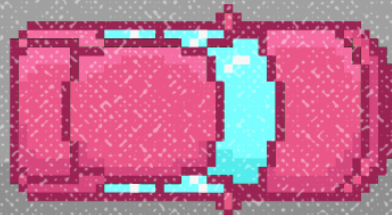
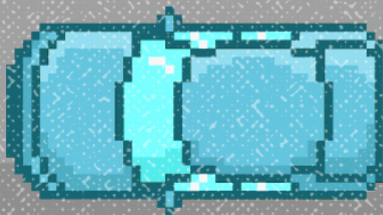
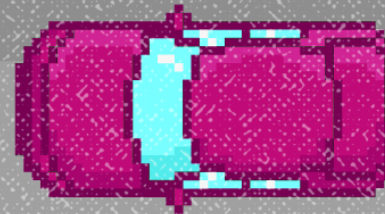
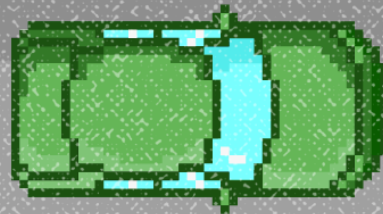


Streetspace Invaders

Mitigating the growing risk that EV charging poses to scarce pedestrian space



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All views expressed in this report remain solely those of the author.

Addenda

This report was amended in August 2023 following additional information provided by Camden, Hackney and Hammersmith & Fulham councils which corrected information originally provided by FOI response. Copy has been updated but graphs and maps have not been altered, so there may be some discrepancies for these.

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i. Executive Summary

- Government targets to support public electric vehicle (EV) charging for motorists without access to off-street parking are essential to meet UK net zero goals.
- Between 300,000 and 600,000 new public EV chargepoints will need to be installed between now and 2030 to meet targets, around one third of which are likely to be on-street rather than at destinations or en-route sites like service stations.
- Deployment of public EV chargepoints (EVCs) is not keeping pace with the rate of consumer switching to EVs, generating increasing pressure on local authorities to accelerate installation rates.
- Government targets to increase the share of urban trips that are made by walking or wheeling rather than private motorised transport are also essential to meet UK climate goals.
- Reducing pavement clutter by removing street furniture, and the widespread reallocation of street space from cars to pedestrians are central to achieving walking and wheeling targets.
- All best practice guidance states that on-street EV charging stations should be placed on 'kerb buildouts' in the carriageway wherever practicable - an arrangement that takes space from parking bays rather than pavements.
- Where EVCs are sited on pavements, at least two metres of clear footway width should be retained, with an absolute minimum of 1.5m needed to allow a pedestrian and a wheelchair user to pass.
- London currently has nearly one third of the UK's public EV chargepoints and many of its boroughs are now installing new EVCs very rapidly, but progress is very uneven. Two London boroughs now have over 1500 each - more than the whole of Wales - while seven have fewer than 100 each. Havering reports having no EVCs on its public highways at all.
- Record keeping on placement of EVCs on public highways amongst London boroughs is very patchy, with many struggling to provide accurate data on where their EVCs have been sited.
- Only nine of London's 32 boroughs have clear EVC planning policies that are in line with best practice guidance, i.e. to site new chargers

on kerb buildouts in the carriageway. 15 have no policy on EVCP placement at all.

- As of October 2022, London boroughs had already installed at least over 2,200 EVCPs on pavements – almost four times as many as they had installed on kerb buildouts. Only four boroughs have installed more EVCPs in carriageways than they have installed in footways to date.
- **Street space reallocation is happening in London, but in the opposite direction needed to support modal shift to walking.**
- The borough with the highest reported overall number of EVCPs on its public highways, Hammersmith & Fulham, was the only London borough to also report an ongoing policy of always siting EVCPs on footways rather than on kerb buildouts.
- LBHF has installed nearly 200 EVCPs on its pavements to date, and has never installed one in the carriageway.
- 73% of LBHF’s footway installations of EVCPs to date have not retained the minimum of 2m required for pedestrian comfort and accessibility standards. 39% have not retained the absolute 1.5m minimum which would only allow a wheelchair user and a pedestrian to pass (but not a wheelchair user and a parent with a buggy or another mobility aid user).
- Lamp column conversions are rising to dominate the on-street charger rollout in many boroughs, accounting for around 70% of the total public on-street EVCPs installed to date, and an even higher share of future targets in boroughs that have them.
- The overall number of EV chargepoints on each local authority’s public highways appears to correspond closely with policy ambition on climate change, with more ambitious boroughs having both installed more EVCPs to date and adopted more ambitious targets for future rollout.
- There is no clear relationship between policy on EVCP placement and EVCP installation rates or targets. Following best practice guidance on placement does not necessarily slow down deployment rates in practice where the political will to deliver is there.
- The number of EVCPs installed on kerb buildouts in the carriageway to date and clear policy to site future EVCPs on the carriageway both correlate strongly with policy ambition on active travel, healthy

streets and motor traffic reduction, with more pro-walking, wheeling and cycling boroughs being more likely to install EVCPs in the carriageway rather than on footways.

- Rates of car ownership and dependency correlate negatively with public EVCP installations, with the most car-dependent boroughs having installed the fewest on-street EVCPs.
- The current framework of regulatory and fiscal incentives and constraints means it is much easier, cheaper and faster for highways authorities to install EV chargepoints on footways than on carriageways.
- For instance, funding for on-street EVCPs from the Office of Zero Emission Vehicles does not come with any conditions or assessment criteria around best practice on siting and public realm. Likewise planning consent is not required for installation on pavements, while installation in the carriageway triggers a statutory consultation process.
- Local authority aversion to loss of parking and associated revenue are likely to be contributory factors driving poor practice on EVCP siting.
- **The national on-street EV chargepoint rollout has the clear potential to degrade the pedestrian environment and jeopardise walking and wheeling targets without urgent action to reconcile these policy goals.**
- **The impacts of footway EVCPs are likely to be particularly severe for disabled pedestrians and wheelchair users, while almost none of the public EVCPs rolled out so far are accessible for disabled drivers.**

ii. Key recommendations:

- **Local authorities** should adopt holistic, integrated sustainable transport strategies which include short and long term targets for both public EV chargepoint rollout *and* reductions in traffic and car use, alongside **explicit policies to presume against siting EV chargepoints on pavements** other than in exceptional circumstances – and never where installation of a charger will narrow the usable width of the pavement to less than two metres.
- Sustainable transport strategies must be geared to support access to both the pedestrian realm and to EVCPS for Disabled people, in line with the Equality Act and the public sector equality duty.
- Lamp column conversions are a pragmatic solution for rapid, low cost, low disruption deployment of slow chargers in residential areas which does not contribute to permanent clutter. However, work is urgently needed to ensure these chargepoint designs are accessible to Disabled drivers. New street furniture that may be needed to host fast and rapid chargers should always be sited on an accessible kerb buildout.
- **The Office of Zero Emission Vehicles** (OZEV) should include assessment criteria on placement and public realm impacts for all on-street chargepoint funding awards, in particular the On-Street Residential Charging Scheme (ORCS) and Local Electric Vehicle (LEVI) fund, with clear design standards and an explicit presumption against funding local authorities to put EV chargepoints on footways. OZEV should inspect on-street chargepoint installations it has funded to ensure compliance with standards before releasing final funds. OZEV should liaise with Active Travel England to agree on a set of common principles.
- **Active Travel England** (ATE) should bring into its remit the assessment of EV charging infrastructure strategies, procurement and deployment to ensure these protect pedestrian space and support active travel. ATE should withhold support for access to wider transport funding where standards are not being met. ATE should liaise with OZEV to agree on a set of common principles.

iii. Foreword

Recent years have witnessed significant shifts in transport policy as we move towards more healthy and sustainable ways to get around. We, at the inclusive cycling charity Wheels for Wellbeing, have worked hard to ensure that accessibility and inclusion for Disabled people is at the heart of active travel policy and we have been very pleased with the progress we have seen.

However, the pressure to decarbonise transport and clean up air quality has also led to increased focus on electric cars (EVs). Encouraging people to switch to EVs and providing the infrastructure that enables them to do so is often seen as an obvious solution. Unfortunately, this is not the case for Disabled people. EV infrastructure built onto pavements often blocks access for Disabled pedestrians who are walking or wheeling as well as causing significant trip or safety hazards.

At the same time, the EV charging points themselves are often not accessible for Disabled drivers, creating a double barrier to mobility. In this context, WfW are pleased that Possible have taken the initiative to undertake this detailed research to review the installation of EV charging points across London boroughs. The results do not paint a pretty picture for Disabled pedestrians or drivers, but the data provides an essential backdrop for campaigning to ensure full and equitable access to sustainable travel for all.

Isabelle Clement MBE, Director Wheels for Wellbeing

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1. Policy context and background

1.1 Power up: meeting the need for Electric Vehicle public charging infrastructure

Transport overtook energy as the largest sectoral source of UK carbon emissions in 2016, and cars and vans alone were responsible for almost a fifth of the UK's total domestic greenhouse gas emissions in 2019¹. The UK's transport decarbonisation plans rely heavily on car owners switching to electric vehicles (EVs) over the coming years, and the sale of new internal combustion engine-only private cars will be prohibited altogether from 2030². The government is currently working on further legislation to mandate car manufacturers to ensure at least 20 percent 'Zero Emission Vehicles' (ZEVs) market share in the UK from the start of 2024³.

This mass consumer technology transition will require the rapid rollout of a comprehensive network of public EV chargepoints to enable those without off-street parking and home charging facilities to make the switch, and this is now underway in earnest. The government projects that at least 300,000 public EV charging stations will be required nationally by 2030 to meet demand⁴ - up from around 37,000 in operation at the start of 2023⁵. The EV charging website Zap-Map⁶ estimates that there has been a 33% increase in the total number of installed public chargepoints since the start of 2022.

Despite this rapid rate of installation, public chargepoint rollout is failing to keep pace with EV uptake⁷ amongst consumers⁸, and at current rates of progress will not be adequate to meet the predicted 2030 requirements⁹. This is generating huge pressure on local authorities to accelerate the process¹⁰.

London boroughs have been leading the way on installing public EV chargepoints. Our FOI requests for this investigation reveal that as of October 2022, London had at least 11,000 public charging stations, while a parallel enquiry has found that two thirds of the 12,699 new public EV chargepoints planned nationally in 2023 will be located in the capital¹¹. Westminster alone already has more than the whole of Wales. Transport for London's (TfL) own EV charging strategy indicates that around 30,000 public chargepoints will be needed across the city by 2025, and 50,000 by 2030¹².

1.2 Walk it off: Pedestrians at the top of the road user hierarchy

Another key plank of both the national government and London mayoral strategies for decarbonising transport is to facilitate a large increase in walking and wheeling trips, and there have been a range of policy developments to help deliver this over the past two years. The government is aiming for half of all journeys in UK towns and cities to be walked, wheeled or cycled by 2030, in recognition of the fact that 43% of urban car trips are under two miles in length, increasing walking and wheeling trips will also bring significant improvements in public health and wellbeing¹³, reduce congestion, increase community cohesion and increase spend in local businesses. The government explicitly recognises that,

“Enabling more walking, wheeling and cycling starts with making our streets more people-friendly [and] redesigning towns, cities and neighbourhoods to enable more active short journeys. It means making active travel more inclusive, by removing barriers that make it harder for some to walk, wheel or cycle.”¹⁴

- Trudy Harrison MP, Parliamentary Under Secretary of State with responsibility for active travel, (2022)

To this end, a new public body, Active Travel England¹⁵, has been set up, and new Network Management Duty guidance issued to local authorities requiring them to reallocate road space to walking, wheeling and cycling¹⁶. Both the official design guidance for streets¹⁷ and new changes to the Highway Code¹⁸ elevate pedestrians – including Disabled pedestrians – to the top of the road user hierarchy, meaning their needs must be prioritised over those of motorised traffic.

In London, the headline goal of the Mayor’s Transport Strategy (MTS) is even more ambitious: for 80 per cent of all trips in London to be made on foot, wheels, cycle or public transport by 2041¹⁹ – a date that was recently brought forward to 2030 when the Mayor adopted a new net zero target for the capital in recognition of the urgency of the climate crisis²⁰.

The Mayor’s Transport Strategy will, “seek to make London a city where people choose to walk and cycle more often by improving street environments, making it easier for everyone to get around on foot and by cycle.”²¹ The MTS includes specific targets to increase daily walking trips by Londoners’ by one million, and the share of school run trips that are walking or wheeling to 57%, both by 2024²².

About 25% of London's carbon emissions now come from road transport, and the Mayor's work on Net Zero Pathways states that,

"Due to limited supply chains, slow turnover of vehicle stock, and reliance on grid decarbonisation, reaching net zero early cannot be achieved by technology alone. The earlier the net zero target date, the greater the importance of behaviour change to reduce demand for travel in high carbon modes (primarily private vehicles)²³."

Consequently, the Mayor's preferred pathway requires an unprecedented 27% reduction in car traffic to 2030 - with modal shift away from car use expected to play an equally significant role in achieving the Net Zero target as electrification of London's private car fleet.

1.3 Collision risk: Emerging conflict between these policy goals

Both near-total electrification of Britain's road vehicle fleet and a wholesale shift to walking shorter journeys will be required to meet crucial climate goals. This is recognised in the transport decarbonisation strategies of political leaders in Westminster and London's City Hall. But there is an under-acknowledged tension between these objectives.

Official highways design guidance states that,

"Obstructions on the footway should be minimised. Street furniture is typically sited on footways and can be a hazard for blind or partially-sighted people... Although much street furniture is provided for the benefit of motorised users, it is generally located on the footway and can contribute to clutter. In some circumstances, it may be possible to reduce footway clutter by placing some of these items on build-outs²⁴."

A 2010 update to the guidance goes further, recommending that street redesign should, "justify each piece of equipment and obstruction with a presumption that it should be removed unless there is a clear case for retention."²⁵

The London Walking Action Plan sets out a vision that "London should be the world's most walkable city" and states that "Street changes of any kind will be required to benefit people walking"²⁶. This includes Disabled pedestrians using a wide range of mobility aids from wheelchairs, to crutches to assistance dogs. TfL customer research underpinning the plan finds that "policies to reduce traffic, such as parking controls, are important to encourage more walking", and goes on to explain that,

"Sixty-six per cent of Londoners say they would walk more if routes were improved to give greater priority to people walking. People need space for walking, and safe and convenient crossings. Crowded and obstructed streets, and pavements not being wide enough, are among the most frequent and annoying 'pain points' cited by people walking."²⁷

Likewise, TfL's Planning for Walking toolkit stresses that, "It is critical that existing street furniture is rationalised as part of the design process to reduce physical clutter on footways."²⁸

Decluttering pavements is clearly a key element of improving the walking environment to support more trips on foot. National polling in 2022 by

pedestrian charity Living Streets found that 26% of British people say they would be more likely to walk locally if their streets were free of clutter²⁹. This is particularly important for those travelling with additional encumbrances, such as parents with babies or young children³⁰.

Our own recent research with the Active Travel Academy and Disabled People's Organisations has highlighted the profound impact of the generally poor quality of the walking environment on the mobility of mobility-impaired people including wheelchair users and those with visual impairments³¹. The already disproportionately small amount of street space allocated to non-motorised transport modes is further eroded by constant encroachment of motor vehicles into this space. Pavement parking is responsible for routine damage to pavements, leaving surfaces broken and dangerous to navigate, while Disabled People's Organisations report that, "most people are experiencing difficulties with street obstacles, street furniture, wheelie bins, cars on pavements".

Similarly, TfL research has found that "65% of disabled Londoners consider the condition of pavements to be a barrier to walking, and 43% report that obstacles on pavements are a barrier to walking."³² Sustrans and Transport for All's new Disabled Citizens' Inquiry reports that,

"Objects on pavements reduce or prevent independent mobility... The transition to electric vehicles also poses a future problem as the number of charging points often placed on the pavement rapidly increases."³³

From the perspective of Disabled people who do not use private vehicles, EV chargepoints on the pavement add no utility at all to the streetscape, while presenting a new obstacle to their own mobility. To make matters worse, the Research Institute for Disabled Consumers has found that the overwhelming majority of public EV chargepoints installed in the UK to date are not even accessible to disabled drivers³⁴. The transition to EVs is so far making life more difficult for Disabled people. Unless all new EV charging points are made accessible by default, as hydrocarbon vehicles are phased out Disabled people risk being progressively locked out of driving due to being unable to charge vehicles or forced into using older combustion engine vehicles and facing tolls for doing so.

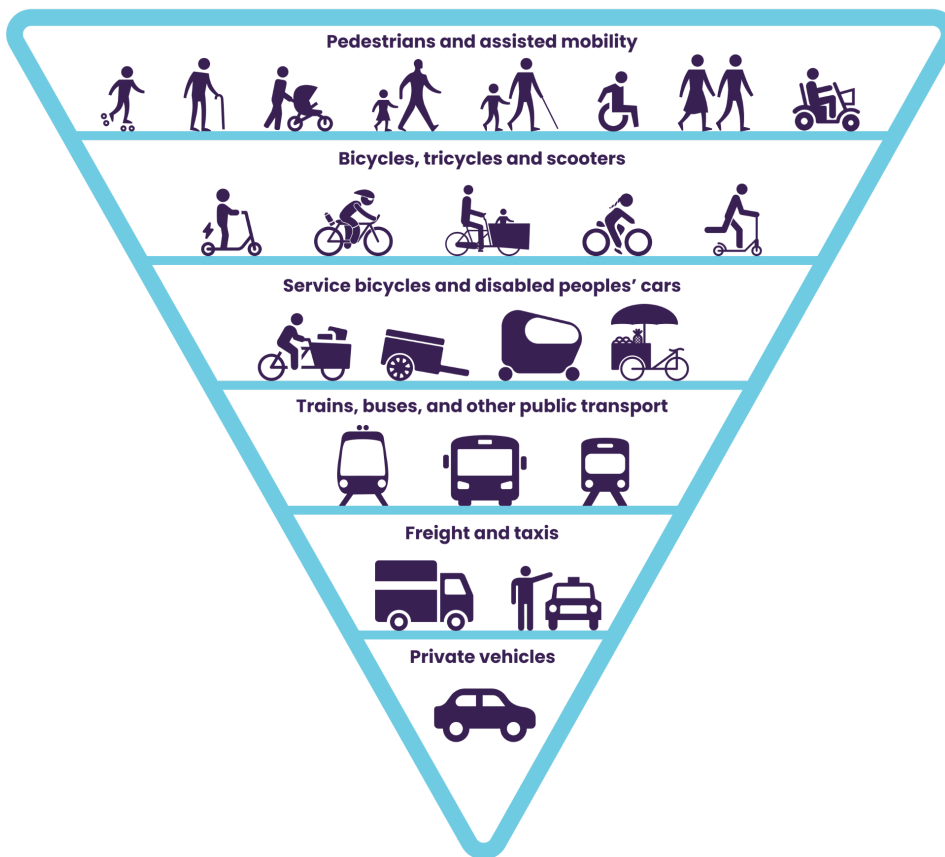


Figure 1: the UK road user hierarchy

Against this background it is clear that the mounting pressure on local authorities to rapidly deliver thousands of new EV chargepoints on the public highways represents a serious threat to related targets to increase the share of trips being made on foot by improving the walking environment. Installing new car infrastructure in scarce pedestrian space turns the road user hierarchy upside down, prioritising the needs of private motorists over those using the most sustainable modes.

