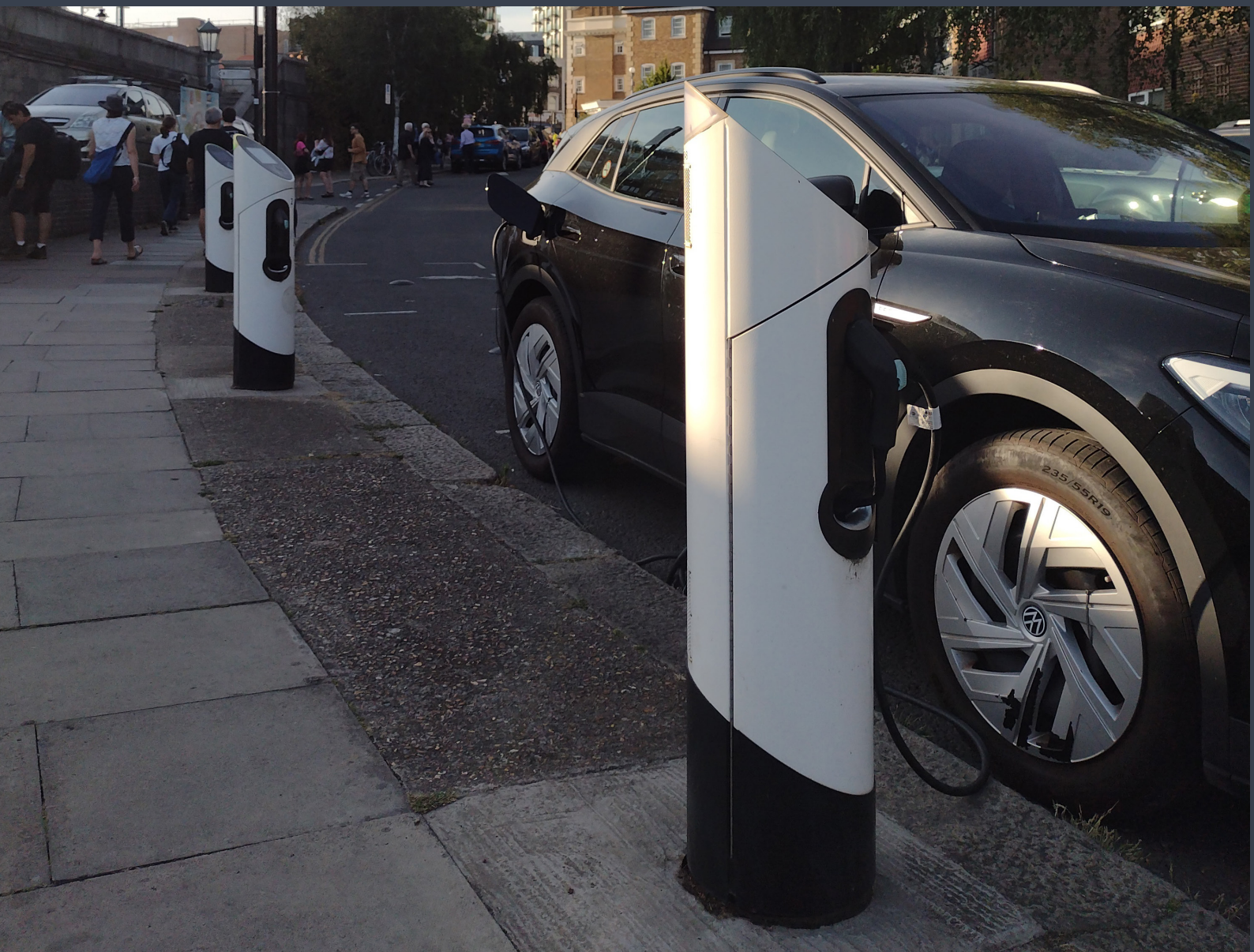
London Borough of Hounslow

Hounslow Electric Vehicle Charging Strategy

2022/23 - 2025/26



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EXECUTIVE SUMMARY

This is Hounslow's first Electric Vehicle Charging Strategy and Delivery Plan, covering the period 2022/23- 2025/26 when growth in electric vehicle (EV) sales is expected to be significant. Until now the Council has installed EV Chargepoints in response to demand. This strategy sets out the new, strategic evidence-based approach that Hounslow Council will take when providing publicly available chargepoints in future.

Although the Council is prioritising the delivery of projects that encourage more trips on foot, by bike or public transport, as part of its wider transport strategies, it is recognised that this is not possible for every journey. It is therefore important that the Council delivers the necessary infrastructure to support the uptake of cleaner vehicles. There are currently around 100,000 vehicles of all types registered in Hounslow, with 68% of households owning at least one car.

Transport for London (TfL) forecast that EVs will make up 34-49% of the total vehicle stock in London by 2030, driven in part by the government ban on the sale of petrol and diesel vehicles by 2030. Over the coming 8 years an EV charging network needs to be put in place in Hounslow that can support tens of thousands of EVs registered in the borough, along with the demand from visiting commercial and private vehicles.

This demand will in part be met by installations on private land, but the Council still has a significant role to play. Our main role will be in providing home charging solutions for those who do not have access to off-street parking, including on estates which we manage. Because rapid charging is so important for high mileage drivers such as fleet and private hire vehicles, we will also facilitate the installations of rapid and destination chargepoints. By March 2026 we aim to have over 2,000 new charging points installed.

Providing the required electric vehicle infrastructure (EVI) will be a challenge but the reward will be improved local air quality and reduced greenhouse gas emissions, in turn benefiting public health and playing our part in tackling the climate crisis.

To meet the anticipated demand for EVI this document sets out what residents and businesses can expect from us and how requests for chargepoints will be treated. A draft version of this document was consulted on in the summer of 2022, prior to it being adopted. 181 people responded to the consultation survey with a large majority agreeing that more chargers of every type are needed. The objectives all had a good level of support with the most supported being the objectives of providing a good minimum level of chargepoint provision and a creating a well run, value for money network. In summary, the borough's strategy objectives are as follows on page 4.

STRATEGY OBJECTIVES

1. **Focus our electric vehicle infrastructure delivery to realise the greatest reduction in harmful emissions; achieved by prioritising locations and infrastructure which will enable high mileage drivers such as private hire, taxi and fleet drivers to make the transition to EVs.**

2. **Achieve a good minimum level of service for all residents, businesses and visitors; by ensuring that:**
   a. In areas with limited off-street parking, the nearest dedicated public chargepoint is under a one minute walk away the end of 2023, and under 30 seconds by 2025 in most locations
   b. All other residents and businesses across the borough are within a five-minute walk of the nearest public chargepoint by the end of 2023;
   c. Within existing Council estates we will aim to retrofit 5% of parking bays with EV chargepoints by the end of 2023 with 10% by 2025 on estates with high demand for chargers;
   d. Further 'destination' chargers (7-22kw) are established in town centres, with over 200 in place by 2025;
   e. The rapid charger (50kw+) network grows to at least 55 points by 2025, with increased provision in town centre car parks, on main arterial routes and a number of 'hub' sites established;
   f. By 2026 this will result in over 2,000 new charging points being installed. Between 2026 and 2030 the chargepoint network will expand further, with this strategy updated by 2026 to take account of the latest utilisation rates, demand forecasts and technological developments;
   g. We engage with other key landowners to understand their plans for chargepoint provision, for example residential landlords, TfL, fuel companies, Heathrow.

3. **Deliver a chargepoint network which is good value for money; achieved by creating a network which is well utilised, which gives consumers access to competitively priced tariffs, which responds to innovations in the marketplace, and which is well run and maintained.**

4. **Provide electric vehicle infrastructure in a fair and transparent way; achieved by:**
   a. Developing a clear process for deciding how requests for EVI are treated;
   b. Ensuring the chargepoint network is accessible to all;
   c. Minimising the impact that chargepoints have on footways
   d. Seeking an enhanced level of chargepoint provision in new development.
   e. Consulting the community on the preferred location for chargepoints.

5. **Provide electric vehicle infrastructure which supports more efficient use of our streets;**
   a. Work with car club operators to support electrification of their fleets;
   b. Adopt and integrate other modes of electric vehicles into the boroughs transport network, such as e-bikes;
   c. Keep Council parking policies on EVs under regular review, with incentives such as free EV parking scaled back as they become mainstream.

1. INTRODUCTION

The UK Government have announced that the sale of cars wholly powered by petrol and diesel will be banned by 2030. From 2035 the regulations will require all new cars and vans to be fully zero emission at the tailpipe, meaning that hybrid vehicles powered by a mix of batteries and internal combustion engine (ICE), will also be banned from this date. Switching away from ICE vehicles is a key policy to help achieve targets to reduce greenhouse gas emissions, such as Carbon Dioxide (CO_2). While some hydrogen powered vehicles are available there are many more EV models on the market, and they are the mainstream alternative to ICE vehicles. Over the past year sales of EVs in London have risen from 15% of new vehicle registrations to around 25%, with hybrids making up a similar proportion of sales.

LONDON - TOTAL EV MARKET SHARE (%)

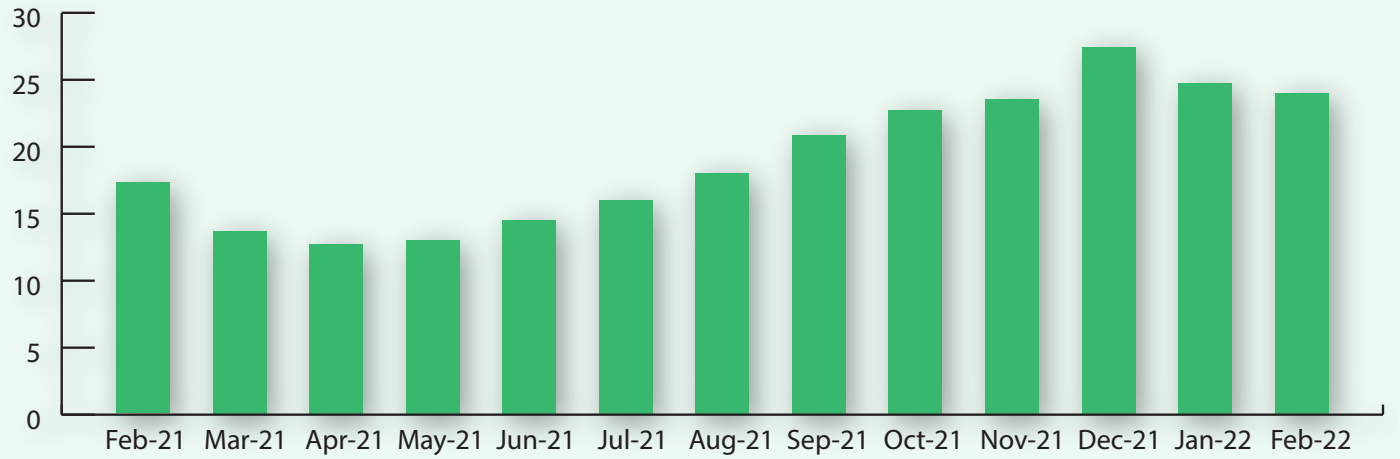


Figure 1: Proportion of new car sales in London which are EV. Source - New Automotive

EVs produce about two thirds less carbon emissions per mile than ICE vehicles, because power generation has shifted away from fossil fuels towards renewables.

