Slough Electric Vehicle (EV) Charging Infrastructure Strategy

1. Foreword

TBA

2. Preface

As a result of the UK's international environmental commitments, central government has set out a range of polices to reduce, and eventually eliminate our contribution to climate change by 2050 (otherwise known as 'Net Zero'). Transport is a central part of these policies, being the largest emitting sector with 26% of all greenhouse gas emissions across the UK (BEIS, 2023), greater at 30.8% across Slough (SBC, 2021a), and electric vehicles have been identified as a key enabler in tackling the shift to Net Zero transport. Nationally, the sale of new petrol and diesel cars will be banned from 2035 onwards, and locally, there is a Net Zero target of 2040, both of which necessitate action by all council departments to work towards these goals.

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3. Introduction

3.1. Why does Slough need an EV Charging Infrastructure Strategy?

Electric Vehicles (EVs) are becoming an increasingly common sight on Britain's roads, with market maturity delivering a wide choice of increasingly affordable and practical models. Supported by central government policy and industry investment, this growth is set to continue.

However, despite huge strides in the EV market, the landscape of infrastructure required to charge such vehicles has some way to go in addressing current and future demands. The industry is complex, inconsistent, and can be a daunting prospect for new EV drivers, as well as a deterrent for those yet to make the switch. Furthermore, whilst some areas of the UK are well served, others are effectively 'charging deserts' with little to no provision.

Government guidance and funding at all levels is beginning to address this, in tandem with the private sector. We believe local government's role in this is to make the best use of available funding, working and negotiating with private operators, to deliver an effective, accessible, reliable, and value for money EV charging network for their constituents across all areas.

This strategy sets out how Slough Borough Council aims to achieve this, outlining our guiding principles, ultimate objectives, and detailing the funding sources that will enable this work.

3.2. Who is this strategy for?

As a consequence of the pressures outlined above, combined with prevailing market research and technological forecasting, EVs are increasingly seen as the primary solution for road transport decarbonisation, likely becoming the new standard for all new passenger and light goods vehicles going forward. Slough Borough Council has a responsibility to ensure in an EV-led road transport future, residents and visitors alike can charge when and where required, with the greatest ease possible. Doing so allows residents and businesses in Slough to maintain their mobility, and therefore their access to opportunity and vital services, protecting the economic prosperity and wellbeing of the borough. Unfortunately, the private sector alone cannot be relied upon to provide such a network without local authority guidance.

Research shows that the majority of EV owners usually charge their vehicles at home, and 78% said they regularly charge overnight - when we are to assume they are most likely at home (Faraday, 2022). However, with only about 60% of Slough households having access to off-street parking (RAC, 2021), where they can charge easily and cheaply using domestic infrastructure, there are still large numbers of households that will rely on some form of public infrastructure in order to switch. Consequently, this strategy primarily focuses on our role in increasing the provision of residential EV charging, both on-street and through charging hubs, in areas where home charging represents a barrier to EV uptake (and where the private sector needs to work with highways authorities to provide adequate infrastructure). Prioritising the roll-out of a network of public charge points where they are most

needed and providing public sector support to this market area will provide confidence to those drivers thinking of making the switch.

3.3. Our Role

As a council, we must approach this issue with the best interests of Slough residents as our primary concern. Nevertheless, working positively with Charge Point Operators (CPOs) is crucial to understand and address their views and concerns, to ensure a successful and competitive procurement process. The reason for the Council's involvement in stakeholder engagement and the competitive procurement process as a whole is to most effectively leverage our allocated central government funding. This allows us to both maximise the amount of additional investment brought forward by the chosen provider, as well as encouraging an equitable infrastructure network that balances commercial priorities with public need, as opposed to one which just serves the most commercially viable locations.

Furthermore, continued market engagement throughout implementation of this strategy will help to grow in-house knowledge and expertise to achieve best value in executing this strategy. Therefore, we need to continue to consult and engage with industry and government groups, support organisations, as well as review best practice and similar policy in other authority areas across the South-East and wider UK.

Overall, we must properly consider the social, financial, practical, and technical implications of expanding Slough's EV charging infrastructure, utilising our local knowledge and understanding of the Borough's unique characteristics to develop a sound and effective strategy, that we can then take forward in applying for funding.

3.4. Economic Opportunity

XX text to be added here from Shanaaz Carroll – Head of economic development and regeneration

4. Aims and Objectives

4.1. Scope

The scope of this strategy includes:

- An overview of the existing national, regional, and local policy framework guiding the roll-out of EV charging infrastructure.
- Opportunities and challenges for EV charging infrastructure in Slough
- Projections of the likely uptake of EVs across Slough by 2030 and 2035
- A framework of EV charging options for residents without access to private off-road parking, with plans to address this using upcoming funding.
- How we will promote public EV charging infrastructure and promote uptake of EVs

The strategy will inform our implementation plan to provide and enable public EV charging, to ensure that it is accessible and convenient while aligning to our broader 'Avoid, Shift, Improve' hierarchy:

- Avoid – reducing the need for trips.
- Shift – mode change from the private car to sustainable public transport.
- Improve – improving road networks and reducing emissions.

This strategy covers the Borough of Slough. It focusses on EV charging for cars, car-based vans, and taxis (hackney carriages and private hire vehicles) for three user groups with differing needs for EV charging:

- Slough residents, particularly those without access to home charging
- Local businesses, their employees, taxis, van-based logistics operations, and car clubs
- Visitors to Slough

The strategy does not cover EV charging for buses or large goods and service vehicles, where technological solutions are still in development and charging requirements are uncertain.

Furthermore, Hydrogen Fuel Cell vehicles and refuelling infrastructure are not currently deemed a priority for the Council, as we focus on more pressing and severe provision gaps such as those in residential EV charging infrastructure for private cars. Moreover, both the UK Government Hydrogen Strategy (BEIS, 2021a) and a more recent report by the Department for Energy Security & Net Zero (DESNeZ, 2023) explain that although hydrogen will be crucial in achieving a decarbonised transport system, its role as a transport fuel will likely be constrained to heavy road transport, aviation, and shipping (where concerns such as long-ranges, heavy loads, and energy density are likely to preclude the use of batteries).

Similarly, charging for e-bikes, electric motorbikes and micro-mobility solutions are not included, but may be considered in a future revision.

4.2. Strategic Aims and Objectives

Headline aim:

To develop a comprehensive plan for electric vehicle charging infrastructure in Slough that ensures both residents and visitors have sufficient provision of affordable, reliable, and accessible charging, thus enabling the switch to EV and delivering against the Council's environmental goals.

Objectives

1. Develop a plan, suited to Slough's specific characteristics, for EV charging infrastructure provision in residential areas that currently have little to no access to home charging **(Primary Objective).**
2. Set out operational priorities and performance targets for future EV charging infrastructure being deployed across the borough, both in residential areas and in destination locations.
3. Using our learnings, work with private sector providers to achieve the desired network using available funding.
4. Undertake campaigns to promote targeted information about EV charging infrastructure and electric vehicles, to help residents with the transition and provide information on what we are doing, why we are doing it, and the benefits to the community.

4.3. Quantitative Targets

To make the best use of the funding we have, we are utilising mapping and quantitative data to inform decisions and derive targets. This work will help the Council understand the sort of EV charging infrastructure network required to meet our objectives and overall aim. In summary, our analysis focuses on the metric of walking distance from each EV charging infrastructure site, aiming to provide local EV charging within <5 mins walk for 80% of Slough residents without access to off-street parking for 1 or more vehicles. As outlined in section 6.1.2, currently only 20.9% of households that would be reliant on public charging are within 5 minutes walking distance of an existing public charge point (Field Dynamics, 2022). This is geographically skewed towards residents in the town centre or near the A4 Bath Road, leaving many residential suburbs poorly served by existing public charging infrastructure (see Figure 1). This is an aspirational target. Research published in 2022 indicates that in Great Britain the only local authority areas to currently surpass a 60% coverage are London Boroughs and Brighton and Hove Council. The small, compact and urban geographical area of Slough is more similar to London Boroughs and makes this aspiration more achievable than in other neighbouring or Berkshire authorities for example.

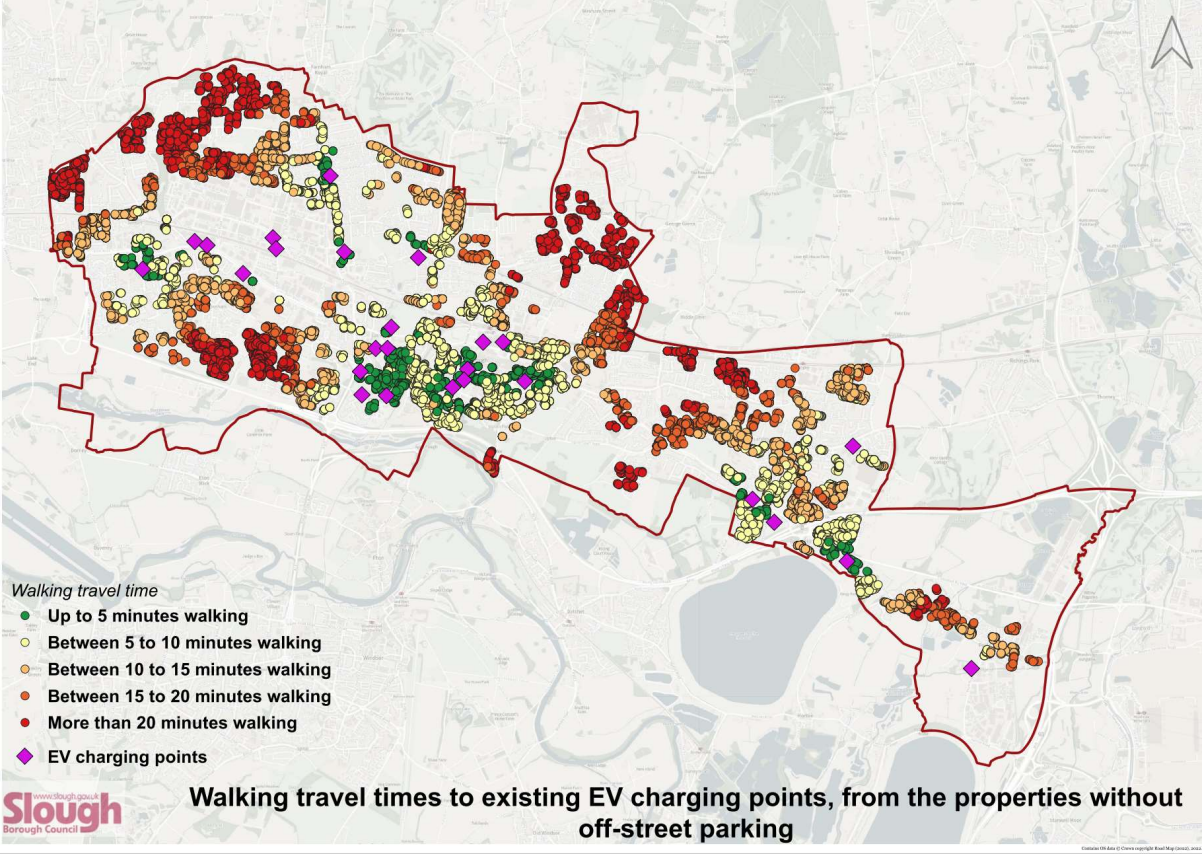

Figure 1: Walking times to existing EV charge points from properties without off-street parking

4.4. Development of this Plan

4.4.1. The development of this plan has been informed by:

- A range of quantitative and qualitative data sources, relevant studies and research by consultants or academia, and policy documents referenced in this strategy.
- Participation in Berkshire and Transport for the South East (TfSE) officer working groups on transport, transport decarbonisation, and electric vehicle charging.
- Professional advice from stakeholders (e.g. Scottish and Southern Electricity Networks, Charge Point Operators), third sector organisations (e.g. Cenex and Energy Savings Trust – designated support organisations involved in the delivery of the LEVI scheme), and highways authorities across the UK.
- Residents of Slough, including those who have submitted requests for EV charge points in their area.
- Discussions and seminars as part of the Energy Savings Trust Local Authority EV Forum.
- A review of other council strategies, documents, and best practice case studies and guidance.

5. Context

5.1. National Policy Context

Transport is central to the UK Government's decarbonisation plans, being the largest single category of emissions (32%), and 91% of this portion is a result of road transport (BEIS, 2021b). Thus far, emissions in this sector have been challenging to reduce, but this is something that will have to change rapidly in the years remaining before the UK's 2050 net zero target. With this in mind, the UK's current Net Zero Strategy aims for an interim target to reduce UK transport emissions (from 1990 levels) by between 47 and 59 per cent by 2035 (BEIS, 2021b).

Although recently postponed, the Government's ban on the sale of all new petrol and diesel cars and vans is still due to come into force in 2035 (previously 2030). Despite the delay, much of the industry is geared up to switch to primarily zero emission vehicle production around this earlier date and policymakers must ensure the public at large are able to make the switch. For the vast majority of car and van drivers, this will take the form of an electric vehicle.

Key Government policies that underpin this Strategy are:

5.1.1. Taking charge: the electric vehicle infrastructure strategy (2022)

A Department for Transport led central government strategy which:

- Plans for a minimum of 300,000 public charge points in the UK.
- Focuses on two sectors, high powered chargers on the strategic road network and local on-street charging.
- Sets out a commitment to ensure there are at least six high powered charge points at each motorway service area by the end of 2023.
- Will consult on the design of the £950m Rapid Charging Fund which will support at least 6,000 high powered charge points across England's motorways and major A-roads by 2035.
- A new £450m Local EV Infrastructure Fund (LEVI) to facilitate the rollout of larger-scale charge points infrastructure projects.

5.1.2. Net Zero Strategy: Build Back Greener (2021)

A central government strategy led by Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, which includes the following relevant commitments:

- Introduce a zero-emission vehicle mandate setting targets for a percentage of manufacturers' new car and van sales to be zero emission each year from 2024.
- Take forward the commitment to end the sale of all new, non-zero emission road vehicles by 2040, from motorcycles to buses and HGVs, subject to consultation.

5.1.3. LEVI (Local Electric Vehicle Infrastructure) Scheme (2022)

Central government announced in March 2022 that they would be launching a new scheme (LEVI) to provide funding to local authorities throughout England for significant EV charging infrastructure investments. This includes:

- A Capital Fund – For the procurement and installation of EV charging infrastructure hardware.
- A Capability Fund – Providing a range of tools, insight, and support to enable the development of well-informed and effective EV charging infrastructure networks.

Funding is pre-allocated for different areas of the country, including Slough, but must still be applied for, providing in-depth plans and justifications to ensure taxpayer's money is spent conscientiously and in line with the policy's aims.

Slough has been designated as a 'Tranche 2' authority, meaning our application will be submitted in 2024/25.

5.1.4. Other Grant Schemes

Table 1 below provides details on the range of other government funding schemes available in England.

Table 1: Government Funding Schemes Available in England (DfT, 2023)

Scheme	Details
Workplace Charging Scheme	The Workplace Charging Scheme (WCS) is a voucher-based scheme open to businesses, charities and public sector organisation. It provides support towards the upfront costs of the purchase and installation of EV charge points that are dedicated to staff or fleet use. The scheme provides up to £350 for each charge point socket installed at a site, with applicants being able to receive up to 40 grants. As of 2024, this scheme has been amended to increase the per-socket amount of funding available to educational institutions from £350, to £2,500. Paid for by the Department for Transport, the grant is available for state-funded schools, colleges, nurseries and academies to boost the charge point facilities for staff and visitors. This could also help schools to generate revenue by making their charge points available to the public.
Electric vehicle infrastructure grant for staff and fleets	This is a grant for small and medium-sized businesses aimed at providing funding toward the cost of wider building and installation work that is needed to install multiple charge point sockets. The grant covers 75% of the cost of the work, up to a maximum of £15,000: • Up to £350 per charge point socket installed • Up to £500 per parking space enabled with supporting infrastructure. You can receive up to 5 grants across 5 different sites. This cannot be used towards the same charge points as the Workplace Charging Scheme.

Electric vehicle charge point and infrastructure grants for landlords	There are two grants that you can apply for towards installing charge points for EVs at a property you own, 1. EV charge point grant – You can get 75% off the cost to buy and install a socket, up to a maximum of £350 per socket. You can receive up to 200 grants a year for residential properties, and a further 100 for commercial properties; and 2. EV infrastructure grant – this grant gives you money off the cost of wider building and installation work that's needed to install multiple charge point sockets. The work can be for sockets you want to install now and in the future. For example, an EV infrastructure grant can cover things like wiring and posts. You can get 75% off the cost of the work up to a maximum of £30,000. The amount depends on how many parking spaces the work covers. You can get: • up to £350 per charge point socket installed • up to £500 per parking space enabled with supporting infrastructure You can receive up to 30 grants each financial year for installing infrastructure in residential carparks. You cannot apply for the infrastructure grant if you're a commercial landlord.
EV charge point grant for renters and flat owners	The grant provides electric vehicle (EV) drivers who are renters or own a flat with support towards the costs of the purchase and installation of EV charge points. An electric vehicle (EV) charge point grant can help towards the cost of installing an electric vehicle charge point socket at your property. You can get 75% off the cost to buy and install a socket, up to a maximum of £350. You can apply for this grant if you either: • own and live in a flat • rent any residential property (this includes properties under the shared ownership scheme) You must own an eligible vehicle and your home must have its own private off-street parking space.

5.2. Regional Policy Context

5.2.1. TfSE EVCI Strategy and Action Plan

The primary regional document relevant to this strategy is TfSE's (Transport for the Southeast) 2023 EVCI Strategy and Action Plan, authored by Arcadis. The plan has a set of ambitious aims, including making the Southeast a "leading global region for net-zero carbon". To achieve this, the EVCI strategy prescribes widespread, future-proofed infrastructure networks. Furthermore, in line with the objectives of this strategy, it stresses the importance of high-quality residential EVCI networks:

"Establishing an extensive residential EVCI network in the TfSE area will be essential to ensure inclusive access to EVCI and supply future demand across the region. It will provide potential EV users with confidence in the availability of EVCI, which in turn will promote EV adoption." (TfSE, 2023a).

