Appendix 2 - Leeds Electric Vehicle Charge Infrastructure Strategy and Action Plan 2022 – 2030

Context

Leeds City Council has an ambition to become the first net zero city and is committed to working towards becoming carbon neutral by as early as 2030. To achieve this there will need to be significant change to the city's carbon footprint. One of the main contributions to the city's carbon output is transport. Leeds Climate Commission estimate that in 2020 38% of the city's carbon emissions were transport based. Alongside modal shift, delivery of zero emission transport options will be critical to the decarbonisation of this sector.

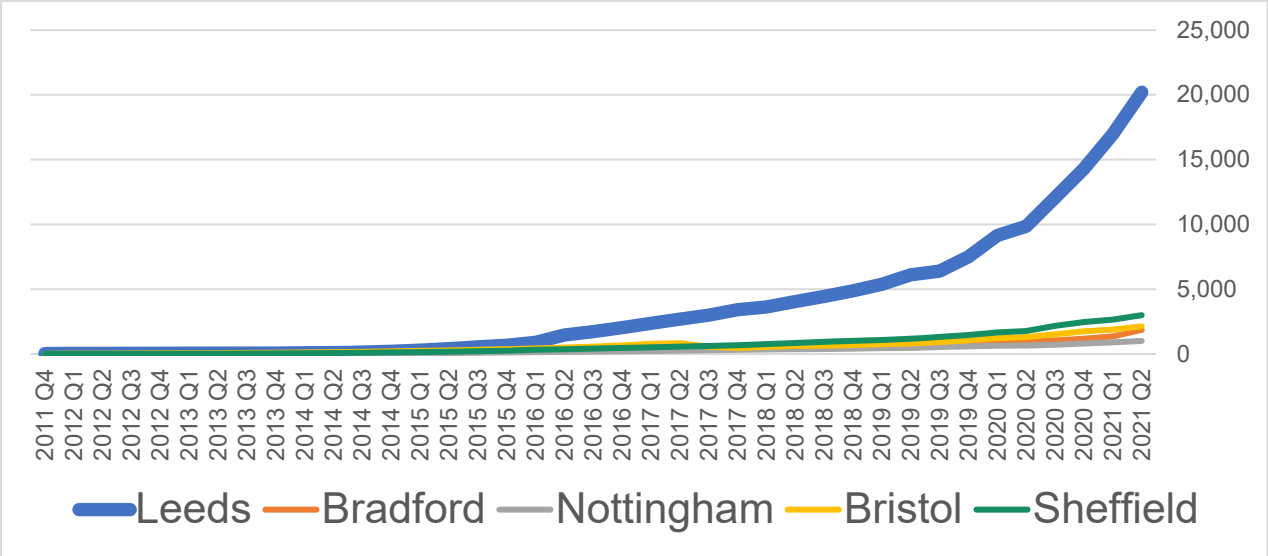
The Connecting Leeds Transport Strategy has decarbonisation as one of its central pillars, in line with the council's Climate Emergency priorities. Within the Transport Strategy there are key steps identified to deliver the changes needed in transport to meet the 2030 target, one of these is the need to encourage and lead in the uptake of zero emission vehicles in freight, public and private transport. A key facilitator of this uptake will be to ensure that there is sufficient vehicle charging infrastructure in place.

UK average data shows that burning a litre of diesel produces around 2.62kgs of carbon dioxide and a litre of petrol about 2.39kgs. Using UK average new car fuel consumption data for 2019 (according to the RAC Foundation this is 49.2mpg for petrol or 55.4mpg for diesel) offsetting 4.5milion miles would save almost 1,000,000 kg of tailpipe carbon emissions regardless of whether the journeys were replacing diesel or petrol use. In addition to the carbon reduction benefits, shifting to zero emission vehicles would also result in considerable health benefits because of improved air quality.

To ensure a smooth and effective transition there is a need for infrastructure to be in place in line with the projected increase in demand for plug-in vehicles. This report provides a summary of the Action Plan designed to support delivery of the necessary city-scale charging infrastructure required.

