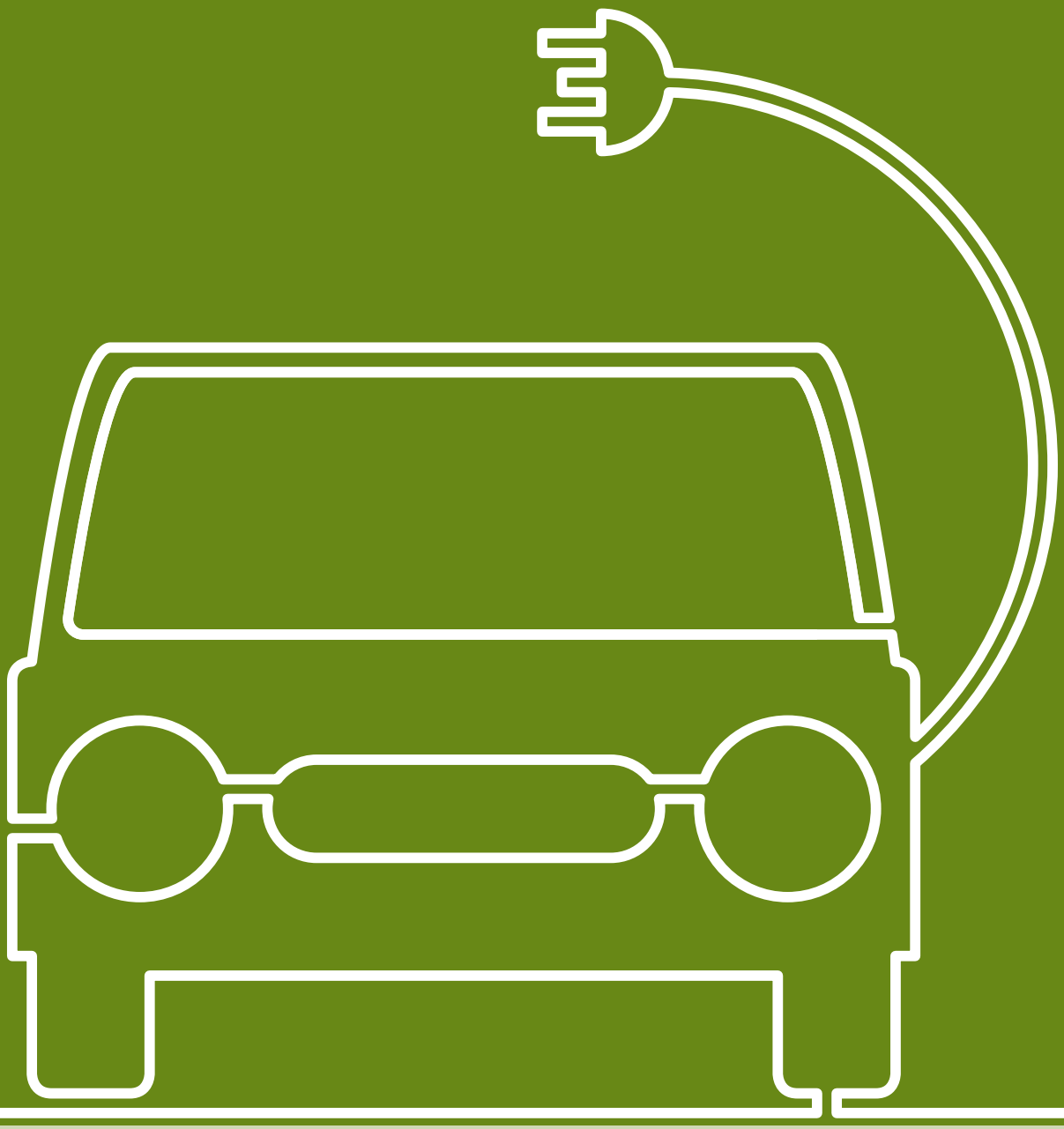
Electric vehicle charging infrastructure strategy

Draft for consultation - February 2023



ISLE of WIGHT COUNCIL

Introduction

It's clear that the public expects the council to play an active role in the deployment of chargepoints for electric vehicles. While the first deployments in council car parks took place in 2013, these early chargers are reaching end of life and the Island has fallen behind in terms of the number of public chargepoints that are available. This is inconvenient for both residents and visitors and may be a barrier to those looking to switch to an electric vehicle for the first time.

The current administration is keen to address the issue and, in January 2022, passed a resolution which will see a new round of chargepoints being deployed in council car parks. These will be more reliable than the previous ones and provide a quicker speed of charge. And, because they are owned and operated by a specialist provider, there is no financial risk to the council.

But we don't want to stop there. We want to plan ahead so that public chargers keep pace with electric vehicle purchases, which are likely to increase very dramatically over the next 10 years. The network of chargepoints should be extensive so it's convenient to charge overnight, on the move, when shopping or visiting the Island's attractions.

This strategy paints a picture of that future network and proposes some actions the council can take to support the rollout. In particular, we want to plan for residents that do not have off-street parking and who will be completely reliant on the public network.

The council will not be the only provider of public chargepoints and we're very keen to hear from others who may be able to do so. We also want to hear from residents, visitors, local businesses and anyone else with an interest in EV chargepoints to help shape this strategy and I look forward to your responses to this consultation.

Councillor Phil Jordan

Cabinet Member for Infrastructure, Highways PFI and Transport

February 2023

Executive summary

The electrification of vehicles is underway, but this is only part of a wider low and zero-carbon fuel agenda which includes hydrogen and biogas, both of which may be more appropriate for heavier vehicles.

The rapid switch to electric vehicles will require an equivalent scale up in charging infrastructure and the government is asking local authorities to play its part in the deployment of chargepoints. The national Electric Vehicle Infrastructure Strategy[1], published in 2022, aims to stimulate deployment of accessible and reliable public chargepoints on both the strategic road network (motorways and main A roads) and in local areas. It says that on and off-street charging should be easy to use, fairly priced, inclusive and trusted by customers.

There is a need to plan and invest in public chargepoints ahead of demand so as not to delay the switch to electric vehicles. This document provides detail on the chargepoints that are being installed on the Isle of Wight during 2022/23 and proposes a strategy for the roll out of chargepoints into the future.

There is a particular focus on provision for households that currently do not have off-street parking as these households will be reliant on public infrastructure. The council is developing a methodology which identifies where these properties are located and to what extent they can be served, in the first instance, by additional chargepoints in local car parks. Visitors to the Island will also be reliant on public chargers and have been factored into the plans.

At this stage the number of chargepoint sockets that will be required for a full network is unknown and will be subject to changes in technology, but the number is likely to be in the low hundreds at least. This network will be enabled by both the council and the private sector. The council will seek third party funding for all its chargepoints and will work with operators that are able to provide a reliable and competitive service. This will include on and off-street chargepoints and, potentially, charging hubs which will provide ultra-rapid charging for business as well as residential use.

It's likely that Government funding will be available in 2023 through the Local Electric Vehicle Infrastructure (LEVI) Fund and the council will prepare for this through the adoption of an Electric Vehicle Charging Infrastructure Strategy and an associated delivery plan. We are consulting with all stakeholders – residents, visitors, businesses, chargepoint providers, electric vehicle retailers and anyone on the Island who is interested in providing charging infrastructure on their land – to get a greater understanding of need and how this will be met.

1 UK electric vehicle infrastructure strategy: **www.gov.uk/government/publications/uk-electric-vehicle-infrastructure-strategy**

Contents

Summary of proposals

Throughout this document we've made some clear proposals on how we might proceed:

- The council will contract with third party chargepoint operators (CPOs) to fund and manage the public chargepoint infrastructure on its land.
- When demand grows to a suitable level, the council will seek providers who will install and run residential charging hubs.
- For those without driveways, the council will seek to provide charging in council car parks in the first instance.
- The council will focus on high powered chargepoints to minimise the amount of infrastructure required.
- The council is considering the adoption of new standards for on-street charging bays.
- Once legal issues have been resolved, the council will consider allowing cable gullies in streets which are not in close proximity to existing or planned chargepoints.
- The council is considering allowing car club operators to install EV chargepoints at dedicated car club bays.
- The council will consider not applying a parking charge to vehicles that are using the chargepoints in council car parks until 1 January 2025.
- The council will ensure that future chargepoints installed on its land have an instant contactless card payment option.

Consultation – how to respond

We want to understand what you think about these suggestions, how you think the council can take this strategy forward and what you think the role of the council should be.

Throughout this document there are specific questions relating to issues that are raised in each chapter. You can respond to all of these or as many as you want. Alternatively, you may just want to give us your general impression of the strategy or make some points which are not specific to a particular question. You can do this in the 'general comments' box at the beginning of the consultation and do not have to reply to any other questions if you prefer.

The consultation response form is online at **arcg.is/1C8Pie0** or you can provide a written response to **evchargepoints@iow.gov.uk** with 'EVCI strategy response' in the subject line.

You can also complete a written questionnaire and return it to: **EVCI Strategy Response, c/o Economic Development Team, County Hall, High Street, Newport, Isle of Wight PO30 1UD**.

Please contact the council at **evchargepoints@iow.gov.uk** or **01983 821000** if you would like a paper copy of the questionnaire sent to you.

A full list of consultation questions is shown in Appendix 2.

The consultation will end at 11.59pm, 21 April 2023.

1 Abbreviations

BEV	Battery electric vehicle
CCC	Climate Change Committee
CO2	Carbon dioxide
CPO	Chargepoint operator
CSR	Central Southern Region (framework)
DFES	Distribution future energy scenarios
DfT	Department for Transport
DNO	Distribution network operator
ETRO	Experimental Traffic Regulation Order
EV	Electric vehicle
EVCI	Electric vehicle chargepoint infrastructure
EVCP	Electric vehicle chargepoint
GSI	Geospatial Insight
HGV	Heavy goods vehicles
ICE	Internal combustion engine
IWC	Isle of Wight Council
kW	Kilowatt
kWh	Kilowatt-hours
LEVI	Local Electric Vehicle Infrastructure (Fund)
LGV	Light goods vehicle
MW	Megawatt
ORCS	On-street residential chargepoint scheme
OSM	OpenStreetMap
OZEV	Office for Zero Emission Vehicles
PCN	Penalty charge notice
PHEV	Plug-in hybrid electric vehicles
PHV	Private hire vehicle
PPO	Parking Places Order
PV	Photovoltaic (solar) panels
SLA	Service level agreement
SSEN	Scottish and Southern Electricity Networks
TfSE	Transport for the South East
TRO	Traffic Regulation Order
V2B	Vehicle to building
V2G	Vehicle to grid
V2H	Vehicle to home
V2X	Vehicle to anything
ZEV	Zero emission vehicle

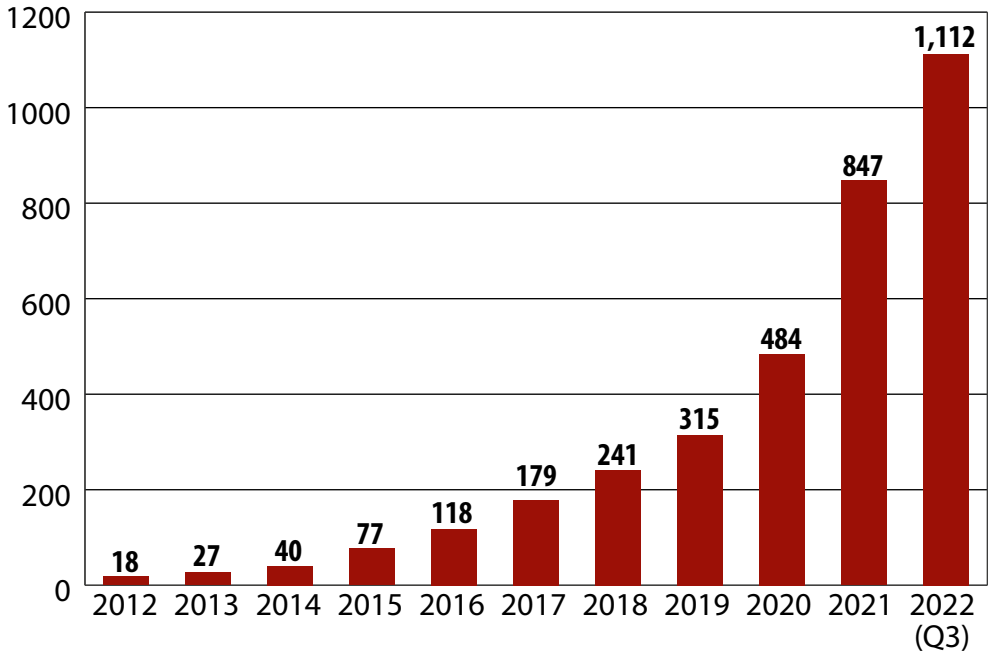
2 Background

In November 2020, the UK Prime Minister announced the phase out of new petrol and diesel cars and vans from 2030 and hybrids from 2035, at which point all new cars and vans must be fully zero emission at the tailpipe. By 2050, almost all cars and vans on our roads will be zero emission.

This provides a clear signal to consumers and industry that the transition to electric vehicles is underway. Those purchasing vehicles today will be thinking about the choice between an electric motor and an internal combustion engine (ICE).

Vehicle ownership data is released by the DVLA[2]. At the end of September 2022 there were 1,112 plug-in cars and light goods vehicles (including BEVs and plug-in hybrids) registered on the Isle of Wight, up from 847 the previous year.

Figure 1: EV ownership on the Isle of Wight



Many of these EV owners will have private charging facilities at home, but the lack of public charging infrastructure is seen as one of the biggest hurdles to the uptake of electric vehicles (EV). The UK Government's zero emission vehicle delivery plan (July 2021)[3] states:

2 Vehicle licensing statistics data tables: **www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables#ultra-low-emission-vehicles**

3 Transitioning to zero emission cars and vans: 2035 delivery plan: **www.gov.uk/government/publications/transitioning-to-zero-emission-cars-and-vans-2035-delivery-plan**

"The rollout of charging infrastructure is critical to achieving our ambitions (for electric mobility)... Infrastructure provision and quality is key to convincing motorists to make the switch."

Public chargepoints serve a number of purposes; they allow residents without off-street parking to own an EV; they allow EV owners to 'top-up' opportunistically, for example, when shopping or visiting leisure sites; they reduce range anxiety by assuring EV owners that they can access charging points at any time; they support EV taxis; they provide a network which allows visitors to bring their electric vehicle to the Island; and they allow fleet vehicles to recharge without having to return to base.

This network must be provided ahead of demand in order to give confidence to prospective EV owners and allow them to purchase an EV without hesitation. Clearly there are risks in this. The chargepoints may have low usage and therefore run at a loss in the early years. Also, it is likely that charging systems will change radically over the next decade or so, with alternatives to plug-in charging emerging. However, the typical life of a chargepoint is eight to ten years meaning that an investment made today should provide a commercial return before alternative forms of charging become widely available.

The national EV Charging Infrastructure Strategy was published in March 2022 and puts an obligation on local authorities to develop and implement local charging strategies. These strategies should identify how to provide affordable, convenient charging for residents, businesses (including fleets), and visitors without causing highway disruptions that could discourage walking and cycling. The strategy highlights a national pot of £500m to drive innovative new approaches to deploying local chargepoints at scale.

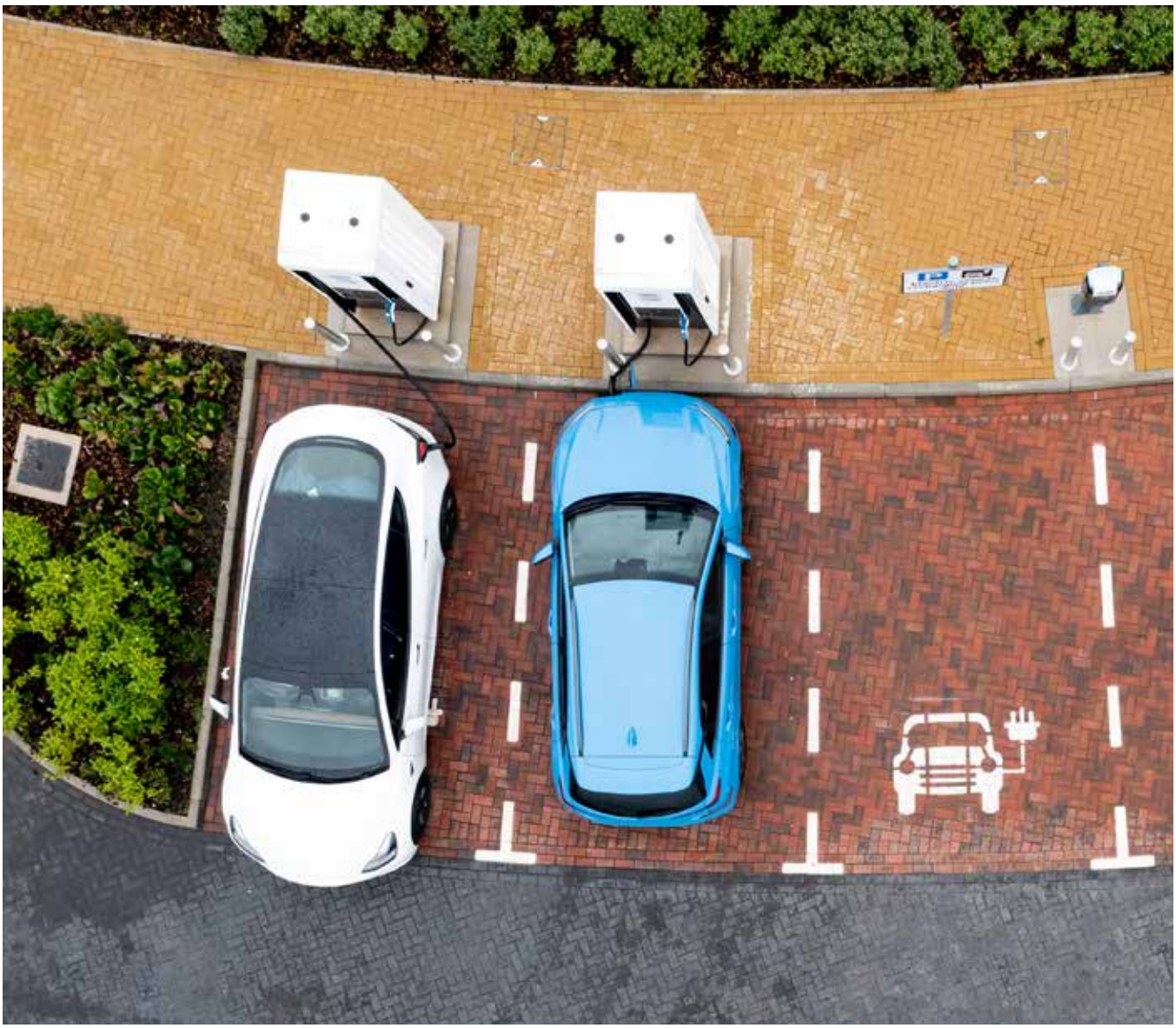
The number and speed of chargepoints required will depend on both technological developments and charging behaviour. The range of EVs will continue to increase, meaning less frequent charges are required. Instead of the 'run to empty, fill up and run to empty again' cycle typical of fossil fuelled vehicles, EVs may operate with regular small top-ups, taken opportunistically when a chargepoint is available.

This could affect the demand for ultra-fast chargers, which may be required in lower numbers than people would assume at present.

The strategy for the Isle of Wight aims to provide a clear pathway for the development of the public charging network over the short and medium terms. It provides a no-regrets approach to the provision of publicly accessible EV charging infrastructure. Developments over the long-term (10+ years) are discussed but, because of the unknowns, can't be planned for in detail at this stage.

This document draws on the 'Isle of Wight electric vehicle infrastructure planning report' produced by Cenex for the council in April 2020.

Cenex was established in 2005 as the UK's first Centre of Excellence for Low Carbon and Fuel Cell technologies. Today, Cenex operates as an independent, not-for-profit consultancy specialising in the delivery of projects, supporting innovation and market development, focused on low carbon vehicles and associated energy infrastructure.



This document draws particularly on the Cenex report for chapters: 6 – Description of electric vehicle charging infrastructure; 9 – Ownership models; 10 – Future off-street charging provision; and 18 – Parking regulations.

2.1 Charging requirements

The main electric vehicle charging situations are as follows:

- **Home charging** – the preferred option for anyone with off-street parking due to the convenience and lower cost of energy.
- **On-street** – in residential areas where there is a lack of off-street parking. The infrastructure could be provided in streetlights, bollards in the walkway or chargers in nearby car parks.

- **Off-street** – in council car parks and other facilities such as leisure centres. Could also be provided in private car parks.
- **Destination** – located at supermarkets, hospitality venues and visitor attractions where vehicles are likely to 'dwell' long enough to receive a significant charge.
- **On-route national** – principally on motorways and trunk routes where rapid recharging is essential. This could include ferry terminals.
- **On-route local** – charging stations such as repurposed petrol filling stations.
- **Hubs** – providing numerous chargers of all speeds, including the provision of ultra-rapid chargers. These will serve taxis and private hire vehicles as well as delivery vehicles and other commercial fleets. Hubs can also provide daytime and overnight residential charging.
- **Workplace** – chargepoints that are available for the company's own fleet vehicles at all times. Some employers may make chargepoints available to staff and, possibly, local residents. Currently electricity for charging vehicles isn't classed as a taxable benefit in kind (BIK).
- **Community** – homeowners, business and community groups making chargepoints available to neighbours and the wider community. This is often facilitated through a mobile app, for example, www.co-charger.com or www.justpark.com

The council is most likely to have a direct role to play in on-street and off-street charging infrastructure, while also facilitating charging hubs. The wider community are essential partners in the provision of a comprehensive network serving all needs and the council will work closely with all those that can provide charging infrastructure.

It is anticipated that a fully developed EV chargepoint network will comprise, in the short- and medium-term (see Chapter 6 for definition of charging speed):

Location	Charging speed
Public car parks	Fast and rapid
Residential areas – on-street	Standard and fast
Charging hubs	Fast, rapid and ultra-rapid
Ferry terminals	Rapid
Workplaces	Standards and fast
Supermarkets or retail parks	Standard, fast and rapid
Visitor attractions	Fast
Private dwellings	Slow and standard
New developments	Slow and standard

The council will also have a role to play in planning policy, building regulations enforcement and taxi licensing, all of which will impact on charging demand and provision, as well as related issues such as parking costs. This strategy aims to be as clear as possible on these issues so that prospective EV owners can make an informed decision on when to purchase an electric vehicle.

2.2 Pilot schemes

The council has had some recent experience in both off-street and on-street chargepoint provision and this experience has fed into the development of this strategy.

2.2.1 Off-street

Since 2013, the council has hosted chargepoints in council car parks, including four 7kW standard chargers and one 50kW rapid charger. These were owned and managed privately as part of the GeniePoint network. While these have provided a basic facility for EV charging across the Island, they have suffered recently from unreliability. As spare parts are not available for these legacy chargepoints, they are no longer considered fit for purpose. The main lesson drawn from this experience is that third party providers need to be carefully managed with strict performance indicators to ensure that chargepoints are repaired in a timely manner.

2.2.2 On-street

In 2019, the council was successful in a bid to the On-Street Residential Chargepoint Scheme (ORCS)[4] for 75 per cent funding towards the cost of installing 10 on-street chargepoints. The sites selected, following requests from residents, are as follows:

4 On-Street Residential Chargepoint Scheme guidance for local authorities: **www.gov.uk/government/publications/grants-for-local-authorities-to-provide-residential-on-street-chargepoints/grants-to-provide-residential-on-street-chargepoints-for-plug-in-electric-vehicles-guidance-for-local-authorities**

Table 1: Sites for on-street chargepoint pilot project

Town	Site	Number of sockets	Rate of charge (max)	Go live date
Cowes	Seaview Road	2	22kW	July 2022
Cowes	Cowes Parade	2	22kW	March 2023
East Cowes	Adelaide Grove	2	22kW	June 2022
Newport	Quay Street (1)	2	22kW	December 2022
Newport	Quay Street (2)	2	7kW	December 2022
Newport	Wykeham Road	2	22kW	June 2022
Ryde	Milligan Road	2	22kW	June 2022
Seaview	Seafield Road	2	22kW	February 2023
Ventnor	Trinity Road	2	7kW	July 2022
Yarmouth	River Road Car Park	2	22kW	March 2023

It should be noted that, while the maximum rate of charge has been quoted, not all vehicles are able to charge at this rate due to the limitations of the on-board charger. Therefore, while some vehicles (eg, Renault Zoe) can charge at the full 22kW, others will charge at a slower rate.

Figure 2: On-street chargepoint installations as part of pilot project

The planning and installation process for the on-street chargepoints has provided some useful learning:

- Local resident resistance to on-street provision, especially where there are parking pressures – the response is to allocate one dedicated charging space per chargepoint initially and increase to two when demand grows.
- Lack of standards for charging bay siting and specification – develop a local specification in partnership with Island Roads and carry out safety audits before installation to check compliance.
- Volatility of energy supply price – when passed through to the chargepoint user, this can result in prohibitively high tariffs. Some CPOs may be insulated from this through longer-term supply agreements. Because of the high risk to the council of under-utilised chargepoints, together with high fixed maintenance costs, an agreement with a private operator is preferable. This should ensure that Island tariffs are aligned with those on the mainland.
- Labour intensive and complex process – starting with site identification, through to grid connection, meter supply, traffic orders and commissioning, this is a complex process requiring specialist skills which may be best delivered through third parties. As relationships develop, the time lag between installation and activation of the chargepoint should reduce.
- Time consuming – there are many interconnected processes which can lengthen installation time and lead to frustration from the public. As some of these are unavoidable, it is best to manage expectations from the outset through good communication on 'go live' dates.
- Difficulty of finding ideal sites – a public network is likely to require a significant number of on-street chargepoints and some flexibility may be required in their location in order to meet public need. For example, it may not always be possible to meet recommended bay widths in which case, subject to a safety audit, narrower bays may be acceptable. The council will provide a system for residents to request a chargepoint installation on their street.
- Requirement for internal resource – despite the fact that CPOs will deliver a range of services, there will be an ongoing need for council staff resource to manage delivery. The LEVI fund will provide resources for a dedicated member of staff to manage delivery of new chargepoints.

