

# **Suffolk Electric Vehicle Charging**

## **Infrastructure Strategy**




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# Executive Summary



**This Suffolk County Council strategy was written working collaboratively with the Districts and Borough Councils, and is aligned with the objectives of the Suffolk Climate Emergency Plan (SCEP) which is endorsed by the Suffolk Public Sectors Leaders (SPSL) . It outlines the actions necessary to support the charging infrastructure required for the smooth transition from internal combustion engine (ICE) vehicles to electric vehicles (EVs).**

The UK has committed to reach net zero emissions by 2050, and the decarbonisation of transport is a key action required to achieve this goal. The Department for Business, Energy and Industrial Action (BEIS) has stated in 2020, emissions from road transport (A roads, motorways and minor roads) were 27% nationally, 31% for East Anglia and 27% for Suffolk, demonstrating the significance of the impact and the need to reduce and remove tailpipe emissions in response to climate change. EVs provide a good option for decarbonising transport, although it is important to note that EVs are only part of the solution, and fully decarbonising transport will require a shift to other modes, such as increased use of active travel and public transport.

In 2019, Suffolk Local Authority Members recognised the climate emergency, and set an aspiration of making the county of Suffolk carbon neutral by 2030. The Suffolk Climate Emergency Plan (SCEP) was created to set out how Suffolk's public sector leaders will all work together to make the changes required to best set Suffolk on the path to carbon neutrality. Low carbon transport is a key goal in the plan, promoting walking, cycling, public transport and EVs.

In 2022 Suffolk Climate Change Partnership commissioned WSP to research and identify opportunities to progress the electric vehicle charging infrastructure (EVCI) across the county. The resulting report indicates that by 2030 there will be approximately 120,000 EVs on Suffolk roads which will represent approximately 29% of the total vehicle fleet in Suffolk, this will require approximately 5,400 chargepoints.

A challenge facing Suffolk is how to work effectively across public and private sector providers to deploy the chargepoints at a level that supports the projected increase in demand, to ensure Suffolk has the right number of chargepoints at the right time.

**By providing an evidence-based strategy to support the EVCI delivery in Suffolk, our vision is to enable a comprehensive, robust and accessible charging network for residents, businesses and visitors in the county.**

## Strategy Objectives:

- 1. Fully accessible and inclusive:** Develop a fully accessible and inclusive charging network for all road users, ensuring no one group or area is left behind
- 2. Enable all households:** Ensure every household without off-street parking is within a 5–10-minute walk of a slow or fast chargepoint
- 3. Contactless payment system:** New chargepoints installed that are 7kW and above should have a contactless payment system
- 4. Cost-effective:** Encourage the provision for a cost-effective charging network that offers value for money for users
- 5. Partnership working:** Continue to work collaboratively with local stakeholders to ensure a county-wide approach
- 6. Behaviour change:** Support Suffolk residents, businesses and visitors in changing to low carbon travel behaviour
- 7. Environmentally responsible:** Develop an environmentally responsible charging network that promotes improved local air quality and utilises 100% of the electricity required using renewable energy
- 8. Funding opportunities:** Seek opportunities to secure funding in all EV sectors to support the roll-out of charging infrastructure across Suffolk



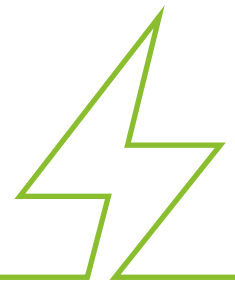
The focus of the strategy will be on cars and light commercial vehicles, with reference to taxi and private hire vehicles, and larger fleet vehicles such as HGVs and buses. Electric motorcycles are a relatively new market, with most riders being able to charge sufficiently using a standard three pin socket at home. Some models are now compatible with public EV chargepoints, and therefore the charging network outlined in this strategy can also support the emerging electric motorcycle market.

Charging infrastructure plans for e-bikes, e-cargo bikes and e-scooters are yet to be determined, and Suffolk County Council will monitor trials and developments taking place in other areas of the UK before implementing charging infrastructure for those modes of transport. For this reason, EVCI for e-bikes, e-cargo bikes and e-scooters are not included in the strategy at this stage.

This strategy forms one part of the overall transport strategy for the County and should be considered alongside and read in conjunction with the Suffolk Local Transport Plan (LTP), Suffolk Climate Emergency Plan (SCEP) and the District and Borough EV emerging position statements and their implementation plans.



# 1.0 Introduction



**The UK has committed to ending the sale of new petrol and diesel cars by 2035, with all new cars and vans being fully zero emission at the tailpipe from 2035. This is a significant step in the journey towards decarbonising the UK's transport. As outlined in the Office for Zero Emission Vehicle's (OZEV) Taking Charge strategy, by 2030 there is expected to be a minimum of around 300,000 public chargepoints in the UK to support the move from ICE vehicles to electric. Suffolk will need to play a key role in supporting this roll-out, ensuring chargepoints are fairly distributed across both urban and rural areas. The projections for how this will happen are highlighted in '2.0 Forecasting the EV roll out in Suffolk' Page 11.**

## 1.1 Low Carbon Transport

Low Carbon Transport is a key priority set out in the SCEP to best set Suffolk on the path for carbon neutrality by 2030. Suffolk is looking to reduce transport demand and encourage a shift to less carbon intensive modes, such as walking, cycling, wheeling and public transport, as outlined in the Suffolk LTP and also supported nationally in the Transport Decarbonisation Plan. However, due to the rural nature of Suffolk, it is very likely that some people will always need access to a vehicle. For those remaining vehicles required on the roads, the focus will be on promoting electric vehicles until other zero emission fuels are available.

Suffolk County Council is already leading the way with Plug In Suffolk, the UK's first open access county-wide charging network. Plug In Suffolk's 100th charge point was installed in early 2023, with plans to install more in coming years. The Council also enabled two Ultra-Rapid charging stations on the outskirts of Ipswich at Park and Ride sites. However, there is a significant need to accelerate the charging infrastructure further, to create a fit for purpose network for residents, businesses, and visitors to charge their vehicles to meet the predicted demand.

The pathway to decarbonise larger vehicles such as HGVs and buses is currently uncertain, with research and innovations being explored nationally.

Suffolk County Council will stay up to date on developments in this area to determine future EVCI requirements for larger vehicles. This is particularly relevant to our county due to the major ports, A14 and A12 roads in Suffolk, as well as supporting the buses that connect our urban and rural areas. Suffolk County Council will use the Fleet Charging Guide, developed by British Vehicle Rental & Leasing Association (BVRLA), and intend to sign the pledge to demonstrate commitment to ensure Suffolk has a fleet friendly charging network.

Van users require specific measures to support their charging needs, such as extended bays to support long-wheelbase vehicles (and those with trailers), adequate surrounding space for accessibility and to be able to fit in spaces alongside other vehicles, as many current charging bays have been designed with cars in mind. The security aspect of the charging bays is also a suggested consideration by BVRLA, as several vans will be carrying specialist equipment inside, therefore chargepoints in well-lit areas has been recommended. Considerations will also need to be explored for drivers that take the work van home and expect to be able to charge overnight near their home, particularly for those who rely on on-street parking. Suffolk County Council will engage with the stakeholders involved when developing infrastructure to meet the diverse charging needs of electric fleets.

## 1.2 Air Quality

The Office for Health Improvement and Disparities (OHID) published Air pollution: applying All Our Health guidance in 2022, stating that poor air quality is the largest environmental risk to public health in the UK, with long term exposure to man-made air pollution causing a significant reduction in life expectancy.

Road transport is a source of both greenhouse gases and air pollutants being responsible for significant contributions to emissions. In 2020, the transport sector accounted for 35% of Suffolk's carbon emissions, which is down from 38% during 2019 (Source: Suffolk Observatory).



Although a slight reduction, this is significant when compared to the national average of 28% in 2020 (Source: Office for National Statistics).

