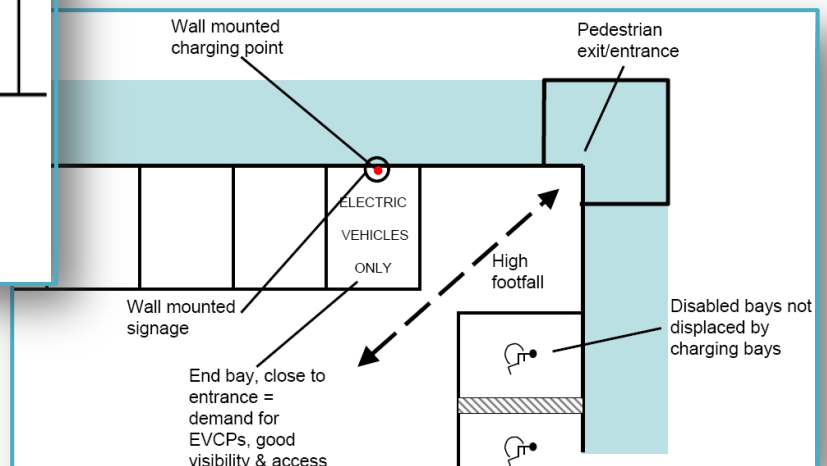
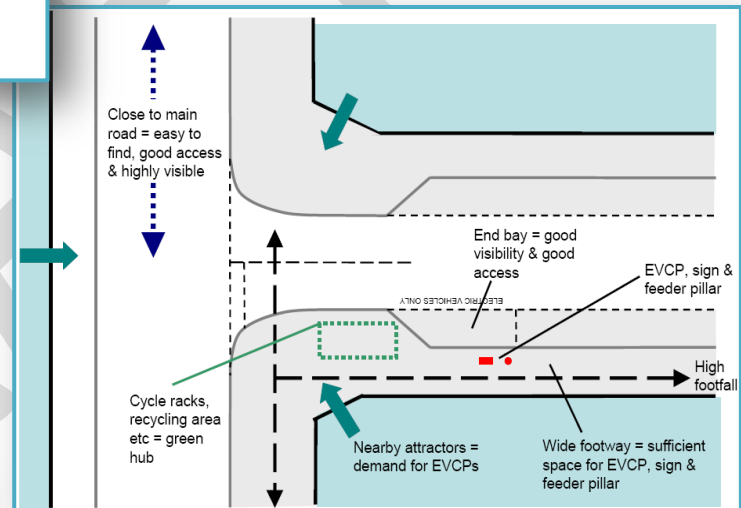
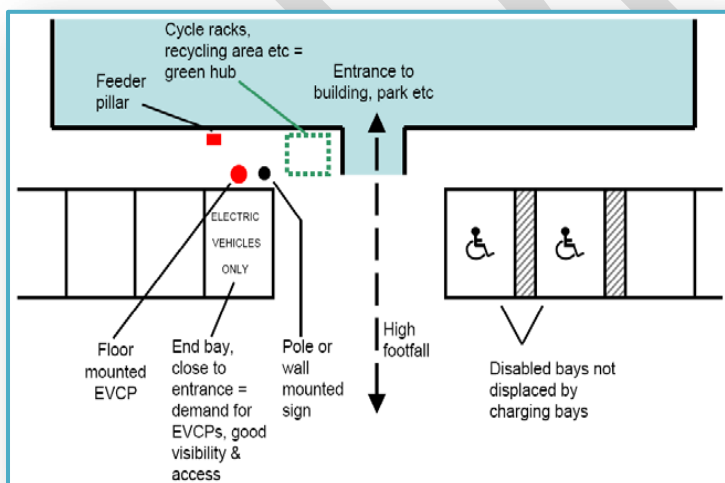
Lewisham will consider the impact on the street scene and loss of parking amenity before agreeing to any locations.

On-street



These criteria are for free-standing charging points.

Off-Street



These off-street criteria are also applicable for rapid charging units.

Rapid 50kW

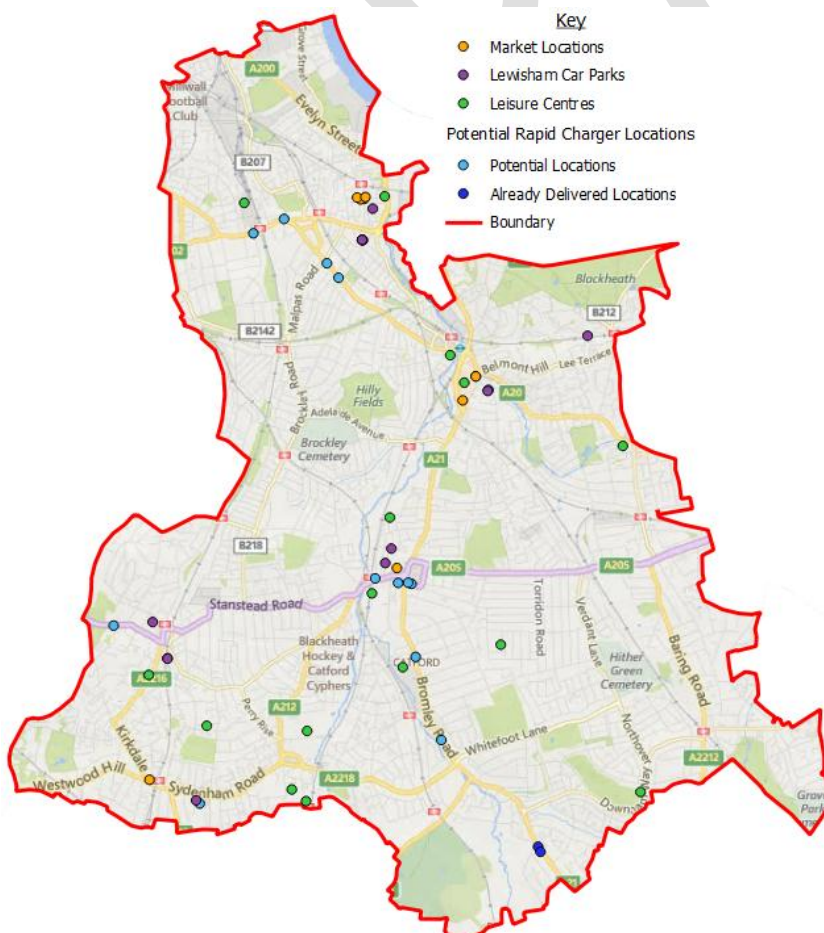
Why?

To meet the growing needs of different electric vehicle users, Lewisham is investigating the introduction of Rapid Charging points and working closely with Transport for London to achieve this.

Rapid chargers are capable of recharging a vehicle in minutes rather than hours. They are vital to long distance travel and for commercial vehicles such as taxis, which will need to top up during the day. The standard rapid charging speed is currently 50kW although Tesla currently offers an Ultra Fast 120kW with their proprietary 'Super Chargers'. Due to their greater power consumption, they require larger feeder pillars or a substation and often more extensive civils works. Consequently, car parks are generally the most ideal locations for rapids, due to the space required for the associated equipment.

