

South Gloucestershire Electric Vehicle (EV) Charging Strategy

March 2023

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Section 1: Setting the scene

Introduction

South Gloucestershire Council's Climate Emergency Strategy¹ provides a road map to achieving carbon neutrality by 2030. One of the key areas of focus is the decarbonisation of our transport sector, switching from the use of fossil fuels to carbon-free and renewable energy sources as quickly as possible. It is essential to cut down on greenhouse gas emissions such as carbon dioxide (CO₂) to stem the advance of climate change.

Our overall transport vision for South Gloucestershire is based on sustainable transport. There are multiple benefits of sustainable transport to individuals, places, and the environment; we want to support reduced car use across our area in favour of public transport and active travel. However, we also understand that for certain activities and individuals, cars and vans remain the most viable mode of transport. Moving these vehicles from petrol and diesel to ultra-low emission vehicles (ULEVs) is critical to reducing the impact of those journeys and help us achieve our air quality ambitions as part of our Climate Emergency Strategy.

This strategy focuses on the role of electric vehicles (EVs) to deliver this vision, and the interventions we will be taking to support residents' transition to electric. As EVs and EV charging are very much emerging technologies it is important for us to be able to adapt to changes and ensure a flexible approach to delivery of the strategy.

Strategy Purpose

This EV Charging Strategy establishes the role of South Gloucestershire Council in ensuring that our residents and visitors who need to drive cars – where cycling, walking or public transport is not practicable - are supported to do so in zero emission vehicles².

We recognise that reliable and accessible charging infrastructure is essential to encourage EV ownership. By adopting the EV Charging Strategy, South Gloucestershire Council demonstrates our commitment to supporting our residents and their journey towards a zero-carbon³ future.

Our key strategic focus is to ensure the vast majority⁴ of households in South Gloucestershire are within one mile of reliable and accessible charging infrastructure.

¹ <https://www.southglos.gov.uk/environment/climate-change/climate-emergency/>

² A Zero Emission Vehicle is defined as any vehicle that does not emit any tailpipe pollutants. For example, Battery Electric Vehicle

³ Causing or resulting in no net release of carbon dioxide into the atmosphere.

⁴ Majority refers to 92% of households within 1 mile of a council-owned charge point. Current baseline suggests that 62% of households are within 1 mile. Analysis suggests that 92% of households could be brought into the 1-mile catchment with an additional 24 sites provided (*On-street Residential Charging Scheme – 8, Climate Emergency Scheme – 5, 11 Community Hub Scheme*)

Our strategy seeks to complement the growth in EV charging provision in the private sector and help to fill gaps in the existing network. Over the past few years, South Gloucestershire Council has sought to encourage the uptake of EVs through numerous ambitious schemes. These schemes have already ensured that most residents within urban centres have access to charging infrastructure in their neighbourhoods.

Building on the successes of these schemes, we now seek to maximise coverage whilst also supporting rural communities that are less likely to be supported by the private sector.

We anticipate this focus will provide assurance to existing EV users and encourage further uptake of EVs amongst new users. This will ultimately benefit air quality as part of our wider sustainable transport approach.

This EV strategy document seeks to complement the various strategies developed by South Gloucestershire Council to support the decarbonisation of the transport sector. The strategy will inform our operational policies and processes, to ensure that EV charging is accessible and convenient in South Gloucestershire. It will provide a framework for project development, establish a consistent approach to delivering and enabling EV charging infrastructure across South Gloucestershire. The actions within the strategy, focus on the short and medium term and will be reviewed regularly to ensure adaptability to changes in technology, trends in mobility and financial considerations.

Our approach to supporting the electrification of the council's bus fleet and commercial vehicle fleet is being developed separately and will not be covered by this document. At this time charging infrastructure for e-bikes and other micro-mobility solutions such as e-scooters are also not included in this strategy but like buses and commercial fleet, they may form the basis for future consideration.



Caption: EV charging bays installed at the Venue in Cribbs Causeway.

Background

The shift to electric and hybrid cars has already started within the UK, aided in part by government policy announcements and support packages. The Department for Transport has recently announced that the number of new ULEVs⁵ in the UK sharply increased in 2021 Q2, with Battery Electric Vehicles up 236 per cent on the previous year. Recent research from the Office of Gas and Electricity Markets (OFGEM) suggests that one in four consumers plan to buy an EV in the next five years⁶.

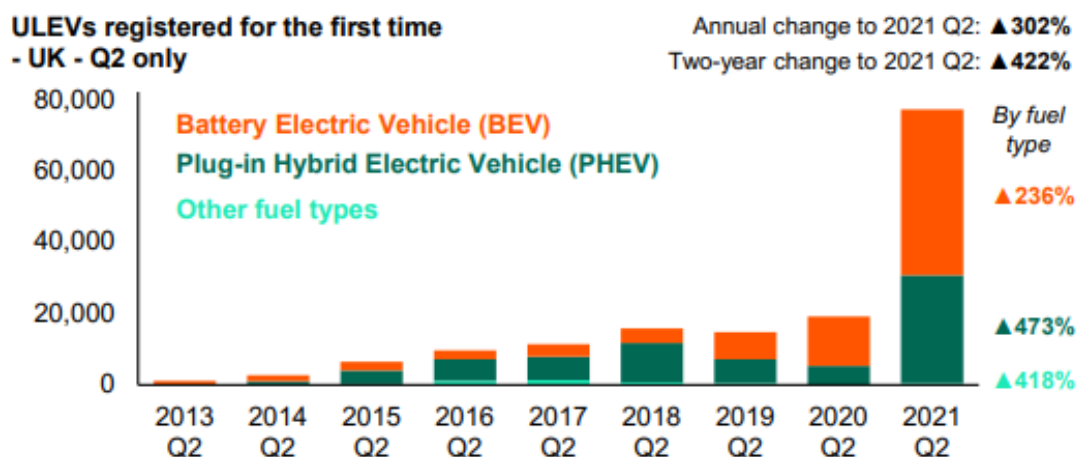


Figure 1:UK ULEV registrations per year (2nd quarter only)

Source: Table VEH0150, Vehicle Licensing Statistics (<https://www.gov.uk/government/collections/vehicles-statistics>)

South Gloucestershire has seen significant growth in EV sales over the past six years⁷ and this has been reflected in the uptake of EV charge point grant⁸.

⁵ ULEVs are currently defined as having less than 50 grams of CO₂ per kilometre (g/km) from the tailpipe

⁶ <https://www.ofgem.gov.uk/publications/consumer-survey-2021-summary-research-findings-electric-vehicle-users>

⁷ <https://www.gov.uk/government/collections/electric-vehicle-charging-infrastructure-statistics>

⁸ The EV charge point grant provides funding of up to 75 per cent towards the cost of installing electric vehicle smart charge points at domestic properties. It replaced the Electric Vehicle Homecharge Scheme (EVHS) on 1 April 2022. <https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles#ev-chargepoint-grant>