5.3. Local Policy Context

This EV charging infrastructure strategy sits within the Council's Corporate Plan (2023 – 2027) priority for a cleaner, healthier and more prosperous Slough through improvements to air quality, promoting active travel and sustainable forms of transport, and taking action to prevent or minimise the impact of climate change. The strategy also supports a number of wider corporate plans and the work of a range of technical officer teams, as shown in Figure 2.

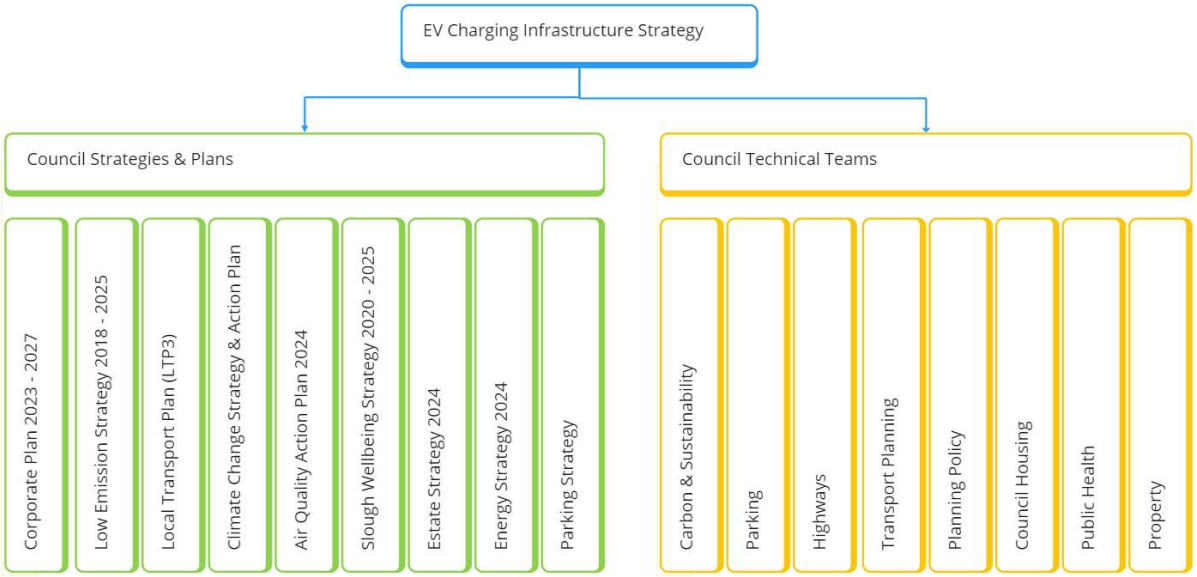

Figure 2: How the EV strategy supports council plans

5.3.1. Low Emission Strategy 2018-2025

The Low Emission Strategy 2018-2025 (LES) was adopted as a council strategy in September 2018 (SBC, 2018). The wellbeing of those living in Slough are the highest priority and this is reflected in the measures detailed in the low emission strategy programme.

The relevant principal outcomes targeted by the strategy include:

- Improving air quality within the whole Borough.
- Improving communication and raising awareness of vehicle emissions and their impact on air quality and health.
- Implementing electric public charging infrastructure (public 'fast' and 'rapid' electric charging points) to cater for and allow for the acceleration of EVs in the Borough.

- Implementing and enabling the operation of electric/ULEV taxis through changes to the Licensing emission standards and provision of dedicated EV taxi infrastructure.
- Working with bus operators to upgrade the emission standards of their buses operating in the Borough (including through retrofitting) with a view to promoting and facilitating (through the provision of low emission infrastructure) electric/hybrid/gas buses.
- To implement and operate in partnership a dedicated town centre wide electric/ULEV car club for all residents to use, and to expand the car club to transport hubs (Burnham and Langley).
- Adopting planning policies for new developments to support sustainable transport (including restrictions on parking) and implementation of low emission technologies and vehicles standards (including on site EV charging, low emission NOx boilers and requiring the latest EURO standards for HDVs servicing new major commercial developments).

The LES therefore provides the overarching approach of the Council to reducing vehicle emissions. The Strategy, refreshed in December 2020, includes a number of EV projects within its an unfunded programme of projects intended to be brought forward subject to S.106 developer contributions, grant funding applications or third-party investment:

- Slough Electric Car Club Programme
- EV Infrastructure Programme
- Taxi EV Rapid Charger Infrastructure Programme
- EV (rapid and fast) Off-street and Car Park Programme
- EV (rapid and fast) On-street Programme

The scope of the LES does not include residential on-street charging needs and considered framework projects over mitigation zones, rather than specific locational planning. The LES will be due for review from the end of 2024.

5.3.2. Climate Change Strategy and Action Plan

The Climate Change Strategy and Action Plan (SBC, 2021a) sets out the ambitions of the Council in reducing and mitigating the carbon emissions, with an overall aim of eliminating the Borough's contribution to climate change over the next 20 years. This covers a range of carbon emission sources, including transport. The five key focus areas are as follows:

- Reducing emissions from our estate and operations
- Reducing energy consumption and emissions by promoting energy efficiency measures, sustainable construction, renewable energy sources, and behaviour change
- Reducing emissions from transport by promoting sustainable transport, reducing car travel and traffic congestion, and encouraging behaviour change
- Reducing consumption of resources, increasing recycling, and reducing waste
- Supporting council services, residents, and businesses to adapt to the impacts of climate change.

The council's target for borough-wide carbon neutrality is 2040 (with a stretch target of 2030), as outlined in Slough's Climate Change strategy vision (SBC, 2021b). This target complies with the UK's national target of net zero emissions by 2050 and a reduction of 78% of emissions by 2035 relative to 1990.

5.3.3. Air Quality Action Plan & Public Health Benefits

To be published in 2024, the Council's emerging Air Quality Action Plan (AQAP) will seek to address the key areas of poor air quality in the borough, chiefly the AQMAs designated by the Council, with a comprehensive long-term plan. Although focused on these AQMAs, the AQAP will also address other identified poor air quality hotspots, to deliver cleaner air and improved wellbeing for all residents of Slough. The Council will consult on this plan in Spring 2024 and then publish in summer of that year.

This strategy aims to deliver a range of public health benefits to residents of Slough by tackling key pollutants. Although many of the measurable benefits of transport decarbonisation, e.g. climate change mitigation, may seem remote and unconnected from life in Slough, there are in fact a range of significant public health impacts resulting from the current fossil fuel vehicle fleet, many of which will be significantly reduced as a result of EV proliferation.

Crucially, emissions from the transportation sector are a leading contributor to ambient air pollution and adverse public health, with the pollutants of greatest concern being nitrogen oxides (NOx – from vehicle exhausts), and particulate matter (PM2.5 and PM10 – from vehicle exhausts, brake wear, and tire wear) (Cenex, 2022). For clarity, EVs do still produce particulate emissions, but these are significantly reduced when compared to equivalent ICE vehicles. Table 2 outlines these key pollutants, and how they can adversely impact human health.

Table 2: Key Road Transport Pollutants and Potential Adverse Health Impacts

Pollutant	**Potential Adverse Health Impacts**
Nitrogen Oxides (NOx)	Through its precursory effect on ozone exposure, NOx can induce more frequent hospital or emergency room visits, and in extremely prolonged cases lead to premature mortalities
Particulate Matter (PM2.5, PM10)	Toxic to human health and can lead to heart and lung disease, or cancer when exposed for long periods of time.

5.3.4. Local Transport Plan 3

The Local Transport Plan details Slough's long-term strategy for transport. The current iteration is the third Local Transport Plan (LTP3) (SBC, 2011). It covers 2011-2026.

Table 3 below shows how this strategy contributes to achieving some of the key objectives of LTP3.

Table 3: LTP3 Objectives and EV charging infrastructure Measures

Local Transport Plan 3: 2011-2026	**How the EV** charging infrastructure **Strategy will contribute**
- **Environment:** To reduce carbon emissions, protect heritage and habitats, and adapt to a changing climate.	- Enabling greater numbers of Slough's residents to switch to electric vehicles sooner by addressing current gaps in EV charging infrastructure provision will contribute to reducing air quality pollutants, carbon emissions, and therefore to addressing climate change.
- **Economy and Skills:** To make sure Slough remains a competitive place to do business as well as to facilitate development for new jobs and housing.	- Advice regarding policies for new developments outlining minimum standards and provision for EV charging infrastructure guarantee new businesses and residents alike workplaces ready for a sustainable transport future, attracting inward investment (to be incorporated into the updated 2024 Low Emission Strategy).
- **Community cohesion:** To improve access to opportunities such as jobs and education, and reduce social exclusion.	- Addressing gaps in provision in less-commercially attractive areas, enabling all Slough residents to easily access EV charging infrastructure which is crucial for protecting local people's mobility by maintaining their access to vital services and opportunities.
- **Health and wellbeing:** To encourage people to be fitter and healthier through walking and cycling, and to improve air quality and local neighbourhoods.	- Enabling greater numbers of Slough's residents to switch to electric vehicles sooner, by addressing current gaps in EV charging infrastructure provision, will make a huge contribution to tackling poor air quality in the Borough. - Local neighbourhoods will benefit in other ways such as reduced noise pollution.
- **Safer Communities** – to reduce the number of road accidents and to tackle anti-social behaviour and crime.	- Applying best practice principles and accessibility standards to the procurement of EV charging infrastructure will ensure good quality design of new infrastructure and street furniture to minimise accidents and vandalism.

We are currently refreshing the Local Transport Plan (LTP4) and this strategy will be updated at review to align with any new priorities. A Transport Vision was approved by the Council's Cabinet in February 2020, setting out key principles for transport strategy over a 20-year period – primarily to create a low-car central urban core. Key principles relevant to planning for EV charging infrastructure include to:

- Create an attractive environment in which people are put first in terms of movement and use of space for interaction creating safe, healthy, and vibrant urban spaces which encourage people to live, work, and relax locally.
- Use the high-quality design of transport infrastructure to enhance the quality of the public realm.
- Minimise the impacts of roads, parking, and motorised vehicles on the urban realm and on people, including improved air quality and road safety.

LTP3 recognises that due to key transport corridors and proximity to Heathrow airport, in conjunction with high car ownership in Slough, the borough suffers from poor air quality and traffic congestion, which adversely affects communities.

Other local issues highlighted by LTP3 are that (when LTP3 was developed), 14% of residents had a limiting long-term disability which can limit their access to transport services, and that footway parking is prevalent in the Borough and creates conflicts between road vehicles, pedestrians and cyclists on shared footpaths leading to traffic accidents and injuries.

5.4. Current Status

5.4.1. Vehicle Fleet

National market share for Battery Electric Vehicles (BEVs) continues to grow considerably, increasing from 1.7% in 2019, to 16.3% in 2023. Sales for Plug-in Hybrid Electric Vehicles (PHEVs) have also grown from 1.5% in 2019 but have levelled off at around 7% since 2021 (SMMT, 2023). Although national economic and cost of living pressures in recent years have curtailed growth in both overall car sales, as well as in comparatively expensive plug-in vehicle market share, this disruption is easing and as vehicle sales recover, plug-in market share is expected to continue exponential growth.

Table 4, Figure 3, Figure 4, and Figure 5 show a range of statistics on the number of EV and ULEV vehicles nationally, regionally, and within Slough itself. These statistics are useful to understand the scale of the fleet, the continued growth quarter on quarter (see Figure 4 and Figure 5), and where Slough is at in comparison to neighbouring boroughs (Table 4 and Figure 6). It is important to note, although Figure 5 shows a high number of ULEVs in Slough, this number is highly distorted by the presence of vehicle leasing companies in Slough, and the information in Table 4 and Figure 6 show that the percentage of private ULEVs, which is likely more representative of vehicles in Slough, is the second lowest in the region at 1.9%. This statistic shows the need for further work to enable and unlock greater EV uptake across Slough.

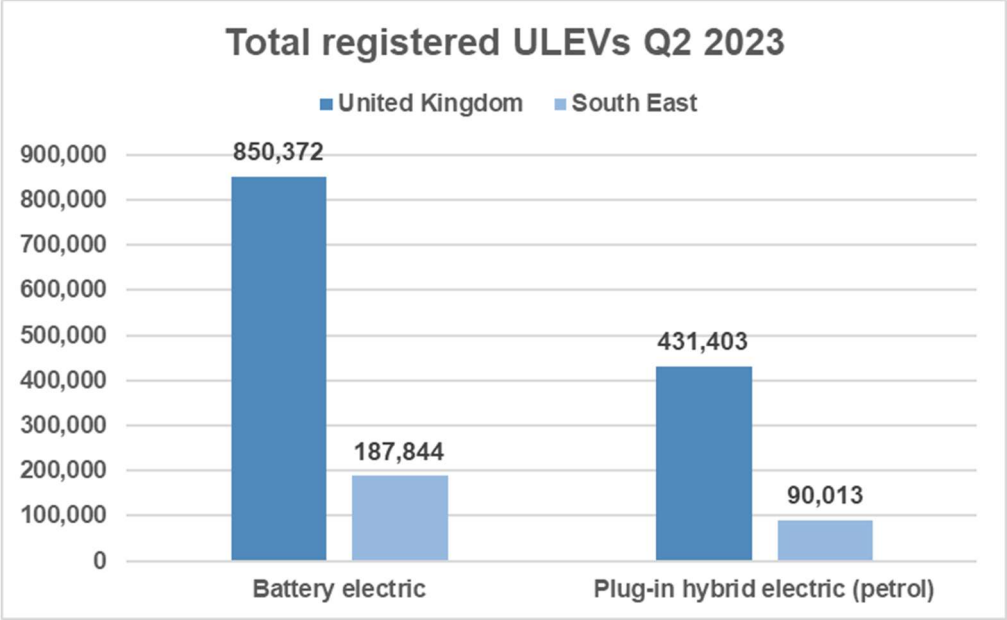

Figure 3: Total Registered ULEVs Q2 2023 (UK and South East)

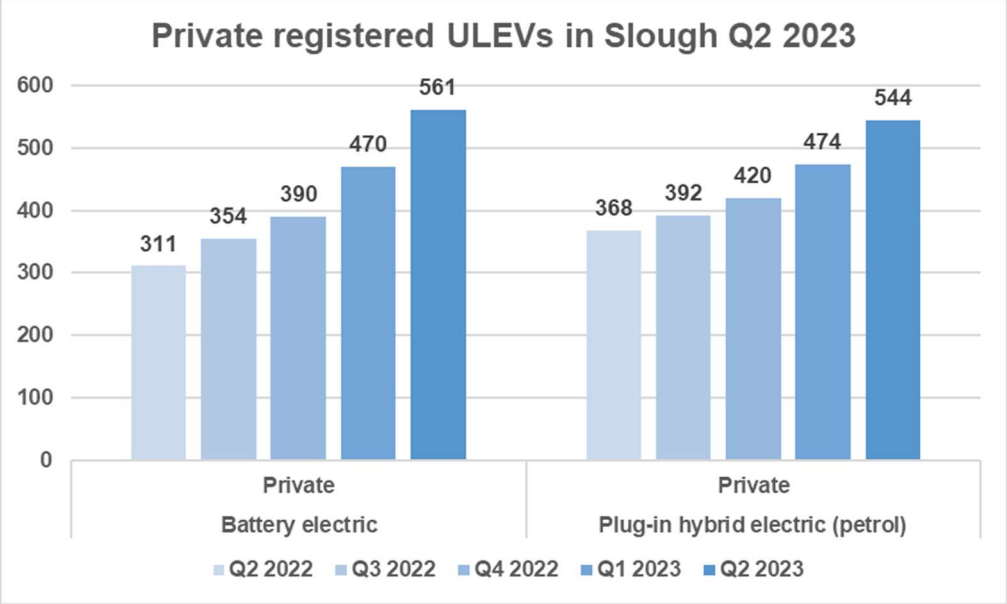

Figure 4: Private registered ULEVs in Slough Q2 2023

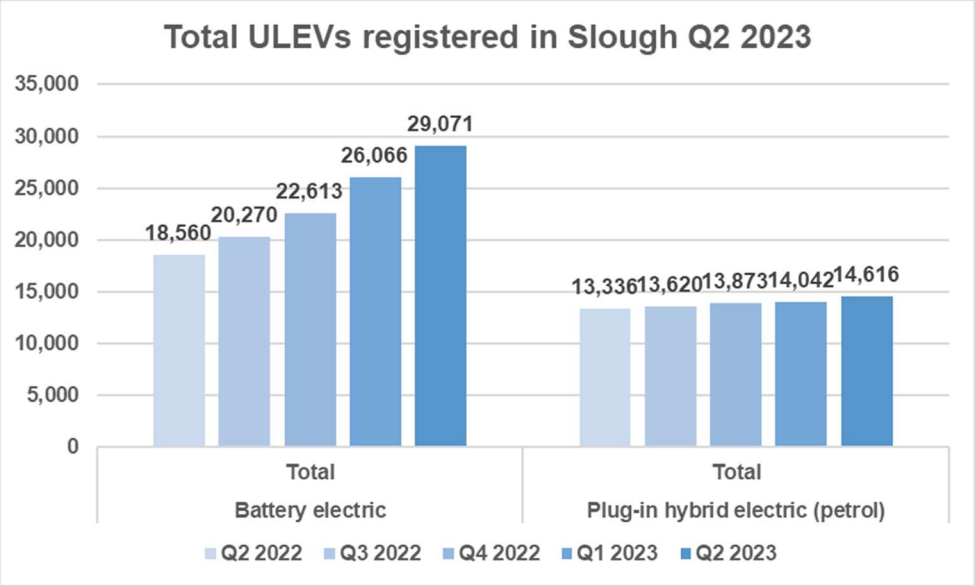

Figure 5: Total ULEVs registered in Slough Q2 2023

Table 4: Private Licensed Vehicles/ULEVs/ULEV % in Slough Q2 2023

Q2 2023	Private Licensed Vehicles	Private Licensed ULEVs	ULEV %
Slough	62,288	1,196	1.9%
Windsor & Maidenhead	81,727	2,642	3.2%
Wokingham	99,826	3,150	3.2%
West Berkshire	90,782	2,265	2.5%
Bracknell Forest	68,109	1,531	2.2%
Reading	63,942	1,155	1.8%
Buckinghamshire	309,442	9,462	3.1%
Hillingdon	118,185	3,454	2.9%
Hounslow	89,384	2,927	3.3%
Spelthorne	52,874	1,131	2.1%