Consultation
To what extent do you agree with this strategy? Please explain the reasons for your response. Please provide any further comments or issues which are not raised elsewhere in this strategy. Are there any omissions from the strategy?

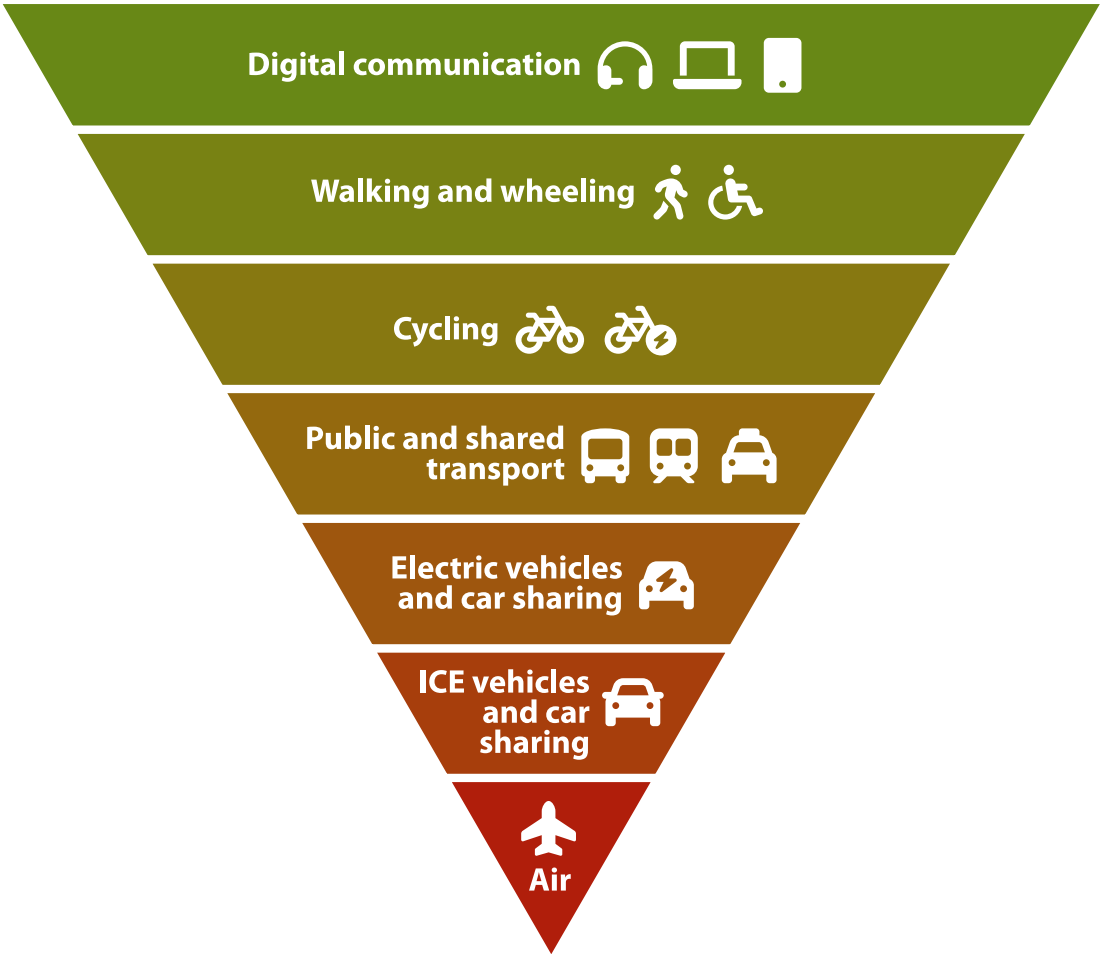
3 Sustainable transport hierarchy

Electric vehicle chargepoints are part of a policy approach to the decarbonisation of transport which is being resolved through the Local Transport Plan.

The LTP advocates a hierarchy of transport options which favours active travel (walking and cycling) and public transport but continues to support the use of private cars.

The sustainable travel hierarchy is an illustrative tool that enables an individual to understand the carbon impact of their journey. The higher up the hierarchy, the greener the travel option, ranging from digital communication through to air travel as illustrated below:

Figure 3: The Sustainable travel hierarchy (Source: Energy Saving Trust 2021[5])



5 Energy Saving Trust (2021) An introduction to the sustainable travel hierarchy: **energysavingtrust.org.uk/an-introduction-to-the-sustainable-travel-hierarchy**

According to the most recent National Travel Survey (DfT, 2021)[6] most trips undertaken are relatively short. In 2020, 25 per cent were under one mile, and 75 per cent of the total were under five miles. While walking is undertaken for most trips under one mile, for trips between one and five miles and above the car is the most used mode of travel. While many of these journeys up to five miles can often be undertaken by walking, cycling or public transport, for many longer trips, often the only practical option currently is to travel by car.

Car clubs are growing both in availability and popularity (albeit from a low base) and provide an alternative option to owning a car. They tend to be more commonly available in urban areas and, as public transport is either limited or unavailable in rural areas and cycling and walking aren't considered practical options due to long distances, many residents and visitors are left with little option other than using a private car (CoMoUK, 2020)[7].

As such, where the use of a car is required, the use of electric vehicles contribute significantly less carbon emissions into the atmosphere over their lifecycle when compared to petrol and diesel vehicles. The latter also contribute a significant level of air pollution that can be harmful to both human health and the environment. In comparison, electric vehicles have zero tailpipe emissions, thus improving local air quality. Thus, within the context of the sustainable travel hierarchy it is important to encourage the use of electric vehicles where possible.

The national EV Charging Infrastructure Strategy states that chargepoints should not be installed where they'll interfere with modes higher up the hierarchy, for example, by preventing walking or the installation of cycle lanes.

6 DfT (2021) National Travel Survey: 2020: **www.gov.uk/government/statistics/national-travel-survey-2020/national-travel-survey-2020**

7 CoMoUK (2020) Shared Cars: **como.org.uk/shared-mobility/shared-cars/what**

4 Links with other strategies

4.1 Local

Isle of Wight Council corporate plan[8]

The corporate plan is seeking to enhance the Island's infrastructure and support green and thriving businesses. These objectives are supported by accelerating the deployment of EV chargepoints for residents, businesses and visitors.

Mission zero climate and environment strategy 2021 to 2040, Isle of Wight Council, September 2021[9]

The provision of Electric Vehicle Chargepoints supports the council's Climate & Environment Strategy and the ambition for the Island to be net zero by 2040. Specifically, it will support the following output:

Output 040 - Increase the number of publicly available rapid charging and fast charging electric vehicle chargepoints across the Island to at least 72.

This level of provision will meet immediate need. All chargepoints will be supplied with green electricity.

Local Transport Plan (LTP) 4, 2022

Called the Island transport plan, this is the main transport document for the council and outlines the transport vision for 2038. It will enable the council's commitment to achieving net zero by 2040 for the whole Island focusing on the following four main objectives:

1. A transport network which produces net zero greenhouse gas emissions and is resilient to the impacts of climate change.
2. People and goods can travel sustainably and efficiently to and from, and around the Island to help grow the local economy.
3. An inclusive, accessible, and affordable transport system for all.
4. A safe transport network that supports thriving, healthier communities.

Within LTP4 is 'Policy 14 – Supporting Zero Emission Vehicles (ZEV)'.

8 Corporate Plan 2021 to 2025: **www.iow.gov.uk/documentlibrary/view/corporate-plan-2017-2020**

9 Mission zero climate and environment strategy 2021 to 2040: **www.iow.gov.uk/azservices/documents/2570-Mission-Zero-Climate-and-Environment-Strategy-2021-2040-final.pdf**

Isle of Wight Youth Council

The Isle of Wight Youth Council manifesto[10] identifies actions to help young people on the Island and commits "to work with the council and support campaigns that look after the environment and to create a sustainable, renewable hub for all". Young people will be at the forefront of the move to more sustainable transport. Improvements in air quality resulting from the switch to EVs will be beneficial to young people, particularly those suffering from respiratory disease.

4.2 Regional

Regional evidence base and strategy

Transport for the South East (TfSE) has commissioned a study for charging infrastructure provision. The main objectives are to:

- produce scenarios for potential demand for EV infrastructure in the region;
- identify spatial clusters of demand for different types of charging infrastructure across the region;
- bring together data on current demand and potential future demand from fleets operating in the region;
- identify what further support local authorities need to develop local EV infrastructure strategies;
- highlight best practice in partnership working;
- foster partnerships between local authorities and other key stakeholders to ensure charging infrastructure is delivered in an efficient and cohesive manner.

The work is due to be completed in March 2023 and key findings will be incorporated into this strategy and delivery plan.

4.3 National

Ten point plan for a green industrial revolution, HM Government, November 2020[11]

Nationally, the Government has made a legally binding commitment to net zero by 2050 with stage posts, known as carbon budgets, to ensure continued progress. The commitment includes the

10 Youth Council: **www.iow.gov.uk/Council/how-it-works/Youth-Council/Results**

11 The ten point plan for a green industrial revolution: **www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution**

phasing out of fossil fuelled vehicles, starting with a ban on the sale of petrol and diesel cars and vans, followed by buses, hybrids and HGVs. The ten point plan for a green industrial revolution, published in November 2020, includes:

Point 4: Accelerating the shift to zero emission vehicles

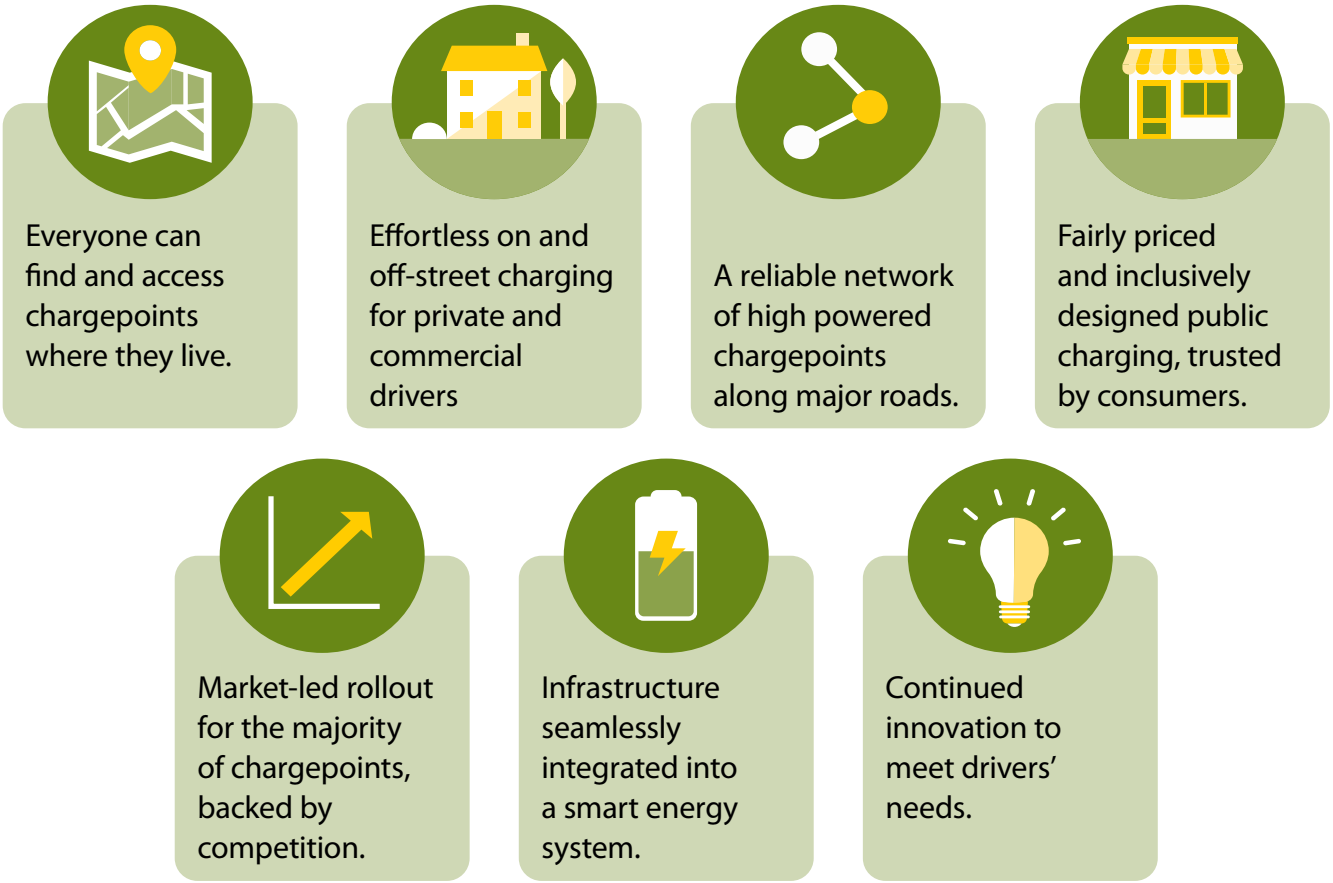
This commits to the continuation of the plug-in car grant to reduce the purchase price of electric vehicles, the development of 'gigafactories' to produce the batteries needed for EVs at scale, and a £1.3 billion investment to accelerate the roll out of charging infrastructure. A focus for charging infrastructure is rapid chargepoints on motorways and major roads so that by 2030 there will be 2,500 high powered chargepoints on England's motorways and major A roads.

Taking charge: The electric vehicle infrastructure strategy (March 2022)[12]

The strategy recognises that to date, the rollout of public chargepoints has been too slow, and the public is often let down by poor reliability and complex pricing schemes. It would like to see an acceleration in the deployment of reliable and easy to use chargepoints ahead of need.

The main aims are summarised in the diagram below:

Figure 4: Aims of national EV chargepoint infrstructure strategy 2022



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

Government is asking local authorities to develop chargepoint strategies and to scale up the rollout of public chargepoints on local streets. The specific responsibilities for local government, specified in the strategy, are:

Table 2: Summary of responsibilities for local government

Organisation	Summary of role and responsibilities
Local and mayoral authorities	• Develop and deliver ambitious tailored local EV charging infrastructure strategies that provide scaled, commercially sustainable public charging provision. They should align with wider local transport and energy decarbonisation policies.
	• Ensure clear ownership and resourcing of the planning and delivery of EV charging infrastructure rollout.
	• Ensure local chargepoints are inclusively designed and accessible for residents, businesses, and visitors, and in line with local authorities' legal obligations.
	• Ensure internal processes for the installation of chargepoints (for example grant permissions) are efficient, fast and easy to navigate for those working with local authorities.

"A Better, Greener Britain" – Decarbonising Transport, Department for Transport, July 202[13]

The transport decarbonisation plan sets out the government's commitments and the actions needed to decarbonise the entire transport system in the UK. This goes wider than EVs and shows how the government's action on the transition to Zero Emission Vehicles (ZEVs) fits into wider decarbonisation commitments. The place-based section contains further guidance for local authorities on changes to local transport plans.

13 Decarbonising Transport – A Better, Greener Britain: **assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf**

5 Scope

This strategy focuses primarily on EV charging infrastructure for cars and vans; including taxis, private hire vehicles and delivery vehicles. It does not aim to identify charging infrastructure for larger vehicles and buses but recognises that some of the infrastructure may be suitable for these vehicles.

This strategy will not deal with charging for:

- **Ebikes** – these use domestic three-pin sockets for charging. Power packs can be removed for charging inside, either at home or at destinations, so no planned public infrastructure is envisaged.
- **Motorbikes** – the majority currently use domestic three-pin sockets although some future models may require infrastructure similar to cars. This will be kept under review.
- **Buses and coaches** – the infrastructure for buses will require dedicated chargepoints which will be provided by the operator. The requirement for coaches is not yet defined but may be included in future versions of this strategy.
- **HGVs** – as it is currently unclear to what extent they will utilise batteries or a low carbon fuel alternative such as hydrogen
- **Marine vessels** – electric boats have been developed and some EV charging has been installed at marinas around the world. Boat charging is a specialist activity which may be considered for harbours and marinas owned and operated by the council and others, but is not included in this strategy.

Charging on the strategic road network (motorways and major A roads) is managed by Highways England.

6 Description of EVCI

6.1 Speed

In this document the following definitions are used for the speed of charging:

- **3-5kW** – slow
- **7kW** – standard
- **22kW/25kW** – fast
- **43kW/50kW** – rapid
- **100kW+** – ultra-rapid

Chargers as powerful as 350kW are now available.

Within the industry, 7kW chargers have usually been classified as fast chargers but this is not how they are generally perceived by users. The council will classify these as 'standard' chargers.

Most chargepoints have two output sockets that can be used simultaneously; therefore, one EV chargepoint can accommodate two electric vehicles. Depending on the power supply to the chargepoint, charging may be available at the maximum rate through both sockets or it may be shared between the sockets. A 22kW chargepoint can therefore supply either 22kW or 11kW depending on how it has been installed and how many vehicles are connected. The rate at which the vehicle can actually charge will be determined by its on-board charger so that, for example, even when 11kW is available, the car may charge at 7kW.

Consultation
What are your views on useful speeds for public chargepoints? Should different speeds be provided in different locations?

6.2 Types of charger

The following are the main types of chargepoint being installed today:

Figure 5: Summary of chargepoint types

7 kW standard charger

- Alternating current (AC).
- Twin Type 2 sockets to charge two vehicles simultaneously.
- Provides c. 20-25 miles charge in one hour
- Compatible with every consumer EV currently on sale in UK - adaptors are available for older models.

22 kW fast charger

- Alternating current (AC).
- Twin Type 2 sockets to charge two vehicles simultaneously.
- Provides c. 70-80 miles charge in one hour.
- Compatible with every consumer EV currently on sale, but not all vehicles will receive full 22 kW power.

50 kW rapid charger

- Direct current (DC) and alternating current (AC).
- Triple connector incl. Type 2, CHAdeMO and CCS connectors.
- Charges one vehicle at a time, some models will now charge two.
- Provides c. 70-80 miles charge in 30 minutes.
- Compatible with every consumer EV currently on sale in UK – some older models may not be comptible.

Figure 6: Tesla Superchargers
Photo courtesy of Clive Flint

Recently, there has been a development in lower power DC chargers in the 20-25kW range. These avoid the need for an inverter and can provide full power charging to vehicles, allowing them to take on more charge in a given period of time than an AC charger.

Figure 7: Project EV 20kW DC charger

There are also a growing number of ultra-rapid DC chargers which range from 100 – 350 kW which are generally seen in motorway service stations and on major trunk routes.

6.3 Review of on-street charging technologies

Conventional charging bollards can be installed on-street. This is a well-developed market with many suppliers and this type of chargepoint is familiar to EV users. A single unit is usually equipped with two sockets, compatible with the IEC 62196-1 Type-2 connector, allowing two vehicles to charge at the same time. They are easy to repair and equipment can be easily upgraded once the grid connection is established.

On the other hand, the choice of locations for bollard-type installations may be limited due to the space available on the footway and the need to allow passage for pedestrians. They may also be vulnerable to vandalism and accidental damage from vehicle collisions. Being higher powered, these chargepoints will require a dedicated electrical supply.

Cenex has undertaken a review of specialist on-street chargepoints which are most applicable to residential locations, where speed of charge is a lower priority than convenience of location.

6.3.1 Shared power supply (including lamp column)

EV charging equipment that can be retrofitted to existing street furniture with a pre-existing electrical connection has been on the market for a number of years. The most commonly used equipment of this nature is affixed to lampposts, typically replacing the existing faceplate with another faceplate that is fitted with an EV charging socket. Variations of this technology exist where the equipment installed into the lamppost is not fitted with a user interface, with user input, billing and smart communications instead facilitated through specially designed smart cables that belong to the user. Where existing

assets are located away from the kerb, certain suppliers can provide equipment that extends the existing supply to a charging unit at the kerbside (often referred to as 'satellite' posts or units).

This type of unit is best installed when the lighting column is on the outside of the footway, adjacent to the parking space. This situation is very limited on the Island. They usually have only one socket and charge at 3-5kW.

Examples

Figure 7: Ubitricity on-street charging solutions

www.ubitricity.co.uk

Figure 8: Rolec Streetserve (left) and Streetcharge (right)

www.rolecserv.com

Figure 9: Nedal EV Charging Column:

www.nedal.com

The Nedal model replaces existing lighting columns with hinged aluminium alternatives, with the charging equipment pre-installed.

6.3.2 Pop-up chargepoints

Pop-up chargepoints feature a mechanism by which the chargepoint can sit flush to the pavement surface when not in use and, in some cases, while charging is underway. These solutions are, for the most part, at a 'close to market' stage of development, with many suppliers currently engaging with local authorities and landowners to deploy units on a trial basis.

Examples

Figure 10: Urban Electric UEOne pop-up EV charger

www.urbanelectric.london

Figure 11: Street Plug underground charging solution

www.streetplug.nl

6.3.3 Modular EV chargers

Modular charging equipment allows for the charging equipment to be removed from the cabling that supplies it with electricity. Users typically operate this equipment by manually inserting a removeable component of the charging equipment into a fixed component. The removable component typically includes the charging socket and user interface, while the fixed component will include the electrical supply and, in some cases, the power electronics. In some solutions, the removable component is owned by the user and can be used at any location with compatible fixed components installed.

Examples

Figure 12; Trojan Lance on-street charging solution

www.trojanenergyltd.com

Figure 13: Parking Energy modular charger

www.parkingenergy.com

6.3.4 Low-lying fixed chargers

Compared to traditional free-standing chargepoints, low-lying units are similar in most regards, aside from being significantly lower profile. This is typically achieved by housing a greater proportion of the chargepoints' components under the ground, rather than in an enclosed cabinet above the ground.

Examples

Figure 14: Connected Kerb Armadillo kerbside charge point

www.connectedkerb.com

All of these chargepoints have strengths and weaknesses which will apply to a greater or lesser extent, making each chargepoint type more appropriate to certain situations than others. These are summarised below:

Strengths:

- Less street infrastructure, reducing hazards to pedestrians and maintaining integrity of the footway.
- Less of a target for vandalism, especially if they require user interaction before the chargepoint emerges.
- Less vulnerable to accidental damage from vehicle collisions.
- Can often be installed quickly.
- May not require additional cabling e.g. lighting column types.
- Lower capital costs, for example, if chargepoints are installed in lighting columns.
- Can be more robust than conventional chargepoints.

Weaknesses

- Innovative solutions which may be unproven in the public realm.
- Due to intricate mechanisms, may be more prone to frequent and costly repairs.
- Complex installation process.
- Users may need to purchase special charging cables.
- Higher capital costs, especially for submerged models.
- User interaction may be at a very low height, impacting accessibility for disabled users.
- Potential trip hazards.

The type of chargepoint installed will be dependent on the location and an assessment of the strengths and weaknesses outlined above.

Consultation

Which form of chargepoint do you think is the most suitable for on-street charging on the Isle of Wight?

6.4 Smart charging

The EV Energy Taskforce[14] has defined smart charging as:

> **"…shifting the time of day when an EV charges, or modulating the rate of charge at different times, in response to signals, such as electricity tariff information. Smart charging is most applicable when the time required to charge the vehicle is less than the dwell time available; most commonly overnight at the EV owner's premises."**

Smart charging[15] is likely to happen automatically in response to a remote signal and therefore requires data communication between the car, the charger and the electricity supply. When smart charging at home, the vehicle owner defines the parameters during which hours of the day smart charging can be performed. Smart charging allows the vehicle owner to benefit from lower charging costs while energy suppliers and network operators can regulate charging to reduce strain on the grid.

Another aspect of smart charging is 'load balancing' which shares the available power amongst numerous chargepoints either equally or according to a pre-determined priority list. For example, if 44kW of power is available, two cars can charge at the full 22kW but there is no capacity for a third car to plug in. Load balancing can reduce the power to each vehicle to 14kW so that all can charge at a reasonable rate.

'Dynamic load balancing' can be used to allow vehicles with a lower battery status to charge faster or, when the chargepoint is connected into a building, to ensure that the power drawn by the chargepoint does not impact on the building's requirements.

14 Electric Vehicle Energy Taskforce – Energising our electric vehicle transition: **evenergytaskforce.com**

15 Useful guide on smart charging at Smart Charging of Electric Vehicles: the ultimate guide: **www.virta.global/smart-charging?__hstc=51530422.d3947e9887a83ea47f44ba515bc64363.1656592772111.1656592772111.1656592772111.1&__hssc=51530422.12.1656592772112&__hsfp=1075037401&hsutk=d3947e9887a83ea47f44ba515bc64363&contentType=standard-page#two**

6.5 Future developments

EV charging solutions are developing rapidly. Innovation is likely to lead to different methods of charging in the future, for example:

- Induction charging e.g. for taxis, port provision
- Vehicle to Grid (V2G) and Vehicle to Home (V2H)
- Subscription services

The council will seek to participate in relevant innovation projects and will make space available in council car parks for trials of products and services which it considers beneficial to residents and visitors. Participation allows the council to demonstrate its forward-thinking attitude and to potentially attract businesses in the sector to invest in the Island economy.

As timescales for commercial deployment of these novel technologies are not known, these future developments should not inhibit the deployment of current technology.

