

LBB Electric Vehicle Charging Strategy

BACKGROUND INFORMATION	
Document Purpose	Proposal for a holistic, council-wide approach to the roll out of electric vehicle charging infrastructure across the borough.
Author	Amy Mallett
Last Review and Publication Date	
Target Audience	
Subject	Electric Vehicle Infrastructure
Version	1
Portfolio	Environment and Community Services

Document History			
Date	Amendments made	By Whom (name/job title)	Stakeholders Approval (Name, Job title / Organisation)
01/02/21	Document Inception	Amy Mallett Environment Officer	
01/04/21	Strategy Review undertaken by Energy Saving Trust	Richard Drew Regional Account Manager	
14/04/21	Amendments and additions being made as per EST suggestions	Amy Mallett Environment Officer	
10/08/21	Suggestions made	Dan Beckett Transport Planner & David Bond Transport Planner	
14/09/21	Suggestions made	Sarah Foster AD Performance Management (incl Carbon)	
20/09/21	Suggestions made	Lee Gullick Carbon Programme Manager	
30/09/21	Amendments made	Amy Mallett Environment Officer	

Table of Contents

1. Introduction and Context	3
1.1. Local Policy	3
1.2. Regional Policy	3
1.3. National Policy	3
1.4. Growing Demand in Bromley	4
1.5. Aims & Opportunities	5
1.6. Objectives	6
Workstream 1:	6
Workstream 2:	7
2. High Level Principles	8
3. Approach to Delivering Charging Infrastructure in Bromley	8
3.1. Demand forecasting and spatial planning:	9
3.2. Further assessment of priority streets	9
3.3. Residential pilot charging project	9
3.4. Detailed Infrastructure Delivery Plan	10
4. Business Models	11
5. Procurement	12
6. Funding	13
Glossary	14
Appendix 1 – Local and Regional Policies	15
Appendix 2 – Charging Behaviour and Charger Type	19
Appendix 3 – Chargepoint Types, Charging Times, and Power Supply Requirements	20
Appendix 4 – Chargepoint Installation and Grid Connection	21
Appendix 5 – Demand Forecasting	22
Appendix 6 – Resident Requests and Spatial Planning	25
6.1. Resident Requests	25
6.2. Spatial Planning and Mapping	25
Appendix 7 – Funding Options	28

1. Introduction and Context

This high-level strategy makes the case for the installation of electric vehicle (EV) charging infrastructure across the London Borough of Bromley (LBB). It provides the framework for existing siloed departmental targets to be brought under a singular overarching strategy, and future detailed delivery plan, which can be formalised and overseen by the Council's Green Recovery Working Group.

1.1. Local Policy

Within Bromley there are at least six different plans or strategies that reference the development of EV chargepoint (CP) infrastructure over the course of the next few years (See Appendix 1). These include: Draft Open Space Strategy; Air Quality Action Plan; Digital Strategy; Bromley Local Plan; Bromley's Third Local Implementation Plan; Net Zero Action Plan.

1.2. Regional Policy

Modelling undertaken for London's electric vehicle delivery plan¹ suggests that in London (2025): a high rapid charging scenario will necessitate between 2,500 - 4,100 rapid, and 20,000 - 34,000 residential slow to fast chargers. For a high residential charging use scenario, between 1,400 - 2,300 rapid, and 28,000 - 48,000 residential slow to fast chargers will be required.

Regionally the New London Plan (the statutory Spatial Development Strategy for Greater London)² also includes policies for the integration of EV chargepoints into: new residential parking; retail parking; hotel and leisure uses parking; and for deliveries, servicing and construction (See Appendix 1). Under healthy streets and active travel schemes, rolling out EV charging infrastructure is also considered within the Plan to be a long term (2017-2041), low-cost feature of all spatial development plans across the 33 London Boroughs.

1.3. National Policy

In October 2021, the Government's Net Zero Strategy committed a further £620million to support the EV transition, with a focus on the delivery of on-street residential charging infrastructure.

Announced in November 2020, the UK Government's 10 Point Plan for a Green Industrial Revolution³ includes point 4: "Accelerating the Shift to Zero Emissions Vehicles" as a major component. This commitment includes:

- Ending the sale of new petrol and diesel cars and vans from 2030, with all vehicles being required to have a significant zero emissions capability (e.g., plug-in and full hybrids) from 2030 and be 100% zero emissions from 2035.
- The provision of up to £1 billion to support the electrification of UK vehicles and their supply chains.
- Investments of £1.3 billion to accelerate the roll out of charging infrastructure, targeting support on rapid chargepoints on motorways and major roads to dash any anxiety around long journeys, and installing more on-street chargepoints near homes and workplaces to make charging as easy as refuelling a petrol or diesel car.
- Provision of £582 million to extend the Plug-in Car, Van, Taxi and Motorcycle grants to 2022–23 to reduce their retail price for consumers.
- Investment of £20 million in 2021 for freight trials to pioneer hydrogen and other zero emission

¹ <http://ruc.content.tfl.gov.uk/london-electric-vehicle-infrastructure-taskforce-delivery-plan.pdf>

² <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan>

³ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936567/10_POINT_PLAN_BOOKLET.pdf

lorries, to support industry to develop cost-effective, zero-emission HGVs in the UK.

Nationally, these policies are projected to support around 40,000 new jobs in 2030, stimulate around £3billion in private investment, and save 5MtCO_{2e} to 2032, and 300MtCO_{2e} to 2050.

Given the enthusiasm at all levels of governance and the future availability of funding, it is imperative that LBB develop a strategy to guide the roll out of electric vehicle charging infrastructure and make the most of this opportunity in the most efficient and cost-effective way.

1.4. Growing Demand in Bromley

Being the largest outer London Borough and especially in light of the Covid-19 pandemic, private vehicles remain necessary in Bromley for some journeys that cannot be made via the public transport network, or active travel methods such as walking or cycling. Presently there are 24 charging devices per 100,000 people in Bromley, which falls well below the average for outer London boroughs of 51 devices per 100,000.⁴

Demand for electric vehicles is growing rapidly and will accelerate given the nationwide ban on the sale of new petrol and diesel cars and vans from 2030 and due to the likely achievement of cost parity with internal combustion engines in the mid-2020s⁵.