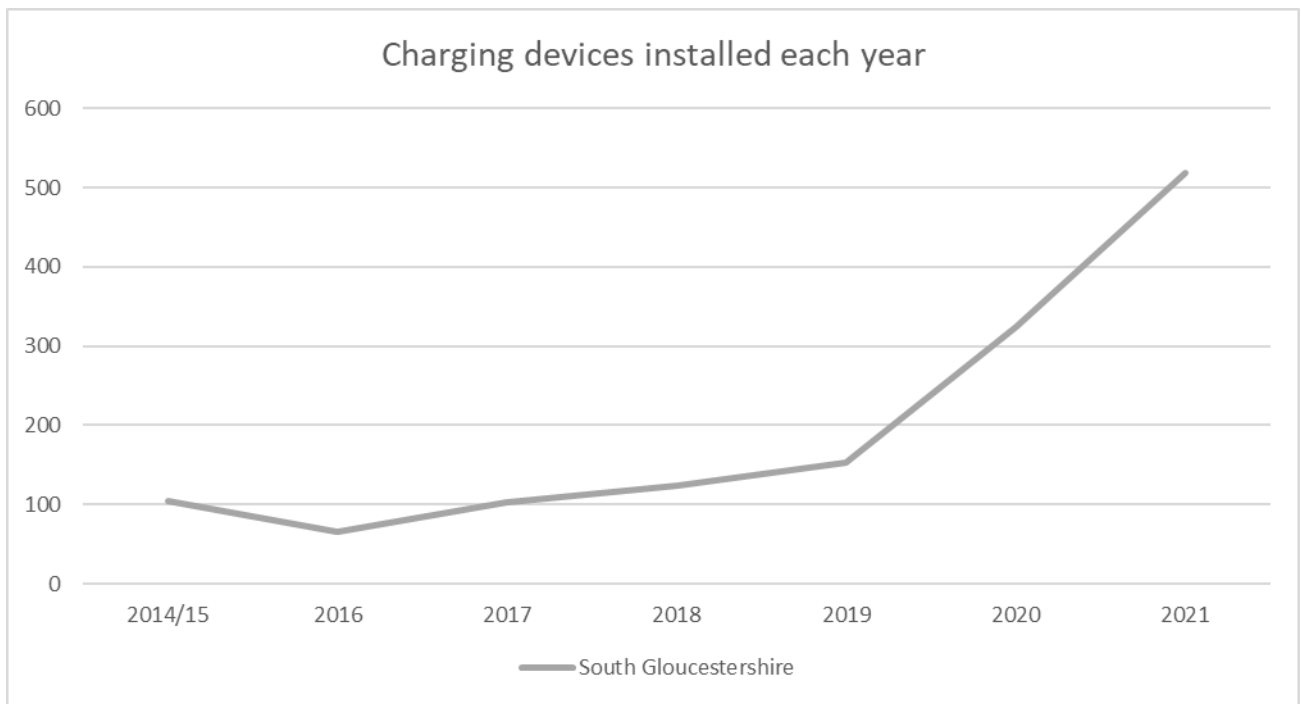


Figure 2: EVHS uptake in South Gloucestershire

The Climate Change Committee⁹ projects that around 23 million battery and plug-in hybrid EVs will be on the road when the ban on the sale of new internal combustion engine (ICE) powered vehicles (those powered solely by petrol or diesel) is introduced in 2030.

With this increase in the uptake of EVs, the availability of EV charging points (EVCP) is essential to support our residents. Forecasts indicate that there are likely to be gaps in private sector provision of EVCPs. These gaps define the role of South Gloucestershire Council in supporting the distribution of charging infrastructure.

⁹ The Climate Change Committee (CCC) is an independent, statutory body established under the Climate Change Act 2008.

Policy Context

National

In 2008, the Climate Change Act came into force, making the UK the first country in the world to establish a legally binding target for an 80 per cent reduction in greenhouse gas emissions by 2050. In 2019, this target was amended to a 100 per cent reduction in carbon emissions by 2050.

In 2019, the government launched the Road to Zero Strategy which set an ambition for the sale of new conventional petrol and diesel cars and vans to end by 2040 and included measures to achieve its ambition for the majority of new cars and vans to be 100 per cent zero emission by 2040. Proposals have since been strengthened, with the ban on sale of new petrol and diesel cars now planned by the end of 2030, and hybrids from 2035.

The Clean Growth Act incorporated measures to support the uptake of EVs as part of UK efforts to become a world leader in the development, manufacture, and use of low-carbon technologies¹⁰.

The National Clean Air Strategy 2019 outlines proposals to tackle all sources of air pollution, “making our air healthier to breathe, protecting nature and boosting the economy”. This strategy builds on the UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations, launched by the government in 2017. The plan directed five cities and 23 local authorities with the worst NO₂ concentrations to produce air quality plans to achieve compliance with the national air quality objectives in the shortest possible time. In 2018, the UK government directed a further 33 local authorities, which have short term NO₂ problems, to submit studies identifying measures that will achieve compliance in the shortest possible time.

In March 2020 the government published the Transport Decarbonisation Plan green paper, which details the government’s intended strategic direction for decarbonising the transport sector. The paper details the intention to move away from motor vehicles (irrespective of fuel propulsion system) firstly to active travel (e.g. cycling and walking) and secondly public mass transit (e.g. bus, train and tram). Any remaining journeys not reasonably substituted by active, or mass travel are to be undertaken in zero emission vehicles.

The Electric Vehicle Infrastructure Strategy was published in March 2022 and sets out how the government plans to support the UK market to reach 300,000 public EV charge points by 2030. A £450 million Local Electric Vehicle Infrastructure (LEVI) Fund will see local authorities able to bid for funding to help accelerate the rollout of EV hubs and on-street charging whilst the existing £950 million Rapid Charging Fund will support the rollout of at least 6,000 high powered super-fast charge points¹¹ across England’s motorways by 2035. Alongside these funding opportunities and to help ensure councils are delivering adequate charging infrastructure, the government are also considering imposing a statutory duty on local authorities to plan and deliver for electric vehicle infrastructure.

¹⁰ Low and zero carbon (LZC) technologies generate energy from renewable or low carbon sources and emit low or no carbon dioxide emissions.

¹¹ For more information see <https://www.gov.uk/guidance/rapid-charging-fund>

Regional

The West of England Local Industrial Strategy looks at how the region needs to work together to secure clean growth to benefit all residents. Launched in summer 2019, it was developed by the West of England Combined Authority and Local Enterprise Partnership, working with regional businesses and organisations, as well as central government. To ensure continued success for the region, four key priorities were identified in the strategy:

- Investing in infrastructure that reduces energy demand, lowers carbon emissions and is resilient to the impacts of climate change
- Strengthening innovation and driving productivity
- Supporting all residents to contribute to and benefit from economic success
- Providing businesses with the space, networks and skills they need to boost productivity, grow and thrive

The Joint Local Transport Plan 4 (JLTP4) recognises that the transition from petrol and diesel vehicles to EVs will contribute towards reducing the energy required for transportation and CO₂ emissions as well addressing poor air quality. The West of England Combined Authority has also published an ambitious climate emergency action plan with the objective of making the West of England 'net zero carbon' by 2030.

This aims to create a low carbon transport system and increase cycling and walking and the use of public transport, building on positive behaviour change following the Covid-19 pandemic. It also sets out the need to support unitary authorities to consider the expansion of car-share and car club services (potentially using EVs).

The Green Recovery Fund was announced in December 2021 with the objective of supporting efforts to tackle the climate and biodiversity emergencies and create new green jobs across the West of England. This £50 million fund seeks to support the region in meeting its ambitious net zero goals.

Local

The Joint Local Transport Plan 2022- 2036 has a policy committing to increase public charging infrastructure through an EV charging infrastructure programme.

Locally, there are numerous strategies underpinning the transition to EVs. Notably, the Local Plan Core Strategy outlines all new development proposals 'of sufficient scale' should make 'provision of facilities for charging plug-in or other ultra-low emission vehicles.

Alongside this, South Gloucestershire Council is developing a Clean Air Action Plan. It acknowledges the need to increase the use of public transport and active travel options and the many co-benefits this generates, but also the benefits to air pollution of supporting the uptake of electric vehicles. The council's Air Quality Annual Status Report (ASRs) includes details of measures implemented and planned to improve air quality. The Green Infrastructure Strategy was also recently adopted and seeks to apply an integrated approach on the climate and the environment to prioritise our green infrastructure commitments across all areas of council work, decision making and influence.

Technical Context

Vehicle Types

There are a few different types of EV. Some run purely on electricity, these are called battery electric vehicles. Others can also be run on petrol or diesel, these are called hybrid vehicles.