6.5.1 Wireless charging

Wireless charging, also referred to as inductive charging, allows an EV to receive a charge without the need to physically connect the vehicle to a chargepoint. Wireless chargers utilise electrical coils, mounted on or under the road surface, to generate an oscillating magnetic field. This field is then received and converted back to electrical energy by a set of coils fitted to the underside of an EV, before being fed into the battery.

Wireless charging systems are predicted to be available in static and dynamic forms. Static wireless charging has a fixed transmitter pad that an EV must be parked on top of in order to receive a charge. Dynamic wireless charging is fitted along a stretch of road and will interface with and charge any wireless charging enabled EV either parked or moving on top of it.

Wireless charging systems are likely to be difficult to install and may have limited applications. Vehicles will have to be manufactured with wireless charging capability and a system for measuring the energy drawn and paying for it will have to be developed. It is, however, a very promising technology for vehicles that are static for short periods, such as taxis, buses and vehicles waiting to board a ferry, and is expected to be commercialised during 2025-2030.

6.5.2 Vehicle to grid (V2G)

Vehicle to grid is a system which allows the two-way flow of energy from the vehicle's battery. It can either draw energy from the grid to charge the vehicle or discharge energy from the vehicle to the grid. Vehicle owners will be paid to discharge energy to the grid and the service will be required either to balance the grid or to provide additional energy at periods of high demand. EVs are a particularly attractive method of grid balancing because of their large battery capacity. Only 20 vehicles would be required to provide 1 megawatt hour (MWh) of energy. V2G, which is usually automated based on owner preferences, has proven popular in pre-commercial trials and has shown that it can provide a significant income for participants.

A variation of V2G allows the battery to discharge to a building via the chargepoint. Known as V2B (Vehicle to Building) this can be used in either domestic (V2H – vehicle to home) or business premises to provide energy when it is needed, providing a financial benefit if the vehicle is charged when electricity prices are low and discharged to the building when they are high. EVs could also provide emergency power to buildings, for example, to keep medical equipment powered when there is a power cut. Many other uses have been identified and are collectively known as V2X (vehicle to anything).

While few vehicles are currently capable of V2G or V2B, the situation is likely to change, and it is thought by many that it will become a normal part of the energy system. The downsides are additional wear and tear on the battery and also ensuring that the vehicle is adequately charged when it is needed for transport purposes.

6.5.3 Subscription services

New services, such as that provided by Charge Fairy (chargefairy.com), monitors battery levels and automatically sends a van with a large power pack to charge a vehicle. Subscription usually includes a small kilowatt hour allowance (for example 10kWh) and then a tariff for additional units of electricity required. The service is particularly useful for anyone who runs out of charge or for those that have been unable to use their intended chargepoint and do not have sufficient charge for their planned trip. Some residents without off-street parking may choose to rely almost entirely on a subscription service.

Figure 15: Charge Fairy demonstration
Photo courtesy of David Thornton

7 Existing public infrastructure

The Department for Transport published data in January 2022[16] which showed that there were 53 EV charging devices on the Isle of Wight, equivalent to 37.2 devices per 100,000 people which is close to the national average. Three of the devices were rapid chargers which puts the Island in the bottom 20 per cent nationally for high-speed charging.

7.1 Isle of Wight Council sites

During 2022-23 the council will be installing an initial network of off-street and on-street chargepoints. The off-street chargepoints will replace the legacy chargepoints that were installed in 2013 in car parks in Freshwater, Cowes, Newport, Ryde and Sandown with brand new equipment.

All the chargepoints, both off-street and on-street, will be operated by Joju and are available through the MerConnect App (Electric Car Charging Solutions uk.mer.eco). Tariffs are shown below although, with the current volatility in the energy supply market, it's possible that these may change at short notice.

a. Fast charge (7kw and 22kw AC) - 56p per kilowatt hour.

b. Rapid (43kW AC / 50kW DC+) - 72p per kilowatt hour.

Information on chargepoints at public sites will be kept up to date at **www.iow.gov.uk/council/OtherServices/zzzElectric-Vehicle-Chargepoints/Car-Park-Chargepoints**

7.1.1 Off-street locations

In 2018, Hampshire County Council launched the Central Southern Region (CSR) framework to allow all public bodies in the region to procure a range of chargepoint services. The OJEU compliant procurement resulted in a single supplier, Joju, which has an investment partner Mer. Through the framework, the council has ordered a number of chargepoints to be installed in its car parks. These will replace and expand the existing network with a focus on more fast and rapid chargers. The chargepoints to be installed in 2022 are as follows:

16 **maps.dft.gov.uk/ev-charging-map**

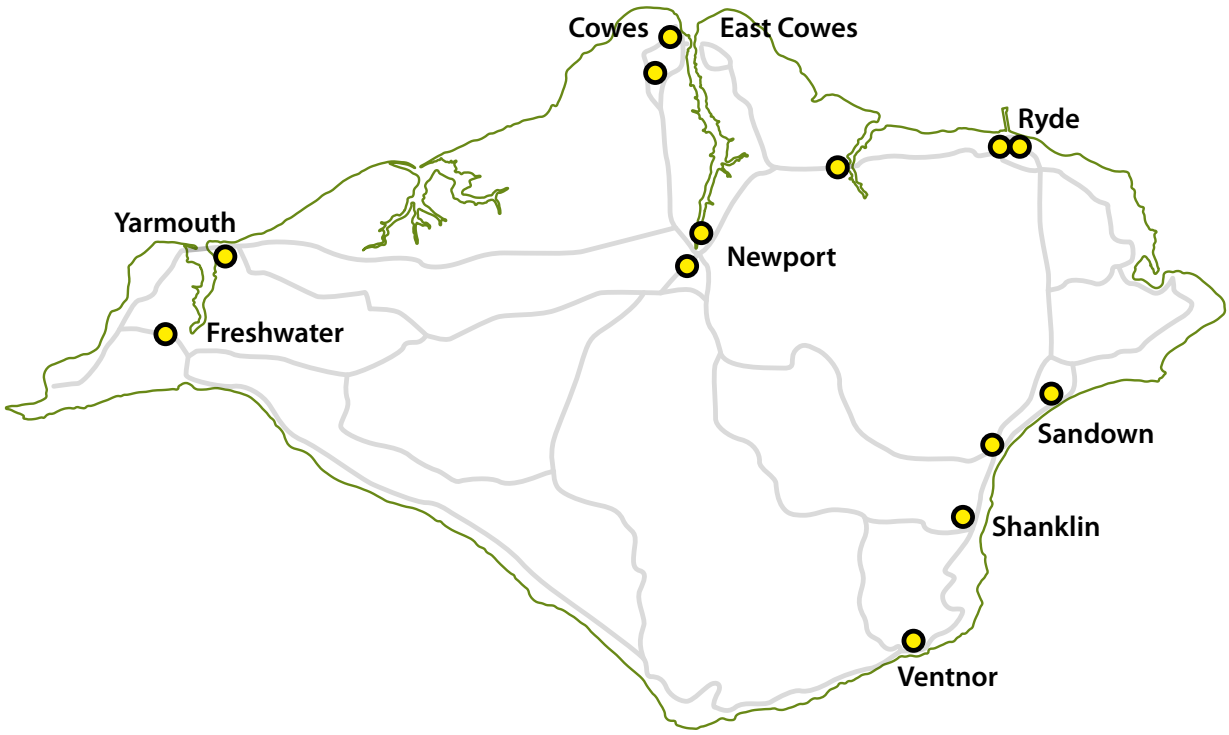
Table 3: Off-street chargepoints to be installed in council car parks during 2022/23

Town	Site	Details	Number of sockets
Newport	Chapel Street	One rapid charger and two fast chargers	6
Newport	Seaclose Park	One fast charger	2
Ryde	Quay Road	One rapid charger and one fast charger	4
Ryde	St. Thomas Street (upper) Car Park	One rapid charger and one fast charger	4
Sandown	St. John's Road Car Park	One rapid charger and one fast charger	4
Cowes	Cross Street Car Park	One rapid charger and one fast charger	4
Ventnor	Central Car Park	One rapid charger and one fast charger	4
Freshwater	Moa Place Car Park	One fast charger	2
Shanklin	Orchardleigh Road Car Park	One fast charger	4
Lake	New Road Car Park	One fast charger	4
Wootton Bridge	Brannon Road Car Park	One fast charger	2
Cowes	Somerton Park & Ride	One fast charger	2
Yarmouth	River Road Car Park	One rapid and one fast charger	4

These locations are shown below. You can also see them in an online map at: **iwc.maps.arcgis.com/apps/webappviewer/index.html?id=dfc390d35b314e5d835c636f3fb41c57**

This shows a spread of chargepoints across the Island with provision focussed in urban areas.

Figure 16: Location of chargepoints in council car parks



7.1.2 On-street locations

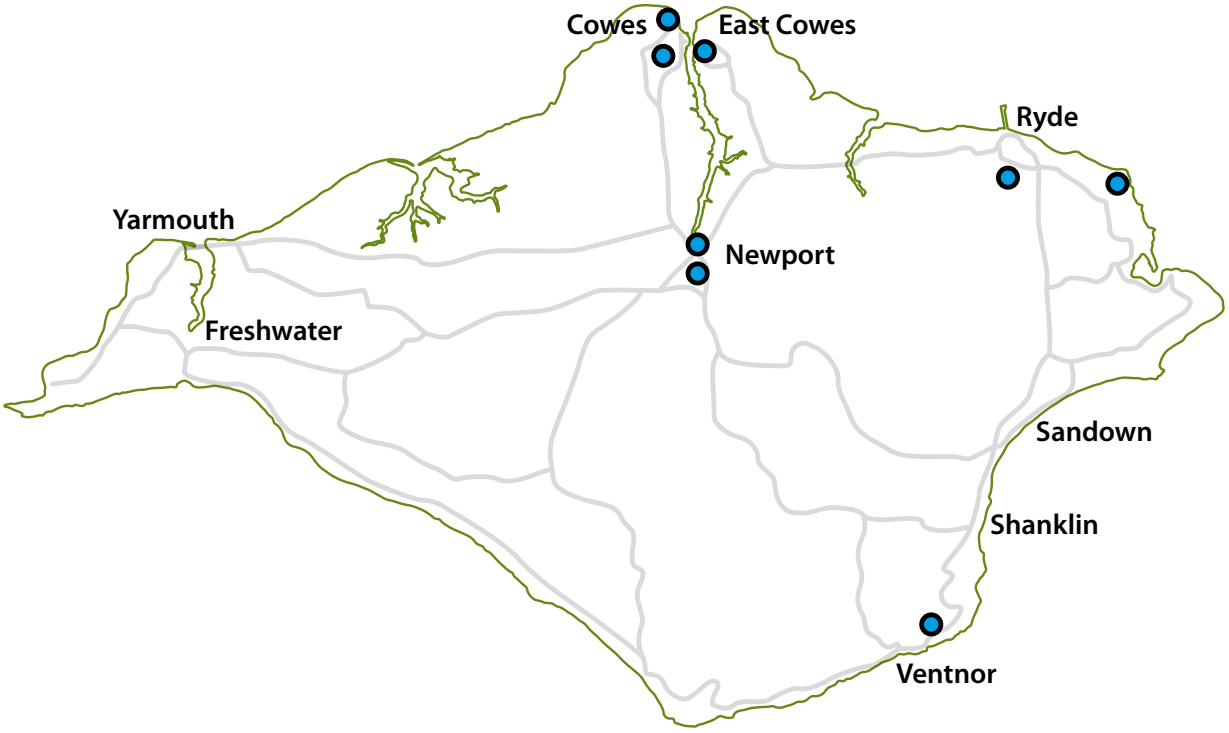
In addition, there will be nine on-street chargepoints (see section 2.2.2 for further details) at:

- Wykeham Road, Newport
- Milligan Road, Ryde
- Trinity Road, Ventnor
- Seaview Road, Cowes
- Adelaide Grove, East Cowes
- Seafield Road, Seaview
- Quay Street (1), Newport
- Quay Street (2), Newport
- Cowes Parade, Cowes

(The fast charger at River Road car park, Yarmouth is part of the on-street chargepoint network.)

These locations are shown in the image below and in an online map located at **iwc.maps.arcgis.com/apps/webappviewer/index.html?id=87418d5670fe4253847c9cc38a50adbf**

Figure 17: Location of on-street chargepoints



By March 2023, there should be 64 new chargepoint sockets on council sites.

7.2 Private sites

There are a number of private chargepoints available for public use at supermarkets, holiday accommodation, retail outlets and a small number of visitor attractions.

There is provision at Fishbourne (50kW) and Ryde Pier Head (7kW) ferry terminals, and mainland provision for people returning to or visiting the Island at Wightlink's Gunwharf terminal in Portsmouth (50kW).

McDonalds has recently installed two rapid (50kW) chargepoints at its restaurant in Ryde and Morrison's has a rapid charger at its Lake store.

Bembridge Parish Council has installed a standard on-street chargepoint outside their offices which they own and operate.

All public chargepoints are listed on the National Charge Point Registry[17] and available through

17 www.gov.uk/guidance/find-and-use-data-on-public-electric-vehicle-chargepoints

websites such as www.zap-map.com. Zap-map (as of July 2022) lists the following chargepoints on the Island, although access to some of these may be restricted and some may be out of order:

Table 4: Current chargepoints on the Isle of Wight, listed on zap-map.com

Description		Number of chargepoints	Number of sockets
Ultra-rapid	100kW+	0	0
Rapid	50kW	5	5
Fast	22kW	12	19
Standard	7-11kW	35	51
Zap-Home	Unknown	9	9

The table above does not include a number of 240V, domestic three-pin socket (3kW) type chargers which are listed on Zap-Map but which would not be suitable for public vehicle charging. They may, however, be useful for bicycles, scooters, mopeds and motorbikes.

There are a small number of workplace chargepoints which could, in the future, be opened up for public use. There are a larger number of domestic chargepoints which have been installed by EV owners and may be made available through charge sharing schemes. These are new initiatives, current examples include co-charger.com, evmatch.com and www.zap-map.com/charge-points/public-charging-point-networks/zap-home-network

8 Modelling demand

Calculating demand for public chargepoints needs to consider the growth in EV ownership, the number of EVs that will rely on public infrastructure and the number of users that each chargepoint can reasonably service. Of particular relevance to the Island is the additional demand from visitors, which will be highly seasonal. Evidence from Dorset shows that demand at rapid chargepoint sites increases by 25 to 50 per cent during July and August.

On top of demand from residents and visitors are the requirements of taxis and private hire vehicles and other fleet vehicles which may rely entirely on public charging infrastructure or, more likely, require an occasional top-up.

On the other hand, the average annual mileage of Island drivers is below the national average meaning less frequent charging events. Alongside this, technological advances are likely to mean larger on-board batteries with a greater range, again reducing the frequency of charging.

A number of studies have been carried out to determine the chargepoint infrastructure requirement for the Island as described below.

8.1 SSEN (2021)

Scottish and Southern Electricity Networks (SSEN) is the operator for the network of electricity cables (grid) on the Island. In order to understand future demand for electricity, it regularly undertakes Distribution Future Energy Scenarios (DFES)[18] which predict the number of electric vehicle chargepoints that are likely to be connected to the network. The latest DFES was carried out in 2021 and has a baseline year of 2020 with forecasting in five-yearly intervals.

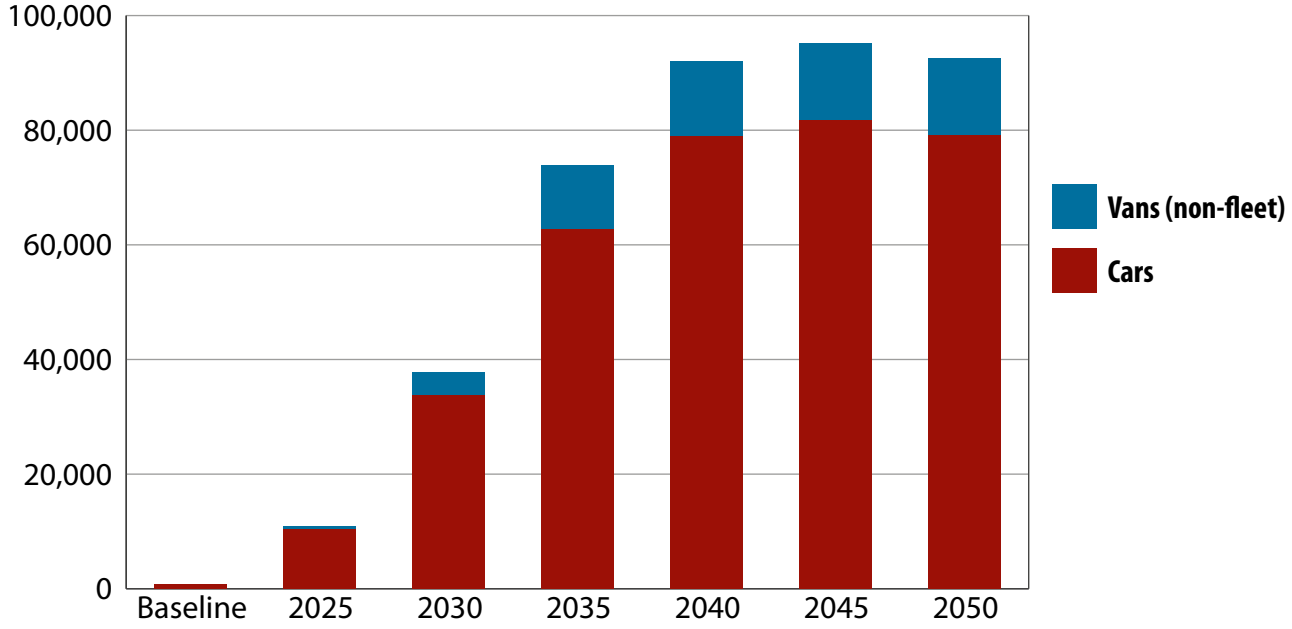
The number of electric vehicles – cars and LGVs – on the Island is predicted to increase rapidly to approximately 11,000 in 2025 and 38,000 in 2030. Growth in electric vehicle ownership continues through the 2030s as petrol and diesel vehicles are replaced, with the peak being reached in 2045:

Table 5: Forecast of electric vehicle ownership on the Isle of Wight

Vehicle type	2020	2025	2030	2035	2040	2045	2050
Cars	789	10,339	33,772	62,755	78,949	81,806	79,152
LGVs (non-fleet)	35	624	3,958	11,135	13,143	13,314	13,430

18 Distribution Future Energy Scenarios 2021: **www.ssen.co.uk/globalassets/about-us/dso/ssen-dfes-2021---southern-england-results-and-methdology-report-final.pdf**

Figure 18: Forecast growth in electric vehicles on the Isle of Wight.



Using the DFES data, the council has estimated the number of public chargepoint sockets that are predicted to be connected to the network under the 'Leading the Way' scenario, which is the most ambitious:

Table 6: Forecast number of chargepoints on the Isle of Wight.

Charger type	2020*	2025	2030	2035	2040	2045	2050
Residential on-street	0	142	571	1,428	2,142	2,142	2,142
Car park	0	45	45	45	45	45	45
Destination	0	142	142	284	284	284	284
En-route local	0	40	140	360	440	440	440
En-route national	0	0	0	6	6	6	6
Fleet	0	0	20	80	140	180	200
Workplace	0	285	857	2,000	2,428	2,428	2,428
Total public	**1**	**654**	**1,775**	**4,203**	**5,485**	**5,525**	**5,545**
Total public (excluding workplace)	0	369	918	2,203	3,057	3,097	3,097

The estimate is for 654 public chargepoint sockets in 2025, 1,775 in 2030 and 5,545 in 2050. This gives an overall ratio by 2050 of approximately one public chargepoint socket for every 14 homes. This is likely to be an overestimate as it is modelled on standard 7kW chargepoints while the provision of fast and rapid chargepoints will reduce the number provided.

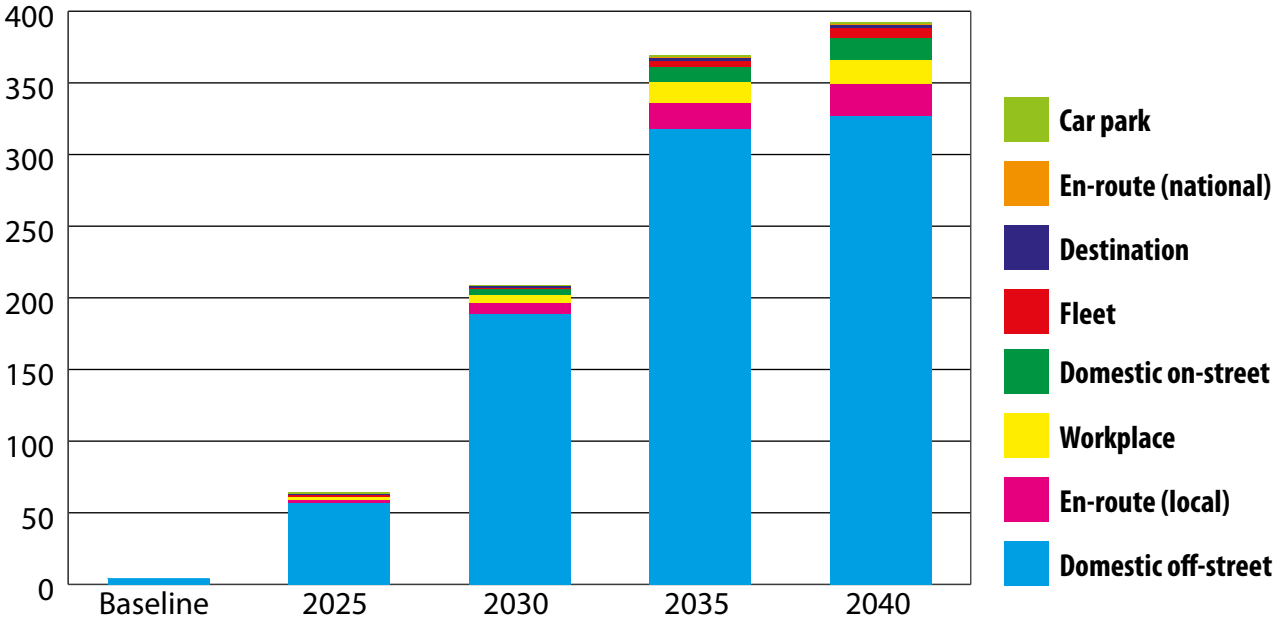
In addition to the public chargepoints, the projections show a very large number of private chargepoints at people's homes.

Table 7: Forecast power requirement (MW) for chargepoints

Vehicle type	Units	2020	2025	2030	2035	2040	2045	2050
Domestic off-street	Number of chargers	537	8,720	28,974	48,569	49,999	50,193	50,365
Domestic off-street	Capacity (MW)	4	61	203	340	350	351	353

This raw data does not show whether the chargepoints are slow, standard, fast or rapid chargepoints; however, SSEN has calculated the total power requirement or 'load' for these chargers. The chart below shows the physical rated power capacity of all of the projected chargers added together. It is heavily influenced by domestic off-street chargepoints of which there might be some 50,000 by 2040. These have been modelled at 7kW:

Figure 19: Projection for power requirement of different charger archetypes.



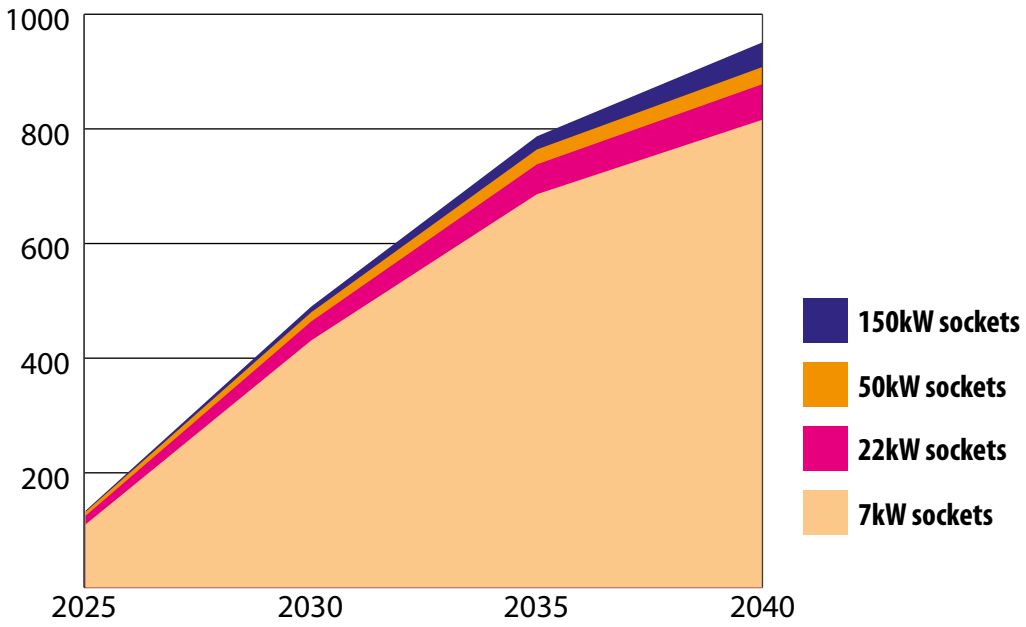
However, the utilization of the domestic EV chargers will be heavily diversified, that is, used across different times of the day. A more accurate 'peak' figure to consider when thinking about network loads will be lower than the 400MW shown above.

The data shows that SSEN is expecting the total power requirement for public chargepoints to be seven megawatts (MW) by 2025 and 20 MW in 2030.

8.2 NEVIS by Cenex (2022)

The NEVIS tool has been produced by Cenex to help local authorities plan their chargepoint infrastructure roll out. Results for the Isle of Wight are shown below:

Figure 20: Predicted public chargepoint requirement, Isle of Wight.



The results suggest 134 chargepoints will be required by 2025, 490 by 2030 and 787 by 2035. The Isle of Wight Council will focus on high-powered chargepoints, so the numbers of 7kW chargepoints will be reduced.