Whilst highways authorities are supposed to be deliberately reallocating roadspace away from cars and to pedestrians, in practice the opposite could be happening, as authorities focus on EV switching without considering related, equally important policy goals. Urban streetspace allocation is already heavily skewed towards motor vehicles. The government’s landmark 2020 ‘Gear Change’ policy paper observed that,

“On a busy shopping street, for instance, perhaps 75 per cent of users may be pedestrians, but they may be confined to narrow pavements taking perhaps 20 per cent of the space.”³⁵

Despite London having the lowest levels of car ownership in the UK³⁶, geocomputational analysis by academics at University College London's Centre for Advanced Spatial Analysis (CASA) has found that three quarters of London's streets provide more space for motor vehicles than pedestrians, while the typical residential street in the capital provides two thirds of its width for vehicles³⁷. Polling for the Centre for London in 2020 found that "pavements free of clutter" was the second highest priority (after trees and greenery) for street space allocation amongst Londoners, far ahead of EV charging points³⁸.

Installing EV chargepoints on public highways also has the effect of consolidating the private car's monopolisation of the kerbside, more permanently delineating kerbside streetspace for the exclusive use of car parking. But the Local Government Association's briefing on 'climate smart parking policies' emphasises that, "Parking is a key policy lever which local councils can use to promote mode shift to walking, cycling and public transport."³⁹ Again, TfL guidance recognises that 'converting car parking plays a critical role in freeing up space for walking and cycling'⁴⁰, and as the MTS' evidence base makes clear, on-street parking;

"effectively privatises what is in reality public space and deprives Londoners who do not own cars of access to that space. This can also *prevent changes to the allocation of space on London's streets which allow improvements* such as segregated cycle lanes, widened footpaths, bus lanes and amenity uses such as parklets, street art and play space. Without being able to make these changes, the Mayor's mode share target and ambition for Healthy Streets are unlikely to be achieved."⁴¹ (emphasis added)

As well as keeping pavements free from vehicle-related clutter, highways authorities also need to be strategic in future-proofing any locations for EV charging bays to avoid literally concreting in future conflict.

1.4 Policy drivers: Electrifying cars without undermining active travel

The tension outlined above has not been entirely overlooked by policymakers. Most importantly, the government's national EV Infrastructure strategy states clearly that,

"Chargepoints should not obstruct pavements or highways, or present a safety risk to pedestrians [and] must be incorporated into existing street furniture or *parking bays wherever possible*."⁴²

The government's 2021 Inclusive Mobility best practice guide clarifies that:

"Street furniture should be positioned to leave at least the minimum width recommended for a pedestrian footway... under normal circumstances, a width of 2000mm is the minimum that should be provided.... If this is not feasible due to physical constraints, then a minimum width of 1500mm could be regarded as the minimum acceptable under most circumstances."⁴³

However, Disabled People's Organisations have already contested the guide. For instance, Wheels for Wellbeing told us:

"It is very problematic for pedestrians if footways drop below 2m and the recommendations in Inclusive Mobility are not ideal for access. A 1.5m minimum pavement width can present access difficulties and, when coupled with the proviso of "under most circumstances", which appears to suggest that pavement widths less than 1.5m can be permitted, it may become impassible. Widths less than 1.5m can prevent Disabled access, particularly since other obstacles such as wheelie bins, broken glass, dog waste, overgrown hedging, parked cars and other path users will frequently reduce the usable width further.

1.5m widths are inadequate for accessibility: wheelchair users and other Disabled people need to be able to pass each other. Inclusive Mobility notes that long cane users need minimum 1.1m and people being guided need minimum 1.2m. People being guided should be able to pass each other, mobility scooter users (including people who have hung shopping bags onto their scooter, further increasing its width) etc without restriction. 1.5m widths do not allow wider pedestrians including those carrying bags or walking more than one abreast (such as parents and children) to pass.

To encourage walking and wheeling, pavements need to give the same freedom of movement as most carriageways do for most vehicles: People should be able to pass in both directions continuously without needing to interrupt their flow of movement, pull to the side, or step into the carriageway.

As well as misgivings around the adequacy of these official prescriptions to support accessible mobility, there are pressing questions over whether they are being followed in practice.

The Office of Zero Emission Vehicles (OZEV) is the national delivery body for the UK government's EV ambitions⁴⁴. OZEV has commissioned and curates a wide range of guidance and standards for the EV charging infrastructure rollout.

As one might expect, these are overwhelmingly user-centric, offering a fairly comprehensive 'windscreen view' of the issues around transitioning to EVs which centres the experience and interests of the motorist. Guidance on future proofing on-street chargepoints includes a section on placement, but this relates to ensuring they are easy to find and use, with nothing on wider public realm issues such as pedestrian space or considering future alternative uses of kerbside⁴⁵. Guidance on design considerations addresses the aesthetic of the surrounding environment and potential for branding, but not impact on pedestrians⁴⁶.

Nevertheless, in 2019 OZEV did produce guidance on chargepoint placement which highlights the importance of assessing potential locations carefully to avoid "obstructions impacting pedestrians, wheelchair users, people with pushchairs or those with visual impairment"⁴⁷. The guidance cites the 1.5m minimum footway width required for a wheelchair user and pedestrian to pass side-by-side, and notes that,

"Where chargepoints are installed on-street, one solution to avoid reducing space for pedestrians is to place the charging infrastructure on a 'kerb build out' (or 'plinth') between the vehicles in the roadway, protected by barriers. This approach reduces the number of parking spaces available but some feel this approach is more compatible with wider initiatives to reduce car use and encourage active travel."⁴⁸



Figure 2: Example of a kerb build-out EV charging point installed in a parking bay in Camden. Credit: Possible

Although the kerb buildout depicted here does not obstruct the pavement, Wheels for Wellbeing told us that it is still not accessible for Disabled drivers, due to:

- The raised kerbs around it,
- The bollards positioned close to the charger
- The lack of safe demarcated space to move from driver's seat to charger on carriageway
- The lack of flush kerbs giving access to the pavement
- The wide gutter, lined with setts, providing a difficult barrier for mobility-impaired drivers and mobility or sensory impaired passengers.
- The height, weight and location of the charging cable may also make it inaccessible.

Happily, Camden Council have confirmed that all of their future kerb buildouts will be redesigned to meet the new accessibility standard.

Local authorities themselves have also explicitly highlighted challenges around use of the pavement for on-street charging and requested more guidance from government on this⁴⁹.

In October 2022 the British Standards Institute published a new standard for accessible EV chargepoints⁵⁰. Although this is again primarily written from the ‘user’ perspective of the disabled motorist, it is equally emphatic that public chargepoints should not be installed such that they, “further compromise the accessibility of the surrounding environment, in particular for wheelchair users, users of other mobility aids and visually impaired people.” The standard goes on to suggest,

“Many local authorities are installing public chargepoints on parking “build-outs”, i.e. provision of a concrete base in a parking bay at the same level as the adjacent footway. This can be particularly advantageous from the point of view of reducing further street clutter caused by public chargepoints on footways.”⁵¹

London’s official guidance to its highways authorities on EV charging infrastructure is explicit in attempting to reconcile these potentially conflicting goals:

“EV infrastructure in London should complement the Mayor’s other aims around encouraging more people to walk, cycle and use public transport while seeking to reduce the number of cars on London’s roads.”⁵²

London’s most recent Streetscape guidance again highlights that it is a key priority to “minimise street clutter” and advises that, “*Charge points should be placed on footway build-outs where practicable.*”⁵³

The guidance, informed by TfL’s evidence-based ‘pedestrian comfort guidance’⁵⁴, specifies retention of a minimum clear footway width of 2m and states that, “All electric vehicle charging infrastructure should be at a minimum of 450mm from the kerb edge and maintain a ‘pedestrian clear zone’.⁵⁵ 450mm clearance from the kerb is required to manage risk of motor vehicles colliding with the charging stations and live power supplies they house. This means that a large area of footway – effectively around 1.3m – must be claimed when a standalone chargepoint is sited on the pavement.

Local authorities benefit from permitted development rights in relation to installing EV chargepoints on public highways⁵⁶. While planning consent is not required to place EV chargepoints on a kerb buildout either, a traffic regulation order (TRO) is likely to be required to reconfigure parking spaces

in a new layout which accommodates the charging station. TROs follow a statutory process which requires public consultation. It is therefore administratively much easier for councils to install chargers on footways than in the carriageway, as well as being considerably less expensive with respect to civil works.

While new London Plan guidance from the Mayor is expressly intended to safeguard the walking environment from new development, it applies only to planning applications – which are not required for placing EV chargepoints on footways.⁵⁷

1.5 Follow the money: Funding streams steering delivery

Many EV chargepoints installed in the UK to date have been supported by part-funding from the government's Office for Zero Emission Vehicles (OZEV) under a variety of different schemes⁵⁸. Because most private motorists are expected to mainly charge at home or at work, OZEV has focused on supporting domestic chargepoint installation for those with access to off-street parking, and public chargepoints on-street for those without, with rapid chargers at motorway service stations to service longer trips.

As of October 2022, a third of all public EV chargepoints nationally had been installed 'on-street' rather than at destinations, en-route or in off-street car parks⁵⁹, and around a third of these have been funded via OZEV's On-Street Residential Chargepoint Scheme (ORCS)⁶⁰. By October 2022, around a hundred councils had been awarded nearly £12m from ORCS, with two thirds of the funded chargepoints in London – most of them in Hammersmith & Fulham. Funding of £39.1m had also already been awarded to local authorities to install a further 10,000 on-street chargepoints across the UK. ORCS has a confirmed budget of £30m during the 2022/23 financial year alone.

ORCS funding features a very wide range of assessment criteria and technical specifications designed to ensure reliability and interoperability and protect users from being electrocuted or exploited by charging companies. But it **does not feature any assessment criteria related to placement on footways**, and there are no technical standards for this listed to which a proposed project must conform. Nor are there any clear requirements around accessibility to Disabled drivers.

In April 2023 the ORCS scheme was complemented in England by the new, much larger, £381m Local Electric Vehicle Infrastructure (LEVI) fund, a £10 million, 1000 chargepoint pilot for which was being implemented while we

were writing this report⁶¹. The LEVI scheme is also aimed at on-street residential charging, with a particular focus on innovation⁶². The LEVI assessment criteria were published at the end of March 2023. Buried in the Stage Two Criteria on “meeting consumer needs” is a single weak test alluding to accessibility and impact on the public realm⁶³:

“Clear consideration to accessibility for charging infrastructure and built environments to the community *where feasible*.” (emphasis added).

1.6 Summary of policy landscape

Although considerations around the streetscape and walking environment have been fairly low down the long list of government priorities in facilitating the switch to EVs through infrastructure rollout, national (and London) government policy papers and best practice guidance are nevertheless quite clear that on-street EV chargepoints should ideally be sited on kerb build-outs in the carriageway which are accessible to Disabled drivers, and not on the pavement. There is a broader policy agenda around improving walking and wheeling conditions, especially in cities, and a recognition that new street furniture for EV charging sited on pavements could undermine these goals.

The challenge to inclusive mobility is even more acute. Sustrans and Transport for All’s new Disabled Citizens’ Inquiry explicitly concludes that new standards are needed to,

“ensure charging points are placed on the highway as opposed to the pavement... where pavements should be the last resort and only if all other options have been exhausted... This should never occur on pavements of less than two metres in width.”⁶⁴

However, the public funding that is enabling this infrastructure to be installed on public highways does not come with any conditions attached, and close to zero material consideration in assessment criteria of funding applications in relation to this aim.

Funding does however come with conditions around cost minimization and value for taxpayers money, and only covers part of the costs of installation. Resource-poor local authorities have to balance competing priorities and without any hard requirement to conform to an approach that does not negatively impact on the walking environment, councils could be expected

to err towards the lowest cost options for delivering stretching near-term EV chargepoint targets.

A further aggravating factor is the generalised aversion to the inevitable loss of parking spaces implied by following the best practice guidance on EV charging infrastructure. Removing any parking provision is notoriously difficult to do without triggering backlash, particularly from retail businesses. But it is widely recognised as an essential element of freeing up urban space for more sustainable modes of transport, and has been central to, for example, Brussels,⁶⁵ Amsterdam⁶⁶, Paris⁶⁷, Oslo⁶⁸ and Barcelona's⁶⁹ recent successes in driving modal shift away from car use in their cities.

A separate but closely related challenge is the parking revenue surplus enjoyed by many London boroughs, which has become an important contributor to transport budgets. But this surplus is comprised exclusively of short-stay parking and enforcement income, while residents' parking in London is drastically underpriced in every borough, both relative to land value and the market price of parking, but also, crucially, relative to the actual administration costs of residents' parking schemes⁷⁰.

Inner London boroughs typically recover less than half of the yearly operating cost per parking space in permit fees from residents. Revenue-sharing agreements are rightly typical of local authority contracts with public charging providers. Local authorities and their highways teams may be unwilling to forego parking revenue from lost spaces, when placing chargepoints on the pavement instead can create a new source of income at no financial cost⁷¹.

Taken together, all of these factors set up the potential for perverse incentives to accelerate the further deterioration of the walking and wheeling environment. Hundreds of thousands of chargepoints are set to be installed on public highways over the next seven years, clearly risking wholesale encroachment on scarce pedestrian street space that is already crowded with obstacles which have been placed there to serve the interests of motorists.

The new government agency Active Travel England (ATE) holds the budget and awards funding for active travel schemes in England. It also has a remit to inspect schemes to ensure standards are being met, and to review all planning applications for major transport projects as a statutory consultee⁷². Local authority access to transport funding of all kinds will be influenced by their performance on active travel. But EV chargepoint

installation on footways does not require planning consent, and ATE has no duty or powers to assess EV charging strategies.

The ORCS scheme has now been running for over five years, and London has blazed the trail for the rollout of on-street chargepoints during this period. The next section explores what has been happening in practice so far in the capital when it comes to siting new EV charging stations on the public highways.

2. Where EV chargepoints are being installed in London: pavements vs parking bays

2.1.1 Sourcing contemporary data

Whilst a relatively close track is kept on the number and type (slow, fast or rapid) of public EV chargepoints being installed in the UK⁷³, no information has been publicly available on exactly where these new EVCPs are being sited – on the carriageways, as per official and best practice guidance, or on footways.

Possible therefore conducted a Freedom of Information investigation in November and December 2022 to obtain local authority records on the locations of the EV charging infrastructure that has been installed on their public highways. As London is so far ahead of other parts of the country in terms of deployment – nearly all of the on-street public chargepoints delivered in the UK to date are in the capital – we have focused on London boroughs.

We asked for information on:

- the total number of public chargepoints installed in their whole authority;
- the number installed on the public highways;
- the proportion of these which have been sited on the footway, on the carriageway (in buildouts or redesignated parking bays), and in lamp columns;
- any targets for the future rollout of EVCPs;
- and any planning policies adopted with regard to the siting of new chargepoints on the public highway.

The full FOI questions can be found in Appendix A.

Addenda

Following publication of this report, Camden, Hackney and Hammersmith & Fulham councils contacted us to correct or update information originally provided by FOI response. The text of the following section has been amended to reflect this new information, including figures tables, but the graphs and maps have not.

2.1.2 Summary of key findings

- The quality of the data provided by boroughs was very varied, with frequent errors identified during manual validation using Zap-Map and Googlemaps streetview. Some boroughs who claimed in their responses not to have installed EVCPs on pavements had in fact done so, often at scale, while others who reported high numbers of carriageway installs had in fact not delivered any.
- This indicates overall poor record keeping and a lack of due attention to the question of EVCP placement which is in itself troubling and problematic. In every instance where data provided by boroughs was wrong, it had underestimated the number or the share of EVCPs installed on footways. Therefore the figures used in this analysis should be treated with caution as they are very likely to represent an underestimate of the scale of EVCP encroachment on footways in London to date.
- There is very little consistency of approach between boroughs.
- Different boroughs have wildly different numbers of chargepoints installed on the public highways.
- Only two boroughs have installed more than 1000 on-street chargepoints, while seven have installed fewer than 100.
- **Across London, at least 2,200 EV chargepoints have been installed on footways - nearly four times as many as have been installed on kerb buildouts (620).**
- Only five boroughs have installed meaningful numbers of EVCPs on kerb buildouts, and only four have installed more in the carriageway than they have installed on footways to date. Half of all boroughs have not installed any public EV chargepoints on kerb buildouts in the carriageway, and in many boroughs the only carriageway installations seem to be on the Transport for London Road Network, which is not controlled by local authorities.
- Different boroughs have wildly different policies on where to site chargers, and nearly half of boroughs have no policy at all.
- Only around a quarter of London boroughs have policy that is aligned with best practice guidance i.e. to site future public EV chargepoints on the carriageway.

- Another quarter have policy to retain minimum clear footway widths.
- The borough that initially reported having installed the largest number of public EV chargepoints on its highways – Hammersmith & Fulham – is also the only London borough to have reported an explicit policy of always siting them on footways rather than in the carriageway.
- Lamp column conversions are now dominating rollout in many boroughs, accounting for 70% of the total installed, but some boroughs have none at all.
- Different boroughs have wildly different targets for rolling out chargepoints in the future, and around a quarter have no clear targets.
- Of boroughs with targets for future rollout, most expect a very high share of future chargepoints to be lamp column conversions.

2.1.3 Discussion: FOI investigation findings

The tensions between different policy goals discussed in the first section are brought sharply into focus in the data from London boroughs. Here we attempt to identify patterns and place boroughs into broad groups based on their responses, and consider features common to each group in relation to climate ambition and support for alternatives to car use. We also take a closer look at the relevant policies and strategies of each of the 'Good', 'Bad' and 'Ugly' groups in turn.