Although air quality across most of Suffolk is reasonably good, there are areas where pollution caused by road traffic is higher and breach the National Objective Limits. The Suffolk Air Quality Strategy indicates there are relatively higher concentrations of pollutants in Lowestoft, Bury St Edmunds, Ipswich and Felixstowe but hotspots of pollution also exist in smaller towns and villages especially on major roads.

The Suffolk Air Quality Profile states preventing and reducing emissions from road transport is a key intervention to improve local air quality. Similarly to the LTP, prioritising cycling, walking, wheeling and using public transport is required to help achieve this, and for the remaining vehicles still required on the roads, promoting the uptake of low and zero-exhaust emission vehicles, particularly electric vehicles, is needed.

### 1.3 Types of Electric Vehicle Chargepoint Infrastructure (EVCI)

There are many types of EVCI available to suit different charging needs. These can be split into different categories that represent the varying power output and charging speeds. Some organisations use different definitions of speed and power output, but for the purpose of the strategy we will be using the below definitions from Energy Saving Trust.

Speed	Power output	Considerations
Low speed	0 - <3.7 kW	Cheapest to charge, used when vehicle is parked for several hours e.g. overnight or all day parking
Standard	3.7 kW - <8kW	
Fast	8 kW - 49kW	Ideal when vehicles are parked for few hours e.g. shopping centres or restaurants
Rapid	50 kW - 149 kW	Quickest way to recharge but often most expensive. Used en-route e.g. service stations adjacent to main roads
Ultra-rapid	150 kW and over	

Table 1: Chargepoint power output definitions. Source: Energy Saving Trust.





The different power outputs have varying types of connectors. Charging cables can also differ, with some chargers using tethered cables, whilst others are untethered, requiring the driver to plug in a cable to both the chargepoint and car. Some chargepoints require you to download an app before you can use the device and to pay for the charge, others allow you to pay contactless and require no app.

The Energy Saving Trust website provides resources and further information about the types of EVCI.

The RAC provides a visual guide on the various charger types, connectors and speeds.

For comparison, Image 1 provides examples of two different chargepoint types in Suffolk. The image on the left is of Fastned charging station in Martlesham, an ultra-rapid charging hub that can charge up to 300kW, providing EVs with up to 300 miles of range in as little as 20 minutes depending on the make and model. The chargepoints have tethered cables and can be paid using contactless payment system or by App on a smartphone.



Image 1: first image: Fastned charging in Martlesham. Second and third images: Example of a Plug In Suffolk chargepoint.

The image to the right of Image 1 is a Plug In Suffolk chargepoint. These are found in rural locations, are untethered, 7kW, and provide a contactless payment system or by smartphone App.

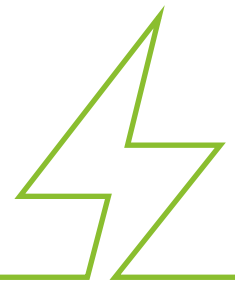




There is no one-solution when it comes to deciding which chargepoint is best. All chargepoint types have specific strengths and drawbacks which must all be evaluated before implementing. Table 2 explains the various chargepoint types.

EVCI types	Example of them in use	Considerations	Speed/Power
Home charging	Private off-street parking e.g. on a driveway, residential parking.	Useful for long periods/ overnight. Low user cost	Low speed/ standard
On-street charging	Charging devices located on residential streets only. Lamppost chargers, kerbside chargers, pavement channels, flush-fitting, on street parking bays etc	Useful for long periods/ overnight, but brings increased street clutter which needs to be evaluated before implementing	Standard/fast
Business/ workplace charging	Workplace parking e.g. office carparks / depots	To support staff to charge during work hours. Support EV fleets	Standard/fast
Community charging	Residential community chargepoints such as Plug In Suffolk e.g. village hall carparks	Useful in both urban and rural locations and can be used for longer period of times e.g. overnight	Standard/fast
Destination/ tourism	Charging devices located at the end of an EV journey or where a driver may stop for an extended period. E.g. Town centre car parks, visitor attractions, retail parks, park and ride sites	Short charge times, convenient locations	Standard/fast/ rapid depending on type of destination and length of stay
En-route charging	Charging devices located for charging to continue a journey e.g. service station parking and anywhere close to major roads/population centres	Short charge times but often higher cost to charge for user	Rapid/ultra-rapid

\*Table 2: A breakdown of the EVCI types.



## 1.4 Existing charging network

According to the ZapMap database, at the end of May 2023 there were 43,626 charging devices listed across the UK, with the East of England hosting 6.6% of this with 2886 chargepoints (6th highest share in the UK). Of this, Suffolk hosts 362 public chargepoints. Table 3 shows the total existing public chargepoint devices (at all speeds) broken down by local Council area in Suffolk (Image 2 highlights the locations), against the number of chargepoints per 100,000 population.

Local Authority	Total existing charging devices	Per 100,000 population
Babergh	44	47.5
East Suffolk	92	37.3
Ipswich	56	40.1
Mid Suffolk	29	28.0
West Suffolk	141	78.0
<b>Total</b>	<b>362</b>	<b>47.4</b>

Table 3: Existing number of public charging devices in Suffolk against the number. Source: Department for Transport.

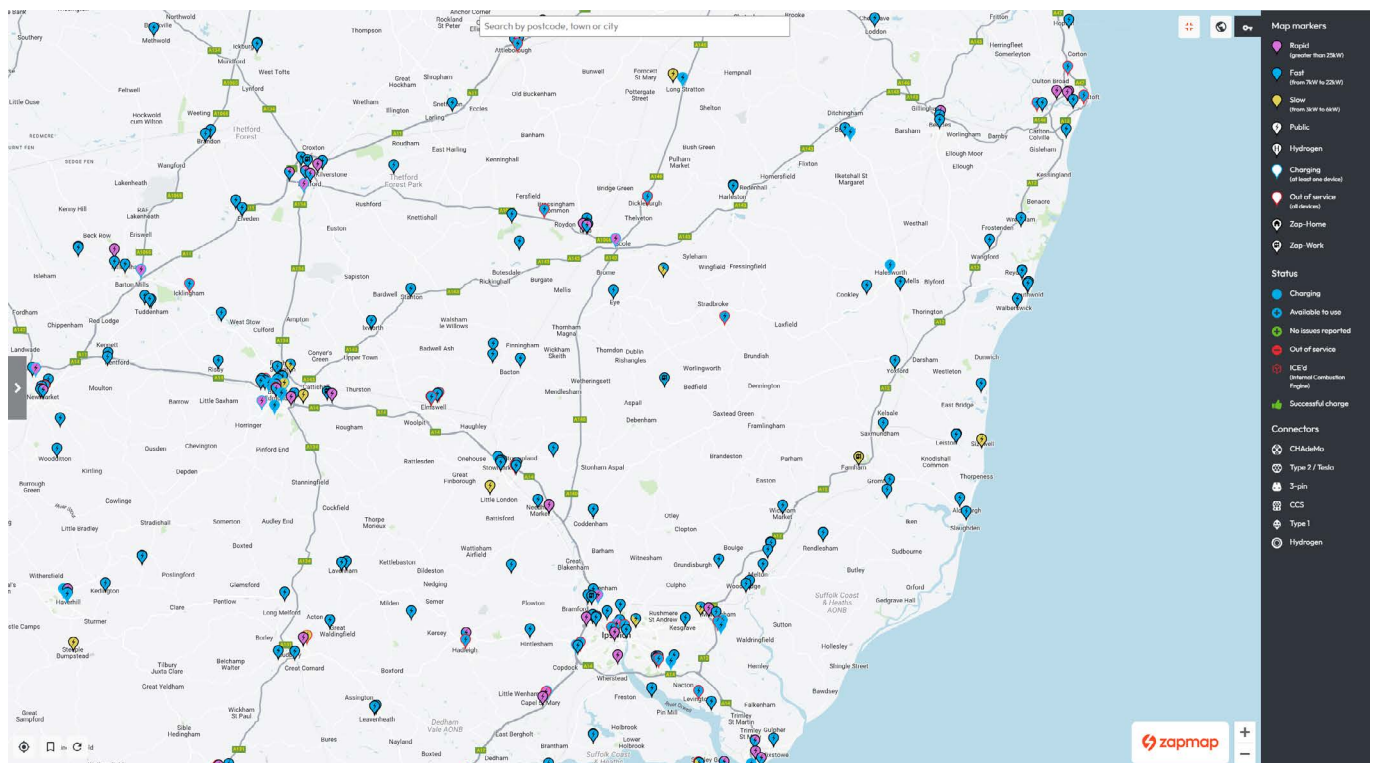


Image 2: Chargepoint locations in Suffolk. Source: ZapMap, October 2023.