Cenex state that the numbers shown are the optimised number of chargepoints for the long-term. However, in the short-term, it is likely that greater numbers of chargepoints will be needed to ensure the market is stimulated and drivers have confidence in the network. They suggest it may be beneficial to front load the chargepoint installations, that is, installing more than shown in the early years.

8.3 Inno2Grid study (2019)

Growth of e-mobility and charging infrastructure technology and services: Mobility concept for the Isle of Wight, was commissioned by E.ON. The report, which focussed on a number of specific parts of the Island, looked at both resident and visitor need and predicted that, by 2025, tourism would increase the number of EVs on the road by 22 per cent to a total of 4,539.

Table 8: Estimated daily mileage for residents and visitors

	Mileage EV 2025 tourism			
	Traffic residential	**Traffic tourism on the Isle of Wight**	**Traffic tourism outside the Isle of Wight** (from tourists visiting the Island)	**Total**
Number of EVs	3,529.15	1,010.59		4,539.74
Mileage EV per Day	67,351.32	30,317.61	44,491.25	142,160.18
Mileage/EV Car per day	19.08	30.00	44.03	31.31

Based on previous research which suggests that a chargepoint will be required for every 20 electric vehicles, the requirement for chargepoints is shown in the table below:

Table 9: Estimate of chargepoint requirement in 2025.

Description	**2025** (predicted)
Number of EVs per public charging point	20
Number of public charging points required for residents	166
Number of public charging points required for residents and visitors	212

The effect of visitors is to increase the requirement by 46 chargepoints or 28 per cent.

The ratio of one chargepoint for every 20 vehicles[19] gives a total that is lower than some other estimates but takes account of the fact that the speed of chargers will increase allowing more charging events per charger and the range of vehicles will grow, averaging 250 miles by 2025 (as of 2022, the global average is 220 miles). This reduces the number of charges that visitors will require while they are on the Island.

19 Global EV Outlook 2018 – Analysis - IEA: **www.iea.org/reports/global-ev-outlook-2018**

Note that it is possible to increase the ratio to one charger per 25 vehicles if the number of ultra-rapid chargers increases noticeably.

The report also identified those locations for EV chargepoints which would be most useful to visitors.

Table 10: Useful locations for visitor chargepoints

Point of interest	OpenStreetMap value	
Accommodation	Apartment Hotel Motel	Hostel Guest house
Parking	Car parks	
Tourism hotspots	Attraction Information	Museum Viewpoint

8.4 EV Tourism study for SSEN (2022)

This study, being carried out by Element Energy, looks at potential visitor demand for EV charging infrastructure in 2030 and its effects on the electricity grid, using a methodology developed in Scotland.

The findings for the town of Shanklin show that:

- peak demand is during the summer season, as expected, and generally slightly higher at the weekend;
- tourists have a different charging profile with more demand during the day. It should also be noted that during the summer, overall tourist demand can be higher than resident demand;
- primary substations have sufficient spare capacity to allow for the increase in residential and tourist EV charging but some secondary substations may be at risk of constraints.

This report illustrates that, while planning for an optimum chargepoint network to meet demand, there may be local constraints, such as available power, which means that the optimal solution can't be delivered economically.

8.5 Regional reports

Transport for the South East (TfSE) is commissioning a report which will investigate demand for chargepoints across the south east region, looking at fleet demand as well as residential. The report will be published early in 2023 and any significant findings will be incorporated into this strategy.

8.6 National reports

The Climate Change Committee (CCC) is an independent, statutory body established under the Climate Change Act 2008 to advise UK government and devolved administrations on emissions targets and to report on progress made in reducing greenhouse gas emissions. The CCC's 2021 Progress Report[20] says that it expects to see a ramp-up in the sales of fully electric cars and vans through the 2020s, reaching almost 50 per cent of all new sales by 2025 and 100 per cent by 2030. This will need to be supported by the deployment of almost 280,000 public chargepoints across the country by 2030. The national EV Infrastructure Strategy, published in March 2022, states that this figure needs to be at least 300,000 by 2030.

8.7 Conclusion

This section does not attempt to specify exactly how many chargepoints will be required on the Island, but rather, to give an indication of the volume that might be needed over the next five to ten years and how this might affect demand on the electricity grid. Demand could expand to a figure of between 200 and 400 chargepoint sockets in public places by 2025.

Once all cars and vans are electrified, the theoretical requirement would be in excess of 3,000 public chargepoint sockets, but we know that many people will charge exclusively at home while those that are reliant on the public network will need to charge less frequently. As the network develops, it will become clearer where there are gaps in provision and these can be addressed nearer the time.

Consultation
Do you have any thoughts on the number of public chargepoints that will be required? If so, how should delivery be phased?
If you operate, or are likely to operate, electric fleet vehicles, can you give any insight into your requirements for public charging?

20 2021 Progress Report to Parliament - Climate Change Committee: **www.theccc.org.uk/publication/2021-progress-report-to-parliament**

9 Ownership models

While the private sector can be expected to provide a network of public chargepoints on private land, this may not be extensive enough to meet demand or quick enough to encourage the rapid switch to EVs.

The council therefore has a role to play in ensuring that chargepoint provision occurs ahead of demand and also to ensure that the Island receives its share of public funding for chargepoint provision.

9.1 Public ownership

The 'Isle of Wight Electric Vehicle Infrastructure Planning' report, produced for the council by Cenex in April 2020, identifies four ownership models which are summarised as follows:

Own and operate

The own and operate model represents the most involved level of intervention for the landowner (council), where all costs are covered, and all revenue is retained by the landowner. The landowner prepares the site, including groundworks and electrical connection, procures the EV charging equipment, funds the installation of the equipment and purchases a back-office system to manage the chargepoint. All revenue is hence retained by the landowner.

External operator

The external operator model is identical to the own and operate model in all regards except that the operation of the chargepoint is agreed with an external supplier. The supplier then provides the back-office system at no direct cost, in return for a share of net revenue gathered by the chargepoint.

Lease

The lease ownership model represents the lowest level of investment from the landowner. In this model, all capital and operating costs are covered by an external supplier, with a small share of revenue retained by the landowner in return for making their land available to the chargepoint supplier (assumed to be 10 to 20 per cent).

Concession

The concession model is similar to the lease model, in that much of the risk to the landowner is mitigated in exchange for a share of revenue. The key difference between the concession and lease

models is that, as part of the concession, the landowner provides the capital investment to establish an electrical connection point for an external supplier to install and operate a chargepoint.

The indicative apportionment of costs and revenue for each model are summarised in the table below, although the percentage of revenue actually secured will be subject to market conditions:

Table 11: Comparison of costs and revenue for different ownership models (Cenex).

Ownership model	Hardware	Groundworks	Back-office	Electricity	Maintenance	Revenue
Own and operate	100%	100%	100%	100%	100%	100%
External operator	100%	100%	0%	100%	100%	90%
Lease	0%	0%	0%	0%	0%	20%
Concession	0%	100%	0%	0%	0%	30%

EVCPs have the potential to generate useful income; however, the cost of the purchase and installation of chargepoints is still considerable, in the region of £30,000 for rapid chargepoints and up to £10,000 for fast chargepoints. In addition, every chargepoint requires a back-office management system, a repair and maintenance contract and regular safety inspections, all incurring ongoing costs. The council could invest its own funds under the own and operate, external operator or concession models, while the lease model does not require any council funding.

The Cenex report identified a potential income stream for the council based on each of these ownership models. Under the Lease option, the council receives a share of revenue – this would be in the form of a profit share, usually in the region of 10 per cent – but is not responsible for any losses. Competition from other chargepoints, such as those in supermarkets, can severely affect income predictions as can the evolution of new charging methods which make conventional chargepoints redundant. Management of chargepoints requires significant staff resource and technical expertise which is provided by the supplier under the lease option.

The council has decided that, while it provides the least opportunity for revenue generation, the lease model involves the least exposure to financial risk, particularly that resulting from unexpectedly low usage levels. If the council were to own and operate the chargepoints, it would require an investment pot running to hundreds of thousands of pounds, financial losses in the early years which would have to be covered from revenue budgets and additional staff resource. It will therefore seek arrangements with chargepoint operators (CPOs) to fund and manage the public charging network. Public health and safety is an important element of chargepoint operation and under the lease option the provider will be responsible for maintaining the infrastructure in a safe condition.

Proposal – the council will contract with third party CPOs to fund and manage public chargepoint infrastructure on its land.

Companies offering a fully funded option will require the granting of exclusive use of designated car parks for chargepoint provision. This will limit the council's ability to provide alternative arrangements at the same site; however, under its current arrangement with Joju/Mer, the designated car parks can be used for additional chargepoint provision and for dedicated chargepoints for:

- car clubs;
- council fleet vehicles;
- emergency vehicles.

The lease option means that the council will have less control over the quality and type of service provided to EV users. However, strict key performance indicators require the supplier to rectify simple faults in 24 hours and the more complex problems within five working days. The council will also have no control over the tariffs being charged to users. However, it is anticipated that market forces will keep tariffs at competitive levels.

Because of the fragile nature of the market at present, third party suppliers will seek those sites which seem to offer a good return. These are often in convenient locations for residents and visitors but may exclude provision in rural areas. However, the council is free to find other ways to meet rural needs, either through direct funding, grant funding (if it becomes available) or through arrangements with local businesses and community groups.

9.2 Current situation

9.2.1 Off-street

The new chargepoints that are being installed in council car parks during 2022 have been procured under the Central Southern Region (CSR) framework which was set up by Hampshire County Council in 2018. Joju, and their investment partner Mer, are the single supplier under the framework. From April 2023 a new supplier, EB Charging (**ebcharging.co.uk**), has been selected for framework delivery.

The CSR framework is being used by more than 80 public sector organisations across the central southern region. Under the framework, the supplier has been tested and selected for their ability, knowledge, technical skill and quality. Use of the Joju/Mer system will provide some compatibility with the extensive network of chargepoints being installed across the region through the Framework, meaning that travellers to the Island, as well as Islanders taking EVs to the mainland, are likely to experience familiar infrastructure and payment methods. It is believed that local businesses will be well placed to provide services, such as repair and maintenance, to the framework supplier.

The agreement requires no capital or ongoing revenue expenditure by the council and provides a revenue stream equivalent to 10 per cent of the cost of electricity supplied to each chargepoint. While this is modest, the agreement means that an initial network of chargepoints, suitable for residents and visitors, will be installed and managed at no cost to the council. While there is no obligation to expand the Joju/Mer network, if the chargepoints prove popular and commercially viable, the Framework allows an increase in the number of chargepoints at each location.

9.2.2 On-street

The on-street chargepoints will also be fully manged by Joju/Mer, providing the same back office platform for all current council chargepoints. This arrangement will require no ongoing revenue expenditure by the council and provides a revenue stream equivalent to 10 per cent of the cost of electricity supplied to each charge point and also, in recognition of the council investment in the infrastructure, a profit share.

9.3 Role of town and parish councils

Town and parish councils are likely to receive requests from local residents and visitors for public chargepoint provision. Bembridge Parish Council has responded to this by installing its own chargepoint in the village and arranging for its ongoing management. Other local councils may choose to do the same, although permission will be required if the installation is on-street or in an Isle of Wight Council car park.

Town and parish councils can also use existing frameworks, such as the CSR framework, and deal directly with the supplier(s). This can result in no funding requirement from the local council, although

the supplier will only be interested in locations where it feels it can make a commercial return.

The Isle of Wight Council will consider partnering with town and parish councils to install on-street chargepoints through the Government's LEVI Fund. If this requires investment by the town or parish council, the council will share any income derived. This arrangement will be valuable when the commercial case for a fully funded chargepoint installation is not attractive to a CPO but could be viable with a local funding contribution.

9.4 Private ownership models

Businesses wishing to offer charging as a commercial service can purchase chargepoints and associated back-office services. Companies such as Rolec and Podpoint offer flexible back-office services for chargepoints installed by private businesses, allowing them to become part of a national network. The chargepoint owner will receive the revenue generated from the chargepoint minus a subscription fee. They will also have to arrange and pay for an electricity supply to the chargepoint as well as a repair and maintenance contract. Anyone wishing to offer this service must have the appropriate permissions, for example, planning permission, and insurances.

In particularly good sites it may be possible to get a CPO to make a full investment in the charging infrastructure and operation in return for a lease fee or profit share. However, this is likely to require a complex legal agreement and lease of 10 to 15 years.

The council recognises that private businesses will often be best placed to provide EV charging, particularly in more rural areas. It is interested to hear of any ideas for the provision of charging services at private business premises.

Consultation
The council is keen to hear of any suggestions for private ownership models that it could facilitate. We would also be interested in offers of sites for public chargepoints. Please let us know if you think you have a suitable site.

10 Future off-street chargepoint provision

10.1 Long list

The Cenex report[21] attempts to identify sites on the Island which are most convenient for off-street chargepoint installations. Based on the evidence gathered from multiple sources, a longlist of 137 sites was produced which conformed to at least one of the following locational criteria:

- Car parks owned by Isle of Wight Council.
- Car parks owned by other parties including:
  - private businesses and industrial estates;
  - the NHS;
  - educational organisations.
- Transport hubs, including:
  - train stations;
  - fuel stations;
  - taxi ranks;
  - ferry terminals.
- Leisure destinations and attractions, including:
  - retail parks and districts;
  - museums;
  - galleries;
  - National Trust and English Heritage sites;
  - theme parks;
  - viewpoints.
- Locations where EV charging infrastructure has already been installed.
- Supermarkets with attached car parks.

Details of these locations can be found in Appendix 1.

For each location, site ownership was recorded (where possible). The 137 longlisted sites have been broken down by primary use case, suggested chargepoint power and land ownership.

21 Isle of Wight electric vehicle infrastructure planning, final report, Cenex, April 2020.

Primary use ase refers to the both the location and main user group as shown in the table below:

Table 12: Summary of chargepoint use cases (Cenex).

Use case	Location type
Destination	Near to a point of interest, where vehicles are likely to visit regardless of whether EV charging infrastructure is installed.
Hub	With size and space enough to install multiple, high-power chargepoints.
Transit	Offering an opportunity for EV users to charge on route to another destination that is not near to any other particular point of interest.
Residential	Within a residential area, mitigating the need to install charging infrastructure on-street.
Workplace	Near to or part of an employment site.
Taxi	Near to or on a taxi rank.
Fleet	Near to or on a site likely to be frequented by commercial vehicles.

10.2 Shortlist

The scoring criteria used to assess and rank longlisted sites includes two indices, which are combined to provide a single score. Each longlisted site was assessed and given a score between one and ten for each of the following factors:

- **Usage:** How ideal the site would be from a user perspective
- **Installation:** How feasible chargepoint installation is at the site

The criteria used to score each site against these two factors is shown in table 14.

Table 13: Scoring criteria used for site shortlisting (Cenex).

Score	Usage	Installation
9-10	Great convenience to most or all common user groups across all use cases. An ideal site for the installation of charging hubs.	Clear evidence of a strong electrical supply on or near the site. Road surfaces are easily excavated (e.g. tarmac, porous surface) without causing significant inconvenience. Land owned by Isle of Wight Council, public body or another pre-engaged stakeholder. Possible evidence that redevelopment or construction work is underway or imminent.
8-7	Moderate convenience to majority of user groups, across several use cases. Alternatively, clear convenience to a select number of user groups, across a smaller number of use cases.	Evidence of proximity to an electrical supply of reasonable strength. Road surfaces easily excavated with limited inconvenience caused. Land owned by IWC, public body or other stakeholders who are already engaged in activities regarding EV charging.
5-6	Moderate convenience to a select number of user groups, across a smaller number of use cases.	Evidence of electrical supply, but likely not to be particularly strong or in close proximity. Road surfaces more difficult to excavate (e.g. concrete). Some inconvenience likely to be caused during installation process. Land owned by external stakeholders, potentially with some interest in installing EV chargepoints (e.g. fuel station).
3-4	Some convenience to an exclusive user group, with only a single use case likely.	Evidence of a weak electrical supply and/or a supply that is a significant distance from the site. Inconvenience likely to be caused to users of the site. Land owned by external stakeholders with unknown interest in EV charging.
1-2	Of little practical convenience to any user group. Would require significant behavioural change to make it a useful location.	Low confidence that an electrical supply exists to the site. Major inconvenience likely to be caused as a result of installation process (e.g. through roadworks). Land owned by external stakeholder with unknown interest in EV charging.

In order to determine scores for each location, sites were assessed remotely, using spatial information gathered from open sources. This included OpenStreetMap, Google satellite imagery and Google Street View, where available.

The usage and installation scores were then added together, resulting in a score between one and 20, representing the overall appropriateness of installing EV charging infrastructure at each site.

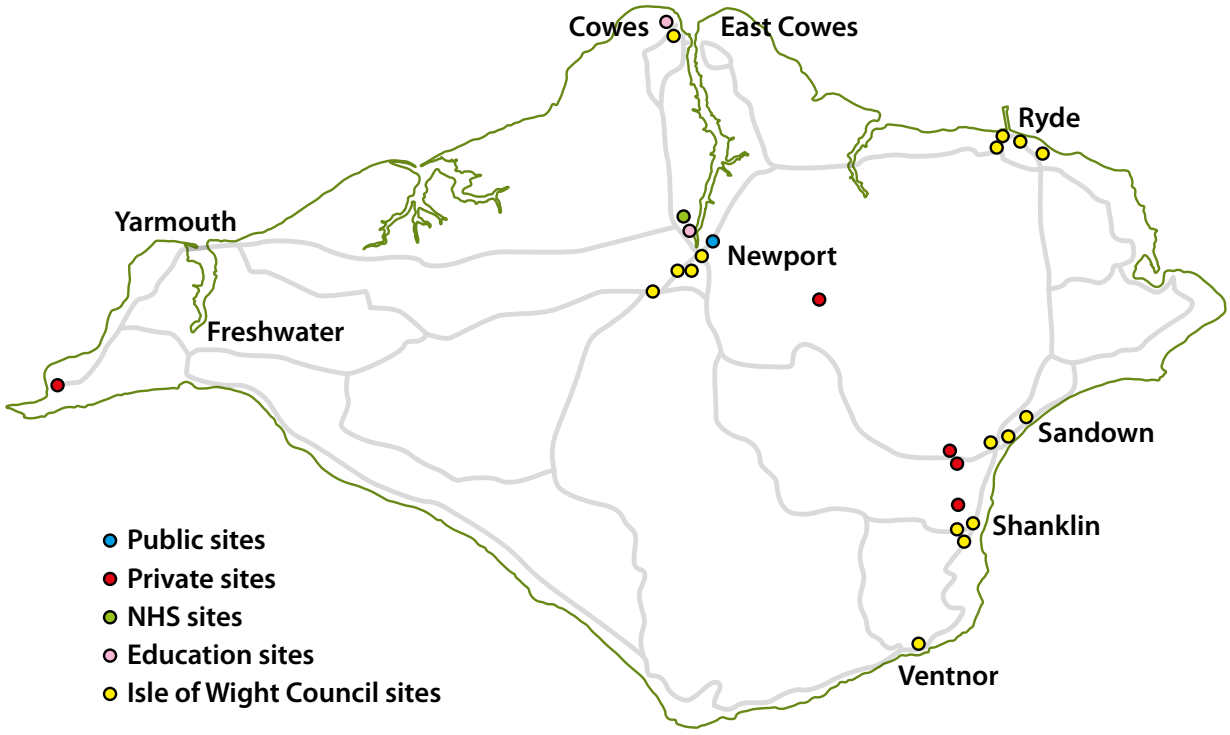
The longlist was then ranked by overall score and the top 28 sites were selected to form the shortlist, which is shown below.

Table 14: List of sites shortlisted for electric vehicle charging infrastructure installation (Cenex)

Name	Ownership	Charge type	Use case	Scores		
				Usage	Installation	Total
Chapel Street Car Park	IW Council	Rapid	Hub	10	9	19
St Thomas Street Car Parks (hub)	IW Council	Rapid	Hub	10	9	19
County Hall	IW Council	Standard	Workplace	9	9	18
St John's Road Car Park	IW Council	Fast	Destination	8	9	17
Carisbrooke High Street Car Park	IW Council	Standard	Workplace	9	8	17
Lidl Shanklin	Private	Rapid	Destination	9	8	17
Morrisons Lake	Private	Rapid	Destination	9	8	17
Medina Yard Redevelopment	Unknown	Fast	Destination	7	9	16
Cross Street Car Park	IW Council	Fast	Destination	8	8	16
New Red Funnel Ferry Terminal	Unknown	Rapid	Transit	8	8	16
Newport Jobcentre Plus	Public	Standard	Workplace	8	8	16
Quay Road Car Park	IW Council	Fast	Destination	8	8	16
Spa Car Park	IW Council	Fast	Destination	8	8	16
St Mary's Hospital	NHS	Fast	Destination	8	8	16
Church Litten Car Park	IW Council	Rapid	Taxi	9	7	16
Orchardleigh Road Car Park	IW Council	Fast	Destination	9	7	16
Appley Car Park (hub)	IW Council	Rapid	Hub	6	9	15
Cowes Enterprise College	Education	Standard	Workplace	7	8	15
Isle of Wight College	Education	Standard	Workplace	7	8	15
Robin Hill Country Park	Private	Fast	Destination	7	8	15
The Needles	Private	Fast	Destination	7	8	15
Vernon Meadow Car Park	IW Council	Fast	Destination	7	8	15
New Road Car Park	IW Council	Standard	Residential	8	7	15
Park Road Car Park	Unknown	Standard	Destination	8	7	15
Pound Lane Car Park	IW Council	Fast	Destination	8	7	15
The Heights Car Park	IW Council	Standard	Workplace	8	7	15
Victoria Street Car Park	IW Council	Fast	Destination	8	7	15
Aldi Lake	Private	Rapid	Hub	9	6	15

These sites are shown in the image below and can be viewed online at iwc.maps.arcgis.com/apps/webappviewer/index.html?id=3ae9ee5c1d494381b61227382be4da57

Figure 21: Location of shortlisted sites



It should be noted that the shortlisted sites have not been assessed for their ability to comply with highway design standards in respect to the layout and installation of the chargepoint and charging bays. Each site will need a detailed assessment prior to installation.

10.3 Progress to date

Twelve of the shortlisted sites are in private ownership and it is hoped that the landowners will take forward the recommendations of this Strategy. Of the 16 council sites that were identified, the following progress has been made:

Table 15: Planned installations in shortlisted council sites

Name	Town	Ownership	Details
Chapel Street Car Park	Newport	IW Council	One rapid and two fast chargepoints to be installed in early 2023
St Thomas Street Car Park (upper)	Ryde	IW Council	One rapid and one fast chargepoint to be installed in early 2023
County Hall	Newport	IW Council	No plans at present
St John's Road Car Park	Sandown	IW Council	One rapid and one fast charge point to be installed in early 2023

Name	Town	Ownership	Details
Carisbrooke High Street Car Park	Newport	IW Council	No plans at present
Cross Street Car Park	Cowes	IW Council	One rapid and one fast charge point to be installed in early 2023
Quay Road Car Park	Ryde	IW Council	One rapid and one fast charge point to be installed in early 2023
Spa Car Park	Shanklin	IW Council	Potential regeneration site so not available for chargepoints at this stage
Church Litten Car Park	Newport	IW Council	No plans at present
Orchardleigh Road Car Park	Shanklin	IW Council	Two fast chargepoints to be installed in early 2023
Appley Car Park	Ryde	IW Council	No plans at present
Vernon Meadow Car Park	Shanklin	IW Council	No plans at present
New Road Car Park	Lake	IW Council	One fast chargepoints to be installed in early 2023
Pound Lane Car Park	Ventnor	IW Council	No plans at present
The Heights Car Park	Sandown	IW Council	No plans at present
Victoria Street Car Park	Ryde	IW Council	No plans at present

The sites listed in the table where there are no plans at present will remain a priority for the future.

In addition to the above, the council has committed to the following installations taking place on its land:

Table 16: Planned installations in council sites not on shortlist.

Name	Town	Ownership	Details
Seaclose Park Car Park	Newport	IW Council	One fast chargepoint to be installed in 2022
Central Car Park	Ventnor	IW Council	One rapid and one fast chargepoint to be installed in early 2023
Moa Place Car Park	Freshwater	IW Council	One fast chargepoint to be installed in early 2023
River Road Car Park	Yarmouth	IW Council	One rapid and one fast chargepoint to be installed in 2023
Somerton Park and Ride	Cowes	IW Council	One fast chargepoint to be installed in early 2023
Brannon Road Car Park	Wootton Bridge	IW Council	One fast chargepoint to be installed in early 2023

Consultation
We would be interested to hear your views on the priority sites identified and whether you would suggest any other sites to be added to the priority list. Please let us know if any of the longlisted sites (Appendix 1) should be prioritised or if there are other suitable sites which have not been identified at all.
We would like to hear from owners of private sites listed in the tables about any plans they have for chargepoint installation and operation.

10.4 Opportunities to deploy innovative technologies

During the site assessment process, Cenex also considered sites that presented potential opportunities to deploy innovative technologies. The technologies that were considered are described in Table 18.

Table 17: Descriptions of innovative technologies considered in the site assessment (Cenex)

Technology	Description
Solar photovoltaic (PV) panels	Panels of photovoltaic cells that convert photons (light energy) to electricity. These panels can be fitted to canopies that cover parking bays, which are currently available from several suppliers.
Inductive (wireless) charging	Pads mounted above the road surface or coils installed beneath the road surface that wirelessly provide electricity to compatible electric vehicles by inducing an oscillating magnetic field. As of 2019, no production EVs are compatible with wireless charging, but the technology can be retrofitted.
Vehicle-to-grid (V2G)	Electric vehicle chargepoints that are equipped to accept bi-directional electrical currents. This enables compatible EVs to return electricity back to a building or to the grid in periods of high demand on the electrical distribution network. V2G can also be used to store renewable electricity during periods of high renewable generation, allowing it to be used during periods of high carbon intensity. A small number of production electric and plug-in hybrid vehicles are available that are compatible with V2G chargepoints, including the Nissan Leaf, Nissan eNV-200, Mitsubishi Outlander. This is expected to increase in the future.