EV does not impact air quality as they don't emit greenhouse gases such as Nitrogen Dioxide (NO2) or soot which is classified as Particulate Matter (PM), both of which impair air quality. While EVs do still produce PM from brake and tyre wear, overall, their impact on air quality will be beneficial. In line with national, regional and local policies the Council aims to help people to move away from ICE vehicles and use EVs to improve air quality, reduce CO_2 emissions and improve public health.

Recharging an EV generally takes longer than refuelling an ICE (**see box on EV charging Infrastructure on page 8**). EVs currently have lower ranges (the distance that can be travelled on a full battery) than ICE vehicles, but it is the different refuelling habits which necessitate this strategy. For those with their own driveway, recharging can be done whenever the vehicle is parked. However, TfL estimate that between 20-25% of households in Hounslow own a car but have no off-street parking. These households will rely on publicly available chargepoints. Research has shown that home and on-street charging is the most important piece of infrastructure in encourgaing consumers to purchase an EV and with the home being the most common location where charging takes place.

The Council, as the body responsible for managing the highway and on-street parking on borough roads, is the only organisation which can facilitate the installation of kerbside chargepoints serving vehicles parked on community streets. Hounslow also directly manages off-street parking in several public car parks and on hundreds of housing estates within the borough. The council therefore has an important role to play in facilitating the decarbonisation of the transport sector.

POLICY CONTEXT

NATIONAL POLICY

The Department for Transport published its EVI strategy in March 2022. It identified five key challenges in providing the necessary EVI to support the ban on ICE vehicles which will come into force by 2030:

- The pace of roll-out is too slow
- Too often, public charging lets people down
- The business case for commercial deployment can be challenging
- Connecting new chargepoints to the electricity system can be slow and expensive
- More local engagement, leadership and planning is needed

The strategy identifies two sectors that need state support: high powered chargers on the strategic road network and local on-street charging. £500m of funding will be made available for local authorities to address the challenges of on-street home-charging. It also introduced a requirement for local authorities to produce EVI strategies. A key factor that influences local authorities when providing EVI is the availability of off street parking. The Governments' vision for 2030 is that:

- Everyone can find and access reliable public chargepoints wherever they live
- Effortless on and off-street charging for private and commercial drivers
- A reliable network of high powered chargepoints along major roads
- Fairly priced and inclusively designed public charging, trusted by consumers
- Market-led roll-out for the majority of chargepoints, backed by competition
- Infrastructure seamlessly integrated into a smart energy system
- Continued innovation to meet drivers' needs

REGIONAL POLICY

TfL, have undertaken a great deal of London specific **research** on EVs. The outputs are summarised in three key policy documents which are referred to throughout this strategy;

London's 2030 electric vehicle infrastructure strategy
December 2021

London's electric vehicle charge point installation guidance
December 2019

London electric vehicle infrastructure delivery plan
June 2019

The analysis and guidance within these documents inform this strategy alongside the councils own policies. This includes forecasts on the speed of adoption of EVs.

Across London there are policies which support the transition to EVs. The most significant air quality measure is the proposed expansion of the Ultra-Low Emission Zone (ULEZ), which introduces charges for older and more polluting ICE powered vehicles. This acts as an incentive for people who regularly drive in central/inner London to upgrade to cleaner vehicles. In summer 2022, the Mayor of London ran a public consultation on proposals to expand the ULEZ from the north and south circular to the Greater London boundary.

For the past decade the London Plan, which sets out the standards for development in the capital, has required 20% of parking spaces at residential developments to have chargepoints fitted, with ducting provided at other spaces to facilitate easy retrofitting. In 2022 this requirement was superseded by national building regulations which require every new home that has parking provided to have a chargepoint.

LOCAL POLICY

The key council policy documents cover transport, climate change and air quality:

Climate Emergency Action Plan 2020-2030

Hounslow Transport Strategy (Third Local Implementation Plan) 2019-2041

Air Quality Action Plan 2018-23 (AQAP)

The Climate Emergency Action Plan makes firm commitments around how the council will decarbonise its own fleet of vehicles. This strategy will compliment the Climate Emergency Action Plan by providing detail on how the council will influence people/residents within the borough to switch to EV.

As part of the Council's duty to London Local Air Quality Management, an AQAP was published in 2018. It outlines the action the council will take to improve the boroughs air quality over the next 5 years.

Levels of NO2 remain above statutory limits in some locations. Although Hounslow is meeting the current objectives for particulate matter (PM), this pollutant is damaging to health at any level, thus remaining a pollutant of concern. More stringent future targets will be introduced by the Government by 31 October 2022. The council is committed to reducing the exposure to poor air quality to improve the public's health across the borough. In the AQAP the council have identified seven areas where action needs to be focused to improve air quality in the borough. One focus area is to encourage people to switch to walking and cycling, and reduce journeys made by non-ICE vehicles.

Hounslow's Transport Strategy and Local Implementation Plan (LIP) sets out how the borough will meet the objectives of the Mayor's Transport Strategy. It is important to note that EVs only help deliver transport objectives around reducing carbon emissions and some other pollutants, such as nitrogen dioxide. While zero tail-pipe emissions from EVs will improve local air quality they still emit particulate matter, which negatively impacts air quality.

The council has other important transport objectives to help ensure roads in the borough are used more efficiently. This includes a 10-15% reduction in vehicle kilometres by 2041 and a 3% reduction in car ownership. The LIP also seeks to eliminate serious and fatal collisions by 2041. However, it must be recognised that assisting the transition to EVs does not contribute to achieving these objectives. When providing EV chargepoints there is also a balance to be struck between enabling drivers to switch to EVs and using the transition as an opportunity to promote more sustainable travel. Public transport, walking or cycling is often more suitable for many short trips currently made by car, with a target of 71% of trips to be undertaken by these modes by 2041.

UNDERSTANDING EV CHARGE POINTS AND MOTORISTS' RECHARGING NEEDS

Chargepoints are generally categorised according to their power output, which is measured in kilowatts (kW)

- Slow chargers are those under 7kW output
- Fast chargers are those operating at 7-22kW output
- Rapid chargers are those operating above 50kW output
- Ultra Rapid chargers are thoes operating above 100kW output

The actual charge delivered to an EV will depend on the power it can accept. This, along with the battery capacity of the EV, will determine how long it takes to recharge.

There is no universal plug socket standard for EVs but the Type 2, CCS and CHAdeMO are most common.

Ultra-rapid and rapid chargepoints have similar dimensions and are fitted with tethered cables. Ultra-rapids come fitted with CHAdeMO and CCS cables as both are designed for rapid DC charging.

Rapids can also be fitted with a Type 2 cable, which discharge up to 43kW AC. Rapid 50kW chargepoints are generally designed to charge one vehicle, but ultra-rapids can charge two.

Fast and standard chargepoints have similar dimensions and can be wall or pole mounted. Slow chargers often utilise an existing power supply such as lamp-columns. All three types should have Type 2 sockets fitted, and the motorist will use their own cable to charge their EV.

Charger type	Ultra-rapid: 100kW+	Rapid: 50kW	Standard & fast: 7-22kW		Lamp-column: 3.5-5.5kW
			Wall Unit	Pole Unit	
Height (approx)	1.9m	1.9m	575mm	1470mm	300mm (or within column)
Width (approx)	0.9m	0.9m	320mm	400mm	140mm (or within column)
Depth (approx)	0.7m	0.7m	155mm	250mm	85mm (or within column)
Charging time 60kWh BEV*	20-40 minutes	50 minutes	2 - 5 hours		7 - 10 hours
Charging time 150kWh BEV*	50-100 minutes	120 minutes	4 - 13 hours		16 - 26 hours
Charging standards/ sockets	CHAdeMO/CCS	CHAdeMO/CCS/ Type 2	Type 2		Type 2
Number of EVs served	2	1	2		1
Suitable locations	Charging hubs, service stations, taxi ranks	Charging hubs, service stations, taxi ranks	Hospitality, retail and public car parks. On-Street		Residential areas conservation zones

*Charging times are based on recharging a vehicle from 20% to 80%

Rapid & ultra-rapid: 50kW+

Fast & standard: 7-22kW

Slow: 3.5-5.5kW

TfL's 2019 EV infrastructure delivery plan identifies six key user groups, their charging needs and four kinds of typical charging behaviour. Table 1 is reproduced from TfL's EVI delivery plan and summarises how the six user groups behave and what infrastructure they require. It highlights how rapid charging is very important for high mileage user groups such as taxi, private hire, privately owned light goods vehicles (LGVs) and car clubs.

Heavy commercial vehicles (buses, coaches and goods vehicles) are not within scope of TfL's strategy. The required infrastructure requirements are still uncertain. The EV market for heavy goods vehicles is much less developed, due to the long distances they travel, and cost of the battery pack required. TfL have introduced both electric and hydrogen buses, with charging largely taking place in depots.

User category	**Vehicle type**	**From or near home or at depot** (Slow standard charge)	**While 'grazing' or at the workplace** (Any charge speed)	**'On the go' or in-transit** (typically rapid charge)
Company fleet LGVs	BEV	Regularly to nightly (during working week)	Rarely or occasionally (depending on mileage and access to depot charging)	Occasionally to daily (depending on mileage)
	PHEV		Rarely to never	Occasionally (where vehicle supports)
Privately owned LGVs (including the 'gig economy'	BEV	Regularly to nightly (during working week)	Occasionally to regularly (depending on the nature and length of the stop and access to home charging	Regularly (depending on daily mileage and ability to charge near home)
	PHEV			Occasionally (Where vehicle supports
Taxi	Any	Nightly (during working week)	Rarely or never	Regularly to daily (depending on daily mileage and ability to charge near home)
Private hire	Any	Nightly (during working week)	Rarely or never	Regularly to daily (depending on daily mileage and ability to charge near home)
Shared vehicles (e.g. Car clubs)	BEV	Regularly to daily	Occasionally to regularly (although dependent on business model)	Regularly (dependent on vehicle and business model)
	PHEV			Regularly (where vehicle supports)
Private Cars	BEV	Regularly	Occasionally (depending on daily mileage and ability to charge near home)	Occasionally to regularly (depending on daily mileage and ability to charge near home)
	PHEV		Occasionally (depending on daily mileage and ability to charge near home)	Occasionally (where vehicle supports)

Table 1: EV user groups and charging needs. Reproduced from TfL EVI delivery plan.

