



HILLINGDON
LONDON

London Borough of Hillingdon

Electric Vehicle Infrastructure Strategy

HIGHWAY SERVICES

July 2023

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EXECUTIVE SUMMARY

Background Information

In support of the [‘Council Strategy 2022 - 2026’](#), the Council’s [‘Strategic Climate Change Action Declaration and Plan \(released July 2021\)’](#) and [‘Local Implementation Plan \(LIP\) 2019 - 2041 \(LIP\)’](#) the Council has established a core aim to deliver and improve the electric vehicle (EV) charging infrastructure across the borough for both current and future EV users. The plans did not however set any measurable targets and since publication EV sales has increased at a much higher rate than predicted. In 2019 most forecasts were predicting a high end year on year increase of approximately 20%, in 2020/21 the UK increase was actually 92% and sales continue to increase slightly above that forecasted for 2022 & 2023 (UK = c23%) – for the latest more information see [SMMT Vehicle Data](#). The Council has therefore concluded that the demand for public EV charging on adopted Highway or other Council owned property should be considered carefully and developed into a short, medium and long term strategy.

Core Aims

Develop and introduce an EV charging solution for the Councils highway network that aligns with the current and future needs of residents and other stakeholders.

Consider the evolving electric vehicle market by using data trends and forecasts to produce a EV charging solution with targets for the short, medium and long term.

Core Objectives

The core strategic objectives established by the Council for the introduction of EV charging on the Councils highway network are:

Environment



Economics



Technical



Procurement



Time (targets)



Electric Vehicle Charger Types

The naming convention adopted by the EV industry when describing the different types of Electric Vehicle Charge Points (EVCPs) is

Home



Home

Slow charge

Public



Public

Slow charge

Workplace



Workplace

fast charge

Destination



Destination

Rapid

Facility



Facility

Ultra - rapid

≤ 3.7kW

≤ 7kW

≤ 50kW

≤ 150kW

≥ 150kW

Understanding the EV Market

National Level, - In 2019 the Government announced that as part of its 10 point plan for a “green revolution” in the UK we will end the sale of new petrol and diesel cars and vans by 2030, with all new cars and vans being fully zero emission from 2035. This plan is supported by the Governments [‘UK Electric Vehicle Infrastructure Strategy’](#).

Regional Level, - In 2021 TfL updated the ‘Mayors Transport Strategy 2018’ revised its commitment by supporting a net-zero carbon target for London by 2030, the introduction of EV being a core part of the strategy.

Local Level, - The [‘Council Strategy 2022 - 2026’](#), the Councils [‘Strategic Climate Change Action Declaration and Plan \(released July 2021\)’](#) and [‘Local Implementation Plan \(LIP\) 2019 - 2041’](#) has established a core aim to deliver and improve the electric vehicle (EV) charging infrastructure across the borough.

Council Targets

The Councils strategy shall be for the introduction of EVCPs on the adopted Highway or other Council owned property focus on the provision of ‘Public’ and ‘Destination (Rapid)’ EVCPs in the quantities detailed in the figure below.



Rating (kW) = ≤ 7kW AC (standard chargers).

Council Target = No specific target, the need for introduction will be continually reviewed.



Rating (kW) = ≤ 50kW AC/DC (fast chargers).

Council Target = 300 by 2030 (reduced based on number of ‘destination’ points)



Rating (kW) = ≤ 150kW AC / DC (rapid chargers).

Council Target = No specific target, the need for introduction will be continually reviewed.

Route to Market

The Council has identified three routes to market, the options are:

Option 1 = Full Council Ownership

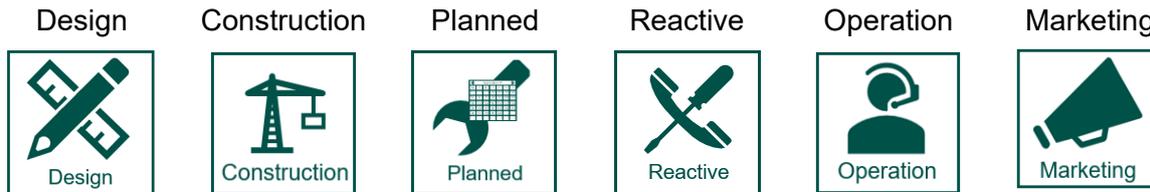
Option 2 = Private Concession Ownership

Option 3 = Shared Council / Private Concession

The potential key benefits and dis-benefits associated with each option have been identified and assessed by the Council, the preferred option subject to the availability of the appropriate levels of funding is option 3.

Delivering the Service

The service required to deliver a public EVCP charging infrastructure on adopted Highway or other Council owned property comprises of the key delivery components detailed below.



When further developing its strategy the Council will produce a performance frameworks and specification for EVCPs designed, installation, maintenance and operation of EVCPs.

The Delivery Plan

The Council has a short, medium and long term delivery plan for the introduction of EVCP charging infrastructure on adopted Highway or other Council owned property, each stage of the delivery plan is -

- Short Term (2023) = remove / upgrade / replace legacy assets based on independent assessment of each site.
- Medium Term (2026) = introduce 125 public destination EVCPs on off-street Council property.
- Long Term (2030) = introduce a further 175 public destination EVCPs on off-street Council property (i.e., a total of 300 by 2030).

The introduction of 'public' on-street EVCPs with a rating of up to 7kW AC (slow chargers) on the adopted Highway is not at this juncture considered a priority, the Council will however continually review the situation with respect to requests from residents and should the demand be determined introduce an on-street investment strategy.

The Consolidated Strategy

The Council has produced a consolidated strategy for the London Borough of Hillingdon – see section 7 (Consolidated Strategy for Hillingdon).

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1 INTRODUCTION

1.1 Background Information

In response to the surge in demand since 2019 and the UK governments announcing that the sale of cars wholly powered by petrol and diesel will be banned by 2030, the London Borough of Hillingdon (the Council) has released a '[Strategic Climate Change Action Declaration and Plan \(July 2021\)](#)' available here; www.hillingdon.gov.uk/climate-action. In support of the plan the Council aims to deliver and improve the electric vehicle (EV) charging infrastructure across the borough for both current and future EV users.