According to the ZapMap database, there are currently in the region of 10 existing rapid and ultra rapid charging stations in Suffolk.

# 2.0 Forecasting the EV roll out in Suffolk



## 2.1 EV ownership

As of the end of June 2023 there were more than 1,325,000 plug-in cars on our roads in the UK, with over 810,000 of these being battery electric vehicles. The Society of Motor Manufacturers and Traders (SMMT) states data is showing a shift away from plug-in hybrids towards battery-electric cars, with plug-in hybrid sales declining year on year, while battery-electric vehicle sales have increased. This aligns with the government's commitment of all new cars and vans being fully zero emission at the tailpipe from 2035.

In Suffolk, EV ownership has increased steadily from under 1,000 vehicles in 2015 to over 7,000 vehicles 2022, in-line with the national trend. A full breakdown of EV registrations against the District Councils for 2022 is shown in Table 4. The total figure is projected to grow significantly, with an expected 120,000 EV ownership in Suffolk by 2030. Image 3 shows how the 120,000 EV ownership forecast is expected to be broken down into the District Councils, with East Suffolk at 40,000 followed by West Suffolk at 29,000 registrations. Further information on this is found in Appendix 1.

Local Authority	Number of vehicles in Suffolk (diesel, petrol)	Existing EV ownership (including plug-in hybrids)	Percentage of EVs against total car number (%)
Babergh	83,500	971	1.16%
East Suffolk	189,600	2,393	1.26%
Ipswich	52,100	988	1.9%
Mid Suffolk	91,800	1,513	1.65%
West Suffolk	129,300	1,738	1.34%
<b>Total</b>	<b>546,300</b>	<b>7,603</b>	<b>1.39%</b>

Table 4: Existing number of vehicles and EVs in Suffolk. Source: Department of Transport, 2022 Q4.

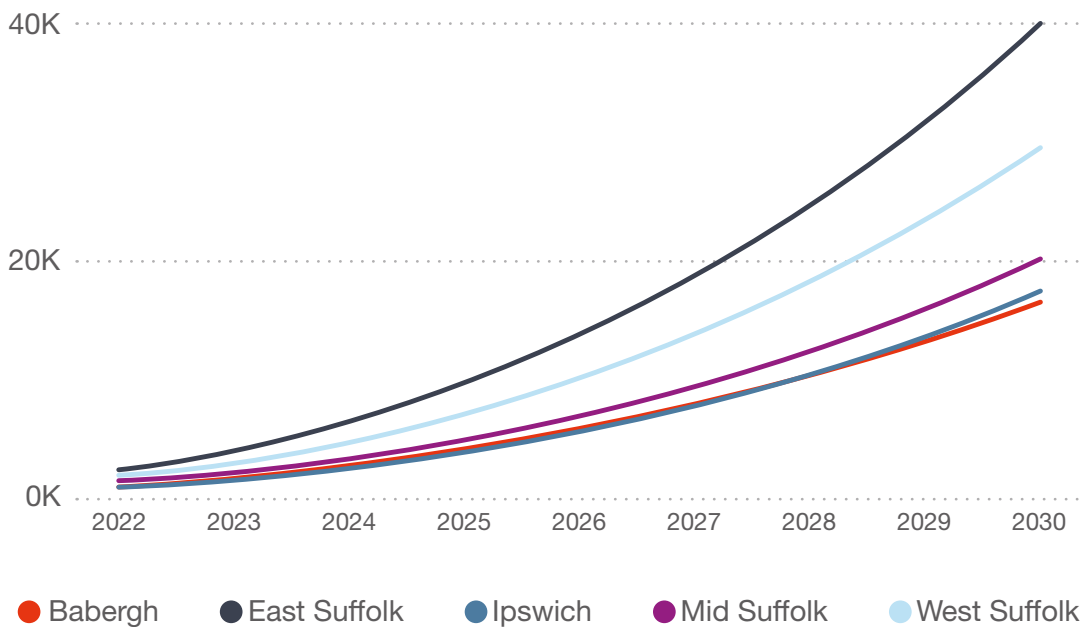


Image 3: Forecast EV registration by Local Authority from 2022-2030. Source: WSP EV:Ready Report

The second-hand market for EVs is expected to increase over time, and with more leasing options now available for new and second-hand EVs, it is creating more affordable options for owning a zero-emission vehicle. The cost of charging is a key part involved in running an electric vehicle. The associated energy and charging costs are dependent and influenced on global markets, with a significant difference between the costs of charging at home against public charging, with charging at home often being the cheapest method of charging. This difference is predicted to narrow overtime, helping to make it more affordable to charge for those without home charging.

The forecasted increase in EV ownership in Suffolk demonstrates a strong need for a greater number of charging points across the county.



## 2.2 Number of public chargepoints required

In 2022, the Suffolk Climate Change Partnership commissioned WSP to assess the current provision, future demand, and requirements for EVCI in Suffolk. The document formed the basis of our intelligence, along with the Transport East interactive EV:Ready tool that shows predicted electric vehicle uptake and EVCI requirements for several scenarios across Suffolk.

Table 5 shows the total forecast demand for public EV chargepoints in Suffolk up to 2040, for both low and high uptake scenarios (does not include off-street home charging points). This data covers EVCI funded by both the public and private sectors. A wide range of variables were considered in this assessment, including:

- Charging habits
- Vehicle mileage and efficiency delivered via public chargers
- Trends in vehicle and charger technology
- Average charge rates

It is important to recognise that in the low uptake scenario, it is assumed that chargepoints are deployed optimally and achieve higher utilisation, with a greater increase in the average charge rate. It serves to provide a more limited minimum baseline coverage of EV charging provision, and more high-powered recharging in fewer locations.

Equally, the forecast demand for the number of chargepoints required in the high uptake scenario is made under the assumption that chargepoints are deployed more widely and used less intensively, with more modest increase in the average charge rate.

		Total EV chargepoints required in Suffolk	Indicative forecast of LA enabled EV chargepoints required in Suffolk	Total EV chargepoints required in Suffolk	Indicative forecast of LA enabled EV chargepoints required in Suffolk
Scenario		Low Scenario		High Scenario	
Year	Charger type	Count	Count	Count	Count
2025	Rapid	223	36	346	71
	Standard	1339	708	2077	1181
	<b>Total</b>	<b>1562</b>	<b>744</b>	<b>2423</b>	<b>1252</b>
2030	Rapid	436	59	738	116
	Standard	2789	1438	4723	2526
	<b>Total</b>	<b>3225</b>	<b>1497</b>	<b>5461</b>	<b>2642</b>
2035	Rapid	973	114	1375	183
	Standard	6227	3162	8801	4578
	<b>Total</b>	<b>7201</b>	<b>3277</b>	<b>10176</b>	<b>4762</b>
2040	Rapid	1444	162	1713	219
	Standard	9242	4673	10965	5666
	<b>Total</b>	<b>10686</b>	<b>4835</b>	<b>12679</b>	<b>5885</b>

Table 5: Forecast number of public EV chargepoints (excludes off-street home charging points) required up to 2040 in Suffolk, for both low and high scenarios. Source: Transport East EV:Ready Tool



Both scenarios indicate Suffolk requires significant expansion of publicly accessible charging infrastructure to meet future demand.