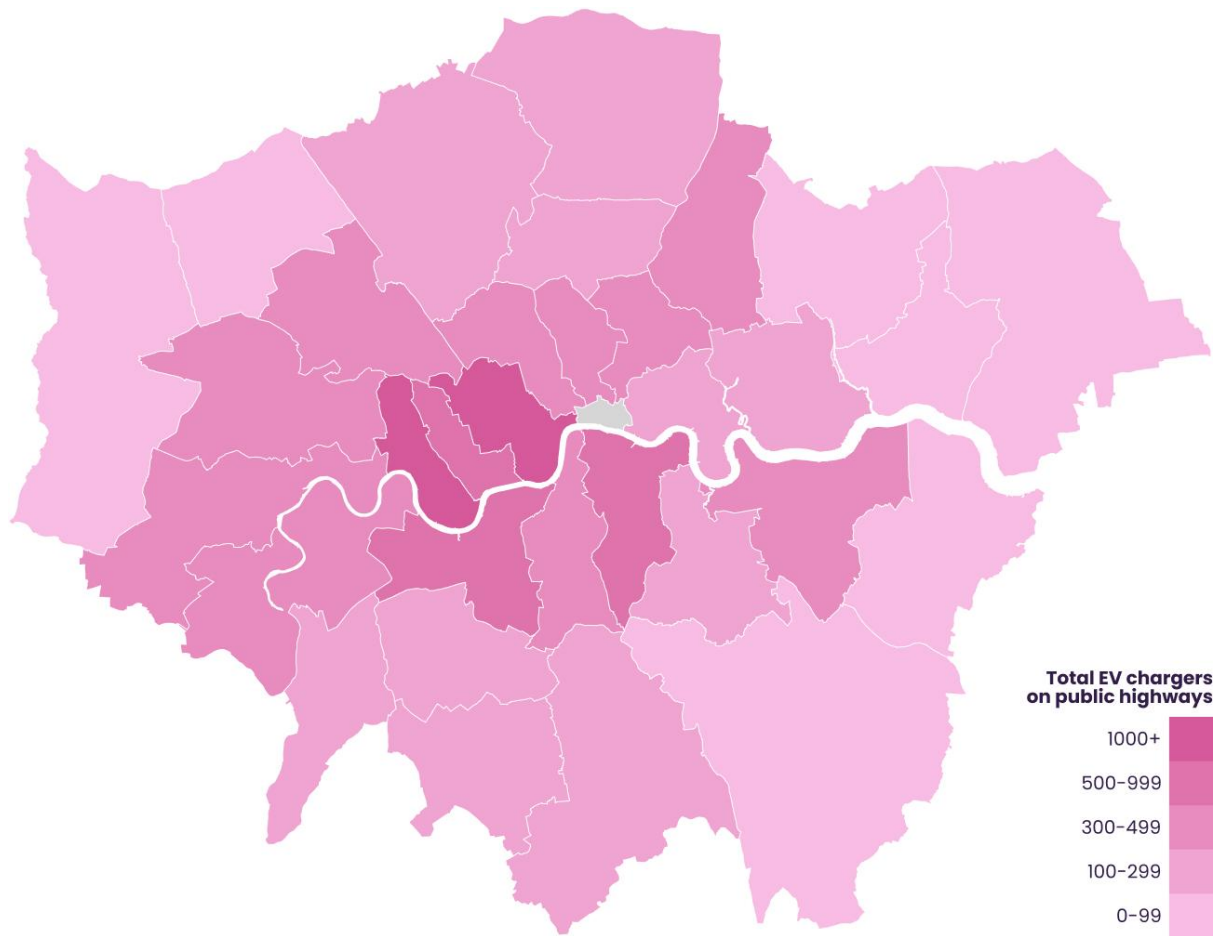


Figure 3: Map of total public EV chargepoints on public highways by London borough
On the whole, inner London boroughs have installed more public EVCPs than outer, weighted towards the west of the capital.

Council	Total EV chargers on public highways	Target for future EV charging point rollout
Hammersmith and Fulham	1,996	2500 - and 3000 by 2023
Westminster	1,470	it's complicated

Wandsworth	897	1300 by March 2023, 350 more by 2024
Kensington and Chelsea	699	no target
Southwark	522	1000 by 2027
Camden	488	400 fast and 9 rapid chargers by 2024/25 (inc 15 car club bays)
Richmond upon Thames	422	300 by 2024
Brent	419	500 by 2026
Waltham Forest	414	20 by 2025
Hounslow	408	2000 by 2026
Islington	396	500 by March 2023
Hackney	345	3000 by 2030
Ealing	339	2000 by 2030
Lambeth	308	unknown
Greenwich	300	1200 by 2030
Croydon	285	928 by 2025, 1773 by 2030
Tower Hamlets	278	1400 by 2026
Lewisham	237	it's complicated
Merton	236	500 by 2024
Barnet	216	1219 by 2030
Kingston upon Thames	176	no target
Sutton	176	no target
Haringey	141	100 more per year; 2,000 by 2025
Newham	140	1000 by 2027
Enfield	117	1000 by 2026
Barking and Dagenham	67	250 by 2025
Redbridge	53	1000 by 2026
Bromley	47	45 by 2026
Harrow	29	no target
Bexley	26	no target
Hillingdon	21	no target
Havering	0	no target

Table 1: Total EV chargers on public highways and targets for future installations by London borough.

Boroughs that have installed higher numbers of EVCPs to date also tended to have more ambitious targets for future rollout, but not consistently. Boroughs with the fewest EVCPs today are the most likely to have no target at all.

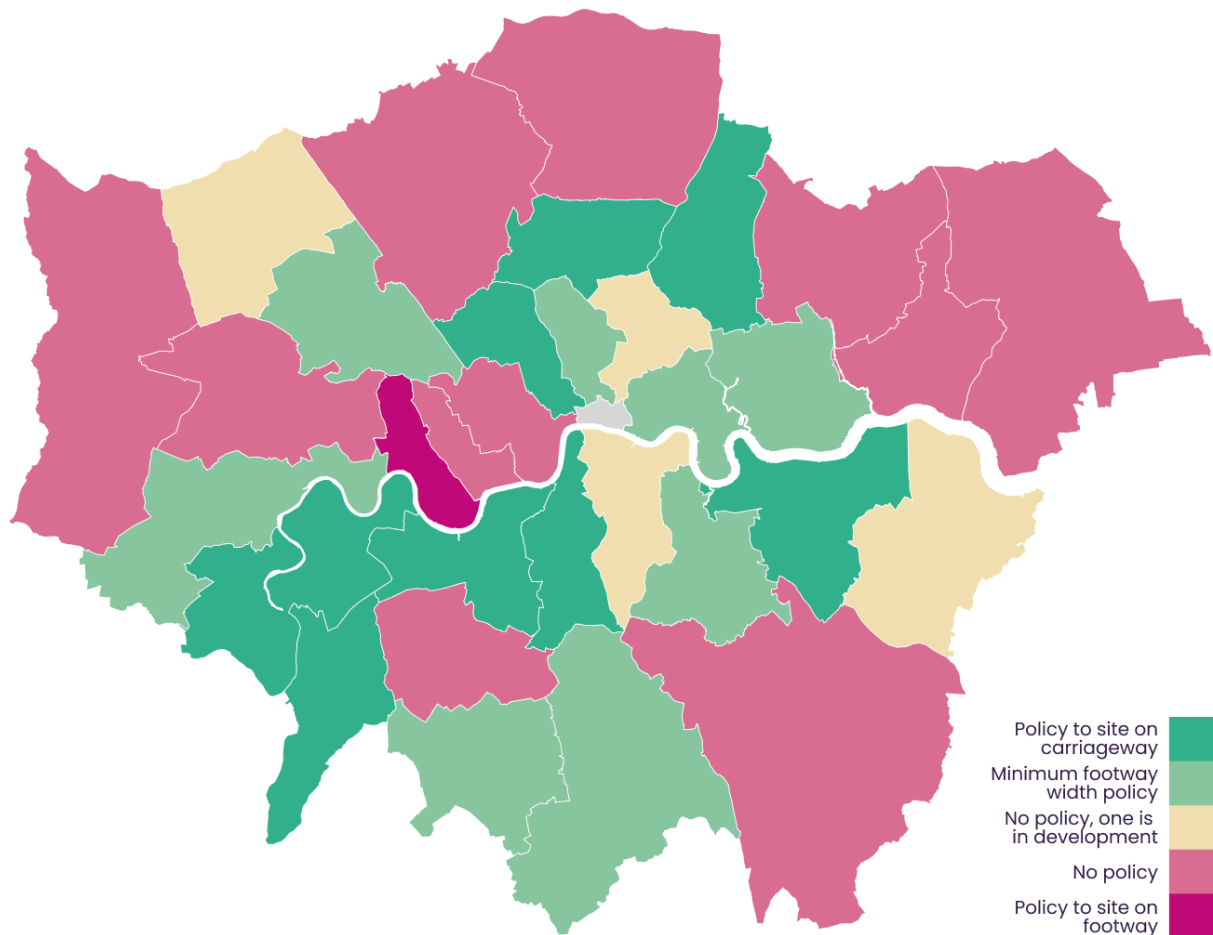


Figure 4: Map of public EV chargepoint siting policy by London borough

Inner London boroughs are more likely to have an EVCP placement policy which is aligned with best practice, but the wealthier West London boroughs are the outliers here.

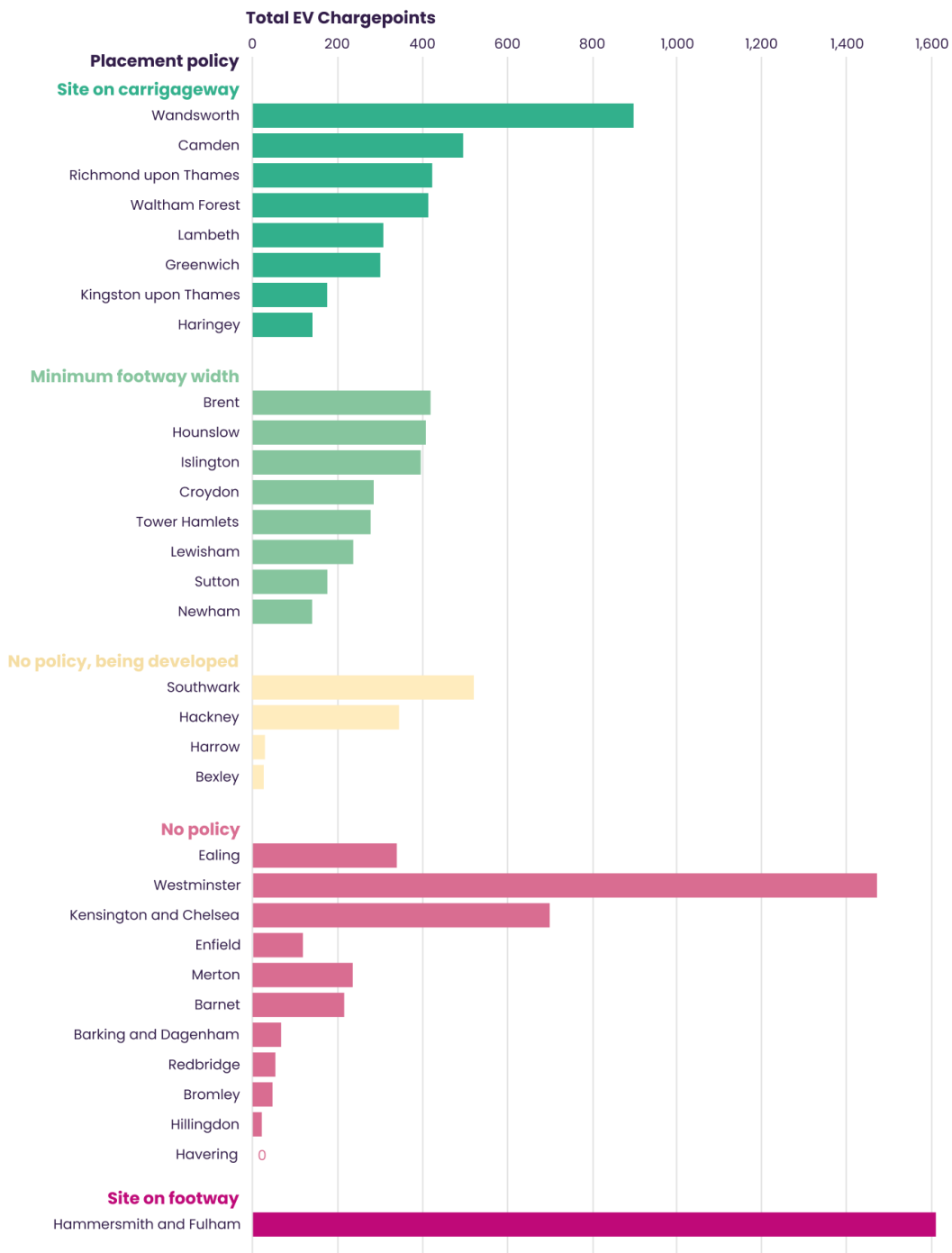


Figure 5: Total EV chargepoints by borough placement policy

In general, having a pedestrian-friendly placement policy does not appear to be associated with lower rates of EVCP installation, although the borough to have installed the highest number of EVCPs overall on their public highways is the only one to have an explicitly cars-first placement policy. Boroughs with the fewest EVCPs were most likely to have no policy at all.

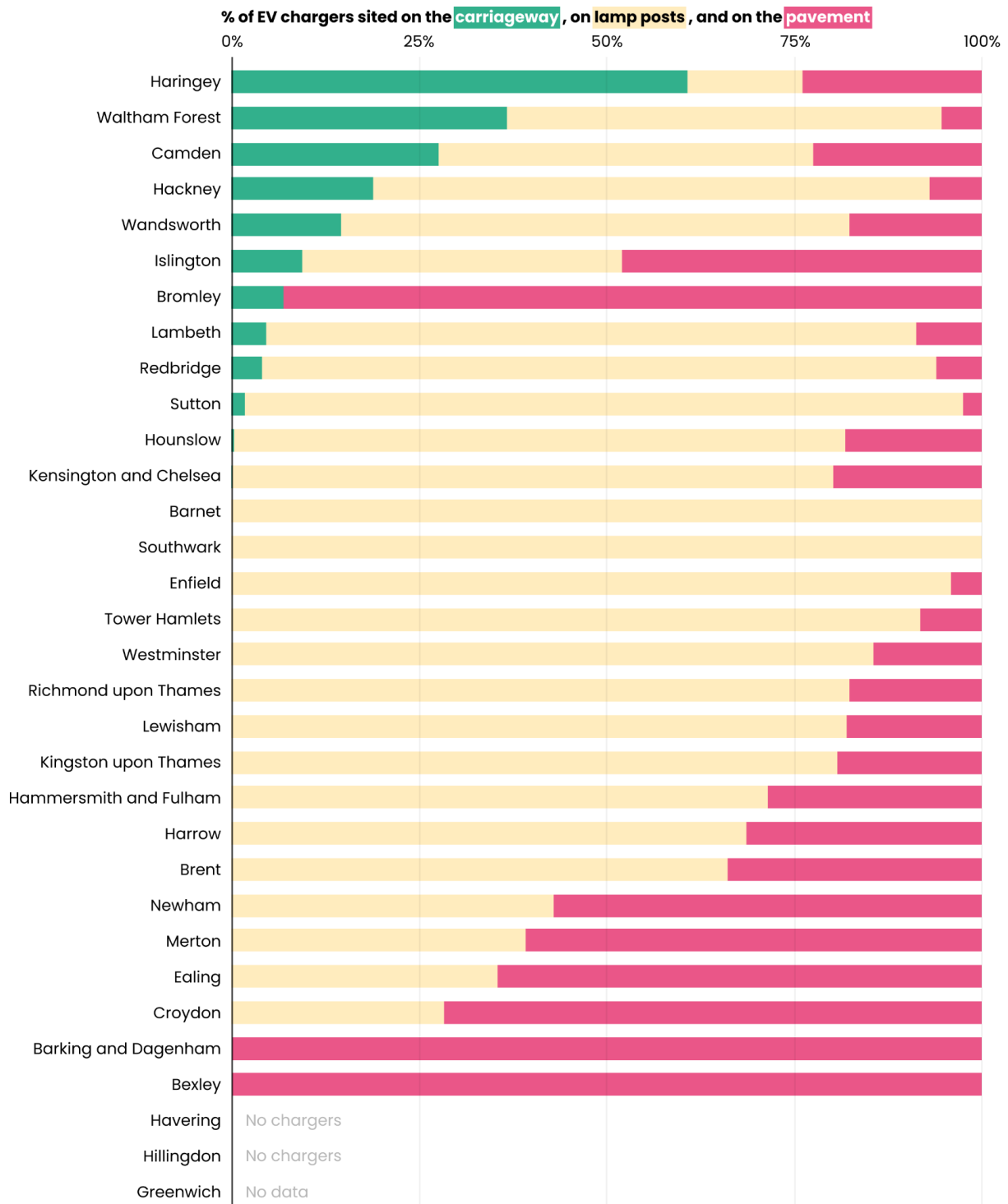


Figure 6: Percentage of public EV chargepoints sited on the carriageway, in lampposts, and on the pavement by London borough

Only one borough, Haringey, has installed over 50% of its EVCPs in the carriageway, although they also have relatively low numbers of EVCPs overall and very few lamppost chargepoints. Havering has no public chargepoints, while all of Hillingdon’s are located in car parks.