The '[Council Strategy 2022 - 2026](#)' and Council's '[Local Implementation Plan \(LIP\) 2019 - 2041](#)' (LIP) also underpins the Council's intentions for the introduction of EV charging infrastructure.

However, the LIP doesn't set any measurable targets and since its publication in 2019 EV sales has increased at a much higher rate than predicted. In 2019 most forecasts were predicting a high-end year on year increase of approximately 20%, in 2020/21 the UK increase was actually, and sales continue to increase slightly above that forecasted for 2022 & 2023 (UK = c23%) – for the latest more information see [SMMT Vehicle Data](#). The Council has therefore concluded that the demand for public EV charging on adopted Highway or other Council owned property should be considered carefully and developed into a short-, medium and long-term strategy.

Approximately 10 years ago the Council took part in a project whereby residents were given the opportunity to trial an EV for domestic purposes. As part of this project, approximately 30 no. EVCPs were installed in several Council public car parks. This trial has since ended but the asset remains. These existing EVCPs are not embedded within any formal agreement for ongoing service delivery and maintenance, and many are in need of upgrade and/or replacement.

There are currently no Council owned on-street EVCPs located within the borough.

1.2 Strategy Aims

Develop and introduce an EV charging solution for the Councils highway network that aligns with the current and future needs of residents and other stakeholders.

Consider the evolving electric vehicle market by using data trends and forecasts to produce an EV charging solution with targets for the short, medium and long term.

1.3 Strategic Objectives

The core strategic objectives established by the Council for the introduction of EV charging on the Councils highway network are outline below.



Environment

Make an effective contribution towards the strategic objectives established by the Councils [‘Strategic Climate Action Plan’](#) .



Economics

Identify the most economically advantageous solution(s) for the Council.



Technical

Identify and detail the best installation, maintenance and operation solution(s) for the Council.



Procurement

Review the procurement options available and make recommendation on a suitable route(s) to market.



Time

Establish timebound short, medium and long term targets for introduction of the preferred solutions(s).

2 ELECTRIC VEHICLE CHARGING TYPES

The naming convention currently applied to Electric Vehicle Charge Points (EVCPs) in the UK - detailed below – has been used to determine the Councils approach to EV charging on adopted Highway or other Council owned property.

2.1 Home Charging



Installation location	=	Off highway within property boundary (e.g., driveway, private development car park)
Rating (kW)	=	≤ 3.7kW AC (slow chargers)
Typical charge time	=	Eight (8) to ten (10) hours
Connection (exit point)	=	Residents existing supply and associated electricity meter
Accessibility	=	Residents only

2.2 Public Charging



Installation location	=	Adopted Highway or other Council owned property
Rating (kW)	=	≤ 7kW AC (standard chargers)
Typical charge time	=	Eight (8) to ten (10) hours
Connection (exit point)	=	Dedicated supply or existing supply (e.g., lighting columns*)
Accessibility	=	All EV users

* Lighting columns connections typically have a rating of 25A 230V, charging points are therefore slow charging (typically ≤3kW) – note; you do get some higher ratings for taxi ranks and these would be deemed facility chargers.

2.3 Workplace Charging



Installation location	=	Off highway within car parks, workplace premises
Rating (kW)	=	≤ 50kW AC/DC (fast chargers)
Typical charge time	=	Eight (4) to ten (6) hours
Connection (exit point)	=	Dedicated supply or existing supply derived from premises
Accessibility	=	Company employees only

2.4 Destination (Rapid) charging points



Installation location	=	Hotels, restaurants, car parks, shopping centres and some large workplaces
Rating (kW)	=	≤ 150kW AC/DC (rapid chargers)*
Typical charge time	=	≈ one (1) hour
Connection (exit point)	=	Dedicated supply or existing supply derived from premises
Accessibility	=	All EV users (sometimes subject to use of facilities)

* in the case of Council owned 'destination' locations the rating of EVCPs could be from 7kW upwards depending on the design constraints specific to any given site.

2.5 Facility Charging



Installation location	=	Motorway services or dedicated charging stations on long journey routes.
Rating (kW)	=	≥ 150kW DC (ultra-rapid chargers)
Typical charge time	=	≈ thirty (30) minutes
Connection (exit point)	=	Dedicated EV installation supply
Accessibility	=	Company employees only

2.6 Council's Proposed Strategy (EVCP Types)

The introduction of EVCPs on the adopted Highway or other Council owned property shall focus on the provision of 'Public' and 'Destination' EVCPs, focusing on:

- 'public' on-street EVCPs with a rating of up to 7kW AC (slow chargers) on the adopted Highway;
- 'workplace' with a rating of up to ≤ 50kW AC/DC (rapid chargers) on Council owned property.
- 'destination' EVCPs with a rating of up to ≤ 150kW DC (rapid chargers) on Council owned property.

Suitable EVCP locations shall be determined at a local level in consultation with stakeholders and suppliers.

An assessment supporting the decision made can be found in Appendix A (EVCP Type Council Assessment).

3 UNDERSTANDING THE EV MARKET AND DEVELOPING TARGETS

3.1 National Level



3.1.1 Government Policy

The UK Government have announced that the sale of new 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 – the same requirement will apply to all HGVs by 2040. Switching away from ICE vehicles is a key policy to help achieve targets to reduce greenhouse gas emissions, such as Carbon Dioxide (CO₂). 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.

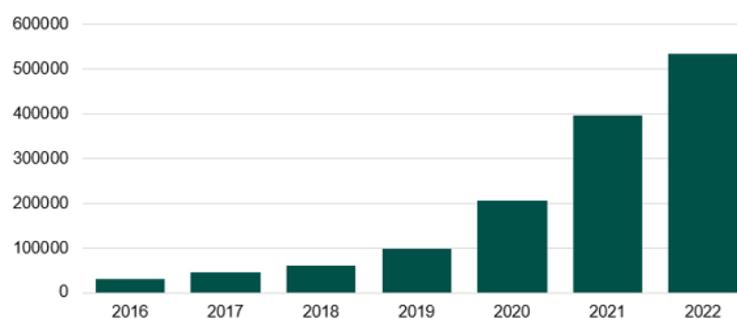
In 2019 the Government announced that as part of its 10-point plan for a “green revolution” in the UK we will end the sale of new petrol and diesel cars and vans by 2030, with all new cars and vans being fully zero emission from 2035.