A list of sites that were considered appropriate for the installation of one or more of these technologies is shown in Table 19.

Table 18: List of sites identified as being appropriate for innovative technology deployment (Cenex)

Name	Ownership	Shortlist	Solar	V2G	Wireless
St Mary's Hospital	NHS	Yes	Yes	Yes	Yes
New Red Funnel Ferry Terminal	Unknown	Yes	Yes	No	Yes
Red Funnel Ferry Queue	Private	No	No	No	Yes
County Hall	IW Council	Yes	Yes	Yes	No
Cowes Enterprise College	Education	Yes	Yes	Yes	No
Isle of Wight College	Education	Yes	Yes	Yes	No
The Heights Car Park	IW Council	Yes	Yes	Yes	No
Tapnell Farm Park	Private	No	Yes	Yes	No
Chapel Street Car Park	IW Council	Yes	Yes	No	No
St Thomas Street Car Parks (hub)	IW Council	Yes	Yes	No	No
Medina Yard Redevelopment	Unknown	Yes	Yes	No	No
Quay Road Car Park	IW Council	Yes	Yes	No	No
Gunville Retail Park	Private	No	Yes	No	No
Carisbrooke College	Education	No	Yes	No	No
Yarmouth Car Park (hub)	IW Council	No	Yes	No	No
Appley Car Park (hub)	IW Council	Yes	Yes	No	No
Aldi Lake	Private	Yes	Yes	No	No
Albany Road Redevelopment	Unknown	No	Yes	No	No
The Old Smithy & Gardens	Private	No	Yes	No	No
Tesco Westridge	Private	No	Yes	No	No
Yarmouth Car Park	IW Council	No	Yes	No	No
Arreton Barns Craft Village	Private	No	Yes	No	No
Aldi Cowes	Private	No	Yes	No	No
The Needles (hub)	Private	No	Yes	No	No
Freshwater Bay Car Park	IW Council	No	Yes	No	No
Tesco Express Lake	Private	No	Yes	No	No
Seaclose Park Car Park	IW Council	No	Yes	No	No
Osborne Car Park	Private	No	Yes	No	No
Freshwater Bay Car Park (hub)	IW Council	No	Yes	No	No

Solar

Sites that were identified as being appropriate for the installation of solar PV canopies were typically larger sites, with evidence of an electrical supply either on or near to the site. The most appropriate sites were also located near to buildings, where electricity generated by the solar PV canopies could be used to supply the buildings, as well as EVs. While smaller car parks could also potentially host solar PV canopies, the installation of the canopies would have a greater impact on parking availability and

potentially remove a small number of bays that would have a more significant impact than on sites with a greater number of spaces. Sites without an electrical supply could also benefit from solar PV panels, but they would most likely need to be accompanied by battery storage in order to allow EV chargepoints to utilise any electricity generated.

Wireless charging

Sites that were identified as being particularly appropriate for the deployment of wireless charging technology were locations where vehicles potentially spend a significant time but are unlikely to be completely stationary or unlikely to be able to access a conventional wired chargepoint under the normal parking behaviours associated with the site. Examples of this that have been identified include queues for ferry terminals, where the usage of conventional wired charging would prohibit an EV to join and maintain position in the terminal queue. Other examples include taxi ranks, where hackney carriage vehicles queue while plying for hire. In these cases, an EV hackney carriage driver would be prohibited from maintaining their position in the rank if their vehicle was plugged-in to a conventional wired chargepoint.

Vehicle-to-grid

Sites that were identified as being particularly appropriate for deployment of V2G technology were typically car parks attached to specific properties, where vehicles are likely to be parked for a significant period of time (e.g. workplaces). In these cases, V2G charging infrastructure would allow compatible EVs to supply electricity to the building, as well as to the grid. Research has shown that the business case for V2G is stronger when the technology is utilised primarily to provide electricity to buildings during periods of peak energy pricing, as opposed to being utilised to return electricity to the grid. This is especially the case where EVs have been charged using electricity from local renewable sources. The business case can be further improved by providing grid services such as Firm Frequency Response (FFR). V2G can also be utilised to mitigate costs that may arise from additional power required as part of a supply agreement with the distribution network operator (DNO).

Consultation
We would be interested in your views on where innovative solutions could be deployed, including offers from private site owners. Are there any other innovative solutions that you would like to see deployed?

11 Future on-street chargepoint provision

11.1 Introduction

It is assumed that households with driveways will choose to charge their EVs predominantly at home, with occasional use of the public network.

It is estimated that on the Isle of Wight, up to 37 per cent of homes (23,000 properties) have no access to off-street parking and will be completely reliant on public infrastructure or charge-sharing schemes.

Nationally, 40 per cent of properties do not have driveways and it's estimated that 19.7 per cent of existing on-street parking bays will ultimately need to be fitted with chargepoints to meet demand. People with disabilities or other mobility issues may prefer provision on-street because of the closer proximity to their homes and the difficulty of getting to and from their vehicle while it is charging.

On-street charging was previously considered to be predominantly overnight charging but changing work patterns, including more home working and flexible hours, suggest that people have greater choice in when they charge their vehicles. This suggests that infrastructure could be more intensively used with each chargepoint providing numerous charging sessions during the day as well as a single overnight session. This reduces the number of chargepoints required and provides a better return on investment. More home working could also reduce vehicle mileage meaning less frequent charges are required.

11.2 On-street chargepoint standards

In the national EV Charging Infrastructure Strategy, published in March 2022, a set of principles was identified to help integrate local chargepoints into the surrounding environment:

1. Chargepoints should not obstruct pavements or highways, or present a safety risk to pedestrians.
2. Cables will not be allowed to trail across the pavement unless adaptive infrastructure is provided to accommodate them safely e.g. gullies. Anything that creates a trip hazard does not constitute adaptive infrastructure.
3. Chargepoints must be incorporated into existing street furniture or parking bays wherever possible. In circumstances where it is not possible, priority must be given to ensuring that access to, and use of, pavements is not impeded and the safety of pedestrians is not jeopardised.
4. Parking spaces for EV charging will not be added in places where parking spaces are currently not allowed, nor where they would disrupt traffic flow, cyclists or pedestrians.
5. Chargepoint design and placement should meet accessibility standards and guidance.

11.3 Geospatial Insight (GSI) analysis

To understand where public residential charging infrastructure is most likely to be required, the South West Energy Hub commissioned GSI to carry out the following bespoke analysis for the Island:

- Using satellite and geospatial data, identify the properties that are unlikely to have off-street parking.
- Identify if these properties are within 200m of a council car park – in which case allocate the property to that car park for chargepoint provision.
- Identify the number of properties allocated to each car park, allowing the council to determine how many chargepoints will be required as a result.
- Identify properties that are not served conveniently from a council car park.

This analysis assumes that using council car parks for public EV chargepoint provision will be the most cost-effective and convenient solution and is therefore the first option. These will be known as residential charging hubs. Households without off-street parking that are more than 200m from a car park will require an alternative solution, potentially an on-street chargepoint where these can be installed safely and cost-effectively.

It should be noted that chargepoints need to be self-funding; therefore, where they are installed on-street there will need to be sufficient local demand for the chargepoints to break even.

GSI has analysed off-street parking provision in the Island's main settlements as follows:

- Bembridge
- Cowes
- East Cowes

- Freshwater and Totland
- Newport
- Ryde
- Sandown and Shanklin
- Ventnor
- Wootton Bridge

In each settlement, households that are unlikely to have off-street parking have been identified. It should be noted that this analysis is based on a measurement of the area available in front of the property and, therefore, will not be completely accurate. Some properties with large areas, potentially suitable for parking, will not have access from the road while other properties with small areas in front of the house may have use of a back yard where they can charge a vehicle. However, the analysis is approximately 90 per cent accurate which is a high enough figure for planning.

The council has decided that flats and apartments should be included in the properties that are not able to charge at their own property. This is due to the difficulty of providing chargepoints within shared private car parks.

The example maps below shows the properties that are unlikely to have a driveway marked in red in two settlement areas:

Figure 22: Properties without off-street parking in West of Newport town centre.

Figure 23: Properties without off-street parking in Wootton Bridge

A radius of 200m is then applied to all council-owned car parks to identify which of these properties can be adequately served by facilities in the car park, as shown by the different coloured circles below:

Figure 24: Properties served by council car parks in West of Newport town centre

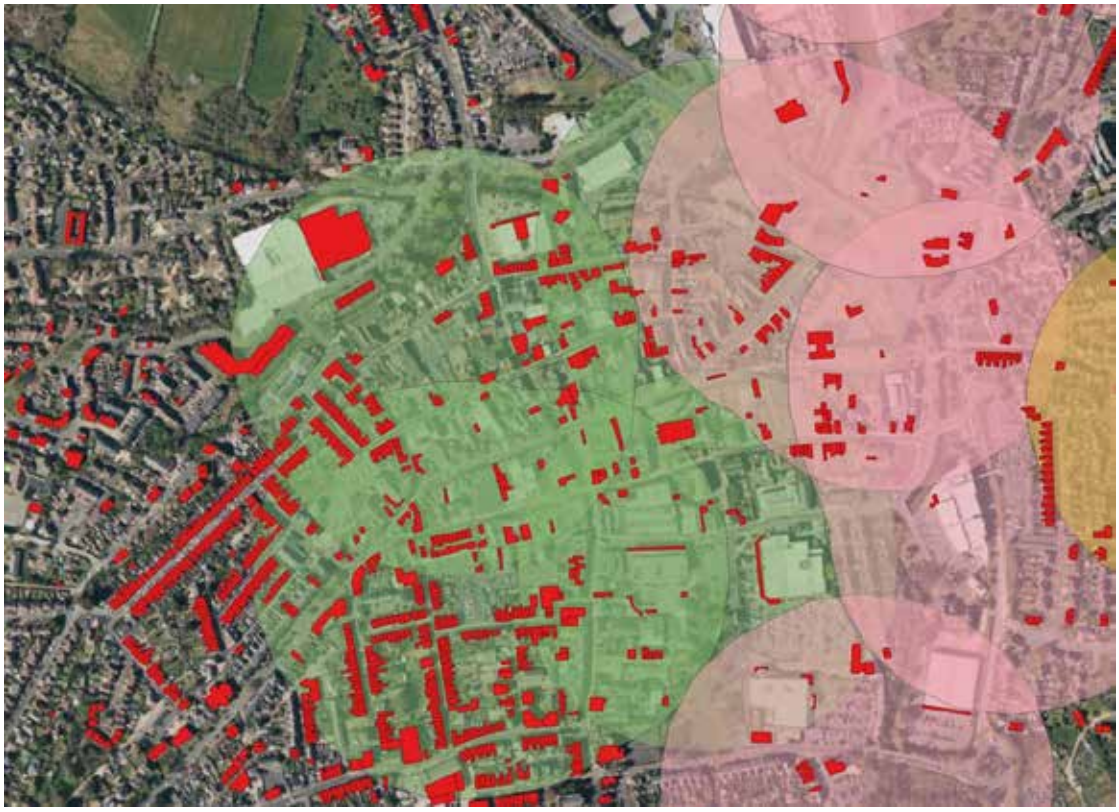


Figure 25: Properties served by council car park in Wootton Bridge

The 200m distance is consistent with that used for the resident car park permit and is considered to be a reasonable walking distance. The properties further than 200m from a car park (those not in a shaded area) can then be identified. The tables below show the results of this analysis for each of the settlements analysed, with the number of properties not served by car parks shown as 'Criteria 5'.

Table 19: Number of properties not served by chargepoint in council car park (Criteria 5).

Location	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5
Bembridge	2383	546	2	27	519
Cowes	7,630	2,993	4	1,021	1,972
East Cowes	4,217	1,765	1	104	1,661
Freshwater / Totland	4,789	3,125	6	729	2,396
Newport	11,688	4,035	14	1,616	2,419
Ryde	13,230	5,678	8	1,737	3,941
Sandown / Shanklin	11,926	4,895	12	2,150	2,745
Ventnor	4,015	1,919	11	1,279	640
Wootton	1,797	265	1	84	181

- **Criteria 1** – Number of residential buildings
- **Criteria 2** – Number of residential buildings with a 'low' probability of having a driveway
- **Criteria 3** – Number of Isle of Wight Council provided car parks
- **Criteria 4** – Number of residential buildings with a 'low' probability of having a driveway that are within the car park catchments
- **Criteria 5** – Number of residential buildings with a 'low' probability of having a driveway that are NOT within the car park catchments

When all the GSI analysis is combined, the results indicate clearly where the focus for on-street installations needs to be, as shown below:

Figure 26: Output of GSI analysis (Cowes)

It's the council's intention to complete the analysis for all settlements on the Island so that need can be fully determined, even in smaller villages.

The most suitable provision for the properties which are not served by a car park (that is, more than 200m away from the nearest car park) has yet to be determined. If numbers are very low, it may be reasonable to assume that the nearest car park will be used even if it is slightly further than 200m away. It may be that there are privately owned chargepoints in the area that can be used or there is a local scheme that allows residents to use private driveways for charging. Or it may be that a kerbside charger needs to be installed. Each area must be assessed individually and the appropriate solution identified.

The council will seek government funding for chargepoints in its car parks (residential charging hubs), for on-street solutions where these are appropriate, and to facilitate provision on private land where this provides the best solution.

- Proposal – when demand grows to suitable level, the council will seek a provider(s) who will install and run all residential charging hubs.

Consultation
We welcome your views on the methodology used for determining the location of chargepoints for those without private driveways. Could it be improved or can you suggest a different methodology?

11.4 Priority sites for residential charging hubs

Following the principle that the first choice would be to position the residential chargepoints in council car parks, the following sites have been identified by the council as being most suitable for residential charging hubs:

Table 20: Priority car park sites for residential chargepoint provision

Town	Location	Already installed or planned?
Shanklin	Orchardleigh Road Car Park	Yes
	Landguard Road Car Park	No
	Atherley Road Car Park	No
Lake	New Road Car Park	Yes
Wootton Bridge	Brannon Way Car Park	Yes
Newport	Lugley Street Car Park	No
	Chapel Street Car Park	Yes
	Medina Avenue Car Park	No
	Carisbrooke High Street Car Park	No
	Sea Street Car Park	No
Cowes	Cross Street Car Park	Yes
Ryde	Victoria Street Car Park	No
	Quay Road Car Park	Yes
	St. Thomas St (upper) Car Park	Yes
	Lind Place Car Park	No
Sandown	St. John's Road Car Park	Yes
	Fort Street Car Park	No
Yarmouth	River Road Car Park	Yes
Freshwater	Avenue Road Car Park	No
	Moa Place Car Park	Yes
Wroxall	St. Martin's Car Park	No
Totland	Totland Broadway Car Park	No
Ventnor	Wheelers Bay Car Park	No
	Central Car Park	Yes
	Pound Lane Car Park Car Park	No

- Proposal – for those without driveways, the council will seek to provide charging in council car parks in the first instance.

11.5 General approach to on-street provision

Where on-street chargepoints are required, the council will move forward through the following principles:

1. Install infrastructure ahead of demand – in order to give residents the confidence they need to purchase an EV.
2. Seek a chargepoint operator (CPO) to manage the on-street chargepoint network – as with off-street chargepoints, the council has decided that it does not have the resources or expertise to develop and manage a full public network and is not able to bear losses in the early years.
3. Utilise public funding – OZEV funding is available for on-street residential chargepoints until March 2023 and provides 60 per cent of the capital cost of installations. The larger LEVI fund should open to applications in spring and summer 2023 and will be the focus for the council.

- Proposal – the council will seek a third-party CPO to manage on-street chargepoints and will maximise funding from the private sector and government grants.

4. Focus on bollard-type chargepoints – there are a large number of on-street chargepoint solutions which are described in section 6.3. The council will initially focus on installing bollard-type chargepoints because they provide the required speed of charging, are robust and generally vandal-proof, are easily accessible and provide the highest levels of public safety. It is recognised that many of the other solutions are valuable in certain circumstances and all options will be kept under review.
5. Future-proofing - it can be cost effective to install a second base plate at each location so that an additional chargepoint can be installed when demand increases. This would increase the number of charging spaces at each on-street location to four. The council will need to secure additional grant funding either from government or the CPO for this solution.
6. Minimise street furniture – faster chargepoints can serve a larger number of vehicles, reducing the overall infrastructure requirement. The council will therefore seek to install fast (22kW) and rapid (50kW) chargepoints where possible. Both require a three-phase electricity supply and this is only financially viable on some parts of the low voltage network, so 7kW (single phase) chargers will remain an option. Also, there may not be space on the footway for rapid chargers which will therefore require a 'build out' where the kerb is moved further into the highway.

- Proposal – the council will focus on high powered chargepoints to minimise the amount of infrastructure required.

7. Avoid shopping streets – the council is not intending to install chargepoints in streets which are used primarily for retail. This is to ensure the swift turnaround of vehicles in parking bays outside shops and to discourage parking for longer than is absolutely necessary. However, it will consider requests from retailers for chargepoints on shopping streets and also recognises that there are many homes above shops which are likely to require public chargepoint facilities. It is hoped that the majority of this need will be provided from public car parks close to retail areas, but all requests will be considered on a case by case basis.

8. Safety standards – there is currently no national guidance for the design of on-street charge point installations. Transport for London has produced a document titled 'London's Electric Vehicle Charge Point Installation Guidance' (December 2019) which contains some useful ideas, although some of these are more relevant to busy city centres. Working with Island Roads, the council is considering a specification for future on-street chargepoints, as follows:

   - **Street lighting** – there should be adequate ambient street lighting of the chargepoint.
   - **Location** – not placed too close to junctions or crossings so that they negatively impact intervisibility.
   - **Cable location** – avoid locations where cables could be an obstruction or trip hazard.
   - **Set back of charging unit** – recommended minimum of 450mm to reduce risk of impact damage. However, the Island has installed the first phase of on-street chargepoints with a reduced set back and a post installed between the charger and the kerb. This prevents people trying to walk between the charger and the kerb and therefore reduces the trip hazard. There is potentially a higher risk of vehicle collision with the chargepoint, but this is mitigated by the post and bollards which act as protection. CPO's will have to take full responsibility for any infrastructure, including signposts and bollards, which are less than 450mm from the kerb.
   - **Footway width or pedestrians passing unit** – recommended - 2m; acceptable minimum - 1.5m.
   - **Accessibility for disabled users** – bays should be close to a pedestrian dropped kerb facility.
   - **Footway area** – should be level to allow easy access for wheelchair users.
   - **Other obstructions** – consider trees, cabinets, lamp columns, signs.
   - **Carriageway width** – 2.75m minimum lane width outside of bay and buffer zone to allow larger vehicles to pass safely.
   - **Bay width** – minimum bay width is 1.8m. However, recommended minimum to enable use by blue badge holders is 2.7m and these wider bays will be more useful for fleet vehicles.
   - **No buffer zone required for Hierarchy 4 roads** – Hierarchy 1,2 and 3 should consider a 0.5m buffer on case-by-case basis depending on speed, volume and type of vehicles.
   - **Other access needs** – the facility should not negatively impact other premises with access needs.

- Proposal – the council is considering adopting the standards outlined above for on-street charging bays in the majority of instances

11.6 Rural areas

As described elsewhere in this document, rural areas will present a challenge, particularly when there is no public car park in the settlement. The proportion of properties with driveways is likely to be higher in villages, but there will still be properties which can't install a private charger.

When demand is likely to be low, locations are not attractive to CPOs. This may be offset on the Island by high visitor demand in rural locations, although this can be highly seasonal. Other options are to require the CPO to install a balanced portfolio with more profitable chargers in towns subsidising those in rural areas or to apply for government funding to reduce the financial risk.

It may also be difficult to find a suitable location where chargers can be installed safely but are still accessible to users. This can only be locations where an adequate power supply can be installed.

Unless residents with a driveway are prepared to let others in the village use their private chargepoint, it may be necessary to rely on private landowners to make sites available. This could include owners of pubs, restaurants and visitor attractions.

Parish councils will have a key role to play, identifying local need and site options. Chale Parish Council has carried out a local audit to map all the properties in the parish without a driveway and, using the results, has identified a suitable location which will be convenient for the majority of those who need it.

Consultation
The council would like to hear from property owners in rural areas that could facilitate charging facilities for residents.

12 Utilising domestic electricity supplies

Charging at home is both cheaper and more convenient than using public infrastructure (unless the public chargepoints are free to use, such as at some supermarkets). Before the recent sharp rises in energy costs, domestic electricity could be purchased at approximately 16p per kilowatt hour (kWh) while public chargepoints charge approximately 30p per kilowatt hour (kWh). Those costs now stand at approximately 34p and 56p respectively (December 2022). There is also a differential on VAT, with domestic supplies subject to five per cent VAT and chargepoints having to charge the full 20 per cent.

To overcome this, residents without off-street parking will be considering how they can utilise their domestic supply to charge their car on the street. Some suggestions have been:

- to run a cable over the pavement at a high level;
- to run a cable across the pavement with a cable mat to prevent trips;
- to channel a cable under the pavement;
- where there is no pavement outside a property, to fit a chargepoint to an external wall and charge from this.

Residents have also asked whether it would be possible to reserve parking bays outside their property to facilitate charging. The Isle of Wight Council has not issued guidance on the use of charging cables crossing the public highway or footway and is not currently supportive of this solution.

However, it is aware that Hampshire County Council offers guidance to residents on the use of charging cables running from the house to the vehicle, which can be seen at Electric vehicle charging guidance for residents[22] and Portsmouth City Council also published guidance in June 2022[23].

Some areas, such as Swindon and Norfolk, are planning to use a permit scheme so that they know who is trailing cables across the footway.

In order to allow residents to use their own electrical supply, solutions exist that can either extend domestic cabling to the kerb without presenting a trip hazard or allow vehicles to be parked closer to a property i.e. on a dedicated driveway. In either case, the property supplying the charge to the EV should ideally be fitted with a dedicated 3 to 7 kW domestic chargepoint. This will maximise speed of charge, reduce likelihood of electrical faults and add smart functionality that is anticipated to be used in the future to reduce pressure on the grid.

22 www.hants.gov.uk/transport/electric-vehicles/ev-charging-guidance
23 www.portsmouth.gov.uk/services/parking-roads-and-travel/travel/safely-charging-your-electric-vehicle

The rest of this chapter explores some of the options that could be implemented and the council is keen to hear your views on these.

12.1 Cable channels and guides

Extending the domestic electrical supply to the kerb can be achieved using cable channels and guides. These are typically shallow trenches dug into a pavement, before being fitted with a cover that allows a charging cable to run through the channel without presenting a public health and safety risk in the form a trip hazard.

Strengths

- EV user can access domestic supply at domestic electricity rates, providing greater equity between those with off-street parking.
- EV user has ownership of charging equipment, increasing confidence in the technology.
- Mitigates capital and operating costs associated with purchasing, installing and operating public charging infrastructure.
- Costly and complex elements of traditional chargepoint installation are mitigated, including the need for extensive trenching to install electrical cabling and the need for a feeder pillar.

Weaknesses

- Unless a dedicated bay is provided, there is no assurance to the property owner that their EV will be able to park close enough for the domestic charging cable to reach from their property to their vehicle, which could lead to conflict over parking bays.
- No restrictions preventing property owner from running cables through the channel that are not intended for outdoor use, increasing the likelihood of tripping fuses and potentially presenting an electrical hazard to the public.
- For solutions with covers that can be removed or opened, this could present a trip hazard across the pavement width should the covering not be replaced or closed, respectively.
- Provision of cable ducting to kerb may create perception of dedicated parking bay when this is not the case.
- As yet unclear where public liability rests and who is at fault should a member of the public come to injury as a result of a cable being ran from a private property into the public realm.
- Capital costs of installing charging equipment and purchasing a lengthy charging cable will rest with the property owner.

The effects of extreme weather on charging cables will be a consideration as such events become more common.

12.2 Dropped kerbs

Dropped kerbs may be permitted to allow EV owners to park closer to their property and access their domestic electricity supply. This may typically apply where a property has a footprint extending between the edge of the building and the pavement that is large enough for a vehicle to be safely parked in accordance with highway design standards. However, it should be recognised that consent may need to be obtained from the local planning authority prior to forming a parking area and that a licence will need to granted by Island Roads on behalf of the local highway authority in order to allow a property owner to remodel the public highway so as to form a vehicle access. It is therefore recommended that pre-application planning and highway design advice be obtained from the local planning authority (**development@iow.gov.uk**) and Island Roads (**developmentcontrol@islandroads.com**) prior to commencement.

Strengths

- EV user can access domestic supply at domestic electricity rates, providing greater equity between those with off-street parking.
- EV user has ownership of charging equipment, increasing confidence in technology.
- Mitigating capital and operating costs associated with purchasing, installing and operating public charging infrastructure.

- Government consulting on proposals that would see all domestic chargepoints equipped with smart technology that would minimise impact on the local distribution network, as the number of EVs increases.
- Costly and complex elements of traditional chargepoint installation are mitigated, including the need for extensive trenching to install electrical cabling and the need for a feeder pillar.

Weaknesses

- Only applicable to properties with a footprint large enough for a vehicle to be parked.
- In many cases will require property owner to undertake a costly driveway conversion.
- If done at scale, significant lengths of kerb in certain neighbourhoods may eventually be dropped, potentially impacting pedestrian safety and integrity of the footway.
- Vehicles crossing the pavement presents a hazard to pedestrians and, done at scale, this hazard would be multiplied.
- Unless there is willingness to provide this service equitably and indefinitely to all residents, the benefits may be unfairly distributed to early adopters of EVs.