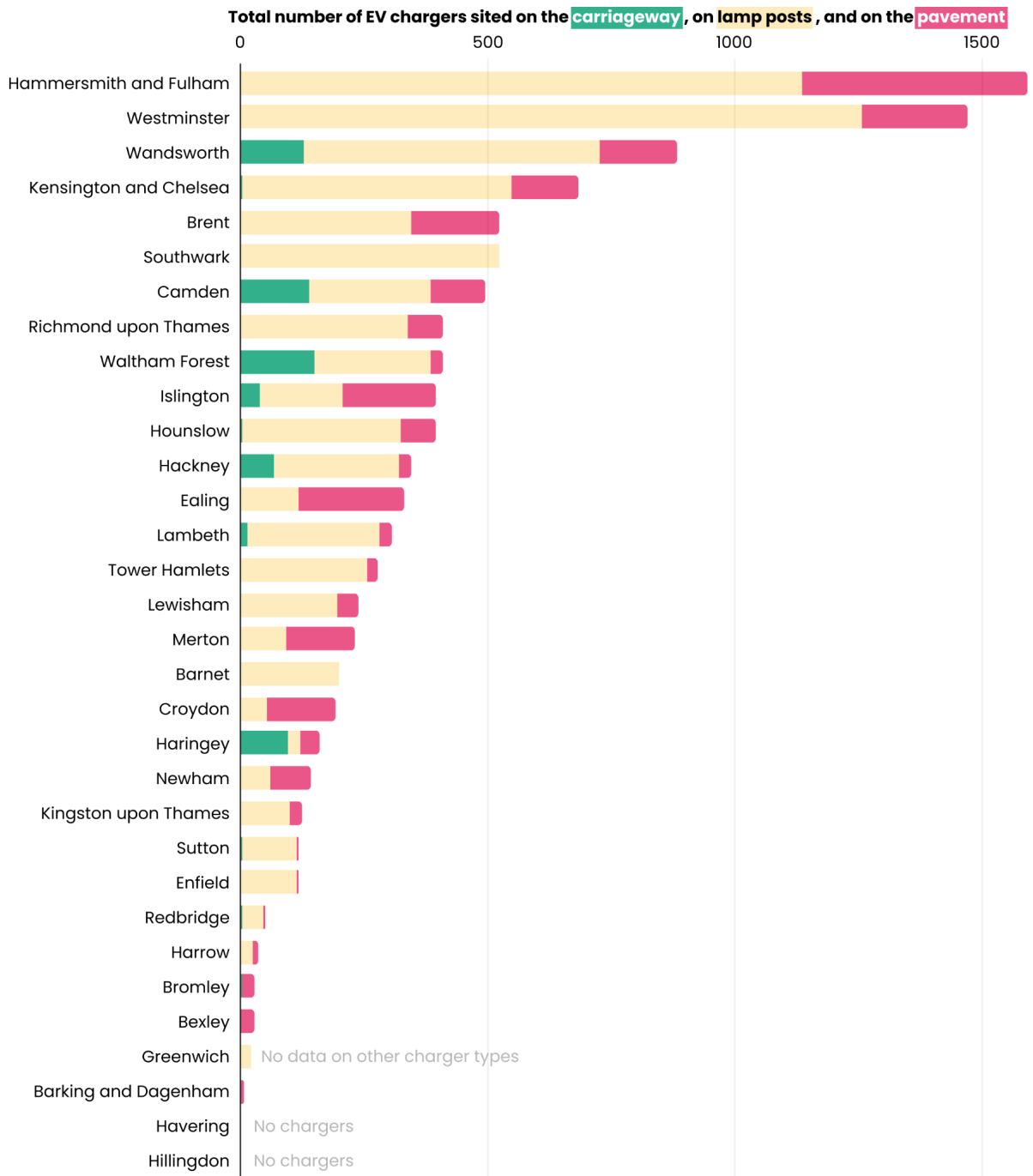


Figure 7: Total public EV chargepoints sited on the carriageway, in lampposts, and on the pavement by London borough

Lamp column chargers are dominating London’s on-street EVCP rollout in absolute terms, although many boroughs have also installed large numbers of EVCPs on pavements. Only a handful have installed meaningful numbers on kerb build-outs.

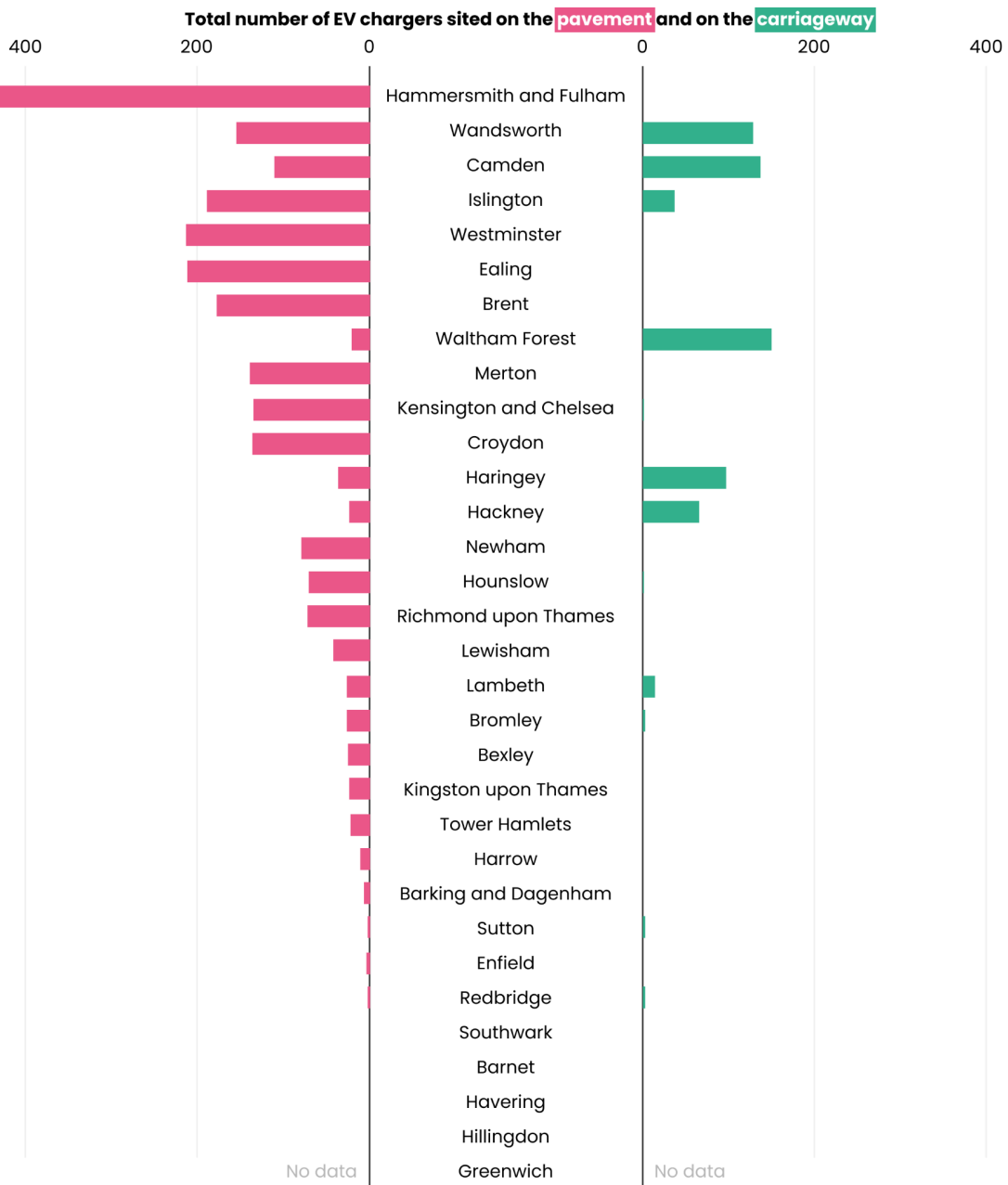


Figure 8: Total number of public EV chargepoints sited on the carriageway and on the pavement by London borough

If we treat lamp column chargers as effectively ‘neutral’, pavement chargepoints as favouring cars and kerb build-outs as favouring pedestrians, we can see that the large majority of London boroughs’ EVCP installations to date have favoured protecting space for cars at the expense of scarce pedestrian space.

2.1.4 Discussion: potential corollaries and contributing factors

The following graphics cross tabulate answers to our FOI questions against one another, as well as against data from the ONS 2021 Census⁷⁴, the Council Climate Action Scorecard⁷⁵ and the Healthy Streets Scorecard⁷⁶ to explore how these metrics interact.

Total public EV chargepoints vs net zero target date

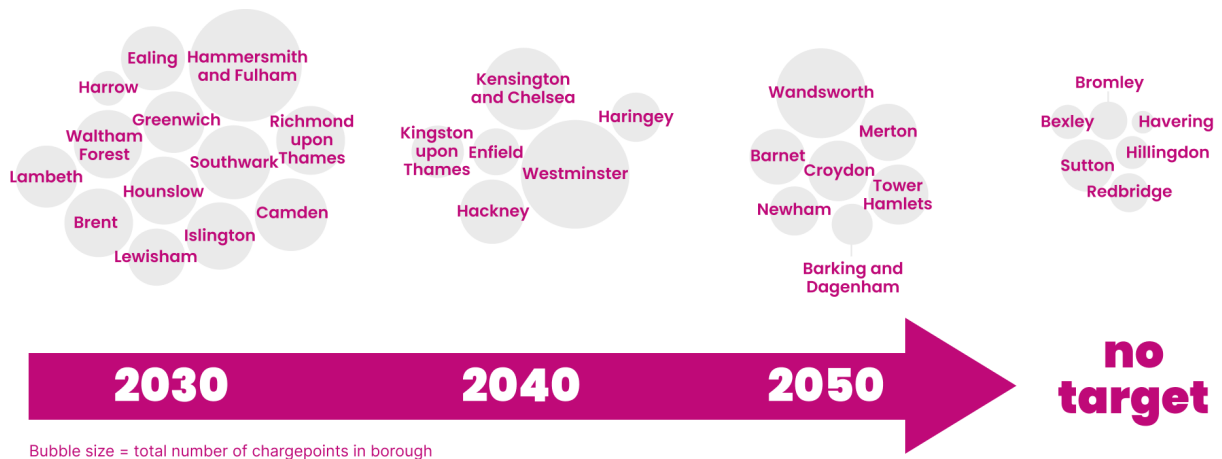


Figure 9: Total public EV chargepoints vs net zero target date

Having set a nearer-term borough-wide target date for achieving net zero is broadly associated with a higher number of public EVCPs, while those boroughs with the fewest EVCPs were most likely to have no net zero target.

Total public EV chargepoints vs climate emergency declaration

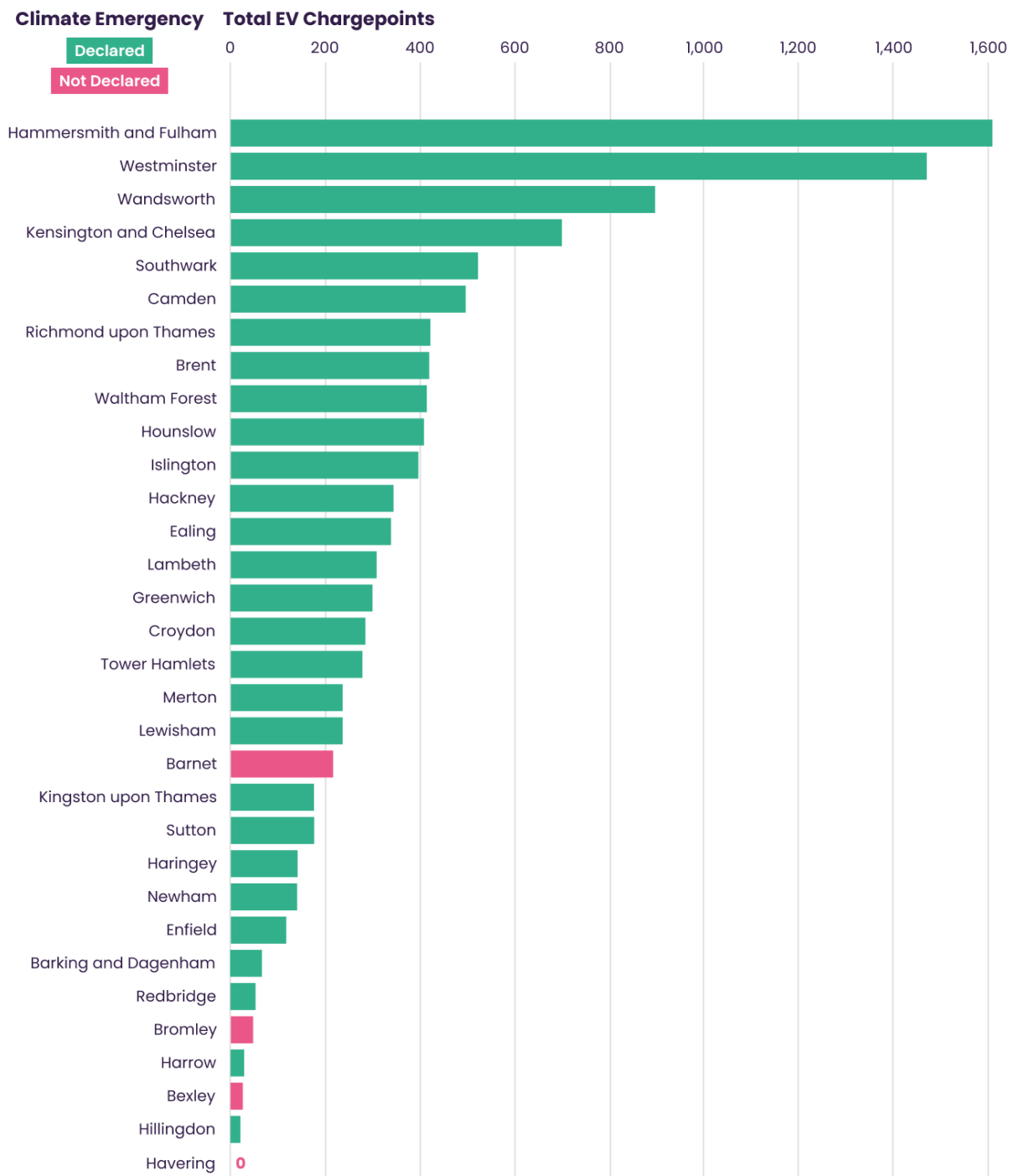


Figure 9: Total public EV chargepoints vs climate emergency declaration

Only four London boroughs have never declared a climate emergency, and three of them are in the bottom five for public EVCPs.

Total public EV chargepoints vs Healthy Streets Scorecard (HSS) score

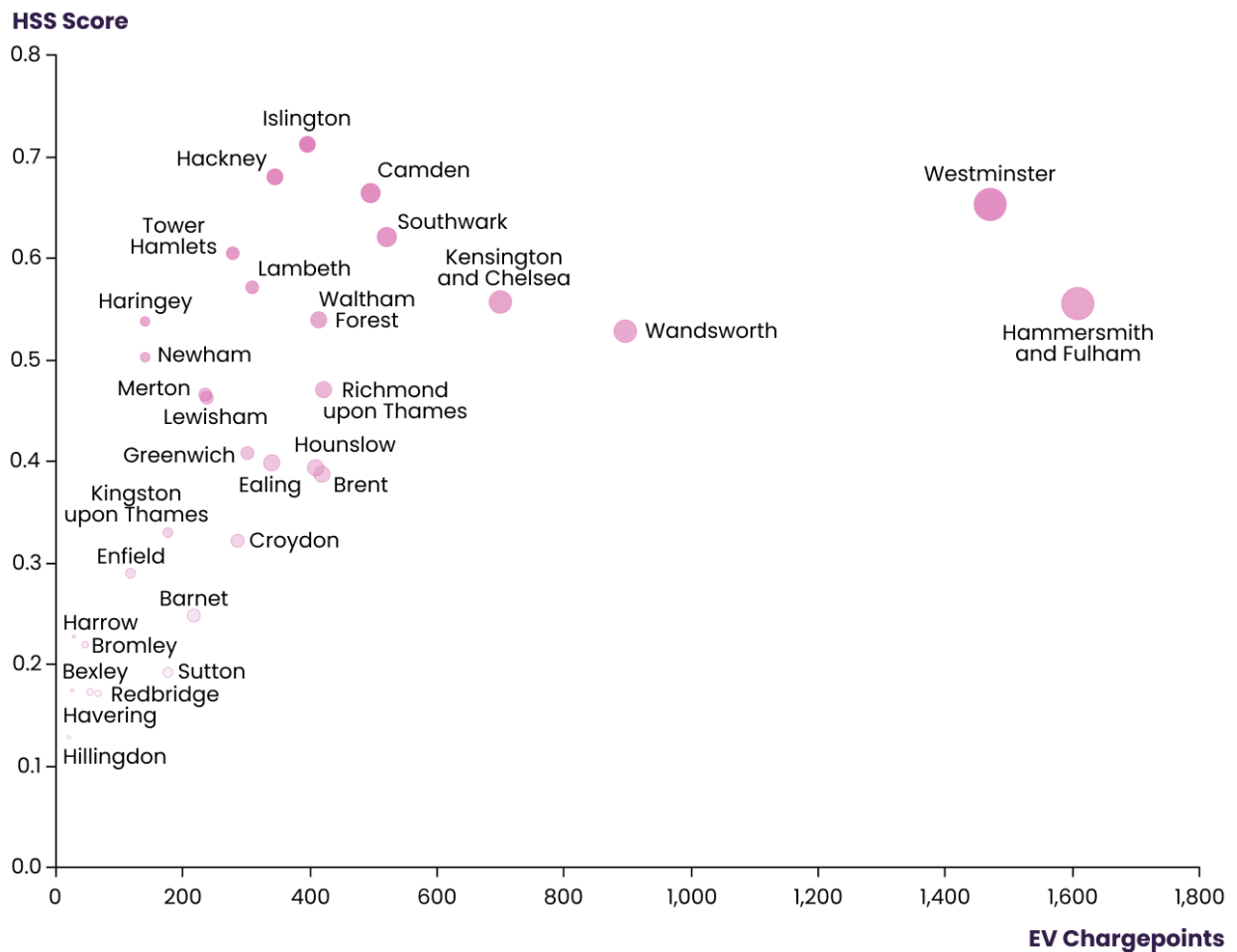


Figure 10: Total public EV chargepoints vs Healthy Streets Scorecard (HSS) score

The Healthy Streets Scorecard final score is a combined metric comprised of ten different indicators which together show the health of London’s streets, such as the length of protected cycle lanes in each borough⁷⁷. It is based on the Healthy Streets Approach, which is the framework of the Mayor’s Transport Strategy, “putting human health and experience at the heart of planning the city.”⁷⁸ We can see in fig.10 that higher HSS scores tend to correspond to higher numbers of public EVCPs. This suggests that boroughs which are proactive about supporting residents to switch to EVs are also more likely to be proactive about supporting sustainable modal shift. As can also be seen, Westminster and Hammersmith & Fulham are outliers, with disproportionately high numbers of EVCPs relative to their overall HSS score..

Total public EV chargepoints on carriageways vs Healthy Streets Scorecard (HSS) score



Figure 11: Total public EV chargepoints on carriageways vs Healthy Streets Scorecard (HSS) score

Very few boroughs have installed many EVCPs on kerb build-outs in the carriageway so far, and the only ones to have done so score relatively highly on the HSS. Installing EVCPs on kerb build-outs may signify a more sophisticated level of policy consideration of pedestrian space in borough transport strategies.