It is expected that the alternative ‘zero emission’ vehicles will be battery electric vehicles (BEVs), with the potential for hydrogen as another solution.

3.1.2 Current Trend

The graph below shows the **UK** ‘plug-in’ new vehicle registration trend over the last 5 years (2018 to 2022) and the market share in comparison with other vehicle types – source – www.gov.uk (Vehicle licensing statistics data files).

UK ‘plug-in’ new vehicle registrations



In 2021 327k 'plug-in' vehicles were registered in the UK, an increase of C,92% in 1 year. In 2022 year to date the number has risen to 15k, an increase from 2021 of C, 34%. It is important to note that the figures since 2022 have been affected by the global supply chain issues and restricted production due to the conflict in the Ukraine, the latest figures 2023.

3.1.3 Forecasted Need

In 2022 there are over 530k 'plug-in' vehicles registered in the UK, and in 2022 over 20% of new car registrations are for 'plug-in' vehicles. The UK Governments high end estimated is there will be over 11 million electric vehicles in the UK by 2030 and even if progress is slow the forecast is 4.7 million in the same period.

There are currently C,42k EV charging locations in the UK. This number includes all devices ranging from 3.5kW (slow chargers) to 100kW (ultra-rapid chargers). On average, over 1500 to 2000 new EV chargers are being added to the UK's roads each month.

If the growth in EV sales continues to increase at the high end of the forecast by 2030 the UK government expects there to be a need for "around 300,000 public charge points as a minimum in the UK, but there could potentially be more than double that number".

3.1.4 Government Strategy

In response to the UK Prime Ministers 2020 'green revolution' commitment in March 2022 the government release an EV charging infrastructure strategy entitled '[Taking charge: the electric vehicle infrastructure strategy](#)'. The document sets out the government's strategic approach in delivering the charging infrastructure required by 2030.

3.2 Regional Level (London)



3.2.1 Regional Policy

Regional EV charging infrastructure policy within the London boroughs is promoted primarily by TfL. In 2021 TfL revised its original 2050 net-zero carbon commitment, detailed in the '[Mayors Transport Strategy 2018](#)' to "work with boroughs to develop and implement zero emission zones in town centres and central London". The revised commitment aligns with central government commitment by supporting a net-zero carbon target for London by 2030.

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.

The '[London Plan](#)' released in March 2018 and [building regulations for EV](#) , set out the standards for new developments. In the Capital the London Plan, requires EV charging for all residential developments with car parking. The requirement being that "At least 20% of spaces should have active charging facilities, with passive provision for all remaining spaces.

3.2.2 Current Trend

The current trend in EV sales at a regional level within the London boroughs aligns with that experienced at a national and local level – for more details see section 3.1 above & section 3.3 below.

3.2.3 Forecasted Need

In June 2019 TfL released the '[London electric vehicle infrastructure delivery plan](#)'. The plan forecast that the "higher sales scenario" forecast for 2022 was that approximately 15% of all new car registrations would be 'plug-in' vehicles. In the event, according to the latest figures – referred to in the national policy section above – the actual market share of 'plug-in' vehicles in 2022 has been in excess of 20%.

There are currently C,11k EV charging locations within the region (London boroughs). This number includes all devices ranging from 3.5kW (slow chargers) to 100kW (ultra-rapid chargers). It is important to note that this number is increasing quickly with the UK as a whole currently installing C,1500 to 2000 per month.

If the growth in EV sales continues to increase at the high end of the forecast by 3030 the TfL have estimated that there could be a need for up to 60k EVCPs in London including 4k rapid EV chargers.

3.2.4 Regional Strategy

In December 2021 TfL released an EV charging infrastructure strategy for London entitled '[London's 2030 electric vehicle infrastructure strategy](#)'. The documents sets out TfL's vision, addresses recent trends and policy changes, and estimates the EV charging infrastructure needs to 2030 and considers how this could be delivered.

The London EV charging infrastructure strategy seeks to accelerate the transition to zero-emission vehicles by setting out the requirements for the provision of infrastructure, focusing on essential trips.

3.3 Local Level (Council)



3.3.1 Council Policy

The Councils '[Local Implementation Plan \(LIP\) 2019 - 2041](#)' was approved at Cabinet and endorsed by the Mayor in 2019. The LIP states that Council is aspiring to install more electric vehicle charging points (EVCPs) throughout the borough in a demand responsive manner.

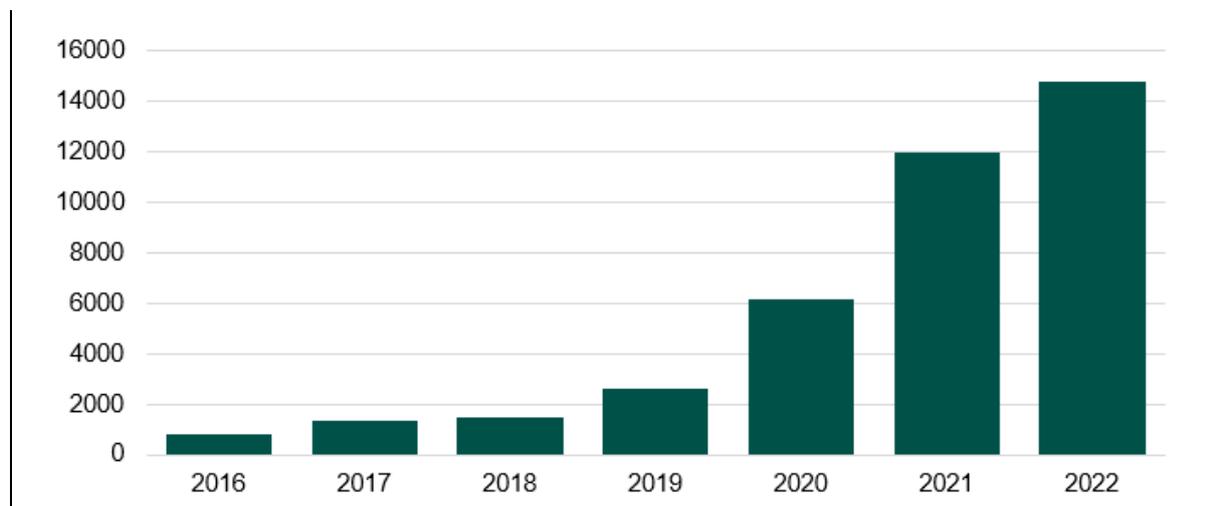
The LIP also commits to delivering EV charging infrastructure for new developments in accordance with the standards set out in the '[Mayors Transport Strategy 2018](#)'. The requirement being (by the strategy making reference to the '[London Plan](#)') that "At least 20% of spaces should have active charging facilities, with passive provision for all remaining spaces."

