



# Electric Vehicles Frequently Asked Questions

**2020 – 2021**

**[www.medway.gov.uk/travel](http://www.medway.gov.uk/travel)**

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## **Abbreviations**

AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
BEV	Battery electric vehicle
CO2	Carbon Dioxide
DfT	Department for Transport
EST	Energy Savings Trust
EV	Electric vehicle
EVCPs	Electric Vehicle Charging Points
LEV	Low Emission Vehicle
LEZ	Low Emission Zone
NOx	Nitrogen Oxide
NO2	Nitrogen Dioxide
OLEV	Office for Low Emission Vehicles
ORCS	On-street Residential Chargepoint Scheme
PHEV	Plug-in hybrid electric vehicle
PHV	Private Hire Vehicle
PiV	Plug-in Vehicle
PM	Particulate Matter
KCC	Kent County Council
UKPN	UK Power Networks
ULEV	Ultra Low Emission Vehicle
ULEZ	Ultra Low Emission Zone
V2G	Vehicle to Grid

## Status of Document

This Electric Vehicle Frequently Asked Questions document supports strategies that form part of Medway Council's Climate Change agenda, including the Medway Council Electric Vehicle Strategy (currently under development), Medway Local Plan, Council Plan, Medway Council Air Quality Action Plan, Refit programme, Medway 2035 regeneration plan and the statutory Local Transport Plan 2011–26.

If you have any comment on the content of this document, please contact the Transport and Parking Service at Medway Council. Our contact details are as follows:



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## What is an Electric Vehicle?

Electric vehicles are made up of two main types: battery electric vehicles (BEV), and plug-in hybrid electric vehicles (PHEV).

The key differences are that battery EVs have no combustion engine, relying only on an on-board battery which provides energy to an electric motor. Plug-in hybrid EVs have an electric powertrain together with an on-board combustion engine, which enables operation in full-electric mode, using conventional fuel, or a blend of both.

## What is the range of an Electric Vehicle?

Most electric vehicles have a real-world driving range of 100-250 miles on a single charge, depending on the model. As a result, electric cars are well suited for use as private cars and short-range delivery vehicles. Fully electric vehicles are perfect for city driving, commuting, regular delivery routes, and all short- to medium-distance trips which are predictable. Successful use of a BEV typically requires access to a home or workplace recharging unit and, to permit longer journeys, access to the public charging network.

## What types of charger are there?

There are three main types of EV charging – rapid, fast, and slow. These represent the power outputs, and therefore charging speeds, available to charge an EV.

Charge Point type and power output	Likely installation location	Specific connection requirements	Network considerations	Likely charge time for a 35kWh charge
Slow up to 3kW	Domestic	None – connects via household plug/socket	None	12 hours
Slow 3.7kW	Domestic or street side	Dedicated household circuit or on street equivalent	In some cases limited local reinforcement is required	9 hours
Fast 7kW	Domestic or street side	Dedicated household circuit or on street equivalent	Likely upgrade to service cable and local mains	5 hours
Fast 22kW	Street side or public charging location	Three phase dedicated supply point	Requirement for three phase connection and likely local mains upgrade	1.5 hours
Rapid 43kW	Public charging location	Three phase dedicated supply point	Requirement for three phase connection and likely local mains and transformer upgrade	45 minutes
Super 130kW or multiple rapid chargers	Public charging location	Supply point from dedicated transformer	In most cases a new transformer will be established	15 minutes

Rapid chargers (50kW) will charge the majority of EVs to 80% in around 30-60 minutes (depending on battery capacity). Fast chargers (7-22kW) typically fully charge an EV in 3-5 hours. Slow (3kW) usually take between 6 and 12 hours.

Rapid AC chargers provide power at 43 kW (three-phase, 63A) and use the Type 2 charging standard. Rapid AC units are typically able to charge an EV to 80% in 20-40 minutes depending on the model's battery capacity and starting state of charge.