Total public EV chargepoints vs car ownership

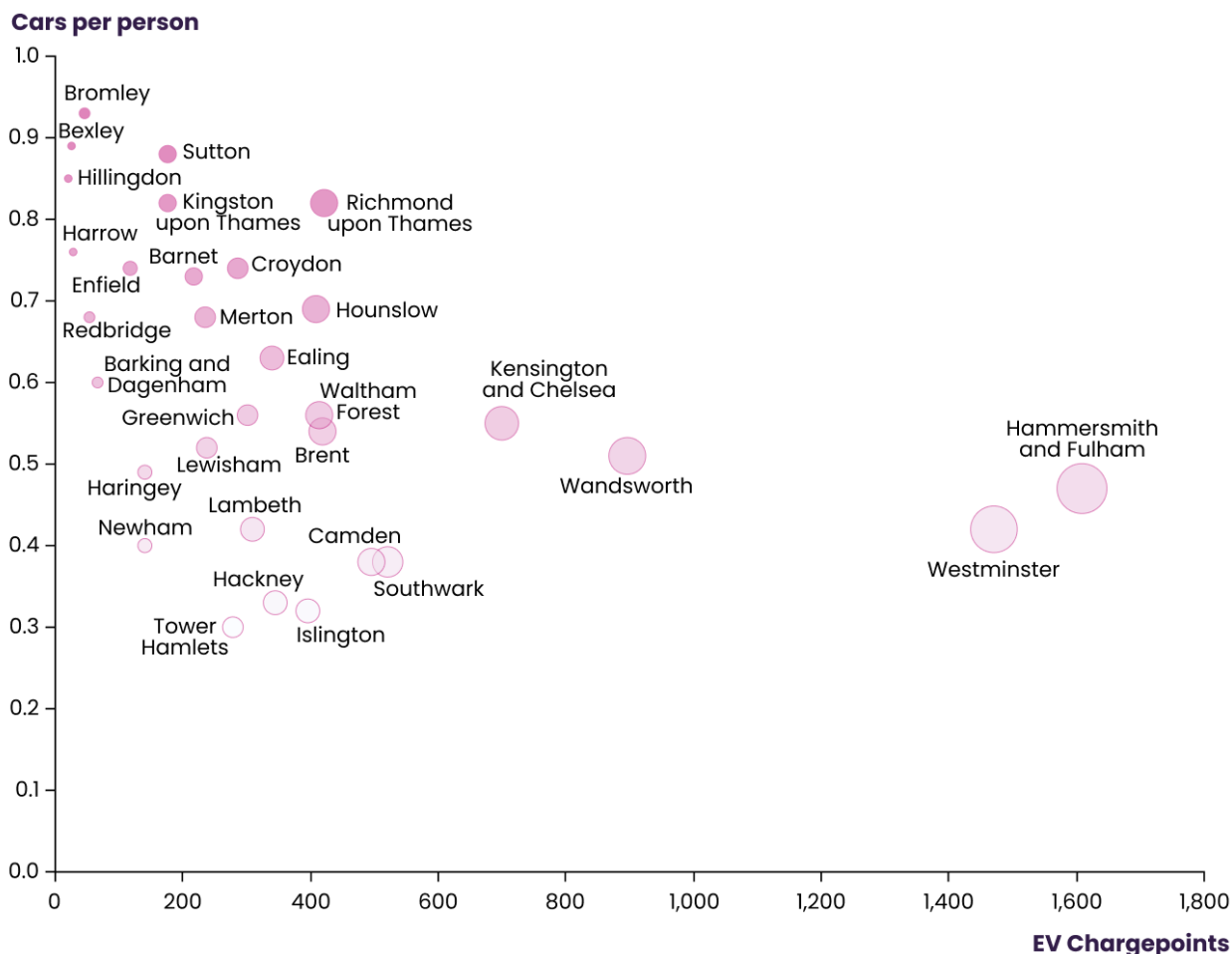


Figure 11: Total public EV chargepoints vs car ownership

Perhaps surprisingly, there is a clear correlation between lower levels of car ownership and higher levels of public EVCP installations. Boroughs with the most cars per person tend to have the least public EV charging infrastructure, while those with the fewest cars tend to have the most chargepoints. Westminster and Hammersmith & Fulham are again outliers, with disproportionately high numbers of EVCPs relative to the average for their numbers of cars per person.

2.2 The Good

2.2.1 Summary

Hackney has around 350 chargepoints on its public highways, over 60 of which are on kerb buildouts in the carriageway, and the most ambitious target for future rollout of any London Borough. Although Hackney had no explicit policy on siting at the time of our FOI enquiry, they have since told us that, "Our siting criteria states that we do not site charge points in the footway. Slow chargers will be converted lamp columns, but no loss of footway is caused as only carriage-way adjacent lamp columns have been chosen."⁷⁹ **Wandsworth** ranks third for the most chargepoints to date with around 900, has near term targets for more and explicit policy not to site any of these on the footway. Nevertheless it has already installed over 150 on pavements. **Lambeth** and **Camden** have around 300 and 500 chargepoints respectively, and clear policy to site on the carriageway. While Lambeth has installed at least 27 chargepoints on footways (but has no specific targets for future rollout), Camden has installed over 100 – although 52 of these are of an innovative design intended to minimise street clutter (see below). Camden aims to install 400 fast and 9 rapid EVCPs by 2024/25, including the electrification of a minimum of 15 car club bays.

Lambeth have 14 fast and rapid chargepoints installed in the carriageway on kerb buildouts or similar, and they told us that work is now being done to design buildouts which will in future conform to the new British Standard on accessible chargepoints.

Richmond upon Thames and **Waltham Forest** each have over 400 public chargepoints and modest near term targets for more, with clear policy to site these on the carriageway. But Richmond has installed over 70 on its pavements to date, while Waltham Forest is the borough with the highest overall number of chargepoints installed on kerb buildouts in the carriageway, closely followed by Camden and Wandsworth.

Not every borough that has committed to not installing EV chargepoints on pavements has been categorised here as 'good' overall. But all of them have declared a climate emergency, and all of them bar Wandsworth have set nearer-term Net Zero targets than 2050. The only London boroughs to have publicly set clear and explicit targets for reduction of motor traffic and car use are also in this group: Camden, targeting a 25% reduction in traffic volumes from 2019 levels by 2041 (which current data suggests has already been exceeded); Hackney, targeting a 15% traffic reduction by 2026⁸⁰,

Lambeth, aiming for 26% by 2030⁸¹, and Greenwich, targeting a 45% reduction in car use in the borough by 2030⁸². Hackney even has a target to reduce car ownership in their borough by 29% by 2040.

Kingston, Haringey and Waltham Forest have no specific traffic reduction targets but do explicitly commit to taking steps to reduce traffic and car use and dependency in their climate action plans. Every borough in this group except Kingston also cites a specific modal shift target in its Local Implementation Plan or elsewhere.

Of particular note is that nearly every borough to have explicit policy not to site EV chargepoints on pavements also has one or more of either:

- a detailed set of transport objectives which include reduction in car use as part of its climate action plan;
- an overall integrated sustainable transport plan;
- or an up to date, detailed walking and cycling strategy.

Camden and Greenwich have all three.

The borough to have installed the greatest overall number of EV chargepoints on kerb buildouts in the carriageway, Waltham Forest, has a Climate Action Plan whose transport section is titled "A place for people not cars"⁸³. Meanwhile Lambeth's trailblazing new Kerbside Strategy commits to a wholesale repurposing of on-street parking, saying they will:

"Enable 25% of kerbside space on Lambeth streets to be allocated to uses that enhance community and business resilience to climate change e.g. tree planting, Suds, cycle parking, children's play, parklets, shared spaces."⁸⁴

2.2.2 Case Study: Camden⁸⁵

Good practice in action

Camden's policy of installing charge points on buildouts was adopted in April 2019 as part of the Camden Transport Strategy (CTS) for 2019-41⁸⁶, introduced in response to the council's declaration of a climate emergency. The policy is aimed at minimising the impact of charge points on pedestrians, especially those with a disability⁸⁷, and is just one small part of the wider integrated CTS.

Installing chargepoints on buildouts often (though not always) requires some parking bays to be decommissioned to make space for the new infrastructure, and this can be contentious. Camden follows a bespoke consultation process for delivering EV chargepoints on the carriageway which has been developed through a detailed dialogue with residents around the borough's 'Healthy Streets' schemes⁸⁸. This dialogue elicited a holistic vision for life in the borough in 2025 from residents, and was met with a commitment to transparency in delivering the street level changes needed to realise that vision. EVCP installation is classed as a "small" scheme under the framework, and is preceded by a public and Traffic Management Order consultation exercise which runs for 21 days. Further officer time is allocated to develop responses to any comments received and prepare a report for the relevant decision maker to consider.

Since 2019, Camden have installed 106 chargepoints in the carriageway, with a total of 142 dedicated parking spaces for EV charging. In addition to their rollout of 'slow' chargers in lamp column conversions, this programme has focused on delivering 'fast' chargers of 22kW capacity. Camden's kerb buildout programme is focused on pursuing comprehensive borough-wide coverage by siting fast chargers on streets where lamp column conversions are not possible due to compatibility or other issues.

Although Camden were unable to say exactly how many parking bays have been decommissioned in the borough during their EVCP rollout so far, they told us that a rule of thumb is that for every two new dedicated EV charging bays, the loss of up to three general parking bays would be expected. Typical objections from stakeholders to the loss of parking bays primarily centre around the new bays being accessible to all motorists with EVs rather than being for the exclusive use of residents, alongside aesthetic complaints⁸⁹.

The number of EVs registered in Camden had grown five-fold in the five years to October 2022, and the council is now receiving hundreds of requests for EV chargepoints from residents every year⁹⁰. Camden has nearly 250 lamp column chargers, and tell us they have never received any complaints about these. However Camden is now converting many bays adjacent to these chargepoints to EV-only, which means the loss of some 'general' parking provision; residents' comments on these plans are five to one in support⁹¹.

The borough aims to install at minimum another 400 fast chargers and nine rapid chargers on kerb buildouts by 2024/25. Camden told us that the typical cost for an island buildout is approximately £2,500, and that funding for their EVCPS has been secured from a combination of On-street Residential Chargepoint Scheme (ORCS) grants, Local Implementation Plan (LIP) funding, Community Infrastructure Levy (CIL), supplier funding, as well as the council's own transport budgets. Importantly, Camden report that they have had "no difficulty in justifying the extra cost for island buildouts" with OZEV. (Addenda: Waltham Forest gave us a figure of £3,750 for an EVCP kerb buildout).

Camden is working with five different charging providers, and has revenue sharing agreements with all of them. One, Trojan Energy, has installed 52 'sub-surface technology' (see below) chargepoints on pavements in the borough since April 2022, and the council is currently assessing the impacts of this trial. Early indications are positive. All of Camden's future kerb buildouts will meet the new BSI standard for accessible chargepoints introduced in October 2022, but they told us they had already adapted their island design in March 2022 following feedback from disabled residents, to reduce the size of the gully and move the charger closer to the footway to aid access.

2.3 The Bad

2.3.1 Summary

Havering is the only council in London to have installed zero public EV chargepoints on its land or highways, and like **Hillingdon, Harrow** and **Bexley**, which each have fewer than 100 public chargepoints, has no target for installing any more and no policy regarding whether they should be sited on pavements or carriageways. **Redbridge, Bromley** and **Barking & Dagenham** all have fewer than 100 and no policy on siting, but do have formal targets for more.

One of the most obvious themes revealed here is that the boroughs that are bottom of the list for deployment of EV chargepoints also score poorly for wider environmental ambition and active travel. Havering, Bromley and Bexley are three of only five London boroughs to have never declared a climate emergency, and have not set more ambitious Net Zero targets for their boroughs than the UK's legally binding 2050 goal. Hillingdon, Redbridge, and Barking & Dagenham *have* declared climate emergencies,

but stuck with Net Zero in 2050. Harrow is the only one of the worst performing boroughs for EV charging to have declared a climate emergency and set a near term 2030 Net Zero target (the most common date for London Councils' Net Zero commitments).

It is particularly striking to note that Bexley, Bromley, Harrow and Hillingdon are the four London Boroughs preparing, at the time of writing, to mount legal action against the London Mayor's Ultra Low Emissions Zone (ULEZ) expansion, while Havering and Barking have both called for the scheme to be delayed. Harrow is planning to spend over twice as much on lawyers to fight ULEZ expansion than it has applied for in government grant funding for EV chargepoints⁹².

An even stronger correlation is found with support for active travel, where nearly all of the lowest scoring boroughs on the Healthy Streets Scorecard matrix have also installed the fewest public EV chargepoints overall. These boroughs have the highest rates of car ownership and the lowest rates of cycling in London, and compete for bottom place across all of the metrics that are used to compile the scorecard.

Also notable is the fact that most of the boroughs with the fewest EV chargepoints are Outer London boroughs, whose residents have less access to public transport and are more dependent on car travel for mobility. Havering, Bexley, and Barking & Dagenham are the least connected boroughs by public transport, with fewer than 20% of properties within 500 metres of a rail or tube station.⁹³ Arguably, EV charging infrastructure should be being prioritised here, rather than in Inner London where often only one in ten residents travels to work by car⁹⁴.

2.3.2 Case study: Bexley

Nothing ventured, nothing gained

Bexley council had managed to install just 26 EV chargepoints on its public highways by October 2022, 100% of them on pavements. The council has no targets to install any more, and no policy on where EVCPs should be placed - although they did tell us that one was being developed. Only Hillingdon and Enfield appear to have applied for less funding from the government's ORCS scheme since it opened in 2018⁹⁵.

Although Bexley has done the least of almost any borough to support its residents to switch to cleaner vehicles, the local authority's leader has spearheaded the legal challenge to the Mayor's ULEZ expansion, stating that, "It was never about air quality and we believe it would have

disastrous consequences for many of our residents and businesses”⁹⁶. At the time of writing, Bexley council is refusing TfL access to its highways to install ANPR cameras to enforce the ULEZ⁹⁷.

Bexley’s transport policymaking has failed so badly to fulfil its statutory duties to conform to the London Plan and Mayor’s Transport Strategy that since 2018 the borough has faced repeated censure from TfL. Contention has centred around a range of misaligned policies such as specifying excessive maximum parking standards for new developments and planning road building schemes to increase network capacity for general traffic at junctions. The council had sought to save car parks in town centres from housing development, but to build over Bexleyheath Bus Garage instead⁹⁸. Bexley seems almost uniquely disinterested in supporting bus use, with just 1% of the bus routes on its highways benefiting from priority lanes, the least in London⁹⁹.

Other Healthy Streets Scorecard metrics show that the Bexley has also done almost nothing to support residents to switch to active travel. Bexley has the lowest proportion in London of streets included in low traffic neighbourhoods at just 4%, and is one of only two boroughs not to have introduced a single School Street¹⁰⁰. Just 3% of its roads have protected cycle lanes, and just 9.7% have 20mph limits – a fifth of the London average.

With no climate emergency declaration and no net zero target, Bexley is a prime example of a local authority which is not just disinterested in taking action on climate change and air quality, but actively fighting against measures to do so.

2.4 The Ugly



Figure 12: EV chargepoint installed by Westminster Council on the pavement directly outside the entrance to the Department for Transport, whose own best practice guidance specifies they should be sited in the carriageway. A kerb buildout could have been easily accommodated between parking spaces here.

Credit: Possible

2.4.1 Summary

What we have characterised here as the 'Ugly' boroughs are the outliers – the London boroughs that have installed high numbers of EVCPs overall, but taken the least care of the pedestrian environment in the process. In terms of supporting the switch to EVs, they're doing well; in terms of supporting modal shift away from private car use, they're doing badly.

By October 2022, **Hammersmith & Fulham** had recorded 1996 EV chargepoints installed on its public highways, making it the borough with the highest reported number of EVCPs overall. **Westminster** had installed the second highest number of chargepoints in the UK, but reported having no long term targets for more, no policy on where they are sited, and has installed over 200 on pavements to date. **Kensington & Chelsea** ranks third with nearly 700 chargepoints, but nearly 400 of these are on their pavements, and they have no targets for more and no policy on where they are sited.

Both Kensington & Chelsea and Westminster have declared climate emergencies and set borough-wide net zero targets for 2040. However, Kensington scores lower than Westminster on almost every metric in the Healthy Streets Scorecard, and has the least protected cycle lane of any London borough (none). Kensington's decision to remove their only cycle lane seven weeks into an 18 month trial was subject to judicial review by local campaigners, while their 'greening the high street' policy sets out a unique stance on 'parklets' - small on-street green refuges with seating and planting¹⁰¹ - stating that, "parklets normally take a parking space but we are proposing to put them on the pavement."¹⁰²

Nevertheless, both boroughs have climate action plans¹⁰³ which include clear and explicit commitments to reduce private vehicle use, and to repurpose road space away from parking towards more sustainable uses. Both councils also have detailed walking and public realm commitments including pavement de-cluttering as a priority. Westminster's 2011-2015 'Neat Streets' programme proactively removed 339 posts and 815 traffic signs from their footways, and the council says that,

"The lessons learnt have resulted in all Westminster's transport and public realm schemes now seeking to reduce street clutter, wherever possible."¹⁰⁴

Since then, Westminster has installed 214 EV chargepoints on pavements and zero in kerb buildouts in the carriageway. Westminster has even installed an EV chargepoint on the pavement directly outside the entrance to the Department for Transport, whose own best practice guidance specifies placement in the carriageway.

2.4.2 Case study: Hammersmith Fulham

When climate ambition goes wrong

Hammersmith & Fulham has installed the highest number of chargepoints overall - more than the bottom fourteen London boroughs combined. H&F originally told us that 454 of these are sited on pavements, but have since corrected this to 196. Hammersmith & Fulham has declared a climate emergency and set a highly ambitious 2030 Net Zero target. H&F have not published an EV charging strategy, but in 2022 they committed to installing at least one EV chargepoint on every street in the borough¹⁰⁵.

H&F was the only London council to report a clear policy to always site EV chargepoints on footways, and has never installed any on kerb buildouts in the carriageway. Indeed, the council's response to our placement policy question - "EVCPs have to sit on the footpath due to the necessary electrical infrastructure required." - suggested that officers and councillors at H&F may not have been aware of national or London best practice guidance on siting; nor aware that other London boroughs have installed nearly 900 on carriageways already; or that nine of their borough peers have policy commitments never to site EVCPs on footways in the future. The response appears to relate to a specific contractual agreement with a charging provider that uses Virgin Media network assets - but this is of course not the only delivery option¹⁰⁶.

Hammersmith & Fulham has no traffic reduction targets, and no walking strategy. Its most recent cycling strategy dates to 2015¹⁰⁷, while its 2019 Local Implementation Plan (LIP) does not mention any explicit commitments to reduce car use by residents anywhere in the text, although it does reference the 2041 MTS borough target for modal shift¹⁰⁸. The draft LIP states that, "We support improvements for cyclists, including the Cycle Superhighways, but this mustn't be at the expense of space for pedestrians", and commits to, "Supporting the development of safer and more convenient cycle routes, provided that this does not involve reducing space for pedestrians."¹⁰⁹ The document also features plans for EV chargepoint rollout but pedestrian space is not mentioned.

H&F's 2021 Climate and Ecology Strategy depicts a travel hierarchy with pedestrians at the top and private vehicles at the bottom¹¹⁰. It reports that residents raised 'traffic on our streets' as an issue of highest concern for

climate action and cites reduction of traffic levels and reallocation of road space as opportunities for co-benefits.