- **Battery electric vehicle** - This means the car runs purely on electricity and gets all its power when it's plugged in to charge. This vehicle type doesn't need petrol or diesel to run so doesn't produce any emissions like traditional cars.
- **Plug-in hybrid** - These cars mainly run on electricity but also have a traditional fuel engine so you can use petrol or diesel too if they run out of charge. When running on fuel, these cars will produce emissions but when they're running on electricity, they won't. Plug-in hybrids can be plugged into an electricity source to recharge their battery.
- **Hybrid-electric** - These run mainly on fuel like petrol or diesel but also have a small electric motor and battery pack, which is recharged through regenerative braking. These generally don't run on electricity alone except at very low speeds and have short ranges. These cars cannot be plugged into an electricity source and rely on petrol or diesel for energy.

How to charge an EV?

An EV can be charged either by plugging it into a socket or by plugging into a charging unit. There are three types of charging cables:

- **Three-pin plug** - a standard three-pin plug that you can connect to any 13-amp socket.
- **Socketed** - a charge point where you can connect either a Type 1 or Type 2 cable.
- **Tethered** - a charge point with a cable attached with either a Type 1 or Type 2 connector.

How long does it take to charge an electric car?

At present there are four categories of EV charging speeds¹²:

- **Slow** - typically rated up to 3kW. Often used to charge overnight. Charging time: 12-17 hours.
- **Fast** - typically rated at either 7Kw or 22kW. Tend to be installed in car parks, supermarkets, leisure centres and houses with off-street parking. Charging time: 6-8 hours.
- **Rapid** - typically rated from 43 kW. Only compatible with EVs that have rapid charging capability. Charging time: 30-60 minutes.
- **Ultra-rapid** - above 150kW. These are increasingly being installed in charging hubs. Charging time 10-20mins. At present the number of EVs that can charge at this speed are limited but technology is expected to catch up fast. Further information can be found on the [TravelWest](#) website.

¹² It should be noted that the ultimate determiner of the rate of charge is the EV specification. An EV that charges at 7kW can be plugged into a 22kW unit but will only receive a maximum of 7kW charging speed.

Section 2: Vision and Objectives

Our Vision

The overall transport vision for South Gloucestershire is to prioritise sustainable transport options. There are numerous benefits to individuals, places and the environment more widely. As such, we are committed to reducing car use overall across the district in favour of active travel and public transport options. When trips need to be made by private vehicle, we want them to be made by EV.

South Gloucestershire's transport hierarchy

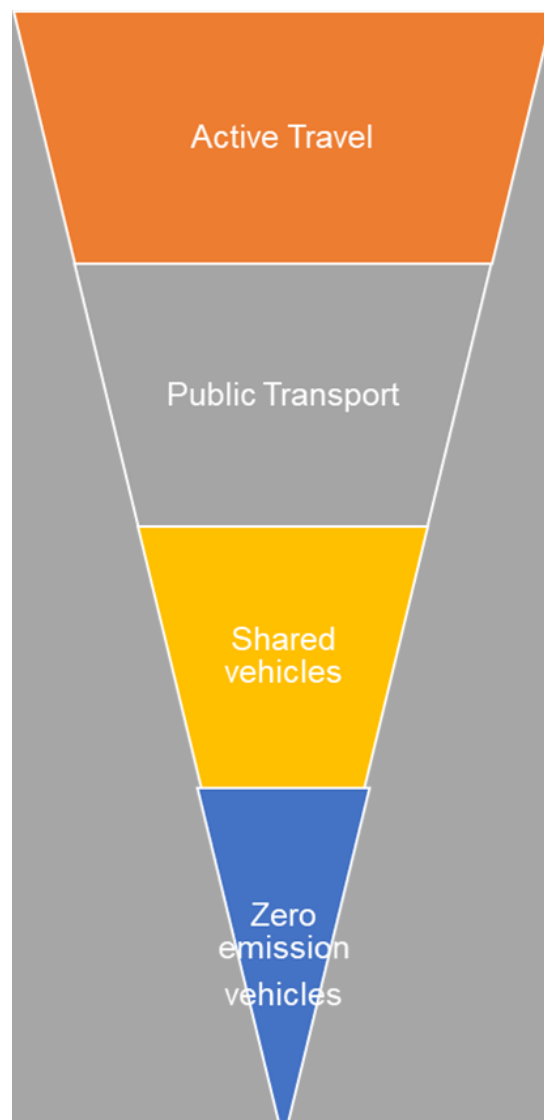


Figure 3: South Gloucestershire's transport hierarchy – promoting transport options that reduce carbon emissions and congestion.

Active Travel – we will encourage wheeling and walking as the first preference for trips that need to be made. Through Investment in our high streets, we will make them more attractive options for local residents to shop and socialise in.

Public Transport - we will continue to invest in public transport infrastructure to improve the reliability and attractiveness of public transport journeys. Through these interventions we will seek to extend the coverage of high quality and attractive bus network; the provision of new rail stations to improve choices.

Shared Vehicles: alongside partners we will encourage greater use of shared vehicles (E-scooters, E-Bikes, E- car clubs) to be provide low cost, zero carbon mode choices.

Zero emission vehicles: For those trips that still need to be made in private vehicles we will promote the shift away from Internal combustion engines (ICE) to EV by providing high quality facilities to support the adoption of electric vehicles with associated air quality and Climate Change benefits. It is also anticipated that technological changes will lead to further sustainable transport improvements through autonomous vehicles. These vehicles could help transition us away from individual car ownership in the years to come and influence the long-term vision towards integrated, decarbonised travel.

Objectives

Through engagement with stakeholders and review of relevant data, strategies, and policies the following objectives of the EV Charging strategy have been defined:

1. Enhance social equity and inclusion: If left to the market, EV charging infrastructure is unlikely to be fairly or evenly distributed. South Gloucestershire Council has a key role to intervene to support rural locations and offer affordable charging solutions in lower income residential areas.
2. Improve air quality: Support the replacement of ICE vehicles with EVs to help reduce local air pollution.
3. Tackle the Climate Emergency: Despite the challenges associated with the carbon cost of producing EVs, it is generally accepted that because of their much higher energy efficiency and the decarbonisation of grid electricity they provide a better long-term solution than ICE vehicles. They help drive the decarbonisation of the transport sector and will contribute to our goal to achieve carbon neutrality by 2030. Over time we also expect the energy stored in EV batteries to help smooth out the peaks and troughs in electricity supply and demand as more and more of our electricity is generated renewably.
4. Support sustainable economic development: The growth of EVs could unlock numerous economic benefits both directly and indirectly, including by helping make our electricity system more flexible, efficient, and cheaper to build and operate.
5. Lead by example: To inform residents and lead by example by using EV technology to reduce the environmental impact of our day-to-day operations.
6. Improve accessibility, safety, and reliability: Ensure that EV charging infrastructure meets the needs of a wide range of people through the provision of accessible, safe and reliable charging infrastructure.

Section 3: Why are EVs important to us

The Transport Challenge

The TravelWest Travel to Work survey, carried out annually across the West of England, provides valuable information about trip characteristics across the region. Table 1 details the main mode of transport to work across South Gloucestershire in 2019 and 2021. It is apparent that public transport preference has fallen significantly between 2019 to 2021 from 10 percent to four percent, whilst car-based transport has seen a similar increase from 67 per cent to 73 per cent.

Table 1: Main Mode of Travel across South Gloucestershire

Main Mode of Travel (%)	2019	2021
Car and Car Share	67	73
Cycle	13	12
Walk	6	7
Bus and Train	10	4
Other (motorbike,taxi, run, E-scooter, WFH)	4	3

The survey also contains an analysis of journey satisfaction levels. Figure 4 shows how satisfaction levels have changed from 2019 to 2021.