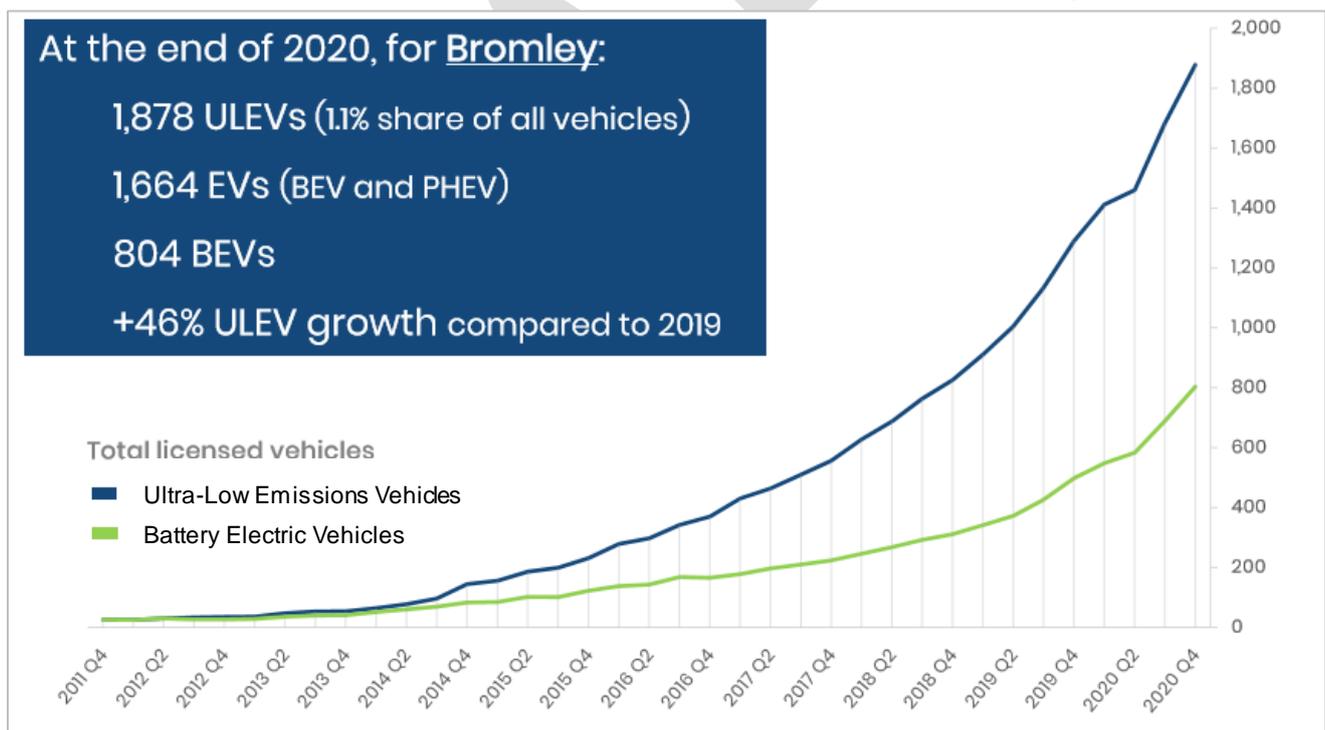


Figure 1. EV licensing figures in Bromley. Source - Department for Transport, 2021

⁴ Electric vehicle charging device statistics: July 2021 available from gov.uk.

⁵ <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/energy-resources/deloitte-uk-Electric-Vehicles-uk.pdf>

1.5. Aims & Opportunities

The Council acknowledge that electric vehicles are only one part of a sustainable transport mix, which should first focus on active travel, and making use of existing capacity⁶. Electric vehicles will play a significant role for lighter vehicles, however they are just one part of the solution in the transition to zero emissions transport. This is especially true where emerging technologies (e.g., hydrogen vehicles) could become the preferred industry standard for particular types of vehicle, such as HGVs.

Due to existing Council targets for electric chargepoint installation the strategy focuses on EV's rather than all types of zero emissions vehicles. The Council is technology agnostic and will appraise different zero emission options as they emerge. Importantly this strategy aims to streamline existing activity and expand the installation of EV charging infrastructure, under an agreed overarching approach. This is especially necessary where walking, cycling and public transport are unlikely to be viable modal choices for residents now and in the future, due to geographical location or disability.

Aligning with the *Transforming Bromley Agenda*, the installation of EV charging infrastructure to enable a transition to low emissions transportation, meets the following corporate priorities:

- **Maintaining Organisational Resilience:** EV chargepoints and a long-term strategy will support transport decarbonisation and address the challenges posed by reducing borough-wide emissions, while maximising opportunities for positive financial, social, and environmental outcomes.
- **Effective Resident Engagement:** The provision of chargepoints draws attention to the use of low or zero emissions vehicles and demonstrates to residents that the council is proactively supporting them to live more sustainably, while meeting existing statutory commitments, such as the air quality action plan⁷.
- **Improving the public realm, maintaining our green spaces and promoting economic growth:** Chargepoints at Council-owned facilities or attractions, such as shopping or leisure centres, can help to increase footfall from residents and visitors.
- **Flexibility, independence and choice in service delivery:** EV charging infrastructure could be provided as a consistent, affordable and high-quality service to residents, including those without off-street parking. To improve accessibility and uptake, profitable public chargepoints can subsidise those that are less utilised but provide an important service to residents.
- **Responsible financial management strategy:** Chargepoints and other infrastructure to facilitate charging can provide an ongoing revenue stream to the Council⁸.

⁶ https://www.bromley.gov.uk/download/downloads/id/5131/local_implementation_plan_lip3.pdf

⁷ [Air quality action plan | London Borough of Bromley](#)

⁸ <https://energysavingtrust.org.uk/wp-content/uploads/2020/10/Local-Authority-Guidance-Procuring-electric-vehicle-charging-infrastructure.pdf>

1.6. Objectives

Objectives are split across two workstreams:

Workstream 1:

Primarily, to meet existing commitments under Bromley's Air Quality Action Plan and Net Zero Action Plan (see Appendix 1), workstream 1 supports the transition of LBB owned fleet to zero emissions vehicles. Secondly, as an extension of LBB, the workstream aims to support and enable LBB contractors, partners and staff to transition to low or zero emissions vehicles before the 2030 ban on petrol and diesel vehicles is introduced. Emissions from contractors, partners and staff are not captured in our organisational emissions (see Net Zero Action Plan), however, it is an area which LBB could positively influence by leasing Council land for chargepoint installation, which could also generate a revenue stream.

Workstream 1 – Organisational transition to electric vehicles			
Objective	Approach	Completion Date	Owner
1. Work in partnership with contractors to ensure LBB have a 100% electric fleet	<ul style="list-style-type: none"> Installation of CPs across council estates and switch to electric fleet, stipulating the use of battery electric vehicles when new transport contracts are awarded or vehicles purchased; <ul style="list-style-type: none"> Mavoral vehicle to be replaced with PHEV in January 2022 Next SEN transport contract to be awarded in 2025. Planning to begin in 2023 	Ongoing	Transport Operations, Strategic Property & All relevant contract managers
	<ul style="list-style-type: none"> Installation of electric vehicle chargepoints at main depot for HGVs and Council Fleet 	*2023 ⁹	Neighbourhood Management & Strategic Property
	<ul style="list-style-type: none"> Continue work with waste Service Provider to ensure infrastructure allows for fully electric fleet by 2026 	*2026	Neighbourhood Management & Veolia
	<ul style="list-style-type: none"> Develop proposals with existing Service Providers to install chargepoints across their portfolios e.g., visitor car parks <ul style="list-style-type: none"> Across our Open Space Portfolio 	*2026	All relevant contract Managers
2. Work with staff to encourage switch to EVs and ensure sufficient supporting infrastructure is available at Council owned sites	<ul style="list-style-type: none"> Survey staff and review existing chargepoint usage data to establish demand 	2022	Traffic and Parking
	<ul style="list-style-type: none"> Pending demand and technical feasibility assessments install additional chargepoints at LBB-owned sites for essential fleet users who need a vehicle to undertake their duties e.g., social workers and highways inspectors. 	2024	Traffic and Parking / Transport Operations
	<ul style="list-style-type: none"> Signpost government grants to staff and encourage use of Council's Lease Car Scheme. 	Ongoing	Traffic and Parking

⁹ An asterix * denotes a target in an existing LBB policy document (see Appendix 1)

Workstream 2:

Aims to expand the publicly available network of charging infrastructure for use by residents in the borough, to facilitate their zero emissions transition, through the use of EVs.

This aligns with existing commitments in the Air Quality Action Plan, the Bromley Local Plan, the new London Plan and Bromley's Third Local Implementation Plan (See Appendix 1)

It also expands upon existing commitments to ensure that LBB facilitate the installation of charging infrastructure where residents are unable to install chargepoints, due to lack of off-street parking.