The document's Travel Vision for 2030 says that, "the vehicles on our roads will be fewer and zero-carbon", but there are no associated transport objectives explicitly aimed at reducing traffic or car use by residents, although the challenges section does mention managing through traffic that originates "out of borough". The themes around highways and road space commit to "Support residents and businesses to adopt clean vehicles and car-sharing." and "Use road space to encourage cleaner vehicles", as well as using highways investment to create "more space for walking, cycling and biodiversity"¹¹¹.

H&F's associated Climate & Ecology Action Plan¹¹² was ranked very highly by the Council Climate Action Scorecard in 2022¹¹³, though not for its transport element. The plan includes immediate actions to "develop street design that further encourages safe cycling and walking and increases active travel journeys" and to "prioritise investment in active travel, especially to improve walking, and seek opportunities to reallocate road space." It features an action to "ensure every property is within 200m of an EV charging point by 2026.", and also to "develop options for traffic, congestion and pollution reduction schemes." - but only by 2030.

H&F perform similarly to Kensington & Chelsea in the Healthy Streets Scorecard (HSS), with generally high scores for most metrics, albeit fairly typical for inner London boroughs. But it suffered the biggest drop in sustainable mode share of any London borough between 2019 and 2021¹¹⁴, and it is one of only two London boroughs to have implemented no School Streets at all, the other being Bexley.

DVLA data shows that since 2019 car ownership has fallen in every borough except Tower Hamlets (which is in the process of reversing all of its active travel measures at the time of writing), but it has fallen less in H&F than almost anywhere else - just 1.5%¹¹⁵. The figure for Camden is nearly four times this. Meanwhile ownership of petrol cars specifically has increased in H&F by 7.9%, more than any other borough except Tower Hamlets.

H&F had planned to introduce their own unique take on a Low Traffic Neighbourhood, which gives blanket exemptions to all residents with cars to drive through all camera enforced filters, only restricting out of borough traffic. Plans to roll this 'Clean Air Neighbourhoods' approach out across the borough were accompanied by plans to roll out free parking to

residents to encourage short car trips to local shops¹¹⁶. Unfortunately, following a coordinated campaign by local climate change deniers, the Leader of Hammersmith & Fulham [imposed an indefinite pause to the CAN programme](#).

H&F has recently banned e-bikes from the Thames Path¹¹⁷, and consulted on plans to spend as much as £200 million to reopen Hammersmith Bridge to cars as quickly as possible by forcing cyclists and pedestrians to cross the river beneath a steel truss carriageway carrying motor traffic overhead. If the plans are approved, the borough intends to recover its costs through a toll on private cars – but also to exempt local residents from paying the toll. Like free parking for residents, a “sustainable transport strategy” was promised in the H&F Labour 2022 election manifesto¹¹⁸, but unlike free parking does not appear to be in delivery at the time of writing.

It is clear that the emergency closure of Hammersmith Bridge to motor traffic in April 2019 has occupied a huge share of the borough’s transport and highways teams’ bandwidth over recent years. In many ways it is therefore impressive that while dealing with this crisis alongside the pandemic, H&F has pushed ahead to both become the leading council in the UK for public EV chargepoints, and has also finally delivered a long-awaited protected cycle lane on a key strategic E-W transport corridor through West London¹¹⁹. Its plans for “Clean Air Neighbourhoods” – provided they do eventually go ahead – though weak in relation to London’s leading councils on climate and active travel, compare favourably with boroughs that have not implemented any kind of low traffic neighbourhood – or removed the ones they had.

Addendum:

In June 2024 Possible and Wheels for Wellbeing met with officers at H&F to discuss this report’s findings and recommendations. They conceded that mistakes had been made in the past, and told us:

“Hammersmith and Fulham’s (H&F) future strategic direction for electric vehicle (EV) chargepoint infrastructure will prioritise the installation of new standalone chargepoints in the carriageway (via kerb build-outs) and not within footways.

The Council aims to support access to both the pedestrian realm and to electric vehicle chargepoints for disabled people, and we are currently

increasing our inclusive access resources and co-production activity with disabled residents.

The priority is to ensure that H&F continues to provide equitable access to EV charging across the borough – balancing the demands of all road users within the public realm with a key focus on safety and accessibility – while ensuring that the best charging options continue to become available for our residents, businesses and visitors.”

Overall, the ‘Ugly’ boroughs are characterised by high levels of ambition on the climate crisis, accompanied by a broad suite of strongly pro-car policy and spending priorities and practices. This contradiction evidences an unconscious bias that behavioural psychologist Professor Ian Walker has termed ‘Motonormativity’.¹²⁰ As Walker explains,

“This mindset isn't just present in the public, it's also endemic in policymakers and people who look after public health. This explains a lot of planning and policy decisions: they make sense if you assume everyone drives and that this can't, or shouldn't, change.”¹²¹

Notably RBKC, Westminster and H&F are all among the ten boroughs taking part in the London e-scooter hire trial, like Camden, Richmond and Lambeth¹²². But whereas Camden has redesignated dozens of on-street car parking spaces for micromobility hire vehicles, H&F's e-scooters are primarily parked inside lined boxes painted on pavements.



Figure 13: Examples of typical micromobility hire parking provision in Camden (left) and H&F (right). Kerb buildouts also give the opportunity to accommodate new street trees.

Credit: Possible.

On-pavement e-scooter and bike parking creates multiple hazards and access issues for Disabled pedestrians, and a number of micromobility companies (e.g. Lime) only advocate for on-carriageway parking. But many local authorities continue with pavement parking regardless.

Motonormativity is clearly prevalent amongst the 'Bad' grouping of boroughs too, but they are also united by very low levels of ambition on climate change. Motonormativity appears to be the key differentiator between 'Good' and 'Ugly' boroughs in our analysis, with wider implications for transport decarbonisation objectives which we discuss further below.

2.4.3 Change afoot: Westminster

In London's local elections in May 2022, the Labour Party took control of Westminster City Council for the first time in its nearly sixty year history, having previously been exclusively led by Conservative Party councillors. We shared our draft report findings with Westminster's new Deputy Cabinet Member for Climate Action and Biodiversity, Councillor Ryan Jude, and Deputy Cabinet Member for City Management and Air Quality, Councillor Max Sullivan, and asked them to comment on how things are likely to change for climate action and active travel in the borough under the new administration. They told us that:

"The new Westminster Labour administration has committed to embed climate action in everything it does, as set out in the council's Fairer Westminster Strategy¹²³. We were proud to sign the Climate Safe Streets pledge during the 2022 campaign, and we are introducing policies to meet this now.¹²⁴

This report from Possible is very welcome. For many years Westminster City Council has had a transport hierarchy which places pedestrians at the top, but there wasn't enough consistent action to make that a reality. The new administration is taking action, and developing transport and kerbside space policies which will protect our pavements from obstructions of every kind – including our own infrastructure."

Westminster is now investing £35m in a sustainable travel programme including School Streets, high quality cycle lanes, cycle parking and secure storage (mainly "at the kerb rather than the pavement"), adding 100 dropped kerbs to pavements to improve accessibility, more cycle hire, bus priority and, crucially,

"A city-wide network of parking bays for rental dockless e-bikes and rental e-scooters to keep our pavements clear of improperly

parked vehicles, and continued enforcement against dangerous pavement obstructions of all kinds.”

Westminster’s biodiversity plan includes “a new focus on parklets”, and plans for a Citizens’ Climate Assembly at which, “sustainable transport will be one of the major themes, with specific questions being discussed relating to road space.”

2.5 The rest

Merton, Ealing and **Croydon** have each installed roughly 300 chargepoints on their public highways, around two thirds on pavements and none on the carriageway. **Greenwich** failed to record where it had sited its public EV chargepoints so no data is available, though it also has around 300 in total and a clear policy not to site on the footway in future.

Barnet has over 200 chargepoints, nearly all lamp column conversions, with a clear target for more but no policy on where to put them. **Hounslow** has over 400 and an ambitious target for more, but only one is on the carriageway and their policy is to retain minimum footway width.

Southwark has over 500 chargepoints, all lamp column conversions, and say they are developing policy on siting now. **Islington** has closer to 400, but nearly half are on pavements. **Brent** also has over 400, over 70 of which are on the footway, and has a modest target for more and a policy specifying minimum footway width.

Haringey and **Kingston upon Thames** each have around 150 chargepoints and clear policy to site future chargepoints on the carriageway, but a quarter of Haringey’s existing chargepoints are on the pavement, and Kingston has no targets for deploying more.

Merton, Tower Hamlets and **Lewisham** all have middling numbers of chargepoints today (200+) and targets for rollout, but Merton has installed over half its chargepoints on pavements with no policy on siting future installations, while the others specify minimum clear footway width. The data provided by Lewisham in response to our request failed manual validation; they stated no EVCPs had been installed on their footways but this is incorrect. **Enfield, Sutton** and **Newham** all have similar lower (<200) numbers of installed chargepoints. Over half of Newham’s are on the pavement, but it shares moderately ambitious mid term targets for more with Enfield, while Sutton has no target.

3. Innovation and mitigation



Figure 14: Example of a lamppost charger in use in Westminster. It is not accessible to Disabled drivers. Credit: Possible

Some attempts have been made to innovate our way out of the car / pedestrian conflict inherent to installing chargepoints on pavements. By far the most important and successful so far have been lamp column conversions, where charging units are manufactured to fit the internal dimensions of a standard lamp column, and retrofitted to lampposts situated suitably close to the kerbside by an on street parking space.

This approach has been pioneered in London by Shell subsidiary Ubitricity, who have installed over 6000 on London's streets¹²⁵, but they have now been joined by rivals such as SureCharge, a subsidiary of UK road construction firm ConwayFM¹²⁶. Lamppost charging can only accommodate 'slow' chargers of 3.2–5.5kW, but this is well suited to on-street residential charging demands.

These chargepoints can be very rapidly and cheaply rolled out without adding new street furniture to any part of the public highway, although it is important to note that the prevailing designs today are not accessible to Disabled drivers, and trailing cables may still represent trip hazards while in

use. But it is clear that the impact of a lamp column conversion on the quality of the walking and wheeling environment is very low in comparison with a standalone charging station, which is typically accompanied by a separate transformer unit and new signpost telling motorists about the EV charging bay. Lamp column conversions have risen to dominate the current and future public on-street chargepoint rollout in London.

Given the growing prevalence of this approach, we asked our friends at charity Wheels for Wellbeing¹²⁷, who support access to cycling for disabled people, to share their perspective on lamp column conversions.

Wheels for Wellbeing view on lamppost chargers

“Although lamp column chargepoints may seem like a low-regrets option for on-street charging infrastructure, they are not without their problems. Lamp column conversions will only be accessible to Disabled drivers if suitable flush kerbs are provided to enable Disabled access between the column and on-car charging socket, which does not appear to have been a consideration in the rollout of this approach so far. Likewise, the height and weight of the cable and charging plug must be designed to be accessible to Disabled drivers. If the key attraction of lamp column conversions is that they can be done cheaply, this flags an obvious risk that additional works to ensure they’re also accessible will be de facto ruled out of scope for delivery.

There is also a presumption that lamp columns will be moved to the backs of pavements in some areas, to free up pavement space but also to reduce risk of vehicles hitting lamp posts¹²⁸. This appears to be a clear case where a conflict between new infrastructure design guidance will result in serious accessibility issues: lamp posts at backs of pavements with integrated chargers would probably mean many, many cables trailing over pavements! This must not happen.”

An alternative approach which allows for higher speed chargepoints to be installed without adding permanent street clutter is Trojan’s flat, flush-to-pavement on-street chargepoints¹²⁹, developed as part of the Subsurface Technology for Electric Pathways (STEP) project¹³⁰. These require drivers to have a proprietary ‘lance’ to plug in to the unit, which while in use does present a footway obstacle. The system could be particularly attractive where on-street chargepoints are dedicated to use by local residents, as most EV owners will not have access to a lance. 150 have been

installed so far in Camden and Brent, and Barnet has appointed Trojan to roll out 500 more across its highways by mid-2023¹³¹.

Meanwhile in Oxford, a non-intrusive private solution to on-street charging is being trialled, which entails a narrow gulley being cut into the pavement to allow charging cables to run to the kerbside without causing a trip hazard (although they could still be an obstacle for wheelchair and mobility scooter users)¹³². Pavement gullies have been included in the project types which are eligible for the government's new Local Electric Vehicle Infrastructure fund which suggests they are set to become a regular sight on our streets¹³³.

Ultimately, the hope is that wireless charging through induction technology will become the standard method of charging EVs in the future. This approach replaces plug-in cables with induction pads which are able to provide a wireless charge to a vehicle parked directly over them (provided it is induction-capable)¹³⁴, and is currently subject to a number of trials in the UK¹³⁵.

Induction charging offers huge advantages over cabled charging in terms of both greatly reduced street clutter and vastly improved accessibility for Disabled drivers, but is in the early days of commercialisation and is currently significantly more expensive. Accelerating the introduction of induction charging could be a critical part of ensuring the transition to EVs is accessible, and it is not hard to imagine a near future in which induction pads are part of the mandatory design specification for designated disabled parking bays.

4. Pavement EV chargepoints audit: Hammersmith & Fulham

4.1 Assessing clear footway width remaining at installed pavement chargepoints

OZEV guidance specifies that a minimum clear footway width of 1.5 metres should be retained around on-street chargers on pavements, while the DfT's Inclusive Mobility guidance stipulates two metres minimum as best practice. TfL's guidance for London also specifies 2m as the minimum width which should be retained in order to not impact negatively on pedestrian comfort levels and accessibility for all pedestrians.

Many London boroughs report a policy of maintaining a minimum footway width as a design standard for pavement installations, as a form of compromise between supporting EV switching and protecting the walking environment. It could be argued that if new car refuelling street furniture is sensitively installed on footways it need not necessarily represent any loss of utility to pedestrians. However, well over a third of Britain's urban residential streets have a pavement width of less than two metres to begin with – meaning many roads have inadequate footway space even before the addition of further clutter such as EV chargers¹³⁶.

Whilst this investigation sets out an in principle rationale that EV chargepoints should only ever be installed on pavements in exceptional circumstances, the extent to which footway installations are harming pedestrians clearly depends in part on how they are being implemented in practice, and in particular the impact on clear footway width.

The impact of reduced pavement width on a majority of non-Disabled adult pedestrians walking alone and unencumbered will be far less than the impact on Disabled pedestrians of all ages, parents and carers. People who walk or wheel errands such as food shopping need much wider pavement widths than those walking or wheeling without encumbrance. These “edge cases” need to be prioritised for accessibility on pavements: These are the people who need to experience easy walking and wheeling in order to engender improved active travel equity as well as mode shift to walking and wheeling.

As the UK's leading highways authority in terms of on-street public EV chargepoint deployment to date, Hammersmith & Fulham offers an opportunity to assess what happens in practice when aggressive EV

charging targets are adopted by councils in the absence of clear policy to protect pedestrian space or reduce car use by residents.

Hammersmith & Fulham report having installed 196 public EV chargepoints on their pavements by October 2022, out of a total of 1,996 on their highways, the rest of which are in lamp columns. H&F also report a target to install a total of 3000 public EV chargepoints on their highways by the end of 2023. This suggests 1,391 more chargepoints are due to be installed this year alone, 87% of which are expected to be lamppost conversions. After we met with them, H&F confirmed that future standalone chargepoints will be on kerb buildout in the carriageway.

In late January 2023 we used Zap-Map to identify every publicly accessible on-street chargepoint of 7kW capacity or higher within the area defined in the map in Appendix B. This excluded lamppost chargepoints from our search query, allowing us to visit and inspect a sample size equivalent to over half of all pavement EV chargepoints installed in H&F to date.

We reviewed and photographed the layout of charging infrastructure at each site, and recorded the commercial provider, number of chargepoints, number of charging posts and related items of street furniture, and clear footway width remaining around each standalone charge post.

We recorded a total of 94 individual charging posts across a total of 53 sites, many of which housed more than one connection. In addition to the standalone charging columns, each site also featured one separate transformer unit providing power to all posts at that site, and a new signpost providing details for motorists about the EV charging bay. In total, we recorded 200 individual items of new street furniture across all of the sites, providing charging connections for 123 vehicles.



Figure 15: Vespan Road, Liberty Charge double chargepoint, typical arrangement. Credit: Possible.

Fig.15 shows a typical layout at a site. This arrangement presents a chicane for pedestrians, where the signpost and chargepost are generally as close as permissible to the kerb, while the transformer unit is set back to protect it from vehicle damage. Occasionally the signpost is placed in line with the transformer instead of the chargepost, and in some instances the transformer box and signpost are arranged in line with chargeposts, as in the picture below.



Figure 16: Everington Street, Source London chargepoints. These have not been made accessible for Disabled drivers. Credit: Possible.

Even carefully configured charging infrastructure is evidently encroaching on scarce pedestrian space in Hammersmith & Fulham.

The clear footway width measurement data is even more troubling. As Fig 17 shows, only around a quarter of the hundreds of pavement chargers in H&F successfully conform to the accepted accessibility standard (and TfL's pedestrian comfort guidance) of two metres clear footway width. In other words, three quarters of H&F's pavement EVCPs are failing the key accessibility test. Worse, around 40% leave less than OZEV's absolute minimum guidance specified of 1.5m.



Figure 17: clear footway width at pavement installations of EV chargepoints in the London Borough of Hammersmith & Fulham, January 2023

Perhaps most worryingly, it seems that the EV chargepoints installed earliest (the Source London units) are more likely to leave adequate footway width than the units being installed in 2022/23 (the Liberty Charge units), the large majority of which leave less than 1.5m clear footway width at their narrowest points. It appears that highways officers sought to select the original sites carefully, more often (but not always) choosing locations which had ample pavement space to host street furniture as well as being strategic in relation to borough-wide coverage.

The latest wave of installations appears to have abandoned any attempt to maintain accessibility and pedestrian comfort; only two of the 30 Liberty Charge column installed inspected left 2m or more clear footway. This is despite Hammersmith & Fulham's Equality Impact Assessment for the scheme concluding that "it is not anticipated that there will be any negative impact on any groups with protected characteristics from the awarding of this contract."¹³⁷ The council's framework agreement with Liberty Charge means they are now contractually obliged to host these units on their pavements for at least the next ten years¹³⁸.

If our findings in H&F are representative, then we can extrapolate that across the whole of London, 4,159 new items of street furniture serving electric vehicles have been placed on footways.

Wheels for Wellbeing reviewed our measurements and photographs of the EV charging arrangements on H&F footways, as well as H&F's EqIA and associated documents. Below they give us a Disabled People's Organisation (DPO) perspective on their potential impact on mobility for wheelchair users and people with visual impairments in the borough.

4.2 Inclusive street design? A DPO's perspective on H&F's pavement installations of EVCPs

Pavement installations of EVCPs create two significant barriers for Disabled people. Firstly, they create a number of hazards for Disabled pedestrians and render the pavement inaccessible for those who are walking or wheeling.