12.3 OxGul-e

This is one of the Go Ultra Low Oxford project trials which allows homeowners to take advantage of their own power supply. Utilising an extra-long EV charging cable and a dedicated Wallbox charge point, the project installs a special cable gulley in the pavement to prevent trip hazards for pedestrians.

Figure 27: OxGul-e cable channel

The channel is made from galvanised steel with brush attachments that keep the cable secure in the channel. It is installed with an anti-slip pavement surface on either side. It is expected that the total installation cost, once volume has been achieved, will be less than £1,000.

Different ownership models are being explored by Oxford along with a legal mechanism to allow the private installation in the public footway. The householder will be required to take out insurance to indemnify the local authority.

The project was trialled with five households which made informal arrangements with neighbours to enable them to park outside their homes when necessary. The pilot was considered a success and 30 more units are being rolled out to further evaluate the scheme.

This solution will not always be possible due to the requirement to maintain safe distances from other electrical equipment, but Oxfordshire County Council believe that the remaining hurdles can be overcome and this will be a viable solution in some circumstances.

Lancashire County Council is also trialling the use of cable gullies.

12.4 Solutions

The Isle of Wight Council does not currently have a policy which covers the use of charging cables outside the property. Despite various mitigation strategies, there is always a risk to public safety and the options will not be open to everyone. It is likely, therefore, that public infrastructure will still be required in the area, so public investment will not be avoided.

However, it is recognised that these approaches can lead to financial savings for households and could plug the gap in locations where on-street charging can't be installed cost effectively. The council could consider allowing these solutions for disabled drivers (blue badge holders) only, but this would require a chargepoint socket on the house and anyone purchasing the property in the future would not be allowed to use this if they did not qualify for a blue badge. The council could also consider cable gullies for very quiet streets where there is little footfall and for streets where houses are well spaced so there are not too many cables.

The council will also consider allowing a chargepoint to be installed within the boundary of a property and a cable run to a vehicle as long as it does not cross a footway and the car is parked directly outside the property without contravening any parking restrictions. It can't, however, guarantee that the parking space will always be available to the property owner.

- Proposal – once legal issues have been resolved, the council will consider allowing cable gullies in streets which are not in close proximity (200m) to car park chargepoints.

Consultation
What are your views on the use of cable gullies and dropped kerbs to facilitate at-home charging? Do you have any other ideas to facilitate at-home charging for households that currently do not have off-street parking?

13 Charging hubs

13.1 Introduction

Charging hubs, the electric equivalent of a petrol filling station, will have a variety of chargepoints offering different charging speeds, with a focus on rapid and ultra-rapid (100 to 350kW) charging. They are in accessible sites, usually adjacent to a main road with a high traffic flow, and sometimes incorporate waiting facilities such as a convenience store, pop up office space, meeting rooms, coffee machine, vending machines and exercise equipment. They can also incorporate digital screens with advertising or local community information.

Figure 28: Princes St Charging Hub, Dundee

They are designed for all motorists requiring a rapid charge and are of particular use to taxi drivers and delivery vehicles and other fleet vehicles that want to minimise downtime during the day. They may also be useful for blue light vehicles in the future. They are likely to have a higher level of security than general public infrastructure.

They can also be used for slower, overnight charging and a well-positioned charging hub can meet the needs of neighbouring streets which do not have off-street parking. They will not replace home charging because of price differential but may provide a vital service for those without off-street parking.

Charging hubs are very visible facilities and inspire confidence with the public. It is likely that a small number will ultimately be sufficient for the Island, alongside more traditional facilities.

If the site is suitable, a charging hub can incorporate solar canopies and battery storage. Solar canopies provide clean, renewable power and reduce strain on grid and are often supported by battery storage systems

Figure 29: Greenstation charging hub (Photo courtesy of Greenstation greenstation.no)

to maximise use of on-site generation. On-site generation insulates the facility from volatile energy supply prices and means the price to the customer can be kept more stable.

Charging hubs will require a significant power supply, the cost of which may be the critical factor in the final choice of location. They will also be subject to planning consent.

They could also be developed as more ambitious mobility hubs, offering a range of sustainable and active travel modes on one site – bus, EV charging, car club, bike/e-bike hire, package delivery hub etc.

Consultation
We invite suggestions for sites for charging hubs, including from those who think they might want to provide this type of facility or can offer land for a charging hub.

13.2 Case studies

Oxfordshire County Council has helped to develop residential charging hubs in car parks owned by district councils to allow residents to park for free and charge overnight. Each hub serves a radius equivalent to a five minute walk from the car park. An average of 12 EV bays are provided at each site. Tap and go contactless payments are available with an optional membership scheme to unlock cheaper tariffs. The chargepoints are load-balanced to reduce grid connection costs. Through an app, users can book multiple charging slots in advance. During the day, normal parking charges and length of stay rules apply. Under this system there will be a need to incentivise drivers to move their cars when they are fully charged and also to further consider safety and security measures at the charging hubs.

Figure 30: Oxfordshire Park and Charge hub
www.parkandchargeoxfordshire.co.uk

Barnsley MBC is concentrating on provision in car parks since the locations of car parks and terraced housing seem to coincide, especially in central locations. The charging hubs are accessible 24/7 and each one is expected to serve a radius of 500-700m. 7kW chargers are provided which are considered suitable for residential use and the project has found that most people charge an EV an average of 25 times a year, that is, approximately every fortnight.

14 Network development

The council's role in the provision of electric vehicle charging covers the following aspects:

- Provision of chargepoint infrastructure on council land with a third-party provider.
- Co-ordination of network development, identifying gaps in provision, and encouraging private sector provision.
- Promotion of grant schemes and other useful information.

14.1 Provision of charge point infrastructure on council land

As described in chapters 10 to 13, the council is proposing a strategic approach to the use of its assets for charging provision, to meet the needs of residents, business and visitors. This includes a network of fast and rapid chargepoints in its car parks and a logical approach to provision for people reliant on on-street parking, with car parks as the priority. It will also explore the possibility of establishing an EV charging hub in the near future.

Because of the high initial cost and financial risks, the council will seek third-party providers to finance and operate the chargepoints.

14.2 Co-ordination of network development

A fully developed network would consider the requirements of residents, visitors and businesses.

The council is therefore keen to engage with all stakeholders that are able to deliver EV chargepoints at key destinations. This includes tourist sites and visitor accommodation.

During the site identification and assessment work carried out by Cenex, 53 privately owned sites were longlisted, with a further five of unknown ownership that are also likely to be in private ownership. The top 23 privately owned sites that were assessed during the EV infrastructure mapping are shown in the table below:

Table 21: List of privately-owned sites, identified as ideal for EV charging infrastructure installation (Cenex).

Name	Ownership	Type	Use case	Rating
Lidl Shanklin	Private	Rapid	Destination	17
Morrisons Lake	Private	Rapid	Destination	17
Medina Yard Redevelopment	Unknown	Fast	Destination	16
New Red Funnel Ferry Terminal	Unknown	Rapid	Transit	16
Robin Hill Country Park	Private	Fast	Destination	15
The Needles	Private	Fast	Destination	15
Park Road Car Park	Unknown	Standard	Destination	15
Aldi Lake	Private	Rapid	Hub	15
Albany Road Redevelopment	Unknown	Standard	Residential	14
Blackgang Chine Theme Park	Private	Fast	Destination	14
Brading Car Park	Private	Fast	Destination	14
Morrisons Newport	Private	Rapid	Hub	14
Tapnell Farm Park	Private	Fast	Destination	14
The Old Smithy and Gardens	Private	Fast	Destination	14
Booker Wholesale Cowes	Private	Rapid	Fleet	14
Gunville Retail Park	Private	Fast	Destination	14
Park Road Car Park (hub)	Unknown	Rapid	Hub	14
Shanklin Station Car Park	Private	Rapid	Taxi	14
Waitrose East Cowes	Private	Rapid	Hub	14
Gulf Lushington Hill	Private	Rapid	Transit	14
Northwood Garage	Private	Rapid	Transit	14
Tesco Westridge	Private	Rapid	Hub	14
Arreton Barns Craft Village	Private	Fast	Destination	14

The privately-owned sites identified as being suitable for EV charging infrastructure installation broadly fall into one or more of the following categories:

- Supermarkets
- Retail parks
- Tourist and leisure destinations
- Privately owned car parks
- Privately run transport hubs
- Fuel stations

14.2.1 Supermarkets

Supermarkets represent ideal sites to locate EV charging infrastructure, in the same way that they are convenient locations for conventional fuel stations. On the Island, public chargepoints have been installed at supermarkets belonging to Tesco, Asda and Morrisons. The council is keen to engage with all supermarkets to understand their plans for EV charging, especially rapid charging infrastructure.

14.2.2 Retail parks

Retail parks are similar to supermarkets in being a good opportunity for EV charging due to the dwell time of shoppers. The most significant difference is that retail park charging could be operated by an organisation that is separate to the retailers based on the site. Again, the council is keen to understand whether any retail park operators are considering installing EV charging infrastructure and whether such sites could be used overnight for residential charging.

14.2.3 Tourist and leisure destinations

The primary benefit of installing EV charging infrastructure at tourist and leisure destinations is that, in many cases, these are locations where visitors stay for several hours. This provides an ideal opportunity for EV users to recharge their vehicle conveniently. Where visitors are staying for several hours, a tourist or leisure destination would not need to provide rapid charging, as a fast or even standard chargepoint could provide a meaningful charge in that time period. The provision of chargepoints can attract additional visitors.

Tourist and leisure destinations may also be situated in more rural areas of the Island, where few other appropriate sites exist for EV infrastructure to be installed. In these cases, the charging infrastructure could be made available to local residents to use overnight.

A recent report[24] has highlighted that network reinforcement will often be required to meet the increases in electricity demand from tourist EV charging. This is expensive and can take years to complete. It has looked at alternatives to network reinforcement that can be employed at visitor sites, including smart charging, local generation, energy storage, combined generation and storage and novel EV charging options such as ticketed charging, overnight charging services and park and ride.

24 Isle of Wight E-tourism: alternative solutions to network reinforcement, final report, Element Energy for SSEN, August 2022.

14.2.4 Privately owned car parks

Well-located privately-owned car parks can present a convenient site to install chargepoints. The council is keen to engage with the operators of private car parks across the Island to understand what plans already exist and how these contribute to the wider charging network.

The provision of EV charging can increase usage of car parks and generate new sources of revenue. The example below illustrates this:

Table 22: A worked example of how, under maximum utilisation, EV charging infrastructure can increase the revenue generated by a parking bay.
This example assumes wholesale electricity cost of 15p/kWh and chargepoint tariffs set at 20p/kWh (Cenex).

	Bay usage			
	Parking	Rapid charging	Fast charging	Standard charging
Typical time	3 hours	30 minutes	2 hours	6 hours
Parking revenue (£1.50/hr)	£4.50	£0.75	£3	£9
Net charging revenue (5p/kWh)	-	£1.25	£2.20	£2.10
Max users per 18-hour day	6	32	9	3
Max potential daily revenue	£27	£64	£46.80	£33.30

It's important that the type of infrastructure provided reflects the usage of the car park, with short-stay car parks favouring fast and rapid charging and long-stay car parks being more suitable for standard and fast charging. There is also the possibility of providing overnight charging for local residents that do not have off-street parking.

14.2.5 Privately owned transport hubs

Transport hubs, such as railway stations and ferry terminals, are some of the most ideal locations to install EV charging infrastructure. For railway stations, the provision of charging infrastructure allows EV users to leave their vehicles on charge while taking their journey.

Ferry terminals also represent ideal locations to charge EVs, as vehicles are already likely to be stationary for some time and, by using that time to recharge, can ensure they have enough battery charge to continue their onward journey. However, ferry terminals present a logistically challenging location to provide EV charging infrastructure. The queueing systems used at ferry terminals would need to be adapted to allow EV users to charge while waiting in the queue by, for example, adding EV charging bays at the front of the queue. In the future, ferry waiting lanes may be ideal situations in which to install wireless (induction) charging.

14.2.6 Rural charging

The council is interested in talking to those who can provide charging facilities in rural areas and would provide facilities for residents without private parking as well as their own customers and the wider visitor market. This could be pubs, shops, rural businesses premises, tourist sites, camp sites, community centres etc.

14.2.7 Fuel stations

In the coming years, fuel stations will inevitably need to consider how to repurpose their sites to maintain profitability as petrol and diesel vehicles are phased out. While the transition towards EVs could be perceived as a threat to the conventional business model of a fuel station, it also presents a significant opportunity, providing on-the-go charging. Providing EV charging infrastructure can provide a higher profit margin than petrol/diesel and the dwell time (10-30 minutes) can increase the value of the fuel station's retail offering. Ideally, infrastructure in fuel stations will be interoperable with the rest of the EV chargepoint network on the Island while also allowing ad hoc payment through contactless debit or credit cards.

Consultation
The council is keen to hear from all those who are, or are considering, providing charging infrastructure and to understand their target markets.
We would like to understand from filling station owners their plans for future provision and, in particular, whether they intend to provide EV charging.

14.3 Understanding fleet and commercial users

As part of the identification and assessment of the 137 potential EV charging infrastructure locations that were longlisted, each site was also assessed regarding its appropriateness for fleet and commercial vehicle users. The assessment considered:

- if the site was near to a large business or high density of small businesses, it could be used by employees to charge their vehicles while they are at work;
- whether it could be used overnight to charge fleet vehicles;
- if the location was likely to be visited regularly by fleet and commercial vehicles;
- sites suitable for the installation of high-powered chargers which provide rapid charging and reduce dwell time (identified as hubs).

For the purposes of this assessment, taxi and private hire vehicles were considered as being commercial vehicles and, therefore, sites near to taxi ranks or taxi operators were marked as appropriate for fleet and commercial vehicle use.

Table 23: List of potential EV charging infrastructure sites rated 14 or higher, considered appropriate for use by fleet and commercial vehicles (Cenex).

Name	Ownership	Type	Use case	Rating	Shortlist
Chapel Street Car Park	IW Council	Rapid	Hub	19	Yes
St Thomas Street Car Parks (hub)	IW Council	Rapid	Hub	19	Yes
County Hall	IW Council	Standard	Workplace	18	Yes
Carisbrooke High Street Car Park	IW Council	Standard	Workplace	17	Yes
Medina Yard Redevelopment	Unknown	Fast	Destination	16	Yes
Cross Street Car Park	IW Council	Fast	Destination	16	Yes
New Red Funnel Ferry Terminal	Unknown	Rapid	Transit	16	Yes
Quay Road Car Park	IW Council	Fast	Destination	16	Yes
St Mary's Hospital	NHS	Fast	Destination	16	Yes
Church Litten Car Park	IW Council	Rapid	Taxi	16	Yes
Cowes Enterprise College	Education	Standard	Workplace	15	Yes
Isle of Wight College	Education	Standard	Workplace	15	Yes
Park Road Car Park	Unknown	Standard	Destination	15	Yes
The Heights Car Park	IW Council	Standard	Workplace	15	Yes
Blackgang Chine Theme Park	Private	Fast	Destination	14	No
Booker Wholesale Cowes	Private	Rapid	Fleet	14	No
Gunville Retail Park	Private	Fast	Destination	14	No
Park Road Car Park (hub)	Unknown	Rapid	Hub	14	No
Shanklin Station Car Park	Private	Rapid	Taxi	14	No
Waitrose East Cowes	Private	Rapid	Hub	14	No
The Parade Cowes	Public	Fast	Destination	14	No

Consultation
The council would like to understand the needs of fleet and commercial vehicle users, in terms of sites and speed of charging.

14.4 Special requirements

There are a number of road users that require special consideration with regards to their charging needs. The main issues and solutions have been outlined below and the council is keen to consult further in order to inform this strategy.

14.4.1 Taxis – Hackney Carriages and private hire vehicles (PHVs)

The council is in a position to incentivise the provision of electric taxis. Through its licencing powers it could introduce requirements for zero tailpipe emissions and it could encourage the switch by providing suitable charging facilities.

Dedicated provision at taxi ranks would only support Hackney Carriages which are allowed to wait there, so at this stage provision in general public spaces is preferred. Taxi ranks may be a good location for induction charging in the future.

Rapid charging is essential for taxis and private hire vehicles. Those vehicles that do higher mileages will have to recharge during a shift, but do not want to impact their availability. 10-minute charging is ideal requiring current rapid (50kW DC / 43kW AC) or, even better, ultra-rapid (100kW+) charging. Charging hubs are the most likely locations for ultra-rapid charging so these need to be conveniently located for Hackney Carriages and PHVs.

Some local authorities are installing dedicated rapid chargers for taxis. Brighton City Council, where research showed that up to 70 per cent of taxi owners would be completely reliant on public charging, believes that 24 charging bays should be sufficient for the 900 taxis in the city. They are considering creating a membership scheme to provide a 'white list' of approved users so that the chargers are always available for taxis. Because it is unclear exactly how the taxi charging market will develop, Brighton is building in flexibility so that they can repurpose taxi charging spaces for other users, car clubs for example, if ultimately they are not required by taxis.

Sites for taxi charging need to be open 24 hours a day, easily connected to the electricity grid and avoid creating queues and road congestion. The rapid chargers must each have 3 types of connector to make them suitable for all vehicles.

Consultation
The council would be interested to hear from taxi drivers about any specific requirements.
The council is interested in suggestions of specific locations for taxi charging.

14.4.2 E-car clubs

In the sustainable transport hierarchy, shared transport is above private car ownership since it has the potential to take vehicles off the road, reducing emissions and congestion. Car clubs have been around for a number of years and provide a form of flexible and convenient car and van hire which can save users considerable sums when it means they do not have to purchase and run their own vehicle. Research has shown that car club members are more likely to engage in active travel and public transport use when they're not hiring a vehicle. On the Island, Co-Wheels and Enterprise offer car club services.

Increasingly, car clubs are using electric vehicles. In order to support car clubs, the council has dedicated parking spaces at Cross Street car park in Cowes and Quay Road car park in Ryde, and is willing to consider requests from car club operators for additional spaces. If the operators are willing to purchase all-Island parking permits for the vehicles, the council will consider allowing them to install charging points at these locations.

- Proposal – the council is considering allowing car club operators to install EV chargepoints at dedicated car club bays.

14.4.3 Blocks of flats with shared parking

While flats will usually have parking areas with room to install chargepoints, the permission of a freeholder or landlord of a property is required and can present a barrier that prevents a property leaseholder or tenant from installing a domestic EV chargepoint. There is no legal obligation for this permission to be granted. Installing a chargepoint in these circumstances can also be more complicated than a home charger on the outside of the property. From March 2022, the EV home charge grant scheme can be used to fund chargepoints and infrastructure in car parks owned by landlords; however, the council's analysis will assume that blocks of flats do not have charging facilities and will seek to provide these in local car parks.

14.4.4 Coach parking

For touring holidays, coaches will often park for a number of hours while passengers disembark to see local attractions. This is a good opportunity to recharge. Currently the electric coach market is not well developed and there is ongoing debate about whether electricity, or liquid or gaseous fuels such as hydrogen will be the best solution for coaches. However, the council will continue to monitor this situation and identify suitable areas for coach recharging as demand grows.

Currently coach parking is provided at Coppins Bridge, Newport, Quay Road, Ryde, Fort St, Sandown, Winchester House, Shanklin, Atherley Road, Shanklin, Spa Site, Shanklin, Vernon Meadow Shanklin, Dudley Rd, Ventnor (managed by Ventnor Town Council) and River Road Yarmouth.

Consultation
The council is interested to hear of any imminent demand for coach recharging and where this might take place.

14.5 Promotion of grants and information

In order to support the development of the Island charging network, the council will provide information on grants schemes available to individuals and businesses and signpost to useful resources, such as those provided by the Energy Saving Trust[25].

25 All you need to know about electric vehicles - Energy Saving Trust: **energysavingtrust.org.uk/advice/electric-vehicles**

14.6 Booking system

EV drivers will be familiar with online systems such as zap-map.com which show the locations of chargepoints and provide information about their power rating and availability.

The national EV Infrastructure Strategy is keen that, in future, information is readily available to users in a simplified format so that they can easily compare pricing across networks. The council will monitor the development of national databases and systems.

It will also consider developing bespoke services such as booking systems for residential charging points which gives users the security of knowing that a chargepoint is available and allows the council to restrict use to eligible residents. It will need to work with CPOs to develop a system of this type and may require external funding.

15 Tariffs

15.1 General considerations

Users of Electric Vehicle Chargepoints (EVCPs) pay either a price per unit of electricity consumed or a connection fee plus a price per unit. Connection fees are becoming less common.

Chargepoints have a number of fixed costs – repair and maintenance, insurance, back office system, payment processing fee – which means that the cost to the user will be considerably higher than the standard electricity supply cost.

Having been stable for many years, the electricity supply price has since become very volatile, rising from approximately 16p per kWh to a peak in excess of 50p per kWh. It's likely that the price will settle for the immediate future somewhere in the middle, but this means that the cost of using a chargepoint may increase from the normal 25 to 30p per kWh to over 50p per kWh or even higher. Rapid chargepoints will be more expensive to use than standard or fast chargepoints, with many now charging more than 60p per kWh.

The council will be using third-party providers and will therefore have little control over the cost to customers, although it is assumed that market forces will determine the charge. Most CPOs try to maintain parity across their national network; therefore, the Island will not be penalised by local factors. CPOs also try to restrict price increases to two times per year so, while there is volatility in the market, there will be some certainty for users.

While some providers, notably supermarkets, are offering free chargepoint use, the high cost of electricity has cast doubt on whether this will continue.

15.2 Comparison of home and public charging costs

Those charging at home can benefit from normal domestic tariffs, including discounted off-peak tariffs. Many suppliers are now offering special EV tariffs which include an off-peak tariff, thereby encouraging households to charge overnight when there is less strain on the grid. Domestic supplies attract five per cent VAT. Those charging at home will, however, have to invest in the installation of a chargepoint and it is recommended that this is a bespoke 3kW and 7kW chargepoint fitted to the exterior of the property rather than using a normal 240V domestic socket.

Public chargepoints incur a number of fixed and variable costs and also have to charge VAT at 20 per cent. CPOs also require a return on investment for the units which can cost up to £10,000 to install (or £30,000 for a rapid chargepoint).

15.3 Isle of Wight tariffs

Through its agreement with Joju/Mer, tariffs for both the on-street and off-street chargepoints will be set initially at the following rates:

- Fast charge (7kw and 22kw AC) - 56p per kilowatt hour
- Rapid (43kW AC / 50kW DC+) - 72p per kilowatt hour

While the operator will attempt to keep prices stable, volatility in the electricity supply market may lead to frequent changes in tariffs, including increases over current levels, which users should be aware of.

16 Payment methods

The Government is encouraging local authorities to deploy 'true instant access' chargepoints. From 2023, infrastructure of 7.1kW or faster that receives public funding will need to accept contactless payment.

Alternative Fuels Infrastructure Regulations (2017) requires EV chargepoint network operators to provide a means of using charging infrastructure without first having to sign-up to a membership service.

Many interpret this to mean contactless on-screen payments using a debit card and this is available on many rapid chargepoints, but it is a relatively expensive form of transaction and processing costs will be passed on to the customer.

Use of RFID cards and payments through a mobile app are alternative forms of instant access. While it is necessary to sign up to a network to access these and to link the account to a bank account, this is normal procedure for many modern transactions. Through the app it is possible to open an account when arriving at the chargepoint and beginning a charging session immediately.

CPOs report that most people are happy to use the app for payment. EV owners are generally digital literate and are probably using apps to locate chargepoints. Once set up, use of the RFID card or app is very simple process.

- Proposal – the council will ensure that future chargepoints installed on its land have an instant contactless card payment option.

17 Parking charges

Parking charges apply in the majority of council owned car parks.

Short stay car parks are located near to town centres. Tickets can be purchased for periods of between 30 minutes up to the maximum stay which is three hours.

Long stay car parks are located in all towns on the Island. Payment can be made for periods of between 30 minutes up to 10 chargeable hours. Should extended periods be required, payment should be made using the PaybyPhone system.

The council has a small number of free car parks at Brooks Close, Bembridge, Steyne Road, Bembridge, Warnes Lane, Brighstone, Godshill Car Park, Godshill, Royal Exchange, Newport, St. Helens' Green, St. Helens, Eastcliff, Ventnor, Wheelers Bay, Ventnor, and St. Martin's Rd, Wroxall. These offer free parking at all times.

On-street pay and display locations are provided in two designations:

- **Short-stay** – Pay and display parking is available for up to two hours within Newport and also St Mary's Road, Cowes to promote a higher turnover of spaces within the town centres.
- **Long-stay** – Pay and display parking is available for periods of between one hour to all day at Cowes Esplanade, Culver Parade, Sandown Esplanade, Shanklin Esplanade, Ventnor Esplanade, Ryde Esplanade, North Walk, Canoe Lake Road and Yarmouth Common.

The majority of on-street parking in residential areas is free of charge.

The council does not currently apply a parking charge to vehicles that are using the chargepoints in council car parks. This was a decision taken a number of years ago to encourage EV ownership.

It is not the council's intention to introduce parking charges for EV charging where a parking charge does not already exist, for example, in residential streets or free car parks. It is the intention to work with the existing parking charge system as far as possible, but the council recognises that consideration needs to be given to those that are being directed to use chargepoints in car parks and other chargeable spaces that were not having to pay for parking previously because they generally park on-street, outside or near their home. Parking charges add to the financial burden for those that can't benefit from domestic electricity tariffs and have to pay for public charging.

However, as the charging infrastructure in council car parks expands, the potential loss of income from free parking will become more significant. There is also a loss of parking spaces as EV bays need to be wider, generally requiring three existing bays to be converted to two EV charging bays.