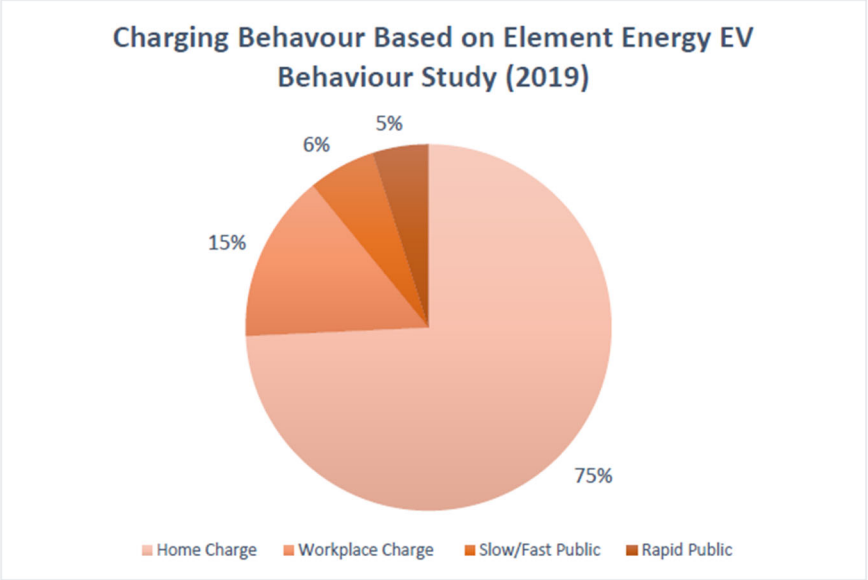
Background

The below graph shows the rapid growth of licensed plug-in cars and Light Goods Vehicles (LGVs) in different council areas according to the DVLA/Department for Transport.



It is important to note that electric charging infrastructure will be delivered largely by the owners of the vehicles themselves. Most households will be able to install their own charge point, with c.70% of Leeds households having off street parking and therefore able to charge at home. Alternatively, many will be able to charge at their place or work, with grants available from government to support the cost of such charging having been available for some time. Studies by independent analysts and the government's own Office for Zero Emission vehicles (OZEV) show that most charging needs will be met outside of public charge infrastructure, as pictured in the chart below.

It is also important to note that the frequency of charging may be lower than widely assumed. A mid-market EV commonly provides a range in excess of 200miles. The typical household vehicle mileage (less than 7000 miles annually) could be provided by charging just once a week or even slightly less. Therefore it is critical that the scale of public charging infrastructure needed is not overstated, that resource is carefully targeted to meet the needs of those who may not be able to utilise home or workplace charging, and that any infrastructure is designed to be utilised by multiple users.



Further growth of electric vehicles across the city and wider region is projected, demonstrating the need to ensure that sufficient infrastructure is in place to both meet the needs of electric vehicle (EV) drivers but also to ensure that lack of charging facility is not a barrier to this transition. 'Range/Charge anxiety' that may act as a barrier to potential EV drivers transitioning to plug-in vehicles may also be alleviated with greater visibility of public charging infrastructure.

Below are regional projections for West Yorkshire by National Highways (formerly Highways England) for the number of plug-in vehicles projected by 2025 and 2030 based on low, medium or high uptake trends.

Forecast Year	Highways England 2% Steady Growth Projection			Linear Extrapolation Projection		
	Low (BAU)	Medium (Good Practice)	High (Exemplar)	Low (BAU)	Medium (Good Practice	High (Exemplar)
2025	180,837	241,116	361,674	184,340	245,787	368,680
2030	532,423	665,529	931,741	544,377	680,472	952,660

Development of the infrastructure to support city scale transition to zero emission travel will be required, however this will not fall to the council alone to deliver. Our position is that the local authority role is as facilitator and key stakeholder in working to support citywide EV uptake but that local authorities should not be expected to be solely responsible for the planning, delivery and operation of all vehicle charging in the city.