The LIP also makes reference to the introduction of rapid EVCPs at six potential sites within the borough. The target being installation of rapid EVCPs in Grainges Yard in Year 1 and up to 20 rapid EVCPs in the Council's other public car parks in years 2 and 3.

3.3.2 Current Trend

The graph below shows the **Hillingdon** 'plug-in' new vehicle registration trend over the last 5 years (2016 to 2022 year to date, including fleet vehicles) and the market share in comparison with other vehicle types – source – www.gov.uk (Vehicle licensing statistics data files).

Hillingdon 'plug-in' new vehicle registration (cumulative)



In 2021 12k 'plug-in' vehicles were registered in Hillingdon, an increase of C,93% in 1 year. In 2022 year to date the number has risen to 15k, an increase from 2021 of C, 24%*. It is important to note that the figures for 2022 are being affected by the global supply chain issues and restricted production due to the conflict in the Ukraine, the latest figures are showing a slight decrease in 'plug-in' vehicles registrations and a slight decrease in market share (primarily plug in hybrids).

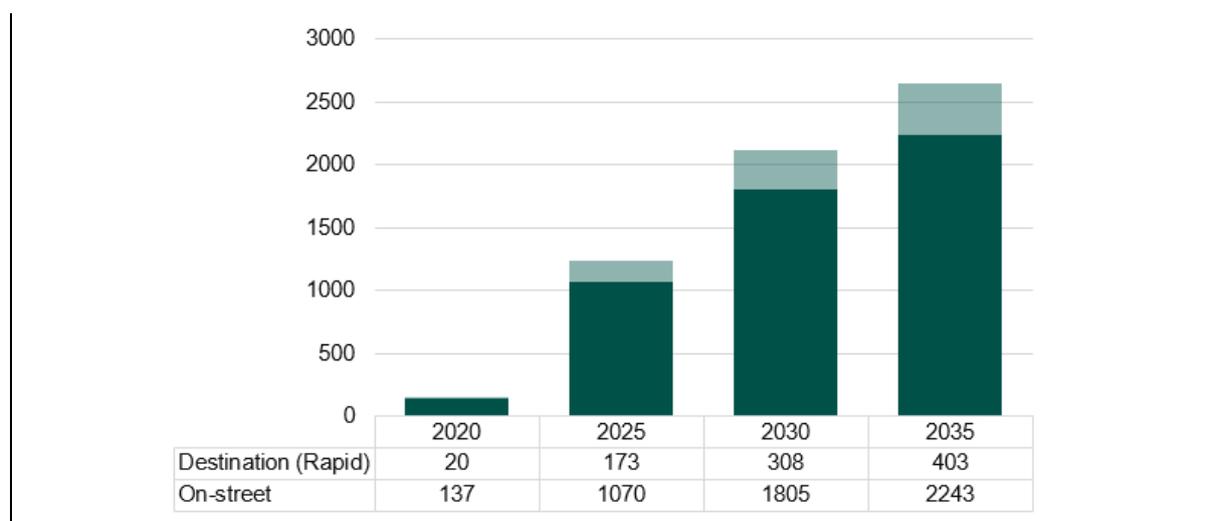
* This figure has been calculated based on Q2 2022 data, it would indicate that EV sales continues to exceed the forecasted high growth of 20% per annum used in most models developed and published 2020.

3.3.3 Forecasted Need

The Council LIP recognises that there has been an increase in the uptake of EV's but points out that it has not currently (in 2019) resulted a surge in demand for on street charging solutions in the borough. The reason cited is the high level of housing stock with off-street parking (where users can install their own charge points) and the small number of flats, when compared with central and inner London. The LIP does however accept that as more flats are built and public appetite for EV grows, Hillingdon are committed to reviewing on street opportunities and technology to be able to meet the demand should it materialise.

In November 2020 the International Council on Clean Transport released a working paper entitled '[Fulfilling electric vehicle charging infrastructure needs in Greater London and its boroughs](#)'. The working paper outlines targets for public EV charging infrastructure at a London borough level up to 2035 and was developed to complement TfLs the '[London Electric Vehicle Infrastructure Delivery Plan](#)' created by the '[Mayor's Electric Vehicle Infrastructure Taskforce](#)'. The public EV charging targets forecast for Hillingdon within the working paper have been summarised in the below.

Working Paper Forecasted EVCP Need



The working paper models a number of scenarios the one shown the table above is the 'primary scenario' used within the report.

It should be noted that the working paper was released in 2020 which was before the unexpected surge in new vehicle registrations in 2021 /22.

When the working paper was released in 2020 the sales share in new vehicle registrations for 'plug-in' vehicles was estimated at approximately 15%, in the actual event in 2022 over 20% of new car registrations are for 'plug-in' vehicles. This would suggest that the forecasted need predicted for 2025 will come sooner.

3.3.4 Council Strategy

The Councils '[Local Implementation Plan \(LIP\) 2019 - 2041](#)' was approved at Cabinet and endorsed by the Mayor in 2019. The LIP states that Council is aspiring to install more electric vehicle charging points (EVCPs) throughout the borough in a demand responsive manner.

