

North Somerset Electric Vehicle Strategy

Executive Summary

Introduction

North Somerset Council (NSC) commissioned WSP to develop an Electric Vehicle (EV) Strategy to enable the transition to EVs by 2030, focused on cars and vans.

We declared a climate emergency in 2019 aiming for carbon neutrality by 2030. The decarbonisation of transport in North Somerset is crucial as this sector represents 43% (as of 2019) of the area's carbon emissions, higher than the national average. EVs have a significant role to play, alongside reducing travel demand and a shift to public transport and active travel.

A key barrier to the uptake of EVs is the availability of public charging infrastructure. We have started to address this challenge as a partner in the West of England's public sector-led network, Revive.

This EV charging strategy is a step towards growing the network and preparing for the significant increase in demand for charging forecasted as the EV transition accelerates over the next decade.

The strategy provides an overview of EV charging technologies, assesses current EV uptake and existing charging provision, and forecasts EV uptake and charge point demand to 2030. It also discusses delivery models for the roll-out of charge points, alignment with the Revive Network, and the integration of EVs within our transport hierarchy.

Presently, we are focusing on facilitating the uptake of EVs, and not hydrogen fuel cell vehicles or biofuels, due to the greater maturity of the EV market for cars and vans. EVs also offer significantly greater carbon savings, after accounting for the emissions from electricity, hydrogen and biofuel generation, and full vehicle lifecycle. This is aligned with the UK Government's position and is reflected in the current availability of grant funding for charge points.



Overview of charging technologies

Different charge point technologies are appropriate for different situations. The suitability of a particular technology for a given location depends on factors such as the length of time vehicles are typically parked there, vehicle types, the category of location (i.e. private home, public car park, workplace), and the available power supply.

Most EV drivers (the early adopters) currently charge at home off-street via a private charge point on their driveway or in a garage, connected to their home electricity supply. This is typically the cheapest and most convenient option.

However, proportionally, the share of charging through private home charge points relative to public charge points is expected to change in future.

Public charging includes residential on-street and residential off-street charging hubs, en-route charging (e.g. motorway services), workplace charging and destination charging (e.g. at supermarkets, leisure centres).

There will be greater demand for residential on-street and hub charging as more households without access to off-street parking purchase or lease EVs. They will rely on publicly accessible charge points to meet all their charging needs.

More people are also expected to use workplace and 'destination charging' as vehicle ranges extend and this type of charging provision is made increasingly available.

It is noted that active travel and public transport should continue to be prioritised as natural first choices, over driving a car, whether electric, petrol or diesel.

On-street charging technologies

Where on-street charging has been identified as the most appropriate solution for a neighbourhood or street, as opposed to off-street charging in a nearby council car park or rapid hub, North Somerset has a choice of current technologies. Each option has advantages and disadvantages, as summarised in Table i.

It is likely that a mix of solutions will be required depending on the local characteristics of the area (e.g. footway width, grid constraints, parking pressures).

Table i - Overview of current on-street technology options

Option	Impact on streets	Complexity of installation and costs	Scalability
Post-mounted or free standing bollard	High	High	Medium
Lamppost charging (dual-purpose)	Low	Medium	Medium
Rising bollards	Medium/ Low	High	Low
Lance & socket or similar "low impact" options	Medium/ Low	High	Medium
Build-outs (for post-mounted or free-standing bollards)	Medium	High	Medium/Low
Gullies (cable channels)	Low	Low	Medium

Baseline

EV uptake in North Somerset

The EV market is fast-evolving, with sales of vehicles growing rapidly. The uptake of EVs across North Somerset is increasing quickly, from a low base.

At the end of 2022 Q3, a total of 2,800 electric vehicles (including battery electric, plug-in hybrid and range extended EVs) were registered in North Somerset, out of a total of 151,355 registered vehicles. EVs therefore account for 1.85% of vehicles, lower than the UK average of 2.46%.

Existing charge points in North Somerset

To ensure that EV uptake can continue to grow, the availability of publicly accessible charge points is key.

In North Somerset, there are currently 92 publicly available charge points, including 30 rapid charge points, see Figure 2.

The majority are found in the towns and urban areas. and are slow charge points (less than 7 kW of power).

According to DfT data, when population size is taken into account, North Somerset has a below national average number of charge points, with 39.9 charge points per 100,000 people compared to the UK average of 47.7 per 100,000 people. This places NSC in the bottom 20 to 40% of local authorities nationally. However, as a benchmark, this does not factor in the availability of home off-street parking, which is likely to be higher than average in rural areas such as North Somerset.