HOUNSLOW CONTEXT

Figure 2: Existing EV infrastructure in Hounslow

The borough is a wedge-shaped area of approximately 56 square kilometres which extends from Chiswick in the east to the Greater London boundary, immediately south of Heathrow Airport. The borough has a population of approximately 278,000 people and four major town centres: Chiswick, Hounslow, Brentford, and Feltham.

The Council has played a leading role in providing EVI within the borough and are one of the top-performing London boroughs. There are existing concession contracts to provide EVI on the public highway, which the Council manage, and in car parks that the Council own. We have successfully secured funding from government grant programmes and installed chargepoints in response to demand from residents and businesses. The existing network of public EV chargepoints, much of it delivered by the council, is shown in figure 2.

There is reasonable and even coverage of rapid and fast chargepoints across the borough. Lamp-column chargepoints, which have been installed in response to requests for EVI, are concentrated in the east, where most requests have come from to date. This strategy sets out a new approach to providing EV chargepoints, which moves away from solely fulfilling requests and which is based on meeting the objectives defined in this strategy.

In order to provide conveniently located chargepoints, particularly for those without access to off street parking, it often means providing chargepoints on-street. As the body which manages the majority of public roads within the borough this is something that only the council can facilitate on these roads. There are a small number of strategic roads that are managed by TfL, where they may also seek to introduce charging points. The Council is in dialogue with TfL in this respect to ensure that our plans align.

To identify areas where households need on-street EVI to charge an EV close to home we have utilised the Urban Context and Character Study, which forms part of the evidence base for the borough's Local Plan. This study categorises all urban areas into one of 7 urban types, as shown in the figure 3 on page 7. As urban form and building type is closely related to parking provision it is a useful resource to understand which areas of the borough are likely to require on-street EVI.

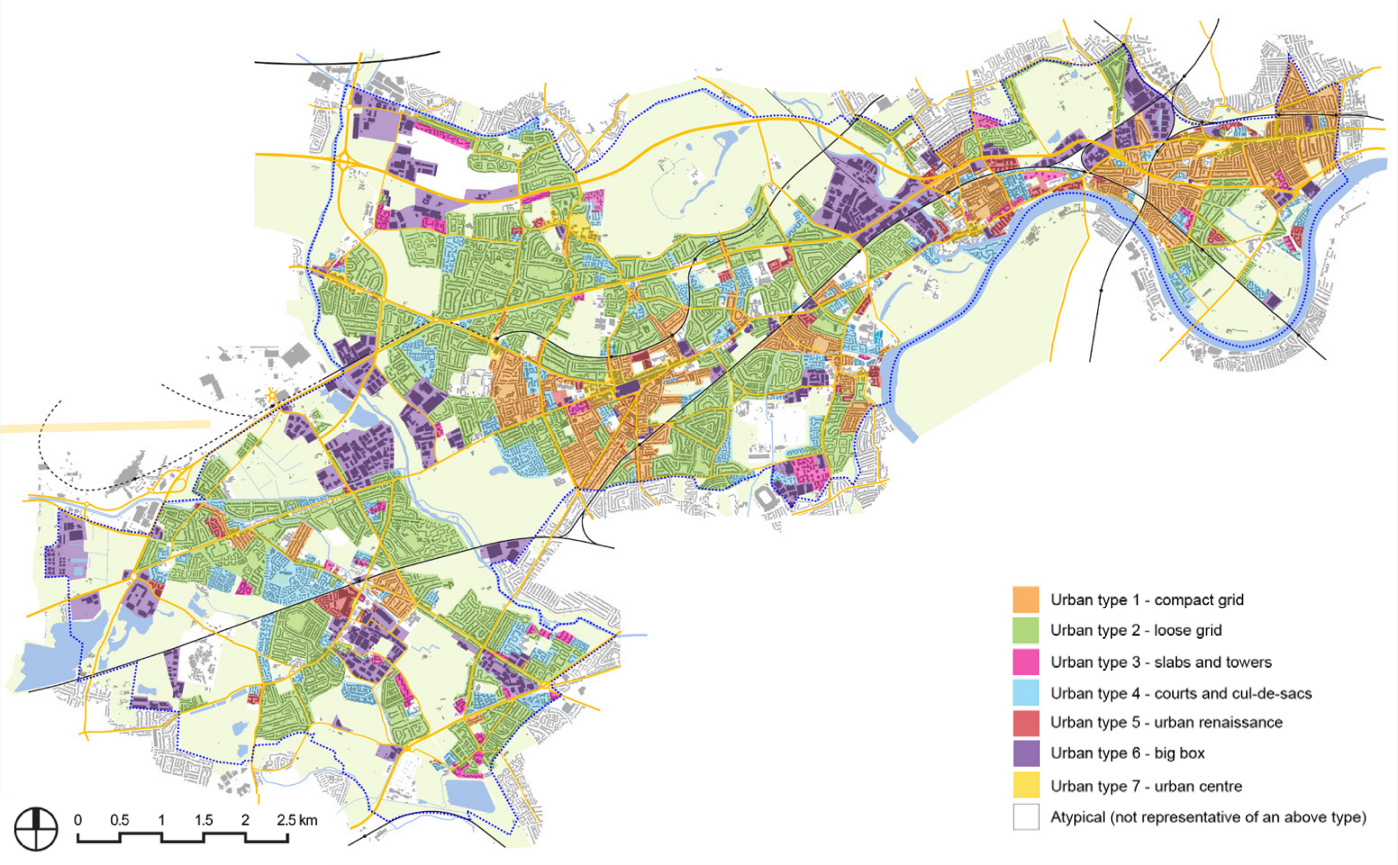


Figure 3: Urban types

Analysis has been undertaken which has validated a close correlation between urban type and the availability of off-street parking. Urban types 1 – compact grid, 3 – slabs and towers and 7 – urban centre, are the three urban types where households are least likely to have access to off-street parking. Big Box retail, type 6, is not a residential form and types 2 – loose grid, 4 – courts and cul-de-sacs, and 5- urban renaissance generally do have off-street parking available, although it is recognised there will be some exceptions. This will inform the density that EV chargepoints are installed in different areas of the borough.

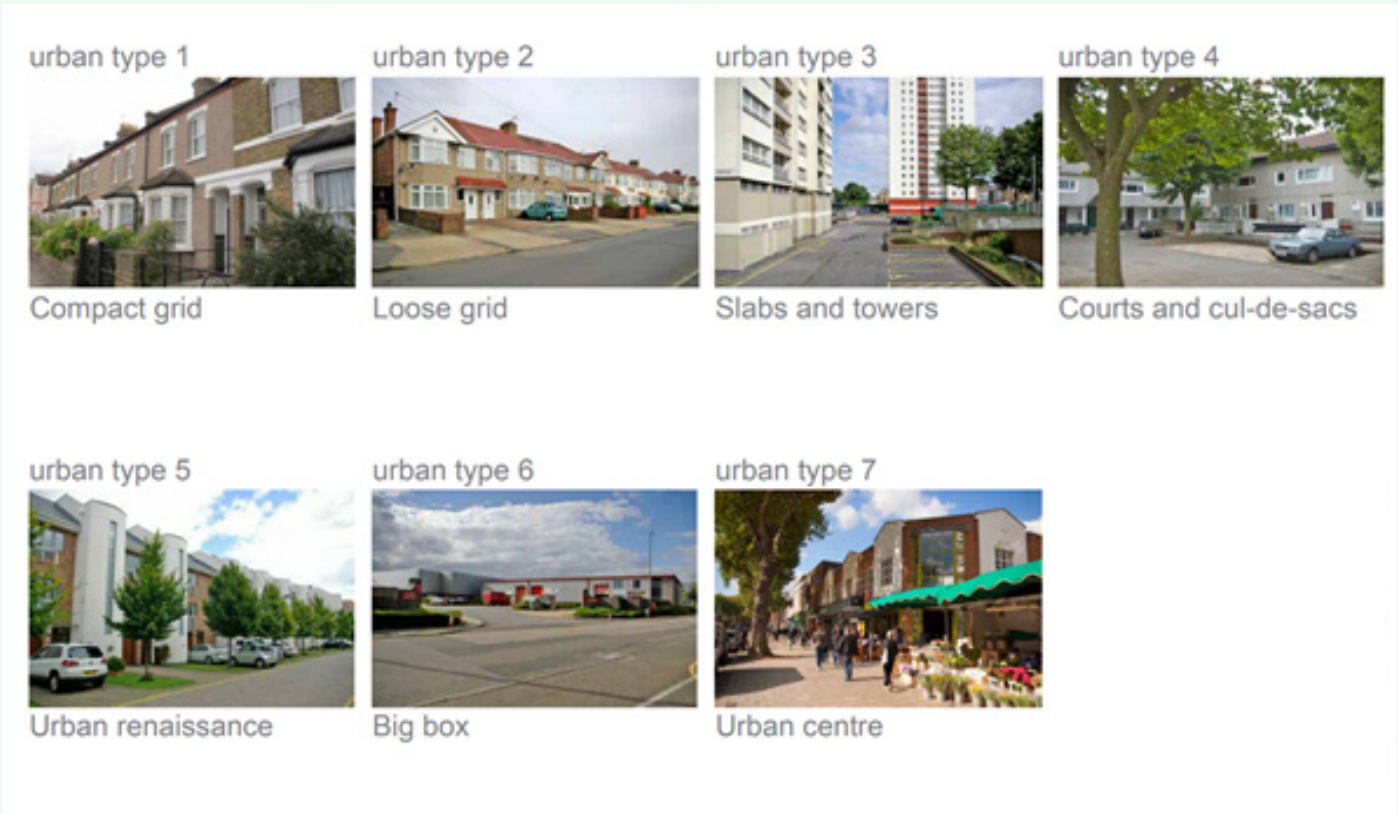


Figure 4: Summary of Urban types

Understanding the driving habits of residents and businesses will also inform what infrastructure is required and where. TfL have analysed where taxi, private hire and van drivers live. There are relatively few taxi drivers resident in the borough but a high number of private hire vehicle drivers live in the western and central parts of the borough, along with a high proportion of van drivers, in common with other outer London boroughs.