City scale infrastructure will need to be delivered collaboratively, utilising the various policy 'levers' available to council and central government, whilst recognising that commercially viable and sustainable, well maintained and reliable networks are likely to be best managed by the private sector who operate at regional, national and international levels with the back office, maintenance, customer service operations and purchasing power to be able to deliver best value and experience to customers in a competitive charge point environment.

The city scale networks required will need to be delivered in partnership with key stakeholders—including charge point operators, central government, the district network operator and investors in

public charge infrastructure such as energy providers and investment houses. We are working on development of this approach and we will develop a framework through which external investment can be utilised to deliver infrastructure, whilst providing best value to the council and those who live, work and visit the city.

This work includes the need to review our policy regarding on-street charging whilst also considering the needs of pedestrians, cyclists, and other highways users. All recommendations regarding alternative fuel infrastructure will need to be aligned to the council's Transport Strategy and its overarching aims to deliver modal shift, rather than embed existing travel behaviours.

Progress to Date (public electrical vehicle charge infrastructure)

We have worked with the West Yorkshire Combined Authority and Equans to deliver a rapid charge network across the city. This network now provides 30 dual 50kW Rapid charging stations across 28 locations that are spatially spread across the city. The dual nature of the units means that this provides 60 EV bays with a further 5 sites due to be completed in early 2022, increasing this network alone to 70 rapid charging bays. There is a total of 91 sites delivered across West Yorkshire on this network to date and when this project is completed it will have 102 Rapid chargers. This network already has over 12,000 registered users regionally and has delivered more than 90,000 charge events dispensing over 1.3million kWh of energy at its Leeds sites alone – equating to approximately 4.5million miles of zero emission travel.

Utilising the Residential Charge Grant Scheme, fast charge points are also being installed across 6 locations in Leeds providing 15 dual charging points that support 30 bays. These installations are designed to support residential areas where housing typically lacks off street parking and therefore households have been unable to utilise the home charge grant. These units are installed and have been live with effect from February 2022. A second phase of grant funding to support installations across 10 sites with 30 dual units has been submitted for installation in 2022.

The council has also worked on the development of charge point provision at the UK's first solar powered park and ride at Stourton. The site has 14 dual 7kW charge point units supporting 28 bays in addition to four 50kW Rapid charge points. The site has also been 'future-proofed' to facilitate significant expansion of infrastructure as demand requires. Further work to develop the infrastructure offer across the Leeds estate, such as enhancing charging provision at Woodhouse Lane and the Temple Green and Elland Road park and ride sites is also underway.

In addition to charge points directly delivered by the council, Leeds' adopted planning conditions have required all new developments to include electric vehicle charge infrastructure since 2019—a measure that the UK government is expected to follow nationally later in 2022. We have also worked to promote existing national grant schemes that have been available to homeowners and business and will continue to promote new schemes as they are announced to promote the benefits of EV uptake.

Development of future charging infrastructure

The high-level principles for developing electric vehicle charging infrastructure for Leeds are.

- Meeting the need for city scale charging to align with growing demand for EV's as per above projections – with estimates for between 500,000 and almost 1 million plug-in vehicles in West Yorkshire by 2030.
- Recognising that home and workplace charging will meet the bulk of charge requirements – especially with planning conditions being applied. However, Leeds households that lack off-street parking and cannot charge at work will need public charging alternatives.
- The Transport Strategy promotes modal shift away from car use, encouraging uptake of active travel. Design principles for on street charging must therefore be developed to ensure that all road and pavement users are considered when charging infrastructure is being planned. Charge infrastructure must not become a barrier to active travel modes.
- Charge infrastructure must consider shared and flexible mobility modes (such as car clubs) to ensure those without cars can access zero-emission driving options
- Whilst there are some grant opportunities from central government for EVCP, they are not currently sufficient to support city scale charging requirements for a growing plug-in fleet. As such Leeds must act flexibly to explore how working with the commercial charging sector will realise capital to deliver the charging infrastructure required. As such, we will pilot projects to establish trials of on-street charging hubs and better understand how innovative partnership working can help deliver charging through external investment.
- The council's plan should focus on delivering or facilitating charge infrastructure that does not replicate what will be delivered by external parties, (such as through meeting planning conditions or through commercial investment on third party land), or where charging needs will be met by households or businesses themselves.
- Actions should ensure that there is equity in accessibility of zero emission travel choices, whether through ensuring that charging is available in all localities, or through supporting the accessibility of zero emission vehicles through charging for car clubs or similar shared mobility schemes.