For example, charging posts often decrease the width of pavement to less than the 2m accessibility requirement for those using mobility aids such as mobility scooters or walking with an assistance dog – especially when combined with other street clutter. Pavement chargers can also create a range of trip hazards, including cables and raised platforms, which intrude on the pavement and cause significant risk for Blind and visually impaired and mobility impaired pedestrians.

The second barrier that EVCPs pose for Disabled people is the vast majority of those installed are not accessible for Disabled drivers. Standards for accessibility¹³⁹ have recently been developed, but this has come too late for the many thousands of charging points already in place. As such, Disabled drivers are excluded from this new public infrastructure and face yet another barrier to independent mobility.

It is crucial that all EV infrastructure is accessible to Disabled people (and others with protected characteristics) and does not impede on active travel infrastructure or essential access to the public realm. Pavement installed EVCPs do not currently meet either of these criteria. We call on all local authorities to ensure full, equal access to pavements and EVCPs for Disabled people and for them to recognise their equalities obligations in this regard.

5. Conclusion

The road to net zero is paved with good intentions. This investigation has revealed the low-key battle for limited space now ramping up largely unremarked on our streets. It is a battle in which the field of conflict is heavily stacked towards the aggressors. Cars are the incumbent rulers of the road, and if history is any guide, pedestrians could lose a lot of ground in the coming years without a concerted effort to protect it.

Hammersmith & Fulham's pavements may provide a vision of the near future for towns and cities across the UK. But London is not like the rest of the UK in two important ways: it has by far the lowest levels of car ownership, and by far the best public transport system of anywhere in Britain. Yet even its boroughs are still largely ignoring best practice guidance about the siting of EV chargepoints, and have placed four times as many on pavements as they have on carriageways. Motonormativity and car dependence are even more prevalent outside the M25, while more far-sighted authorities like Lambeth and Camden are even fewer and further between.

EV charge points on pavements create double discrimination. They often render the pavement inaccessible for Disabled pedestrians, and the chargepoints themselves – at least as delivered so far – are not accessible for Disabled drivers. This would appear to counter a number of the obligations bestowed on local authorities by the Equality Act as well as recent active travel policies.

The invasion of pedestrian space by a new breed of private motor car in the name of the environment is an important physical manifestation of a more fundamental philosophical challenge to our societal response to the climate crisis. Many people prefer to believe that an effective response can be mounted exclusively off the back of technological change. But across many areas of life, not least transport, this is not what the evidence suggests.

There is a growing expert consensus¹⁴⁰ that electrification of our road vehicle fleet will not be sufficient to meet our national climate commitments on its own¹⁴¹; a large and rapid absolute reduction in vehicle miles driven on our roads will also be required.¹⁴² Consequently, governments in Scotland¹⁴³, Wales¹⁴⁴ and London¹⁴⁵ have all set unprecedented car use and motor traffic reduction targets for the coming years.

Rapid reductions in car miles cannot be evenly distributed across the country. Many communities in Britain now have no functional public transport at all, and are too spatially diffuse to support frequent services under today's model of provision¹⁴⁶. It is high-mileage vehicles in car-dependent households in these communities that should be the priority for electrification.

Meanwhile, active travel options and mass transit are much more viable as alternatives in cities, and excessive use of single occupancy private cars blights cities in many other ways. It therefore makes sense to focus efforts to cut car use fast in our cities. The implications of this are profound, leading some experts to argue that EV charging infrastructure should not be being extensively installed on city streets at all¹⁴⁷. One of the key tools authorities have to reduce traffic is parking policy, because every car trip starts and ends with a parking space – frequently, in cities, one on the public highway. Alternatives like micromobility also need space on our streets, meaning repurposing on-street parking can deliver double benefits to transport decarbonisation, with both push and pull effects.

The high cost of EVs today compared to other vehicles inevitably means we are also seeing very significant public spending going towards serving the interests of people who are already relatively well resourced, rather than improving transport and mobility for those who currently have the least options and resources. Following recent Department for Transport budget cuts, there is now nearly four times as much public money in the new LEVI fund alone than is left in the entire active travel budget for England¹⁴⁸.

Ultimately, there is little doubt that as well as newer cars, we will also need many fewer cars to achieve a sustainable transport system¹⁴⁹. Getting out of our cars and walking, wheeling, cycling and taking buses and trains is more important than changing the energy source fuelling them when it comes to creating a truly sustainable society¹⁵⁰. Pavement installations of EV chargepoints prioritise the convenience of the private motorist at the direct, manifest expense of those travelling by more sustainable means. Each one represents another step backward, not forward, in the fight against the climate crisis, further concreting in car dominance of our public realm.

One of the most telling findings of this investigation is that equipment to service motorists can be installed on footways without consent or consultation, but installing it in parking spaces requires a costly statutory consultation process to be undertaken. What this tells us is that although placing pedestrians at the top of the road hierarchy is a laudable aspiration, it remains little more than that. It can only reasonably be

considered a reality when pedestrian space has more regulatory protection than space that is designated for cars.

Treating the pedestrian-first road user hierarchy as if it were real would in practice mean that not only is motor vehicle infrastructure installed exclusively in motor vehicle space; but that infrastructure which primarily serves pedestrians, such as street trees and benches, is also installed in space that had been previously reserved for private motor vehicles. Traffic Regulation Orders should not be required to make room on the carriageway for electric motor vehicle charging facilities, nor parklets, street trees or sustainable urban drainage, except where this could impinge on a Disabled parking bay or commercial loading bay. On the other hand, installing *any* new physical obstacles on pavements *should* be subject to a statutory process to ensure accessibility is maintained.

At the same time, we must also ensure sufficient Disabled bays are installed with EV charging capacity. Realistically this will mean increasing Disabled parking capacity as non-Disabled parking capacity is reduced. More broadly, it is vital that all EV charge points are made accessible for Disabled drivers, because Disabled people are more likely to need a car to mitigate the lack of access on public transport. In what may be the best case scenario for the future of our cities, the only private cars left on the road would be those belonging to Disabled drivers (or their carers).

Regarding fears around loss of parking revenue from removing on-street bays to make way for new chargepoints in the carriageway, we note that EV charging on the public highways offers the opportunity for revenue sharing arrangements with providers which can offset these losses. No local authorities should be soliciting their pavements to raise new revenue from motorists.

Only a handful of London boroughs have so far rolled out more than a few hundred public chargepoints, and a common response to our question about placement policy was that, "one is being developed". So we hope that this report is not too late to help change the outlook for pedestrians in London and everywhere that follows it down the transport decarbonisation road.

In the first instance, everyone involved in deploying on-street EV chargepoints for residential use should pause their rollout to check and make sure that the approach they are pursuing is not inadvertently reducing the quality of the walking environment, particularly for disabled people.

Moving forward, we have identified a number of immediate recommendations for the key public bodies that will be involved in delivering sustainable transport solutions over the coming decade.

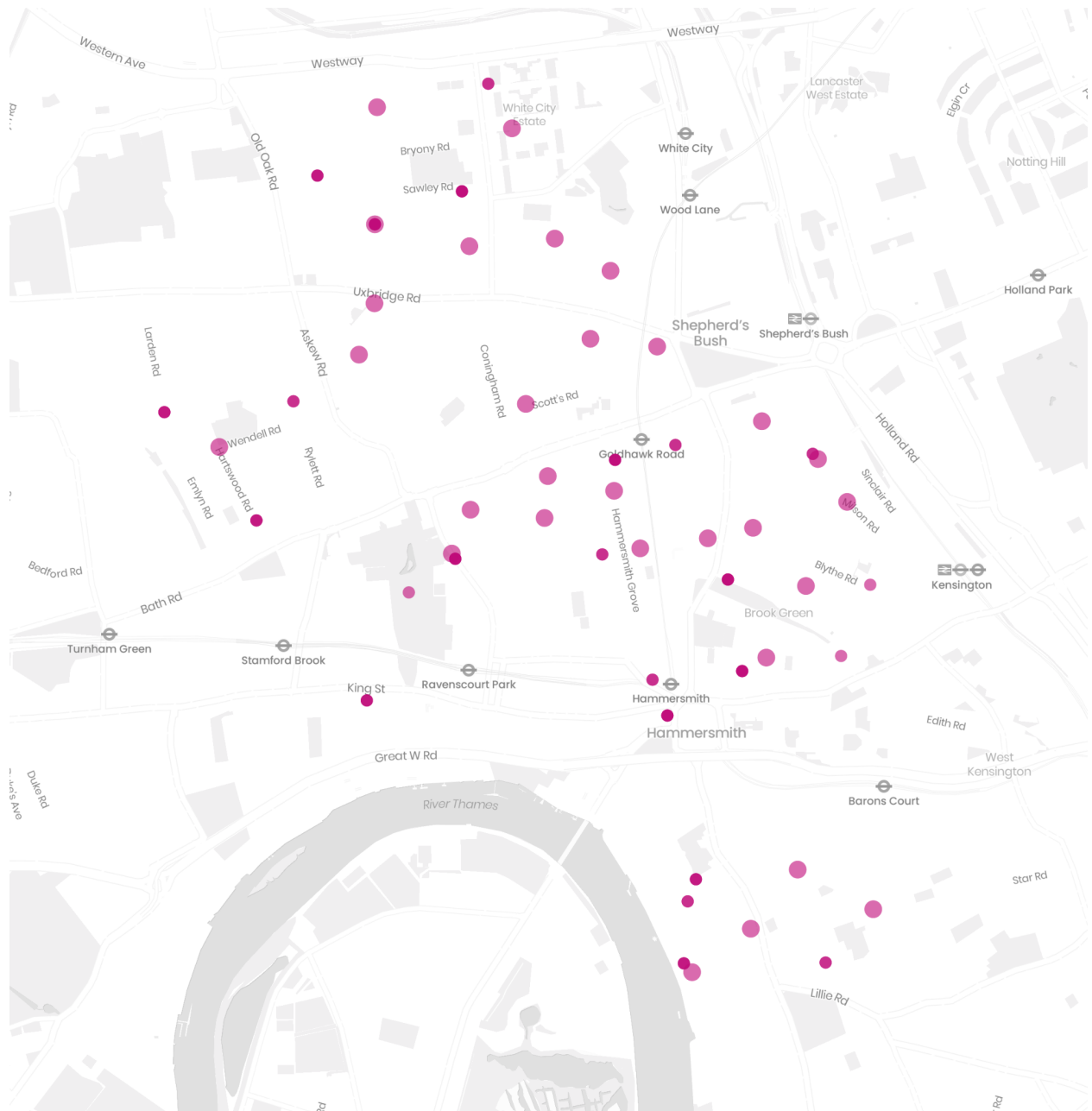
6. Key recommendations:

- **Local authorities** should adopt holistic, integrated sustainable transport strategies which include short and long term targets for both public EV chargepoint rollout *and* reductions in traffic and car use, alongside **explicit policies to presume against siting EV chargepoints on pavements** other than in exceptional circumstances – and never where installation of a charger will narrow the usable width of the pavement to less than two metres.
- Sustainable transport strategies must be geared to support access to both the pedestrian realm and to EVCPS for Disabled people, in line with the Equality Act and the public sector equality duty.
- Lamp column conversions are a pragmatic solution for rapid, low cost, low disruption deployment of slow chargers in residential areas which does not contribute to permanent clutter. However, work is urgently needed to ensure these chargepoint designs are accessible to Disabled drivers. New street furniture that may be needed to host fast and rapid chargers should always be sited on an accessible kerb buildout.
- **The Office of Zero Emission Vehicles** (OZEV) should include assessment criteria on placement and public realm impacts for all on-street chargepoint funding awards, in particular the On-Street Residential Charging Scheme (ORCS) and Local Electric Vehicle (LEVI) fund, with clear design standards and an explicit presumption against funding local authorities to put EV chargepoints on footways. OZEV should inspect on-street chargepoint installations it has funded to ensure compliance with standards before releasing final funds. OZEV should liaise with Active Travel England to agree on a set of common principles.
- **Active Travel England** (ATE) should bring into its remit the assessment of EV charging infrastructure strategies, procurement and deployment to ensure these protect pedestrian space and support active travel. ATE should withhold support for access to wider transport funding where standards are not being met. ATE should liaise with OZEV to agree on a set of common principles.

Appendix A: Freedom of Information questions put to London Councils

1. How many public EV chargepoints currently exist in your borough (as of October 2022)?
2. How many of these chargepoints are located on local authority property?
3. How many of these chargepoints are located on the TLRN?
4. Of the public EV chargepoints installed on local authority property, what are the numbers of EVCPs which are:
 - 1. Lamp column chargepoints?
 - 2. Sited on the carriageway or in former on street designated parking bays?
 - 3. Sited on the pavement?
5. How many on street parking bays have been converted to host EVCPs?
6. What targets, if any, does your council have for rollout of public EV chargepoints in your borough?
7. Does your planning policy or strategy with respect to siting new public EVCPs on local authority land contain any presumption in favour of siting in carriageways, or any presumption against siting in footways?
8. What proportion of your planned public EVCPs do you expect to be lamp column chargepoint conversions?
9. What number, if any, of on street parking bays do you expect to be redesignated to host EVCPs?

Appendix B: Map of manually surveyed electric vehicle charger locations in Hammersmith & Fulham



Larger dots encompass more connections. Fieldwork conducted January 21st–29th 2023.

References

- ¹ Final UK greenhouse gas emissions national statistics: 1990 to 2019, BEIS 2021
<https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2019#full-publication-update-history>
- ² Decarbonising Transport – A Better, Greener Britain, Department for Transport, 2021
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf
- ³ Technical consultation on zero emission vehicle mandate policy design, Department for Transport, 2022
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067041/technical-consultation-on-zero-emission-vehicle-mandate-policy-design.pdf
- ⁴ Taking charge: the electric vehicle infrastructure strategy, Department for Transport, 2022
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065576/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf
- ⁵ “2 in 3 new charging points for electric cars will be in London”, The Times, 2023
<https://www.thetimes.co.uk/article/2-in-3-new-charging-points-for-electric-cars-will-be-in-london-50lkmwv17>
- ⁶ <https://www.zap-map.com/>
- ⁷ Electric vehicle charge point target is ‘20 years behind schedule’, The Times, 2023
<https://www.thetimes.co.uk/article/electric-vehicle-charge-point-target-is-20-years-behind-schedule-jv7xjb7k7>
- ⁸ Society of Motor Manufacturers and Traders,
<https://www.smmt.co.uk/2022/11/evs-energise-new-car-market-but-chargepoint-rollout-must-accelerate/>
- ⁹ Getting to the Point: Accelerating EV chargepoint rollout through geospatial data, Cabinet Office & Geospatial Commission, December 2022
<https://www.gov.uk/government/publications/getting-to-the-point-accelerating-ev-chargepoint-rollout-through-geospatial-data/getting-to-the-point-accelerating-ev-chargepoint-rollout-through-geospatial-data>
- ¹⁰ Further action needed on EV charging to meet Net Zero, Competition and Markets Authority, 2021
<https://www.gov.uk/government/news/further-action-needed-on-ev-charging-to-meet-net-zero>
- ¹¹ “2 in 3 new charging points for electric cars will be in London”, The Times, 2023
<https://www.thetimes.co.uk/article/2-in-3-new-charging-points-for-electric-cars-will-be-in-london-50lkmwv17>
- ¹² London’s 2030 electric vehicle infrastructure strategy, Transport for London, 2021
<https://lruc.content.tfl.gov.uk/london-2030-electric-vehicle-infrastructure-strategy-executive-summary-december-2021.pdf>
- ¹³ Decarbonising Transport – A Better, Greener Britain, Department for Transport, 2021
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf
- ¹⁴ Second Cycling and Walking Investment Strategy, Department for Transport, 2022
<https://www.gov.uk/government/publications/the-second-cycling-and-walking-investment-strategy/the-second-cycling-and-walking-investment-strategy-cwis2#fn:5>
- ¹⁵ <https://www.gov.uk/government/organisations/active-travel-england>
- ¹⁶ Network management duty guidance: reallocating road space, DfT, 2020 & 2022
<https://www.gov.uk/government/publications/reallocating-road-space-in-response-to-covid-19-statutory-guidance-for-local-authorities>
- ¹⁷ Manual for Streets, DfT, 2007
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1072722/Essex_Manual_for_Streets_Redacted.pdf

- ¹⁸ The Highway Code: 8 changes you need to know from 29 January 2022, DfT
<https://www.gov.uk/government/news/the-highway-code-8-changes-you-need-to-know-from-29-january-2022>
- ¹⁹ Mayor's Transport Strategy, Greater London Authority, 2018
<https://www.london.gov.uk/sites/default/files/mayors-transport-strategy-2018.pdf>
- ²⁰ London Net Zero 2030: an updated pathway, Greater London Authority, 2022
https://www.london.gov.uk/sites/default/files/london_net_zero_2030_-_an_updated_pathway_-_gla_response_1.pdf
- ²¹ Mayor's Transport Strategy, Greater London Authority, 2018
<https://www.london.gov.uk/sites/default/files/mayors-transport-strategy-2018.pdf>
- ²² London Walking Action Plan, TfL, 2018
<https://content.tfl.gov.uk/mts-walking-action-plan.pdf>
- ²³ https://www.london.gov.uk/sites/default/files/nz2030_element_energy_final.pdf
- ²⁴ Manual for Streets, DfT, 2007
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/107272/Essex_Manual_for_Streets_Redacted.pdf
- ²⁵ Manual for Streets 2: wider application of the principles, DfT and Chartered Institution of Highways & Transportation, 2010 <https://tsrgd.co.uk/pdf/mfs/mfs2.pdf>
- ²⁶ London Walking Action Plan, TfL, 2018
<https://content.tfl.gov.uk/mts-walking-action-plan.pdf>
- ²⁷ Ibid.
- ²⁸ TfL Planning for Walking Toolkit, 2020
<https://content.tfl.gov.uk/the-planning-for-walking-toolkit.pdf>
- ²⁹ <https://www.livingstreets.org.uk/news-and-blog/press-media/cluttered-pavements-turning-brits-off-walking>
- ³⁰ Walking with infants: A Manifesto for Walking Mums, Dr Louise Platt, Manchester Metropolitan University, 2023
https://www.canva.com/design/DAFXc79hmgs/CJtWcqTTGcOkYxl8VV-TCA/view?utm_content=DAFXc79hmgs&utm_campaign=designshare&utm_medium=link&utm_source=publis_hsharelink#1 & Women's Budget Group, 2021. Towards Gender-Inclusive and Sustainable Transport Systems.
wbg.org.uk/wp-content/uploads/2021/06/Gender-inclusive-transport-systems-V3.pdf
- ³¹ Nobody Left Behind: Envisioning inclusive cities in a low-car future, Possible, 2022
<https://www.wearepossible.org/our-reports-1/nobody-left-behind-envisioning-inclusive-cities-in-a-low-car-future>
- ³² London Walking Action Plan, TfL, 2018
<https://content.tfl.gov.uk/mts-walking-action-plan.pdf>
- ³³ Disabled Citizens' Inquiry: Giving disabled people a voice in walking and wheeling policy and practice, Sustrans, 2023
<https://www.sustrans.org.uk/media/11708/sustrans-disabled-citizens-inquiry-full-report.pdf>
- ³⁴ Going Electric? Research report into the accessibility of plug-in electric vehicles, RIDC, 2020
https://www.ridc.org.uk/sites/default/files/uploads/Research%20Reports/ElectricCars/RiDC_ElectricCars_Report.pdf
- ³⁵ Gear Change: a bold vision for cycling and walking, DfT, 2020
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904146/gear-change-a-bold-vision-for-cycling-and-walking.pdf
- ³⁶ Car or van availability, 2021, England, Wales and regions of England, Office for National Statistics – Census 2021
<https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/housingenglandandwales/census2021>
- ³⁷ Working Paper 212, Quantifying and Mapping Streetspace: a Geocomputational Method for the Citywide Analysis of Pedestrian and Vehicular Streetspace, Nicolas Palominos, Duncan A. Smith, UCL, September 2019

https://www.ucl.ac.uk/bartlett/casa/sites/bartlett/files/casa_working_paper_-_212.pdf