TfL have publicised their rapid charge framework, offering the scheme to local authorities within London. They are proposing to identify locations across TfL, borough and private land which would be capable of hosting electric vehicle rapid charging infrastructure. Under the scheme, chosen locations would be tendered out to six charge point operators who will bid for a concession contract to install, operate and maintain rapid charge points at their own cost. TfL will fund the installation of the power infrastructure and associated street furniture.

How do they work?



Rapid chargers work in the same way as a standard floor mounted charger but charge at a more accelerated rate.

The map displays the two charge point locations already delivered by TfL and the potential additional locations across the borough. These are along strategic routes, leading traffic in to and out of Lewisham.



Civils/Network Capacity

The DNO (Distribution Network operator) must be contacted and permission obtained to connect to the grid . For TfL’s rapid programme TfL will do this. They will indicate the power capacity available. Due to the large amounts of power which chargers draw they may mandate that upgrades are made to the infrastructure. This is of particular concern with rapid chargers. Upgrades to cables and transformers can become prohibitively expensive.

Street Furniture

Rapids require an electricity feeder post (See TfL guidance section). This is often housed in a separate cabinet to the charger and can reach the size of a substation if multiple units are installed in one location. There are two considerations - Whether there is sufficient space to locate the charger and the feeder post, and whether the street scene will be significantly impacted.

Visibility/Accessibility

Rapids are largely installed in off-street locations such as car parks and so need to be visible. Taxis and LGVs who wish to charge during the working day require rapid chargers, located on key arterial routes into London and close to taxi ranks.

Road Space

Due to the size of the rapids, build-outs can be created to avoid the unit needing to be placed on the footway, where footways are narrow. In a car park, this is less of an issue, as long as the feeder pillar/substation is accounted for.

On/Off-Street

The majority of existing rapid chargers are located in car parks/ other off-street locations. This is due to a number of reasons; dwell time, turn over, footfall and ease of installation. The legal process for creating a dedicated EV bay in a car park is much easier than on-street where a TRO and consultation is required.

Distribution

Rapids do not necessarily need to be installed in clusters; however rapid hubs could be considered but with hubs of four or more it may also be necessary to install a substation. Strategic hubs are being evaluated on arterial roads, owned and maintained by TfL, and on private land.

Safety/ Liability

Trailing cables from charge points create a trip hazard. To minimise this small risk EV charge points should be designed to minimise the cable extension. TfL guidance recommends that bays and chargers should be laid out to achieve a maximum of a 45 degree angle on a cable in operation.

Concerns

- Locations are harder to determine due to the size of the units
- If multiple units are installed, space for a substation is necessary
- Ensuring power grid has been upgraded to support the infrastructure



4. CHAPTER FOUR

Lewisham's Objectives

500m

To support the following types of charging through provision of appropriate infrastructure in the right locations:

- a) Charging points in residential areas
- b) Charging points in town centres, workplaces and at other key destinations
- c) Charging points for car club vehicles
- d) Charging points for freight and servicing vehicles
- e) Charging points for taxis

TfL research informs that 93% of electric vehicle users would use a fast charge point within a 5 minute walk of their vehicle and 73% would use a charge point if it were within 10 minutes walk; this equates to a distance of roughly 500m.

The average walking time to cover 500m is between 5 to 10 minutes (slow-fast walking)

£

To Ensure that provision and maintenance of electric vehicle charging points becomes cost neutral through the pursuit of infrastructure funding opportunities and income from the charging points

The provision of electric vehicle infrastructure should remain cost neutral wherever possible so as not become a financial burden on the council. To achieve this Lewisham should make use of all available funding and revenue. This includes government grants, partnerships with private companies which provide profit shares and fees, make use of planning powers (sect. 106 and CIL).

Making best use of assets - Parking facilities across the Council's housing estates are under-utilised. In total, Lewisham Homes manage over 18,000 residential properties. Lewisham have the opportunity to utilise redundant car parking spaces in their housing estates and may be able to generate an annual income.



To ensure the charging network is fit for purpose, can cater for future expansion and is adaptable to emerging technologies

When creating a charging network, the infrastructure must remain fit for purpose. By monitoring the usage data, the Council will be able to confirm that charging locations are appropriate and the units are being well utilised.

If electric vehicle uptake increases as predicted, the network must be able to cater for a higher volume of vehicles charging; charging points must be accessible and available.



To encourage the uptake of electric vehicles through supporting policy frameworks, initiatives and public engagement exercises, drawing on best practise from around the UK and beyond

Engagement events and vehicle trials are key to encouraging electric vehicle uptake and increasing familiarity.

In regard to policy frameworks, reviewing parking policies and Local Plan policy will ensure that standards are implemented.

Objective 1

To support the following types of charging through provision of appropriate infrastructure in the right locations:

- a) Charging points in residential areas
- b) Charging points in town centres, workplaces and at other key destinations
- c) Charging points for car club vehicles
- d) Charging points for freight and servicing vehicles
- e) Charging points for taxis

1a. Charging points in residential areas

Key actions:

- Install even spread of 7kW chargers throughout residential areas where there is sufficient footway space, focusing on achieving 500m coverage in the first instance (see page 37)
- Consider and prioritise requests from residents for new on-street charging points, delivering this through a mixture of lamp column chargers and 7kW chargers
- Deliver lamp column chargers in clusters or across whole street
- Work with Lewisham homes to identify locations for 7kW and lamp column chargers in the Council's housing estates
- Consider creating charging hubs co-located with other sustainable transport modes i.e. cycle parking and car club vehicles

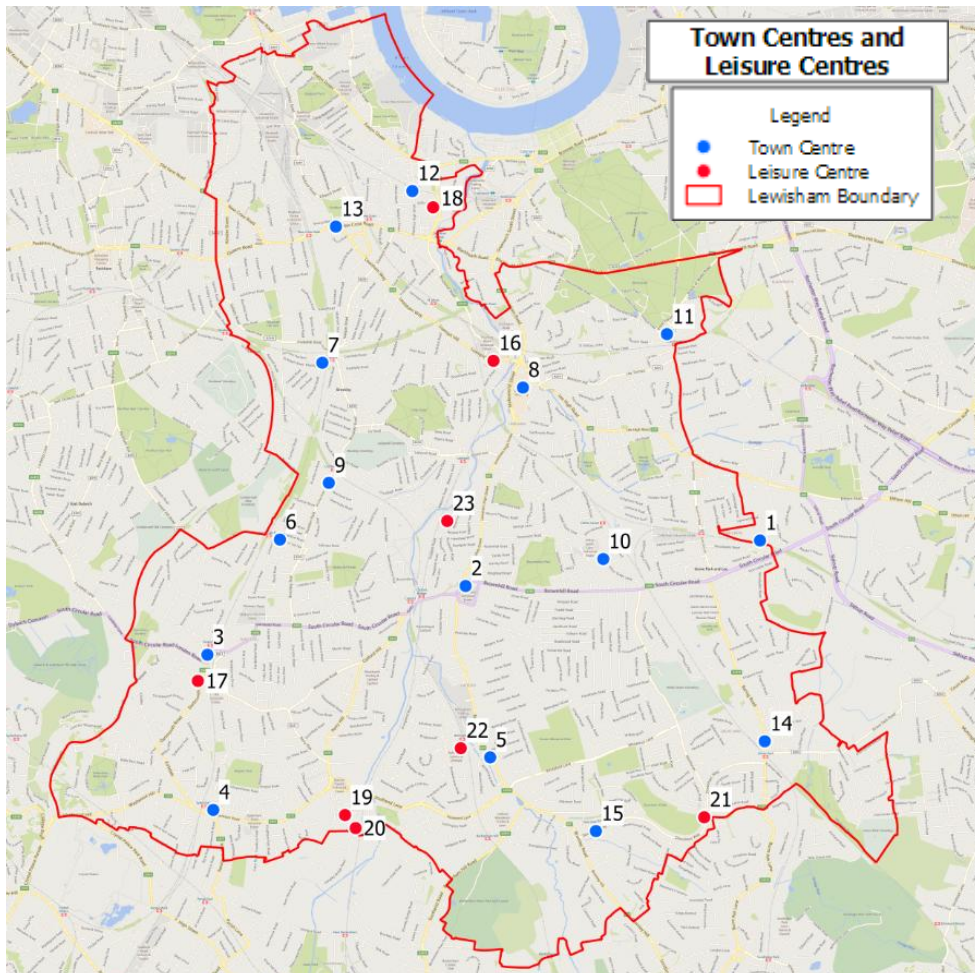
Expressions of interest are invited from those residing within Lewisham to ensure charge points are utilised and effective locations are selected. Residents may register their interest, find more information and propose locations for lamp column and standard 7kW charging points by visiting the following website: www.lewisham.gov.uk/electricvehicles