Table 6 indicates the total forecast demand for EV chargepoint by local Council area in Suffolk, covering the same low and high scenarios from Table 5. It is important to note the data in Table 6 refers to EV chargepoints that may require public funding or other support and does not include those that are purely funded by private sector investment.

District	Babergh		East Suffolk		Ipswich		Mid Suffolk		West Suffolk	
Scenario	Low	High	Low	High	Low	High	Low	High	Low	High
Year	Count		Count		Count		Count		Count	
2025	112	169	274	416	83	170	132	201	144	296
2030	217	357	536	880	178	360	258	422	308	624
2035	460	642	1137	1586	416	650	545	760	719	1124
2040	663	793	1641	1961	640	804	785	938	1106	1389

Table 6: Forecast of Local Authority enabled EV chargepoints required in the Districts. Source: Transport East EV Ready Tool.

The same data is presented in Image 4 and 5, indicating a significant increase required in the charging infrastructure across all Districts, with East Suffolk expecting to require the highest number of chargepoints in both the high and low scenarios, followed by West Suffolk. One reason for this could be the more affluent rural residents are more likely to make the switch to EVs sooner, driving up demand for chargepoints, over the lower-income and more urban centres. It is important to note the variables listed above that have been considered in this assessment.

### Indicative forecast of Local Authority enabled EV chargepoints required in the Districts, low scenario

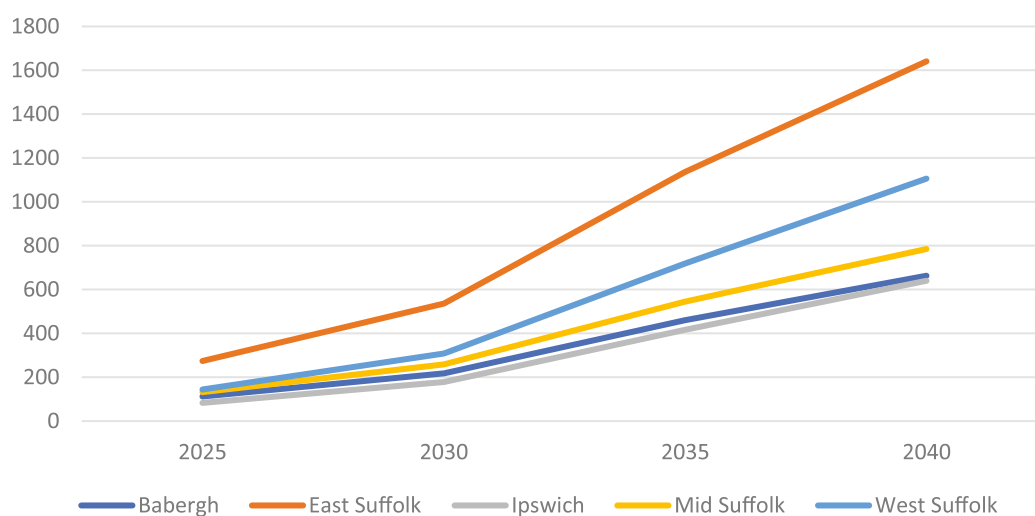
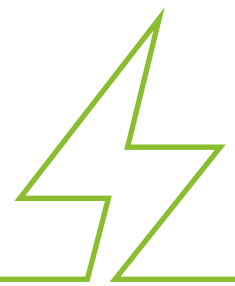


Image 4: Indicative forecast for Local Authority enabled EV chargepoints required in the Districts, low scenario. Source: Transport East EV Ready Tool.





### Indicative forecast of Local Authority enabled EV chargepoints required in the Districts, high scenario

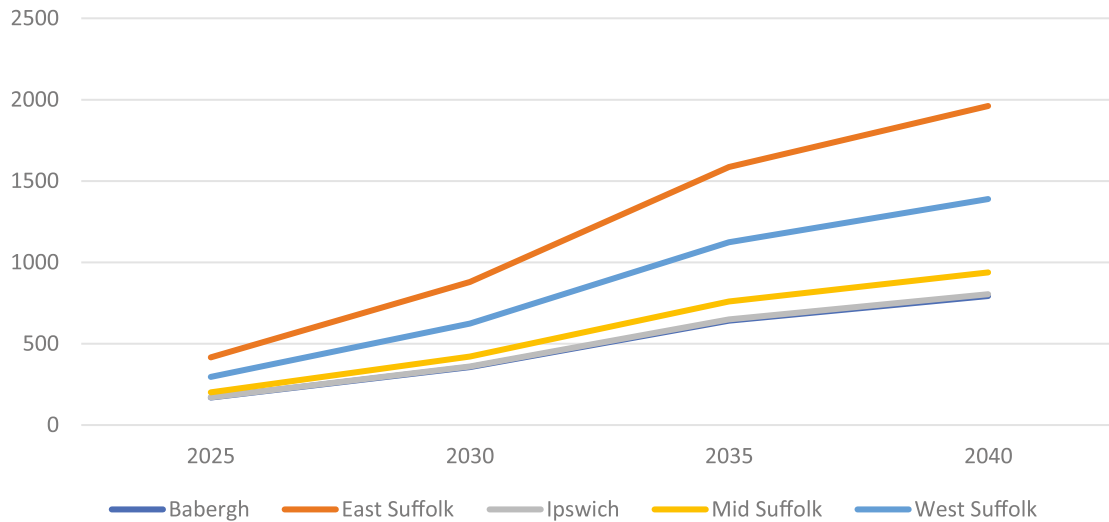


Image 5: Indicative forecast of Local Authority enabled EV chargepoints required in the Districts, high scenario. Source: Transport East EV Ready Tool.

To undertake the forecasted analysis, it was necessary to make several assumptions which will naturally present limitations. A list of the assumptions made is provided in the Appendix. Due to this, it is recommended that the figures in Tables 5 and 6 should be taken as indicative estimates for decision-makers rather than absolute. The figures will need to be reviewed periodically to ensure improved accuracy against changes in demand.

When it comes to deciding on which chargepoint should be installed, it is recommended that a blend of chargepoint types (Table 2 on Page 9) will be required to meet the needs from all users, and support a smooth transition for residents, businesses and visitors across Suffolk.

### 2.3 Where to locate the chargepoints

The expansion of the EVCI network requires several factors to be considered before chargepoint locations can be identified. The availability of grid capacity, particularly for the rapid/ultra-rapid chargers, can be an issue. Local Authorities are encouraged to engage early with UK Power Networks (UKPN) to ensure appropriate locations are selected for electricity availability and user needs. Other factors that need to be considered

include the street furniture that comes with the specific charge point, the install-ability, cost, customer experience, technology and maintaining access for users.

It is important to ensure there is an even distribution of chargepoints across the rural and urban areas of Suffolk, with a blend of charging speeds to meet the diverse needs of the different users.

Typically, the private sector is likely to favour areas where supply outweighs demand, therefore making it more commercially attractive, often along the high traffic routes such as dual carriageways and A roads as highlighted in Image 6. The EVCI typically deployed by the private sector in those locations are rapid/ultra rapid chargers, where the driver will need a quick charge whilst on route to their destination.

This supports a current expectation from some drivers for an increase in rapid chargers, as they feel they replicate a similar experience they had with petrol service stations. However, the market is constantly evolving and there are now some CPOs in the private sector that specialise in other types and combinations of chargepoints, such as kerbside charging, rapid/ultra-rapid and a combination of all.