3.4 Council's Proposed Strategy (The EV Market and Developing Targets)

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 on-street EVCPs. Hillingdon also directly manages off-street parking in several public car parks and on of housing estates within the borough. The Council therefore recognises that it has an important role to play in support and delivery of the net-zero carbon commitment in the transport sector.

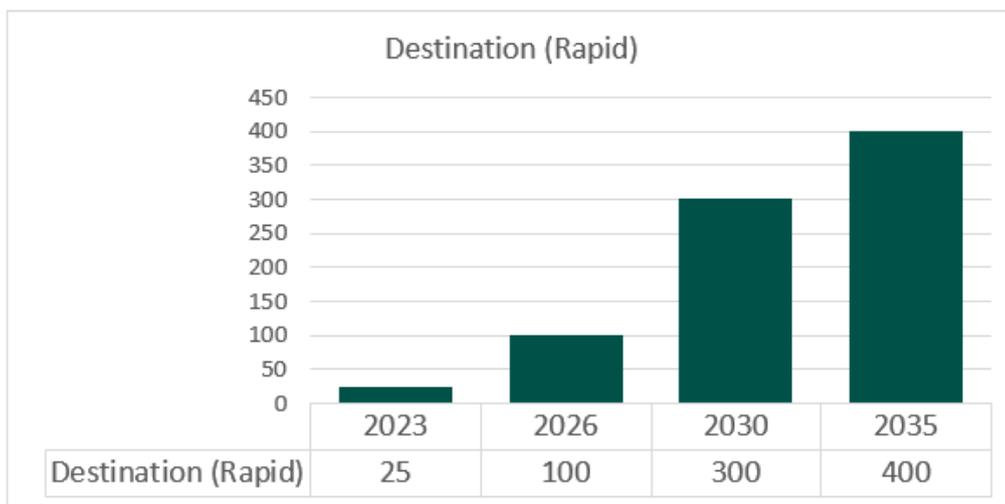
Council Targets

Having considered the relevant guidance and the local data & information available to it the Council has determined that there is an ongoing and increasing demand for 'destination' type EVCPs within its off-highway owned property (i.e., Council owned car parking facilities). However, the requirement for lower rated on-street public charging is not something that is immediately apparent when reviewing the local data and information.

The Council has therefore decided that its primary objective shall be the introduction of 'destination' type EVCPs with a rating of up to $\leq 50\text{kW AC/DC}$ on off-highway Council owned property.

The councils initial commitment to the introduction of EVCPs on off-highway Council owned property will deliver 'Destination (Rapid)' EVCPs in the quantities detailed in the figure below.

Council EVCP Infrastructure Targets



Although the target quantities detailed with the figure above have not been mathematically modelled they do reflect the higher rate than expected EV sales used when the ‘International Council on Clean Transport’ produced its targets forecast for Hillingdon in 2020. More importantly the Council also considers that the targets realistic in terms of procurement and delivery.

The introduction of ‘public’ on-street EVCPs with a rating of up to 7kW AC (slow chargers) on the adopted Highway is not at this juncture considered a priority, the Council will however continually review the situation with respect to requests from local residents and should the demand be determined introduce an on-street investment strategy.

New Development Policy

The Councils LIP commits to delivering EV charging infrastructure for new developments in accordance with the standards set out in the [‘Mayors Transport Strategy 2018’](#). The requirement being (by the strategy making reference to the [‘London Plan’](#)) that “At least 20% of spaces should have active charging facilities, with passive provision for all remaining spaces.

4 ROUTE TO MARKET

4.1 Option 1 = Full Council Ownership

4.1.1 Delivery Model

The Council funds the procurement, installation, maintenance and operation the EV charging infrastructure. With this option the Council would take on sole responsibility for delivery of the EV charging service – see section 5 (Delivering the Service) for details.

4.1.2 Benefits Analysis

The potential key benefits and dis-benefits associated with a wholly Council funded EV charging proposal are highlighted below.

Benefits	Dis-benefits
All ongoing service delivery obligations (maintenance, back-office support) would be in the control of the of the Council.	Significant Council resource requirement.
The Council would receive all the revenue generated from EV charging.	No incentive for suppliers to offer or make improvements that may deliver a more financially viable outcome.
	The Council would be taking on all of the risk associated with capital investment, asset utilisation, maintenance, upgrade and back office support, and as such may not gain full payback if EVCP utilisation is low.

4.2 Option 2 = Private Concession Ownership

4.2.1 Delivery Model

The Council procures an external supplier to fund the installation, maintenance and operation the EV charging infrastructure. With this option the supplier would take on sole responsibility for delivery of the EV charging service – see section 5 (Delivering the Service) for details.

4.2.2 Benefits Analysis

The potential key benefits and dis-benefits associated with a private concession owned EV charging proposal are highlighted below.

Benefits	Dis-benefits
The Council would receive an EV charging facility with no (or limited) investment costs. The Councils cost would be limited to the procurement with a small level of ongoing contract administration.	Supplier offers are difficult to evaluate and model – primarily because the commercial benefits need to be transparent.

The Council could receive a fee from the provider for allowing it to place its EV assets on the Councils network.	Revenue share may be small because the supplier is taking on the risk associated with capital investment, asset utilisation, maintenance and back office support.
All ongoing service delivery obligations (maintenance, back-office support) would be a cost absorbed with the EV provider.	Difficult for the Council to veto / restrict / choose locations because supplier is looking for the most commercially viable locations.
	EV user charges would be wholly governed and controlled by the supplier because the supplier would be taking the investment payback risk.

4.3 Option 3 = Shared Council / Private Concession

The Council procures an external supplier(s) and the Council partially funds the installation of the EV charging infrastructure.

With this option the supplier would take sole responsibility for maintenance and operation of the EV charging service, the costs being extracted from the income generated – see section 5 (Delivering the Service) for details.

4.3.1 Benefits Analysis

The potential key benefits and dis-benefits associated with a private concession owned EV charging proposal are highlighted below.