Slow charging is a method of charging electric vehicles used by some owners to charge at home overnight. However, slow units aren't necessarily restricted to home use, with workplace and public points also able to be found. If a vehicle remains stationary for a

long period, such as at a Park & Ride or office car park, slow charging may provide the optimum solution. Because of the longer charging times over fast units, slow public charge points are less common and tend to be limited to street furniture that has a limited supply capacity.

Most slow charging units are rated at up to 3kW with some lamp-post chargers being rated at 6kW. Charging times vary depending on the charging unit, the LV supply capacity to the charger unit and EV being charged, but a full charge on a 3kW unit will typically take 6-12 hours. Most slow charging units are untethered, meaning that a cable is required to connect the EV with the charge point.

While slow charging can be carried out via a three-pin socket using a standard 3-pin socket, because of the higher current demands of EVs and the longer amount of time spent charging, it is strongly recommended that those who need to charge regularly at home or the workplace get a dedicated EV charging unit installed.



## What is Government Policy on Electric Vehicles?

In November 2020, the UK Government announced that the UK will end the sale of new petrol and diesel cars and vans by 2030, ten years earlier than planned. New hybrid cars and vans can drive a significant distance with no carbon coming out of the tailpipe and therefore they will continue to be sold until 2035, under the Prime Minister's 10-point plan for a 'green industrial revolution'.

Prior to this in 2018, Government released its Road to Zero Strategy outlining a pathway towards achieving this. Key points are:

- The strategy sets out ambition for at least 50% — and as many as 70% — of new car sales to be ultra-low emission by 2030.
- Government will take steps to enable massive roll-out of infrastructure to support an electric vehicle revolution.
- The strategy sets the stage for the biggest technology advancement to hit UK roads since the invention of the combustion engine.

You can find the strategy online:

<https://www.gov.uk/government/publications/reducing-emissions-from-road-transport-road-to-zero-strategy>



## What do chargers look like?

Chargers vary a lot in appearance. Fast chargers range from wall mounted chargers (mostly commonly used on people's homes) to chargers that resemble bollards. Rapid charging units tend to be bigger and have a more standard appearance.



## Do Electric Cars cost more than regular cars?

Electric Cars do currently cost more than a comparable petrol or diesel car. But it is generally predicted that as the EV market develops, battery costs – and therefore vehicle prices – will continue to drop. In the last five years battery production costs have fallen by almost 80%. The battery is one of the largest and most expensive elements of an EV, and with production costs dropping, the time when an EV costs the same as a comparable conventional model (or even less) is predicted by some in the industry to be only a few years away.

Deloitte published research in January 2019 that predicts that EVs will achieve cost parity with conventional vehicles in the UK as early as 2021. From this point, cost will no longer be a barrier to purchase, and owning an EV will become a realistic, viable option for more people.

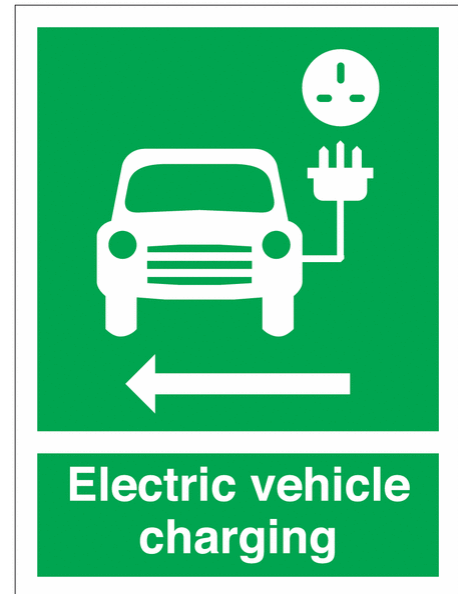


## Why do we need an Electric Vehicle Strategy?

The Council's preferred approach to providing EV charging points is to develop a strategy that sets out clearly what our long-term ambition is, our priorities for action, and is clear on our requirements.