1b. Charging points in town centres, workplaces and at other key destinations

Key actions:

- Install 7-22kW chargers at key destinations, such as town centres, working with a range of operators
- Encourage supermarkets, leisure centres and workplaces to install charging provision in their car parks
- Contact petrol stations to ask that they consider installing rapid charging points
- Choose locations where chargers will generate a sufficient level of usage demand to ensure the unit becomes self financing
- Consider location of points along the low emission bus corridor

The map below pin-points leisure centre locations and town centres within Lewisham. Two of the leisure centres are in close proximity to the Low Emission Bus Zone route and as such, may be candidates for electric vehicle charging points if the site fits necessary criteria. Lewisham Indoor Bowls Centre already has two charging points, which appear to have become redundant.



| ID | Name |
|----|------------------------------|
| 1 | Lee |
| 2 | Catford |
| 3 | Forest Hill |
| 4 | Sydenham |
| 5 | Bellingham |
| 6 | Honor Oak Park |
| 7 | Brockley |
| 8 | Lewisham |
| 9 | Crofton Park |
| 10 | Hither Green |
| 11 | Blackheath |
| 12 | Deptford |
| 13 | New Cross |
| 14 | Grove Park |
| 15 | Downham |
| 16 | Glass Mill Leisure Centre |
| 17 | Forest Hill Pools |
| 18 | Wavelengths Leisure Centre |
| 19 | The Bridge Leisure Centre |
| 20 | Lewisham Indoor Bowls Centre |
| 21 | Downham Leisure Centre |
| 22 | Bellingham Leisure Centre |
| 23 | Ladywell Arena |

1c. Charging points for car club vehicles

Car Clubs and Car Club Operators

Car club services provide an alternative to a private car and require an accessible range of fast charging infrastructure to enable operators to introduce more ULEV vehicles into their fleets. This is with the intention that at least 50% of car operators fleets in London are ULEV's by 2025 (TfL target in the ULEV Delivery Plan for London). The expansion of electric car clubs will be an essential service to encourage lower car dependency, as population densities and demand for electric vehicle charge points increase from car owners.

Floating and point-to-point car club models will need access to charging networks. Zip-Car Flex already operates within Lewisham. Car club membership in Lewisham is growing, as people look for more cost effective and sustainable alternatives to car ownership. Lewisham currently has around 7000 car club members.

Key actions:

- Gradually install charge points in fixed car club bays, with 100% coverage by 2025
- Install an even spread of 7kW chargers across the borough, which point-to-point car club providers can also utilise
- Install EVCPs in any new fixed car club bay from the outset, with a requirement that the vehicle serving it is an electric vehicle
- Any new point-to-point provider permitted to operate in the borough should have at least 50% electric fleet, with a view of reaching 100% by 2025
- Create a new permit for car club vehicles through the parking policy review

1d. Charging points for freight and servicing vehicles

Key actions:

- Work in partnership with TfL to deliver a network of rapid chargers across the borough
- Encouraging businesses with off-street servicing/parking to install charging points and making them aware of suitable funding opportunities (See Objective 2)
- Exploring the possibility of installing charging points in loading bays
- Trial electric vehicle charging points for market traders

Market Trading; Socket networks

Lewisham manage street markets in the centre of Lewisham, Deptford, Catford and Sydenham. With this in mind, socket networks may be an additional option going forward acting as multi-purpose charging infrastructure.

Socket networks are plug sockets discretely installed in the footway. There are several variants including bollards, pop-up posts and flip top boxes.

They would offer slower 3kW speeds (like a standard 3-pin plug) but this would be sufficient for overnight trickle charging.

These ideas have not been widely trialled but they are seen as being a low cost solution to residential charging, once clusters of electric vehicles begin to form.

Consideration would have to be given on how best to manage access to these units, especially when market days are not in operation and in locations which may be pedestrianised. One solution is to use 'smart cables', such as those used with lamp column chargers. The user would purchase a cable at a cost of £200 and the metering technology within it would allow the Distribution Network Operator to bill the user for the



energy consumed. A simpler solution would be to provide keys, in a similar way to CPZ permits.

There is potential for creating trip hazards and this would have to be considered. However, these units are widely used for other purposes already and are not thought to pose significant risk.

Loading Bays

To facilitate delivery vehicles, Lewisham are considering installing charging points within loading bays, allowing vehicles to charge for a certain time period whilst loading or unloading goods. These charging points will be a mixture of standard trip-destination units and rapid units, providing options to the user; if the delivery vehicle has a short turnaround time, a rapid unit can be used for a quick top-up charge. Outside the hours of operation of the loading bay, these charging points can also be used by residents and other electric vehicle users.

The map below shows locations for all loading bays within the borough.



arging points for taxis

Key actions:

- Consider provision of rapid chargers in off-street locations and near taxi ranks
- Prioritise requests from taxi drivers for charging provision on-street near home for those with no off-street parking

TfL are creating a network of rapid chargers in the capital to support zero emissions capable (ZEC) taxis and commercial fleet vehicles. They seek to install 150 chargers by 2018 which will coincide with the requirement for new taxis to be ULEVs and in advance of the introduction of the ULEZ in 2019. This infrastructure will enable taxi drivers to maximise fuel savings and operate mostly in zero emission mode. It is also a requirement that as of 1st January 2018, no more new diesel taxis are licensed in London and all newly registered taxis are Zero Emission Capable. Lewisham are working collaboratively with key partners to deliver appropriate charging infrastructure for taxis.

One challenge is accommodating the demand for accessible charge points from the high concentrations of taxi and PHV drivers who live in the borough, who will need to ensure their vehicles are compliant with TfL's zero emission capable licensing requirements by 2020.