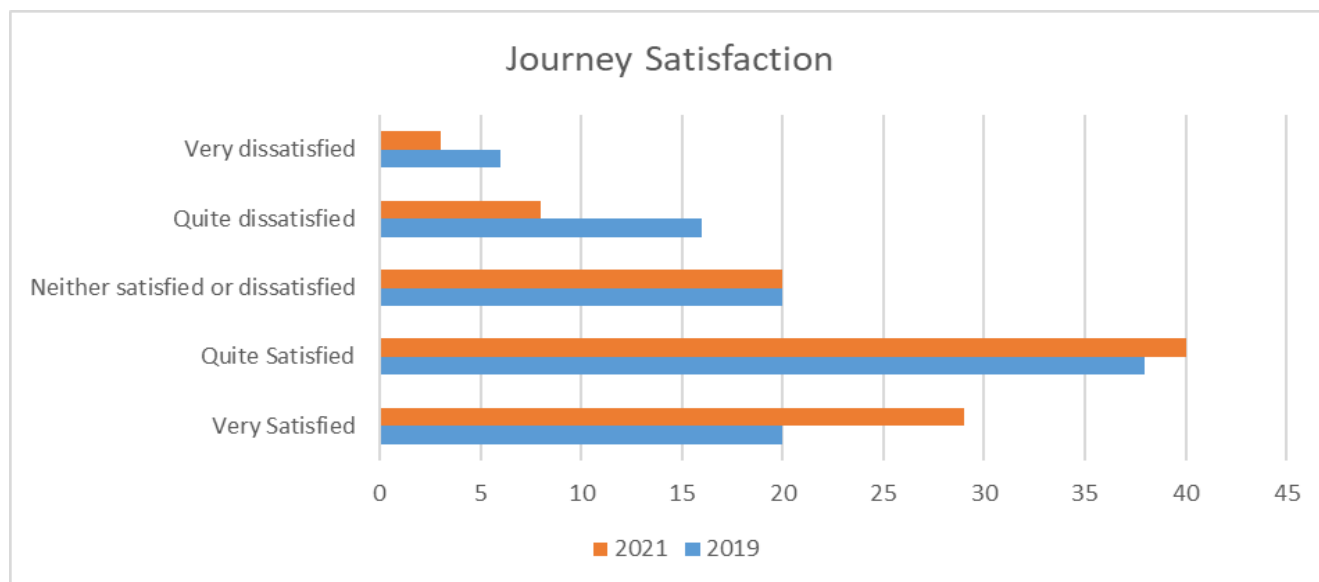


Figure 4: Journey Satisfaction levels (2019 and 2021) – TravelWest Survey

The Covid-19 pandemic has obviously brought about significant changes in our travel habits. The drop-off in public transport usage is probably to be expected with commuters trying to avoid unnecessary mixing with others, whilst the wide-spread adoption of new ways of working have meant far fewer commuters now regularly travel to their offices. This has relieved some pressure on our highways, allowing shorter and more reliable journey times to be achieved. This is reflected in the significant improvements in journey satisfaction.

Through our transport investment plans we aim to rebuild bus patronage, facilitate a greater proportion of trips to be made by active modes (cycling and walking) and enhance our rail network. However, if we are to achieve carbon neutrality by 2030, we need to achieve a substantial modal shift away from car to less carbon intensive modes of transport.

For many trips we feel making this mode shift will be both viable and beneficial. However, it is accepted that for others shifting away from a car will be neither viable or attractive. To minimise the carbon impacts of these “hard to shift” trips we will need to ensure speedier and geographically dispersed adoption of EV technology.

The Benefits of EVs

There are a range of environmental benefits associated with EVs; as a council we recognise that both emissions released by the vehicle during use (tail-pipe emissions) and those released in the generation of the fuel should be considered when looking at environmental performance. Through the council's Climate Emergency Strategy we also seek to support the decarbonisation of grid (mains) electricity. Therefore, as the carbon intensity of grid electricity decreases the CO₂ emissions from each mile travelled by an EV will continue to fall.

Vehicle users also achieve savings in vehicle running and maintenance costs compared to petrol and diesel vehicles. Estimates suggest that the fuel cost per mile travelled is approximately 50 per cent lower for EVs. EVs have fewer moving parts than ICEs and therefore require lower maintenance costs. Annual tax and maintenance costs are estimated to be 49 per cent lower than for ICE vehicles.

In developing this strategy, we acknowledge that EVs do not offer the solution to all our climate change or transport-related health issues. While EVs provide significant air quality benefits, there is still some air pollution associated with tyre and brake-pad wear, and 10,000 EVs still create the same amount of congestion as 10,000 ICEs. As such, EVs need to be considered as complementary to a wider sustainable transport approach.

Section 4: Forecasting Charging Infrastructure requirements in South Gloucestershire

EV Uptake Forecasting

There has been rapid and accelerating growth in the sales of EVs over the past decade, with an increasing choice of models available, developments in battery technologies improving range and reducing costs, combined with sustained government grants and exemptions to subsidise purchase costs and reduce ownership costs. There is also growing consumer acceptance.

In order to assess the requirement for future EV charging infrastructure across South Gloucestershire it is necessary to forecast the growth in EVs and future charging habits.

Recent forecasts undertaken for us account for a number of factors in determining localised variations in EV uptake including:

1. Propensity to purchase or lease an EV – based on socio demographics and consumer attitudes
2. Car ownership
3. Reliance on on-street parking

Table 2 presents the results of the analysis undertaken, showing forecast EV uptake across South Gloucestershire up to 2030.

Table 2: Forecast EV uptake for South Gloucestershire

EVs Registered	2019 (actual)	2025	2030
South Gloucestershire	3060	26300	96500
% of total vehicle fleet	0.95%	8.1%	29.4%

The number of EVs forecast to be registered in South Gloucestershire by 2030 is 96,493, this would represent 29.4 per cent of vehicles. This would be an increase from 3,060 in 2019, and 26,300 in 2025

The map below presents the spatial forecast of EV uptake within South Gloucestershire, based on the three key factors referenced earlier.