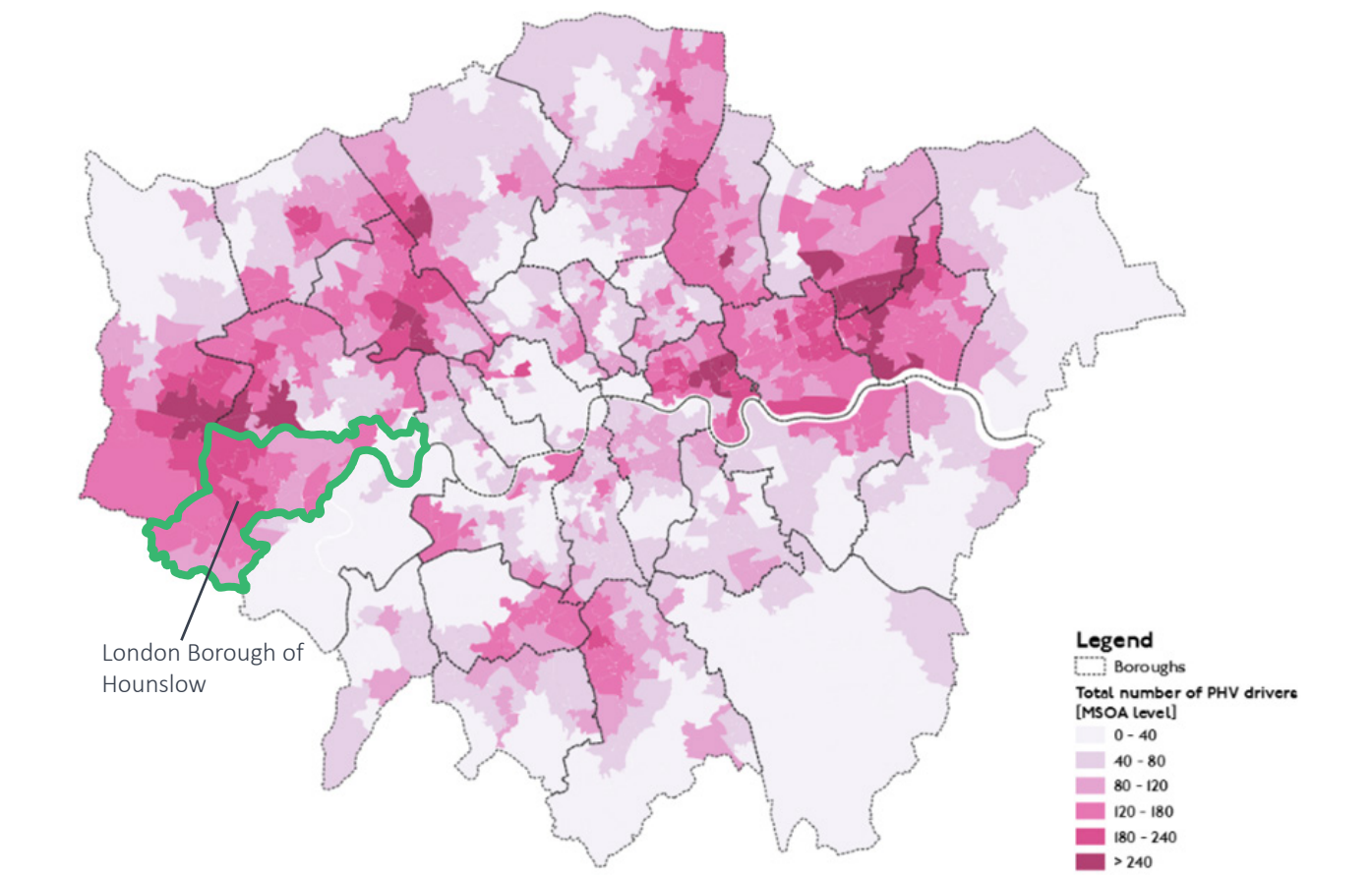


Figure 5: Total number of Private Hire Vehicle drivers. From the TfL electric vehicle charging strategy

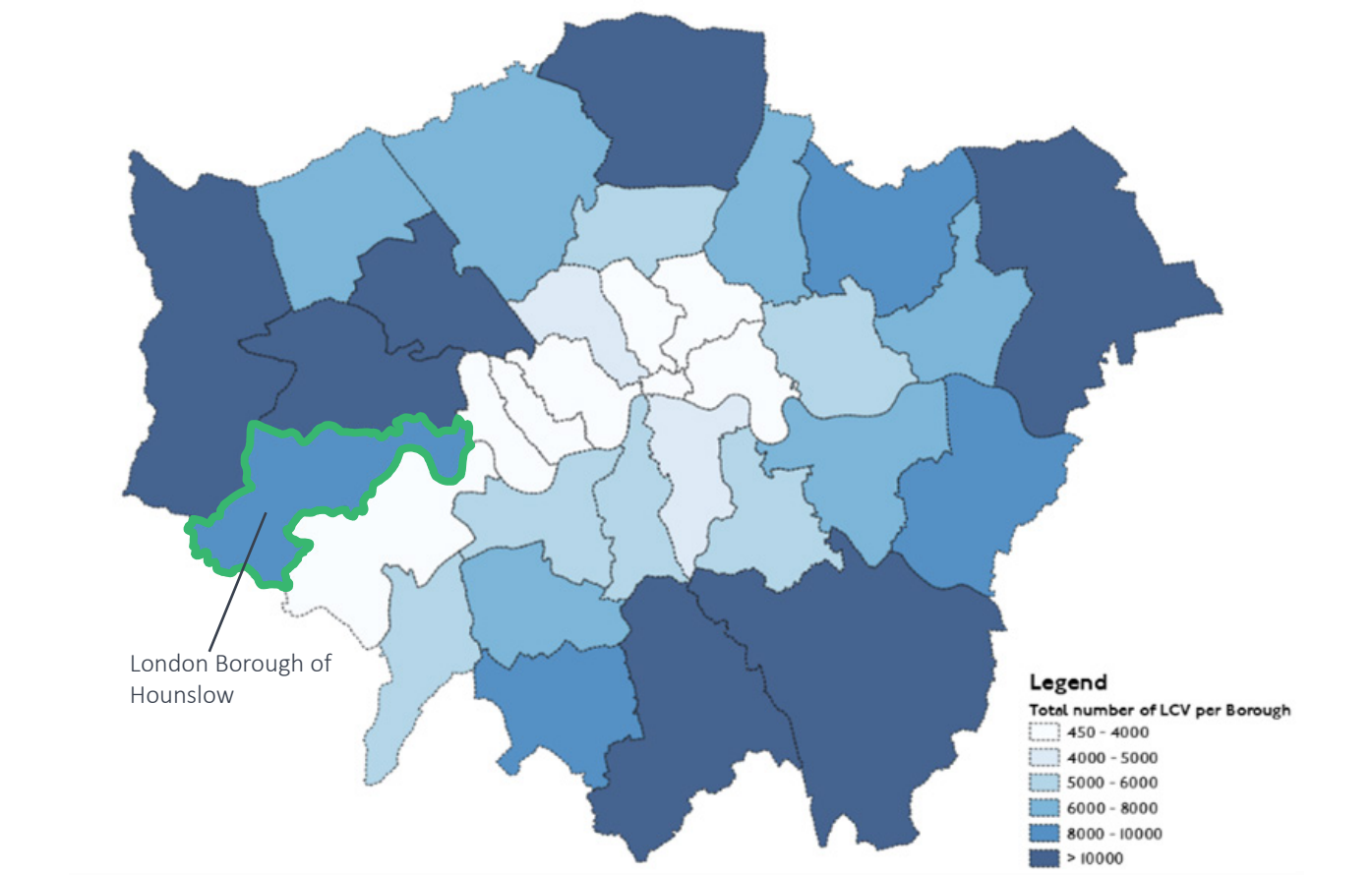


Figure 6: Total number of Light Commercial Vehicles. From the TfL electric vehicle charging strategy.

2. FUTURE EVI NEEDS

TfL have undertaken modelling to produce a London-wide level analysis of how many chargepoints are likely to be required by 2025, 2030 and 2035. The results were initially published in the London EVI delivery plan (2019) and updated in the London 2030 EVI strategy (2021), to take account of the government ban on diesel and petrol vehicles.

Borough level forecasts have been made by the International Council on Clean Transportation (ICCT) in a working paper published in November 2020. The ICCT use similar methodology and assumptions to TfL's modelling and TfL's EVI strategy describes it as a useful starting reference for boroughs in planning their infrastructure needs. However, it is also important to take account of the local borough context, as boroughs with less off-street parking are likely to require higher levels of on-street charging infrastructure.

The ICCT high sales forecasts are significantly lower than the most recent TfL projections. This is down to differing assumptions on the proportion of new sales which will be EV by 2025. The ICCT project this to be 34% whereas TfL assumes that it will be 80%. TfL also project a high level of private hire and taxi EVs given that large private hire operators such as Uber have made pledges to electrify their fleets.

We have adjusted ICCTs projections for Hounslow to take account of the 'uplift' seen in the more recent TfL forecasts. When forecasting both TfL and the ICCT consider the range of chargepoints required based on whether future sales of EVs are high or low. They also consider what impact consumer preferences, on where to recharge, will have on the numbers and types of chargepoints needed. We have analysed the growth of EVs registered in Hounslow (inclusive of fully battery electric and hybrids) and found that the rate of growth closely matches the ICCT high sales scenarios, where sales of EVs increase by 35% year-on-year. Figure 7 shows a chart displaying the growth of EV sales, with 2017 as the baseline year. To make use of the latest available data the year end has been adjusted to be Q3 for each year.