The level of public charge infrastructure that is projected to be required to meet the unmet demand from those unable to use home or workplace charging, or who need in-journey charging, is outlined below. This is based on National Highways' EV growth projections data and suggests between 230-450 public chargers may be needed by 2025 and 677-1085 public chargers may be needed by 2030. Whilst these figures may sound high, delivery of purpose-built multi-unit charge hubs and commercial delivery of charging at third party sites such as retail, leisure or sporting developments, for example, would take us someway to these targets.

Journey Purpose/User Need		Highways England 2% Steady Growth																	
		Bradford			Calderdale			Kirklees			Leeds			Wakefield			WYCA		
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Commuter Trips – Residential Slow/ Fast Chargepoint	2025	104	138	208	47	62	93	97	129	194	205	274	411	83	110	165	535	714	1070
	2030	305	382	535	137	171	240	285	356	499	605	756	1058	243	304	426	1576	1970	2757
General Domestic Trips – Town Centre Fast Chargepoint	2025	12	17	25	6	7	11	12	15	23	25	33	49	10	13	20	64	85	128
	2030	37	46	64	16	20	29	34	43	60	72	90	127	29	36	51	188	235	330

The role of the council will be to ensure that commercial investment is realised, that key demographics or areas are not excluded and that levers, such as planning conditions and assets under our control are utilised to ensure equitable, accessible and sufficient delivery of charging in line with these targets.

To meet the challenge of decarbonisation of transport through city scale adoption of EV, there is a need for the council to:

1. Work with Charge Point Operator's (CPO's) to identify opportunities to facilitate commercial investment in infrastructure on both LCC estate and private land.
2. Facilitate the development of on-street charging hub facilities to widen access to EV charging. This would be in appropriate locations that facilitate and support high utilisation, shared use of charging facilities in public bays, rather than directly located outside domestic properties.
3. Develop the technical design principles for where on-street charging can be delivered and the designs, specification and impacts of such schemes.
4. Recognise the council as a facilitator, for example supporting the development of commercial charge provision and Electric Vehicle based car park developments. Ensuring that key council services such as Planning and Highways & Transport are aligned in supporting this commercial development and ensuring that it aligns with the Transport Strategy and the wider Leeds targets for decarbonisation.
5. Engage proactively with developers on EV hubs/EV-car parks, or similar commercial infrastructure plans as well as with the wider community to demonstrate the benefits of EV uptake for the city and wider environment.
6. Detailed next steps for 2022/23 are to establish and commence delivery of pilot projects to capitalise on the interest in investing in Leeds that exists.
   i) Establish frameworks for agreeing contracts with potential investors / CPO's
   ii) Work with Asset Management and Highways to identify potential sites for infrastructure
   iii) Agreement of contracts or frameworks with CPO's to facilitate the capital injection required for city scale charging
   iv) Aim to commence delivery of pilot projects with commercial partners within 12 months so that first phase of installations can be commenced in 2022/23.

v) Evaluation of pilot projects and identification of a forward plan of projects with CPO's agreed to meet 2025/2030 targets

To aid in achieving the above objectives an EVCI Action Plan has been developed to enable the Council to record and track deliverables that will deliver on the development of charge point infrastructure. The plan is intended to be dynamic and will be updated regularly and refreshed annually in line with progress, changes to national context, grants and technology whether in vehicles or chargers. The action plan includes the following headings that detail the steps required to deliver against the outputs covered above.:

a. Increasing EV Uptake – Focus on Communications and Engagement
b. Delivering Infrastructure – Projects, Planning & Procurements
c. Maintaining Infrastructure – Operations & Maintenance, Enforcement
d. Government Asks – Where more support is required