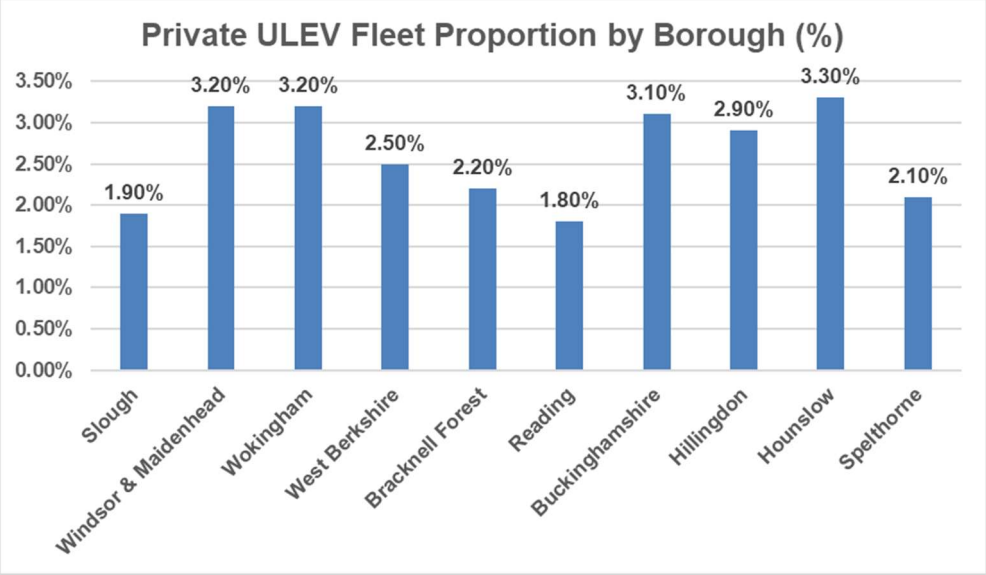

Figure 6: Private ULEV Fleet Proportion by Borough (%)

5.4.2. National and Local AQ Emissions

Source apportionment modelling of air quality pollutants commissioned by the Council in late 2023 indicates that in 2022 contributions from road emissions represent an average of 46.0% of total nitrous oxide (NOx) emissions. This is a significantly higher, almost double, contribution to local air quality than across the UK as a whole. The England Air Quality Strategy (DEFRA, 2023) reported that for 2021 road transport accounted for 27% of total UK NOx emissions.

In Slough, diesel cars represent the greatest proportion of NOx emissions from road transport, on average, 24.2% of total NOx emissions. At locations kerbside to the A4 or at properties close to the M4 motorway road emissions accounted for up to 65% of total NOx emissions, with diesel vehicles accounting for in the order of 42% of total NOx emissions alone. Battery electric vehicles have zero exhaust emissions and therefore generate zero NOx emissions at source. Transition to electric vehicles could therefore aide significant improvements to local air quality in Slough through delivering sizeable reductions in local NOx emissions from road transport.

5.4.3. Infrastructure Network

The UK's EV charge point network, which in recent years has been accused of not keeping pace with the growth in EVs on the road, is now growing at an exponential rate (a 45% increase in the last year alone). This now brings the current total to over 50,000 points across the UK, with London and the Southeast leading the way with 47% of charge points nationwide. With ever greater investment in the sector, alongside an increasingly competitive marketplace, this exponential growth is expected to continue in the coming years.

Rapid charge points are key in understanding how the EV infrastructure picture will look in a few years' time. Although they represent just under 20% of UK charge points figure, they account for much of the national infrastructure growth, increasing by 96% over the past year versus 47% on average.

Figure 7 below shows a comparison between the total number of charge points in Slough against neighbouring and Berkshire authority areas. The high total number of charge points for Hounslow can be explained by its high number of lamppost-based chargers. Hounslow has utilised this solution to provide a widespread network of residential charge points in areas with little to no off-street parking.

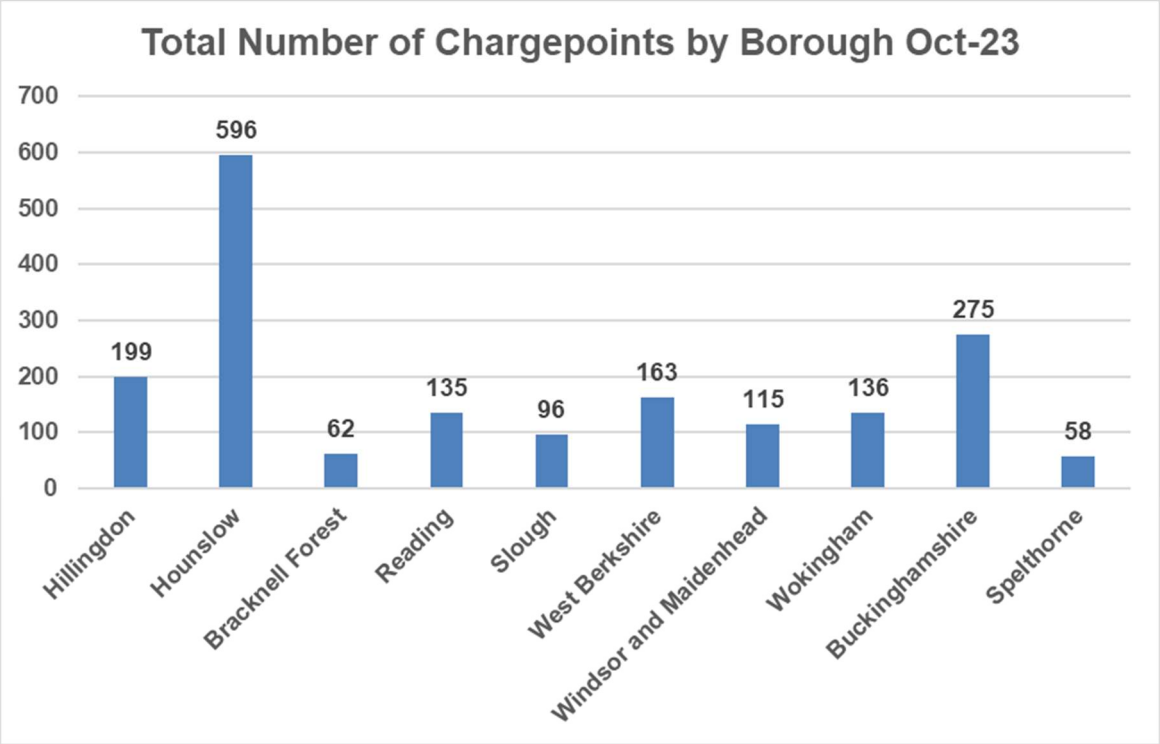

Figure 7: Total Number of Charge points by Borough Oct-23 (DfT, 2023)

Figure 8 shows that the number of rapid, on-route charge points in the borough is relatively high. Furthermore, when compared to a similarly urban borough of a similar size, Reading, Slough contains more than double the number of charge points of this type. This data supports the Council's decision to focus on residential charging, as the area where provision is not being met as well by private sector operators as rapid charging.

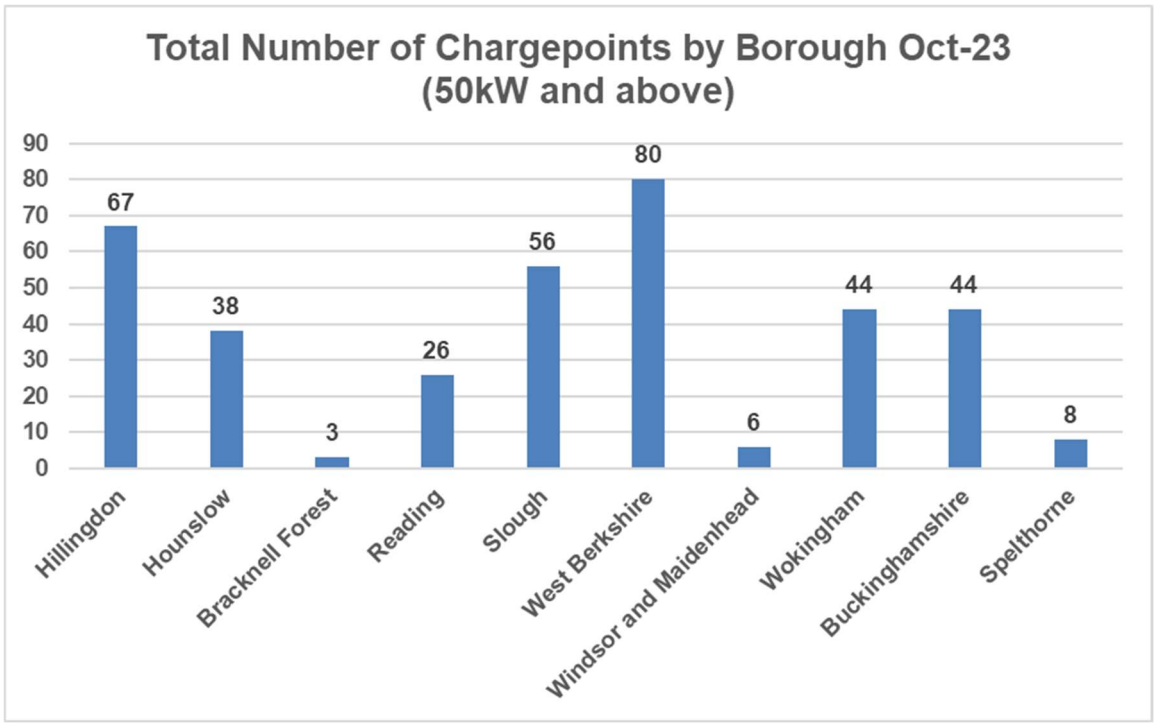

Figure 8: Total Number of Charge points by Borough Oct-23 (50kW and above) (DfT, 2023)

5.4.4. *Data by Population*

To ensure our inferences regarding Slough's primary EV charging infrastructure needs are justified, we have also analysed data on charge points weighted for total borough population. This data (shown in Figure 9 and Figure 10) confirms that when population is considered, Slough is not currently as well served by charging infrastructure as neighbouring Boroughs in provision of overall charge points as opposed to the rapid on-route chargers, reaffirming the priority for the Council being toward residential charge point provision.

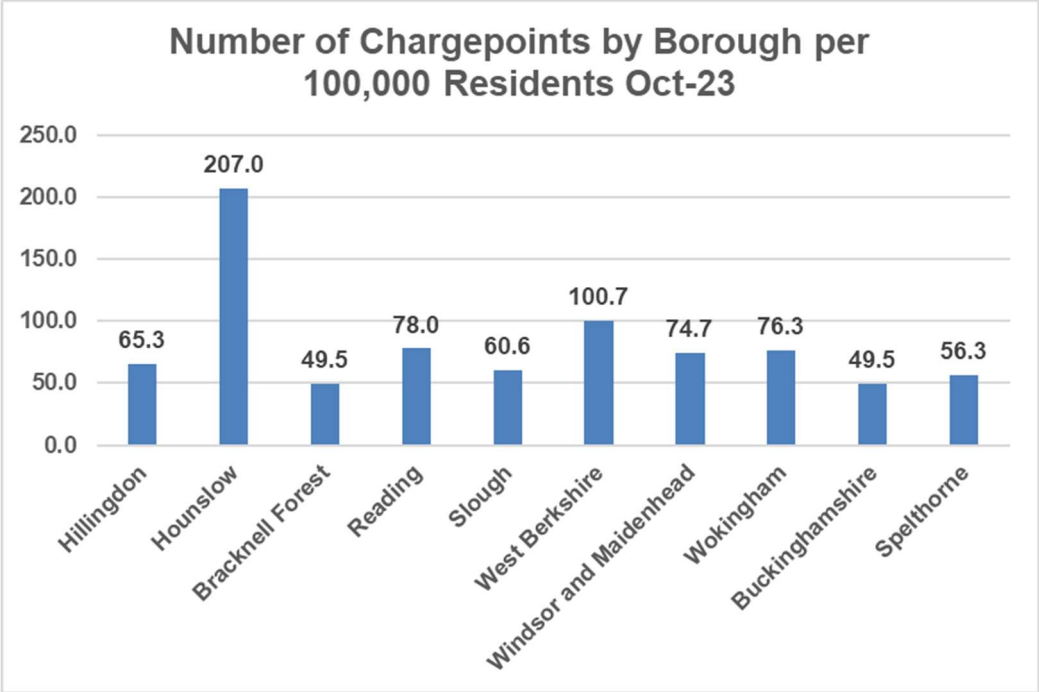

Figure 9: Number of Chargepoints by Borough per 100,000 Residents Oct-23 (DfT, 2023)

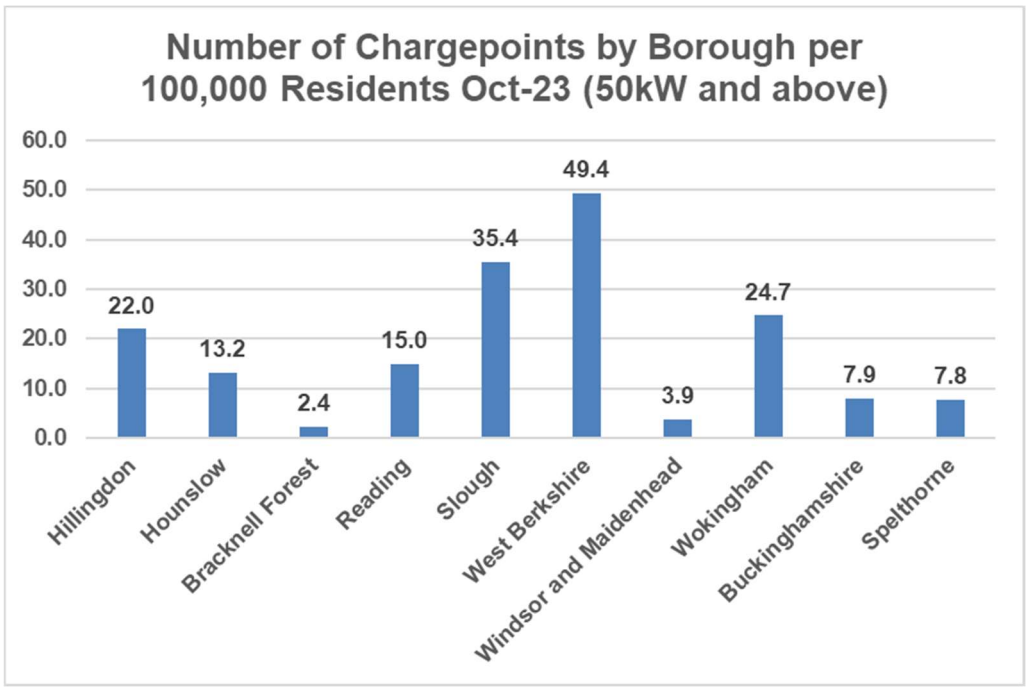

Figure 10: Number of Chargepoints by Borough per 100,000 Residents Oct-23 (50kW and above) (DfT, 2023)

5.4.5. *Utilisation Data*

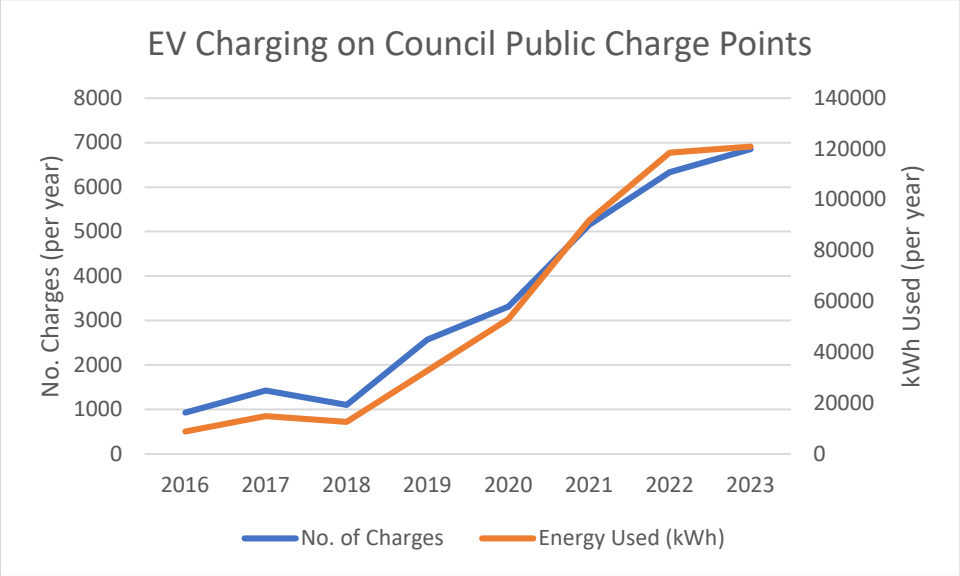

Figure 11: EV Charging on Council Public Charge Points - Utilisation Data (2016-2023)

Utilisation data shows the total number of charging sessions on the Council's public EV charging network since 2016 is over 28,000, with more than 450,000kWh of energy drawn. At an average of 3.0 – 3.5 miles per kWh, this equates to 1.3 – 1.6m miles driven by cars and vans charged on our public network. Figure 11 shows that despite closure of some charge points since 2020 due to infrastructure aging out of viable use, the number of charging sessions and energy drawn continues to grow year on year.