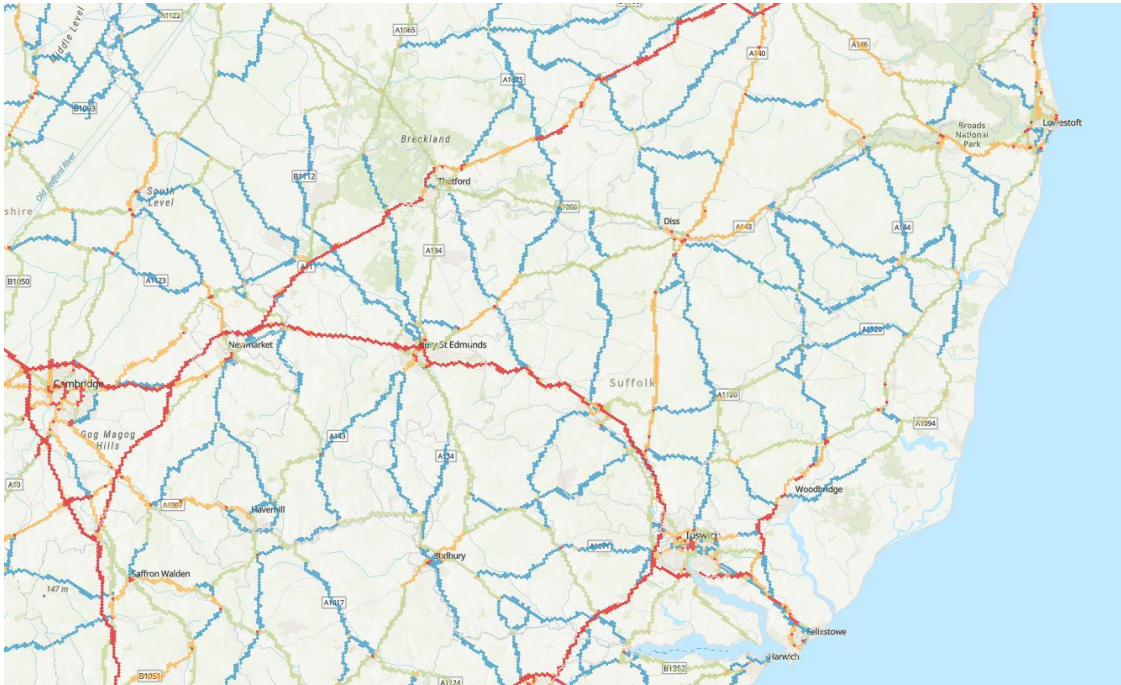


Image 6: Rapid charging demand in Suffolk for 2030. Red indicates high demand locations and blue the low demand locations. Source: WSP EV:Ready Dashboard.

Mobility hubs located on major public transport networks (e.g. Park and Ride sites) that provide EV charging stations can encourage an increase in walking, cycling, wheeling and using public transport to access town centres. This reduces the number of vehicles heading into towns, supporting improved air quality and freeing up EVCI in town centre car parks for residents and those with limited mobility who would find it difficult to access town centres without a vehicle.

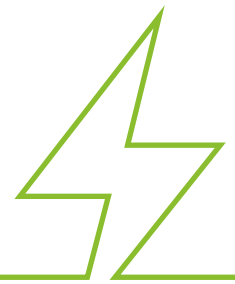
## 2.4 Reliance on on-street parking

Household density is a valuable indicator to consider alongside EV uptake forecasting because it provides an indication of areas that are more likely to require publicly accessible charging.

Areas with a lower housing density are more likely to have access to home EV charging options on private driveways, whereas areas with a greater housing density are less likely to have access to private EV charging and therefore will require publicly accessible charge points.

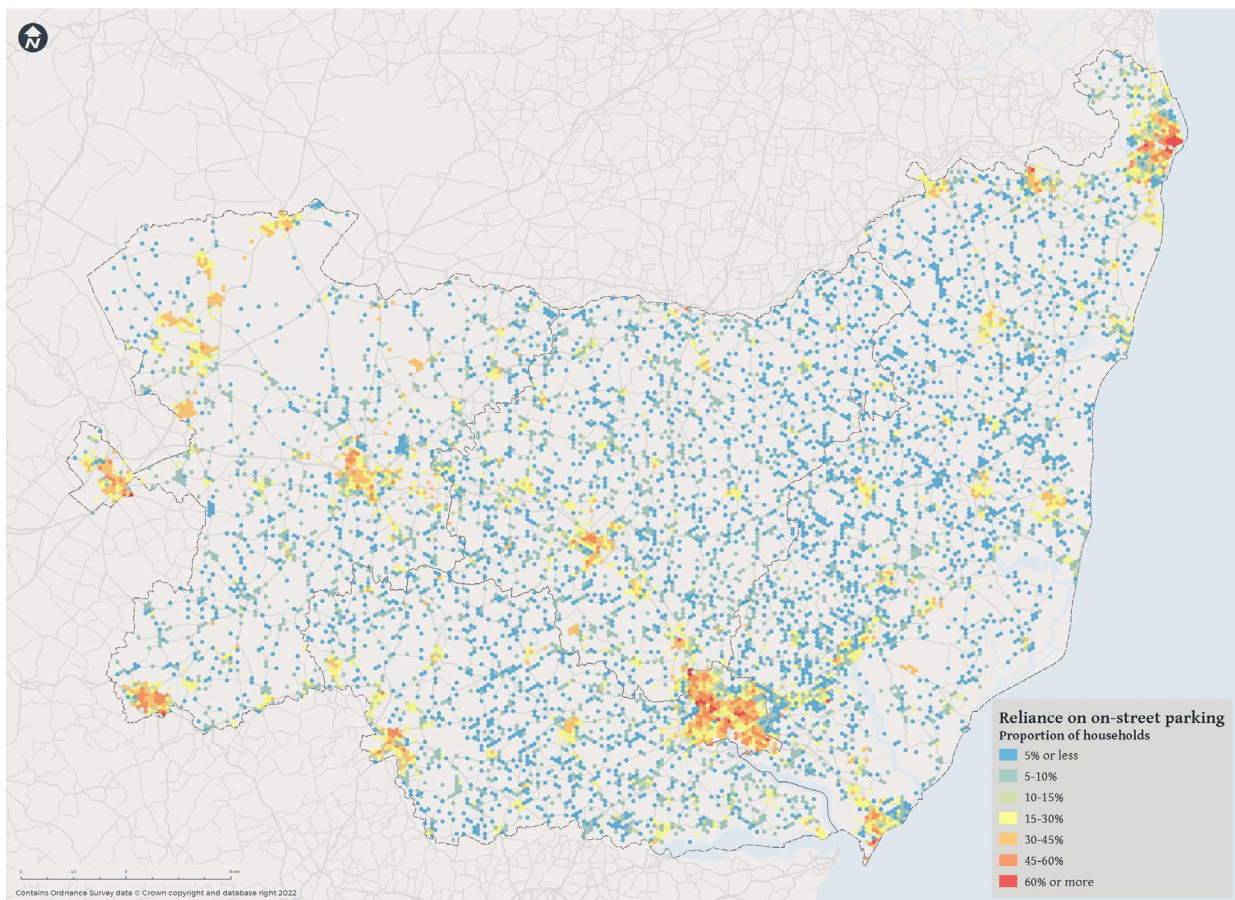
The WSP EV:Ready report highlights 25% of households in Suffolk are reliant on on-street parking, as highlighted in Table 7 and Image 7. Although this is lower than the average for the UK at 30.6%, Suffolk will need to ensure there is enough safe and accessible on-street and community charging infrastructure in place to support those without access to off-street parking.