The council has considered a number of options:

1. To formalise the existing arrangement so that there will be no parking charge applied to vehicles that are plugged into charging points – over time, this will have an impact on council parking income of as much as £1,064 per parking space per year. Therefore, it's proposed that the current arrangement will last until 31.12.24 in order to help with the transition to EVs and recognising the current cost of living squeeze. From 1 January 2025, parking charges will apply. It may, however, be possible to continue to offer free parking while charging in the least busy car parks where loss of income to the council will be minimal. Profit-share income from the chargepoint can also offset some losses from parking charges.

- Proposal – the council will consider not applying a parking charge to vehicles that are using the chargepoints in council car parks until 1 January 2025.

2. To require EVs that are charging to pay the parking fees that currently apply in the car park or street (as well as the cost of using the chargepoint) – it is not the intention to increase the number of spaces that require a parking fee to be paid so this only applies to spaces that currently attract a parking fee. This may be the cheapest option for vehicle owners that only use EV charging bays occasionally.
3. To extend existing parking permits to include EV charging bays –while it would allow the holder to use general bays as well, this will be an expensive option for those who only want to use the EV charging bays and have no need for the general bays. All existing permits will be extended to allow the use of the charging bays as well as standard parking bays for those who wish to purchase these permits.
4. To introduce a range of new parking permits at reduced rates which allow the use of EV charging bays. Because charging events are likely to become less frequent as the range of vehicles increases – perhaps only once a week or fortnight – these will be at a lower cost that existing permits. They will, however, only allow parking in EV charging bays. It is anticipated that these households will use free, on-street parking for the rest of the week.
5. To increase the tariff for EV charging to include a parking charge – this would be at the discretion of the CPO which may be unwilling to change their back office systems or collect money for the council. It will also confuse the tariff charges when CPOs are trying to standardise these.
6. To introduce a new parking permit which covers the cost of both parking in a dedicated bay and charging the vehicle i.e. the cost of the EV charge is included in the cost of the permit – this would also require CPO collaboration, (see option 5 above).

A range of permits are currently available as shown below:

Table 24: Existing parking permits offered by Isle of Wight Council.

Permit	Cost (for 2022)	Restrictions
Resident permit – residential permit zones	£72 for first vehicle and £100 for second vehicle	For roads (resident parking zones) specified in schedule one of the Isle of Wight Council (Residents' Parking Places) Order. Can't be used in any other limited waiting or pay and display parking bay. Maximum of two permits per address.
Resident permit – pay and display	£72 for first vehicle and £100 for second vehicle for designated streets and esplanades*. £199 for first vehicle and £265 for second vehicle in named car park.	For street or esplanade that has pay and display parking or within 100m radius of Cowes Parade Within 200m radius of a car park. The permit is only valid in the named car park. Maximum of two permits per address.
All Island car park permit	£540 upfront payment for 12 months or £60 per month by debit or credit card	24/7 parking in most long-stay off-street car parks and up to two hours in short-stay car parks.
Tourist permit – cars	Two days £15.10 Three days £22.70 Four days £30.20 Seven days £52.90 Fourteen days £105.80	For vehicles that can park wholly within a standard car bay.
Tourist permit – coach or oversize vehicle	Overnight £12.60 Four days £56.20 Seven days £98.30	For vehicles that need to park within a coach / oversize vehicle bay.
Blue Badge	£10 (for new badges and renewals)	Allows up to eight hours free parking in off-street long stay car parks and up to three hours free parking in off street short-stay car parks. Follow national regulations in all on-street locations.

A resident of the following locations can purchase a permit to park in the pay and display on-street area in which they live. The permit will not be valid for parking in any other location:

- High Street, Newport
- Holyrood Street, Newport
- Lugley Street, Newport
- Pyle Street, Newport
- Quay Street, Newport
- Orchard Street, Newport
- Esplanades

The council is considering the following pricing structure for EV charging bays to be applied from 1 January 2025:

1. There will be no parking charges for EV charging bays on streets or in car parks which do not currently attract a parking charge.
2. All existing permits (see table above) will allow parking in EV charging bays in areas covered by the permit at no additional cost.
3. Blue badge holders will not incur a parking charge for EV charging bays in any locations.
4. Resident EV permit – if living within 200 metres of a car park, pay a proportion of current costs for use of charging bays only in a named car park. The cost is still to be determined, but some examples are shown below:

	First vehicle	Second vehicle
25 per cent of cost of resident permit	£49.75	£66.25
50 per cent of cost of resident permit	£99.50	£132.50
75 per cent of cost of resident ermit	£149.25	£198.75

5. All-Island EV permit – allows parking in any off-street charging bay. The cost is still to be determined, but some examples are shown below:

25 per cent of cost of resident permit	£135
50 per cent of cost of resident permit	£270
75 per cent of cost of resident ermit	£405

6. Those that do not have a permit will be required to purchase single parking tickets for their charging session.
7. Parking in all EV charging bays can only take place while the vehicle is receiving a charge from the chargepoint. It is the driver's responsibility to move the vehicle once the charge is completed, otherwise a penalty notice will be issued.
8. There may be further restrictions on the duration of stay in the bays which will be clearly signed (see chapter 17).

Consultation
What are your views on the parking charge policy described? Can you anticipate any unintended consequences, such as vehicles using charging bays when they have no real need?

18 Parking regulations

Chargepoint parking requires consideration of the power output and charging speed rather than just traditional permitted parking durations.

Traffic orders are required to enforce regulations. These are essential to ensure that designated bays are available for charging and that vehicles do not stay longer than necessary to acquire a charge. This ensures a regular turnover of vehicles and maximises use of the chargepoints.

In the context of EVs, traffic orders can be implemented that prevent petrol and diesel vehicles from parking in front of a chargepoint – an occurrence commonly referred to as ICE'ing (referring to the Internal Combustion Engine). Ensuring that access to public charging infrastructure cannot be blocked by vehicles that are not using the chargepoint is important to inspire confidence in the charging network. Traffic orders can be used to implement EV-only bays, which allow local authorities to issue penalty charge notices (PCNs) to non-EV users that park in the bay. Government has recently stated (March 2022) that it will consult on measures to make Traffic Regulation Orders more straightforward so as to remove barriers to chargepoint deployment.

The council uses Parking Places Orders (PPOs) to describe restrictions on parking in council car parks and Traffic Regulation Orders (TROs) are the legal mechanism by which it determines how public highways and footways are to be used, and the legal basis upon which their usage can be enforced. PPOs and TROs are required to set and enforce parking restrictions that can include maximum permitted parking durations, no return periods, vehicle type, time of day and parking permit requirements.

18.1 Off-street parking

The council's current PPO, which covers all off-street car parks, includes the following restriction for Electric Vehicle Bays:

> **Where bays within a parking place are designated for electric vehicles to recharge their supply, no vehicle shall wait within the bay unless the vehicle is a plug-in electric or plug-in hybrid electric motor vehicle and wait for no longer than the hours specified by the signs.**

This allows the council to determine how long a vehicle will be allowed to stay in an EV charging bay in each of its car parks. It should be noted, however, that whatever the time limit, the vehicle can only remain in the bay while it is receiving a charge from the chargepoint. Therefore, drivers must ensure that the vehicle is moved before it is fully charged or, in the case of overnight parking, by 8am the following morning.

The existing PPO will apply to all new chargepoints that the council installs in any of its car parks. It has the ability to vary the existing waiting restrictions in the EV bays so that, for example, it can allow a longer than normal length of stay in its short stay car parks.

Therefore, suitable regulations are already in place to allow the roll out of further chargepoints in off-street locations.

The Cenex report considered optimal restrictions for parking, according to the speed of the chargepoint.

18.1.1 Duration of stay

If standard 7kW charging equipment is installed, EVs will receive roughly 25 miles of charge every hour. While the majority of EVs may take eight hours to fully charge at this rate, a Tesla Model S – which has the largest battery of any current production EV (100kWh) – would receive a full charge in around 15 hours.

Fast 22kW charging infrastructure would provide roughly 75 miles of charge in an hour. For the highest spec Tesla Model S, this would provide a full charge in around four and a half hours and, for an average EV currently on sale, a full charge could be provided in under three hours. A further consideration to make, specifically regarding fast 22kW charging infrastructure, is that certain EVs are not able to accept the full 22kW power from the chargepoint. This varies from one vehicle to another and, for some EVs, 22kW charge capability is specified as an optional extra. For this reason, it may be sensible to provide some extra time to allow vehicles that are not compatible to still receive a meaningful charge.

Rapid 50kW chargepoints can provide around 90 miles of charge in half an hour. Even so, a Tesla Model S with a 100 kWh battery would still require roughly two and a half hours to receive a full charge. However, for an average EV on sale in 2019, a full charge could be provided in roughly 90 minutes. Predicting the exact time required to receive a full charge on rapid and ultra-rapid charging infrastructure is more complex than for standard or fast charging, as different EVs manage how they receive a rapid charge. When using a rapid or ultra-rapid chargepoint, an EV will typically slow the rate of charge until the battery reaches 20 per cent capacity, before increasing the power to the highest amount available and then reducing the speed of charge once more when battery capacity reaches 80 per cent. As a result of this, the fastest charge can usually be received between 20 per cent and 80 per cent state of charge and it is often quoted that a rapid charger will get a battery to 80 per cent charge in 30 minutes.

It should also be considered that, in most circumstances, EV users will not typically begin a charging session with their batteries at or close to zero per cent state of charge. A recent survey suggests that, on average, batteries have 30 per cent of their charge remaining when they are plugged in, which means the time needed to top up to full charge will be less than that described above and is likely to be, for the average EV, no more than:

- 7kW - six hours
- 22kW - two hours
- 50kW+ - under one hour
- 100kW+ - under 30 minutes

18.1.2 No return period

'No return periods' are required to ensure charging infrastructure is not monopolised by a small number of users, behaviour commonly referred to as 'blocking'. This would reduce the utilisation of the chargepoint and, in some cases, may cause conflict between EV users.

Provided that EV users are permitted to park and charge for a long enough duration to receive a meaningful charge, they should not need to return to that bay again for many hours. A no return period of 12 hours could be set, ensuring that EV users could not return to the chargepoint within 12 hours of when their previous charge ended. For many users, this would mean that they could use their vehicle during the day and charge once during the evening.

However, implementing a no return period of longer than, say, four hours may prevent high mileage users from recharging as frequently as required. For example, commercial fleet vehicles that regularly stop near to a given fast chargepoint may not be able to use it when most convenient and therefore may not be able to complete their shift as intended.

With the speed at which a rapid or ultra-rapid chargepoint delivers a charge, it is unlikely that an EV would require use of a chargepoint more than once in a given day. There may be some exceptions to this, where EVs drive a high daily mileage on a regular basis (e.g. taxi and private hire vehicle) but, even in these cases, it is unlikely that an EV would receive a rapid charge and then require another charge soon after. A no return period of two hours is considered acceptable for rapid chargepoints to allow a high turnover and use by as many vehicles as possible.

18.1.3 Active hours

While the EV-only bay should remain EV-only at all times, the permitted parking duration and no return period could be enforced only during specific hours of the day.

This would mean that people did not have to move their vehicles during the night when the permitted length of stay had been reached. Many users would potentially not begin their charging session until they returned from work, for instance, after 6pm and it would be late at night before the permitted hours limit was reached. It is considered unreasonable and unsafe to expect drivers to move their vehicles at this time. On the other hand, with the extended parking durations recommended for standard chargers, users who begin charging in the afternoon could effectively leave their vehicle in the bay until the following morning.

Alternatively, the parking order could remain active at all times. This would present two issues. Firstly, it would dissuade people from charging their EV overnight because of the need to unplug and move their vehicle at an unsociable hour. Secondly, it would require civil enforcement officers to patrol the area overnight.

Imposing the TRO between the hours of 8am and 8pm would prevent EV users remaining plugged-in from the early afternoon through to the next day but would also still allow EV users to charge overnight. It is proposed that the active hours criteria is the same for all chargepoints, regardless of speed.

However, it is recognised that, while demand for rapid charging is considerably less during the hours of 1 to 5am[26], there is still a significant enough demand that inconvenience may be caused were a rapid charger to be inaccessible during these hours. It may also be sensible to assume that EV users charging their vehicle during these hours would not do so if they had a reasonable alternative, and therefore the availability of rapid chargepoints during these hours may be of great importance to a small number of EV users. These users may include, for example, taxi and private hire drivers and commercial fleets. The active hours for rapid chargepoints will therefore be kept under review and may be imposed overnight if automated enforcement systems become available. These could include:

- **Overstay charges** – if a vehicle remains plugged-in longer than a set period of time, it is detected by the chargepoint and the user is charged extra, depending on how long they stay.
- **Vehicle detection systems** – parking bays can be fitted with vehicle detection systems (typically mounted either under the road surface or on the ceiling of an indoor car park) that gather data on whether a vehicle is parked in a given bay.
- **ANPR systems** – using cameras to read the vehicle registration marks and identify vehicles that breach a parking restriction.

With a combination of different approaches, EV-only bays can be enforced without the involvement of a civil enforcement officer, allowing Parking Orders to remain active over long periods of time without the requirement for officers to work unsociable hours or the associated costs of supporting constant enforcement.

18.1.4 PPO recommendation

In all cases, it is recommended that parking bays adjacent to EV charging infrastructure are only permitted to be used by EVs.

The council proposes to vary the restrictions according to the type of chargepoint provided in each car park, that is, whether it is a standard, fast or rapid charger. The restriction will reflect the speed of charge and likely users of the charger. The council will focus on the provision of fast and rapid chargers so these restrictions are expected to be most common, although there may be a small number of places where 7kW standard chargers are installed.

In all cases the restrictions will be posted close to the chargepoints. In the short-term, while parking for EV charging is free, maximum stays will be specified but the EV owner must move their vehicle before this limit if it has completed its charge. Once parking charges begin, the maximum stay will apply in all cases.

26 UK Office for Low Emission Vehicles, 2017. Electric chargepoint analysis 2017: Local authority rapids (revised) **assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/764265/electric-chargepoint-analysis-2017-rapids-revised.pdf**

Table 25: Proposed parking regulations for different chargepoint types.

	7kW	22kW	50kW+
Permitted parking duration	Six hours	Three hours	One hour
No return period	Twelve hours	Four hours	Two hours
Active hours	8am to 6pm	8am to 6pm	8am to 6pm
Type of charger	Standard	Fast	Rapid or ultra-rapid

For clarity, vehicles will be permitted to charge between the hours of 6pm to 8am (overnight) and there will be no restrictions on length of stay between these hours.

Where a mixture of chargers is provided in the same location, we propose applying different permitted stay periods to individual bays, depending on the power of the charger. The existing PPO allows this degree of flexibility.

These restrictions apply to council car parks. If the council facilitates the development of privately-run charging hubs on its land, it will be up to the operator to determine the parking restrictions, although the council will try to ensure that local residents without off-street parking are catered for.

Consultation
Are the suggested parking restrictions proposed suitable for EV charging bays in off-street locations? Can you think of any situations in which alternative restrictions could be applied?

18.2 On-street parking

As part of the on-street residential chargepoint project, an experimental TRO has been introduced. This limits parking in designated bays to EVs only and limits the length of stay to a maximum of four hours, with no return within four hours, between 8am and 8pm. Between 8pm and 8am (i.e. overnight) there are no time restrictions so a vehicle can stay in the bay charging overnight. This is the same for both standard and fast chargepoints.

Subject to public reaction to the experimental TRO, the approach to on-street parking can be formalised through a Permanent TRO which will then be applied to new, on-street chargepoints, including those in Esplanade locations.

18.2.1 Recommendation for TRO

Table 26: Proposed TRO for on-street chargepoints

	7kW	22kW
Permitted parking duration	Four hours	Four hours
No return period	Four hours	Four hours
Active hours	8am to 8pm	8am to 8pm
Type of charger	Standard	Fast

In some locations, where there are existing parking restrictions, these will also apply to on-street EV bays. For example, Quay Street in Newport, has a maximum stay of two hours and active hours between 8am to 6pm. To avoid confusion amongst local residents who use these bays, the existing restrictions will remain.

Consultation
Are the suggested parking restrictions suitable for EV charging bays in on-street locations? Can you think of any situations in which alternative restrictions could be applied?

18.3 Provision in resident parking zones (RPZs)

The on-street residential chargepoints have to date been located in areas that are not covered by resident parking zones (RPZs), where parking pressures are currently at their greatest. Requests for chargepoints have already been received from residents in the RPZs and, over time, this will increase. It should be possible to install chargepoints under the existing parking restrictions but these need to be reviewed to check if they are compatible with normal charging times. A roll out strategy also needs to be considered carefully as there is likely to be more criticism in these areas if charging spaces are left empty for long periods of time.

The council will, in the first instance look to provide chargepoints in local car parks which can be used by residents who do not have a driveway. Where there is no car park within 200m or, in other special circumstances, the council will consider installing chargepoints within RPZs. It will consider fitting slower chargepoints e.g. 7kW bollards or lamppost chargers to discourage the general public from parking in RPZs simply to use the chargepoint, since the 2 hour parking limit will not provide a useful charge.

Consultation
What are the best options for chargepoint provision and control in resident parking zones?

19 Planning policy

In its role as local planning authority, the Isle of Wight council wishes to see charging infrastructure provided as widely as possible, as it supports the use of electric vehicles as a way of assisting the journey to net zero. Planning policy needs to help facilitate the roll out of EV charging infrastructure and the emerging Island Planning Strategy (IPS) review provides the opportunity for this. The draft IPS therefore includes Policy T5 relating to electric vehicle charging:

T5 electric vehicle charging

To encourage and promote the use of ultra-low emission vehicles the council will support and facilitate the introduction of electric charging points, facilities and associated infrastructure in appropriate public places and on previously developed land. Development of community charging infrastructure and facilities should use the Isle of Wight chargepoint infrastructure strategy to inform the proposal.
Proposals for new residential and non-residential development will be required to provide infrastructure for the charging of electric vehicles in line with the building regulations requirements S1 to S6 inclusive.

The Government has recently approved changes to the building regulations that require electric vehicle chargepoints for residential and non-residential buildings. All new development will be expected to adhere to requirements S1 to S6 as set out in Part S of schedule one where relevant, noting the transition arrangements published in circular letter (February 2021). The council will welcome proposals that incorporate higher levels of provision than that set out in the building regulations.

Where proposals are for the installation of chargepoints and associated infrastructure on the public road network, particular consideration will be given to their impact on the streetscene, especially in conservation areas, including colour. Furthermore, their location should not prevent ease of movement for pedestrians or those with mobility needs or create 'street clutter'.

For larger charging hubs, the council will encourage the use of previously developed land (e.g. redundant petrol filling stations) and support proposals that are sustainably located, do not have a detrimental impact on road safety and represent high quality design.

Consultation
Do you think the council should require higher levels of chargepoint provision in non-residential developments?

19.1 Creation of home charging facilities

There is likely to be an increase in householders wanting to create new parking space(s) within a property curtilage with dropped kerbs to allow electric charging.

There are two aspects for any householders to consider:

- **Necessity or likelihood of obtaining planning permission for a dropped kerb**
  Residents should review islandroads.com/our-highway-service/managing-the-roads/applications-for-dropped-kerbs for dropped kerbs; and www.iow.gov.uk/Council/OtherServices/Dropped-KerbsCrossovers/Faqs to ascertain key information, including the minimum size of any parking spaces created.

- **Surfacing of any parking space created**
  Should a new off-street parking space be created within the curtilage of a property, if over five square metres of non-permeable surfacing is proposed, planning permission may be required. Further information can be found at www.planningportal.co.uk/permission/common-projects/paving-your-front-garden/planning-permission
  To assist with reducing the risk of flooding and managing impact on the combined sewer network, any parking spaces created should ideally be constructed of porous or permeable surface materials or constructed so that surface water run off drains to a porous or permeable surface within the property rather than onto the highway.

Consultation
Do you think there should be any changes to rules around the creation of off-street parking spaces to facilitate EV charging at home?

19.2 Public charging infrastructure – permitted development rights

The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011 introduced permitted development rights for EV chargepoints in off-street public and private car parking areas (Part 2 Class D and E).

Specifically, chargepoints can be installed, altered or replaced in areas of off-street parking as 'permitted development' (i.e. without the need for planning permission) if:

- they are not within two metres of the public highway;
- 'upstands' (i.e. bollards) do not exceed 2.3 metres in height, or 0.2 cubic metres if wall-mounted;
- they are not within a site designated as a scheduled monument, or within the curtilage of a listed building;
- there is not more than one upstand for each parking space[27].

The amendment also clarified that local authorities could install on-street chargepoints as permitted development, in a similar way to other street furniture (Part 12, class A).

27 HM Government, 2011, The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011: **www.legislation.gov.uk/uksi/2011/2056/introduction/made**

20 Accessible chargepoints

20.1 Introduction

Drivers with a disability may have challenges using public chargepoints. These problems relate to the height of the equipment, carrying heavy charging cables, kerbs and anti-collision bollards which can prevent access to the chargepoint unit. There also needs to be adequate space around the chargepoint for manoeuvring with a wheelchair. Normal EV charging bays are not as wide as those required by disabled drivers and bays restricted to disabled charging only are very rare.

The national EVCI strategy states that everyone, including disabled drivers, should be able to use the public network with ease. This includes both the chargepoint unit itself and parking bays dedicated for EV charging. In partnership with Motability, the government has commissioned the British Standards Institute (BSI) to develop charging standards to improve disabled people's experience when using public EV chargepoints. This has recently been published as PAS 1899:2022 and the council is currently reviewing the contents. Design guidance and best practice from this publication will be incorporated into the council's specification.

It is important that the deployment of charging infrastructure is inclusive to all different types of drivers to ensure no-one is left behind in the transition to net zero.

The increased availability of chargepoints will reduce range anxiety for certain protected groups. The accessibility of chargepoints for people with disabilities or physical impairments has been addressed nationally and new chargepoint designs are starting to emerge which are claimed to be more accessible. The council is addressing the issue by providing extra space around parked vehicles, having low level sockets no more than 1.2m in height and avoiding, wherever possible, the need to navigate a kerb.

20.2 Challenges

SSEN's 'Equal EV' project[28] aims to understand the requirements and barriers for disabled and vulnerable motorists to make the switch to EVs and seek solutions to address these. Early findings suggest that many mobility-impaired drivers have no off-street parking (or not enough space to park and access a charger) and would need to rely on public chargepoints.

28 SSEN Equal EV final report: **www.ssen.co.uk/globalassets/electric-vehicle/ssen-equal-ev-report.pdf**

The key challenges for drivers with a mobility impairment or another vulnerability accessing EV charging infrastructure are:

- having space to get in and out of the car;
- having space to manoeuvre wheelchair and walking aids in and out of the car;
- physical strength to connect charging cables;
- physical ability, flexibility and space to reach the chargepoint especially where it requires two hands;
- reliable information about chargepoint locations, availability, speed and accessibility to manage anxiety and enable better journey planning.

There is also a need for chargepoint displays to be at a suitable height and with the ability for those with visual impairments to use them.

20.3 Standards

The London Mayor's EV Infrastructure Taskforce[29] published its delivery plan in June 2019 and asked BEAMA (the trade association for energy infrastructure companies) to write a best practice document. This recommends that the: "**placement [of EV parking] should consider facilitating access and use by people with physical disabilities. This might mean considering the space around disabled car parking spaces to allow for movement with a cable, having a dropped curb, ensuring the slant of the screen is appropriate for people with visual impairments, and other measures."**

Guidance from the Department for Transport[30] states that general designated accessible parking spaces should be located on firm and level ground. A designated accessible space should be a minimum of 4.8m long and 2.4m wide. Where the spaces are perpendicular to the access aisle, an additional width of 1.2m should be provided on each side. This extra width may be shared with adjacent spaces. An additional zone of 1.2m should be provided, at the vehicle access end of the space to enable rear access.

29 The Mayor's Electric Vehicle Infrastructure Taskforce - Cross River Partnership: **crossriverpartnership.org/projects/the-mayors-electric-vehicle-infrastructure-taskforce**

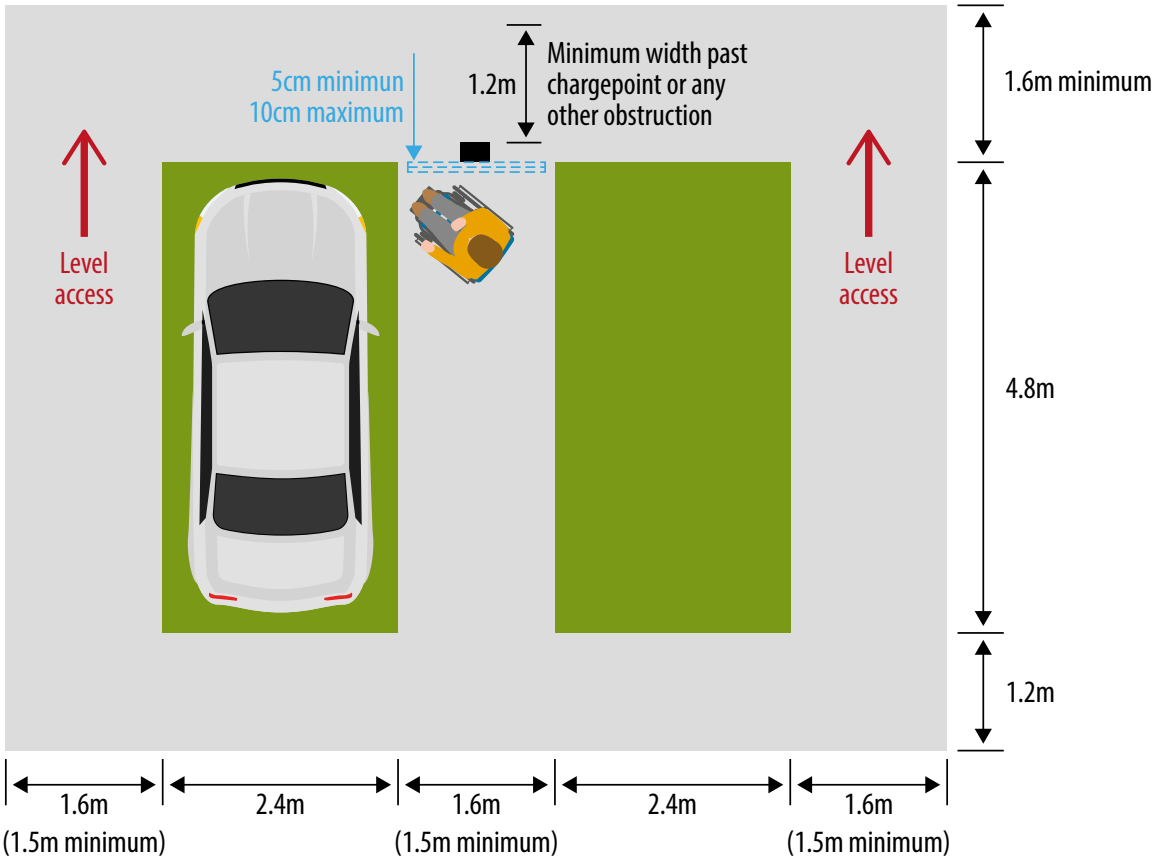
30 DfT – Inclusive Mobility: a guide to best practice on access to pedestrian and transport infrastructure.