In developing the strategy we are listening to residents views on their preferences for charging locally, through the completion of an online survey (link below) and will be modelling what different electric vehicle uptake scenarios will look like across Medway. We are seeking to understand both the number of vehicles that would be involved and the number of charging points that might be required to support them.

By doing this we hope to ensure that investment is used wisely with chargers installed in the right places that are fit for purpose.



To complete Medway's Electric Vehicle Charge Point Survey, please visit:

[https://www.medway.gov.uk/info/200161/travel/1130/electric\\_vehicle\\_charging\\_points](https://www.medway.gov.uk/info/200161/travel/1130/electric_vehicle_charging_points)

Please refer to Appendix 1 to view a results summary based upon the EV Charging Point Survey feedback received between June and September 2020.

## Why is this strategy focusing on Electric Vehicles, not all Ultra Low Emission Vehicles, such as Hydrogen?



Our strategy will focus on solutions where we can make the biggest impact on the Medway's carbon emissions.

We have looked at the Department for Transport's current and future predictions of the carbon generated by road transport in Medway, and 79% would be attributable to cars and small vans.

There is still much debate as to which fuel will become the long-term solution for vehicles of the future, but we have taken a view that we need to take action.

Currently electric vehicle technology is the most advanced for cars and small vans, and people will be able to make the switch now, or in the very near future. If we need to develop an alternative fuel strategy in later years, we will do so.



## **Why do you have an aspiration for a public land solution?**

Our strategy will consider a comprehensive and cohesive public charging solution on public land. We believe that if we can consider all public land when planning a charging network there would be significant benefits including:

- providing a joined-up solution, which looks, and is accessed in, the same way across Medway and the wider county of Kent, making it easier for people to use;
- providing chargers in the best locations for the users, rather than in the places we have the land / space to do it;
- enabling chargers to be delivered faster across the whole county as the chances of finding more feasible and achievable sites will be increased if we maximise potential “in scope” public land;
- accessing significantly more government funding than acting alone, and thereby deliver more infrastructure within Medway.

## **If you want to see an increased uptake, will Medway Council be buying me an Electric Car?**

No, we won't be buying individuals EV cars.

We will be considering different EV uptake scenarios to understand the likely number of cars that we will see in Medway, and the number of public chargers that is required to serve them.

We are concentrating on enabling the provision of chargers so that when people are replacing their vehicles they feel able to switch to electric.

## **How do Electric Vehicles help save Carbon?**

Electric Vehicles have no exhaust emissions. However, carbon emissions are produced during the generation of electricity, the amount will vary depending how the energy is generated.

Electric vehicles charged using standard UK electricity will show a significant reduction in emissions; analysis on current vehicles suggest a reduction of around two thirds compared to an average conventional car. Larger carbon reductions are likely in the future as the UK grid continues to decarbonise.

If renewable or green tariff electricity is used, then life cycle greenhouse gas emissions are effectively zero.

## **How do Electric Vehicles help Air Quality?**

The main cause of poor air quality is nitrogen oxides (NOx). The main cause of this pollution is vehicle emissions. Electric Vehicles have no exhaust emissions, so switching diesel and petrol vehicles to electric will improve local air quality significantly.

## **Can't I just install my own charger?**

If you have access to off road parking, you can install your own charger to charge an electric car. There are Government Grants to help you do this, such as the Electric Vehicle Home-charge Scheme (EVHS).

The Grant is a 75% contribution towards the cost of one chargepoint and its installation up to a maximum of £350 (including VAT) per household/ per eligible vehicle for installations that take place on or after the 1st of April 2020. A second chargepoint can be claimed if an individual can evidence keepership of two eligible electric vehicles.

There are certain criteria you must meet to receive the Grant, including the use of an accredited installer. For more information about the EVHS opportunity, please visit: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/873887/evhs-guidance-for-customers.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/873887/evhs-guidance-for-customers.pdf).