Objective 2

To ensure that provision and maintenance of EVCPs becomes cost neutral through the pursuit of infrastructure funding opportunities and income from the charging points

Key Tasks:

- To keep abreast of funding opportunities and apply for these where eligible
- Make use of the Source London model which pays a fee for each parking bay used by the scheme
- Develop a pricing strategy for points funded by the borough to ensure that income covers ongoing maintenance of charging points
- Make use of s106 agreements to help fund car club bays at new developments
- Ensure EVCP infrastructure implementation is incorporated into the policies, delivery plans and identified funding mechanism for Lewisham's LIP3 proposals
- To make best use of the Council's assets, such as car parks, town centres, housing estates and leisure centres
- Support local businesses in the take up of low emission vehicles by offering advice on the grants available to them

Funding Options

GULCS

Lewisham are part of the consortium of London Boroughs which can apply for funds through the GULCS framework mechanism for residential on-street charging networks, electrification of car club bays and the roll out of rapid charging infrastructure. The GULCS will be a key funding source for Lewisham to utilise for the delivery of a range of electric charging infrastructure. Following a GULCS bidding process, TfL have confirmed Lewisham have been awarded a portion of GULCS funding in 2018/19 to fund 75% of the costs for installing residential on-street charging facilities. The remaining 25% funding is intended to be provided by Lewisham's LIP mechanism.

The funding criteria states that the funding can be used up to a maximum of £7,500 for each free standing charging point and £2,000 for each lamp column charging point.

Lewisham will have the opportunity to source more GULCS funding in the next round of bidding, for 2019/20 delivery.

LIP3

Lewisham intends to apply for funding for electric vehicle charging points through its LIP. A revised Borough LIP (LIP 3) will be developed for implementation from April 2019. The new Mayor's Transport Strategy and LIP3 guidance has been circulated, to which boroughs must conform.

OLEV

The Office for Low Emission Vehicles (OLEV) is part of the Department for Transport and the Department for Business, Energy & Industrial Strategy. OLEV is a team working across government to support the early market for ultra-low emission vehicles (ULEV). They are providing over £600 million from 2015 to 2020 in funding to position the UK at the global forefront of ULEV development, manufacture and use. An additional £270m was announced at the 2016 Autumn Statement. This will contribute to economic growth and will help reduce greenhouse gas emissions and air pollution on UK roads.

OLEV allocated £1.5m of funding for 17/18 and £4.5m for 18/19 and 19/20 for on-street residential projects. This funding is available for eligible projects and similarly to the GULCS funding, Council's must secure a minimum of 25% of capital funds via sources other than OLEV funding, which makes available 75% of the capital costs.

Infrastructure Grants

The Government (as of January 2017) has committed almost £1bn to support Ultra Low Emission Vehicles (ULEVs) from 2015-2020. Of this funding, £32m has been committed for infrastructure. This has been broken down into the following schemes:

The Electric Vehicle Homecharge Scheme

OLEV is currently part-funding electric vehicle charging points for domestic installation. To help private plug-in vehicle owners offset some of the upfront cost of the purchase and installation of a dedicated domestic recharging unit, the Government is running the Electric Vehicle Homecharge Scheme. Customers who are the registered keeper, lessee or have primary use of an eligible EV may receive up to 75% (capped at £500, inc. VAT) off the total capital costs of the charge point and associated installation costs. Customers must provide evidence of keepership, lease, be named as the primary user of an eligible EV or have a vehicle on order in order to be able to qualify for the grant.

The Workplace Charging Scheme

The Workplace Charging Scheme is a voucher-based scheme that provides support towards the up-front costs of the purchase and installation of EVCPs for employee and fleet use. The contribution is limited to £300 for each socket up to a maximum of 20 across all sites for each application. The voucher will be valid for 4 months (120 days) from the date of issue, (expiry date printed on the voucher). Once the charge point(s) have been installed, the authorised installer will claim the grant from OLEV on the applicant's behalf by submitting a PDF claim form via OLEV's portal.

The On-street Residential Charging Scheme

This grant is available to councils who wish to install on-street charge points in residential areas. This encourages the installation of chargers in these un-commercially viable areas which are not attractive to private companies.

OLEV will fund 75% of all capital costs up to £7500. This includes the equipment, installation and costs associated with the bay and TMO.

Plug-in Car Grant

OLEV will offer a grant to subsidise new ULEVs. The funding depends upon which category the vehicle falls into, as shown in the Figure below.

Categories of OLEV Grant Funding

| Requirement | | Grant | Examples |
|-------------------|---|--------------------------------|--|
| Category 1 | Cars with a zero emission range of over 70 miles | £4,500 | Full EVs such as BMW i3 and Nissan LEAF |
| Category 2 | Cars that have CO ₂ emissions of less than 50g/km and a zero emission range of between 10 and 69 miles | £2,500 (If vehicle under £60k) | Hybrids such as the Audi A3 e-tron and Toyota Prius Plug-in) |
| Category 3 | Cars with CO ₂ emissions of 50 to 75g/km and a zero emission range of at least 20 miles | £2,500 (If vehicle under £60k) | |

Plug-in Van Grant

A more generous grant is available for commercial vehicles. There are currently very few ULEV vans and the higher subsidy represents the desire to drive adoption in this category. For vans under 3.5T there is a grant of 20% of the price (up to £8000) and for those over 3.5T there is a 20% grant capped at £20000. This will be reviewed either after 5000 applications or in 2018 depending on which is reached first.

OLEV also fund other projects such as the Go Ultra Low Scheme which awarded £40million to four cities to carry out innovative projects which aid the adoption of ULEVs. It also funded the Plugged-in Places project which created regional charging networks such as Source London.

Go Ultra Low Cities Scheme

The Go Ultra Low Cities scheme is part of a wider £600 million investment from the Government to encourage EV uptake in the UK through a step change in ULEV car uptake in their locality, including criteria for the bids included improvements in air quality, innovation, and linking with other OLEV schemes.

Rapids

TfL have publicised their rapid charging framework, offering the scheme to local authorities within London. They are proposing to identify locations across TfL, borough and private land which would be capable of hosting EV rapid charging infrastructure.

Under the scheme, chosen locations would be tendered out to six charge point operators who will bid for a concession contract to install, operate and maintain rapid charge points at their own cost. TfL will fund the installation of the power infrastructure and street furniture. TfL is working with the boroughs and investing £18million to unlock potential sites, including upgrading the power supply.

Charging Point Providers

Rapid Charging

There are several other operators who will fund and manage rapid chargers. Source London /Bolloré is most notable in London, others include Engenie and InstaVolt.

Destination Charging

There are many network operators who provide trip destination chargers. Each network operates a different business model but they can be separated into those who lease the land from councils and those who sell chargers to councils and profit from fees charged to the user. Within London, the two largest networks are POLAR and Source London.

Source London

Source London is operated by Bolloré Ltd., on behalf of TfL. The network currently consists of over 1000 EVCPs but there are ambitious plans to greatly expand this number, with over 2000 by 2019. Users are required to pay a monthly subscription and can then operate the charge points via an RFID card.