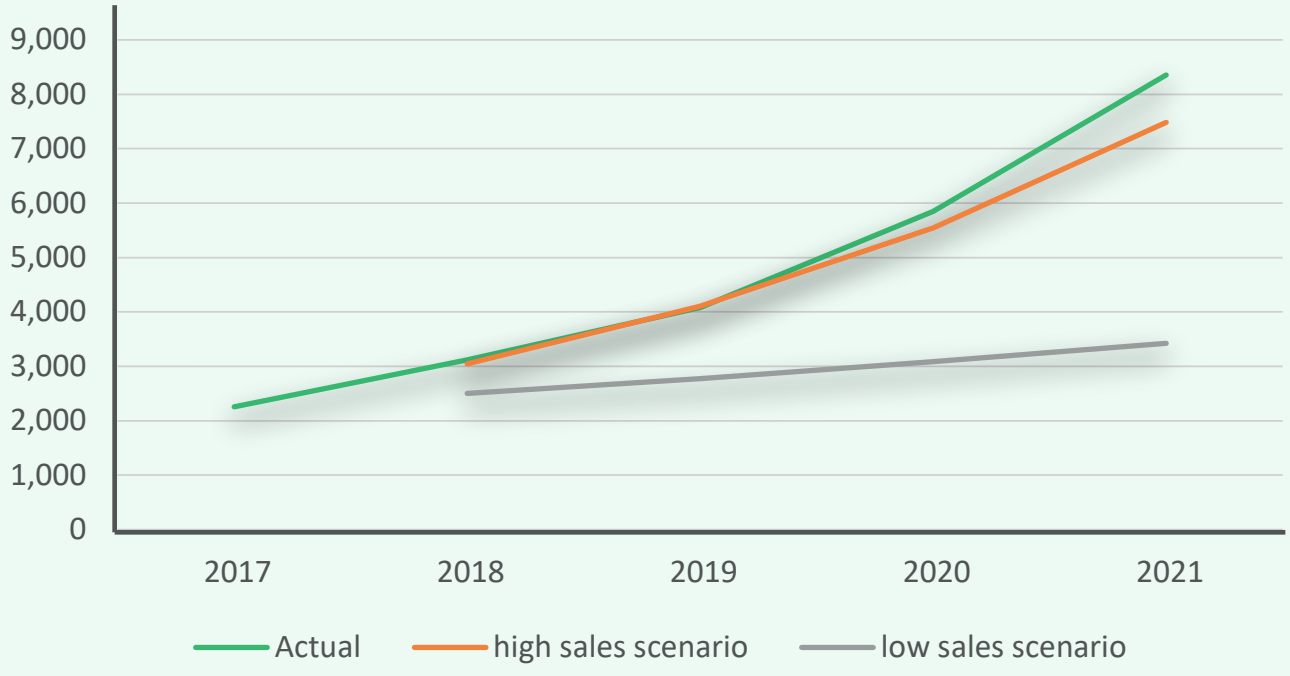


Figure 7: Ultra-low emission vehicles registered in Hounslow

In London approximately 20% of new car sales are EVs and in Hounslow there are 2,000 EVs registered here, about 2% of all registered vehicles. The proportion of EV sales is higher than the ICCT forecasts assumed for 2022, although the pandemic has affected sales volumes. We have therefore based the target number of chargepoints in our strategy on the high sales scenario. It's important to remember that any modelling activity cannot take account of all future possibilities. The impact of recent dramatic increases in inflation on the cost of living has not been factored into any models and is likely to depress EV uptake. The relative cost of electricity and petrol/diesel will also be an important but hard to predict factor.

To account for unknown consumer preference the ICCT model looks at three scenarios; on-the-go charging using rapid chargers, destination chargers and lastly charging at home, and the number of different types of charging point that would be required under each these scenarios. TfL's 2030 EVI strategy models just the rapid and home charging scenarios. The ICCT forecasts for the required number of chargepoints in Hounslow is shown in Table 2.

Scenario	Public residential chargers required			Public destination chargers required			Public rapid chargers required		
	2025	2030	2035	2025	2030	2035	2025	2030	2035
Rapid charging preference	950	1,584	1,924	56	115	169	55	91	108
Destination charging preference	1,205	1,992	2,316	177	419	632	22	30	31
Home charging preference	1,313	2,278	2,789	43	107	165	22	28	28
									

Table 2: ICCT forecast number of chargepoints for Hounslow

We have compared TfL and ICCT projections for 2025 using the high sales projections for the different consumer preference scenarios. This comparison is at the London level, as TfL do not provide the information at borough level. Table 3 highlights that TfL forecasts are significantly higher, with 53-59% more public residential chargepoints required than the ICCT estimates. There is a smaller increase in the number of rapid chargers. This is largely because TfL have assumed that future rapid chargers will be twice as powerful as those which have been installed to date so fewer will be required. As TfL have not modelled the destination charger preference it is not possible to see what the percentage increase is for this scenario, however the growth rates from one of the other scenarios can be applied instead.

London -wide Scenario	Public residential chargers required			Public destination chargers required			Public rapid chargers required		
	ICCT	TfL	%Increase	ICCT	TfL	%Increase	ICCT	TfL	%Increase
Rapid charging preference	22,621	34,500	53%	1,619	2,300	42%	2,602	2,600	0%
Destination charging preference	31,120	49,500	59%	1,280	1,500	17%	1,335	1,600	20%
Home charging preference	28,813	n/a	n/a	6,139	n/a	n/a	1,223	n/a	n/a

Table 3: Projected number of chargepoints required in London by 2025 in high sale scenarios

We have applied the TfL percentage uplift for different charger types to the ICCT forecasts for Hounslow, as shown in the Table 4. For the destination charger scenario, we have applied the rapid scenario uplift which prepares the borough for a higher level of take up. There is significant variance between the different scenarios, with between 1,454 – 2,088 residential chargepoints likely to be needed by 2025, up to 251 destination chargers and up to 55 rapids.

London -wide Scenario	Public residential chargers required			Public destination chargers required			Public rapid chargers required		
	ICCT	%Increase	Result	ICCT	%Increase	Result	ICCT	%Increase	Result
Rapid charging preference	950	53%	1,454	56	42%	80	55	0%	55
Destination charging preference	1,208	53%	1,848	177	42%	251	22	0%	22
Home charging preference	1,313	59%	2,088	42	17%	49	22	20%	26

Table 4: Projected number of chargepoints required in Hounslow by 2025

London's 2030 EVI strategy states a preference for a rapid charging scenario to be realised as this means that fewer chargepoints are needed and the impact on the street-scene is less. Within Hounslow we have used charge points retrofitted onto lamp-columns to cater for on-street home charging. As lamp-column chargepoints do not introduce additional street furniture we give preference to which scenario is preferred by consumers.

Due to the significant uncertainty around consumer preferences, for the purposes of planning the number of charging points needed by 2025, the borough has chosen to work with the higher end estimates for each type of charger. This will ensure the borough stays ahead of consumer demand and therefore helps to support the transition to electric vehicles. The number of chargepoints that the borough will be planning for are highlighted in yellow in the above table.

3. 2022/23-2025/26 DELIVERY PLAN

Our delivery plan is focused on the years 2022/23 -2025/26. This is because there is considerable uncertainty on how consumers will want to refuel their vehicles and the required number of chargepoints becomes more uncertain beyond 2025. By 2025 we will have a clearer idea of consumer preferences and what quantity of different chargepoint types are needed based on monitoring of usage and vehicle registrations. A new delivery plan in 2026 will determine what future investment is needed in line with consumer preference.

London's electric vehicle charge point installation guidance identifies four core themes that will ensure the best service for current and future EV users.

- Identify current user demand
- Provide for future switch
- The right charge points in the right place
- A good geographical spread

The above themes have been incorporated into our strategy objectives, as set out below:

Summary of strategy objectives:

1. Focus the Councils electric vehicle infrastructure delivery to realise the greatest reduction in harmful emissions.
2. Achieve a good minimum level of service for all residents, businesses and visitors.
3. Deliver a chargepoint network which is good value for money.
4. Provide electric vehicle infrastructure in a fair and transparent way.
5. Support modal shift towards public transport and active travel.

OBJECTIVE 1: Achieving the greatest reduction in harmful emissions

Hounslow Council has declared a climate emergency and we want to facilitate rapid decarbonisation of the transport sector. Our contract will specify that suppliers must purchase electricity generated by renewable means (solar panels, wind power etc) rather than fossil fuels. Our approach, up to 2026, will be to provide the infrastructure to allow for people to switch to EVs as soon as they are able to. We will install chargepoints which cater for high sales of EVs and all different possible consumer behaviour preferences: home, destination and rapid charging (see table 4 in chapter 3 of strategy).

This approach will ensure that access to chargepoints is not a barrier which prevents people from switching to EVs. London's EVI Strategy forecasts that EVs will achieve purchase price parity with ICE vehicles between 2025-27. Because of their cheaper running costs, price parity is likely to be a tipping point when demand for EVs greatly increases. The lead time required to install EVI means that it is essential that adequate EVI is in place to meet this demand before it arrives.

We will also give priority to requests for chargepoints from high mileage drivers such as private hire, taxi and fleet drivers as set out in the Objective 4 section on providing chargepoints. We will engage with stakeholders to promote uptake of EVs. This includes private hire vehicle operators, to promote our offer to their drivers, landowners who can provide charge points and motorists.

The council has set up a Green Fleet Group with the aim of updating the council's entire fleet to electric by 2030. The council fleet is anticipated to need predominantly dedicated depot-based charging rather than on-street chargepoints. However, they will also be able to take advantage of the on-street network as and when necessary. In the interim, the council will look to remove the higher polluting vehicles from the fleet and replace them with hybrids.

OBJECTIVE 2: Achieving a good minimum level of service

In areas where most households use on-street parking, the Council will look to install chargepoints within a one-minute walk. In those areas where most households have off-street parking, chargepoints will be installed within a five-minute walk of their nearest chargepoint. We aim to deliver this minimum level of service by the end of 2023, with approximately 900 new EV chargepoints installed by this time.

Projected annual installations between now and 2025/26 are set out in table 5. The exact pace of delivery will be dependent on requests from priority groups and monitoring of utilisation rates of existing infrastructure. It is expected that delivery will be focused in areas with little off-street parking (urban types 1, 3 and 7), illustrated in figure 8. If an even distribution of chargers were deployed in these areas, this could result in a chargingpoint being located within approximately a 30 second walk by 2025. All chargepoints will have a dedicated parking bay located adjacent to them to ensure the charging points are accessible to EV drivers wishing to charge.

It should be noted that the council will not be responsible for funding all these chargepoints, particularly destination and rapid chargers. To realise our ambitions, we will work with commercial partners and apply for grant funding the Government make available to local authorities. However, the Council will still be responsible for setting up, overseeing and monitoring these contracts with chargepoint providers. We will ensure that the contracts we enter into require chargepoints to be well maintained.

Monitoring and tracking progress is essential for us to understand how well we are meeting demand from EV users and delivering against the objectives of the strategy. The ability to adapt the delivery programme, if necessary, will be important. Each year we will collect and analyse information on:

- The number of EVs registered in the borough, as well as total vehicle ownership.
- The number of chargepoints installed in the borough and in each ward.
- The average utilisation rate and dwell times at chargepoints within the borough and in each ward.
- Air quality and sustainable mode share as part of the Council's wider Air Quality Action Plan and LIP monitoring programme.