Utilisation data by charging location on the Council's public EV charging network is shown in Table 5. The network overall was utilised by 693 distinct users in 2023, with 6,858 charging sessions drawing over 121,000 kWh of energy. The most popular sites were the two town centre car parks which were free to use during 2023 and no dwell time restrictions were enforced, though parking fees applied. At all other sites while no parking charges apply, dwell time (and reduced charging durations) are enforced. All sites have height barriers except Salt Hill Activity Centre. All locations are predominantly destination charging locations, and not ideal for residential users.

Consequently, the time-based utilisation of the Council charge point sites is lower than the average time-based utilisation calculated by The Green Finance Institute (GFI, 2023) from Zap Map data for Q4 2022 of 15.7% for fast (7kW – 22kW) charge points. Energy-based utilisation is expected to be lower than time-based utilisation as charge points may not always be able to charge at their maximum power rating, especially 22kW charge points as many current EVs cannot charge at this rate and will only draw up to 7kW/h. It is very important to note that target utilisation rates would not be 100%. For public rapid charge points, utilisation rates of 25-30% would be considered to be too high, as there would likely be long queuing times at peak periods. For slower charge points and on-street charging, commercial viability is typically achieved at between 10-20% energy utilisation, giving a balance between investment and an accessible and reliable network for users.

Table 5: Council Public EV Charging Network Utilisation (2023)

Location	Power rating (kWh)	No. Sockets	Tariff/ Free	Parking fees?	No. Charges	Sum of kWh Used	Average of kWh Used2	Distinct users	Total Duration	Average Duration	Av Charges/ Day	Time-based Utilisation (%)	Energy-based Utilisation (%)	Notes
Cippenham Library, Elm shot Lane, Cippenham, SL1 5RB	7	2	Free	N	264	6,816.6	25.82	31	785:22	2:58:30	1.26	7.8	9.7	Only have data to Jan to June & Sept
Hatfield Car Park,Hatfield Road, SL1 1QE	7	4	Free	Y	1320	37,137.6	28.13	84	8545:24	6:28:26	4.89	33.0	20.5	Missing July & Aug, data to end Nov 23
Herschal Car Park, Herschal Street, SL1 1XS	7	4	Free	Y	1934	36,996.6	19.13	123	9,004:53	4:39:22	7.16	34.7	20.4	Missing July & Aug, data to end Nov 23
Langley Leisure Centre, Parlaunt Road, SL3 8BA	22	6	Tariff	N	799	6,896.70	8.63	102	1,203:12	1:30:21	2.94	3.1	0.8	Data to end of Sept
Montem Lane, Ice Arena, SL1 2QG	7	4	Tariff	N	525	4,069.20	7.75	79	1,021:24	1:56:44	1.93	7.8	2.2	Data to end of Sept, plus missing most data for new post
Salt Hill Family Activity Centre, Salt Hill Park, Bath Road, SL1 3SR	7	4	Tariff	N	496	7,707.00	15.54	112	1,865:49	3:45:42	1.82	14.3	4.2	Data to end of Sept, plus missing most data for new post
The Centre, Farnham Road, SL1 4UT (FAST)	22	8	Tariff	N	1033	11,738.50	11.36	213	1,558:29	1:30:31	3.80	3.0	1.0	Data to end of Sept
The Centre, Farnham Road, SL1 4UT (RAPID)	43	1	Tariff	N	487	9,670.60	19.86	131	388:58	0:47:55	1.79	6.0	3.4	Data to end of Sept
TOTAL					6858	121,032.80	17.65	693	24,373:31					

***Note** – Dwell time restrictions currently apply at all sites where parking charges are not levied.*

5.4.6. Public Infrastructure Requests

Installation of public EV charging infrastructure takes significant coordination and planning, as well as financing, procurement, and delivery arrangements. Certain provisions may not be suitable in specific locations or may require costly enhancements to the energy grid. The Council will therefore not be able to deliver this infrastructure 'on demand' in response to individual requests, at least in the short term.

However, the Council's website includes an EV charging point survey for residents, as existing or aspiring EV owners, to suggest charge point locations and is helpful for officers to understand more about where and why our residents cannot access home charging, and where there is current and future demand. Survey responses will therefore be used to help inform the location of charge points and their phasing. It will also enable officers to engage with the EV community in Slough and promote awareness of existing and forthcoming charging infrastructure.

5.5. Forecasting

Forecasting the number of EV charge points needed in Slough is highly complex. Understanding which charging solutions are most suited for people without off-street parking is unclear and may vary by area of the Borough due to the different on-street parking arrangements that exist. Charging options are becoming widespread across a mix of location types, which helps to create charging flexibility and choice. For example, high demand for workplace or destination charging will reduce the level of on-street charging needed.

This Strategy focuses on supporting residents without driveways, for whom a network of conveniently located charge points is essential if they are to adopt electric vehicles. Our approach is to increase access to and provision of residential EV charging (on-street and through charging hubs), as well as deploying across the council estate. With help from the National EV Insights and Support service (NEVIS) modelling tool, we have been able to make some projections regarding the number of EVs we should plan for, and the number of changepoints that will be required to serve them.

5.5.1. NEVIS Vehicle Growth Projections

Using the NEVIS tool, we have produced a projection of the future vehicle parc (total number of vehicles) makeup in Slough, outlining the proportion of EVs within it (see Figure 12). Although this data is to be interpreted with caution, especially considering distortive elements including the presence of vehicle lease companies. For example, about 101,000 cars and 75,000 vans are currently registered to one lease vehicle company in Slough. These cars, while registered in Slough, could be being kept anywhere in the UK. This compares to a total of about 62,000 cars and vans in private ownership by Slough residents. Figure 12 does demonstrate the precipitous rise in EVs currently underway and widely expected to continue by both government and private sector experts.

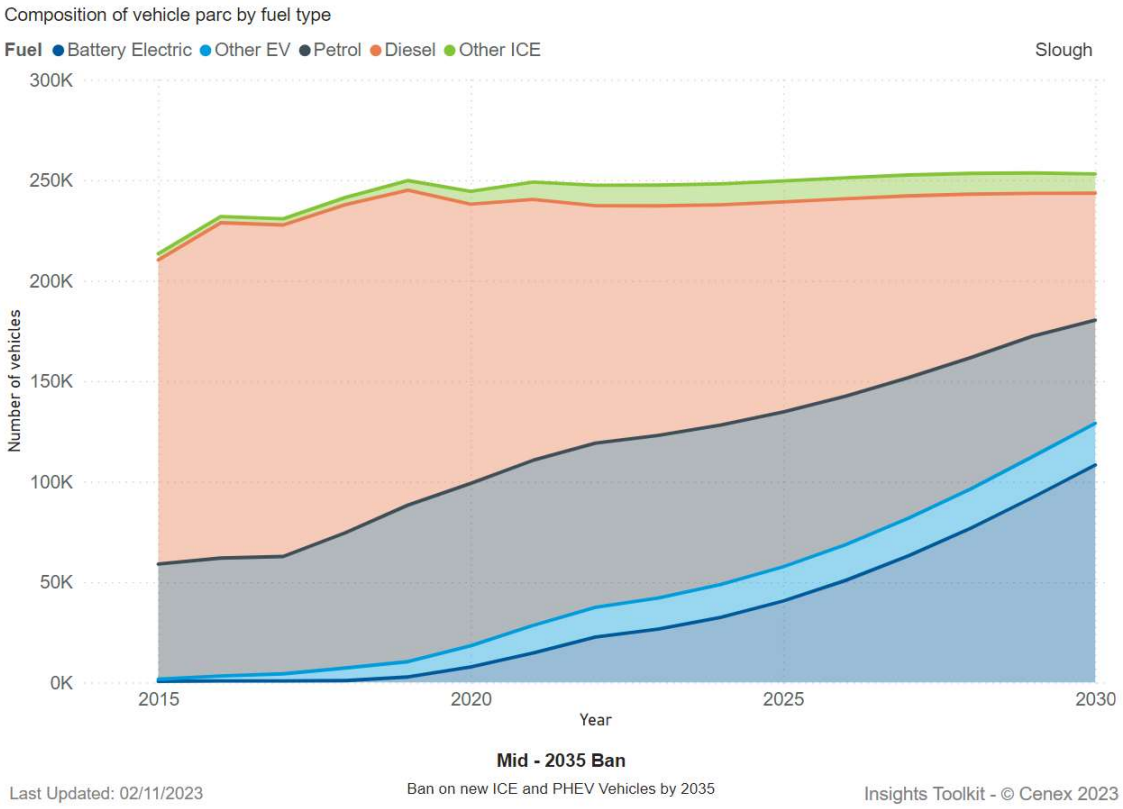

Figure 12: Composition of Vehicle Parc Projection by Fuel Type - Slough -2030 (Cenex, 2023)

5.5.2. NEVIS Required Infrastructure Projections

NEVIS also allows for the projection of EV charging infrastructure provision required to appropriately provide for the projections re the total vehicle parc (see Figure 14 and Figure 15). However, it is important to understand these projections derive from the data in Figure 12, which in Slough's case is heavily distorted by the aforementioned presence of lease companies.

For this reason, although we agree with the general trend demonstrated by these projections, we have also put together our own projections, adjusted to remove the vehicles registered with these lease companies, but using the same basic model as

Figure 14 and Figure 15. The results of this are show in

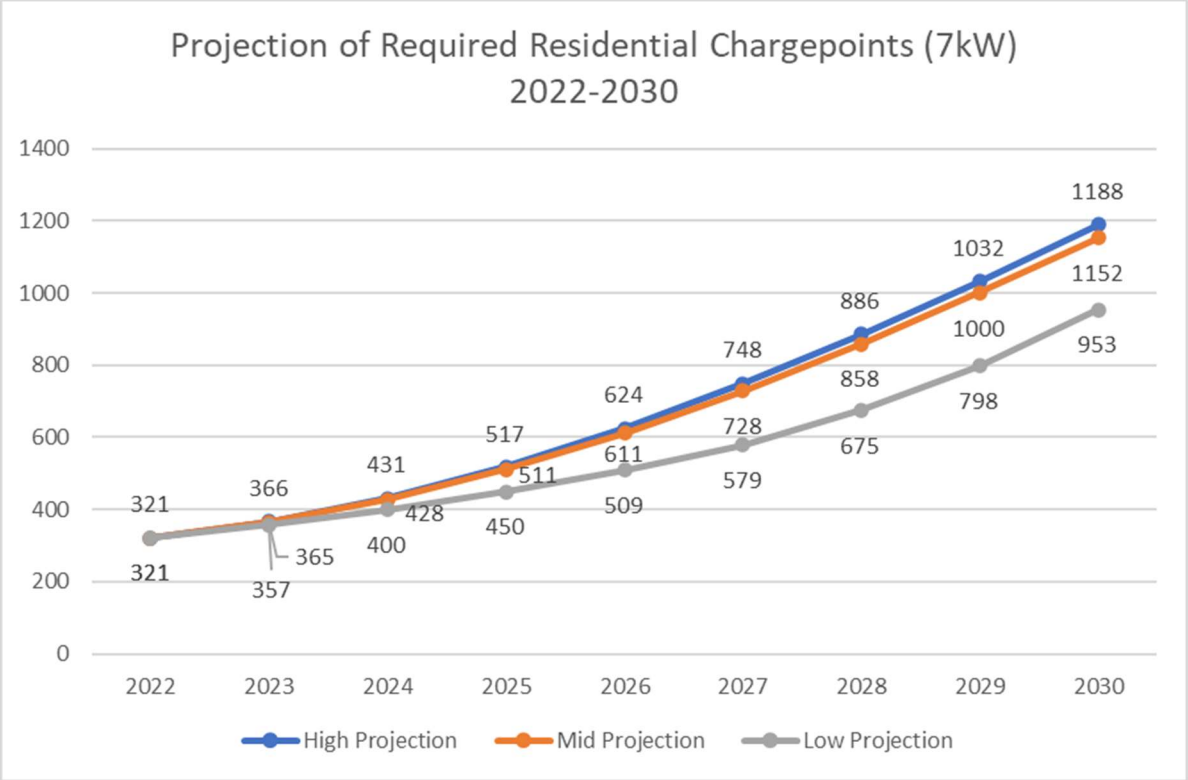

Figure 13, demonstrating much lower numbers of residential charge points up to 2030 (around 1000-1100 depending on the projections scenario), a much reduced figure compared to the 4.5k-6.5k show in Figure 14 and Figure 15.

This projection methodology by NEVIS is based on one charge point per four electric vehicles, a ratio leaning toward a focus on lower powered on-street slow chargers. Alternative approaches using the often-quoted ratio of one dual charge point per ten electric vehicles (associated with fast or rapid chargers) would thus project to around 500 dual socket charging points being required by 2030. In either case, these projections represent a significant uplift (a four-to-ten-fold increase in total charge point numbers) by 2030.

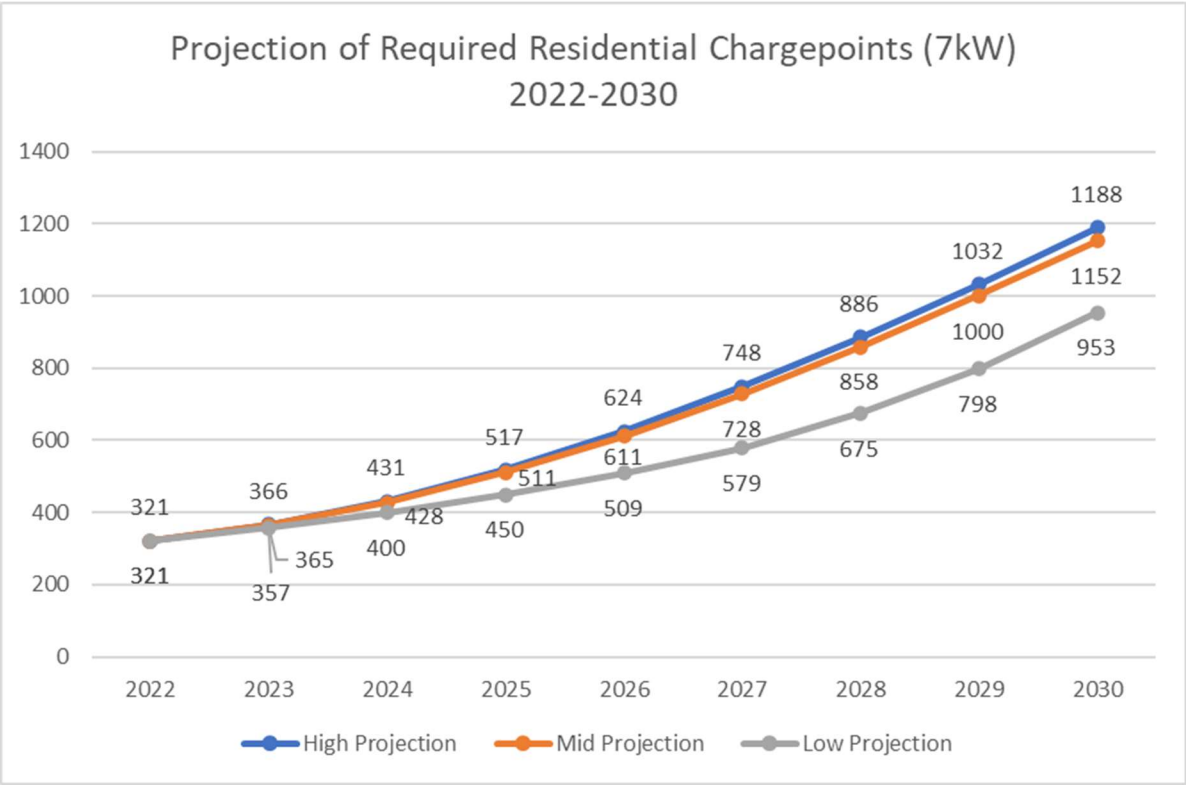

Figure 13: Projection of Required Residential Chargepoints (7kW) 2022-2030

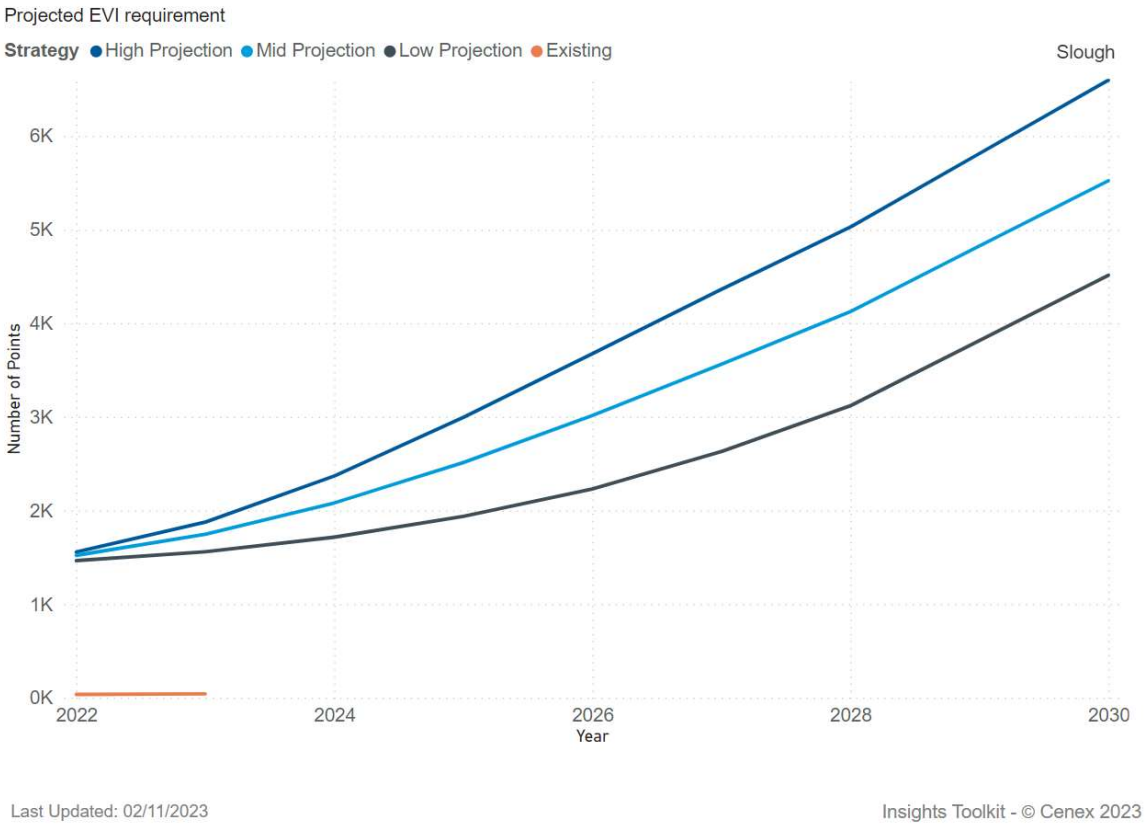

Figure 14: Projected EVI Requirement Slough -2030 (Cenex, 2023)