36% of households in Bromley do not have access to off street parking¹⁰. As the highway's authority, it falls to LBB to ensure that these locations are EV compatible, ensuring car owners without access to off-street parking can smoothly transition to EVs without being penalised for having to utilise more expensive rapid chargers situated further away from their homes. Currently 41,926 on-street households (84% of all on-street households) are more than a 5-minute walking distance from a publicly accessible chargepoint¹¹.

Workstream 2 – Borough-wide transition to electric vehicles			
Objective	Approach	Completion Date	Owner
1. <i>Using third parties, expand the public charging network in Bromley to accomplish decarbonisation and air quality objectives, while providing a high-quality service to residents.</i>	<ul style="list-style-type: none"> Facilitate the phased installation of charging infrastructure to priority residential locations without off-street parking. 	2030	Traffic and Parking & Highways
	<ul style="list-style-type: none"> Engage and encourage suppliers to undertake feasibility assessments for rapid charging hubs to support electric Taxis, Private Hire and Freight vehicles where there is demand 	2022	Traffic and Parking & Highways
	<ul style="list-style-type: none"> Work with BIDs to determine feasibility of installing chargepoints for EVs and powering stalls, or promotional events in key high street locations. 	2022	Traffic and Parking & Highways
2. <i>To ensure all new developments and parking spaces accommodate electric vehicle chargepoints</i>	<ul style="list-style-type: none"> To follow policies laid out in the Bromley Local Plan and New London Plan 	*Ongoing	Planning
	<ul style="list-style-type: none"> Development of Bromley EV parking policy to guide design of EV bays, regulate and ensure proper usage and develop enforcement mechanisms 	2022	Planning, Traffic and Parking, Highways Enforcement
3. <i>Encourage EV uptake across the borough</i>	<ul style="list-style-type: none"> Signpost existing car and van owners to available government grant funding 	Ongoing	Traffic & Parking
	<ul style="list-style-type: none"> Lobby central government for more funding and encourage external organisations to transition to zero emissions vehicles e.g. partners and local entities. 	Ongoing	Traffic and Parking

¹⁰ <https://onstreetcharging.acceleratedinsightplatform.com/>

¹¹ <https://onstreetcharging.acceleratedinsightplatform.com/>

2. High Level Principles

A number of high-level principles guide the strategy to ensure the objectives are met in an environmentally sustainable, socially equitable and economically beneficial way. These principles also guide the outcomes we expect suppliers to meet if chosen to install charging infrastructure in Bromley.

Principles	Outcomes
Environmentally Sustainable	<ul style="list-style-type: none"> • Avoidance of additional street furniture where practicable.¹² • Evidence of future-proofed solutions e.g., interoperability, interchangeability and smart charging. • Evidence of low embodied carbon and circular/ sustainable product design • Provision of green electricity to chargepoints, supporting emissions reductions to achieve net zero.
Socially Equitable	<ul style="list-style-type: none"> • Right chargepoint, right location to increase accessibility for key stakeholder groups, but not in locations that encourage additional car use, or permanently diminish usage of the highway for other users e.g., cyclists, or residents with disabilities. • Commitment to cross-subsidisation and/or to ensure a number of chargepoints in areas of high profitability are matched with ones in an area of low profitability. This will support a strategic spread across Bromley, improving accessibility.
Economically Beneficial	<ul style="list-style-type: none"> • The best average price per kilowatt hour (kWh) charged to customers for use of chargepoints on a pay as you go basis • Low risk business models, including the ability for the CPO to cover the costs of installation, maintenance and operation of the chargepoints (e.g., fully funded concession or licensing arrangements). • Revenue share offer to the Council for facilitating installations on the highway • Risk minimisation through shorter license agreements and/or favourable exit terms e.g., coverage of decommissioning costs at the end of the license agreement or low-cost transfer fee of the chargepoints and electrical connection point (if the supplier has ownership of it). • UK sourced manufacturing of CPs and/ or evidence of employment opportunities provided by the contract works.

3. Approach to Delivering Charging Infrastructure in Bromley

The exact approach to delivering charging infrastructure in Bromley differs depending on the workstream, project and stakeholders involved. EV market development and the expanding offer of large companies such as Shell, Total and BP to provide chargepoints and convert petrol forecourts tighten the scope of LBB involvement to a strategic and facilitatory role.

Broadly each project must consider; the demand for charging and likely charging behaviour, plus the anticipated location (see Appendix 2). These inform the amount of time needed to charge (Appendix 3), the type of chargepoints required (slow, fast, rapid), grid connection and cost (see

¹² Following site visits with a charge point operator (CPO), installing satellite charging posts close to the road, which are fed by the electrical supply from lamp columns are a viable option in Bromley. Due to the age of Bromley lamp column assets and their placement on the footway, fully integrated lamp column charging options were ruled out by the CPO.

Appendix 4). This process is simpler for projects under workstream 1, as it is easier to quantify LBB's needs and those of our suppliers. Under workstream 2, the process to deliver chargepoints in Bromley is extended and takes a four-fold approach:

3.1. Demand forecasting and spatial planning:

ACTIONS

- Gather data on EV uptake and chargepoint demand forecasts circulated by central government, pan-London organisations and research bodies, to provide a target range of chargepoints required in Bromley under different scenarios (see Appendix 5)
- Collate requests for on-street chargepoints made directly to Bromley, or via the London Councils website to be plotted, thereby supporting demand and location assessments (see Appendix 6). Future feedback from public consultation on priority locations will also factor into siting decisions.
- Spatial planning and mapping to be undertaken to consider areas where demand for chargepoints are likely to be greatest based on; housing type and lack of off-street parking; links and proximity to Air Quality Management Areas (AQMAs); geographical spread e.g., closeness to existing chargepoints; closeness to resident requests; public transport accessibility levels (PTALS) (see Appendix 6).

OUTCOME

The data gathering and analysis in Appendix 6 (see fig 3) highlights that 1109 streets, covering every ward in the borough will eventually need to facilitate the installation of charging infrastructure in residential areas. Resident requests (accounted for during the analysis) are useful in identifying early adopters of EVs and corroborate the evidence that requests primarily come from areas with limited off-street parking. The analysis also shows areas of high, medium and low priority for installations.

Installations should be delivered in order of priority, highest to lowest, allowing a more strategic approach, rather than a purely reactive approach, reliant on resident requests. However, resident requests are still likely to be important in developing the political mandate for early phases of CP installation. This is true where there is still a mix of petrol and diesel vehicles, along with EVs, especially in roads with limited, or permitted parking. In these locations designated EV bays would temporarily rearrange parking available while residents transition.

3.2. Pilot Residential charging project

ACTIONS

- Trial a variety of residential charging options between 3kW and 22kW. These will be located across a select group of the high priority streets, deemed suitable through the mapping analysis, in conjunction with further LBB assessment, engagement with CPOs and in response to resident requests and the voluntary participation of residents.

OUTCOME

Although the exact design and scope of the pilot is to be determined, objectives should be to:

- Evaluate a variety of emerging EV charging solutions and their performance
- Identify community responses to the installations and any modified parking arrangements.
- Develop insights from the pilot to scale up the public charging network in Bromley.

3.3. Further assessment of priority streets

ACTIONS

- To ascertain numbers of CPs required by street, siting opportunities, suitability of different options, an assessment of the 1109 priority locations (starting with the 197 high priority sites) will be conducted by Traffic and Parking & Highways teams.