Benefits	Dis-benefits
The Council would receive an EV charging facility with reduced investment costs.	Supplier offers are difficult to evaluate and model – primarily because the commercial benefits need to be transparent.
The Council could subsidize its investment costs with central government funding initiatives (examples include 'LEVI' funding).	There may not be the market appetite for a shared venture, primarily because provider investment models have not been formulated to accept the risk on the potential for an extended payback period.
The Council would receive a greater share of the revenue generated from EV charging.	The Council may never gain full payback if EVCP utilisation is low.
The Council would retain the ability to influence the commercial arrangements placed on EV users. ie, connection charges and per unit energy costs.	

4.4 Council's Proposed Strategy (Route to Market)

The preferred Council route to market is an EV charging infrastructure that is partially funded by the Council. This option will allow the Council to engage and work with suppliers to develop an EV charging infrastructure that best serves the Council's vision and values, especially that focused on residents and stakeholders. This approach gives the council more control over installation/tariff setting and reduces the risk of funding large installation/operation/maintenance costs.

If the Council funded the procurement, installation, maintenance and operation of the EV charging infrastructure the initial investment cost would be high and the risks associated with maintenance and operation would be very difficult to deliver and manage without the expertise offered by private sector suppliers. Equally, the Council would also be concerned that an EV charging infrastructure wholly owned by the supplier would limit the Council's ability to control installation, maintenance and operation of the EV charging infrastructure, and the ability to influence the commercial arrangements placed on EV users.

5 DELIVERING THE SERVICE

The service required to deliver a public EVCP infrastructure on adopted Highway or other Council owned property comprises of the key delivery components detailed below.

5.1 Performance Requirements



Outcome required	The minimum service levels expected for delivery of an EV charging infrastructure to include the Councils requirement for materials & workmanship, working practices & methods, installation, infrastructure performance and lifecycle planning.
Skillset	Understanding of Councils overarching strategy and local stakeholder needs.
Key Risk	Risk that poorly drafted / unclear output specification / requirement document could produce the wrong outcomes for the Council – leading to additional unforeseen costs.
Risk mitigation	Ensure Council has a clearly drafted service level requirements document in place before inviting tenders from suppliers.

5.2 Design



Outcome required	Development of a design solution for EVCP from concept through to a detailed design that can be built without additional Council input.
Skillset	Civil, highway, transport and electrical detailed design capability from inception through to build.
Key Risk	Poor design could lead to additional costs during construction and / or premature failure of infrastructure during its projected lifecycle.
Risk mitigation	Ensure that an appropriately qualified designer is appointed and that the designer fully understands the Councils civil, highway and electrical requirements.

5.3 Construction



Outcome required	Civil, highway and electrical build of the EV charging infrastructure.
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Skillset	Civil, highway, transport and electrical supplier familiar with working in a London borough.
Key Risk	Poor workmanship could lead to additional costs post – construction in the form of highway safety defects, early failure of highway construction / reinstatement etc,.
Risk mitigation	Ensure that the works is completed by a supplier that fully understands the Councils requirements and can demonstrate that it has the skills required to deliver a project on the highway.

5.4 Planned Maintenance



Outcome required	Ongoing planned maintenance to ensure that each EVCP facility remains safe, useable and continues to operate as intended, the aesthetic appearance is maintained to agreed standards.
Skillset	If installation is completed to the required standards then planned maintenance will be primarily regular visual condition / site inspections and periodic electrical inspection and testing.
Key Risk	A lack of planned maintenance could lead to the EVCPs and the parking sites falling into a poor state of repair.
Risk mitigation	Ensure that a clearly defined planned and programme maintenance proposal is agreed for the full contract term.

5.5 Reactive Maintenance



Outcome required	Reactive maintenance service to ensure all EV charging infrastructure defects are rectified in accordance with agreed service levels -this includes emergency and non-emergency defects, an emergency being defects that represent a danger to EV users and the public.
Skillset	If installation is completed to the required standards then reactive maintenance will be electrical defects and on rare occasions EVCP damage due to RTC's.
Key risk	EVCPs not being repaired in a timely manner either because service levels have not been defined or poor supplier performance.

Risk mitigation	Ensure that the Council has a clearly defined set of response time service levels for reactive maintenance (including emergency and non-emergency type defects).
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5.6 Operation



Outcome required	An ongoing 24/7 remote network management and support function (back office) which typically provides monitoring, client / customer service and financial management.
Skillset	Centrally located technical administration call-centre operated 24/7.
Key risk	Back-office not being operated in a manner that provides the Council and EV users with the correct level of support.
Risk mitigation	Ensure that the supplier has a robust proposal for operation of the EV charging infrastructure and that the proposal is linked to measured and reported service levels.

5.7 Infrastructure Promotion & Marketing



Outcome required	Ongoing promotion and marketing to inform EV customers about the product and features in order to create and maintain awareness, increase demand and drives utilisation (sales).
Skillset	Sales knowledge of the EV market and access to the right EV platforms.
Key risk	If promotion and marketing is lacking EVCPs could result in low utilisation and EVCPs being effectively redundant.
Risk mitigation	Ensure that the supplier can demonstrate that it has a long term commitment to the promotion and marketing of the EVCPs.

5.8 Council's Proposed Strategy (Delivering the Service)

There is no doubt that delivery of an EVCP charging infrastructure on the adopted Highway or other Council owned property requires a host of particular skillsets right through the lifecycle of the asset. The Council can however drive the delivery process by clearly defining its performance requirements for all aspects of the service. ie, from design, construction, maintenance, operation and marketing/ promotion.

The introduction of EVCPs on the adopted Highway or other Council owned property shall be supported by a performance framework and output driven specification that clearly sets out the Council's performance requirement for the following:



- Minimum design standards for EVCPs.
- The design submission and approval / acceptance process.



- Materials and construction requirements.
- Working practices (health and safety, environmental, quality).
- Commissioning and handover requirement.



- Planned maintenance plans and programmes.
- Reporting planned maintenance results.
- Exit plan / handover management (@ end of the contract term).



- Reactive maintenance response times (including consequences of failure to perform).
- Reporting reactive maintenance performance.



- Specify back-office performance and reporting requirements.
- Specify customer care requirement (including dealing with complaints).
- Contract management and EVCP performance reporting.



- Minimum expectation for marketing and promotion.
- Reporting marketing and promotional activity.