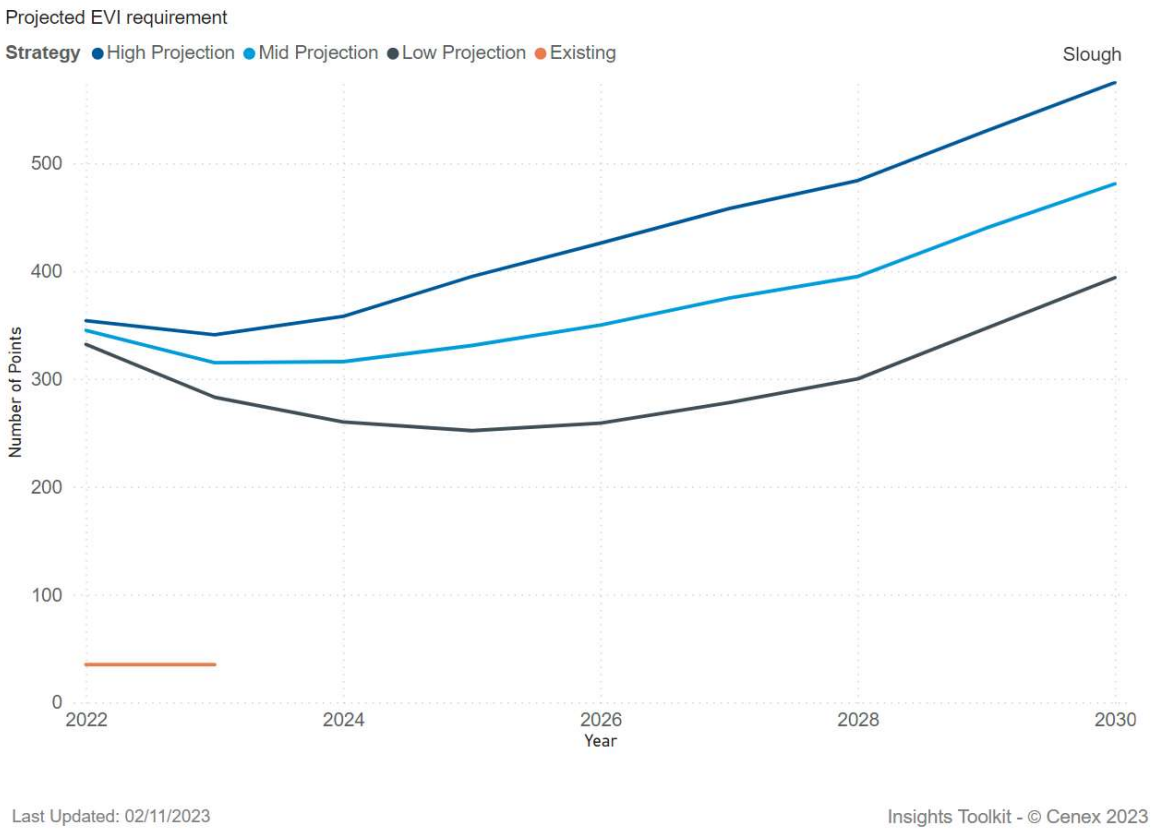

Figure 15: Projected EVI (>= 25kW) Requirement Slough -2030 (Cenex, 2023)

6. Strategic Delivery Plan

6.1. Practical Considerations

6.1.1. DNO and Power Grid

As it stands, Slough's electricity grid is very highly constrained, something which has frustrated a number of development projects in recent years. SSEN (Scottish and Southern Energy Networks) who are the local DNO (Distribution Network Operator), attribute much of the issue to the huge growth in data centres being built in the region over the past decade, which each demand as much power as a typical town or small city (SSEN, 2022). As a result, SSEN say that in some areas their planned spare capacity for the rest of this decade has already been allocated as of 2022.

This is demonstrated in Figure 16 and Figure 17, which both show Slough lies well within the areas of constraint identified by SSEN and National Grid. However, the situation is preferable to other areas within SSEN's jurisdiction (particularly those in West London) which have no spare capacity whatsoever. As demonstrated in Figure 17, the peak capacity utilisation for slough is between 85% and 100%, leaving the best-case capacity headroom at 15%.

Despite these challenges, SSEN's current position is that this will only act as a barrier for larger-scale developments demanding over circa 1MVA, and smaller-scale installations (such as EV charging infrastructure) may still proceed, albeit on a case-by-case basis. Therefore, we do not expect this regional issue to affect our ability to deploy EV charging infrastructure as part of this project.

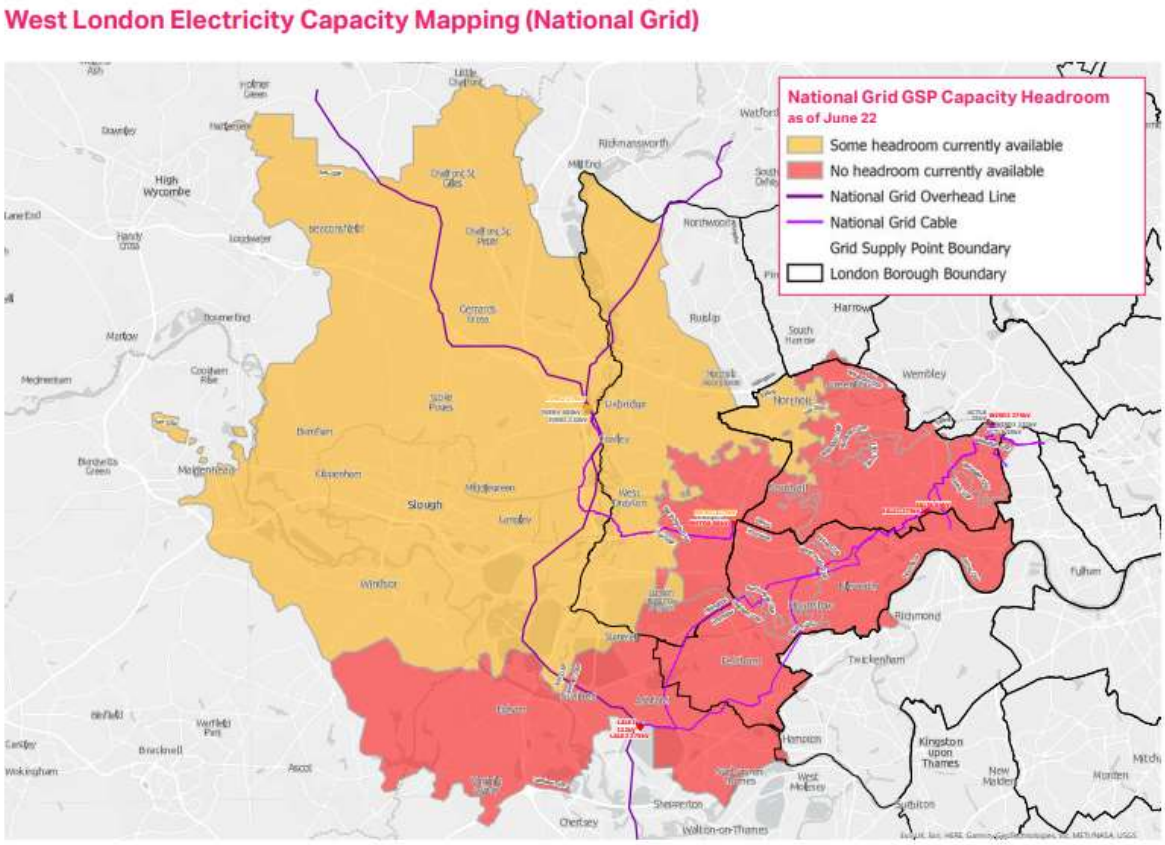

Figure 16: West London Electricity Capacity Mapping - National Grid (SSEN, 2022)

1.1.1. Housing type and tenure

This strategy has a primary focus on provision of EV charging to support residents without access to home charging and the Council is taking action to map where these properties are primarily based on property type. The Council will use a range of data sources to consider need, demand, and phasing of roll-out of public EV charge points to support residents.

Analytics company Field Dynamics has undertaken research, refreshed in 2022, in collaboration with partners Zap-Map and Ordnance Survey, to identify every household in Great Britain without space to park a small EV next to their house to charge. They term these On-Street households. They then calculated how many On-Street households are within 5 minutes' walk (or catchment) of an existing public charger. This data has been published for every local authority area. This indicates that there are 22,205 households in Slough with no access to off-street parking, equating to 41% of all households. Of these, Field Dynamics has calculated that 79%, totalling 17,570 households, are not within the <5-minute walk catchment of an existing public EV charger (see Figure 18).

West London Electricity Capacity Mapping (SSEN)

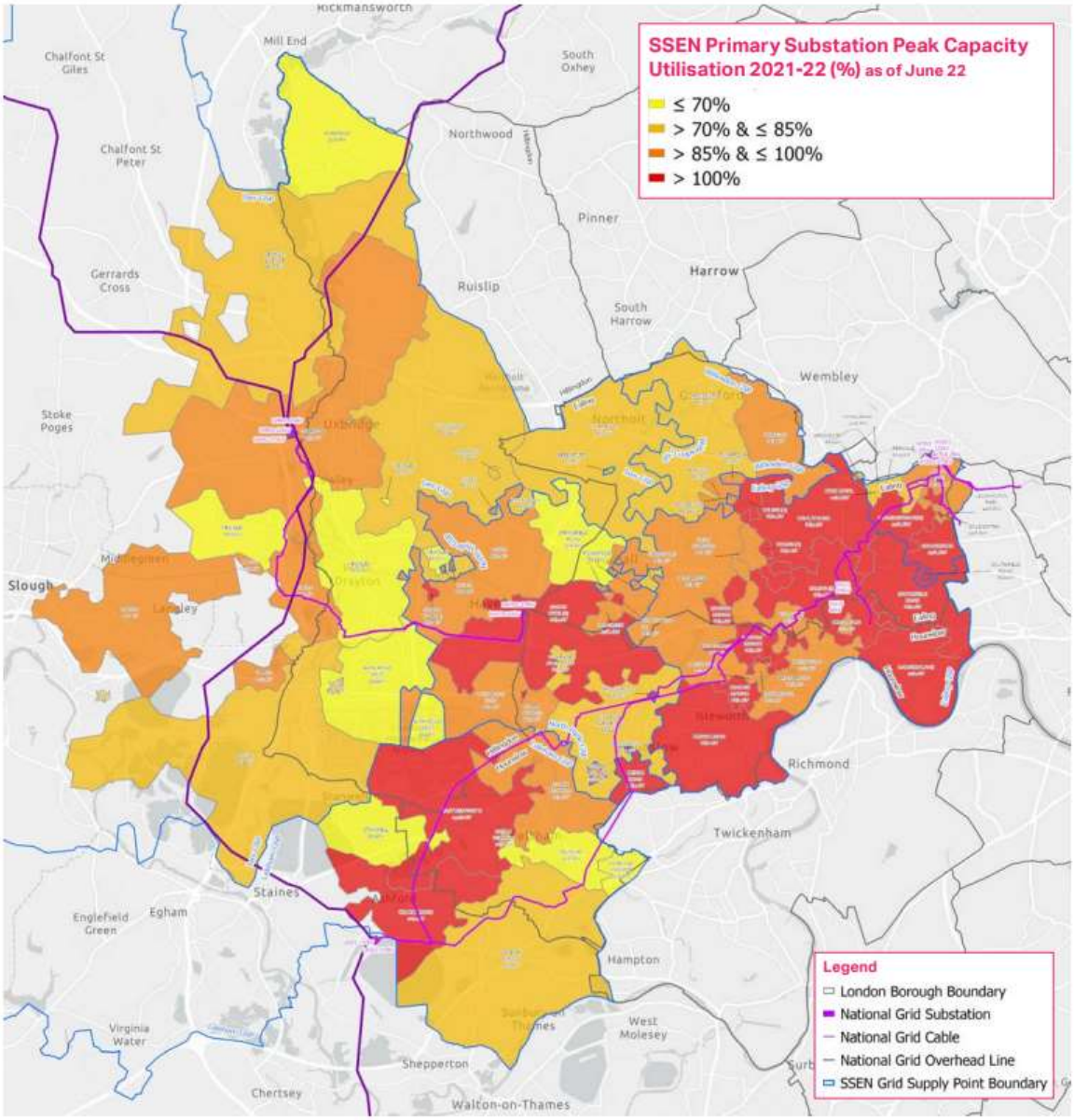

Figure 17: West London Electricity Capacity Mapping - SSEN (SSEN, 2022)

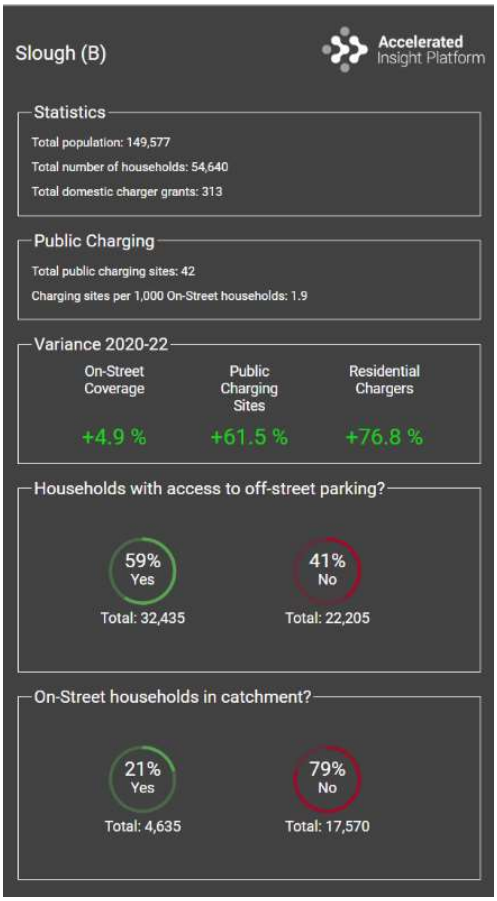

Figure 18: Residential Insight Statistics (Field Dynamics, 2022)

A mapping exercise by Council officers in late 2023 identified in excess of 25,800 properties in the Borough where home charging would likely not be possible, made up of approximately:

- 5,800 dwellings without off-street parking.
- 7,300 dwellings with communal parking or parking remote from the main property.
- >12,700 flats.

This represents 49% of the total households documented in Slough at the 2021 Census. Caution is required as the number of households is not the same as counting the number of properties as multiple households can be present in one dwelling. However, it is clear though that both approaches estimate that there about two-fifths to half of households in Slough are unlikely to be able to access home charging and will be dependent on public or workplace charging in the future.

We are aware that the type of property is not the only barrier to home charging – type of tenure (e.g. leasehold) or tenancy (i.e. rental properties) can also impact on the feasibility of home charging. This is mainly because residents are not able to simply install their own charging infrastructure, and additionally, may have unallocated parking that is not connected to their domestic power supply.

Over half of households in Slough are rental tenancies – 19.6% socially rented and 30.9% privately rented. Figure 19 and Figure 20 show the density of rental properties

per Census Output Area according to the 2021 Census. While grants are available to freeholders and landlords towards costs of installation of charge points for their tenants (see Table 1), this can be practically very difficult to achieve as a rental tenant.