OUTCOME

Identification of the suitable mix of charging infrastructure and total number to be installed across priority streets is important in quantifying progress to target achievement e.g., the target number of residential chargepoints suggested in Bromley by relevant research bodies (see Appendix 5.2)

The exact assessment criteria, cost and resourcing of an assessment is to be determined, however it is likely that a desk-top analysis and ground truthing exercise will require significant officer time. This assessment will support a detailed borough-wide delivery plan.

3.4. Detailed Infrastructure Delivery Plan

ACTIONS

- Using outcomes of section 3.1, 3.2 and 3.3, develop a detailed borough-wide delivery plan for the installation of charging infrastructure in Bromley.

OUTCOME

The final delivery plan will highlight the right balance of solutions and technologies to scale up the public charging network in Bromley, supporting the shift to sustainable transport. This will include timescales, costs and estimated revenue generation consistent with the Council's facilitatory role in supporting infrastructure delivery, as well as resident impact and area-wide carbon savings. This may be completed in conjunction with, or following the tender exercises needed to appoint CPOs for the installation, maintenance and operation of CPs.

4. Business Models

To support workstream 2 in a facilitatory role, low risk business models for the installation, operation and maintenance of chargepoints in Bromley should be pursued. This is preferred, while the zero emissions transition begins and utilisation rates of the chargepoints remains low. The lowest risk options include:

1. **Private Sector Match Funding:** Where central government funding is not available, private sector funding could be matched directly against local authority capital. This reduces the up-front financial burden that local authorities face when installing charging infrastructure. Depending on the agreement reached with the private sector provider, the drawbacks for the local authority may include reduced income from the chargepoints and limited choice in siting the chargepoints. There will also need to be agreement on equipment ownership and/or upgrades throughout and at the end of the contract.
2. **Concession Frameworks:** By using a concession contract, the operational costs and risks are shared, in part or completely, with a CPO. Where operators can be confident that the chargepoints will be profitable, concession frameworks are more likely to be successful. Developing or using a concession framework is advantageous where the overriding concern and motivation is to minimise costs and risk for the local authority while providing a functional charging infrastructure network. Disadvantages include reduced revenue generation for the authority, reduced choice in chargepoint locations and an initial infrastructure roll-out may take longer while contractual terms are agreed.¹³

In the Concession model, the landowner provides the capital investment to establish an electrical connection point for an external supplier to install and operate a chargepoint. The benefit of this model is that, as the landowner retains ownership of the connection point there is no lasting obligation to the external supplier, beyond the terms of their concession. This increases the control of the landowner over the quality of service. The landowner could use a pre-existing power supply to connect the chargepoints (lampposts) and at the end of the concession, the landowner can retender for a supplier to onboard and operate the charging infrastructure.

3. **Leases and Licenses:** Similar to the concession frameworks and as per LBB arrangements for chargepoints with existing provider Bluepoint, the Council lease, or license land to a CPO to install, maintain and operate chargepoints in Bromley. All capital and operating costs are covered by the supplier. Leases and licenses typically last for between 5 and 10 years. LBB can consult with chargepoint providers on where to install the chargepoints and receive a revenue per chargepoint per annum. Currently revenue generated is £300 per bay per annum.¹⁴ This model offers the least exposure to financial risk, but also presents the least opportunity for revenue generation and less control over siting, as areas with lower commercial opportunity will not be prioritised.

However, since the external supplier has ownership of the electrical connection point, the landowner may incur additional costs associated with asset transfer of the connection point at the end of the contract period. Agreeing the leasing arrangements to mitigate long-term risks e.g., a longer lease or license period, and/or favourable contract termination conditions can be a protracted process.

¹³ https://www.legislation.gov.uk/uksi/2016/273/pdfs/ukxi_20160273_en.pdf

¹⁴ [ELECTRIC VEHICLE \(EV\)/ULTRA LOW ELECTRIC VEHICLE \(ULEV\) CHARGING POINTS – Environment and Community Services PDS, 2018](#)

5. Procurement

A number of procurement frameworks exist offering turnkey solutions to chargepoint installation, maintenance and operations, ensuring the comparatively swift appointment of a supplier to undertake the works¹⁵. Procurement routes vary depending on the business models chosen (see section 4) and funding availability.

To expedite chargepoint procurement the frameworks ensure minimum technical standards are met by the framework suppliers and they may also offer specific contract models, such as those discussed in section 4, such as concession contracts.

There are typically two processes by which a supplier can be appointed:

- A **Direct Award** is a process of awarding to a single supplier on, or off the framework without re-opening competition. In this instance, the Awarding Authority deems the framework terms sufficient enough to cover their particular requirement. This approach can save the Awarding Authority time and procurement related resources as it's quicker. This may be suitable for smaller trials e.g., 50 chargepoints or less.
- A **Mini-Competition** involves inviting all the Providers appointed within the specific lot to submit a bid tailored to your requirement within the remit of the framework specification. The mini competition route allows you to further refine your requirement whilst retaining the benefits offered under the framework agreement. Through competition, it also allows the Providers to potentially provide cheaper prices and/or a greater revenue share for the borough and/or a reduced 'pay as you go' average price for the user.

For larger installations LBB should run a mini competition within the given framework to ensure the Council achieves the best value and generates the highest efficiencies from the contract.

Scoring of the contracts, may include a consideration of the following points, as well as some of the principles and outcomes listed in section 2;

- the utility of chargepoints over their lifetime, including efforts to futureproof the chargepoints
- financial outcomes e.g., the offer to residents (price per kWh) and the potential revenue generated for the council
- risk minimisation through clear exit plans at the end of the contract.

¹⁵ Current available framework options for LBB include; ESPO Framework 636 Vehicle Charging Infrastructure (framework renewal in July 2021); KCS Electric Vehicle Charging Point Framework (running from 1st November 2020- 31st October 2024); TFL/GULCS Framework (July 2018-July 2021); Crown Commercial Service Traffic Management Technology 2, Lot 10 Sustainable Transport Infrastructure (running to 31st October 2021); Crown Commercial Service Vehicle Charging Infrastructure Solutions (VCIS) via the Dynamic Purchasing System (DPS) (expires 7th April 2024)

6. Funding

Multiple funding streams are available to LBB, our partners and residents to support the installation of chargepoints across the borough. Funding options will be considered as and when they become available. These are outlined in Appendix 4. The main options to fund projects under workstream 1 include:

1. **Workplace Charging Scheme** - 75% costs covered for purchase and installation of chargepoints for staff parking and/or fleets. Maximum of 20-40 sockets per organisation.
2. **Carbon Neutral Fund** - £0.875 million of LBB funding to reduce the Council's carbon footprint. This will directly support the decarbonisation of Council Fleet and some staff transport emissions.

The main options currently open to funding workstream 2 projects include;

1. **On Street Residential Chargepoint Scheme (ORCS)** – 75% of installation costs covered by the Department for Transport, to support local authorities to increase the availability of on-street charging points in residential streets where off-street parking is not available.¹⁶
2. **Fully Funded** – Some CPOs are willing to fully fund installation, maintenance and operations, subject to an extended license period, allowing them to recoup costs. The revenue share generated for Bromley is entirely dependent on the CPO, but is likely to be small (e.g., 5-10%) and may not be realised until after a certain period of time (e.g., year 5 in a 10-year concession).

¹⁶ Most suppliers on the TFL Framework, which has been extended to July 2022 are now offering to cover the 25% of costs, which would otherwise be met by the local authority when applying for the ORCS funding. This would mean most, if not all costs of installation are covered by the supplier, with minimal financial risk to the council.

Glossary

Active Provision - for electric vehicles - A socket or equivalent connected to the electrical supply system that vehicle owners can use to recharge their vehicle (see also 'Passive provision for electric vehicles').