Expanding the existing Source London network would be a quick win for Lewisham. At no cost, an additional network of chargers could be installed and the council would continue to receive an annual income which could be reinvested into other electric vehicle schemes.

Lewisham wishes to provide a mix of charge points, operating parallel networks within the borough. The following is an example of a charge point manufacturer and operator which would be a suitable alternative.

POLAR

The POLAR network is the UK's largest charging network (outside London) with over 12000 points. It is owned by EVCP manufacturer Chargemaster. The company operates points across the country and holds contracts with numerous councils including Milton Keynes and the City of London.



Users operate the chargers using either an app or RFID card. There is the option to either pay for a monthly subscription or to pay on an ad hoc 'pay as you go' basis. This provides flexibility to occasional users who can arrive at a charger, download the app and charge with no prior planning, whilst offering convenience to regular users who simply tap their card on the reader. The pricing aims to be cheaper than charging at home: 9p/kWh for members.



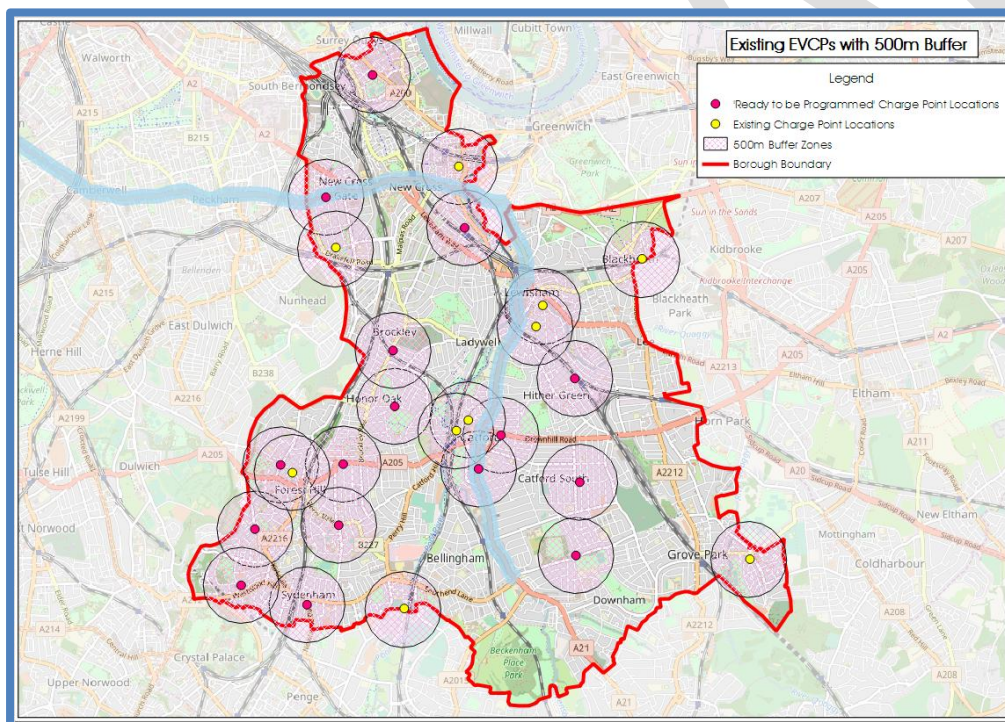
Objective 3

To ensure the charging network remains fit for purpose, can cater for future expansion and is adaptable to emerging technologies

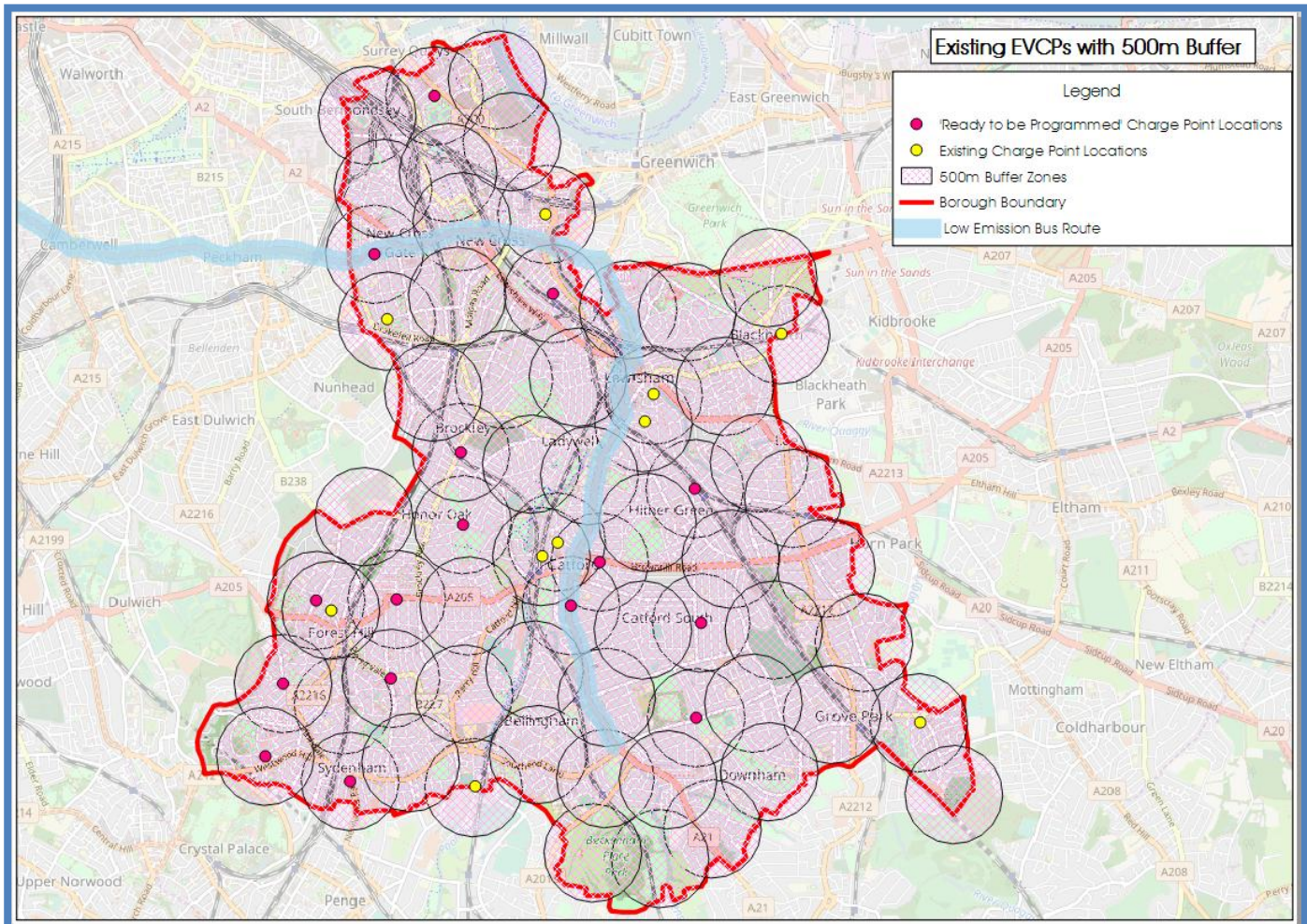
Key actions:

- Monitor usage data from charging units to ensure that they are well located, used and promoted
- When installing EVCPs of any type, consider active and passive provision i.e. lay cabling for provision of further points in the future so additional installations are quicker and more cost effective
- Keep abreast of emerging technologies and work with the private sector to deliver trials
- Apply best practice from across the UK to provide the best possible electric vehicle provision

Catering for Future Expansion

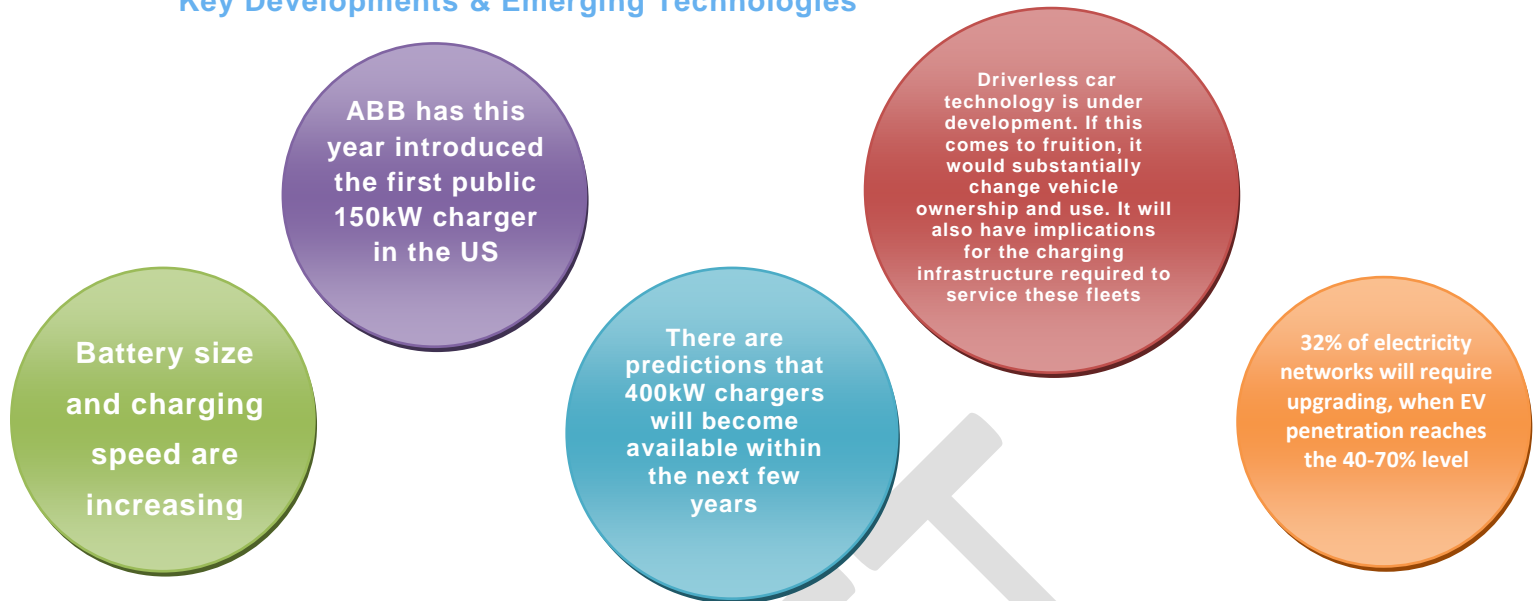


The map to the left shows 500m buffers around all existing charge point locations within Lewisham. The map overleaf shows how many buffers would be required to give full coverage to the borough, and achieve our target of having everyone within 500m of a charging point. 500m takes around 5-10 minutes to walk, depending on walking speed (slow to fast)

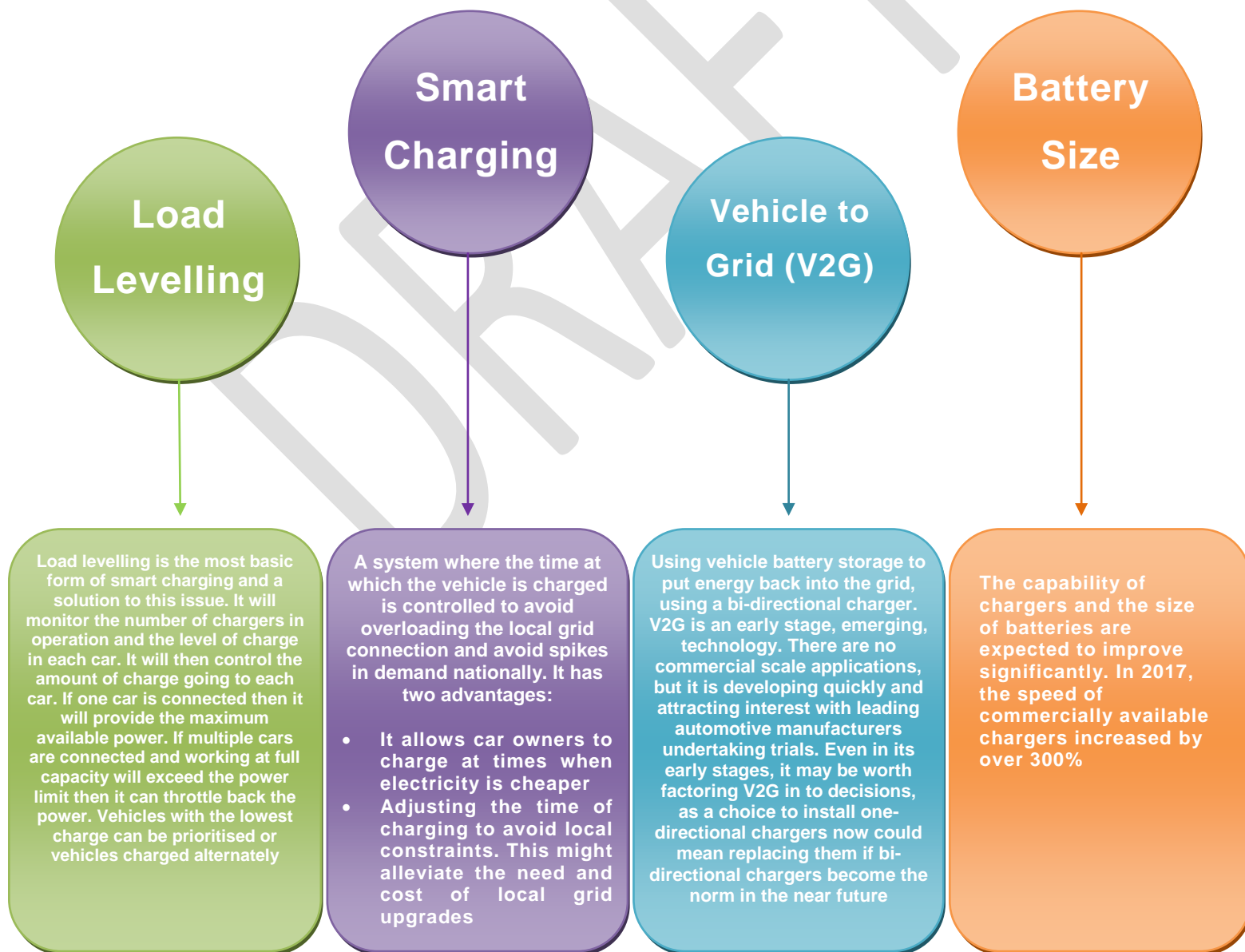


Lewisham will need to install charge points in 41 additional locations, in addition to those already on-street or ready to be programmed, in order to give the entire borough 500m or less coverage. This would mean a total of 67 locations. Multiple units should be installed at each site.