The Workplace Charging Scheme (WCS) is a voucher-based scheme that provides support towards the up-front costs of the purchase and installation of electric vehicle chargepoints. For further details, please visit: <https://www.gov.uk/government/publications/workplace-charging-scheme-guidance-for-applicants-installers-and-manufacturers>.

Our strategy will focus on providing access to public chargers for those people who can't charge at home, and to reduce the concern of range anxiety by ensure that electric vehicle users can be confident they can charge across Medway.

### **Will there be disruption when chargers are installed?**

Installing chargers will involve digging trenches to place wiring. The intention will be to work with our suppliers to reduce the disruption as much as possible and to make every effort to use opportunities to combine on-going works.



## Appendix 1

### Electric Vehicle Charging Points – Survey Results 2020

In June 2020, an online survey was published on the Medway Council website to explore the demand for electric vehicle charging points across Medway. This was intended to help Medway Council to consider charging locations and to demonstrate the local need when applying for funding.

Participants were asked whether they currently own an electric vehicle or plug-in hybrid, or indeed considering purchasing one. In addition, the survey provided opportunity for any suggested locations for on-street charging points to be made.

The survey results summarised below were based upon 143 user responses over the course of an eight-week period, between Tuesday 16 June and Monday 16 November 2020.

#### Do you currently own an electric vehicle?

Yes	58	[40.56%]
No	82	[57.34%]
No response	3	[2.10%]

#### What do you think the biggest barriers to purchasing an electric vehicle are?

*[NOTE: Participants able to select multiple answers]*

The cost of an electric vehicle	49 responses
The time to charge the battery	39 responses
Lack of electric vehicle models	7 responses
Lack of charging points in Medway	132 responses
Lack of charging points where I travel to	48 responses
The cost of replacement batteries	16 responses
The distance travelled on one charge	38 responses
I don't know about electric vehicles	1 response
There are no barriers	0 response
Other reasons	5 responses

#### What type of electric vehicle do you own?

Fully electric	38 responses
Plug in hybrid	18 responses
Self-charging hybrid	2 responses

#### Which of the following best describes where you most often charge up your vehicle?

*[NOTE: Participants able to select multiple answers]*

At home	22 responses
At my place of work	9 responses
In a public car park	6 responses
At a retail premises car park	16 responses

At a car dealership	0 response
Not applicable	1 response
Other location	4 responses

**When do you most often charge your vehicle up?**

During the day	24 responses
Overnight	14 responses
Both during the day and at night	18 responses
Not applicable	2 responses

**Are you planning to buy an electric vehicle in the next twelve months?**

Yes	46 responses
No	10 responses
Don't know	26 responses

**What type of electric vehicle do you hope to buy?**

Fully electric	32 responses
Plug in hybrid	10 responses
Self-charging hybrid	3 responses

**Which of the following best describes where you plan to charge up your vehicle most often?**

At home	33 responses
At my place of work	2 responses
In a public car park	3 responses
At a retail premises car park	1 response
At a car dealership	0 response
Not applicable	0 response
Other location	2 responses

**When are you most often likely to charge your vehicle up?**

During the day	4 responses
Overnight	26 responses
Both during the day and at night	15 responses
Don't know	1 response

**Please tell us where you think we should consider locating charging points:**

Vast majority gave personal addresses.

Public locations requested in Medway to date include:

- Twydall Green x2
- Dockside Outlet, Chatham
- Hempstead Valley Shopping Centre
- All over the towns, incl. Gillingham High Street
- Riverside car park, Chatham

## How far would you be willing to walk to charge an electric vehicle?

Less than 3 minutes	42 responses
3 to 5 minutes	42 responses
6 to 10 minutes	26 responses
11 to 15 minutes	12 responses
More than 15 minutes	2 responses
I wouldn't be willing to walk to charge my vehicle	16 responses