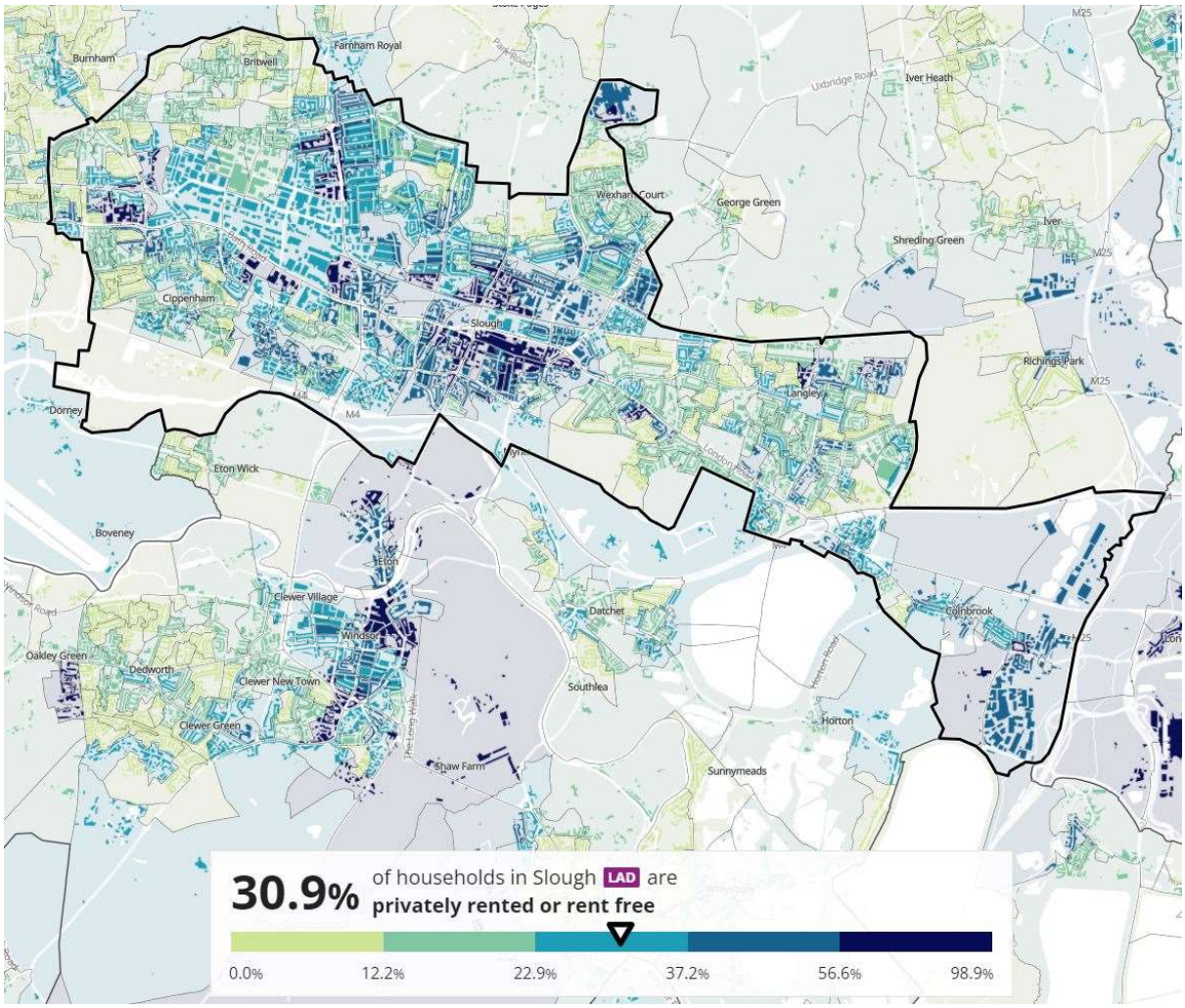

Figure 19: Density of Privately Rented Housing in Slough by Output Area– 2021 Census

1.1.1. Controlled Parking Zones (CPZs) and Traffic Regulation Orders (TROs)

A key area of consideration for the future deployment of EV charging infrastructure in Slough, particularly where it is cited on-street, is that of parking and traffic regulations. These regulations can affect the accessibility and general practicality of an EV charging infrastructure site, and therefore have a strong influence on its commercial viability. Changing these regulations to better accommodate an installation presents additional costs and can also be unpopular with local residents if not communicated effectively.

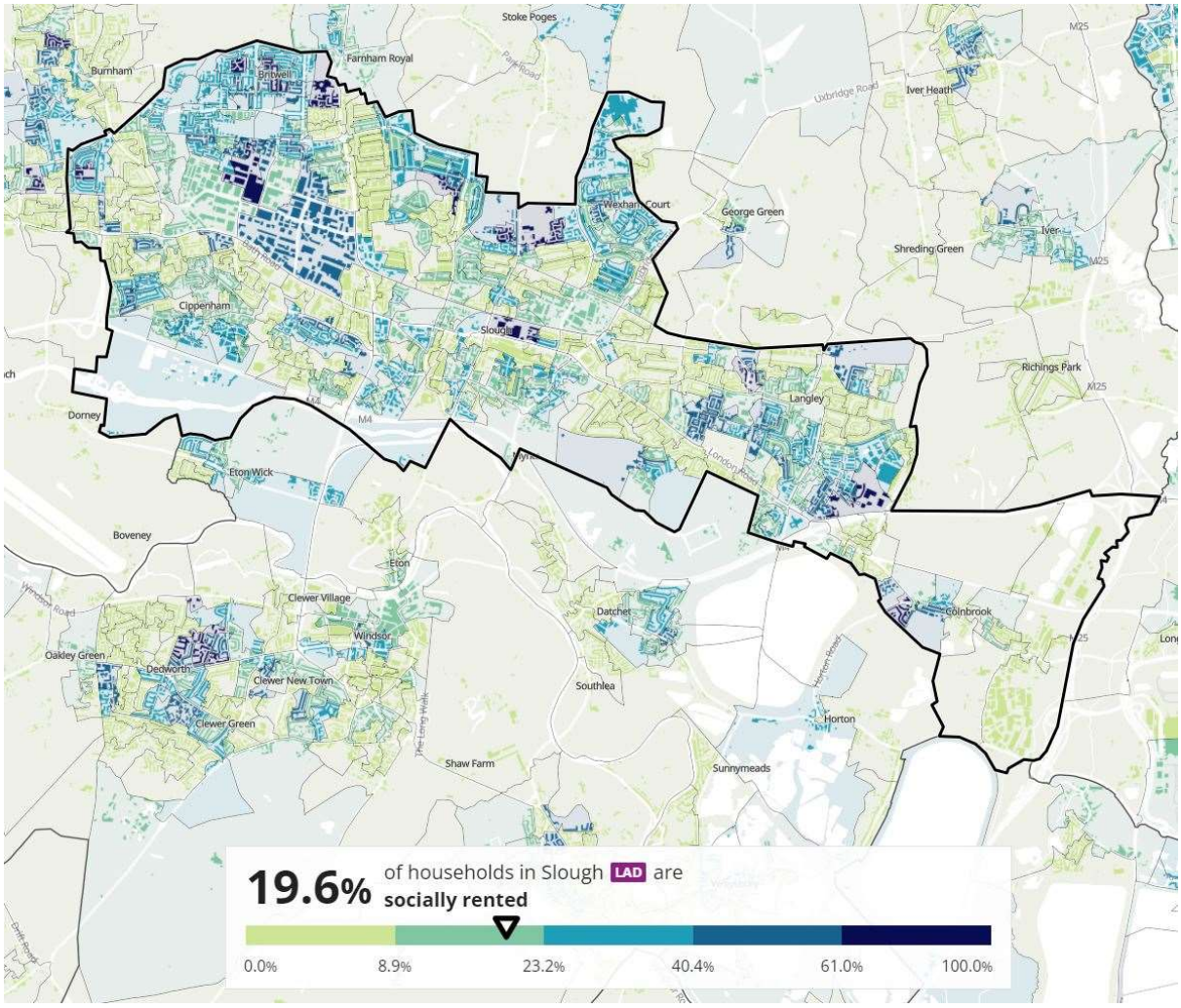

Figure 20: Density of Socially Rented Housing in Slough by Output Area– 2021 Census

Controlled parking zones, by their nature, coincide strongly with areas where housing without off-street parking is prevalent. In Slough there are currently 29 controlled parking zones, many of which cover only a couple of streets and prevent cross-parking by residents of different zones.

Ultimately EVCI will need to be deployed to serve all Controlled Parking Zones, but as EV charging infrastructure is rolled out in phases there will be a need to consider dedicated bays restricted to EV charging through changes to regulations to allow access by wider zone residents. This will be assessed on a site-by-site basis as sites are selected and charging deployed, and any changes will be kept under review.

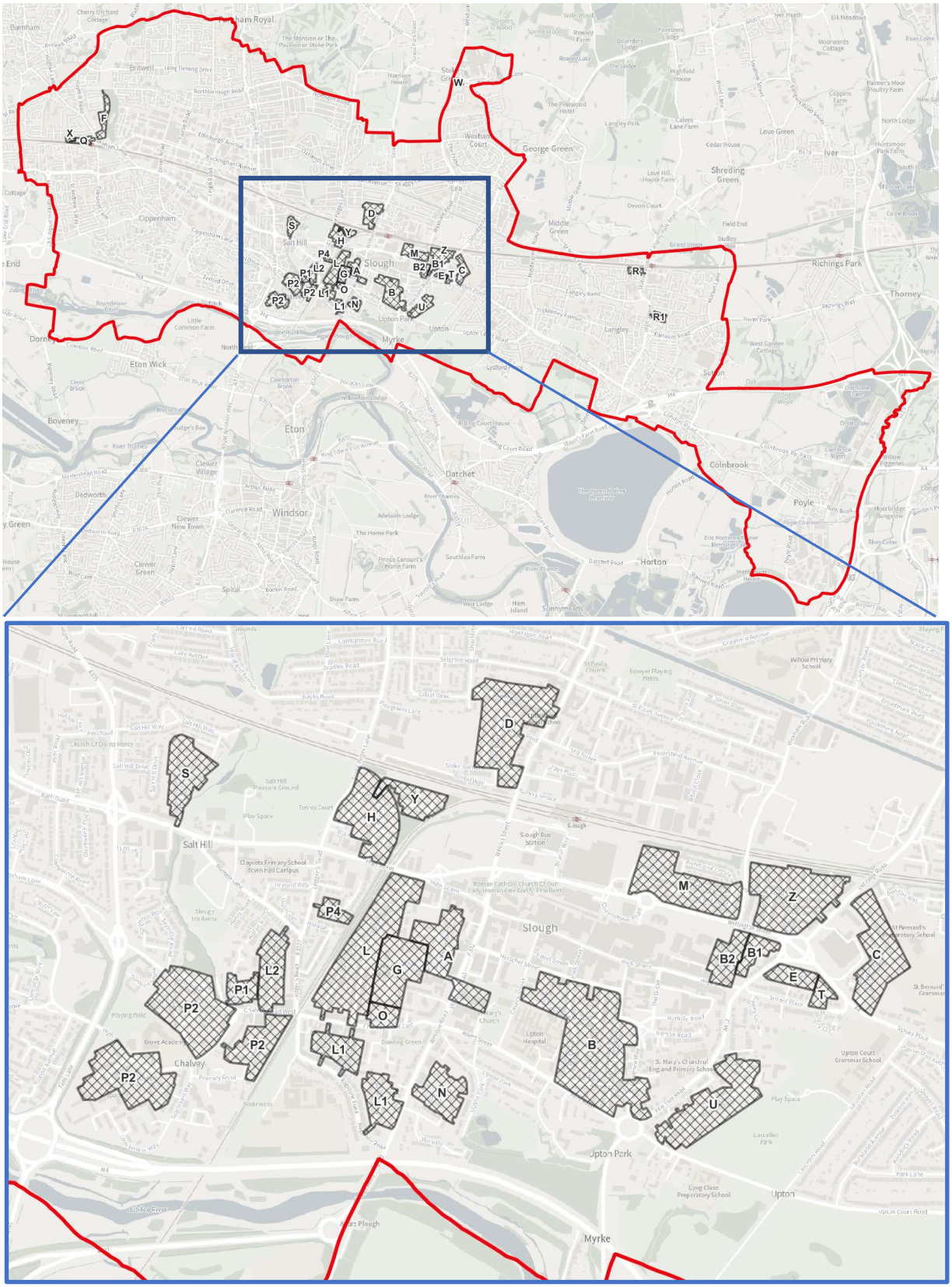

Figure 21: Controlled Parking Zones in Slough (2023)

1.1.2. Car Ownership and Parking Pressure

Slough has a particularly difficult set of circumstances when it comes to providing EV charging infrastructure to those without off-street parking. There are high levels of car ownership, particularly in specific areas of the borough (see areas in blue on Figure 22 below – Cippenham, Baylis, Langley, Upton Lea, and Colnbrook), and Slough also has a greater proportion 3+ car households than the England average, and higher than similar local authorities such as Reading (see Figure 23).

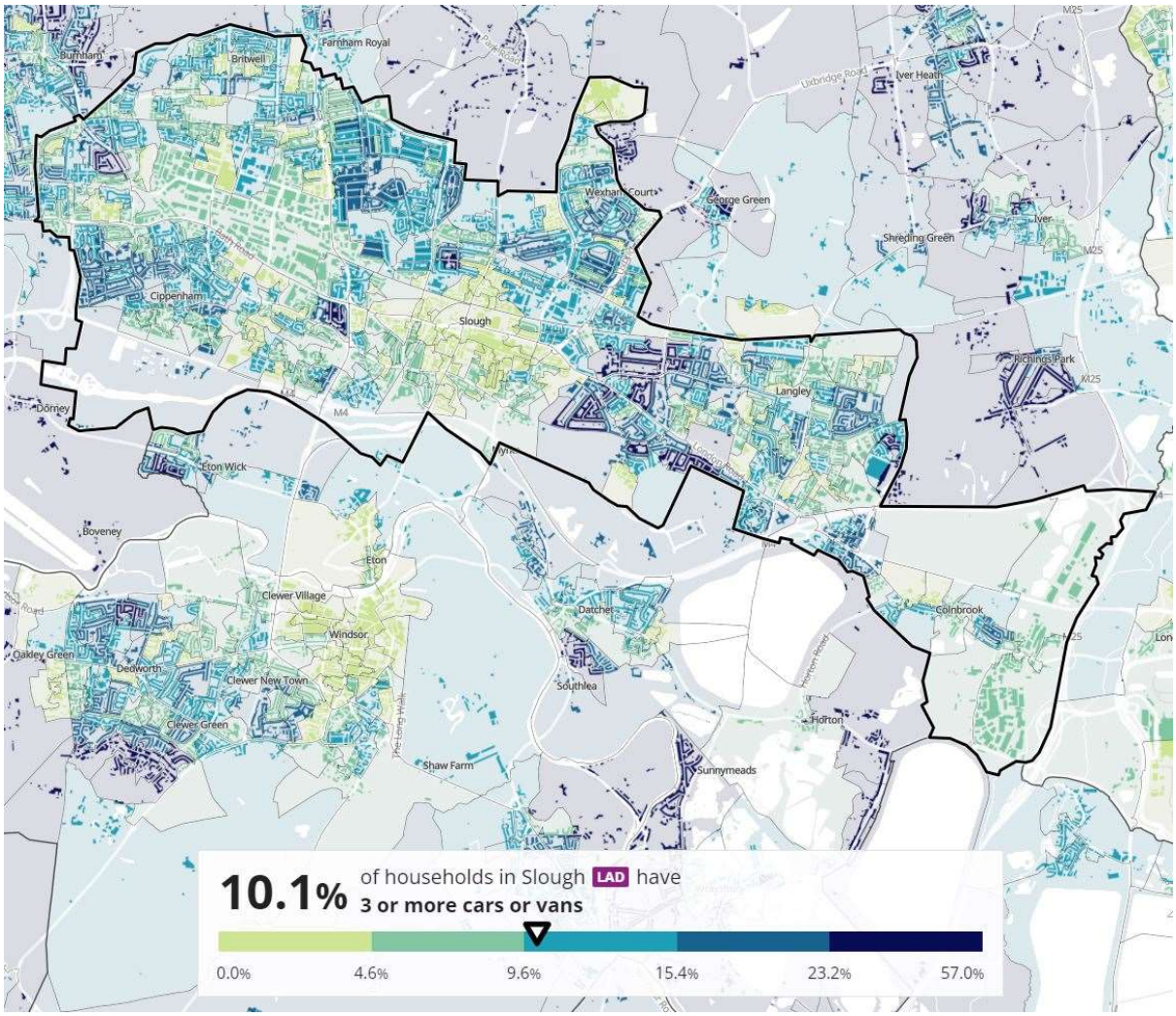

Figure 22: Percentage of Slough households with three or more cars (2021 Census)

Figure 23: Percentage of Households with 3 or more cars (TfSE, 2023b)

Furthermore, the nature of street parking and layout in much of these areas is quite prohibitive to many traditional on-street EV charging infrastructure installations. For example, Figure 24 shows 2 streets in Slough in which vehicles park fully on the pavement. In some areas (left) the parking area is shaded differently to the walkway, in others (right) they block the walkway itself. Both sites in Figure 24 would likely be unsuitable for traditional on-street charging units as they may be vulnerable to damage and/or worsen already extreme parking pressure but may be appropriate for lamppost charging as lampposts are located where cables would not further block the walkway and could be provided at frequent intervals along a street.

Figure 24: Images of residential pavement parking in Slough (on pavement)

Some areas, as show in Figure 25, permit parking half on, and half off the pavement. This is present across numerous areas sometimes permitted with bay markings (Right) or unpermitted and without bay markings (Left). These areas similarly limit traditional on street bollards, and Figure 25 also shows an example of lampposts located at the back of the kerb (now true of most in Slough), which precludes the use of lamppost charging as cables would trail across the already restricted footpath.

Figure 25: Images of residential pavement parking in Slough (half on pavement)

Figure 26 shows another example of where vehicles in Slough are parked half on, half off the pavement, but in these cases perpendicular to the pavement and blocking the footpath entirely. Although there are bay markings in one of these images (left), this is unpermitted. These parking scenarios preclude almost all forms on on-street infrastructure.

Figure 26: Images of residential pavement parking in Slough (perpendicular to pavement)

Overall, this situation indicates that traditional on street charge points are likely to be unsuitable in many of the residential areas we are looking to provide for. Flush charge point solutions or island buildouts may need to be considered. There are though several residential housing areas, typically mid-century terraced estates, where lampposts remain front of kerb and or set within grass verges in front of the footpath. Here utilisation of lamppost charging solutions are likely to be feasible and would enable quicker roll out of on-street residential EV charging infrastructure at a

lower cost than traditional bollard solutions, enabling funding to stretch further and more charge points to be provided.

In areas where both lamppost-based and stand-alone bollard on-street options prove to not be practicable, this strategy looks to utilise council land such as shared residential car parks to install community hubs that would help to provide EV charging infrastructure for residents in that area. An example of such a car park is show in Figure 27.

Figure 27: Image of shared off-street residential car park in Slough

1.1.3. Legacy Infrastructure

The Council has been working with suppliers to install public EV charging infrastructure on a on a non-concessional basis over the past decade. Many have recently reached, or are approaching, the end of their viable lifespan. As part of the upcoming procurement for residential charging infrastructure, the Council will seek to refresh, and where appropriate, extend charging infrastructure at these locations. This will provide a more reliable wider public network for residents.