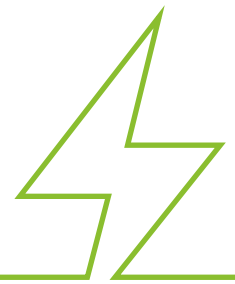
Local Authority	Households	Proportion of households reliant on on-street parking (%)
Babergh	46,000	21.05%
East Suffolk	117,000	22.31%
Ipswich	60,000	36.93%
Mid Suffolk	45,000	17.37%
West Suffolk	77,000	26.65%
<b>Suffolk</b>	<b>345,000</b>	<b>25%</b>

Table 7: Reliance on on-street parking in Suffolk. Source: WSP EV:Ready Tool.



\*Image 7: Map to show reliance on on-street parking in Suffolk. Source: WSP EV:Ready Report





A challenge kerbside charging brings is ensuring any new charging infrastructure does not obstruct, discourage, or create hazards for walking, cycling and wheeling, and ensures appropriate access along the pavements and to the chargepoint unit. This is a key component of the PAS 1899:2022 Standard.

For residential streets in conservation areas, the EVCI is expected to be in keeping with appearance of the local area where possible. Suffolk Districts and Borough will need to work closely with the Highways Authority to ensure all road users' needs are accounted for and any EVCI installed is suitable for each specific location.

A second challenge kerbside charging could bring is ensuring the chargepoints are available and free to use when required, and do not get blocked by other road users. This will be a particularly crucial time during the transition stage from ICE vehicles to EVs, when demand for EVCI is increasing but other ICE vehicles still need to be able to park on the street. Clusters of kerbside charging in suitable locations could be explored to overcome this as well as designated charging bays. This challenge is expected to be less of an issue overtime when there will be fewer ICE vehicles on the roads and the charging demand and needs shift due to an increase in the number of chargepoints installed.

There are other approaches to kerbside charging which should be considered. One approach is to increase EVCI in public car parks in town centres to enable local residents to charge overnight when demand for car park space is low from visitors. However, this has the potential to bring challenges around vehicle and user safety when leaving the vehicle to charge and walking to and from the car park. A way to reduce the safety concerns would be to make sure all charging locations comply with safety guidelines, such as ChargeSafe guidelines, to enable drivers to feel safe when charging their vehicle. This approach of residents using the chargepoints overnight is likely to be a preferred charging method by those living within close walking proximity to the car park and can reduce the need for individual kerbside charging outside properties.

EV car clubs are another option that could offer opportunities for residents to still have access to a car or van for those trips that cannot be made by any other mode without having to own a vehicle; therefore, reducing the need to charge at home. EV car clubs have potential to work well in areas of high housing density such as urban centres and are currently being trialled across other parts of the UK. Car clubs also help to reduce the number of vehicles on the roads, with potential for societal shift away from car ownership. This aligns with the priorities outlined in the LTP by promoting other modes of low carbon transport, as well as having potential to compliment any mobility hubs.

EV car clubs are relatively new, and Suffolk County Council will be monitoring progress and awaiting the outcome of numerous trial projects happening across the country. The Council will look at setting up pilot projects to assess their long-term feasibility.

Suffolk County Council's Transport Strategy team is currently developing good practice guidance for installing on-street charging. All options will be explored to ensure the most suitable kerbside charging infrastructure is chosen for each location, as well as considering other EVCI types to support charging for residents who rely on on-street parking. Currently kerbside gullies and channels that are temporarily installed across the footway or highway, specifically to assist EV charging, are not permitted. Permanent solutions for this will be explored and put forward.

Community engagement and consultation will be crucial to ensure the right blend of infrastructure is chosen for the varying charging needs.



# 3.0 Developing an EV charging network for Suffolk



## 3.1 Role of the Local Authorities

LAs are uniquely placed to work together and support the roll-out of EVCI. Suffolk County Council is the local Highway Authority with control over many public highways in the County such as roads and footways. National Highways manage the strategic road network in England, including the A14 that runs through Suffolk.

The LAs in Suffolk collectively own land and buildings across the county, including car parks, country parks, offices, schools and fire stations. These assets have the potential to play a key role in accelerating EVCI to support the needs of residents, businesses, and visitors.

The LAs in Suffolk are leading the way in expanding efforts to switch operational and pool fleet vehicles to zero emission at the tailpipe. This switch should be used to support local partners and businesses to follow in making the transition to low emission vehicles. Suffolk County Council is committed to switch the remaining pool fleet vehicles to fully electric by the end of 2024, with plans to increase chargepoints to support this.

The Local EV Infrastructure (LEVI) Fund supports local authorities in England to plan and deliver chargepoint infrastructure for residents without off-street parking. Suffolk County Council has secured LEVI funding and is working in collaboration with Suffolks District councils in the delivery of the LEVI projects. This collaboration across all Suffolk councils is central to ensuring an even distribution of chargepoint deployment, and relates to Objectives 5 and 8. The Council has received £1.36M in 2023 to support installation of an additional 200 chargepoints in community locations and has been allocated £5.6M (capital) for further work over the next 3 years.

Suffolk County Council expects the Districts and Borough to work alongside the private sector to ensure a choice and scale of charging options are available throughout Suffolk. New opportunities for collaborative working across both sectors are being explored and this enables greater flexibility for LAs to influence and ensure a good distribution of chargepoints. This collaboration

between public and private sectors is strongly emphasised in the Electric Vehicle Insight Study (ELVIS) by Transport East as a key requirement to meet forecasted need. There are a number of commercial procurement models that can be used for chargepoint installations including concession, joint venture and owner operator models, as seen in section 3.2.2.

The Highways Authority will ultimately have responsibility for the safety of assets within the Highway, and therefore chargepoints, on the roads and footways that it has control over.

## 3.2 Delivering the Strategy

Further details on the objectives are listed below with actions on how this will be achieved in section '4.0 conclusion and next steps'.

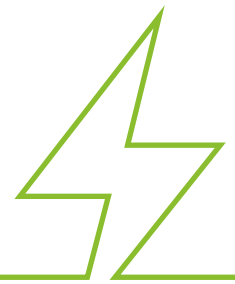
### 3.2.1 Objectives

#### 1. **Develop a fully accessible and inclusive charging network for all road users, ensuring no one group or area is left behind**

Guidance and best practice from the PAS 1899 Accessible Public Charging Standard is expected to be incorporated into the design and placement of EVCI across Suffolk, to enable an inclusive experience for people with accessibility needs where possible.

The network will include a good distribution across both rural and urban areas. Suffolk County Council will seek to further understand both rural and urban needs and actively pursue innovative solutions for charging and travelling in those areas e.g. EV car clubs, community charging locations, promoting neighbourhood EV chargepoint sharing campaigns where appropriate, such as Co-Charger etc.

Users need to feel safe using the charging network at night and in low-lit areas. The ChargeSafe guidelines will be considered with new installs, and Suffolk County Council will seek to improve the existing network where possible.



Visibility is key to ensure users know where the chargepoints are located to help plan journeys, and ultimately increase confidence to make the switch from ICE vehicles to EVs. Suffolk County Council will make sure all new chargepoints are listed on the Governments National Chargepoint Registry as well as ZapMap, and similar mapping tools, to make it easy to locate and plan journeys around charging needs, and with suitable signage on location where possible. Relevant information and updates about the charging network will be added to the Suffolk County Council website and social media platforms to inform users.

The Open Charge Point Protocol 2.0 will be used to promote data sharing to help ensure an accessible network, ensuring some dynamic data is made openly available to consumers.

## **2. Ensure every household without off-street parking is within a 5–10-minute walk of a slow or fast chargepoint**

Collaboration is encouraged with partners and key stakeholders to identify suitable locations to expand the charging network, supporting households without off-street parking. The objective will be measured by mapping the households identified without off-street parking against potential locations for nearby chargepoints (such as public car parks and/or cluster on-street chargepoints) using a mapping tool.

Suffolk County Council will work closely with Energy Saving Trust to measure and monitor this objective using a spatial mapping software.

The Council will consider appropriate Traffic Regulation Orders (TROs) and enforcement requirements depending on the local context (e.g. parking restrictions, resident parking zones, overstay fees etc).