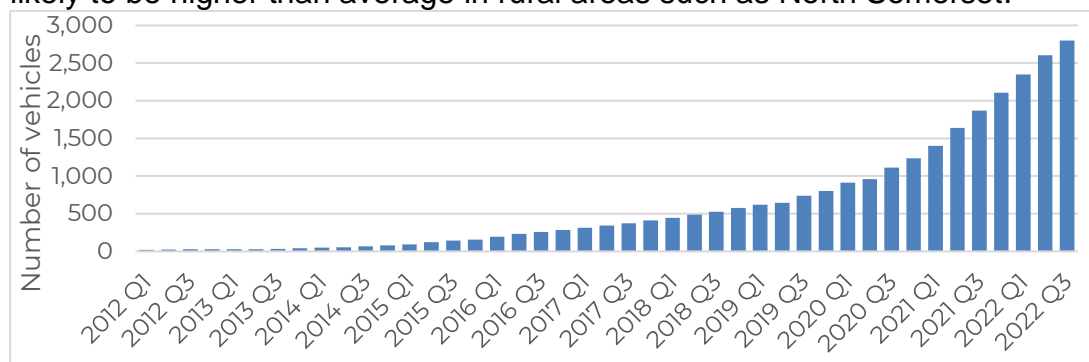


Figure 1 Total number of battery electric, plug in hybrid and range extended electric vehicles registered in North Somerset (Source: DfT Statistics)

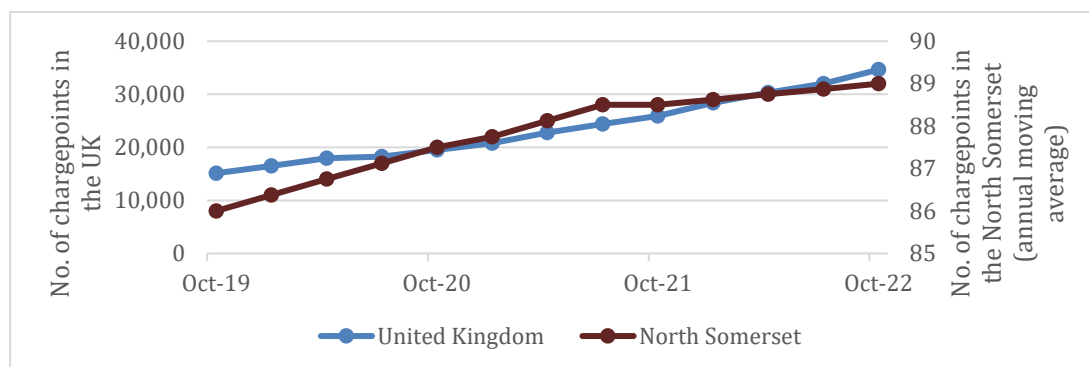


Figure 2 Number of all publicly accessible charge points

Forecast of EV uptake

It is expected that EV uptake in North Somerset will rise from 2.4% of all vehicles in the area at present (2022), to 7.7% in 2025, and 30.1% in 2030, as shown in Table ii.

By 2030, there is forecast to be 37,509 EVs in North Somerset.

Table ii Forecast EV uptake by 2030

Year	2022 Actual	2022 (%) Actual	2025	2025 (%)	2030	2030 (%)
No of EVs	2,291	2.4%	9,491	7.7%	37,509	30.1%