1.1.4. Our Approach

The neighbourhoods in which the Council most want to deliver improvements to Slough's EV charging infrastructure network, and the primary objective of this strategy, are residential areas with a low proportion of off-street parking. We will approach this through two main ways:

1. **On-street EV Charging Infrastructure**

   The Council plans to work with a charge point operator(s)to identify areas that are suitable for the on-street deployment of lamppost EV charging infrastructure and/or traditional EV charging infrastructure units, seeking to prioritise lamppost-based charging where this is feasible and types of dedicated stand-alone charging infrastructure that meets the needs of the locations where it is being deployed. This could include flush charging solutions (see Figure 28).

Figure 28: UrbanElectric and UrbanFox pop-up charge point (This is Money, 2019; UrbanFox, 2024)

2. Residential EV Charging Infrastructure Hubs

In some neighbourhoods, on-street EV charging may be problematic or not feasible due to factors such as power supply locations or costs, and pavement widths. Creation of mini-charging hubs on Council-owned off-street parking or housing land may present a more workable solution.

The exact distribution and balance of the 2 approaches above will be the outcome of negotiations during the procurement process and throughout the life of the contract.

The Council will also set up an application process for residents to apply for installation of a charging cable gulley across the footway outside of their property. These solutions involve the installation of discrete cable channels via an approved supplier, embedded within the pavement, outside an EV owner's home. This enables EV owners to safely run a cable from a home charge point to charge their car without obstructing the pavement (see Figure 29). This solution is not suitable for all properties, depending on parking restrictions, but can enable access to home charging for some residents. A cable gulley can often be installed such as to enable the cable to reach parking either side of the gulley channel, but there is no guarantee that the resident will be able to always park in that location. As most EV owners only need to charge about once per week this type of solution can facilitate home charging and reduce reliance on the public charging network.

Figure 29: Charging Cable Gulley (Leighton Buzzard Observer, 2022)

When parking your vehicle for charging it is the responsibility of the person charging the vehicle to adhere to any parking restrictions that may apply and to not obstruct the footway or any accesses. It is the responsibility of the person charging the vehicle to avoid putting themselves and others at risk when trailing a cable across a footway or an area people may cross:

- Vehicles should be parked as close to the property as possible.
- Where the vehicle cannot be parked immediately outside the property, the cable should be run along the carriageway channel against the kerb. The recommended maximum distance from a point outside the property should be no more than 2 car lengths.
- The cable should not cross the carriageway. Therefore, your vehicle should always be parked on the same side of the road as your property.
- Whenever you are charging your vehicle, you should always follow the guidance and recommendations in your manufacturer's handbook (this may differ depending on the vehicle).
- Any extension lead that is required should be suitable for external use and have a power breaker. You should read any instructions on the correct use provided with your extension lead.
- Cables should be laid flat and never be extended from an upper storey to a vehicle, nor should they be hung from any street furniture including lamp columns or trees.
- Always use a cable protector if laying your charging cable across a footway or path. Cable protectors should extend the full width of any footway and verge between the property and vehicle
- A cable should only be placed over the footway when the vehicle is charging and should always be removed when not in use.
- Currently an EV charging cable does not require a licence. However, as policies are reviewed and updated this may change in the future.

- Where a location is not suitable the Council has existing powers under Section 162 of the Highways Act to seek to have the cable removed.
- A license is required for all other temporary placement of cabling on or over the Highway

Figure 30: Guidance for laying of EV charging cables across a footway

The characteristics of Slough mean that a mix of charging technologies and approaches is likely to be required. However, we do not anticipate the use of wireless charging solutions within the lifetime of this strategy. Wireless charging solutions involve installing charging pads on, or within the road surface, which can charge compatible vehicles parked above, without the need for any cables or physical connections (see Figure 31). While this removes the need for cables, giving advantages with respect to accessibility and reducing street clutter, there currently remain some significant drawbacks. These units are significantly more expensive than most other technologies. This type of technology is not compatible with nearly all existing EV models, and vehicle manufacturers have indicated this is unlikely to change in the near future. It is possible to retrofit the necessary equipment to an EV, but this is prohibitively expensive and impractical. As wireless charging is still very much an emerging technology, still undergoing R&D, reliability of these solutions is uncertain and deployment/supply delays are likely.

Figure 31: Wireless Charging Pad & EV (Auto Express, 2018)

1.1.5. Business and Public Sector Fleets

EV uptake in the new car market is currently being led by businesses, with companies buying more electric vehicles than the wider personal market across both car and van fleets. Fleet users are diverse, they include car club and rental fleets, people who have a leased vehicle for personal use or for work (including taxi drivers) - or due to a disability - and vans based at home or in depots. All users have different demands of the charging infrastructure. By 2025, the vehicle rental, leasing and fleet industry will be registering 400,000 battery electric cars and vans each year.

- Zero emission vehicles in business leasing fleets grew from 17% in 2022 to 28% in 2023 - driven by new additions in BEV company cars (53%) and salary sacrifice (92%) vehicles.
- In 2022, 19% of new personal leasing vehicles were electric vehicles, ahead of the wider car market (16%).

The charging infrastructure provided by the Council for the public must work for all road users. Fleets need access to the right chargers, in the right place, at the right time, supported by effective payment systems.

The British Vehicle Rental & Leasing Association (BVRLA) represents over 1,000 companies engaged in vehicle rental, leasing and fleet management, and has a membership responsible for a combined fleet of four million cars, vans and trucks – one-in-ten of all vehicles on UK roads. The BVRLA has a high-level Pledge (The Fleet Friendly Charging Infrastructure Pledge – see Figure 33) for local authorities to commit to considering the needs of fleets as part of the development of their local EVI strategy.

As part of the adoption of this EV charging infrastructure Strategy, the Council's Cabinet will be asked to endorse Slough Borough Council signing up to the pledge publicly demonstrating their commitment to support road transport decarbonisation. By supporting fleet transition to EVs, it will also expand the number of affordable EVs in the used market as fleets cycle through vehicles at a more regular rate than other vehicle users.

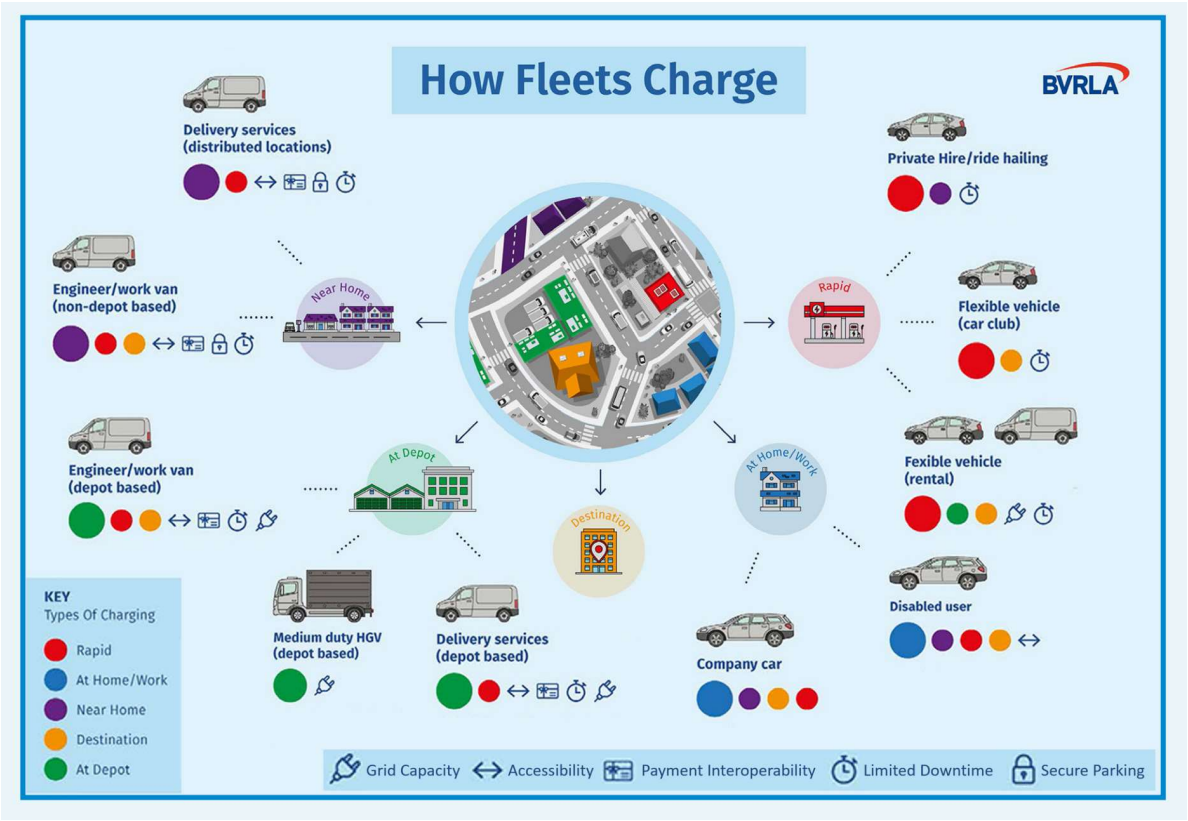

Figure 32: Fleet Charging Diagram (BVRLA, 2023a).

Fleet Friendly Charging Infrastructure Pledge

We will endeavour to:

- **Consider fleet operators and drivers in our charging infrastructure plans and strategies.**
- **Engage with the fleet sector to understand their EV charging requirements.**
- **Provide fleet focused EV charging information and guidance.**

Visit www.bvrla.co.uk/LApledge

Figure 33: Fleet Friendly Charging Infrastructure Pledge (BVRLA, 2023a).

Accompanying the Pledge is a set of practical points that give a steer as to how Councils might collaborate with the sector to create 'fleet friendly' charging infrastructure (BVRLA, 2023b). In order to provide fleet friendly infrastructure, the Council will have regard to guidance from the BVRLA, particularly including:

- Having a single point of contact that the fleet industry can engage with – environmentalquality@slough.gov.uk ;
- Have regard to fleet vehicles when utilising funding through the OZEV Local EV Infrastructure Scheme.

- Engaging with the LEVI support body (EST, Cenex & PA Consulting), sector trade bodies, charge point Operators (CPOs) and other LAs to help gather insight and data into where charge points are best placed and how they can meet all users' needs.
- In procuring EV charge points, consider how charge point operators (CPOs) will facilitate roaming (enabling 'EV fuel cards') and contactless payments, as well as the bookability of charge points and sharing live data on whether it is in use.
- Install signage that clearly shows where charge points are located, whether it is fast or slow, suitable for a van and how long people can stay.

Slough is located on the periphery of Heathrow Airport. Via the BVRLA, rental operators indicate a role for more reliable infrastructure in and around the airport, to facilitate customers re-charging vehicles when they set out from or return to a rental branch. The customers may not be familiar with the UK's charging network or even with charging a BEV, so the infrastructure needs to have easy payment options and signposting.

POLICY EV1	The Council plans to adopt the BVRLA's Fleet Friendly Charging Infrastructure Pledge

1.1.6. Taxis

Under the Low Emissions Strategy, a taxi (hackney and private hire) licensed vehicle emissions policy was adopted in 2018 to phase out internal combustion engine vehicles by 2025. However, the COVID-19 pandemic had a particularly acute impact on the local taxi trade and planned programmes under the Low Emission Strategy to provide additional support to the local taxi trade to make the transition to electric vehicles through vehicle trials, grants and provision of dedicated infrastructure have not yet been initiated.

Consequently, in November 2023, following a consultation, the licensed vehicle age and specification policy was amended. From the 1st January 2026, the Council will cease to license diesel vehicles for new licensed vehicle applications, and from 1st January 2027, the Council will cease to grant new vehicle licences to petrol and mild hybrid vehicles. This will mean that all vehicles (with the exception of wheelchair accessible vehicles or 'WAVs', and specialist vehicles) must be:

- Less than 5 years old at the first time of licensing.
- Either a plug-in hybrid or a battery electric vehicle.
- Capable of travelling a minimum of 30 miles with zero emissions.

Prior to the pandemic, the locally licensed taxi fleet comprised over 450 licensed private hire vehicles and more than 100 licensed hackney vehicles. Three-quarters of the taxi fleet were diesel vehicles, with 20% mild hybrids, less than 4% petrol driven and only 1 battery electric vehicle licensed. As at January 2024, the Slough licensed taxi fleet comprises XX.

In addition to the locally licensed fleet of taxis, Transport for London data, published June 2023, indicates that 2879 of their registered taxi drivers have home addresses

within the three main Slough postcode areas of SL1, SL2 and SL3 (see Table 6). This is one of the most significant clusters of TfL registered taxi drivers outside of central London:

Table 6: TfL registered taxi drivers in Slough postcodes.

Postcode area	Taxi (Hackney)	PHV	Total by postcode area
SL1	20	1297	1317
SL2	11	936	947
SL3	19	596	615
Total by type	50	2829	2879

As of January 2023, all PHVs licensed for the first time by TfL must be zero emission capable (i.e. plug-in hybrid or battery EVs) and meet the Euro 6 emissions standard. Previous standards required vehicles registered for the first time over 18 months old to be zero-emission capable and meant that by the Dec of 2023, 25% of the TfL PHV fleet was already zero emission capable. Since 1 January 2018 taxis presented to TfL for licensing for the first time have needed to be zero emission capable (and a maximum 15-year age limit remains in place), phasing out diesel taxis. Therefore, a high proportion of the TfL registered taxi drivers will already have plug-in or battery electric vehicles or will be required to transition out of older vehicles soon into zero emission capable vehicles – as of Dec 2023, over 50% of London taxis are ZEC. These TfL registered drivers add nearly 3,000 potential EVs to the area that may be wholly or at least partly dependent on the public charging network.

The Council, under the Low Emission Strategy programme, was successful in applications to obtain grant funding from the Office for Zero Emission Vehicles and the Department for Environment, Food and Rural Affairs (defra) for provision of taxi priority charging infrastructure and an assistance programme to help the taxi trade made the transition to electric vehicles. In combination with the LEVI Capability Fund to provide officer resource and the LEVI Capital Fund, it is intended to now bring these programmes forward under this strategy.

POLICY EV2	The council will support taxi drivers to switch to EVs by providing adequate local charging infrastructure that meets their needs.

1.1.7. Disabled EV Drivers

1 in 5 people in the UK report a disability. Research commissioned by Motability estimated that there are 2.7 million UK drivers or passengers with a disability by 2035, and further that 50% (1.35 million) of all drivers or passengers with a disability will be partially or wholly reliant on public charging when transitioned to electric vehicles, accessibility standards also need to be a key consideration for the Council in procuring EV charge points.

For valid Blue Badge holders, who are a car driver or lives with the driver, and who have no off-street parking, such as a garage or driveway, can apply to the Council to have a disabled parking bay on-street outside their home. These bays are not reserved for the applicant and are in fact open to anybody with a valid Blue Badge. In Slough, there are currently XX such disabled bays on-street in the Borough. Users of these bays may not be able to access on-street charging provided elsewhere in their area. The Council will need to consider whether a scheme can be introduced to bring on-street charging to these bays.

Residents in receipt of a qualifying mobility allowance can exchange their allowance, via the Motability Scheme (www.motability.co.uk) for a brand-new car, Wheelchair Accessible Vehicle, scooter or powered wheelchair. The scheme promotes the transition to electric vehicles and provides guides to help scheme users find the right vehicle for their needs. Under the Motability Scheme the cost of a home charge point and a standard installation is covered by the scheme, which would not include those reliant on on-street parking. The scheme does though give users without a home charger a subscription to the bp pulse network of public chargers with discounted charging. The Council will continue to engage with the charge point industry on accessible charging.

Figure 34 below shows the density of Motability customers by Lower Super Output Area (LSOA) across Slough. Although reasonably consistent, this gives some indication of the areas where more focus might be needed on this issue, and where local EV charging infrastructure installations might need greater requirements for the supplier to provide accessible facilities.

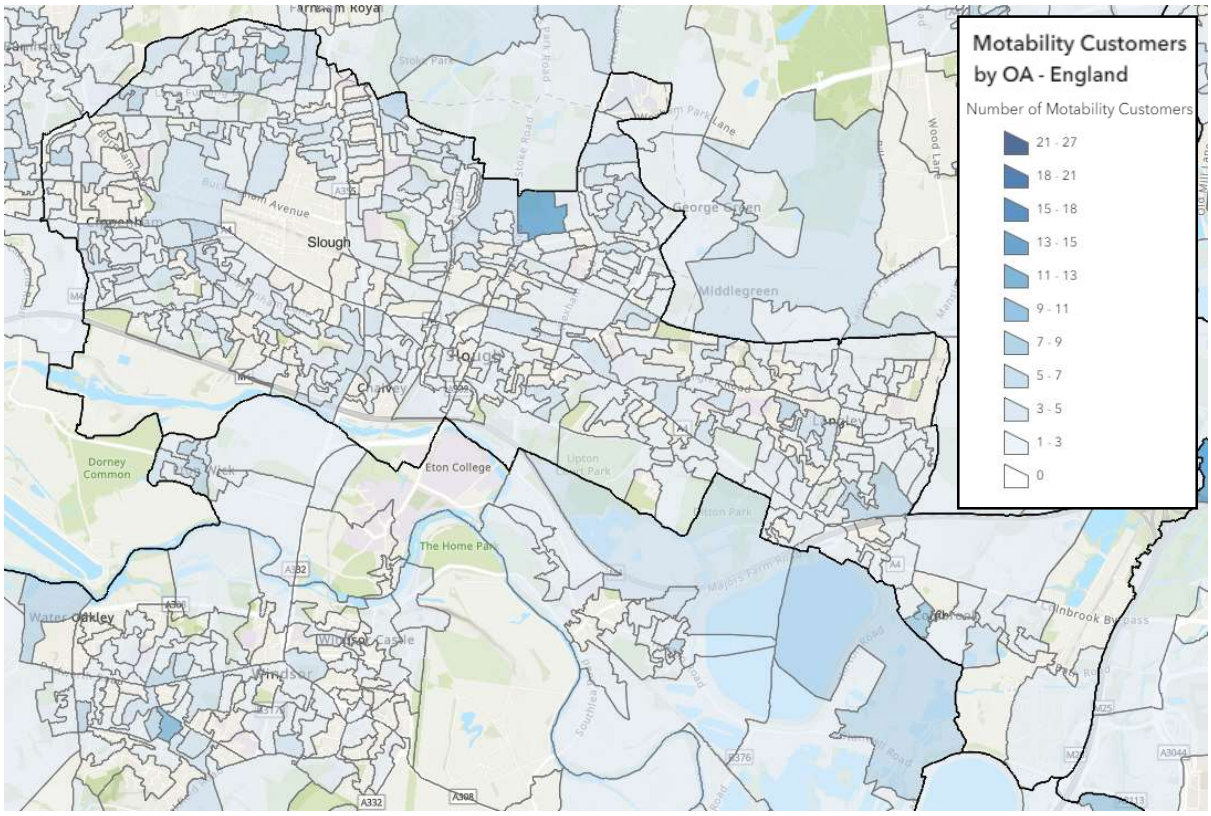

Figure 34: Slough Motability Customers by OA (NEVIS, 2023)

OZEV, the British Standards Institute and Motability jointly published accessibility standards in 2022 (PAS 1899). In procuring electric vehicle charge points the Council will specify that PAS Standards are to be applied wherever possible. Where rolling out EV charging in Council car parks the Council will also need to consider providing charging to existing yellow disabled bays in addition to the accessibility of all charge points.