Charge point type	Existing	Projected installations per year				Total new EVI installations 2022-2026
		2022/23	2023/24	2024/25	2025/26	
Public residential	321	75	800	441	441	1,757
Public destination	69	32	85	45	45	207
Public rapid	18	5	20	6	6	37
Total	408					2,001

Table 5: Projected number of chargepoint installations in Hounslow

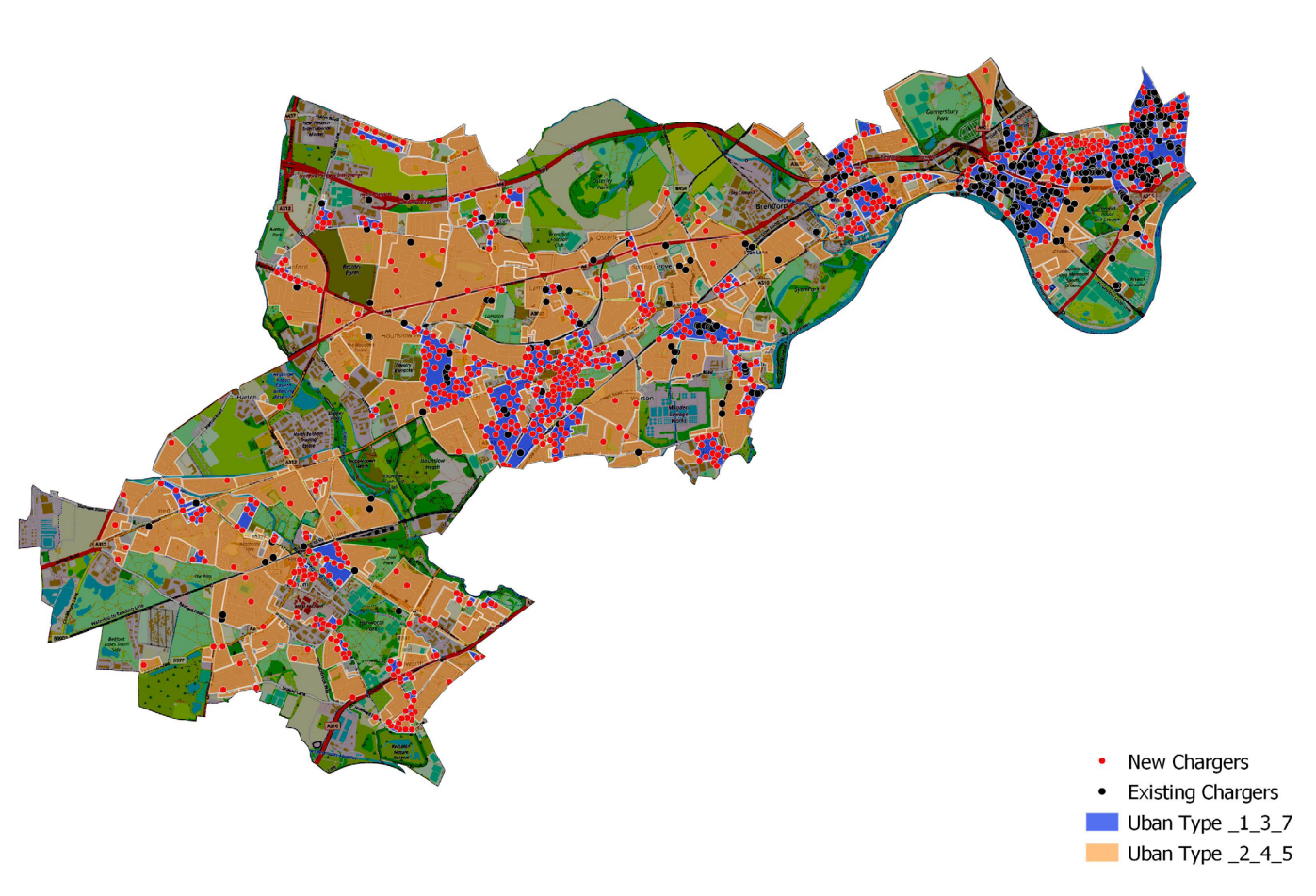


Figure 8: Illustrative chargepoint distribution required to achieve a five-minute level of service in urban types 2,4 and 5 and 1-minute level of service in urban types 1, 3, 7.

Residential provision

Our overarching principle for providing home charging EVI is to provide a consistent minimum walking distance to the nearest chargepoint for residents across the borough. We have termed this the 'minimum level of service'. In built up areas that are not residential, urban type 6, we will not provide chargepoints designed for overnight/long dwell time charging.

In areas where most households lack off-street parking, likely to be urban areas 1,3 and 7, there will be greater demand for on-street home charging. A greater density of chargepoints will therefore be needed and our initial target minimum level of service is a 1-minute walk by 2023. To serve these residential areas we will look to install lamp-column chargepoints to minimise the amount of new street furniture. We estimate that 800 new lamp-column chargepoints will be needed to deliver a 1-minute level of service, with every fourth lamp-column fitted with a chargepoint.

Figure 8 gives an indication of the proposed density of the chargepoint network in different areas of the borough by 2023.

Area Covered	Level of service walking distance	Charger type	Additional chargepoints
Urban types 1,3,7	1 min	Mostly 3-5kw, with some 7-22kw	800
Urban type 2,4,5	5 min	Mostly 7-22kw with some 3-5kw	110
High mileage drivers	As close as possible	Mostly 3-5kw	100

Table 6: Estimated number of chargepoints required to deliver the target level of service

Subject to demand, by 2025 we expect this level of service to be closer to a 30 second walk across much of urban types 1,3 and 7. To achieve this, we would be seeking to deliver a charging point on every other lamp-column on a street. There will also be instances where households do have access to off-street parking, but it is some distance from the property and a private home charger cannot be fitted. This is likely to be the case in urban type 3 and slabs and towers, some of which will be housing directly managed by the council.

On council housing estates where the roads are adopted highway, and the lamp-columns are likely to be suitable, we will install lamp-column chargers to achieve the 1-minute level of service. On estates where roads and car parking is unadopted, our aim will be to install chargepoints at 5% of the car parking spaces by 2023, with a minimum of one on small sites and a maximum of 5 chargepoints at large sites. On estates with high demand we will look to increase provision to 10% of spaces by 2025.

This approach has been informed by monitoring chargepoint usage on new-build social housing, which is required to have 20% of car parking spaces fitted with chargepoints. Usage of chargepoints on estates will be monitored to ensure that the supply of chargepoints is sufficient to meet the demand from residents with EVs. The Council will also engage with residents to understand charging needs on housing estates and keep provision under regular review so that provision grows in line with demand.

On estates with communal parking, that the council does not directly manage, we will encourage private landlords to install charge points. Government funding for EV chargepoints is available for those living in flats and rental properties. We will signpost landlords to take advantage of these grants.

In those urban areas where the majority of residents do have off street parking, urban types 2, 4 and 5, we will provide a minimum level of service of a 5-minute walk from the nearest chargepoint. We estimate that 200 new charge points will be needed to deliver this level of service. Provision will be a mix of lamp-column chargepoints and neighbourhood hubs of 7kw – 22kw chargepoints. Figure 9 illustrates how a neighbourhood hub would be implemented.

The housing in the area is a mix of urban type 2 and urban type 4. Nearly all households have access to off-street parking but there are some households, highlighted by the red outline, without off-street parking. They use on-street parking bays on Syon Lane. These bays are the optimal location to site a neighbourhood chargepoint hub. By 2023, we aim to install a chargepoint, capable of serving two EVs, at these types of location.

This would ensure that there are no barriers to local people buying an EV, although it may have low utilisation until people nearby did switch to EV.

Figure 9: Area where minority of households need on-street charging facilities.

At the point of the initial installation, ducting would be provided so that additional chargepoints could be added if there is demand for them. We would then monitor usage of these chargepoints and when usage rates indicate that there is demand for adding more charge points, these would be added. This approach guarantees incremental additions to the network where they are needed.

Visitor and Business Provision

To cater for non-residential demand we want to ensure that a good network of on-the-go rapid and destination charger options are available.

Rapid (50kw+) chargers

There are 18 existing rapid chargepoints in the borough, 10 of which are on private land, 4 on TfL highway and 4 on borough managed land. All areas of the borough are reasonably served with access to rapid chargers.

The UK EVI Strategy has identified that this segment of the market is well catered for by the private sector. TfL anticipate that only 20-30 per cent of rapid chargers delivered up until 2025 will be with support from the public sector as it is an attractive area of investment for the private sector and existing fuel station operators have well located assets where rapid chargers can be installed.

While significant private sector investment is expected the council continues to work with operators to identify locations where additional rapid chargepoints can be added on land managed by the Council. Our objective is to ensure that by 2025, an additional 37 rapid chargers will be in operation within the borough, bringing the total to 55. The council will utilise the land under its direct control to ensure a minimum of 37 new rapid chargerpoints delivered by 2026.

Finding suitable sites for rapid chargers is more challenging because they need to be close or on the main road network, and in a location where a new power connection makes the site economically viable. Because of their size and bulk rapid chargers are generally unsuitable for residential streets. We will work with chargepoint operators to identify sites on our highway network, and in car parks we manage, to deliver rapid chargepoints at feasible locations. This will include considering the feasibility of installing charging points in loading bays that tend to have a high turnover of vehicles.