AQMA – Air Quality Management Area – Location where Nitrogen Oxide levels exceed the national maximum threshold. We are required to implement a plan to reduce emissions in AQMAs.

BEV – Battery Electric Vehicle – vehicles relying solely on battery power. Generally operate to a 100-300 miles range.

CP – Chargepoint

CPO – Chargepoint Operator

Essential fleet users - Those who need a vehicle to undertake their council duties e.g., social workers and highways inspectors

Fast Charger – the most common type of publicly available charger. Tends to take 3-4 hours to fully charge an electric vehicle.

ORCS – On Street Residential Chargepoint Scheme

Passive provision - for electric vehicles - The network of cables and power supply necessary so that at a future date a socket or equivalent can be added easily to allow vehicle owners to recharge their vehicle (see also 'Active provision for electric vehicles').

PHEV – Plug-in Hybrid Electric Vehicle – Conventional petrol or diesel working alongside an electric motor with a relatively small battery (20-40 miles range) but both motors working together can achieve fuel consumption figures in excess of 130mpg. These may be more suitable in rural areas.

PHV – Private Hire Vehicles

Ultra-Fast or Rapid Charger – these chargers cost substantially more to install but can fully charge a compatible vehicle in around 30 minutes. They require a significantly higher level of power supply to be able to operate so in addition to the extra purchase price there would be substantial electric infrastructure costs to widespread implementation.

Trickle Charger or Slow Charger – typically requires 7-8 hours for a full charge and mostly suitable for homes or workplaces.

ULEV – Ultra-low emission vehicle – defined as vehicles with emissions of CO₂ below 75g/km or fully electric powered.

Appendix 1 – Local and Regional Policies

Blue = Organisational

Orange = Borough-wide

Target	Strategy	Target No. of chargers	Proposed Start of Roll Out	Proposed Roll Out Completion	Owner
SO3: Delivering Net Zero Carbon. To identify appropriate locations for EV charge points across the open space portfolio including key visitor car parks. All chargepoints must be supplied by electricity from renewable sources.	Draft Open Space Strategy		2022	2027	Neighbourhood Management Team & Idverde
17.5. Work in partnership with our waste contractor to ensure our infrastructure allows for a fully electric waste collection fleet in 2026.			TBC	2026	Neighbourhood Management & Veolia
17.11. Installation of electric charging point for HGVs.		5	2022	2023	Neighbourhood Management
24.1. Work with Bluepoint London to continue to roll out electric vehicle charging infrastructure. *There are national policies in place to influence road users' choice of vehicle, but parking policy is not considered to have an impact on the use of those vehicles.	Air Quality Action Plan				Traffic and Road Safety
24.2. Install 4 Rapid Charge Points as part of the TFL scheme by March 2020 along with the 4 installed on the A232 TLRN in Coney Hall and West Wickham.			2020	2021	Traffic and Road Safety

<p>24.4. Implementation of a pilot for lamp post charging points, including £30K LIP investment match funded by GULCS.</p>			TBC	2025	Traffic and Road Safety
<p>Section 1.3.17 under transport. To ensure all new developments include electric charging points.</p>					Planning
<p>Target 24.3. of the AQAP/ Policy 30 of the Local Plan requires 1 in 5 car parking spaces to be provided with electric vehicle charge points.</p>	Bromley Local Plan				Planning
<p>Enabling Infrastructure - Seen as a possible revenue opportunity in the digital strategy, as well as having benefits for air quality, energy storage and energy transmission.</p>	Digital Strategy				Renewal Projects Team
<p>Policy T6.1 Residential Parking - All residential car parking spaces must provide infrastructure for electric or Ultra-Low Emission vehicles. At least 20 per cent of spaces should have active charging facilities, with passive provision for all remaining spaces.</p>	New London Plan				Planning
<p>Policy T6.3. Retail Parking - Where car parking is provided at retail development, provision for rapid electric vehicle charging should be made.</p>					Planning

<p>PolicyT6.4 Hotel and Leisure Uses Parking - All operational parking must provide infrastructure for electric or other Ultra-Low Emission vehicles, including active charging points for all taxi spaces.</p>					<p>Planning</p>
<p>Policy T7. Deliveries, servicing and construction - Development plans and area action plans should reduce road danger, noise and emissions from freight, such as through the use of safer vehicles, sustainable last-mile schemes and the provision of rapid electric vehicle charging points for freight vehicles.</p>					<p>Planning</p>
<p>Outcome 4 - In order to support the adoption of electric taxis and PHVs, Bromley will aim to have delivered a number of fast/rapid charge points for taxis in or near all major town centres or at/near all major stations in the Borough by 2022.</p>	<p>Bromley's Third Local Implementation Plan</p>				<p>Traffic and Road Safety</p>
<p>Outcome 4 - By 2022, the Council will aim for half of car club vehicles operating from on-street bays to be either plug in hybrid or fully electric.</p>					<p>Traffic and Road Safety</p>
<p>Outcome 4 (General Proposals) - 1. Reduce emissions from the Council's fleet 2. Consider a zero-emission zone for taxis and PHVs 3. Lobby TfL to reduce the emissions from its fleets operating in the Borough 4. Deliver EV charge infrastructure to support residents and businesses to switch to EVs 5. Deliver fast or rapid charge infrastructure for taxis</p>					<p>Traffic and Road Safety</p>

Install electricity charge points at the main depot to enable electrification of both the Council's own fleet and the next fleet of refuse collection vehicles.	Net Zero Action Plan		2021	2023	Strategic Property
Switch to a 100% electric fleet.			2020	2029	Transport Operations
Revisions to the Council's Lease Car Scheme.	Bromley's Lease Car Scheme		TBC	TBC	Human Resources

DRAFT

Appendix 2 – Charging Behaviour and Charger Type

	Location Associated Behaviour	Location	Affected Vehicles	Charger Type
<p style="text-align: center;">Long (8hrs<)</p> <p style="text-align: center;">↑</p> <p style="text-align: center;">Dwell Time</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">Short (30minutes<)</p>	<p>Home charging: this is a private model, available to the home or car owner</p>	Home	Owners with off-street parking	<p>Slow (AC chargers – which make up the majority of the existing installed base (Level 1 AC: less than 11kW of power (slow); Level 2 AC: 11–22kW (AC fast); Level 3 AC: 22–43kW (AC rapid)¹⁷</p>
	<p>Workplace Charging & Fleet Depots: also a private model, for fleets of public transport vehicles, or taxis</p>	Car Sharing Fleet/ Lease Cars	Electric Fleets	<p style="text-align: center;">↑</p> <p style="text-align: center;">↓</p>
		Public Transport	Urban Electric Fleets	
		Employee Transport	Private vehicles with limited access to home charging	
	<p>Around town: a public model where charging is offered as an amenity by businesses to attract footfall and increase dwell time. Also known as charging hubs</p>	Kerbside	Electric Vehicles without off street parking	
Destination (parking based)				
<p>En route: also a public model, with rapid and ultra-fast charging, akin to petrol station forecourts</p>	Urban fast charging hubs	All electric vehicles	<p>Rapid and Ultra-fast DC chargers – installation of which has been growing at a faster rate and will require fewer charge points per vehicle (DC fast: 50kW; DC rapid: 150kW; DC ultra-fast: ~350kW)</p>	
	Motorway service areas			

¹⁷ <https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/energy-resources/deloitte-uk-Electric-Vehicles-uk.pdf>