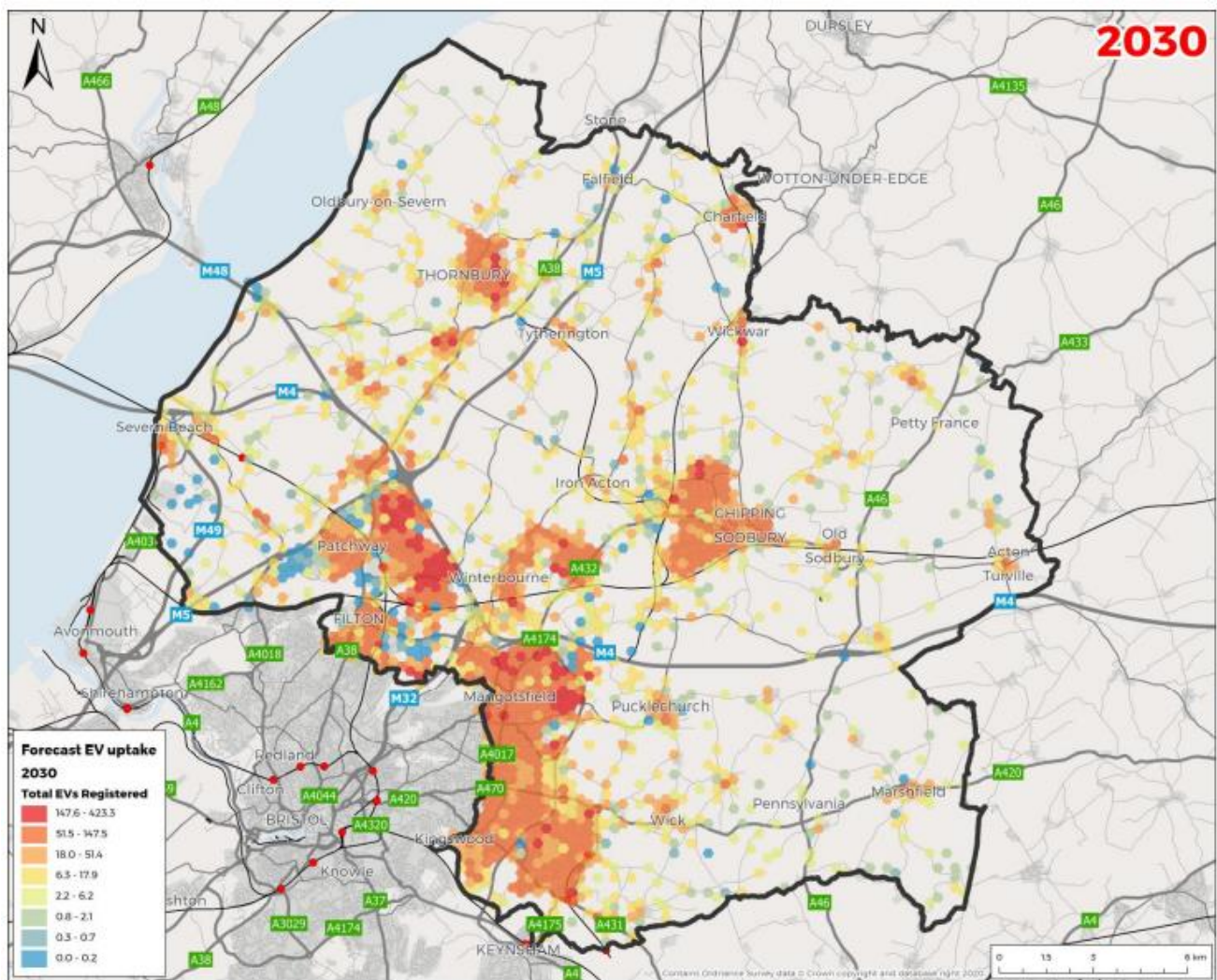


Figure 5: Spatial Forecast EV uptake for South Gloucestershire up to 2030

These findings indicate that the areas expected to feature the greatest concentrations of EVs are Bradley Stoke and Emersons Green. Though, this in part reflects the greater densities and numbers of vehicles owned.

Electrical Vehicle Charge Points (EVCP) requirement

The spatial forecast uptake of EVs in South Gloucestershire by 2030 enables an assessment of associated EV charging point (EVCP) requirements. The research suggests whilst private sector has a keen appetite to invest in EV charging infrastructure this will primarily be focused around providing rapid chargers in the more economically viable short stay locations, such as the main urban centres, retail parks, supermarkets, restaurants, and cafes in areas such as Cribbs Causeway, Longwell Green, Abbeywood Retail Park.

There are likely to be gaps in private sector provision including:

- Remote areas
- Rural or secondary routes with relatively low highway demand; and
- Areas with high installation costs or grid constraints.

It is in this gap that South Gloucestershire Council has a role to play. Subject to funding being available, the council will seek to facilitate an increase in publicly available charging infrastructure through:

- Council-led provision of EV charge points through the Revive network.
- Leveraging private sector investment by procuring commercial concession contracts.
- Working with local authority partners and private enterprise to encourage third party provision of EV charge points.

The speed of industry innovation is considered likely to make a definitive strategy, with set goals and targets, obsolete within a short period of time. To accommodate this rapidly changing market we propose adopting a looser framework to guide our intervention decisions. We will also ensure that schemes are future-proofed by designing installations that are scalable or upgradable, in line with demand, changes in regulation and/or changes in operator/hardware.

Section 5: Interventions

South Gloucestershire Council has recognised that as a local authority we have a crucial role to play in developing an EV charging network that is affordable, reliable, accessible, and secure for existing and prospective EV drivers.

We have supported the roll-out of public charging infrastructure since 2014 and are in the process of delivering a project dedicated to charge point deployment.

Approved interventions

Go Ultra Low West

The Go Ultra Low West (GULW) project is a collaboration between the four local authorities in the West of England that aims to accelerate the purchase of EVs across Bristol, North Somerset, South Gloucestershire and Bath & North East Somerset.

As part of Go Ultra Low West, over 120 new charge point connections are being installed across the region. We have also sought to improve the customer experience for charging points by introducing a new and improved EV charging network, [Revive](#).

Through GULW funding we have done an extensive procurement exercise to provide more robust equipment, improved maintenance, and enhanced SLA's.

As of October 2022, there were 168 public charging points in South Gloucestershire and 481 charging points across the West of England region.

Table 3: Existing public charging points

Local Authority	Total Charging Points	per 100,000 population	Rapid Charging Points	per 100,000 population
Bath and North East Somerset	93	47	6	3
City of Bristol	133	29	34	7
North Somerset	87	40	32	15
South Gloucestershire	168	58	73	25
West of England Region	481	44	145	13

Using GULW funding we have introduced 21 charging points to the existing public charging network, providing a total 42 EV charging bays in South Gloucestershire.

The locations for these charging points are listed below:

- Bristol and Bath Science Park (Emersons Green) – 5 rapids and 1 fast
- Cecil Road Car Park (Kingswood)– 2 fasts
- St Mary Street Car Park (Thornbury) – 1 fast
- Haynes Lane (Staple Hill) – 1 fast
- The Parade (Patchway) – 1 fast

- Laburnum Road Car Park (Hanham) – 1 fast
- Yate Shopping Centre (Filton) -1 rapid, 1 fast
- Church View (On-street) Car Park (Filton) – 1 rapid
- St James Street Car Park (Mangotsfield) – 1 fast
- Page Road Short Stay Car Park (Staple Hill) – 1 fast
- The Venue (Cribbs Causeway) – 4 fasts

Revive Charging Network

In order to ensure that EV drivers have a consistent and positive experience of using EV chargers, the West of England authorities (Bristol City Council, Bath & North East Somerset Council, North Somerset Council and South Gloucestershire Council) have established the [Revive Charging Network](#).

This provides a network of EV charging points which are managed and operated by the participating authorities. This has provided the opportunity to align policies for the management and deployment of EV charging across the region.

All of our public EV charging points can be accessed by joining the Revive network. The councils intend to continue to support the Revive network and ensure that future EVCPs supported by South Gloucestershire Council can be included in the network. Through this network we will keep up to date with market developments and gain from the experience of neighbouring authorities.

Further information can be found online about the Revive Network, [here](#).

Climate Emergency

In July 2019, South Gloucestershire Council declared a Climate Emergency. The council has taken urgent steps to address this situation and prepare for the local impact of climate change and reducing carbon emissions. These steps include the provision of EVCPs in the following locations:

- Marshfield Community Centre – one fast charging point
- Lower Stone Close – one fast charging point
- Kingswood Civic Centre – one fast charging point
- Thornbury Leisure Centre – one rapid and one fast charging point

We are also exploring the introduction of EV car club bays in Filton, Staple Hill and Yate.

Yate Park and Ride

The new Yate Park and ride is a mobility hub that encourages people who travel locally and into Bristol to use different ways to travel. The site includes 19 fast charging points.



Caption: EV charge points installed at Yate Park and Ride.

On-street Residential Charging Scheme (ORCS)

The [On-Street Residential Grant Scheme](#) provides funding from the Office for Zero Emission Vehicles (OZEV) to increase the availability of plug-in vehicle charging infrastructure for those who do not have access to off-street parking.

The scheme is intended to satisfy the current or future demand of residents which are unable to charge at home due to a lack of off-street parking or other difficulties with installing home charging facilities (eg. Radburn homes). In April 2022, the council applied for ORCS funding to implement 14 fast (22kW) charging points in eight residential locations.