Improved accessibility of charge points will improve public charge point user experience for all, and needs to consider issues such as:

- Chargepoint – height, space around the charge point, bollards, confusing interfaces, heavy cables
- Built environment – lack of signage, high kerbs, placement of charge point relative to kerb/ bay, lighting

The Council will also seek to promote to residents where they can access information about the safety and accessibility of charge points, and encourage our local EV community to review and rate charge points using Apps and websites such as Charge Safe (EV ChargeSafe), ZapMap, and Electroverse.

POLICY EV3	The Council commits to designing and specifying all new EV charging infrastructure installed via the LEVI funding to high accessibility standards and will explore the provision of EV charging infrastructure in disabled-allocated bays.

1.1.8. Car Club

Under the Low Emission Strategy, the Council has been requesting developer contributions for provision of suitable car club bays and developer contributions to establish a borough-wide car club

> *"To implement and operate in partnership a dedicated town centre wide electric/ULEV car club for all residents to use, and to expand the car club to transport hubs (Burnham and Langley)." – Slough Borough Council (2018).*

The council is therefore ready to test the demand for an e-car club in the town and will use the DfT's recently published 'Car Clubs: local authority toolkit' to introduce a pilot scheme. This strategy does not formulate any additional policy position regarding car clubs, however, we will endeavour to include accessibility requirements for all installations, and explore joint procurement for infrastructure for car club sites at a later date.

POLICY EV4	As outline in the Council's Low Emission Strategy, we will *"implement and operate in partnership a dedicated town centre wide electric/ULEV car club for all residents to use, and to expand the car club to transport hubs (Burnham and Langley)."*

1.1.9. On-route charging

On-route charging describes a type of EV charging made by people on longer journeys, usually along motorways or major A-roads. As this type of charging is

necessary as part of a longer journey, there is a requirement for on-route charging to be rapid or ultra-rapid. These speeds can charge a car from 0-80% charge in less than 45 minutes.

The on-route sector is the focus of government's future interventions; funding the rollout of at least 6,000 high powered charge points across England's motorways and major A-roads by 2035. [37]

Despite the positive data shown in Figure 8 and Figure 10, and the location of Slough at the confluence of the M4 motorway and the M25 motorway, there is currently a lack of on-route charging infrastructure along the major strategic road network in Slough.

- The nearest motorway service station to the west is Reading (which GridServe are currently upgrading);
- M4 Eastbound into London - Heston Services, 7 mi from M4 Jn5 - Has 3 rapids on the Eastbound side and three on the Westbound side (though only one on each side has a CHAdeMO port);
- M25 Northbound (Clockwise) – South Mims, 30 mi from M4 Jn5 – Has 2 rapids and a Tesla only Supercharger site (12 chargers); and
- M25 southbound (Anti-Clockwise) – Cobham Services, 20 mi from M4 Jn5 – Has 3 rapids and 6x 350kW superchargers.

The Borough has three junctions of the M4 (J5, J6, and J7) and two junctions of the M25 (J14 & 15) within or bordering its area, and is therefore ideally located for this type of charging infrastructure if suitable sites/ land is available.

For this area of the market, the Council aims to be supportive of a commercially led approach, increasing consumer choice and facilitating on-route charging close to the Strategic Road Network without adding to congestion issues in the town. The Council will also work with other Berkshire and neighbouring authorities to coordinate planning for on-route charging where possible. Through the Council's emerging Asset Strategy, there may also be commercial opportunities on Council owned land and property assets to host private sector rapid or ultra-rapid charging hubs.

POLICY EV5	The Council will look to work with CPOs, as well as fellow Thames Valley LEP authorities, to assess the region's on-route needs, and support the identification and development of suitable sites as low emission hubs.

1.1.10. Destination Charging

It is widely expected that the number of charge points delivered by private developers, without any intervention from the public sector, is to rise rapidly – particularly in the commercial destination charging space. This could mean upgrading, increasing or retrofitting charge points at existing sites and/or deploying new chargers, in new places.

As a result of this market insight, the expansion of destination charging in commercial locations (e.g. gyms, retail parks, hotels, supermarkets) will not be a

focus of the Council's interventions as outlined in this strategy. We also anticipate that in the future public EV charging will be available at all petrol stations, drive-thrus, pubs and restaurants via commercial agreements ancillary to the main business. Destination charging does have a role in enabling visitors and residents to top-up, but nevertheless, the Council expects this sector of the market to develop significantly without the need for public sector support. The Council itself will continue to host destination charging at its public facilities, car parks and offices where appropriate as part of its wider public EV charging network.

The Council recognises that key strategic partners, such as Heathrow Airport, Slough Estates Group (SEGRO) and NHS Frimley Health Foundation Trust have a significant opportunity to roll-out charge points at scale for its staff, leaseholders and visitors. The Council is committed to working with these partners to support them bring forward solutions across the wider land estates.

POLICY EV6	Although we consider this area to be primarily private sector led, the Council will reach out to both local commercial landowners, as well as CPOs, to understand where new commercial EV charging infrastructure is coming and support installation of reliable, accessible and affordable charging infrastructure.

1.1.11. Charger Sharing

Peer-to-peer charging creates another charging option for EV owners without access to home charging in addition to destination charging, public chargers and workplace charging.

Charge point sharing is like an Airbnb but for a home electric car charger. Instead of renting out your house or spare room, hosts rent out their electric car charging point on occasions when it's not needed to charge their own electric vehicle. The host gets paid for the energy used and the chargee (the person paying to use the charger) pays a lower price for a charge session at a convenient location that will save them money compared to using public charging networks.

VAT on domestic electricity is set at 5% whereas the rate is set at 20% for public charging networks, so even with a small margin for the host, the chargee can access a price per kWh more favourable than commercial public charge points.

This charging model is not limited to private households, as businesses can also sign up to help pay for workplace charge point installation and or as an ancillary business activity.

There are a number of peer-to-peer charging facilitators and apps, including:

- Co-Charger - Co Charger - Co Charger: Neighbourhood EV charger sharing made easy (co-charger.com)
- Place2Park - Rent out your electric vehicle charger| Place2Park
- Bookmycharge - Bookmycharge | Home
- Octopus Energy Community Charging - Community Charging | Octopus Electric Vehicles (octopusev.com)

The Council does not propose to endorse any particular peer to peer charging service but will promote the existence of this type of charging network amongst residents, and recognises that wider access to private home chargers has the potential to dramatically increase the total number of charge points available for public use.

For example, as at December 2023 there were 6 hosts in Slough registered on the Co-Charger app renting out their home charge point and 26 EV car owners registered as users on the Co-Charger network:

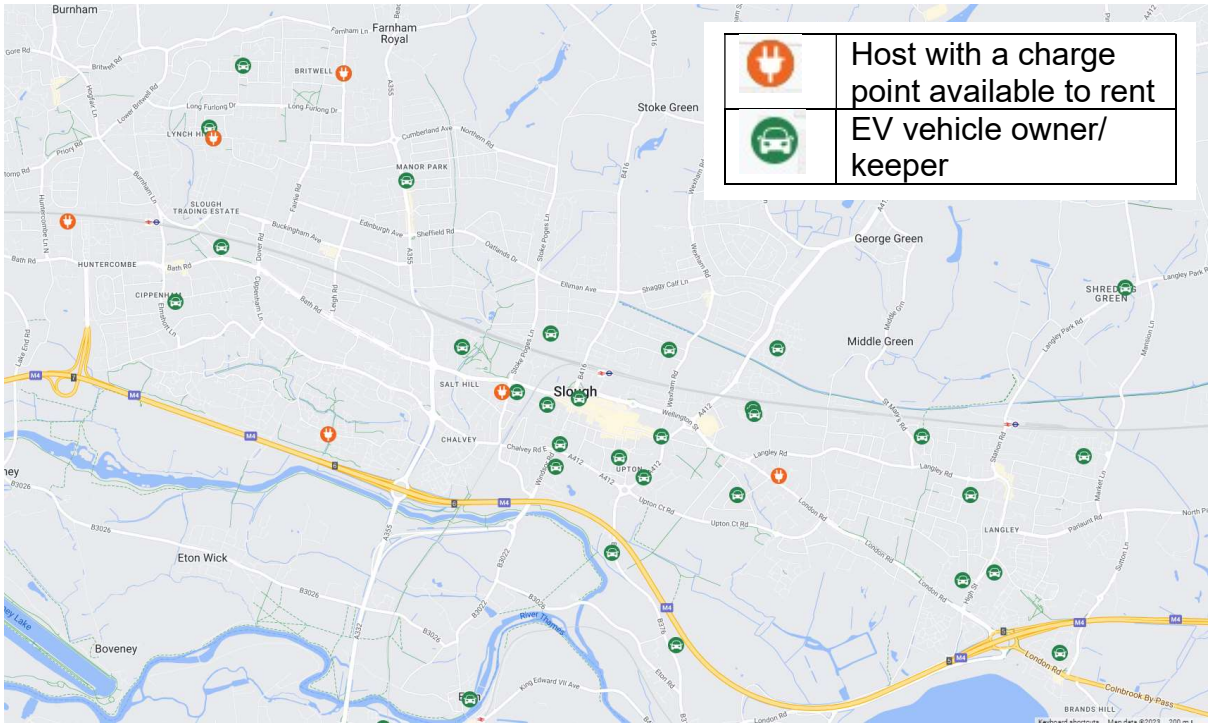

Figure 35: Co Charger Sites in Slough Source: Map - Co Charger (co-charger.com) [Accessed 1/12/23]

POLICY EV7	The Council will work to encourage and promote charger sharing schemes, including as part of our public consultation process, especially in communities with lower levels of off-street parking.

1.1.12. New Developments Policy

As part of Slough's 2018-2025 Low Emission Strategy, planning policy was adopted by the Council regarding minimum EV charge point provision for all new developments that included any parking provision. The details of these requirements are outlined in Figure 36 below.

In reflection of the increasing market share of electric vehicles, the current standards will be updated in the forthcoming Low Emission Strategy review. It is anticipated there will be a number of incremental step-ups in the standards over the next 5-10 years.

Plug-in Vehicle Re-Charging:

Residential:
1 charging point per unit (dwelling with dedicated parking) or 1 charging point per 10 spaces (unallocated parking) and ensure appropriate cabling is provided to enable increase in future provision. The residential EV charging points must have a 'Type 2' socket and be rated to at least 3.6kW 16amp 0 7kW 30amp single phase

Commercial/Retail:
At least 10% EV charging provision for all car parking spaces. The commercial/retail EV charging points must have at least a 'Type 2' sockets, and be Mode 3 enabled EV charging units and be rated at least 7.4Kw 32 amp to 22Kw 32 amp (single or 3 phase). The number of EV charging points required at the opening of the development must meet at least 50% EV charging provision, with the remainder of the EV chargers being installed at an agreed date. At least 1 charging unit should be provided for every 10 disabled parking spaces. On retail sites where 50 parking spaces or more are provided as part of the development then one rapid charging unit (43kW/50kW) per 50 spaces shall also be considered and parking time limited to a maximum of 1 hour to allow for public access car parks.

Industrial:
At least 10% of parking spaces which may be phased with at least 50% initial provision and the remainder at an agreed date. At least 1 charging unit should be provided for every 10 disabled parking spaces. The EV charging points must have 'Type 2' sockets, be Mode 3 enabled EV charging units and be rated at least 7.4Kw 32 amp to 22Kw 32 amp (single or 3 phase).

Electric Vehicle Charging Standards will be kept under continuous review and amended as required to comply with the relevant British Standards, ISO standards, IET Codes of Practice and The Alternative Fuels Infrastructure Regulations 2017 (and subsequent amendments).

Figure 36: SBC New Developments EV charging infrastructure Requirements (SBC, 2018)

1.2. Commercial Considerations

1.2.1. Ownership and Operation Models

There are a number of commercial models that have been employed by local authorities across the UK for procuring EV charging infrastructure networks. Table 7 below outlines the key ones which were considered by the Council, when developing this strategy.

Table 7: Positives and Negatives of Key EV Charging Infrastructure Procurement Models

Procurement Model	Positives	Negatives
Own and operate	✓ The Council retains all revenue. ✓ The Council can decide where EV charging infrastructure is located, irrespective of commercial viability (ensuring equity of access). ✓ A simpler and quicker procurement process.	- Grant funding may specifically exclude this model. - The Council is responsible for all operation and maintenance costs. - The Council would be directly competing with the private sector, in an increasingly tough and evolving sector. - Financial and political risk of using taxpayer's money.

		- KPIs will be harder to define and enforce, as operators have little or no stake in the network's success.
Concession agreement	✓ The Council retains some revenue. ✓ The Council can influence EV charging infrastructure locations, helping serve areas of limited commercial viability that CPOs might normally avoid (ensuring equity of access). ✓ KPIs and contract renewal terms mean concessionaires can be held to account on performance. ✓ Concessionaires are incentivised to maintain and upgrade hardware as they retain most of the network's revenue. ✓ The concessionaire takes most of the operational and financial risk away from the Council. ✓ Grant funding can be used to form the Council's match contribution to the concession.	- The Council revenue is lower than full ownership. - Negotiations will be required with the concessionaire to balance commercial viability with equitable provision. - Not all providers will be interested in such models.
Externally funded	✓ No capital outlay from the Council. ✓ Extremely low political and financial risk to the Council. ✓ Provider would likely retain all revenues, creating incentive to maintain and upgrade network.	- The Council are unlikely to retain any revenue. - The Council would struggle to influence EV charging infrastructure locations and provision may be restricted to only the most commercially viable areas - The Council would likely have no influence over the tariff charged to users.

1.2.2. Preferred Approach

In light of the various positives and negatives of each option (outlined in Table 7), due to the terms of the current grant funding available as well as the Council's own financial position, we are proposing to procure Slough's EV charging infrastructure network expansion using the 'concession agreement' model. We believe this option, when combined with central government grant funding we have been allocated as part of the LEVI scheme, will enable a good balance between the Council's ability to

influence the shape and spread of the network, whilst minimising organisational and financial risk, and retaining some revenues with which we can resource contract management of the network to ensure a reliable, accessible and affordable network.

1.2.3. Contract Performance

EV charging infrastructure concession agreements only deliver their full benefits when both sides understand their relevant obligations, deliver on their promises, and if required, are held to account. Therefore, as part of the concession agreement, we will include a number of clauses and requirements to ensure that the provider is meeting its service obligations and delivering the EV charging infrastructure network in accordance with set standards. These contract performance measures include:

KPIs – Key Performance Indicators (KPIs) will be defined and monitored throughout the contract, covering various metrics such as unit uptime, charging sessions/time between unit failure (to track reliability), maintenance response times etc. Full details/chosen indicators will be confirmed at time of procurement.

Minimum Service Requirements – A clear definition of the Council's expectations when it comes to EV charging infrastructure network delivery will be set out, covering working practices, materials and workmanship, installation and civils, infrastructure performance, and lifecycle planning.

Maintenance and Response – Both maintenance plan and reactive maintenance requirements will be specified during procurement and will subsequently be tracked during the contract.

Break Clauses – In addition to the X+X tenure structure of the concession, break clauses will be included in the contract to allow the Council to break the contract and find a replacement provider in the event of serious breach of contract. This will only be employed as a last resort, in cases where delivery standards are consistently not being met and direct mediation with the provider has failed.

Technical Specifications – Based on the Council's understanding of public need in the borough, we will set a minimum specification as part of the procurement to ensure residents receive suitable infrastructure. Bidders will be welcome to go above and beyond these specifications and may receive higher scores for doing so (should it provide genuine added value to users).

Customer Support – The concessionaire will be required to provide 24/7 customer support to users of the EV charging infrastructure network, and this will be tracked during the contract.

Promotion and Marketing – The concessionaire will commit to making a reasonable contribution to the Council's campaigns, such as coordinating on social media posts and attending a small number of launch events and/or community events.

1.3. Delivering the Strategy

1.3.1. Timeline

	Milestone
Spring 2024	Submission of LEVI Funding Bid
Summer 2024	Development, publication, assessment, and award of competitive tender over approx. 12-week period.
Autumn 2024	Kick-off meetings between the Council and the supplier
Autumn 2024 - Spring 2025	Deployment planning and public consultation
Spring 2025	First EV charging infrastructure being installed in Slough as part of LEVI scheme
2030	Achievement of the Council's aim to put 80% of all residents <5mins from EV charging infrastructure