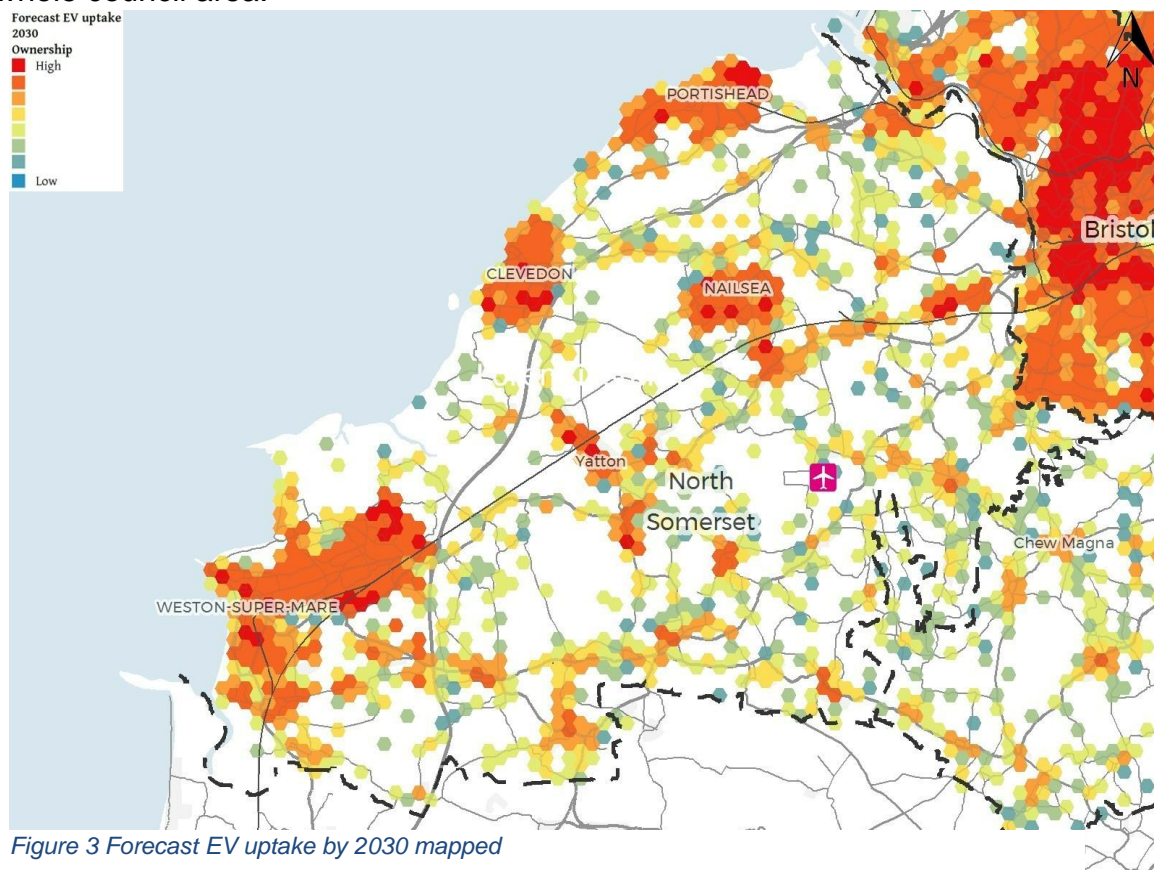
The modelling used combines granular data on factors affecting EV uptake at a local level with regional and national data sets to produce a detailed forecast of the distribution of EV uptake across North Somerset up to 2030.

The competing influences of the local population propensity for switching to an EV, their car ownership levels, and the extent to which they are reliant on on-street parking, serve to create a picture of EV ownership across North Somerset. Areas with high propensities towards EV ownership are often partly offset by also being areas of lower car ownership and greater reliance on on-street parking.

Strategically, walking, wheeling and use of public transport should continue to be prioritised as natural first choices, over driving a car, whether electric, petrol or diesel, but some areas will continue to have higher car dependency.

This forecast represents the most likely level of uptake expected by 2030, as generated by the model.

On the map, white indicates areas with very low population densities where EV uptake is therefore expected to be very low. The model has been applied to the whole council area.



Electric Vehicle Charge Point Requirements

To meet demand from the forecasted number of EVs, there is a need for a significant ramp up in the delivery of charge points up to 2030.

By 2030, 1,619 fast and 370 rapid publicly accessible charge points are required in a mid-range scenario.

Table iii Forecast public sector funded EV chargepoint requirements up to 2030

Year	Type of charge point	Mid-range EVCP provision
2022	Fast	51
	Rapid	0
2025	Fast	173
	Rapid	10
2030	Fast	613
	Rapid	30

The forecasts are estimates, based on several assumptions, including:

- Forecast EV uptake.
- Charging habits e.g. public vs private charging, rapids vs slow charge points.
- Vehicle mileage and efficiency, ratio of Battery Electric Vehicles to Plug-in Hybrid Electric Vehicles HEVs.
- Off-street parking availability.
- Trends in vehicle and charge point technologies, e.g. range, charging rates.

Whilst the private sector will provide a proportion of the infrastructure required in North Somerset, we will need to intervene to fill gaps in the public charger network.

It is forecasted that the public sector will need to fund 613 fast and 30 rapid publicly accessible charge points by 2030, see Table iii.

Figure 4 provides a high-level indication of the distribution of where gaps in charge point provision (darker red areas) are more likely to arise.