The planned locations for these charging bays are:

- Hawkesley Drive, Little Stoke
- Derwent Close car park, Patchway
- Boulton Road car park, Kingswood
- Marlborough Drive, Frenchay
- Perry Close, Winterbourne
- Abbotswood car park, Yate
- Bevan Court, Filton
- Rock Street car park, Thornbury

Proposed interventions

Alongside promoting active travel and sustainable transport modes, our vision recognises the importance of supporting our residents transition towards EVs to help reduce carbon emissions across the district. It is acknowledged that as a local authority, we have a crucial role to play in supporting the growth of EVs. With the adoption of this strategy, the council intends to implement the following interventions (subject to funding being available):

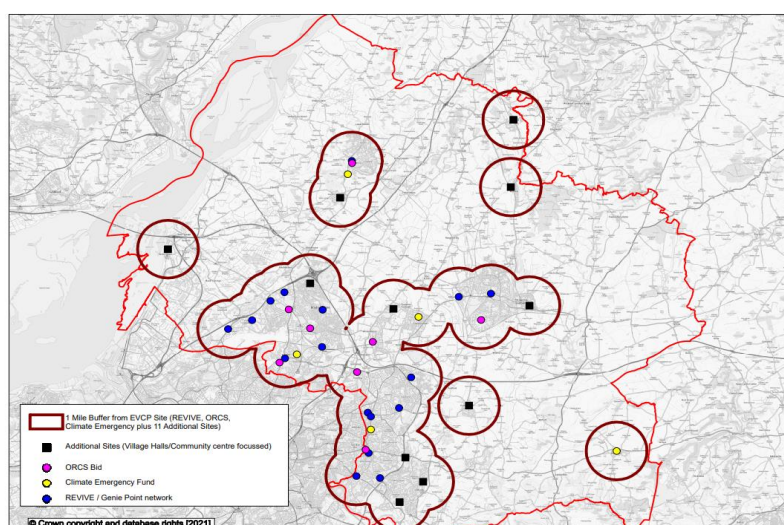
Public Charging Infrastructure

Ongoing expansion of Revive charging infrastructure with provision at;

- Public car parks
- Council-owned leisure centres
- Libraries and our Civic Centre
- Our park and ride sites
- Local high streets
- On-street residential (where appropriate)
- Tourist attractions
- Community centres and village halls.

At present we estimate that approximately 62 per cent of South Gloucestershire households are within one mile of an existing Revive EVCP. Well-developed plans already exist for an additional 13 sites (combination of ORCS and Climate Emergency sites) that would extend the one-mile catchment to 81 per cent of households. Looking further forward an additional 11 'Community Hub' ¹³ sites, strategically located could allow over 92 per cent of our households to be within one mile of a publicly funded EVCP.

Figure 6: Location of existing and proposed REVIVE network charge points



¹³ The 'Community Hub' scheme seeks to provide charging infrastructure to support the needs of residents without access to charging infrastructure and to ensure rural communities are supported on their transition towards low emission vehicles.

E-Mobility

- Creating e-mobility hubs¹⁴.
- Provision of infrastructure to help Car Clubs convert to EVs.
- Promotion and support of electric car clubs in new and existing developments.

Fleet Conversion and workplace charging

- Embed and encourage EV adoption as the default position within the South Gloucestershire Council's Fleet Replacement programme.
- The council will seek funding opportunities to support Business Grants for Small and Medium Sized Enterprises (SMEs).
- Explore opportunities to improve the provision of EV charging at workplaces through engagement with employers.

Promoting EVs and infrastructure

- Demonstrator centres for ULEV promotion, events and a ULEV test drive facility.
- Marketing and communications to promote EV charging solutions and raise awareness of our local network of Revive charging points.

Local Planning

- Requiring new developments to adequately cater for EVs through setting minimum standards for EV charging.
- Requiring EV charging infrastructure in workplace car parking at new developments.
- Develop a guide to support developers by detailing the minimum technical standards for EV charging deployment, on-going management, and maintenance, and future proofing.

The intention of these interventions is to continue to give our residents and businesses the confidence to invest in EV in the coming years to collectively help achieve our carbon emissions targets.

¹⁴ E-mobility hubs are defined as combining electric vehicle charging points, electric car club, bike and e-bikes for hire from a single location situated at key transport nodes, bookable from a single platform

Section 6: Supporting New Developments

Within South Gloucestershire, we will seek to ensure the integration of EV charging infrastructure into all new developments to support our residents. In order to meet the objectives outlined in the Local Plan, the council proposes to future proof development now in order to stimulate an EV revolution.

The provision of EV charging in South Gloucestershire will be especially important for more rural areas where access to other modes of transport will be limited.

Guidance on Parking

We recognise that in the short and medium term at least there will still be a need to ensure that sufficient parking provision is provided for private EVs, on and off development sites.

It is important that developers consider the likely demand for electric charging points within new developments, and how this is likely to change over time. Our Guidance on EV Provision at new developments as proposed in the consultation draft for the Local plan, states that:

- All individual dwellings with one or more dedicated parking spaces or garage must include provision for 7kW (32 amp) charging infrastructure suitable for charging an electric or other ultra-low emission vehicle. At least one parking space per dwelling must have active¹⁵ charging provision, with the remainder passive¹⁶ provision;
- For residential development with communal off-street parking provision, at least 20 per cent of spaces are required to have active charging facilities, and passive provision is required for all remaining spaces;
- High density and/or large scale residential / mixed use developments are additionally required to facilitate the provision of an electric or ultra-low emission car club, and provide dedicated space for the club with active charging facilities;
- All non-residential developments (e.g. retail, office, leisure, warehousing etc) which include vehicular parking must include as a minimum passive infrastructure to enable the future provision of electric charging facilities;
- For all non-residential developments providing 10 or more parking bays, at least 20 per cent of those bays are required to provide active charging facilities for electric or other ultra-low vehicles.
- In all developments where provision is made for taxi stopping the taxi spaces are required to include active charging facilities.

¹⁵ Active Provision: An active OLEV compliant charge point, such that each dwelling has the opportunity to charge their vehicle at the same time with a total charging time not exceeding 8 hours.

¹⁶ Passive Provision: Establishing all of the associated cables, chambers and junctions to allow for charging points to be installed without the need for undertaking works that require breaking ground.

SGC Local Developers Guide

South Gloucestershire Council aspires to work in partnership with developers to cater for this demand for EV charging points.

As such, we will be providing developers with a suite of documentation to support the implementation of EVCPs in new developments.

These documents include:

- Step by Step Guide for developers - This guide will explain the processes required for developers to implement EVCPs in new sites.
- Charge Point Specification - This document provides the minimum technical specification for EV charge points.
- Electrical Infrastructure Specification - This specification document will be provided to ensure the EV Electrical Infrastructure is designed, installed, recorded, and commissioned in line with the council's requirements and the requirements of statutory regulations and industry recognised practices.
- Design Layout and Construction Guide - This guide will provide detailed drawings and construction guide for new developments.

Green Infrastructure

An important part of the council's work in response to the Climate Emergency is to improve the adaptation and resilience of our built infrastructure, natural environment and communities. Green Infrastructure (GI) has an important role to play in providing sustainable drainage, cooling, shading and other benefits. By applying an integrated approach to EV and GI interventions creates benefits through reducing the amount of works, associated emissions and costs required.

Section 7: Supporting Existing Developments

Private Homes with Driveways

For those properties with access to off-street parking it is expected that residents will seek to install their own personal charging points. Residents should ensure that they have permission to install a charging point at their home, especially when it comes to installing new EV charging points directly onto, or in the grounds of, listed buildings. However, in most cases planning permission would not be required for the installation of EV charging points provided [certain conditions](#) are met.

On the 1st of April 2022, the government replaced the [Electric Vehicle Homecharge Scheme](#) (EVHS) and replaced it with the [Electric Vehicle Charge Point Grant](#) which provides up to a 75% contribution towards the cost of a home electric car charger and its installation. The grant is eligible to flat owners and tenants living in rental accommodation.

Private Homes without Driveways

According to research by the Energy Saving Trust (EST) only eight per cent of streets in South Gloucestershire have been assessed as being heavily reliant on on-street parking (i.e. over 50 per cent of properties on road require to park on road).