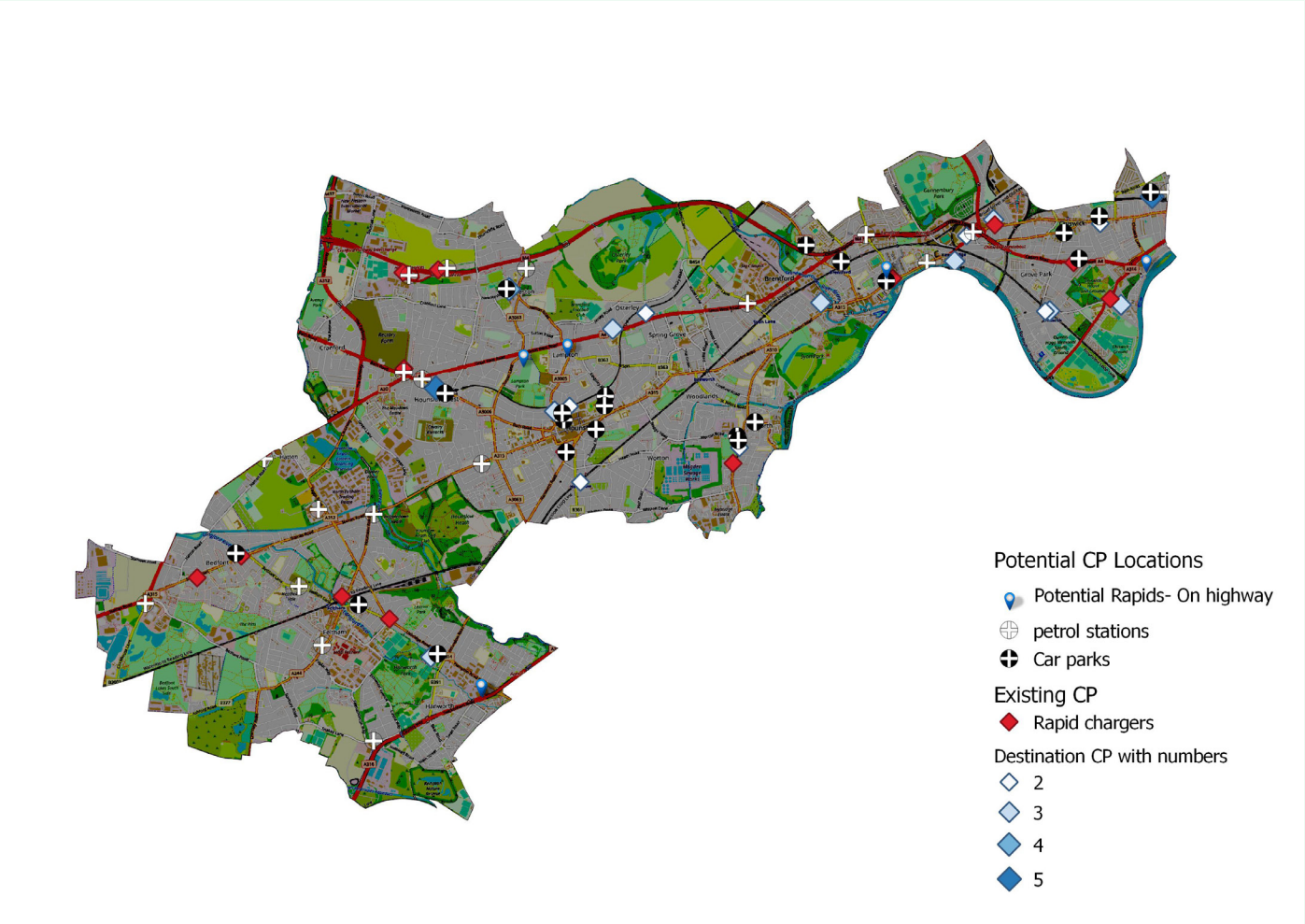


Figure 10: Existing rapid chargepoints and town centre destination chargers with potential new locations.

We will also work with TfL and chargepoint operators to identify suitable land the council owns to host rapid charging hubs. These are locations large enough to host 6 or more rapid chargers. Hubs will be located close to the major road network or areas which serve high mileage drivers such as private hire drivers or commercial fleets. The most viable sites for rapid charging hubs are likely to be located in Council car parks or on main roads, the locations of which are shown on the map in Figure 10.

Fast chargers (7-22kw)

Where vehicles are likely to be parked for between 1-4 hours, chargers with power outputs between 7-22kW are suitable. Up to 207 destination chargepoints may be required by 2025. There are currently 66 chargepoints serving destinations in the borough including high street shopping areas, leisure centres or train/tube stations. While there is a reasonable distribution across the borough, there are fewer in the west of the borough.

The private sector is expected to play a major role in delivering destination infrastructure with supermarkets and workplaces well placed to provide additional destination chargepoints. We will engage with key private sector players and TfL to understand their plans. We will complement the private sector provision by installing chargepoints in council operated car parks where appropriate.

Where the council manages car parks that serve town centres, we will expand provision of chargepoints where usage indicates that there is sufficient demand. This was an area that repondents to the public consultation thought was very important for the council to focus on.

We will also look to provide charging points on street within pay by phone bays at key locations, including at smaller local centre retail areas and other key facilities where there is demand for these. There will also be some fast-charging provision within residential areas.

HEATHROW

Heathrow have committed to:

- Being carbon neutral and is working towards operating zero carbon airport infrastructure by 2030.
- Working towards moving the aviation industry in the UK to net carbon zero by 2050.
- Supporting business partners servicing the airport to meet ultra-low emissions standards by 2025 as a step to a fully zero-carbon fleet.

Heathrow is a key employer for Hounslow with over 30,000 residents in the borough in employment for an organisation servicing the airport. Within Hounslow there are many logistics and industrial parks that service the airport. The airport is a key trip generator through Hounslow, as most strategic roads from Heathrow into London require transport to go through the borough. Heathrow is an area of poor air quality, and we will focus our efforts on assisting business fleets that service the airport to transition to EVs by:

- Engaging with business in logistics parks to understand their intentions to convert their fleets to electric
- Determining what support, they need to make the transition
- Understanding the type of charging infrastructure required to service larger vehicles such as HGV's
- Working with Heathrow to understand their plans for deploying EVI and coordinating on our strategies to support businesses servicing the airport to electrify their fleets.

OBJECTIVE 3: Delivering a chargepoint network which is good value for money

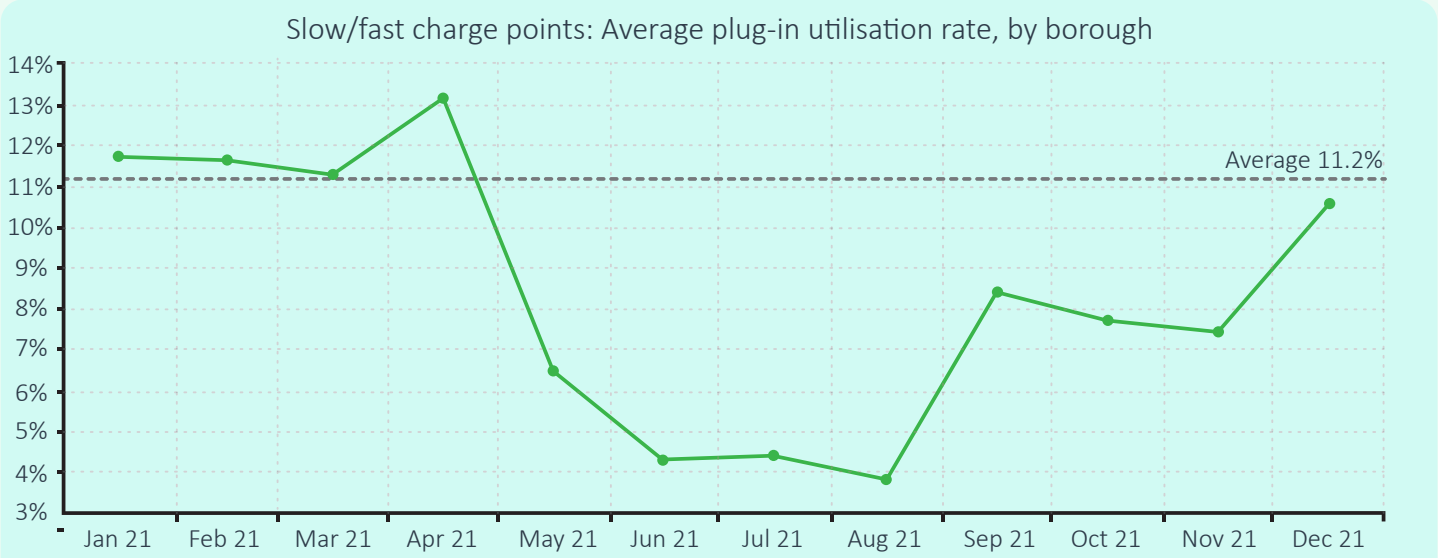


Figure 11: The average plug-in utilisation in London is 11.2%. Hounslow's utilisation has been consistently below this for the past 8 months.

Realising the ambition set out in this strategy will require capital funding from outside the council's core budget. We will submit bids to the Local EV Infrastructure (LEVI) Fund, the On-street Residential Chargepoint Scheme (ORCS) and also seek private funding to install the chargepoints.

We will also seek to increase the utilisation rates of our existing lamp-column chargepoints so that it is above the London average. In 2021 the average plug-in utilisation rate was 11.2%. For context, plug-in utilisation of 10% means that on average each chargepoint in the borough is connected to an EV for just under two and a half hours.

Some boroughs are seeing plug-in utilisation rates of around 20%. Feedback from EV owners in areas with a high density of lamp-column chargepoints indicate that they are often unable to access a chargepoint when they would like. While our rapid and fast chargers have dedicated EV parking bays alongside them, our lamp-column chargepoints do not. Installing EV only parking bays at lamp-column chargers will improve access to them. This is because dedicated parking bays allow enforcement action to be carried out against ICE vehicles blocking access and EVs which are not actively charging. We currently enforce these contraventions where dedicated EV bays exist and are investigating improved processes to ensure bays remain available for EV users. This improved process involves the trialling of sensors fitted in EV bays to alert enforcement officers when a bay is ICE.

All future lamp-column chargepoints will have dedicated bays installed alongside them. At existing lamp-column chargepoints, bays will also be retrofitted, following a consultation. The aim is to have every household with a chargepoint and a dedicated bay, within the minimum level of service. Where lamp-column chargepoints are in controlled parking zones (CPZ), they will only be available to those who qualify for a permit to preserve the integrity of the CPZ. Consultations on new or revised CPZs will incorporate chargepoint locations. Utilisation rates may remain low while the network is expanded to meet future demand. Our long-term target is to increase average plug-in utilisation of our lamp-column chargepoints, so it is between 20%-30% by 2025.

The UK's EVI Strategy proposes legislation to improve drivers' experiences of using the public charging network. This will impose new legal obligations on reliability and allow consumers to compare costs and pay with greater ease. This, combined with the borough's approach to installing different types of EVI, will ensure there is competition to maintain competitive pricing. Through our contract terms, and active management of them, we will ensure that chargepoints are well maintained and reliability is high. The Council will also work with operators to explore the feasiblity of offering cheaper charging rates at night-time.

Innovation

We will adapt our strategy in response to new technology as it becomes available, with a view to deploying EVI which has the potential to reduce costs to the public and have minimal impact on the street-scene. Operators will be encouraged to innovate as part of their contracts, in order to ensure chargepoints remain attractive to users.

The capital cost to install lamp-column chargepoints is lower compared to other types of chargepoints. In addition, they do not required a new connection to the grid and have minimal impact on the street scene. Our standard practice is to only install at lamp-columns located at the kerbside, so cables do not impede pedestrian using the footway. They also have less of an impact on the national grid, with charging often taking place overnight when overall demand for electricity is lowest. Their maximum power output is 5.5kW.

There are other solutions which have a low impact on the street scene being trialled, such as channels which allow householders to run a cable under the footway. There are at least two on-street products which also have minimal visual impact, because the infrastructure is flush with the footway when not in use.

Trials of these products have been launched in Plymouth, Dundee, Brent and Camden and will be monitored for success and to inform future amendments to our strategy.