Additionally, the Council will require a minimum level of compliance for health and safety, environmental practices and quality management.

6 THE DELIVERY PLAN

6.1 Initial Short Term (2023)

6.1.1 Delivery Plan

The Council has an underlying issue associated with EVCP legacy assets (approximately 30) located in various car parks. The Council's need is the short term / immediate appointment of an organisation that can upgrade, operate, manage and maintain the Council's legacy EVCPs. The caveat being that there will be no guarantee of access to additional EVCP sites on adopted Highway or other Council owned property.

6.1.2 Council's Proposed Delivery Strategy

The Council's proposed approach to its short-term underlying issue associated with EVCP legacy assets is outlined below.

- Action 1 Commission independent review of each Council owned EVCP legacy asset / site – the primary aim being that a future viability recommendation is made for each site – ie, replacement, upgrade or in some cases removal.
- Action 2 If sites are identified for replacement / upgrade prepare short form tender and engage with suppliers that confirm an expression of interest.
- Action 3 If sites are identified for removal – commission Council's highways team to decommission and reinstate parking areas.

① Important note; It is important to note that the EVCP legacy assets were installed when our understanding of the EV market and its potential for growth was in its infancy. Since these sites were introduced, the industry has learned a lot about user behaviour and is now in able to advise on the suitability of locations and EV charger types (ratings) with a lot more confidence. A typical historical issue is slow chargers (<7kW) is EVCPs installed in car parks with no, or limited potential for, overnight use. Other London boroughs are upgrading to fast chargers or in some cases removing public car park installations.

6.2 Medium Term (by 2026)

6.2.1 Delivery Plan

① The Council will run its medium term delivery plan in parallel with its short term plan. There are lots of synergies and shared ideas concepts that make this a sensible approach.

The Council's strategy shall be for the introduction of EVCPs on off-highway Council owned property focusing on the provision of 'Destination (Rapid)' EVCPs in the quantities detailed in the figures below.



Installation location	=	Off highway within car parks, workplace premises
Rating (kW)	=	≤ 150kW DC (rapid chargers)
Current position (2022)	=	0
Council Target	=	125 by 2026 (reduced based on number of 'destination' points)



Installation location	=	Hotels, restaurants, car parks, shopping centres and some large workplaces.
Rating (kW)	=	≤ 150kW DC (rapid chargers).
Current position (2022)	=	0
Council Target	=	No specific target, the need for introduction will be continually reviewed. Where these EVCPs are introduced the target for "workplace" points will adjust accordingly.

6.2.2 Council's Proposed Delivery Strategy

The Council's proposed approach to its short term underlying issue associated with EVCP legacy assets is outlined below.

- a) Produce procurement tender strategy / proposal for each year 2023 to 2026.
- b) Produce a specification for EVCPs designed, installed, maintained and operated on the adopted Highway or other Council owned property.
- c) Identify sites on adopted Highway or other Council owned property (Note; this is already partially complete for car parks).
- d) Investigate and understand how the Council can work with stakeholders and local businesses to contribute towards achieving the Council's targets – e.g., EVCPs in shopping area car parks.
- e) Identify central government funding initiatives and ensure that the Council place robust applications.
- f) Open dialogue with potential key suppliers in London area to establish:
 - i. Acceptance of Council's standard terms and conditions, technical specification, etc.,
 - ii. Acceptance of Council's commercial terms.

iii. Appetite for a shared council / supplier investment model.

g) Produce a suite of tender documents aligned with the Councils specification and targets.

6.3 Long Term (2030)

6.3.1 Delivery Plan

The Council's strategy shall be for the introduction of EVCPs on off-highway Council owned property focusing on the provision of 'Destination (Rapid)' EVCPs in the quantities detailed in the figures below.



Installation location	=	Hotels, restaurants, car parks, shopping centres and some large workplaces.
Rating (kW)	=	≤ 43kW AC/ 50kW DC (rapid chargers).
Anticipated position (2030)*	=	300
Council Target (cumulative)	=	300

* See medium term delivery plan

6.3.2 Council's Proposed Delivery Strategy

① The Council's long term delivery plan will evolve and become more detailed as the medium term delivery plan detailed above is delivered.

7 THE CONSOLIDATED STRATEGY FOR HILLINGDON

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 on-street EVCPs. Hillingdon also directly manages off-street parking in several public car parks and on of housing estates within the borough. The council therefore recognises that it has an important role to play in support and delivery of the net-zero carbon commitment in the transport sector.

7.1 Electric Vehicle Charge Point (EVCP) Types

At this stage the Council has decided that it will focus on the provision of ‘destination’ type EVCPs on off-street Council owned property.



‘destination’ EVCPs with a rating of up to $\leq 43\text{kW AC}$ on other Council owned property.

Suitable EVCP locations shall be determined at a local level in consultation with stakeholders and suppliers and based on expected utilisation.

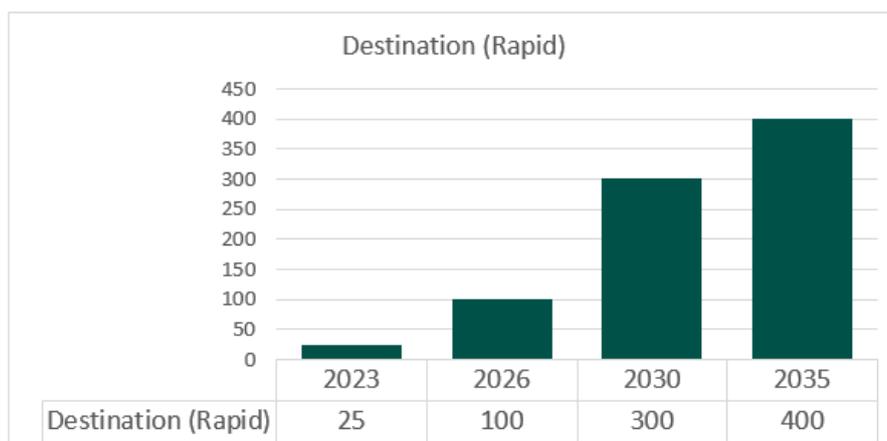
The introduction of ‘public’ on-street EVCPs with a rating of up to 7kW AC (slow chargers) on the adopted Highway is not at this juncture considered a priority, the Council will however continually review the situation with respect to requests from local residents and should the demand be determined introduce an on-street investment strategy.