Social and Equality Impacts

The development of EVCI will have a positive impact on residents as electric vehicles have near-zero tailpipe emissions and their uptake will therefore mitigate the impact of transport on air pollution. Air pollution is an issue that disproportionately impacts residents who live in inner-city areas which suffer from poorer air quality through a combination of intensive traffic corridors, industry, and the concentration of development. There is strong evidence that greater exposure to air pollution is correlated with a greater risk of developing long term health conditions. Poor health is linked to time off work and reduced productivity and can contribute to lower income. By supporting uptake of zero emission vehicles, the council will improve the health of residents facing poverty and inequality and balance these areas with more affluent parts of the city which enjoy relatively good air quality.

Electric vehicles are also demonstrated to be the lowest cost vehicle to own over the total life cost of ownership. Ensuring accessibility of charging infrastructure to all, not just those who have properties with driveways, or garages means that the benefits of that economic modelling are available to all. Whilst the initial cost of EV's may be prohibitive currently, the industry does project that price parity between conventional engine vehicles and plug-in vehicles will be achieved within a few years. As such it is important that those who live in areas that do not lend themselves to home charging are not excluded from the benefits of plug-in vehicle ownership, both in terms of the financial savings, but also the air quality benefits.

Equality, diversity, cohesion, and integration issues have been described in further detail in an EIA. In summary, the EIA concludes that poor air quality has a disproportionate effect on Black and Minority Ethnic communities as they are more likely to live in inner-city areas with poorer air quality. Children can be particularly adversely affected. There are no discernible specific impacts of air quality or provision of electric vehicle charging on the protected characteristics of gender identity, sexual orientation, and sex.

One of the main issues with regards to equality is that of communicating appropriately and reaching all parts of the community in a clear and understandable way on how they can benefit from the development of plug-in vehicles use as well as understand how the growth of EV utilisation will reduce their exposure to air pollution and reduce emissions. This will include engaging with businesses, individuals, equality hubs, ward councillors, the Locality

team and ensuring the strategy and communications are clear and accessible to all. Broader messaging on the wider benefits of electric vehicles, the use of and availability of charging and promotion of sales and commercial promotions would remain the responsibility of manufacturers and charge point operators and central government as part of its aim to end the sale of conventional engine vehicles in 2030.

What are the key risks and how are they being managed?

Air Quality is recorded as a risk on the Council's corporate risk register and is reported on a regular basis. Recently the impact and probability of the risk has been reduced due to Air Quality improvements in the city, in part delivered by changes in fleet profile such as uptake of plug-in vehicles. It is important that this progress is maintained.

Should the council be seen to be falling behind in planning and delivery of charge infrastructure the recent government consultation suggests there could be a risk of government mandating plans or applying a statutory obligation onto councils to plan and deliver charging. This may not be as flexible or appropriate as our own planning and delivery would be, so it is important to mitigate against such an imposition of this duty by being pro-active.

Charging on the highway has not been rolled out at any scale in Leeds, as such it is important that any potential risks to pedestrian, vehicle or other road user safety are maintained. Highways and Transport will develop a technical design specification that will carefully manage any risks from installation of charge points.

Installation of charge infrastructure that is not utilised, is not suitable for intended users or is in areas not suitable for its intended users would damage the perception of EV uptake and the council's reputation. As consultative planning of the type of charging, its location and assessment of user profiles and demand will form a key part of planning for both pilot projects and future roll out. Utilising external investment from CPO's is also designed to protect council from financial exposure and protect resources.

How will success be measured?

Progress will be reported to the Executive on an annual basis.

Monitoring of EV Uptake and EV charge point provision on council estate and city wide will be undertaken.

What is the timetable for implementation?

Upon the recommendations being approved by the Executive, implementation of the Action Plan can occur instantly. Resources are in place to start delivery of the actions contained with the Plan.

The Action Plan will be refreshed every 12 months with an accompanying report to the Executive to report progress.