Key Developments & Emerging Technologies



Future Innovations



Objective 4

To encourage the uptake of electric vehicles through supporting policy frameworks, initiatives, and public engagement, drawing on best practice from around the UK and beyond

Key actions:

- Review parking policy to consider how to encourage uptake of electric vehicles in all types of bays
- Review Local Plan policy to consider how to encourage uptake of electric vehicles and ensure that London Plan standards are implemented
- Consider power supply needs in Lewisham's Infrastructure Delivery Plan
- Consider a strategic EVCP levy through CIL to fund charging infrastructure
- Consider introduction of innovative schemes that encourage electric vehicle uptake such as Low Emission Streets/Neighbourhoods
- Run engagement events and consider vehicle trials in partnership with the private sector to raise public awareness and acceptability of electric vehicles
- Invite members of the public to put forward suggestions for new charging point locations
- Carry out a review of EVCP strategy by 2025 to ensure delivery of action plan targets and proposals

5. CHAPTER FIVE

Delivery Plan and Monitoring

This section provides an action plan of deliverables that Lewisham are hoping to achieve, summarising the actions listed earlier in the strategy.

| <u>Objectives</u> | <u>Action / Tasks</u> | <u>Time Scale:</u> <u>Short term: <2yrs</u> <u>Medium: 2-5 yrs</u> <u>Long term: 5+ yrs</u> | <u>Funding Source</u> | <u>Targets/ Indicators</u> | <u>Relevant Page Numbers</u> |
|--|--|---|------------------------------|---|------------------------------|
| <p>1.</p> <p>To support the following types of charging through provision of appropriate infrastructure in the right locations:</p> <ul style="list-style-type: none"> a) Charging points in residential areas b) Charging points in town centres, workplaces and at other key destinations c) Charging points for car club vehicles d) Charging points for freight and servicing vehicles e) Charging points for taxis | <ul style="list-style-type: none"> a) Charge points for residential areas <ul style="list-style-type: none"> • Install even spread of 7kW chargers throughout residential areas where there is sufficient footway space, focusing on achieving 500m coverage in the first instance (see page 37) • Consider and prioritise requests from residents for new on-street charging points, delivering this through a mixture of lamp column chargers and 7kW chargers • Deliver lamp column chargers in clusters or across whole street • Work with Lewisham homes to identify locations for 7kW and lamp column chargers in the Council's housing estates • Consider creating charging hubs co-located with other sustainable transport modes i.e. cycle parking and car club vehicles b) Charge points for Town Centres, workplaces and other key destinations <ul style="list-style-type: none"> • Install 7-22kW chargers at key destinations, such as town centres, working with a range of operators • Encourage supermarkets, leisure centres and workplaces to install charging provision in their car parks • Contact petrol stations to ask that they consider installing rapid charging points • Choose locations where chargers will generate a sufficient level of usage demand to ensure the unit becomes self financing • Consider location of points along the low emission bus corridor c) Charge points for car club vehicles <ul style="list-style-type: none"> • Gradually install charge points in fixed car club bays, with 100% coverage by 2025 • Install an even spread of 7kW chargers across the borough, which point-to-point car club providers can also utilise • Install EVCPs in any new fixed car club bay from the outset, with a requirement that the vehicle serving it is an electric vehicle • Any new point-to-point provider permitted to operate in the borough should have at least 50% electric fleet, with a view of reaching 100% by 2025 | <p>Short, medium and long term</p> | <p>GULCS/ OLEV/ LIP/ TfL</p> | <p>All residents/businesses/visitors no more than 500m from a charging point (41 additional locations, total of 67) by 2020, with at least 2 charge points at each location (134 in total). Over 300 across the borough by 2025</p> <p>Installation of 4 rapid chargers by 2018/19 and 10 by 2020, led by TfL</p> <p>Keep working towards electrifying our current and future car club fleets, with 100% by 2025</p> <p>Any new point-to-point provider permitted to operate in the borough should have at least 50% electric fleet, with a view of reaching 100% by 2025</p> <p>Increase proportion of electric vehicles in Lewisham from 1.4% to 2% by 2022 and above 10% by 2025</p> | <p>p26</p> |

| | | | | | |
|--|--|-----------------------------|----------------------------|--|------------|
| | <ul style="list-style-type: none"> • Create a new permit for car club vehicles through the parking policy review <p>d) Charge points for freight and servicing vehicles</p> <ul style="list-style-type: none"> • Work in partnership with TfL to deliver a network of rapid chargers across the borough • Encouraging businesses with off-street servicing/parking to install charging points • Exploring the possibility of installing charging points in loading bays • Trial electric vehicle charging points for market traders <p>e) Charge points for taxis</p> <ul style="list-style-type: none"> • Consider provision of rapid chargers in off-street locations and near taxi ranks • Prioritise requests from taxi drivers for charging provision on-street near home for those with no off-street parking | | | | |
| <p>2.</p> <p>To ensure that provision and maintenance of charging points becomes cost neutral through the pursuit of infrastructure funding opportunities and income from charging points</p> | <ul style="list-style-type: none"> • To keep abreast of funding opportunities and apply for these where eligible • Make use of the Source London model which pays a fee for each parking bay used by the scheme • Develop a pricing strategy for points funded by the borough to ensure that income covers ongoing maintenance of charging points • Make use of s106 agreements to help fund car club bays at new developments • Ensure EVCP infrastructure implementation is incorporated into the policies, delivery plans and identified funding mechanism for Lewisham's LIP3 proposals • To make best use of the Council's assets, such as car parks, town centres, housing estates and leisure centres | <p>Short to medium term</p> | <p>Section 106 and CIL</p> | <p>Apply for all rounds of funding made available by OLEV, GULCS and TfL</p> | <p>P31</p> |