Appendix 3 – Chargepoint Types, Charging Times, and Power Supply Requirements

Chargepoint type and power output	Miles of range per 20 minutes of charging*	New energy supply capacity needed per Chargepoint now	New energy supply capacity per Chargepoint for futureproofing
Slow or Standard; 2.4kW or 3kW	2.4-3	Usually not needed	80 or 100Amps AC single phase (for a faster Chargepoint)
Fast; 3.7kW AC	3.7	32Amps AC single phase (2 outlets)	80 or 100 Amps AC single phase (for a faster Chargepoint)
Fast 7kW AC	7	63Amps AC single phase (2 outlets)	Three phase AC supply; 100 Amps per phase (for a faster Chargepoint)
Fast 11kW AC	11	Three phase AC supply; 32 Amps per phase (2 outlets)	
Fast 22kW AC	22	Three phase AC supply; 63Amps per phase (2 outlets)	
Rapid 20kW DC	20	Three phase AC supply; 32 Amps per phase (1 outlet)	Three phase AC supply; 100 Amps per phase (2 outlets)
Rapid; 43kW AC	43	Three phase AC supply; 63 Amps per phase (1 outlet)	Three phase AC supply; 126 Amps per phase (2 outlets)
Rapid 50kW DC	50	Three phase AC supply; 77 Amps per phase (1 outlet)	Three phase AC supply; 154 Amps per phase (2 outlets)
Ultra-rapid charger; 150kW DC	150	Three phase AC supply; 236 Amps per phase (1 outlet)	Three phase AC supply; 472 Amps per phase (2 outlets)
Ultra-rapid charger; 175kW DC	175	Three phase AC supply; 263 Amps per phase (1 outlet)	Three phase AC supply; 526 Amps per phase (2 outlets)
Ultra-rapid charger; 350kW DC	350	Three phase AC supply; 500 Amps per phase (1 outlet)	Three phase AC supply; 1000 Amps per phase (2 outlets) ¹⁸

¹⁸ *Range added per 20 minutes of charging calculated assuming a 3 mile/kWh vehicle efficiency [Updated-UK-EVSE-Procurement-Guide.pdf \(r-e-a.net\)](#)

Appendix 4 – Chargepoint Installation and Grid Connection

The type of charger and the number of installations are the critical factors in determining the type of grid connection required. The types of installation are categorised by London’s District Network Operator (DNO), UK Power Networks, as falling under three categories; small, medium and large¹⁹.

Where a chargepoint requires a new dedicated electrical connection and is not able to utilise existing infrastructure, connection costs may be cost prohibitive, making CPs uneconomical. Alternatively, dedicated bays may be required to ensure EV owners always have the opportunity to charge, thereby allowing CPOs to recoup costs. This would temporarily rearrange parking arrangements on-street.

Size	Number	Approximate Connection Time	Approximate Connection Cost
Small (up to 70kVA)	1-3 fast, or 1 rapid	8-12 weeks	£1000- £3000
Medium (200kVA-1000 kVA)	More than 3 fast, or more than 1 rapid	8-12 weeks	£4500 - £75,000
Large (Above 1000 kVA)	Multiple fast or rapid	6 months +	£60,000- £2million

¹⁹ https://www.ukpowernetworks.co.uk/-/media/files/electric-vehicle-charging/a_guide_for_electric_fleets.ashx

Appendix 5 – Demand Forecasting

5. Data on EV Uptake and Chargepoint Demand Forecasting

5.1. UK Power Networks Modelling (UKPN)

Modelling undertaken by UKPN in December 2020, assumes the uptake of electric vehicles and other categories of vehicle under a low, medium and high scenario, with forecasts all the way to 2050 (see Table 1). Under these scenarios, the low scenario does not achieve net zero by 2050 and is not considered a viable option for Bromley, as it does not align with national ambition. The system transformation and consumer transformation scenarios result in similar scenario outcomes, while the leading the way scenario may result in slightly lower levels of private EV uptake, as greater use of public and active transportation is encouraged (see Fig 2).

Table 1. Overview of electric car uptake projections (low, medium, high) and the targets they meet. Source UKPN 2020.

Scenario	Level of decarbonisation ambition	End of ICE and hybrid sales	End of PHEV sales	EV proportion of car sales in 2030	Stock projection	Scenario world
Low	Consistent with current legislation	2040	none	52%	DfT Base	Steady Progression
Medium	Consistent with current government policy ambition	2030	2035	100%	DfT Base	System Transformation / Consumer Transformation
High	Consistent with the CCC's more ambitious recommendation	2030	2030	98%	Demand Reduction	Leading the Way

By 2030 there could be up to 67,000 battery electric vehicles in Bromley (see fig.2), yet there were only 76 public charging devices in the borough as of July 2021. This is according to the national chargepoint registry (NCR), which only lists chargepoints that are accessible to the public.

Table 2. Bromley data from the National chargepoint registry, 2021

Location type	Slow	Fast	Rapid	Total
Public car park		19	2	21
On-street		20	1	21
Retail car park	1	10	2	13
Other	2	7		9
Service station			3	3
Dealership forecourt	1	2		3
Workplace car park		2		2
Leisure centre			2	2
Hotel / Accommodation			1	1
Park & Ride site		1		1
Total	4	61	11	76

42 of these chargepoints are listed as being located on-street, or in a public car park. Predominantly the chargepoints are centred towards the North West of the Borough including Bromley Town, West Wickham and Beckenham. However, there are also half a dozen scattered around Orpington and Chislehurst²⁰. It's clear that the main focus for the installation of chargepoints has been High Streets and town centres. However, access to charging infrastructure at home is vital for anyone considering purchasing an EV.