20.4 Isle of Wight Council response

20.4.1 Off-street accessible bays

The council's preference is to provide chargepoint hubs in public car parks. These locations are inherently safer and, with wide bays and level surfaces, are easier for people with mobility issues to use. Initially, bays will be laid out to meet the minimum requirements for disabled EV charging bays advised by Durham County Council and illustrated below. This requires 1.6m clear width between adjacent bays to accommodate turning and manoeuvring by most manual and electric wheelchair users.

Figure 31: Durham County Council specification for disabled charging bays.

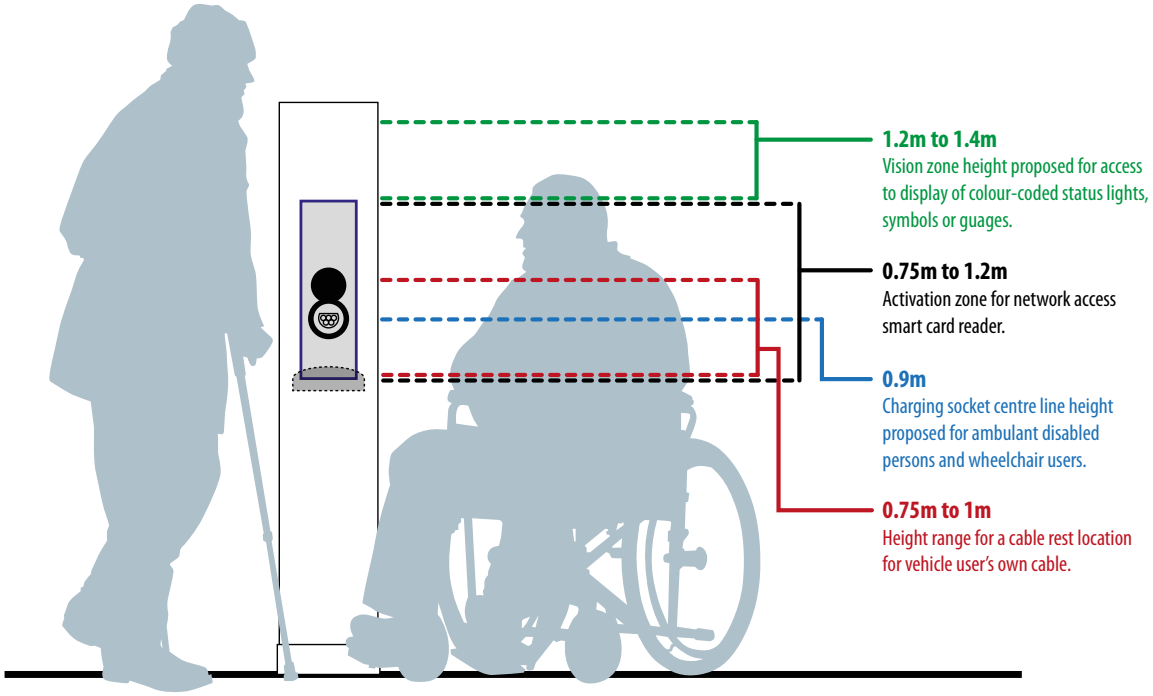


This specification exceeds that for general disabled parking bays.

It is recognised that it may be difficult to provide full length bays in some car parks due to their configuration, in which case locations with the maximum available length will be selected.

Charging equipment will meet the specifications shown below, also produced by Durham County Council:

Figure 32: Durham County Council specification for disability-friendly chargepoint.



20.4.2 On-street accessible bays

It is recognised that not all residential areas can be served conveniently from local car parks and, even when the car park is within 200m of home, a closer on-street chargepoint is better for disabled people who can't walk home from a charging hub. In considering on-street locations the council will, wherever possible, provide wider 2.7m bays with an additional 0.5m buffer zone in particularly busy roads. The locations will be adequately lit and will have accessible dropped kerbs to allow users to access the pavement easily. At least 1.5m clear space will be left between the charge point and rear of the footway to allow passage by wheelchairs.

Not every location will be able to accommodate the wider bays because of the narrowing of the carriageway and standard 1.8m wide bays will be installed when recommended by the safety audit. Where there is room, the width of the bay will be increased as much as possible, up to the 2.7m maximum. Similarly, dropped kerbs may not be present in all locations initially, but the council will seek to retrofit these at a later date.

While the specifications outlined above make chargepoints more accessible for disabled people, accessibility would be enhanced by dedicated blue badge charging bays. At present, low demand would impact on the viability of the chargepoints but the council will seek to install disabled charging bays in suitable locations and dedicate these for blue badge only use as soon as it becomes viable. These will form part of the requirement for disabled parking spaces.

20.5 Information

Information on accessible chargepoints need to be provided so that users understand facilities before arriving. The council will provide this information on its website and will work with CPOs to ensure that it's provided on their apps.

Consultation
We are keen to hear from disabled drivers and disability groups on these proposals and how they could be improved.

21 Future energy system

The UK government has set an explicit target to achieve a net zero electricity system by 2035. This will require significant new low carbon generation and grid upgrades to handle the increased demand for electricity for heating and transport and the reverse flow of energy from distributed generation. Because of the intermittent nature of many renewables, storage capacity also needs to be significantly enhanced so that power is available when it is needed.

In this new energy system, there is significant potential for EVs, with their large energy storage capacity, many times bigger than domestic battery storage systems, to play a very important role in balancing the energy system, charging when electricity is abundant and cheap and returning power to the grid, or into the home, when it is in short supply and expensive. Provided it can be managed to ensure that frequent charge / discharge cycles do not damage the vehicle battery, EVs can help avoid expensive grid reinforcement by providing these flexibility services.

To provide this service, EVs will need to be digitally connected so that they can respond to requests to charge or discharge. This will be motivated by 'time of use tariffs' which costs electricity in half-hour blocks throughout the day. Consumers will be able to take advantage of this, either through suppliers managing when the EV charging takes place or a user-controlled system where the EV owner chooses their own charging times based on when prices are lowest.

This puts the EV owner in much greater control and able to minimise the cost of charging their vehicle. In addition, as early trials have shown, there is the opportunity to make money by discharging the car battery back to the grid (vehicle-to-grid or V2G) when the supplier requests. On the Isle of Wight there is the potential to create a much more localised energy system which is based on local renewable generation and uses storage and flexible loads to utilise the renewable generation at the times when it is available.

An alternative is to discharge the vehicle battery into the home to power heating, hot water, lighting and appliances. Providing this electricity has been bought cheaply, or generated on site, it can replace expensive electricity during the peak hours and lead to significant cost savings, as well as reducing strain on the grid. Another advantage of this system is to provide back-up power to the house during power cuts, particularly important when there is medical equipment in the home which requires an electricity supply.

These V2X (vehicle to everything) systems are not yet a commercial proposition but development is progressing quickly and they are likely to be a normal part of the energy system in future years.

22 Funding

Through the Office for Zero Emission Vehicles (OZEV), the government has made available the following grants for EV charging infrastructure:

22.1 On-street residential chargepoint scheme

Available to all UK local authorities, the on-street residential chargepoint scheme[31] (ORCS) provides funding towards the capital costs of installing public charging infrastructure for residents without private parking. It supports installations both on-street and in local authority-owned residential car parks.

In the financial year 2022 to 2023, £20 million is available through ORCS.

22.2 Workplace charging scheme

The workplace charging scheme[32] (WCS) is a voucher-based scheme. It provides support towards the upfront costs of the purchase and installation of EV chargepoints that are dedicated to staff or fleet use. The scheme provides up to £350 for each chargepoint socket installed at a site, with applicants being able to receive up to 40 grants.

In 2022, the WCS will be opened to small accommodation businesses and the charity sector. This will help to accelerate EV uptake in rural areas and support the UK tourist industry, particularly smaller accommodation businesses such as B&Bs.

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

32 www.gov.uk/government/publications/workplace-charging-scheme-guidance-for-applicants-installers-and-manufacturers/workplace-charging-scheme-guidance-for-applicants-chargepoint-installers-and-manufacturers

22.3 EV infrastructure grant for staff and fleet

This was introduced in April 2022 and offers up to five grants of £15,000 per organisation to install infrastructure. It can be used in conjunction with the WCS but not on the same chargepoints. Further information is at www.gov.uk/government/publications/ev-infrastructure-grant-for-for-staff-and-fleets-customer-guidance/ev-infrastructure-grant-for-for-staff-and-fleets-customer-guidance22.4 Electric Vehicle Homecharge Scheme

22.4 Electric vehicle homecharge scheme

The electric vehicle homecharge scheme[33] (EVHS) is being reformed to speed up the provision of chargepoints in flats and rental accommodation.

From 1 April 2022, local authorities that own social housing will be able to apply to the EV chargepoint grant for landlords. This will provide grants of up to £350 towards the cost of purchasing and installing a chargepoint, with up to 200 grants a year available for each local authority.

Additional support will be available later in 2022 for local authorities to help install EV chargepoints in residential apartment block parking spaces. The EV chargepoint grant for residential car parks will provide grants of up to £30,000 towards the cost of installing EV chargepoints in such properties.

22.5 Local EV infrastructure (LEVI) fund

To be launched in full in the financial year 2023 to 2024, the £450 million LEVI fund will help local authorities leverage private sector investment into their local charging networks and put in place long-term, sustainable charging infrastructure. The fund will include £50 million of resource funding to support delivery.

33 www.gov.uk/government/publications/customer-guidance-electric-vehicle-homecharge-scheme/electric-vehicle-homecharge-scheme-guidance-for-customers

21.6 Rapid charging fund

The £950 million Rapid Charging Fund[34] will ensure that there is an ultra-rapid charging network along motorways and major A-roads ready to meet the long-term consumer demand for electric vehicle chargepoints ahead of need.

It will be available to fund a portion of costs at strategic sites where upgrading connections to the electricity grid is prohibitively expensive and uncommercial.

In the shorter term, government is working with industry to ensure that every motorway service area in England has at least six ultra-rapid chargepoints by the end of 2023.

Government has stated that it will not be intervening in the destination charging sector and will look to end direct subsidy support for home charging and workplace charging at the earliest appropriate time.

34 www.gov.uk/guidance/rapid-charging-fund

Appendix 1
Charging sites

Name	Ownership	Type	Use Case	Use Rating	Int Rating	Rating
Chapel Street Car Park	IW Council	Rapid	Hub	10	9	19
St Thomas Street Car Parks (hub)	IW Council	Rapid	Hub	10	9	19
County Hall	IW Council	Standard	Workplace	9	9	18
St John's Road Car Park	IW Council	Fast	Destination	8	9	17
Carisbrooke High Street Car Park	IW Council	Standard	Workplace	9	8	17
Lidl Shanklin	Private	Rapid	Destination	9	8	17
Morrisons Lake	Private	Rapid	Destination	9	8	17
Medina Yard Redevelopment	Unknown	Fast	Destination	7	9	16
Cross Street Car Park	IW Council	Fast	Destination	8	8	16
Quay Road Car Park	IW Council	Fast	Destination	8	8	16
St Mary's Hospital	NHS	Fast	Destination	8	8	16
New Red Funnel Ferry Terminal	Unknown	Rapid	Transit	8	8	16
Newport Jobcentre Plus	Public	Standard	Workplace	8	8	16
Spa Car Park	IW Council	Fast	Destination	8	8	16
Church Litten Car Park	IW Council	Rapid	Taxi	9	7	16
Orchardleigh Road Car Park	IW Council	Fast	Destination	9	7	16
Appley Car Park (hub)	IW Council	Rapid	Hub	6	9	15
Cowes Enterprise College	Education	Standard	Workplace	7	8	15
Isle of Wight College	Education	Standard	Workplace	7	8	15
Robin Hill Country Park	Private	Fast	Destination	7	8	15
The Needles	Private	Fast	Destination	7	8	15
Vernon Gardens Car Park	IW Council	Fast	Destination	7	8	15
The Heights Car Park	IW Council	Standard	Workplace	8	7	15
Park Road Car Park	Unknown	Standard	Destination	8	7	15
New Road Car Park	IW Council	Standard	Residential	8	7	15
Pound Lane Car Park	IW Council	Fast	Destination	8	7	15
Victoria Street Car Park	IW Council	Fast	Destination	8	7	15
Aldi Lake	Private	Rapid	Hub	9	6	15
Albany Road Redevelopment	Unknown	Standard	Residential	6	8	14

Name	Ownership	Type	Use Case	Use Rating	Int Rating	Rating
Colwell Bay Car Park	IW Council	Standard	Destination	6	8	14
Coppins Bridge Car Park	IW Council	Standard	Residential	6	8	14
Blackgang Chine Theme Park	Private	Fast	Destination	7	7	14
Brading Car Park	Private	Fast	Destination	7	7	14
Morrisons Newport	Private	Rapid	Hub	7	7	14
Tapnell Farm Park	Private	Fast	Destination	7	7	14
The Old Smithy & Gardens	Private	Fast	Destination	7	7	14
Brannon Way Car Park	IW Council	Fast	Destination	7	7	14
Brunswick Road Car Park	IW Council	Standard	Residential	7	7	14
Lind Place Car Park	IW Council	Fast	Destination	7	7	14
Lugley Street Car Park	IW Council	Standard	Residential	7	7	14
Booker Wholesale Cowes	Private	Rapid	Fleet	8	6	14
Gunville Retail Park	Private	Fast	Destination	8	6	14
Park Road Car Park (hub)	Unknown	Rapid	Hub	8	6	14
Shanklin Station Car Park	Private	Rapid	Taxi	8	6	14
Waitrose Cowes	Private	Rapid	Hub	8	6	14
Gulf Lushington Hill	Private	Rapid	Transit	8	6	14
Northwood Garage	Private	Rapid	Transit	8	6	14
Tesco Westridge	Private	Rapid	Hub	8	6	14
Central Car Park	IW Council	Fast	Destination	8	6	14
Esplanade Gardens Car Park	IW Council	Fast	Destination	8	6	14
Yarmouth Car Park	IW Council	Fast	Destination	8	6	14
The Parade	Public	Fast	Destination	9	5	14
Arreton Barns Craft Village	Private	Fast	Destination	9	5	14
Avenue Road Car Park	IW Council	Standard	Residential	5	8	13
Medina Campus Car Park	IW Council	Fast	Destination	5	8	13
East Cowes Marina	Private	Standard	Workplace	6	7	13
Havenstreet Station	Private	Fast	Destination	6	7	13
The Co-op Freshwater	Private	Rapid	Hub	6	7	13
Fort Street Car Park	IW Council	Standard	Residential	6	7	13
Hope Road Car Park	IW Council	Fast	Destination	6	7	13
Carisbrooke College	Education	Fast	Destination	7	6	13
Dudley Road Car Park	IW Council	Fast	Destination	7	6	13
River Road	IW Council	Rapid	Taxi	7	6	13
Aldi Cowes	Private	Rapid	Hub	7	6	13
Sainsbury's Newport	Private	Rapid	Hub	7	6	13
Market Street Car Park	IW Council	Fast	Destination	7	6	13
Medina Avenue Car Park	IW Council	Standard	Residential	7	6	13
Moa Place Car Park	IW Council	Fast	Destination	7	6	13

Name	Ownership	Type	Use Case	Use Rating	Int Rating	Rating
Pier Road Car Park	IW Council	Fast	Destination	7	6	13
Landguard Road Car Park	IW Council	Fast	Destination	8	5	13
Somerton Park & Ride	IW Council	Fast	Destination	8	5	13
St Martins Road Car Park	IW Council	Standard	Residential	8	5	13
The Co-op Cowes	Private	Fast	Destination	8	5	13
The Crown Inn	Private	Fast	Transit	8	5	13
Sea Street Car Park	IW Council	Standard	Destination	5	7	12
Totland Broadway Car Park	IW Council	Standard	Destination	5	7	12
M&S Cowes Car Park	Private	Rapid	Hub	6	6	12
Asda Newport	Private	Rapid	Hub	6	6	12
The Grove Car Park	IW Council	Fast	Destination	6	6	12
Warnes Lane Car Park	IW Council	Fast	Destination	6	6	12
The Chequers Inn	Private	Fast	Transit	7	5	12
St Helens Green Car Park	Public	Fast	Destination	7	5	12
The Needles (hub)	Private	Rapid	Hub	7	5	12
Yarmouth Car Park (hub)	IW Council	Rapid	Hub	8	4	12
Tesco Express Lake	Private	Fast	Destination	8	4	12
Freshwater Bay Car Park	IW Council	Fast	Destination	8	4	12
Fairlee Service Station	Private	Rapid	Hub	4	7	11
Puckpool Park Car Park	IW Council	Fast	Destination	4	7	11
Fort Victoria Country Park	Private	Fast	Destination	5	6	11
Newport Harbour Car Park	IW Council	Fast	Destination	5	6	11
Wheelers Bay Car Park	IW Council	Fast	Destination	5	6	11
M&S Newport	Private	Rapid	Hub	6	5	11
Osborne Garage	Private	Rapid	Transit	6	5	11
The Olde Village Inn	Private	Fast	Destination	6	5	11
Seaclose Park Car Park	IW Council	Fast	Destination	6	5	11
Osborne Car Park	Private	Fast	Destination	7	4	11
Green Street Car Park	IW Council	Fast	Destination	7	4	11
Shanklin Road Car Park	IW Council	Fast	Destination	7	4	11
Station Avenue Car Park	IW Council	Fast	Destination	7	4	11
Red Funnel Ferry Queue	Private	Rapid	Transit	8	3	11
Ashey Road Garage	Private	Rapid	Transit	8	3	11
Bouldnor Viewpoint	IW Council	Fast	Destination	4	6	10
Sandford Service Station	Private	Rapid	Transit	4	6	10
The Duver Car Park	IW Council	Fast	Destination	4	6	10
The White Horse	Private	Fast	Transit	5	5	10
Freshwater Bay Car Park (hub)	IW Council	Rapid	Hub	6	4	10
Amazon World Zoo	Private	Fast	Destination	6	4	10

Name	Ownership	Type	Use Case	Use Rating	Int Rating	Rating
Lidl Newport	Private	Rapid	Hub	6	4	10
Horse & Groom	Private	Fast	Transit	7	3	10
Sherbourne Street	IW Council	Fast	Destination	7	3	10
Carbourne Sun Inn	Private	Fast	Transit	8	2	10
Lane End Car Park	IW Council	Standard	Destination	3	6	9
Westridge Garage	Private	Rapid	Transit	4	5	9
La Falaise Car Park	IW Council	Fast	Destination	5	4	9
Royal Exchange Car Park	IW Council	Standard	Residential	5	4	9
Yaverland Car Park	IW Council	Fast	Destination	5	4	9
Atherley Road Car Park	IW Council	Standard	Residential	6	3	9
Old Battery	Private	Rapid	Destination	6	3	9
The Duver Car Park	IW Council	Fast	Destination	6	3	9
F H Winter & Sons	Private	Rapid	Transit	7	2	9
The Blacksmiths Arms	Private	Fast	Transit	7	2	9
Grange Chine Autocentre	Private	Rapid	Transit	8	1	9
Broadway Garage	Private	Rapid	Transit	6	2	8
Mornington Road Car Park	IW Council	Fast	Destination	6	2	8
Eastcliff Car Park	IW Council	Fast	Destination	7	1	8
Isle of Wight Bus & Coach Museum	Private	Fast	Destination	4	3	7
Brooks Close Car Park	IW Council	Standard	Residential	4	2	6
Carisbrook Castle	Private	Fast	Destination	4	2	6
Sandown Road Car Park	IW Council	Standard	Residential	4	2	6
Smugglers Haven Car Park	IW Council	Fast	Destination	4	2	6
The Wight Military Heritage Museum	Private	Fast	Destination	4	2	6
Eastern Esplanade Car Park	IW Council	Fast	Destination	5	1	6
Shore Road Car Park	IW Council	Fast	Destination	4	1	5
Church place Car Park	IW Council	Standard	Residential	2	2	4
Steyne Road Car Park	IW Council	Standard	Residential	2	2	4
Blackgang Viewpoint Car Park	IW Council	Fast	Destination	3	1	4
Whale Chine Car Park	IW Council	Fast	Destination	3	1	4

Appendix 2
Consultation questions

Chapter 2

1. To what extent do you agree with this strategy? Please explain the reasons for your response. Please provide any further comments or issues which are not raised elsewhere in this strategy. Are there any omissions from the strategy?

Chapter 6

2. What are your views on useful speeds for public chargepoints? Should different speeds be provided in different locations?

3. Which form of chargepoint do you think is the most suitable for on-street charging on the Isle of Wight?

Chapter 8

4. Do you have any thoughts on the number of public chargepoints that will be required? If so, how should delivery be phased?

5. If you operate, or are likely to operate, electric fleet vehicles, can you give any insight into your requirements for public charging?

Chapter 9

6. The council is keen to hear of any suggestions for private ownership models that it could facilitate.

7. We would also be interested in offers of sites for public chargepoints. Please let us know if you think you have a suitable site.

Chapter 10

8. We would be interested to hear your views on the priority sites identified and whether you would suggest any other sites to be added to the priority list. Please let us know if any of the longlisted sites (Appendix 1) should be prioritised or if there are other suitable sites which have not been identified at all.

9. We would like to hear from owners of private sites listed in the tables about any plans they have for chargepoint installation and operation.

10. We would be interested in your views on where innovative solutions could be deployed, including offers from private site owners. Are there any other innovative solutions that you would like to see deployed?

Chapter 11

11. We welcome your views on the methodology used for determining the location of chargepoints for those without private driveways. Could it be improved or can you suggest a different methodology?

12. The council would like to hear from property owners in rural areas that could facilitate charging facilities for residents.

Chapter 12

13. What are your views on the use of cable gullies and dropped kerbs to facilitate at-home charging?

14. Do you have any other ideas to facilitate at-home charging for households that currently do not have off-street parking?

Chapter 13

15. We invite suggestions for sites for charging hubs, including from those who think they might want to provide this type of facility or can offer land for a charging hub.

Chapter 14

16. The council is keen to hear from all those who are, or are considering, providing charging infrastructure and to understand their target markets.

17. We would like to understand from filling station owners their plans for future provision and, in particular, whether they intend to provide EV charging.

18. The council would like to understand the needs of fleet and commercial vehicle users, in terms of sites and speed of charging.

19. The council would be interested to hear from taxi drivers about any specific requirements.

20. The council is interested in suggestions of specific locations for taxi charging.

21. The council is interested to hear of any imminent demand for coach recharging and where this might take place.

Chapter 17

22. What are you views on the parking charge policy described? Can you anticipate any unintended consequences, such as vehicles using charging bays when they have no real need?

Chapter 18

23. Are the suggested parking restrictions suitable for EV charging bays in off-street locations? Can you think of any situations in which alternative restrictions could be applied?

24. Are the suggested parking restrictions suitable for EV charging bays in on-street locations? Can you think of any situations in which alternative restrictions could be applied?

25. What are the best options for chargepoint provision and control in Resident Parking Zones?

Chapter 19

26. Do you think the council should require higher levels of chargepoint provision in non-residential developments?

27. Do you think there should be any changes to rules around the creation of off-street parking spaces to facilitate EV charging at home?

Chapter 20

28. We are keen to hear from disabled drivers and disability groups on these proposals and how they could be improved.

29.

Appendix 3
Graph data

Page 9 – EV ownership on the Isle of Wight

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 (Q3)
18	27	40	77	118	179	241	315	484	847	1,112

Page 40 – Projection for power requirement of different charger archetypes.

		Baseline	2025	2030	2035	2040
Domestic off-street	Capacity (MW)	4	57	189	318	327
En-route local	Capacity (MW)	0	2	7	18	22
Workplace	Capacity (MW)	0	2	6	14	17
Domestic on-street	Capacity (MW)	0	1	4	11	15
Fleet	Capacity (MW)	0	0	1	4	7
Destination	Capacity (MW)	0	1	1	2	2
En-route national	Capacity (MW)	0	0	0	1	1
Car Park	Capacity (MW)	0	1	1	1	1
Total	**Capacity (MW)**	**4**	**64**	**209**	**369**	**392**

Page 41 – Predicted public chargepoint requirement, Isle of Wight.

	2025	2030	2035	2040
Number of 7kW sockets required	110	431	686	816
Number of 22kW sockets required	15	33	52	62
Number of 50kW sockets required	7	16	26	30
Number of 150kW sockets required	2	10	23	43