7.2 The EV Market and Council Targets

Council Targets

The Councils strategy shall be for the introduction of ‘destination’ EVCPs on off-street Council owned property in the quantities detailed in the figure below.

Council EVCP Infrastructure Cumulative Targets



The target quantities detailed with the figure above reflect the higher rate than expected EV sales used when the 'International Council on Clean Transport' produced its targets forecast for Hillingdon in 2020. More importantly the Council also considers that the targets realistic in terms of procurement and delivery.

New Development Policy

The Councils LIP commits to delivering EV charging infrastructure for new developments in accordance with the standards set out in the '[Mayors Transport Strategy 2018](#)'. The requirement being (by the strategy making reference to the '[London Plan](#)') that "At least 20% of spaces should have active charging facilities, with passive provision for all remaining spaces.

7.3 Route to Market

The preferred Council route to market is an EV charging infrastructure that is partially funded by the Council. This option will allow the Council to engage and work with suppliers to develop an EV charging infrastructure that best serves the Council's vision and values, especially that focused on residents and stakeholders.

If the Council funded the procurement, installation, maintenance and operation the EV charging infrastructure the initial investment cost would be high and the risks associated with maintenance and operation would be very difficult to deliver and manage without the expertise offered by private sector suppliers. Equally, the Council would also be concerned that an EV charging infrastructure wholly owned by the supplier would limit the Councils ability to control installation, maintenance and operation of the EV charging infrastructure, and the ability to influence the commercial arrangements placed on EV users.

The introduction of EVCPs on the adopted Highway or other Council owned property shall be supported by an output driven specification that clearly sets out the Councils performance requirements.

7.4 Delivery Plan

7.4.1 Initial Short Term (2023)

The Council has an underlying issue associated with EVCP legacy assets (approximately 30) located in various car parks. The Councils immediate need is therefore the short term / immediate requirement is the appointment of an organisation that can upgrade, operate, manage and maintain the Councils legacy EVCPs.

The Council's proposed approach to its short term underlying issue associated with EVCP legacy assets is outlined below.

- Action 1 Commission independent review of each Council owned EVCP legacy asset / site – the primary aim being that a future viability recommendation is made for each site – ie, replacement, upgrade or in some cases removal.

Action 2 If sites are identified for replacement / upgrade prepare short form tender and engage with suppliers that confirm an expression of interest.

Action 3 If sites are identified for removal – commission Councils highways team to decommission and reinstate parking areas.

7.4.2 Medium Term (2026)

① The Council will run its medium term delivery plan in parallel with its short term plan. There are lots of synergies and shared ideas concepts that make this sensible approach.

The Council's strategy shall be for the introduction of EVCPs on the adopted Highway or other Council owned property focus on the provision of 'Public' and 'Destination (Rapid)' EVCPs in the quantities detailed in the figures below.



Installation location	=	Hotels, restaurants, car parks, shopping centres and some large workplaces.
Rating (kW)	=	≤ 43kW AC/ 50kW DC (rapid chargers).
Current position (2022)	=	0
Council Target	=	100



Installation location	=	Adopted Highway or other Council owned property
Current position (2022)	=	0
Council Target	=	No specific target

The Council's proposed approach to its medium term introduction of EVCPs on the adopted Highway or other Council owned property is as summarised below:

- Produce tender strategy / proposal for each year 2023 to 2026.
- Produce a specification for EVCPs designed, installed, maintained and operated on the adopted Highway or other Council owned property.
- Identify sites on adopted Highway or other Council owned property (already partially complete for car parks).

- d) Investigate and understand how the Council can work with stakeholders and local businesses to contribute towards achieving the Councils targets – e.g., EVCPs in shopping area car parks.
- e) Identify central government funding initiatives and ensure that the Council place robust applications.
- f) Open dialogue with potential key suppliers in London area to establish:
 - iv. Acceptance of Councils standard terms and conditions, technical specification, etc.,.
 - v. Acceptance of Councils commercial terms.
 - vi. Appetite for a shared council / supplier investment model.
- g) Produce a suite of tender documents aligned with the Councils specification and targets.

7.4.3 Long Term (2030 onwards)

The Council’s strategy shall be for the introduction of ‘destination’ EVCPs on off-highway owned property in the quantities detailed in the figures below.

	Installation location	=	Hotels, restaurants, car parks, shopping centres and some large workplaces.
	Rating (kW)	=	≤ 43kW AC/ 50kW DC (rapid chargers).
	Anticipated position (2026)*	=	100
	Council Target	=	300

* See medium term delivery plan

① The Council’s long term delivery plan will evolve and become more detailed as the medium term delivery plan detailed above is delivered.

Appendix A (EVCP Type Council Assessment)

The Council has assessed each charger type (ie, home, public, destination, workplace and facility) for suitability and concluded that the Council's strategy for the introduction of EVCPs on the adopted Highway or other Council owned property shall focus on the provision of 'Public' and 'Destination' EVCPs. The assessment has been summarised in the table below.

EVCP Type		Location	Rating (kW)	Connection	Accessibility	Conclusion
Home	x	x - private land	n/a	n/a	x - residents only	x - Not suitable for Council strategy
Public	✓	✓ - On-street	✓ - Easy to deliver - design and civils works	✓ - Ease of connection - normally connected to existing infrastructure	✓ - all EV users	✓ - Suitable for Council strategy
Workplace	x	x - private land	n/a	n/a	x - employees only	x - Not suitable for Council strategy
Destination	✓	✓ - Council car parks	✓ - Limiting factor - design and civils works	✓ - Limiting factor - available DNO supplies	✓ - all EV users	✓ - Suitable for Council strategy but not always practical due to limiting factors
Facility	x	x - dedicated stations	x - significant infrastructure	✓ - Limiting factor	✓ - all EV users	x - Not suitable for Council strategy