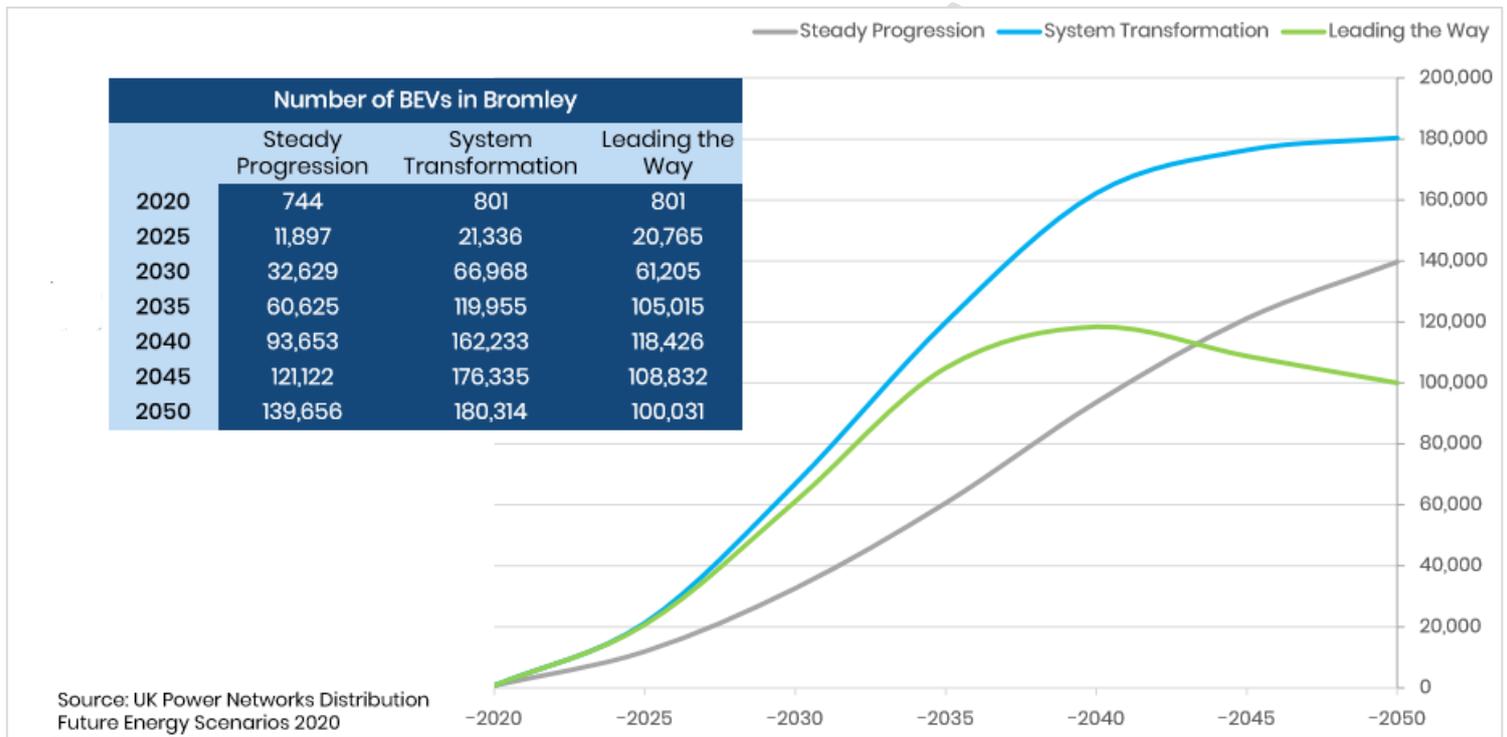


Figure 2. Electric Vehicle Forecasts, Source UKPN 2020

5.2. International Council on Clean Transportation Modelling (ICCT)

Modelling undertaken by ICCT outlines targets for charging infrastructure at a borough level up to 2035²¹. The study was undertaken in November 2020 to inform and compliment the London Delivery Plan for EV charging infrastructure. This aims to support London's plans to decarbonise the transport sector including setting goals for all new cars and light goods vehicle sales to be zero-emission by 2030; all taxis and private hire vehicles be zero emission capable by 2033; and for a zero-emission zone to take effect in Central London by 2025.

Using 2019/2020 baseline data, modelled assessments are made about Bromley's private home, private workplace, private car club, public residential, public destination, and public rapid charging

²⁰ <https://www.zap-map.com/locations/bromley-charging-points/>

²¹ This study compliments the London Delivery Plan (mentioned in section 1.2), created by the Mayor of London's Electric Vehicle Infrastructure Taskforce, but extends the analysis past 2025, to 2035. The study incorporates local housing, demographic, and transport data to assess the ideal amount and mix of charging types in each borough. Charging needs are estimated for all electric light-duty vehicles, including passenger, taxi, private hire, and light goods vehicles, whilst excluding medium and heavier duty freight trucks and buses as they are in the early stages of uptake and do not have well-defined public charging standards.

needs. The analysis is categorised under six different scenarios; Rapid Charging (low and high), Residential Charging (low and high) and Destination Charging (low and high).

For an outer London borough such as Bromley, the report highlights that:

- By 2035, the share of EV electricity demand for outer London boroughs will be highest for private passenger cars (72%), followed by Private Hire Vehicles (18%), Taxis (2%), Light goods vehicles (7%) and Car Clubs (<1%).²²
- Outer London boroughs will rely more heavily on public and private residential charging, than the rapid charging required in denser inner London boroughs. This gives a good indication of the prioritised approach to residential chargepoint provision, which should be considered by LBB.

Based on these findings, Bromley's mid to long-term charging needs align closely with the residential charging scenarios detailed in the report. Estimates for the number of different chargepoints required in Bromley under the high and low residential charging scenario are presented in Table 3 and Table 4²³.

Table 3. Number of different chargepoints required under a high residential charging scenario

Bromley High Residential Charging Scenario	Public Destination Chargers			Public Rapid Chargers			Public Residential Chargers		
	2025	2030	2035	2025	2030	2035	2025	2030	2035
	51	130	205	25	31	31	717	1,580	2,451
	Private Home Chargers			Private Workplace Chargers			Private Car Club Chargers		
2025	2030	2035	2025	2030	2035	2025	2030	2035	
4,925	20,225	38,165	91	335	620	78	121	128	

Table 4. Number of different chargepoints required under a low residential charging scenario

Bromley Low Residential Charging Scenario	Public Destination Chargers			Public Rapid Chargers			Public Residential Chargers		
	2025	2030	2035	2025	2030	2035	2025	2030	2035
	22	57	129	24	28	28	521	961	1,738
	Private Home Chargers			Private Workplace Chargers			Private Car Club Chargers		
2025	2030	2035	2025	2030	2035	2025	2030	2035	
2,055	8,881	23,611	33	139	386	78	121	128	

According to Table 3 across the public charging categories, Bromley needs 2,687 chargepoints to cope with EV demand under a high residential uptake scenario by 2035. This compares to 1,895 chargepoints under the low residential charging scenario in Table 4.

Given the projected increase in EV users suggested in fig. 2 and the findings of the ICCT report, there are a number of key stakeholder groups that LBB's electric vehicle charging strategy should prioritise for chargepoint provision:

- Residents without off-street parking (BEV and PHEV cars and vans)
- Taxi drivers and Private Hire Vehicles
- Business Improvement Districts and Car Clubs
- LBB owned, or partner owned facilities to support essential fleet users in workplace charging

The modelling by the ICCT expands on the process used by UKPN, to go beyond EV stock analysis

²² <https://theicct.org/sites/default/files/publications/London-EV-charging-infra-nov2020.pdf>

²³ <https://theicct.org/sites/default/files/publications/London-EV-charging-infra-nov2020.pdf>

and forecasts of EV uptake, to understanding number of chargepoints required in Bromley. Although modelling by the ICCT excludes HGVs and buses, provision of charging infrastructure for those modes of transport will largely fall to TFL and the private sector.

In summary, ICCT provides the most relevant, granular and current estimate of future chargepoint provision required in Bromley, which aligns with the regional ambitions of the London Plan. The figures detailed in tables 3 and 4, should be used as a reliable reference point when considering the number of chargepoints LBB wish to facilitate the delivery of in Bromley.

Appendix 6 – Resident Requests and Spatial Planning

6.1. Resident Requests

At the end of September 2021, the council had received 81 resident requests, with new requests every week. The majority of these are in areas with limited off-street parking. These are being requested via a new online form²⁴. This does not guarantee the siting of a chargepoint at the preferred location, but notifies residents that their request will be investigated when the next round of installations take place.

6.2. Spatial Planning and Mapping

By working with Government funded external consultants from the Energy Saving Trust we have been able to identify 1109 streets in Bromley suitable for the installation of charging infrastructure. The suitable streets were determined by considering: proximity to existing CPs; areas with more than 70% terraced housing; locations within a six-minute walk of a resident request; and locations with low Public Transport Accessibility Scores (PTAL). An additional consideration was existing parking restrictions.

Table 5. Priority streets for chargepoint installation, August 2021

Selection Criteria	Low Priority	Medium Priority	High Priority
On-street demand: more than 70% of the properties are either flats or terraced houses	✓	✓	✓
Resident requests: within a six-minute walk of a resident request.		✓	✓
Access to public transport: in an area with a lower PTAL score (0-4).			✓
Total number of streets	883	29	197

Of these, **197 streets** in the borough and 9 additional LBB-owned car parks are considered to be a **high priority** for installing residential public chargepoints, so should be targeted first for a phased approach to installation, with medium and low priority streets to follow (see fig.3). On-street installations should also be prioritised, as the 9 additional priority car parks only cover 14% of the high priority streets in Bromley.