³⁸ *Reclaim the kerb: The future of parking and kerbside management in London*, Centre for London, 2020

<https://www.centreforlondon.org/publication/parking-kerbside-management/>

³⁹ *Decarbonising transport: Climate smart parking policies*, LGA, 2020

https://www.local.gov.uk/sites/default/files/documents/5.92%20parking%20decarbonisation%20and%20transport_02.pdf

⁴⁰ *Streetspace for London, APPENDIX 11: SUPPLEMENTARY GUIDANCE ON CAR PARKING*, TfL, 2020,

<https://content.tfl.gov.uk/lsp-app-eleven-car-parking-guidance.pdf>

⁴¹ *Residential Car Parking: Part of the London Plan evidence base*, TfL, December 2017

https://www.london.gov.uk/sites/default/files/london_plan_evidence_base_-_residential_car_parking.pdf

⁴² *Taking charge: the electric vehicle infrastructure strategy*, DfT, 2022

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065576/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf

⁴³ *Inclusive Mobility. A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure*, DfT, 2021

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1044542/inclusive-mobility-a-guide-to-best-practice-on-access-to-pedestrian-and-transport-infrastructure.pdf

⁴⁴ <https://www.gov.uk/government/organisations/office-for-zero-emission-vehicles/about>

⁴⁵ *Best practice for future proofing electric vehicle infrastructure*, BEAMA Ltd, 2020

<https://www.beama.org.uk/static/2945feb3-9dad-450f-baecc95f51bddfb9/BEST-PRACTICE-FOR-FUTURE-PROOFING-ELECTRIC-VEHICLE-INFRASTRUCTURE.pdf>

⁴⁶ *Design considerations for electric vehicle chargepoints*, OZEV 2022

<https://www.gov.uk/government/publications/design-considerations-for-electric-vehicle-chargepoints/design-considerations-for-electric-vehicle-chargepoints>

⁴⁷ *Positioning chargepoints and adapting parking policies for electric vehicles*, Energy Saving Trust, 2019

<https://www.energysavingtrust.org.uk/sites/default/files/Local%20Authority%20Guidance%20-%20Positioning%20chargepoints.pdf>

⁴⁸ *Ibid.*

⁴⁹ *Scoping the role of local authorities in the provision of electric vehicle charging infrastructure*, Local Government Association, 2021

<https://www.local.gov.uk/publications/scoping-role-local-authorities-EV>

⁵⁰ *PAS 1899:2022 Electric vehicles – Accessible charging – Specification*, British Standards Institution, 2022

https://www.bsigroup.com/en-GB/standards/pas-1899/?utm_source=Pardot&utm_medium=Email&utm_campaign=SM-STAN-PRM-PAS-PAS1899-2210

⁵¹ *Ibid.*

⁵² *London Electric Vehicle chargepoint Installation guidance*, TfL, 2019

<https://lruc.content.tfl.gov.uk/london-electric-vehicle-charge-point-installation-guidance-december-2019.pdf>

⁵³ *Streetscape guidance v2*, TfL, 2022

<https://content.tfl.gov.uk/streetscape-guidance-2022-revision-2.pdf>

⁵⁴ *Pedestrian Comfort Guidance*, TfL, 2010

<https://content.tfl.gov.uk/pedestrian-comfort-guidance-technical-guide.pdf>

⁵⁵ *Streetscape guidance v2*, TfL, 2022

<https://content.tfl.gov.uk/streetscape-guidance-2022-revision-2.pdf>

⁵⁶ See Class A, (art 12, Schedule 2) the Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011, Town and Country Planning (General Permitted Development) (England) Order 2015 and Town and Country Planning Regulations SI 2019 No 907 for further information.

⁵⁷ Sustainable Transport, Walking and Cycling, London Plan Guidance, November 2022
<https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/london-plan-guidance/sustainable-transport-walking-and-cycling-guidance>

⁵⁸

<https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicle>

⁵⁹ Electric Vehicle Charging Device Statistics, DfT, October 2022

<https://www.gov.uk/government/statistics/electric-vehicle-charging-device-statistics-october-2022/electric-vehicle-charging-device-statistics-october-2022>

⁶⁰ On-Street Residential Chargepoint Scheme guidance for local authorities, OZEV, 2022

<https://www.gov.uk/government/publications/grants-for-local-authorities-to-provide-residential-on-street-chargepoints/grants-to-provide-residential-on-street-chargepoints-for-plug-in-electric-vehicles-guidance-for-local-authorities>

⁶¹ Apply for local electric vehicle infrastructure (LEVI) pilot funding, OZEV, 2022

<https://www.gov.uk/guidance/apply-for-local-electric-vehicle-infrastructure-levi-pilot-funding#eligibility-criteria>

⁶² <https://www.gov.uk/guidance/apply-for-local-ev-infrastructure-levi-funding>

⁶³ LEVI Capital Fund Info Pack, Energy Saving Trust, March 2023

<https://energysavingtrust.org.uk/wp-content/uploads/2023/03/LEVI-Capital-Fund-Info-Pack.pdf>

⁶⁴ Disabled Citizens' Inquiry: Giving disabled people a voice in walking and wheeling policy and practice, Sustrans, 2023

<https://www.sustrans.org.uk/media/11708/sustrans-disabled-citizens-inquiry-full-report.pdf>

⁶⁵

<https://www.brusselstimes.com/63432/brussels-to-scrap-65000-on-street-parking-spots>

⁶⁶

<https://www.bloomberg.com/news/articles/2019-03-29/amsterdam-s-plan-to-eliminate-11-000-parking-spots>

⁶⁷ <https://www.weforum.org/agenda/2020/12/paris-parking-spaces-greenery-cities/>

⁶⁸

<https://medium.com/vision-zero-cities-journal/how-oslo-reached-vision-zero-b952aed44697>

⁶⁹

<https://www.theguardian.com/world/2020/nov/11/barcelona-launches-10-year-plan-to-reclaim-city-streets-from-cars>

⁷⁰ *Reclaim the kerb: The future of parking and kerbside management in London*, Centre for London, 2020

<https://www.centreforlondon.org/reader/parking-kerbside-mangement/chapter-2/#borough-parking-space-operation-costs-outstrip-resident-permit-revenues>

⁷¹ E.g. <https://www.zap-map.com/ealing-council-charge-points/>

⁷² Active Travel England Framework Document, DfT, 2022

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1099662/framework-document-active-travel-england.pdf

⁷³ See <https://www.zap-map.com/live/>

⁷⁴ Car or van availability, 2021, Office of National Statistics

<https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/housingenglandandwales/census2021#car-or-van-availability>

⁷⁵ <https://councilclimatescorecards.uk/>

⁷⁶ <https://www.healthystreetscorecard.london/>

⁷⁷ <https://www.healthystreetscorecard.london/>

⁷⁸

<https://www.london.gov.uk/programmes-strategies/health-and-wellbeing/transport-and-health/healthy-streets>

⁷⁹ "The requirement to install the rapid and fast charging points on the buildout, ensures the street cluttering is minimised to prioritise active travel, such as walking and cycling."

Hackney residential on-street Electric Vehicle Charging Points Contract award,, Hackney Council, 2022
<https://hackney.moderngov.co.uk/documents/s77973/Electric%20Vehicle%20Charging%20Points%20Infrastructure%20Borough%20Wide%20CPIC%20Contract%20Award%20July%202022%20FINAL.pdf>

⁸⁰ <https://twitter.com/metecoban92/status/1605923541924184064>

⁸¹

<https://moderngov.lambeth.gov.uk/documents/s135742/Lambeths%20Climate%20Action%20Plan.pdf>

⁸² [Royal Borough of Greenwich Carbon Neutral Plan, 2021](#)

⁸³

<https://www.walthamforest.gov.uk/get-involved/climate-change/place-people-not-cars>

⁸⁴

<https://moderngov.lambeth.gov.uk/documents/s142785/Appendix%20A%20-%20Lambeths%20Kerbside%20Strategy.pdf>

⁸⁵ *Additional information provided by Chris Gardner, Senior Transport Planner at Camden Council, February 2023*

⁸⁶ Policy 5e of the Camden Transport Strategy (CTS 2019-41)

https://www.camden.gov.uk/documents/20142/18708392/1925.7+Camden+Transport+Strategy_Main+Document_FV.pdf/d7b19f62-b88e-31d4-0606-5a78ea47ff30

⁸⁷ Walking & Accessibility Action Plan - April 2019, Camden Council

https://www.camden.gov.uk/documents/20142/18708392/1925.7+Camden+Transport+Strategy_Walking_FV.pdf/fac2cb35-83ac-be83-1dcd-636f76628b69

⁸⁸ <https://democracy.camden.gov.uk/ieDecisionDetails.aspx?ID=3440>

⁸⁹ E.g.

<https://democracy.camden.gov.uk/documents/s105890/Appendix%20E%20-%20Report%20on%20Public%20and%20TMO%20consultations.pdf>

⁹⁰

<https://democracy.camden.gov.uk/documents/s108972/15a1%20Appendix%20A1%20-%20Annexes%20A%20to%20D.pdf>

⁹¹

<https://democracy.camden.gov.uk/documents/s109226/Appendix%20E%20-%20Comments%20and%20Considerations%20Report.pdf>

⁹²

⁹³ <https://www.centreforlondon.org/reader/fair-access/chapter-2/#connectivity>

⁹⁴ <https://www.ons.gov.uk/datasets/TS061/editions/2021/versions/2>

⁹⁵

<https://www.gov.uk/government/statistics/electric-vehicle-charging-device-grant-scheme-statistics-october-2022>

⁹⁶ <https://www.bbc.co.uk/news/uk-england-london-65254544>

⁹⁷

<https://www.bexley.gov.uk/news/coalition-questions-lawfulness-stealth-installation-ulez-cameras-and-signs>

⁹⁸

<https://www.bexley.gov.uk/sites/default/files/2022-05/SoCG07-transport-for-london-january-2022.pdf>

⁹⁹ https://www.datawrapper.de/_/yMLtY/

¹⁰⁰ <https://www.healthystreetsscorecard.london/results/>

¹⁰¹ <https://www.wearepossible.org/parklets>

¹⁰² <https://www.rbkc.gov.uk/media/document/high-street-kensington---parklets>

¹⁰³

https://consult.rbkc.gov.uk/communities/environmental-action-plans/user_uploads/aa_climate_emergency_2022_-_2027.pdf &

<https://www.westminster.gov.uk/media/document/climate-emergency-action-plan>

¹⁰⁴ <https://www.westminster.gov.uk/media/document/walking-strategy>
¹⁰⁵ <https://www.lbhf.gov.uk/articles/news/2022/01/hf-leading-charge-electric-vehicles#:~:text=We've%20also%20set%20ourselves,existing%20and%20new%20Disabled%20bays>

¹⁰⁶ http://democracy.lbhf.gov.uk/documents/s118313/VPACH%20report%2001.10_FINAL.pdf
¹⁰⁷ https://www.lbhf.gov.uk/sites/default/files/LBHF_cycling_strategy_rev12_tcm21-198988.pdf
¹⁰⁸ <http://democracy.lbhf.gov.uk/documents/s109675/Appendix%202%20-%20Proposed%20revisions%20to%20LIP3.pdf>

¹⁰⁹ <http://democracy.lbhf.gov.uk/documents/s101705/Draft%20LIP.pdf>
¹¹⁰ https://www.lbhf.gov.uk/sites/default/files/section_attachments/hf-climate-and-ecology-strategy.pdf
¹¹¹ https://www.lbhf.gov.uk/sites/default/files/section_attachments/hf-climate-and-ecology-strategy.pdf
¹¹² https://www.lbhf.gov.uk/sites/default/files/section_attachments/hf-climate-and-ecology-strategy.pdf
¹¹³ https://www.lbhf.gov.uk/sites/default/files/section_attachments/hf-climate-and-ecology-action-plan.pdf#page7
¹¹⁴ https://www.datawrapper.de/_/tOgcZ/
¹¹⁵ <https://www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables>
¹¹⁶ <https://www.lbhf.gov.uk/articles/news/2023/01/hf-cuts-parking-charges-support-residents-cost-living-crisis>
¹¹⁷ <https://haveyoursay.lbhf.gov.uk/prohibiting-the-use-of-electronic-and-motorised-vehicles-along-the-thames-path>

¹¹⁸ <https://hflabour.com/wp-content/uploads/2022/05/HF-Labour-Manifesto-2022pdf.pdf>
¹¹⁹ <https://www.lbhf.gov.uk/transport-and-roads/safer-cycle-pathway>
¹²⁰ Walker, I., Tapp, A., & Davis, A. (2022, December 14). Motornomativity: How Social Norms Hide a Major Public Health Hazard. <https://doi.org/10.31234/osf.io/eqnmj>
¹²¹ <https://twitter.com/ianwalker/status/1615248206123745281?s=20&t=9ziM87nJc2VjUf1nrVM7Ug>

¹²² <https://tfl.gov.uk/modes/driving/electric-scooter-rental-trial#on-this-page-2>
¹²³ [Delivering on our plan to build a Fairer Westminster | Westminster City Council](#)
¹²⁴ [Introduction to Climate Safe Streets – Westminster Cycling](#)
¹²⁵ <https://ubitricity.com/en/charging-solutions/ac-lamppost/>
¹²⁶ <https://www.fmconway.co.uk/our-services/surecharge>
¹²⁷ <https://wheelsforwellbeing.org.uk/>
¹²⁸ See e.g. Essex guidance here: <https://www.essexdesignguide.co.uk/design-details/highways-technical-manual/street-lighting/> spec here: <https://docs.planning.org.uk/20210303/79/QPE6R8BFJV100/ldycwumn0ic362uh.pdf> and guidance from Cheshire East here: <http://www.cheshireeasthighways.org/Uploads/Files/StreetLightingQuestionsandAnswers.pdf>

- ¹²⁹ <https://trojan.energy/products/hub>
- ¹³⁰ https://trojan.energy/uploads/files/TEL-STEP-Brochure_v2.pdf
- ¹³¹ <https://www.current-news.co.uk/barnet-council-selects-trojan-energy-to-develop-over-500-on-street-ev-charging-points/>
- ¹³² https://www.oxford.gov.uk/info/20185/electric_vehicles/1535/gul-e_project_no_driveway_no_problem
- ¹³³ <https://energysavingtrust.org.uk/wp-content/uploads/2023/03/LEVI-Capital-Fund-Info-Pack.pdf>
- ¹³⁴ <https://www.theecoexperts.co.uk/electric-vehicles/wireless-ev-charging>
- ¹³⁵ E.g. <https://www.autocar.co.uk/car-news/electric-cars/uk-firm-begins-public-trial-wireless-ev-chargers> & <https://wicet.co.uk/>
- ¹³⁶ 2021 Walking & Cycling Index, Sustrans, 2022 <https://www.sustrans.org.uk/media/10527/sustrans-2021-walking-and-cycling-index-aggregated-report.pdf>
- ¹³⁷ http://democracy.lbhf.gov.uk/documents/s118316/App%203_EqIA-VPACH_FINAL.pdf
- ¹³⁸ http://democracy.lbhf.gov.uk/documents/s118313/VPACH%20report%2001.10_FINAL.pdf
- ¹³⁹ <https://designability.org.uk/projects/projects-2022/setting-the-standards-for-accessible-ev-charging/>
- ¹⁴⁰ See eg Net Zero Transport: the role of spatial planning and place-based solutions, Royal Town Planning Institute, 2021 <https://www.rtpi.org.uk/netzerotransport>, and Not going the extra mile: driving less to tackle climate change, Green Alliance, 2021 <https://green-alliance.org.uk/publication/not-going-the-extra-mile/>
- ¹⁴¹ Christian Brand, Jillian Anable, Ioanna Ketsopoulou, Jim Watson, *Road to zero or road to nowhere? Disrupting transport and energy in a zero carbon world*, Energy Policy, Volume 139, 2020 <https://www.sciencedirect.com/science/article/abs/pii/S0301421520300914?via%3Dihub>
- ¹⁴² Greg Marsden, Transport Xtra, 2023 <https://www.transportxtra.com/publications/local-transport-today/news/73023/the-route-to-net-zero-dft-assumptions-look-well-off-course>
- ¹⁴³ <https://www.transport.gov.scot/our-approach/environment/20-reduction-in-car-km-by-2030/>
- ¹⁴⁴ <https://www.gov.wales/sites/default/files/publications/2021-10/net-zero-wales-summary-document.pdf>
- ¹⁴⁵ *London Net Zero 2030: an updated pathway*, Greater London Authority, 2022 https://www.london.gov.uk/sites/default/files/london_net_zero_2030_-_an_updated_pathway_-_gla_response_1.pdf
- ¹⁴⁶ *Transport accessibility to local services: a journey time tool*, National Audit Office, 2017 <https://www.nao.org.uk/other/transport-accessibility-to-local-services-a-journey-time-tool/>
- ¹⁴⁷ <https://decarbon8.org.uk/the-solution-is-the-problem/>
- ¹⁴⁸ <https://www.theguardian.com/news/2023/mar/20/cuts-cycling-walking-budget-england-cost-more-long-term-labour>
- ¹⁴⁹ *Clean Growth: Technologies for meeting the UK's emissions reduction targets*, Science & Technology Select Committee, 2019 <https://publications.parliament.uk/pa/cm201719/cmselect/cmsctech/1454/145412.htm>

¹⁵⁰*A wolf in sheep's clothing: Exposing the structural violence of private electric
automobility*, 2023
<https://www.sciencedirect.com/science/article/pii/S2214629623001123?via%3Dihub>