## **3. Ensure new chargepoints installed at and above 7kw will have a contactless payment system**

The Government is mandating a contactless payment method at newly installed chargepoint sites (8kW and above) with retrofitting at existing rapid sites (50 kW and above).

In Suffolk we believe this should be extended to lower power for improved user experience. Our 100 chargepoints through the Plug In Suffolk network, where all chargepoints at 7kW and above have a contactless payment method. All new installs of 7kW by the Council and above, will have the same feature.

This will be particularly useful in rural locations where WiFi/signal may be unable to support chargepoint apps, causing a digital barrier.

## **4. Encourage provision for a cost-effective charging network that offers value for money for users**

Lower charging costs are likely to incentivise residents, businesses and visitors to make the switch from ICE vehicles to EVs. Suffolk County Council will encourage provision of a cost-effective charging network, ensuring value for money for users by keeping charging costs low where possible. The use of time-of-day tariffs will be encouraged.

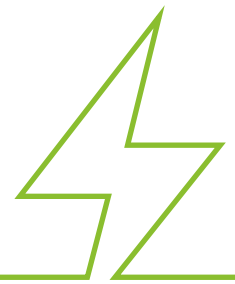
Suffolk County Council will ensure pricing transparency to enable EV drivers to easily view the price per kWh at all chargepoints (both displayed on the chargepoint and on ZapMap), to compare the cost of charging between different networks.

Suffolk County Council will explore the feasibility for developing EV car clubs across Suffolk, offering a more affordable option to allow access to a vehicle without the need to own one or pay the costs associated with owning one.

Suffolk County Council expect the private sector to work with LAs to provide a charging network across the county that is equitable for all residents, businesses and visitors. This includes the light commercial vehicle and fleet sector.

The Council will look to support community ownership models as part of the charging network, leaving responsibility of the chargepoint, and therefore any associated costs, with the community. An agreement will take place prior to installation to discuss and ensure all parties are happy with the arrangement.





## **6. Provide support to Suffolk residents, businesses and visitors in changing to low carbon travel behaviour**

Understanding individual range, charge and change anxieties will help to identify the capability, opportunities and motivations involved with travel behaviour change (COM-B model). Community engagement and consultation with residents, businesses, and visitors is required to develop a reliable and fit for purpose charging network. Suffolk County Council would like EV drivers to feel confident that the charging network is reliable and easy to use.

Suffolk County Council will work closely with the development of the LTP to promote walking, cycling, wheeling and public transport as a first means of transport, and promoting those for first and last mile journeys, integrating with standard EVCI, mobility hubs and park and ride sites. The Council will encourage the use of low emission vehicles for the remainder of journeys unable to take place in this way.

We will work with commercial organisations to provide engagement and showcasing opportunities enabling residents and businesses to try out EV's and gain an understanding of the impacts and benefits of EV ownership.

Given the rural nature of Suffolk, it is key to engage with the taxi and private hire trade as many people rely on this mode of transport to travel. A feasibility study and consultation will be delivered with this sector to identify the barriers and support required to help the transition to EVs, and to enable a reliable network to support the charging of their vehicles for work.

As mentioned in Section 1.1, Suffolk County Council will sign the BVRLA fleet charging pledge to demonstrate commitment to ensure Suffolk has a fleet friendly charging network. Stakeholder engagement on this will be needed to support the diverse charging needs of electric fleets.

Suffolk County Council will stay up to date with, and closely follow, any new Government

support measures that are announced, to ensure Suffolk makes the most of any future support measures and offers. For example, the 'Plan for Drivers' policy paper, published in Autumn 2023, sets out how the government is working to improve the experience of driving and services provided for motorists. The 'transition to zero emission driving' is a key section in the paper that Suffolk County Council will follow, covering several measures such as delivering faster grid connections, tackling the challenge of on-street charging and debunking common EV myths.

## **7. Develop an environmentally responsible charging network that promotes improved local air quality and uses 100% of the electricity required using renewable energy**

Suffolk County Council will ensure the charging network is environmentally responsible and support the SCEP 2030 net zero target. Many CPOs aim to ensure that networks are powered by renewable energy; Suffolk County Council encourages this to be a requirement when developing the procurement specifications for EVCI.

Suffolk County Council and its partners will promote the co-benefits that a more environmentally friendly transport network will bring, including improved local air quality and healthier, more active communities.

On-site renewable generation and battery storage should be considered in suitable chargepoint locations, as this brings opportunities for increasing the proportion of renewable energy whilst helping to manage long-term energy supply costs and reducing the carbon intensity of the network. On-site generation, such as wind, solar photovoltaics (PV) or hydroelectric, could future proof the charging network if carefully planned from the start and installed at the same time as the chargepoint installation, as this will minimise future challenges with groundworks and connectivity. One example of this type of installation includes solar carports located in carparks. However, it is important to note that not all locations will be suitable for on-site generation and battery storage.



## 8. Seek opportunities to secure funding in all EV sectors to support the roll-out of charging infrastructure across Suffolk

Suffolk County Council will use existing LEVI funding to enable a greater provision of EVCI and look at several procurement models.

Suffolk Local Authorities, with partners, will also explore opportunities to use the public estate to improve the EVCI.

The Council will work with commercial, community and public partners to help identify opportunities for funding and site identification in Suffolk.

The Council work with partners on sub regional opportunities for funding EVCPs.



### 3.2.2 Funding and procurement options

Suffolk County Council received £1.36M in January 2023 from the LEVI Pilot Fund to support additional chargepoints in Suffolk for households without off street parking. The key outcomes will be:

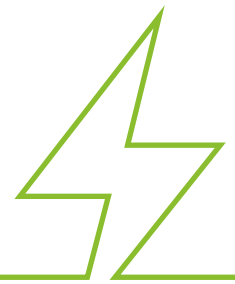
- Upgrade 10 of the current community owned sites to include PV solar and battery.
- Identify and install a further 30-70 community sites in urban and rural areas for community EV, solar and battery storage. These will include;
  - 206 x 7.5kW chargers.
  - Use an existing community ownership model where appropriate.
- Identify key commercial sites where business cases for 7kW, rapid and ultra rapid chargers can be made with community benefit.

A second allocation of £5.3M capital from the main LEVI fund has also been made to Suffolk County Council working with the Districts and Borough. This will enable the provision of chargepoints in Suffolk, with a primary aim to support those households without off street parking. A full

business case will be made towards the end of the financial year 23/24. This has been supported with £586k of LEVI staffing resource (capability) to support the delivery programme. Our proposal is likely to encompass a portfolio of charging infrastructure covering the range of available technologies and charging capability.

There are several procurement models for provision of EVCI in Suffolk. These fall within the following categories:

- Land Lease
- Own and operate
- External operator
- Joint Venture
- Public-Private Commercial Partnership
- Concession



### 3.2.3 On-street charging requirements

As outlined in Section 2.4, there are several challenges that come with on-street charging. Before any installation takes place, there are a number of factors that need to be considered carefully.

One key consideration is Suffolk's LAs will need to ensure on-street chargepoints will not negatively impact on the local environment or any specific user group. The Council will follow the PAS-1899 considerations where possible, including demonstrating the placement of a chargepoint will not obstruct or block movement past the chargepoint or access to other amenities or destinations near the chargepoints for other users of the public realm, including those with disabilities, those with prams or pushchairs, or those who need more space for other reasons.

Other considerations include local energy supply, maintenance responsibility plan, inclusive design, licence agreements, current parking limitations and restrictions, street furniture that comes with the chargepoint, visual appearance of the chargepoint if in a conservation area, cost of the chargepoint etc.

With the increasing number of on-street chargepoints becoming available on the market, some chargepoint types are likely to work better in some locations over others. Suffolk County Council is working with the District Councils and CPOs to explore chargepoint types and deliver pilots of suitable on-street charging infrastructure across Suffolk. This will enable learning and knowledge sharing to take place between the County Council and Districts to help inform decisions on long-term charging infrastructure. Community engagement and consultation will be required to support this work.