### Other comments about EV charging points:

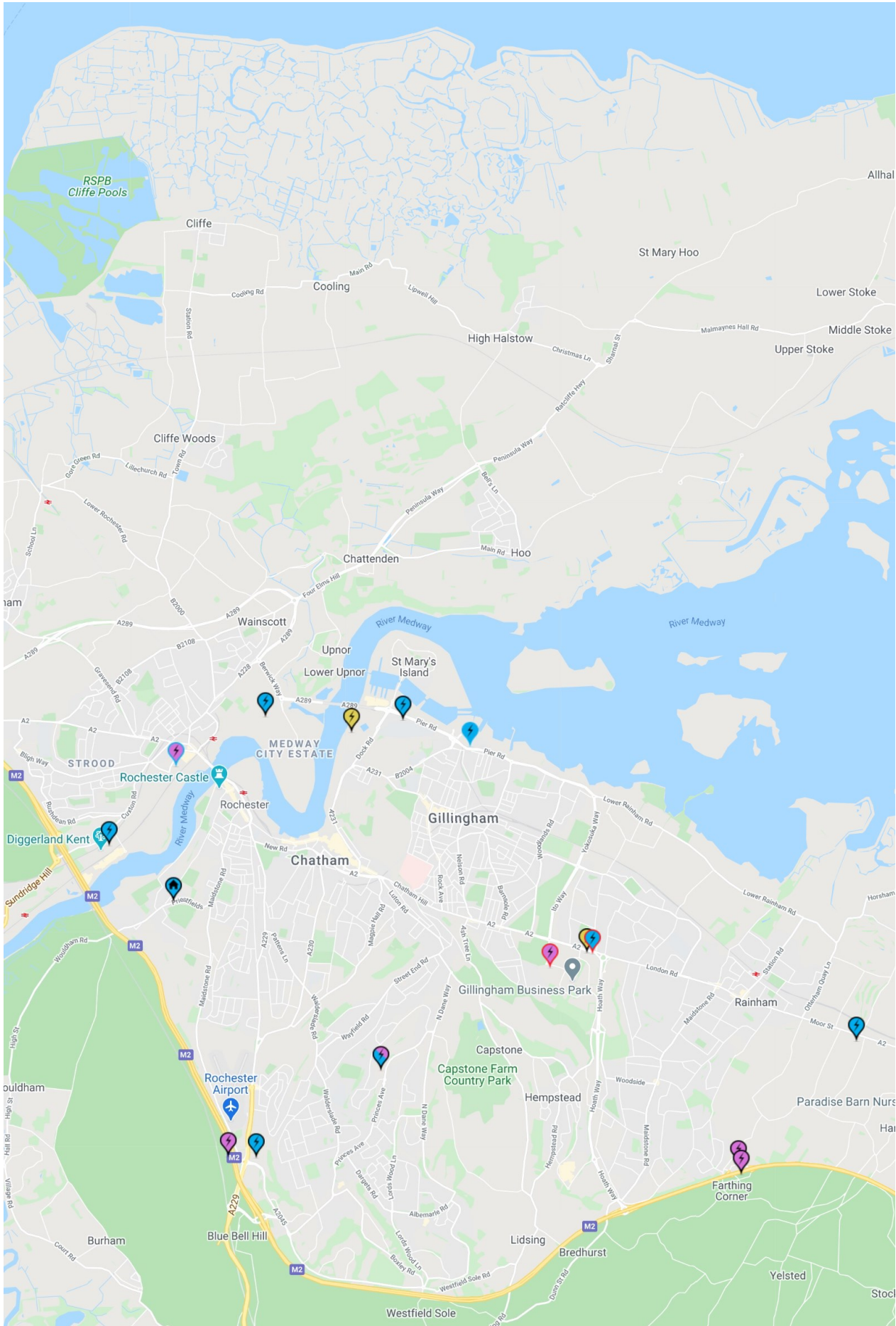
- Make them widely available across the town centres, public car parks, retail parks, sport centres, country parks, business parks, railway stations, libraries, hospitals, etc.
- Lack of available on-street parking to accommodate charging points.
- Government incentives for switching to EV. Lower vehicle tax noted by one user.
- All parking spaces should have them for easy access.
- EV drivers charging in car park should be exempt from paying additional parking fee.
- Residents to pay for their own dedicated on-street charging point facility.
- Introduce near residential properties to accommodate residents with no off-road parking.
- Lamp post, bollards and reserved parking bay charging points for EV owners.
- Further communication required around charging point costings and timings.
- Importance of investing in high quality, secure and reliable charging points over the long term as opposed to upgrading every couple of years.
- Standardised EV charging point technology to provide compatibility for all types of EV, as opposed to different charging point infrastructure for different EV models.
- Stipulating EV charging points as a condition within planning applications