We will ensure chargepoints comply with the latest Open Smart Charging Protocols and Open Charge Protocol Standards. This would ensure chargepoints are interoperable, can share data across different platforms and can support vehicle to grid charging. This has the potential to benefit consumers, who can sell energy back to the grid at peak times and reduce the need for additional generating capacity to be built.

Images from Urban Electric

Image from Trojan Energy

OBJECTIVE 4: Providing chargepoints in a fair and transparent way

We will introduce a new process for handling public requests for chargepoints that recognises the delivery of this strategy will achieve a good level of coverage boroughwide for most EV users. This means that instead of looking to fulfil every individual request received, we will give priority within the planned delivery programme to requests from particular user groups. High mileage users, such as private hire or taxi drivers, are likely to use a chargepoint daily and those with blue badges may have limited mobility. We will look to install chargepoints as close as possible to serve these users, whilst taking account of the need for coverage to be as evenly spread as possible for the benefit of all users.

1 **Does the property have off street parking?**

↓

2 **Is the household eligible for a CPZ permit if in a CPZ?**

↓

3 **Is the request from a high mileage or blue badge driver?**

↓

4 **Is there a chargepoint within the target minimum level of service?**

↓

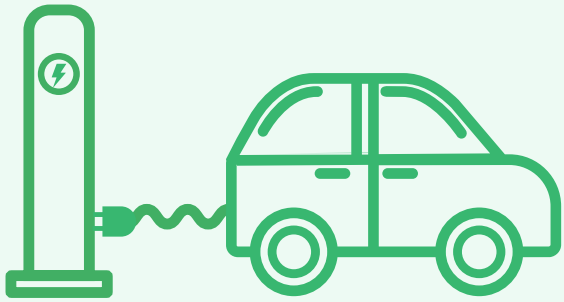
5 **Are the nearby chargepoints always busy or is there capacity for more EVs to use it?**

Once the core densities set out in the strategy have been delivered, we will use monitoring data to inform further phases. The process chart for handling requests is shown in Appendix 1, and some of the key factors to be considered are summarised below.

We also want to ensure that the infrastructure we install is accessible for all users. The Department for Transport has commissioned the British Standards Institute to develop accessibility standards for EV charge points. The standard, known as PAS1899:2022, was published in October 2022 and we will seek to meet the voluntary specification when installing future chargepoints. We will incorporate best practice to ensure our network is accessible and have carried out an equality impact assessment of this strategy. Where chargepoints are hosted on footways we will maintain minimum widths, as set out in TfL's pedestrian comfort guide. In the first instance we will seek sites where footways are wide, and if necessary, will install site chargepoints on footway build outs.

Alongside Building Regulations Part S, the London Plan sets the standards for provision of charging point infrastructure in new development. However, local authorities have the ability to set higher standards than the London Plan, or provide clarifications, where appropriate and evidenced. A review of Hounslow's Local Plan and supporting Supplementary Planning Documents will consider whether the proportion of active chargepoints should be higher than set out in the London Plan. Developers will also be required to provide a mix of charging point types that take into account the charging needs of both occupants and their visitors.

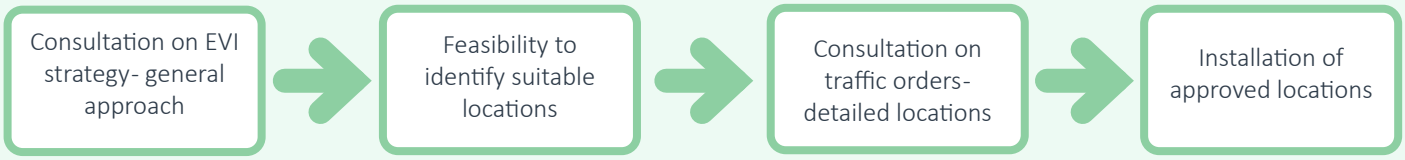
To communicate our intentions for EV infrastructure and be transparent, this strategy was subject to a public consultation in the summer of 2022. Where there are new chargepoints being proposed or where dedicated bays at exisitng chargepoints are being proposed, as part of the process for creating the required traffic order, further consultation will occur.



The below flowchart provides a high-level overview of the process we will be following. This applies to on-street chargepoints installed using the permitted development rights that the council has, meaning that planning consent is not required.

Ongoing engagement on the development/delivery of the strategy will also include:

- Varied channels of communication to communicate with residents such as social media, Hounslow Matters quarterly magazine and face-to-face workshops.
- Ongoing engagement on EVs, particularly to raise awareness of chargepoint provision within the borough, the availability of second hand EVs as a more affordable option and engagement with schools and workplaces.
- Engagement with residents and businesses, specifically in areas where there is a higher rate of vehicular dependency, a lower uptake of EVs and a perceived lesser knowledge of EVs. This is a means to inform, educate, and drive behavioural change.



OBJECTIVE 5: Provide electric vehicle infrastructure which supports more efficient use of our streets

There are currently 40 car club bays on borough highway, spread across 26 different locations, operated by Zipcar and Enterprise. Compared to the typical private car, these hire by the hour vehicles are much more intensively utilised. There is also evidence that car clubs reduce private ownership of vehicles, which supports more efficient use of our streets. We will work with car club operators to deliver the necessary infrastructure which will enable them to electrify these vehicles. Zipcar has committed to convert its fleet to be electric by 2025. To date, they have indicated that their preferred recharging model is to use public rapid chargepoints. We will work to provide suitable EVI that allows them to electrify their fleets, whether this is increased provision of rapid chargers or on-street chargepoints which serve their dedicated bays.

Some authorities are conducting trials using induction charging in car club bays. Induction charging does not require users to plug the vehicle in. Instead, the battery is re-charged via a metal plate underneath the road surface. The trials have generated positive user feedback so far due to the ease of charging, and this will be investigated further. In addition to car clubs, there are public hire bikes available which feature e-bikes. Operators, and privately owned e-bikes, do not currently require public charging facilities. We will maintain dialogue with operators and work with them should this change. We will also investigate the feasibility of establishing mobility hubs in the borough.

To ensure that footways remain accessible to all and minimise the impact that EVI has on walking, the council does not support the practice of running cables across the pavement to charge vehicles from a home. This creates trip hazards for all pedestrians, particularly the partially sighted or those with reduced mobility. The borough's Air Quality Action Plan includes the commitment to look at cable covers to allow residents to charge their vehicles using their private electricity supply whilst they await the installation of a charge point. However, with the ambitious roll-out of lamp-column chargepoints planned, this is no longer felt to be required.

In 2020 the Council agreed to introduce emission-based parking charges for business permits and on/off-street parking charges, meaning that EVs currently receive free parking in the borough. This was intended as a short-term incentive to encourage the adoption of EVs. As EV uptake increases, tarriffs will be reviewed to ensure the Council's parking management strategy remains successful. Although there is an uptake in EV, petrol and diesel cars continue to place demand upon limited kerbside space.

The Council will regularly review what is an appropriate level of discount for EV permit holders and tariffs for on/off-street parking, to ensure it fits with wider transport policies around encouraging and prioritising active travel and public transport. It is likely that this will include the removal of free parking for EVs, although charges would continue to be less that an equivelant ICE vehicle.

4. SUMMARY OF ACTION

Objective	Actions: 2022/23-2023/24
Ensure a good minimum level of service for all residents	Ensure all households are within a 5-minute walking distance of a chargepoint by 2023. Where the majority of households lack off-street parking, ensure they are within a 1-minute walk of a chargepoint.
	Aim to provide chargepoints at 5% of spaces on council managed estates.
	Install dedicated EV parking bays at existing lamp-column chargepoints so that residents are within a 5-minute walk of a chargepoint with reserved parking by the end of 2023.
	A review of Hounslow's local plan will consider whether the proportion of active chargepoints should be higher than the 20% proposed in the London Plan.
Realise the greatest air quality improvements	Prioritise requests for EVI from high mileage drivers and install chargepoints that serve taxi, private hire and fleet vehicles. Process in place by the end of 2022.
	Work with major PHV and fleet operators to identify where EVI is needed for their drivers and promote the prioritisation scheme to them. Engage PHV operators with a view to having a working relationship in place by spring 2023.
	Procure chargepoint suppliers capable of reactive installations to fulfil priority requests and ensure that the council retains some control over the end cost to consumers.
	Work with chargepoint suppliers to identify suitable new locations for rapids and destination chargepoints. New locations identified by spring 2023.
Provide chargepoints in a fair and transparent way	Publish criteria for how requests for chargepoints will be handled and consult stakeholders on our approach.
	Minimise the impact that chargepoints have on pavements by installing lamp-column chargepoints and investigating other footway flush solutions.
	Give priority to blue badge holders and aim to have chargepoints installed as close to their property as possible.
Provide electric vehicle infrastructure which supports more efficient use of our streets	Work with car club operators to electrify their fleets.
	Review how electric vehicles fit into wider parking/kerbside policy, including pricing.

Objective	Actions: 2024/25-2025/26
Ensure a good minimum level of service for all residents	Deliver additional chargepoints based on usage data and requests from priority motorists, with 2,000 new chargepoints in place by March 2026.
	Continued roll-out of chargepoints in line with demand, with up to 10% of parking bays equipped on estates.
	Aim to maintain a plug-in utilisation rate for residential chargers of between 20-30% by 2025. Install additional chargepoints where utilisation rates are over 30%.
Realise the greatest air quality improvements	Continue to provide chargepoints that cater to priority users
	Work with car club operators to electrify their fleet of vehicles, with 100% electric car club vehicles by March 2026.
	Installations complete by the end of 2025.
Provide chargepoints in a fair and transparent way	Report annually ward level home-charger usage and number of new installations.
	Adopt and integrate other modes of electric vehicles into the boroughs transport network, such as e-bikes.
Provide electric vehicle infrastructure which supports more efficient use of our streets	Investigate feasibility of mobility hubs.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Only connect one car at a time please
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GLOSSARY

AQAP	**Air Quality Action Plan**
CEAP	**Climate Emergency Action Plan**
EV	**Electric Vehicle**
EVI	**Electric Vehicle Infrastructure**
ICE	**Internal Combustion Engine**
CO_2	**Carbon Dioxide**
CPZ	**Controlled Parking Zone**
NO_2	**Nitrogen Dioxide**
PM	**Particulate Matter**
$PM_{2.5}$	**Particulates less than 2.5 micrometres in diameter**
PM_{10}	**Particulates less than 10 micrometres in diameter**
TfL	**Transport for London**
ULEZ	**Ultra-Low Emission Zone**

APPENDIX 1

CHARGEPOINT REQUEST PROCESS CHART