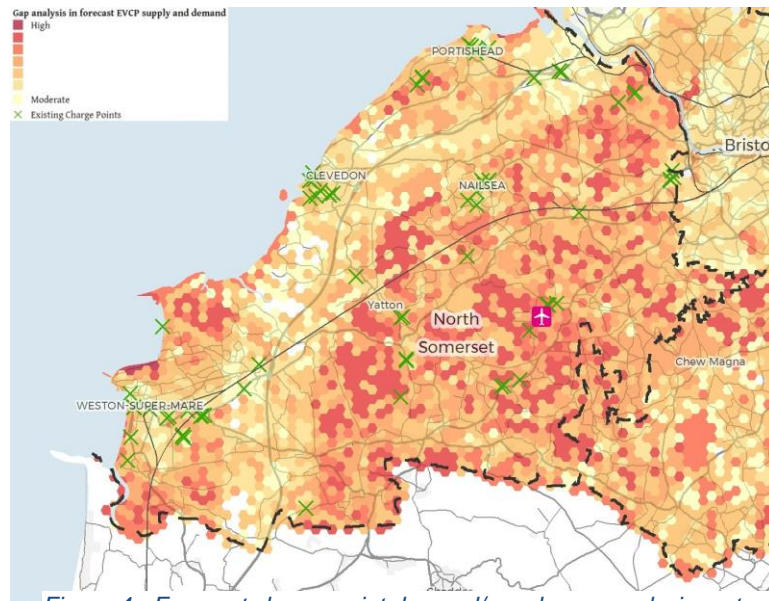


Figure 4 - Forecast charge point demand/supply gap analysis up to 2030

Delivery models and transport hierarchy

Delivery models for charge points

There are a range of delivery models for the rollout of charge points, as summarised below. **The Revive Network is based on the 'Own & Operate' delivery model**, supported by grant funding.

This approach has several benefits, particularly the retention of full control over the network, which gives flexibility on where charge points are located and the tariffs. However, this approach also presents the greatest risk to the council, especially where charge point utilisation rates are low, and ongoing management is relatively resource intensive.

As there is a growing appetite from the private sector to invest and reducing central Government grant funding available, **we will support the transition of the Revive Network to a concession model for residential charging**, where full grant funding is not available. This provides a good balance of risk and control.

There will remain a role for public sector involvement, especially where the commercial case at certain sites is less attractive to private sector investors, either because the utilisation is likely to be modest or the delivery costs (e.g. grid connection upgrades) are high.

Rapid and ultra-rapid charge points are more likely to attract full funding by the private sector. However, these could also be included in a broader concession agreement with slower residential charge points in order to help cross-subsidise less commercially attractive sites, particularly in rural areas.

Developing the tender documentation for a concession agreement is more resource-intensive compared to other models, but ongoing management should be less intensive compared to full public sector ownership and management. Many activities e.g. project management, can be outsourced to CPOs.

In early 2023, further details are expected to be announced by OZEV on how local authorities can access a £50m fund to help meet the cost of staff time associated with deploying charge points.

Integration of EVs into the transport hierarchy

By 2036, the aim for North Somerset and neighbouring authorities is to 'be a carbon neutral community where walking and cycling are the preferred choice for shorter journeys, and the vast majority of vehicles on the road are decarbonised and no longer powered by fossil fuels' (West of England Joint Local Transport Plan 4, 2020-2036, p7).

While EVs have zero tailpipe emissions, they still contribute to congestion, release some particulate matter from breaks and tyres and do not have the health benefits of active travel.

As illustrated by Figure vii, residents and businesses should be encouraged to only undertake a journey by private EV after first assessing the options above EVs in the transport hierarchy, such as walking, wheeling or cycling.

Active travel and public transport should continue to be prioritised as natural first choices, over driving a car, whether electric, petrol or diesel.

Opportunities to incorporate EVs and charging infrastructure within other travel modes and choices will be explored.

These include:

- **Mobility Hubs** – Charging provision may be integrated into hubs and encourage multi-modal journeys.
- **Car clubs** – EVs can increase the environmental benefits of car clubs. The best charging approach (e.g. dedicated bays, using public charge points) will depend on the operator and model (e.g. back-to-base, one-way).
- **Public transport** – Electric or hydrogen buses can be integrated to fleets, with options currently being explored through the West of England BSIP.
- **Sustainable commuting initiatives** – Offering workplace charging needs to be balanced with initiatives to discourage single occupancy journeys in private cars. EVs can be used as pool cars, by the council and other organisations.
- **E-bikes, ecargo bikes and e-scooters** there is potential to grow awareness of e-bikes and e-cargo bikes among the public and business, and ensure cycling infrastructure is suitable, and facilitate the use of e-scooters where appropriate.