## Appendix 2

### Electric Vehicle – Existing Commercial Charging Point locations in Medway

Chatham Historic Dockyard	Main Gate Road Chatham Kent ME4 4TZ	2 x 3kW 13A 3-Square pin	VendElectric
EVision Supercars	Whitewall Road Strood Rochester Kent ME2 4DZ	1 x 7kW 32A Type 2 Mennekes	Other
Medway Campus	30 Pembroke Court Chatham Kent ME4 4UF	2 x 7kW 32A Type 2 Mennekes	Pod Point
Morrisons Strood	Knight Road Rochester Kent ME2 2AA	1 x 43kW 63A Type 2 Mennekes 1 x 50kW 125A JEVs (CHAdeMO) 1 x 50kW 125A CCS (Combo)	GeniePoint
Asda Gillingham	Chatham Docks Pier Road Gillingham Kent ME7 1RZ	4 x 7kW 32A Type 2 Mennekes	POLAR
Tesco Superstore Strood	Charles Street Strood Rochester Kent ME2 2DE	4 x 7kW 32A Type 2 Mennekes	Pod Point
Diggerland Kent	Medway Valley Leisure Park Rochester Kent ME2 2NU	1 x 7kW 32A Type 2 Mennekes 1 x 11kW 16A Tesla Type 2	Tesla Destination
Morrisons Chatham	Dove Close Chatham Kent ME5 8BA	1 x 22kW 32A Type 2 Mennekes 1 x 50kW 125A JEVs (CHAdeMO) 1 x 50kW 125A CCS (Combo)	GeniePoint
Motorline Nissan Medway	Gillingham Business Park Grosvenor Road Gillingham Kent ME8 0SA	1 x 50kW 125A JEVs (CHAdeMO)	Nissan Dealerships
Gillingham Retail Park	Ambley Road Gillingham Kent ME8 0PU	1 x 22kW 32A Tesla Type 2	Tesla Destination
Gillingham Retail Park	Ambley Road Gillingham Kent ME8 0PU	2 x 3kW 16A Type 2 Mennekes	POLAR
Bridgewood Manor	Walderslade Woods Chatham Kent ME5 9AX	1 x 3kW 13A 3-Square pin 1 x 7kW 32A Type 2 Mennekes	POLAR
Buckmore Park Kart Circuit	Maidstone Road Chatham Kent ME5 9QG	1 x 43kW 63A Type 2 Mennekes 1 x 50kW 125A JEVs (CHAdeMO) 1 x 50kW 125A CCS (Combo)	POLAR
Medway Services M2 (East)	M2 Junction 4-5 Gillingham Kent ME8 8PQ	1 x 43kW 63A Type 2 Mennekes 2 x 50kW 125A JEVs (CHAdeMO) 1 x 50kW 125A CCS (Combo)	Ecotricity
Medway Services M2 (West)	M2 Junction 4-5 Gillingham Kent ME8 8PQ	1 x 43kW 63A Type 2 Mennekes 1 x 50kW 125A JEVs (CHAdeMO)	Ecotricity
Hyundai Medway	London Road Rainham Gillingham Kent ME8 8PT	2 x 7kW 32A Type 2 Mennekes	Hyundai Dealerships



For further details, please see <https://www.zap-map.com/>.