²⁴ [Request electric vehicle chargepoints | London Borough of Bromley](#)

DRAFT

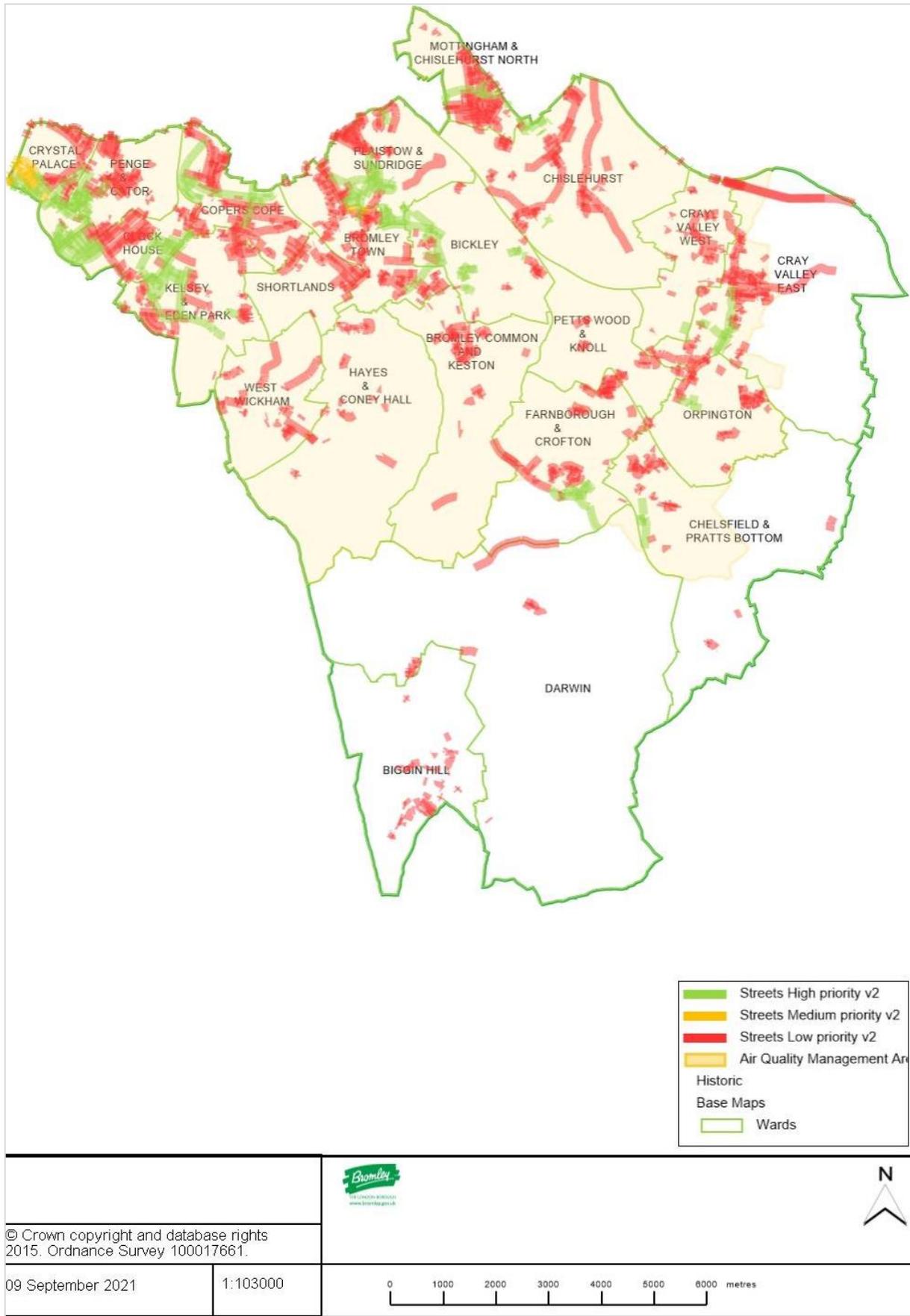


Figure 3. Bromley map highlighting high, medium and low priority locations for residential chargepoint installation

Appendix 7 – Funding Options

Jurisdiction	Name of policy/fund	Endorsing Agency	Objectives	Deadline for application	Value committed (£)	Eligibility Criteria
National	On Street Residential Chargepoint Scheme	DfT Transport - Office for Zero Emissions Vehicles	To increase the availability of on-street charging points in residential streets where off-street parking is not available, thereby ensuring that on-street parking is not a barrier to realising the benefits of owning a plug-in electric vehicle.	Ongoing	£20 million	Must be a local authority and able to cover 25% of the capital costs. OLEV will cover the rest.
	Workplace Charging Scheme	DfT - Office for Zero Emissions Vehicles	To provide support towards the up-front costs of the purchase and installation of electric vehicle charge-points, for eligible businesses, charities and public sector organisations.	Ongoing		Must be an eligible business, charity, or public sector organisation
	EV Charging Infrastructure Investment Fund (CIIF) * Note, this is effectively a loan rather than a grant fund.	National Government	Privately operated fund to catalyse the rollout of electric vehicle charging infrastructure.			£400 million

Regional	<p>Mayor of London's Energy Efficiency Fund (MEEF)</p> <p>* Note, this is effectively a loan rather than a grant fund.</p>	Mayor of London	To help achieve London's ambition of being a zero carbon city by 2050. MEEF has been developed with Local Authorities as a core sector given their leadership in the low carbon sector. Can provide up to 100% loan to cover the capital cost of the projects	31/05/2023	£500 million	Projects must have minimum investment size of £1million
	<p>London's Go Ultra Low City Scheme (GULCS)</p>	Mayor of London	Aimed at driving the switch to ultra-low emission vehicles	Closed	£13.2 million	Capital Programme awarded to TfL, the Greater London Authority (GLA) and London Councils
	<p>Local Implementation Plans (LIPs) – TfL funded</p>	TfL	Boroughs can use LIP Corridor funding allocations for the installation of charge point infrastructure in their area.	unknown	unknown	unknown
Local (LBB Funding)	<p>Carbon Offset Funds (S106 Contributions)</p>	Carbon Management Team	To deliver carbon reduction projects in the borough	ongoing	TBC	Dependent on carbon offset price and additionality clause
	<p>Community Infrastructure Levy (CIL)</p>	Planning Strategy and Projects (Housing, Planning and Regeneration Department)	To fund a wide range of infrastructure, including (a)roads and other transport facilities, (b)flood defences, (c)schools and other educational facilities, (d)medical facilities, (e)sporting and recreational facilities, (f)open spaces	ongoing	TBC	85% of CIL receipts to be used for council's capital programme spending. Each year services will be able to comment on how they think it should be spent. 15% of CIL received per ward put back into that ward. Approval needed by ward member and the community.

	Carbon Neutral Fund	Carbon Management Team	To support new initiatives to reduce the Council's carbon footprint whilst reducing its long-term energy costs	ongoing	£0.875 million	For reduction of LBB's organisational emissions
Private	Electric Vehicle Chargepoint Scheme	Department for Transport - Office for low emissions vehicles	To provide grant funding of up to 75% towards the cost of installing electric vehicle chargepoints at domestic properties across the UK.	ongoing	£350	See website for various eligibility criteria on prescribed technologies, verified installers, eligible vehicles
	Plug in Grant Scheme	Department for Transport - Office for low emissions vehicles	Vehicles are discounted at the point of sale, by dealerships and manufacturers through a government grant	ongoing	Variable	Vehicles eligible for a grant must have CO2 emissions less than a certain threshold. Maximum grant for a car is £2500 (as of March 2021)