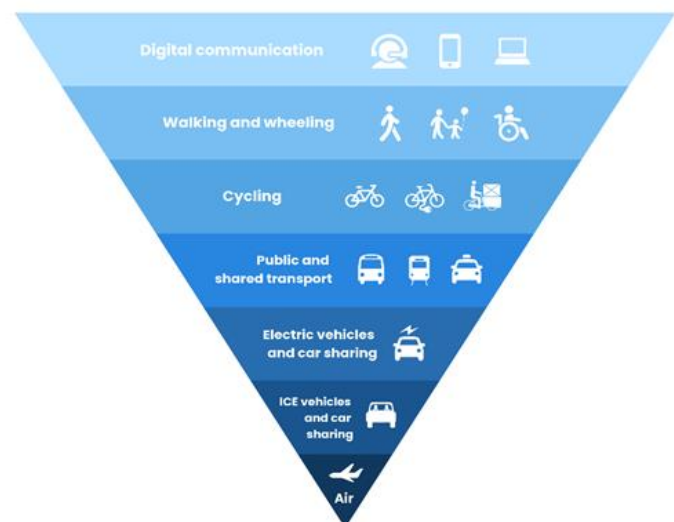


Figure 5 Transport user hierarchy. Source: Energy Saving Trust

- **Taxis and private hire vehicles** – Engagement with drivers, incentives, and licencing policy changes can be used to accelerate uptake of EVs. Dedicated charge points are likely to be needed.

Objectives & Actions

To enable the transition to EVs by 2030 in North Somerset, a range of actions have been identified, grouped under six objectives.

OBJECTIVE 1: TO EXPAND THE NETWORK OF EV CHARGE POINTS IN NORTH SOMERSET

- Ensure there are 1,989 publicly accessible charge points in North Somerset by 2030
- Focus on ensuring equity of provision and establish good network coverage
- Deploy charge points at a mix of on and off-street locations to meet user needs
- Evaluate the technology options for on-street residential charge points
- Formalise the council's position on trailing cables
- Monitor trials of on-street residential pavement gullies and other innovative charging solutions
- Investigate how we can help taxi and private hire vehicle drivers to transition to EVs
- Align EV Charging with wider transport strategy
- Follow best practice design principles and ensure charge points are inclusive and accessible
- Review the impact of EV charging bays on parking management

OBJECTIVE 2: TO SEEK PRIVATE SECTOR INVESTMENT TO FUND A SCALED-UP CHARGING NETWORK

- Continue to maintain and expand the Revive Network work
- Seek central government grant funding
- Leverage private sector funding to scale up the network
- Through carefully defined contractual agreements with operators, ensure a high quality user experience is maintained
- Appoint multiple charge point operators to ensure tariffs remain competitive

OBJECTIVE 3: TO COLLABORATE WITH THE REVIVE NETWORK AND OTHER KEY ORGANISATIONS

- Continue to actively participate in the Revive Network
- Establish an NSC EV Working Group
- Join forums to knowledge share with other councils
- Engage with National Grid
- Coordinate with Western Gateway as they develop regional assessments of charging demand
- In partnership with Revive Network, raise awareness of the benefits of EVs, the grants available and local charge point provision

OBJECTIVE 4: TO INFLUENCE OTHER ORGANISATIONS TO FILL GAPS IN THE CHARGING NETWORK

- Promote EV tourism by encouraging accommodation providers and visitor destinations to install charge points
- Raise awareness of 'peer-to-peer' charging and grant funding available to community landowners (e.g. village halls)
- Encourage workplaces to install charge points for staff and fleet users
- Raise awareness of OZEV grant funding for flat-owners, renters, landlords and housing providers

OBJECTIVE 5: TO FUTURE PROOF NEW DEVELOPMENTS

- Ensure new developments have high-quality charging provision
- Keep a watching brief on central government announcements on Planning Practice guidance and Permitted Development Rights

OBJECTIVE 6: TO MONITOR THE PACE OF EV UPTAKE, CHARGE POINT PROVISION AND GOVERNMENT ANNOUNCEMENTS

- Monitor EV uptake and charge point provision
- Keep a watching brief on government announcements on new statutory obligations related to EV charging