We recognise that many residents do not have access to off-street parking and would like the opportunity to charge their EV at home. There are also numerous Radburn Homes across areas such as Yate, Patchway and Thornbury which can hinder the opportunity to install home charging facilities. Unfortunately, despite these challenges we cannot offer residents a reserved space for their own EV charging needs. The current law does not give residents an unrestricted right to charge vehicles which are parked on the street outside a property, by direct connection to that property.

As a local authority, we have a legal duty to ensure the safety of the highway in accordance with the Highways Act 1980 and the Health and Safety at Work Act 1974. Therefore, we will not permit the charging of an EV by running a cable across the public highway, including the use of a cable protector or cable ramp.

We acknowledge that trials are being undertaken by other local authorities to provide adaptive infrastructure which removes the risk of trailing cables. Notably, Oxford City Council have piloted the use of gullies which provide a channel for charge point cables installed within the footway. Given the challenges surrounding these types of solution, we

will continue to monitor the outcome of these OxGul-e' projects ¹⁷and seek to update our approach accordingly based on appropriate evidence.

However, with increasing provision of EV charging points across our area, improvements to rapid charging technology and increasing battery range it is anticipated that a lack of driveway (for charging) will become less of a barrier. Yet, where appropriate we will continue to explore opportunities to provide public on-street charging solutions to help support our communities transition to electric vehicles.

On-street Charging solutions

Research¹⁸ has found that the typical car is only on the move six hours (four per cent) in the week. For the remaining hours, 80 per cent the car is either parked at the owners' home or 16 per cent elsewhere. Privately owned cars parked on the highway are therefore taking up valuable road space; space which is not considered the primary objective of the road. The provision of on-street EV charging would be an ongoing commitment that that makes that space allocation "permanent".

South Gloucestershire Council is the local Highway Authority, with control over the vast majority of public highways in the district, including roads and footways. We want to provide charging points in the places that people need them, but not in locations that encourage additional car use and not at the detriment of other road users. Therefore, we will focus on areas where residents cannot make the switch to EV without access to a public charging network whilst ensuring a good geographical spread across the district.

We will be considering on-street charging solutions on a case-by-case basis. When considering where to place on-street EV charging points there are number of issues that need to be considered. These include:

- Extra street clutter - when lampposts are located at the back of a footway, an additional post / bollard closer to the road kerb will be required
- The role of the road in terms of supporting walking, cycling and public transport trips
- Parking conflicts – especially if EV bays are placed directly outside properties
- Traffic Regulation Orders (TRO) will need to be put in place to ensure that EVCP are not blocked by vehicles not using the charging point
- Significant regulatory challenges for installations, on-going maintenance costs and risk of technological obsolescence
- Equality of access – EVCPs should not create issues or difficulties for disabled and vulnerable groups

South Gloucestershire residents will have the opportunity to suggest new sites for charging points via the [Travel West website](#). We will use this information to identify whether any

¹⁷ [Volunteers sought for electric vehicle charging trials in Oxfordshire | Oxford City Council](#)

¹⁸ Spaced Out: Perspectives on parking policy by John Bates and David Leibling, RAC Foundation 2012

near-by car park assets could be converted to communal EV charging point or assess whether a E-car club could be viable. If neither of these options are viable then individual sites may be taken forward for a feasibility investigation including an assessment of local grid capacity, anticipated demand and funding availability. It is acknowledged that we will not be able to deliver all residents requests due to budget constraints.

Lamp Column Charging

We will not be pursuing the installation of lamp column charging points at this stage. This decision has been made for number of reasons:

- Power supply: Street Light columns have a very low power supply. Therefore, this solution would only support slow charging and with battery sizes in cars increasing this option is unlikely to be fit for purpose within a few years.
- Trailing Cables: Most of the council's lighting columns are placed at the back of footway as this makes them less vulnerable to damage but this means charge leads would be going across the footway creating a trip hazard.
- Multiagency electrical asset: There are some logistical difficulties associated with allowing a third-party access to our street lighting. This option could lead to complex and costly legal issues which could hamper delivery in a timely manner.

Section 8: Funding

We are adopting a cautious approach to investing our limited capital funds in an innovative and evolving technology. Whilst we anticipate that the private sector will provide the majority of EVCP in our region, the council will seek to make targeted, and specific interventions where there is evidence of market failure and benefit to be gained by our residents. In so doing we will seek to draw down on any available government grants for EV charging. At present there are two well established grant schemes available:

1. the On-Street Residential Charging Scheme (ORCS) Grant, and
2. the Workplace Charging Grant.

These cover 60 per cent and 75 per cent of the installation costs of charging points respectively.

The grants, provided by the Office for Zero Emissions Vehicles (OZEV), offer local authorities the chance to bid for funding. At present ORCS funding is available until the end of March 2023. The funding available (typically up to the value of £7,500) is to support the capital costs of procuring and installing the charge point and an associated dedicated parking bay. However, this funding relies heavily on match funding to cover the whole cost of implementation. The funding does not cover pre-installation site investigation or on-going maintenance costs.

The government has made a commitment to support the transition to EVs with announcements made in its [Net Zero Strategy](#) to provide £620 million in funding. The funding will support the rollout of charging infrastructure, with a particular focus on local on-street residential charging, and targeted plug-in vehicle grants.

Specifically, £500 million was announced as part of the [EV Infrastructure Strategy](#) to support local charge point provision. This includes a new £450 million Local Electric Vehicle Infrastructure (LEVI) fund which will boost projects such as EV hubs and innovative on-street charging. A £10 million pilot scheme for the Local EV Infrastructure Fund was also launched to test the design of the new LEVI scheme.

Regionally, the West of England Combined Authority have recently announced that £5 million has been ringfenced from the Green Recovery Fund to support transport decarbonisation and innovation including the rollout of EV charging infrastructure across the region.

We will continue to implement the proposed interventions detailed in Section 5 with a particular focus on supporting our public car parks, leisure/community centres, village halls and implementing EV car clubs, making use of central government grants when suitable.

Section 9: Next Steps

Strategy Review

This document represents the first iteration of the council's EV Charging Strategy and will be periodically reviewed to ensure it remains fit for purpose.

Given that rapid rate of change for EV technology, it is envisaged that this strategy will be revisited in approximately 18 months' time to keep it up to date with the latest developments and review progress with our proposed interventions.

To accommodate any required changes, delegated authority will be assigned to the Director of Environment and Community Services to update the strategy to ensure it aligns with any national, regional or local objectives.

Summary of Interventions

In summary we have identified ten potential measures to take forward:

Short-term (0-2 years)

- **SG1:** Ongoing expansion of Revive charging infrastructure with provision at Public Car Parks, Leisure centres, Libraries, our Civic centre, Local High streets and On-street residential (where appropriate). Cost implications for the intervention are likely to be high.
- **SG2:** Support the development of EV car club. We will work with relevant car club operators to help them to expand their network of electric vehicles within the area. Cost implications for the intervention are likely to be medium.
- **SG3:** Support alongside the Combined Authority in the development of mobility hubs to encourage sustainable travel including by shared modes. Cost implications for the intervention are likely to be high.
- **SG4** - Marketing and communications to promote EV charging solutions and raise awareness of our local network of Revive charging points. Cost implications for the intervention are likely to be low.
- **SG5** - Working with partner organisations to provide charging points including Village/ town halls, community centers and tourist destinations. Cost implications for the intervention are likely to be high.