Every location considered for on-street charging will be carefully assessed under a case-by-case scenario, ensuring the right type of chargepoint is installed in the right location, at the right time. For

locations where on-street charging isn't suitable then other alternative options will be considered, such as community charging in nearby public car parks and EV car clubs.

Suffolk County Council's Transport Strategy team is working with Suffolk Highways to develop good practice guidance for installing on-street charging.

### 3.2.4 Workplace charging

Workplace chargepoints will play a key role in providing charging infrastructure to meet forecast demand, supporting employees to charge their vehicles during work hours.

The Council will promote and encourage eligible organisations to apply for the Government Workplace Charging Scheme, which provides support towards the up-front costs of the purchase and installation of EVCI for workplace car parks. There is potential scope for workplaces to explore and use their car parks outside of office hours to support residential and community charging needs where appropriate, although important to note that not all workplaces will have access to private car parks.

All car park owners and operators of covered car parks looking to install chargepoints are encouraged to follow the OZEV covered car parks – fire safety guidance for electric vehicles.

Specialist charging infrastructure will be required for larger fleet vehicles such as buses and HGVs, as well as specific charging for Hackney Cabs and private hire vehicles, which are all still in development.

### 3.2.5 Commercial charging

The Suffolk Guidance for Parking 2019 recommends that all new commercial developments must provide suitable charging systems for a number of the parking spaces, with ducting and infrastructure in place to install additional charging systems when future demand dictates.



The EV charging requirement for new commercial developments varies depending on the usage of the development. It includes 15%-20% of all parking spaces to be fitted with a charging system, with an additional 15% - 20% of parking spaces with the infrastructure in place for future connectivity. The minimum charge specification also varies depending on the establishment but requires 7.4kw to 100kw subject to individual assessment/ justification.

Approved Document S provides technical guidance regarding installation and chargepoint requirements in Part S to the Building Regulations and applies to new developments and major redevelopments.

Local planning authorities are encouraged to take this guidance into account when determining planning applications.

### 3.2.6 Monitoring

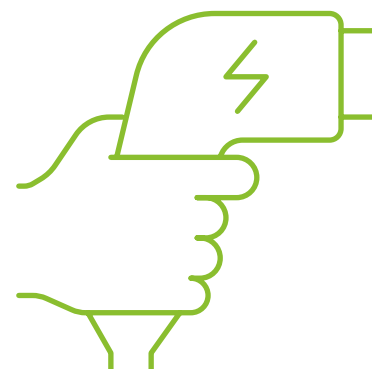
Suffolk County Council will monitor EV registrations in Suffolk using data from the Department for Transport and Driver and Vehicle Licensing Agency, to ensure the charging network is meeting the demand at the right time and ahead of need. Chargepoint utilisation data will also be monitored to indicate high usage areas where the demand is greater, which can then be considered when identifying locations for future chargepoints. There is also a need to work in partnership with neighbouring councils (both in and outside of Suffolk) and regionally with Transport East to ensure consistency and an evenly distributed network.



The technology involved with EV charging is regularly evolving and developing, therefore it is important to make sure the charging network remains fit for purpose over time. Suffolk County Council will keep up to date with EV market developments and share insights with stakeholders, District and Borough Councils to ensure the charging network remains fit for purpose.

Maintenance of the charging network will be delivered by the CPO to ensure reliability for users, whilst ensuring the technology and back-office system gets updated with future upgrades. There will be a contact number on all chargepoints, as there currently is on the existing Plug in Suffolk chargepoints, for users to report issues directly to the CPO and/or Suffolk County Council. Reliability of the network is key to market adoption; this relies on comprehensive maintenance, with a robust system expected to be in place to resolve any problems promptly. As an example, any associated infrastructure which is part of the LEVI funding project must be maintained for a minimum of 7 years after installation.

The EV Strategy will be reviewed on a two-year basis to ensure the size and scale of chargepoint installation takes place ahead of the forecasted need from drivers, commercial trends and in line with the national policy. The regular reviews will also ensure it aligns with the longer-term goals of the LTP for Suffolk and will be refreshed as appropriate.



# 4.0 Conclusion and Next Steps



## 4.0 Conclusion and Next Steps

Suffolk is looking to reduce transport demand and encourage a societal shift to less carbon intensive modes, such as walking, cycling, wheeling and using public transport. For the remaining vehicles required on the roads, the focus is on promoting EVs and other zero emission fuels as available.

The availability of charging infrastructure will need to increase significantly across Suffolk to support the transition from ICE vehicles to EVs. The EV Infrastructure Strategy will be reviewed on a two-year basis and updated as appropriate, with the following actions delivered in the next 5 years to ensure the right number of chargepoints are deployed at the right time, and in the right place.

Action	Objective	Indicator
To increase the number of public chargepoints, and install EVCI ahead of need from residents, businesses and visitors	OBJ1, OBJ2, OBJ5, OBJ8	Total number of public EV chargepoints EV chargepoints per 100,000 population Monitor total EV registration uptake to determine need
Access available Government funding and work with public and private sector to deploy a blend of chargepoint types and speeds, ensuring equal distribution across rural and urban	OBJ1, OBJ2, OBJ3, OBJ5, OBJ7, OBJ8	Amount of funding secured for EVCI roll-out Number of different chargepoint types and speeds installed EV chargepoints per 100,000 population across the different Districts
Lead the way in transitioning the remaining Suffolk County Council fleet from ICE vehicles to EV	OBJ6	To have a fully electric vehicle fleet
Promote low carbon transport and active travel modes as the priority. EVCI will compliment mobility hubs where possible and support the wider transport sector in Suffolk	OBJ4, OBJ5, OBJ6	Active travel and public transport uptake data Number of public EVCI installed at mobility hubs
Ensure residents without off-street parking have access to a range of convenient, accessible and reliable public chargepoints	OBJ1, OBJ2, OBJ3, OBJ4, OBJ5, OBJ8	Utilisation rate of public chargepoints in areas where off-street parking is limited Number of on-street public chargepoints installed
Support the Districts and Borough to increase charging infrastructure within existing town and village centre car parks	OBJ1, OBJ2, OBJ5	Percentage of public chargepoints installed in town and village centres owned by LA
Support and promote improvements to the user experience of public charging in Suffolk, ensuring accessible charging infrastructure is available for all road users	OBJ3, OBJ4, OBJ5, OBJ6	Number of public engagements, events, campaigns, social media and online presence Percentage of public chargepoints that offer a contactless payment system Feedback on chargepoints identified from the website, social media and partners including CPOs
Seek opportunities to future proof the charging network and ensure environmental responsibility remains a priority	OBJ7, OBJ8	Percentage of public chargepoints supported by on-site renewable generation and battery storage Percentage of electricity generated by renewable energy

## 5.0 Glossary of terms

BVRLA	British Vehicle Rental and Leasing Association
CPO	Chargepoint Operator
DfT	Department for Transport
ELVIS	Electric Vehicle Insight Study
EV	Electric vehicle
EVCI	Electric vehicle charging infrastructure
ICE	Internal combustion engine
LA	Local Authority
LEVI	Local Electric Vehicle Infrastructure
OHID	Office for Health Improvement and Disparities
OZEV	Office for Zero Emission Vehicles
PV	Photovoltaic
SCEP	Suffolk Climate Emergency Plan
SMMT	Society of Motor Manufacturers and Traders
TE	Transport East
TRO	Traffic Regulation Orders
UKPN	UK Power Networks

## 6.0 Appendix

- WSP Report
- EV:Ready methodology
- Covered carparks: Fire Safety Guidance for electric vehicles





**Thank you**

for reading our Suffolk Electric Vehicle  
Charging Infrastructure Strategy.