| | | | | | |
|--|--|------------------------------------|--|--|------------|
| <p>3.</p> <p>To ensure the charging network remains fit for purpose, can cater for future expansion and is adaptable to emerging technologies</p> | <ul style="list-style-type: none"> • Monitor usage data from charging units to ensure that they are well located, used and promoted • When installing EVCPs of any type, consider active and passive provision i.e. lay cabling for provision of further points in the future so additional installations are quicker and more cost effective • Keep abreast of emerging technologies and work with the private sector to deliver trials • Apply best practice from across the UK to provide the best possible electric vehicle provision | <p>Short, medium and long term</p> | | <p>Regular review meetings with EV charging providers</p> <p>As standard design, look to deliver EVCP's or enabling works for EVCP's on highway and public realm schemes</p> <p>Continue active membership of EV Stakeholder Groups sharing good practice and incorporating new ideas back into Lewisham's options</p> <p>To encourage the uptake of electric vehicles through supporting policy frameworks, initiatives and public engagement, drawing on best practice from around the UK and beyond</p> | <p>p36</p> |
| <p>4.</p> <p>To encourage the uptake of electric vehicles through supporting policy frameworks, initiatives and public engagement, drawing on best practice from around the UK and beyond</p> | <ul style="list-style-type: none"> • Review parking policy to consider how to encourage uptake of electric vehicles in all types of bays • Review Local Plan policy to consider how to encourage uptake of electric vehicles and ensure that London Plan standards are implemented • Consider power supply needs in Lewisham's Infrastructure Delivery Plan • Consider a strategic EVCP levy through CIL to fund charging infrastructure • Consider introduction of innovative schemes that encourage electric vehicle uptake such as Low Emission Streets/Neighbourhoods • Run engagement events and consider vehicle trials in partnership with the private sector to raise public awareness and acceptability of electric vehicles • Invite members of the public to put forward suggestions for new charging point locations • Carry out a review of EVCP strategy by 2025 to ensure delivery of action plan targets and proposals | <p>Short, medium and long term</p> | | <p>Review London Plan when available and make any changes to that are appropriate</p> <p>Invite private companies to Council run events such as Peoples Day to promote EV technologies</p> <p>By December 2018 Launch a new online application form for EVCP requests</p> <p>Set up a Review of objectives and Targets of Lewisham's Low Emission Vehicle Charging Strategy by December 2025</p> <p>Investigate funding options for providing Taxi and wider Fleet charging options</p> | <p>p39</p> |

APPENDIX

The table below projects the number of ULEVs in London boroughs and further supports the growth line in the 'EV ownership; Lewisham' graph. There are projected to be 5, 298 ULEVs in Lewisham in 2025 (high scenario) or 1, 398 in 2025 (baseline scenario).

Table 1

| Borough Name | Baseline Scenario | | | High Scenario | | |
|------------------------|-------------------|-------|-------|---------------|-------|--------|
| | 2015 | 2020 | 2025 | 2015 | 2020 | 2025 |
| Barnet | 332 | 2,200 | 9,215 | 332 | 4,741 | 16,337 |
| Richmond upon Thames | 276 | 1,719 | 7,372 | 276 | 3,872 | 11,839 |
| Hillingdon | 243 | 1,598 | 6,764 | 243 | 3,469 | 17,541 |
| Croydon | 216 | 1,661 | 6,618 | 216 | 3,214 | 13,322 |
| Westminster | 204 | 1,314 | 5,593 | 204 | 2,893 | 7,832 |
| Wandsworth | 195 | 1,310 | 5,460 | 195 | 2,793 | 10,022 |
| Redbridge | 173 | 1,208 | 4,970 | 173 | 2,506 | 11,261 |
| Ealing | 157 | 1,263 | 4,963 | 157 | 2,373 | 11,270 |
| Brent | 153 | 1,208 | 4,768 | 153 | 2,293 | 8,551 |
| Harrow | 153 | 1,078 | 4,428 | 153 | 2,226 | 10,718 |
| Bexley | 142 | 1,128 | 4,440 | 142 | 2,127 | 10,247 |
| Islington | 137 | 916 | 3,831 | 137 | 1,964 | 5,397 |
| Camden | 131 | 1,060 | 4,169 | 131 | 1,984 | 6,151 |
| Kensington and Chelsea | 127 | 802 | 3,431 | 127 | 1,794 | 5,917 |
| Tower Hamlets | 123 | 871 | 3,553 | 123 | 1,784 | 5,567 |
| Bromley | 119 | 1,053 | 4,034 | 119 | 1,860 | 12,677 |
| Enfield | 110 | 966 | 3,695 | 110 | 1,710 | 10,835 |
| Kingston upon Thames | 101 | 716 | 2,933 | 101 | 1,468 | 7,453 |
| Haringey | 98 | 716 | 2,897 | 98 | 1,433 | 6,295 |
| Hammersmith and Fulham | 85 | 577 | 2,390 | 85 | 1,216 | 4,615 |
| Sutton | 79 | 688 | 2,648 | 79 | 1,224 | 8,103 |
| Hounslow | 78 | 728 | 2,741 | 78 | 1,235 | 7,070 |
| Waltham Forest | 71 | 650 | 2,457 | 71 | 1,117 | 6,512 |
| Havering | 67 | 788 | 2,777 | 67 | 1,162 | 8,805 |
| Hackney | 64 | 536 | 2,080 | 64 | 981 | 4,018 |
| Lambeth | 56 | 476 | 1,840 | 56 | 864 | 5,098 |
| Greenwich | 53 | 444 | 1,714 | 53 | 808 | 6,065 |
| Merton | 52 | 506 | 1,890 | 52 | 839 | 5,105 |
| Southwark | 48 | 435 | 1,654 | 48 | 758 | 3,636 |
| Lewisham | 36 | 386 | 1,398 | 36 | 599 | 5,298 |
| Newham | 31 | 311 | 1,136 | 31 | 501 | 4,157 |
| Barking and Dagenham | 21 | 309 | 1,038 | 21 | 399 | 4,210 |
| City of London | 16 | 106 | 447 | 16 | 232 | 525 |

The table below lists the locations of the existing 3kW and 7kW standard charge points installed within Lewisham; these points may be found on the charge point map on Page 13.

Table 2

| No. | Road Name | Post Code | Supplier | Location | Costs | Additional Information |
|-----|---|-----------|----------------------------|-------------------------------|--|---------------------------|
| 01 | Clipper Way-Slaithwaite Road | SE13 6NA | Source London, 3kW and 7kW | Public Car Park; 5 devices | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |
| 02 | Blackheath Grove | SE3 0DG | Source London, 3kW and 7kW | Public Car Park; 1 device | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |
| 03 | Holbeach Road | SE6 4SA | Source London, 3kW and 7kW | Public Car Park; 5 devices | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |
| 04 | Pearcefield Avenue | SE23 3EU | Source London, 3kW and 7kW | Public Car Park; 4 devices | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |
| 05 | Frankham Street NOTE: one unit not installed here, it looks as though there were plans to (fault registered on Zap-Map) | SE8 4RH | Source London, 3kW and 7kW | Off-street Parking; 4 devices | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |
| 06 | Kitto Road | SE14 5SG | Source London, 3kW and 7kW | On-Street; 2 devices | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |
| 07 | Riddons Road | SE12 9RB | Source London, 3kW and 7kW | On-Street; 2 devices | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |
| 08 | Doggett Road | SE6 4QA | Source London, 3kW and 7kW | On-Street; 1 device | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |
| 09 | Kangley Bridge Road/ Westerly Crescent | SE26 5DD | Source London, 3kW and 7kW | Public Car Park; 2 devices | RFID card £4/month + 3.6p/min(minimum 20 mins) | |
| 10 | Clarendon Rise Car Park site 3 | SE13 5ES | Source London, 3kW and 7kW | Public Car Park; 5 devices | RFID card £4/month + 3.6p/min(minimum 20 mins) | Parking charges may apply |