Medium-term (2-5 years)

- **SG6:** Encourage EV adoption when South Gloucestershire Council's fleet vehicles are refreshed. Cost implications for the intervention are likely to be high.
- **SG7** - Lobby for funding opportunities from the Combined Authority and central government to support the provision of business grants for workplace charging infrastructure for SMEs. Cost implications for the intervention are likely to be high.
- **SG8** - Utilise the presence of the rapid charging hub sited at the Bristol and Bath Science Park, to host demonstration events for ULEV promotion and offer a ULEV test drive facility. Cost implications for the intervention are likely to be medium.
- **SG9** - Work with Transport Development Control colleagues to increase EV uptake and EV car clubs at new developments and workplaces; Cost implications for the intervention are likely to be low.
- **SG10** - Update parking standards and develop guidance documents for new developers to encourage EV uptake. Cost implications for the intervention are likely to be low.

Appendices

Appendix A: List of relevant policies and strategies

UK Government

- [Transport decarbonisation plan – \(July 2021\)](#) – UK Government document presenting pathway to net zero transport in the UK, the wider benefits it can deliver.
- [The Road to Zero \(Department for Transport, July 2018\)](#) – UK Government strategy to delivering zero emissions transport.
- [Automated and Electric Vehicles Act](#) – To make provision regarding automated vehicles and electric vehicles.
- [The Transport Energy Model](#) has been developed to provide an objective assessment of the relative environmental impact of the powertrain technologies and fuel choices available to consumers both now and in the future, bringing together both air pollutant and greenhouse gas impacts.
- [The Ten Point Plan for a Green Industrial Revolution \(publishing.service.gov.uk\)](#) – The announcement of end the sale of new petrol and diesel cars and vans by 2030.
- [Decarbonising Transport, Setting the Challenge \(2020\)](#) - This document highlights the current challenges and steps to be taken when developing the transport decarbonisation plan to reach net zero transport emissions by 2050.
- [Clean Air Strategy, Department for Environment, Food and Rural Affairs \(2019\)](#) - The report outlines the UK strategy to tackle sources of air pollution and reduce emissions.
- [Future of Mobility Urban Strategy \(2019\)](#) - The Future Mobility Urban Strategy outlines key principles and policies that the government will implement to further advance future mobility in the UK.
- [UK electric vehicle infrastructure strategy \(2022\)](#) - The vision and action plan for electric vehicle charging infrastructure within the United Kingdom.
- [Building Regulations Part S](#) provides a requirement for all new residential and non-residential buildings to have facilities for charging electric vehicles.
- [PAS 1899:2022](#) - In October 2022, with the support of the Government, BSI (British Standards Institution) launched PAS 1899:2022, which provides accessibility standards for public charge points.

West of England Combined Authority (WECA)

- [West of England Joint Local Transport Plan – West of England Partnership \(2020\): The West of England Joint Local Transport Plan 4 2020- 2036 \(JLTP4\)](#) - The JLTP sets targets of 5,000 EV registrations per year from 2020 in the West of England and ensuring 100% of new homes (where applicable) have a charge point available.
- [WECA Climate Emergency Action Plan \(2020\)](#) - On 19 July 2019 WECA became the fourth Combined Authority in the country to declare a Climate Emergency.
- [West of England Climate and Ecological Strategy and Action Plan 2022 \(westofengland-ca.gov.uk\)](#) This updated plan sets out priorities and key actions to achieve the Combined Authority's ambition to be net zero by 2030.
- [West of England Joint Spatial Plan - West of England Partnership \(2017\)](#) - The West of England Joint Spatial Plan (JSP) sets out a prospectus for sustainable growth to help the Region meet its housing, employment and transport needs for the next 20 years, to 2036.

South Gloucestershire Council

- [Local Plan Core Strategy](#) -South Gloucestershire's Core Strategy sets out an approach to manage growth and create sustainable communities.
- [Draft Local Plan 2020 Phase 1 Issues and Approaches](#) – This includes the provision of charging infrastructure for all types of development.
- [South Gloucestershire Climate Emergency Strategy](#) - South Gloucestershire's Climate Strategy sets a target to reduce CO₂ emissions by at least 80% (on 1990 levels) by 2050.
- [South Gloucestershire Climate Emergency Action Plan](#) - The Climate Emergency Action Plan for Year 2 (2020/21) presents a list of priority projects that support the response to the Climate Emergency.
- [South Gloucestershire Air Quality Annual Status Report \(2019\)](#) - SGC's Air Quality Annual Status Report (ASRs) includes details of measures implemented and planned to improve air quality.
- [Green Infrastructure Strategy](#)

Glossary

- **Sustainable transport** - sometimes also known as Green Transport and is any form of transport that does not use or rely on finite fossil fuels, such as walking and cycling.
- **Electric vehicles (EV)** - a vehicle that runs fully or partially on electricity.
- **Carbon neutrality** - means having net-zero carbon dioxide emissions. To achieve this, you have to balance carbon emissions with carbon removal. For every amount of carbon produced, steps must be taken to remove the same amount of carbon from the atmosphere.
- **Decarbonisation** – to reduce the amount of gaseous carbon compounds released.
- **Zero emitting vehicles** – a road vehicle that emits no pollutants from its exhaust.
- **Zero-carbon** – causing or resulting in no net release of carbon dioxide into the atmosphere
- **Internal combustion engine (ICE)** – a motor engine powered by the burning of fossil fuels
- **Hybrid vehicles** – a vehicle that uses more than one means of propulsion – that means combining a petrol or diesel engine with an electric motor. The main advantages of a hybrid are that it should consume less fuel and emit less CO₂ than a comparable conventional petrol or diesel-engine vehicle.
- **Ultra-Low Emission Vehicles (ULEVs)** – ULEVs are currently defined as having less than 75 grams of CO₂ per kilometre (g/km) from the tailpipe.
- **Electrical vehicle charging point (EVCP)** – the EV equivalent to the traditional fuel station pump.
- **Greenhouse gas emissions (GHG)** - the [emission](#) into the [atmosphere](#) of any various [gases](#), especially [carbon dioxide](#), that [contribute](#) to [greenhouse](#) effect
- **Zero emissions** - a road vehicle that emits no pollutants from its exhaust.
- **Low-carbon technologies** - technologies that use or emit low levels of carbon
- **Ultra-fast charge point** – a charge point with over 150kW of power, meaning that drivers can charge their cars in 5 to 12 minutes – a comparable time to filling a car up with petrol or diesel.
- **Plug-in vehicles** - vehicles that can be recharged from an external source of electricity, such as wall sockets, and the electricity stored in the rechargeable battery packs drives or contributes to drive the wheels.
- **Battery electric vehicle** - This means the car runs purely on electricity and gets all its power when it's plugged in to charge. This type doesn't need petrol or diesel to run so doesn't produce tailpipe emissions like traditional cars.
- **Plug-in hybrid electric vehicle** - These cars have the ability to run on electricity but also have a traditional fuel engine so they can use petrol or diesel too if they run out of charge. When running on fuel, these cars will produce emissions but when they're running on electricity, they won't. Plug-in hybrids can be plugged into an electricity source to recharge their battery.
- **Hybrid-electric** - These run mainly on fuel like petrol or diesel but also have an electric battery too, which is recharged through regenerative braking. These cars cannot be plugged into an electricity source and rely on petrol or diesel for energy.

- **Three-pin plug** - a standard three-pin plug that you can connect to any 13-amp socket.
- **Socketed** - a charge point where you can connect either a Type 1 or Type 2 cable.
- **Tethered** - a charge point with a cable attached with either a Type 1 or Type 2.
- **Charge point** – delivers power to the car via connector cable.
- **Charging bay** - the parking space associated with the charge point.
- **Green Infrastructure (GI)** - Green infrastructure (GI) describes the 'green' and 'blue' natural environment features of an area and the connections (or network) between these features. Green infrastructure assets include open spaces such as parks and gardens, allotments, woodlands, fields, hedges, lakes, ponds, playing fields, coastal habitats, as well as footpaths, cycleways or rivers. Assets involving water can also be called 'blue infrastructure'.
- **E-mobility hubs** - defined as combining EV charging points, electric car clubs, bike and e-bikes for hire at a single location situated at key transport sites, bookable from a single platform.

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