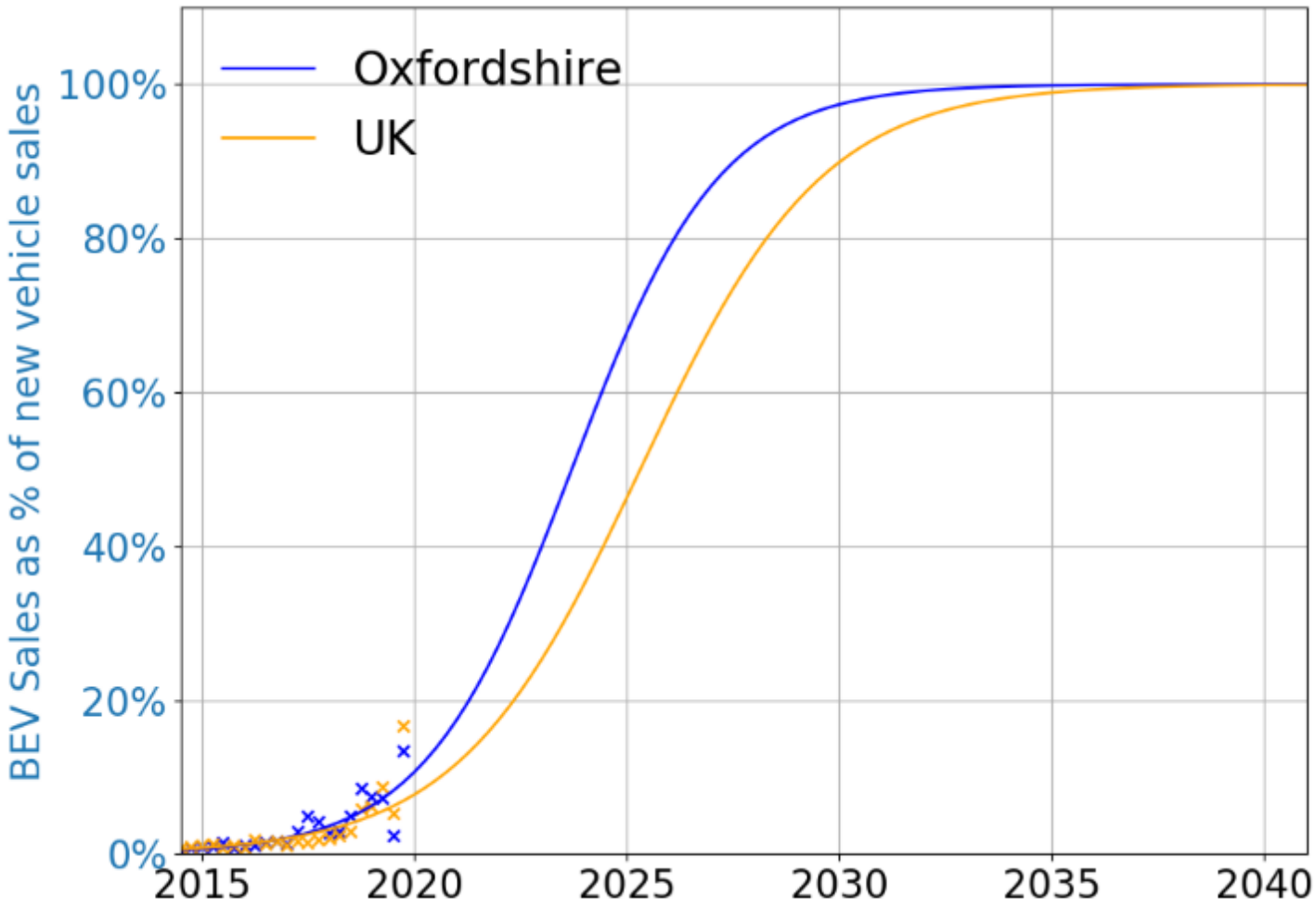
Electric Vehicle Infrastructure in Rural Oxfordshire

Jenny Figueiredo, EV Charging Project Manager, Oxfordshire County Council

Oxfordshire is ahead of the curve in EV adoption



Fully Battery Electric Vehicles as a percentage of all new car sales in past 3 months

Oxfordshire - 53%

Anglia - 39%

London - 31%

Manchester & Merseyside - 28%

North-East - 28%

West of England - 26%

Source: https://newautomotive.org/blog/electric-car-count-december-2022

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But a perceived lack of public EV chargers is still a barrier

	The biggest barrier for me	A significant barrier for me	Somewhat of a barrier for me	Not really a barrier for me/not relevant
Perception of limited range (miles) of the vehicles	194	326	303	277
Perception of limited range of vehicles models available	69	218	326	472
Perception of high upfront cost	351	324	263	159
Perception of a lack of second-hand market for Electric Vehicles	112	259	272	441
Perception of a lack of (reliable) public charging options	356	399	214	132
Unwillingness to change existing lifestyle	23	42	132	893
Not having enough information on electric vehicles	22	79	213	779
Not feeling ready to switch to a new vehicle	56	119	179	736
Not having access to off-street parking/a driveway to allow home charging	205	103	72	707
Other	73	33	14	215

Taken from OCC EV survey October 2020
– 1,491 respondents from across Oxfordshire

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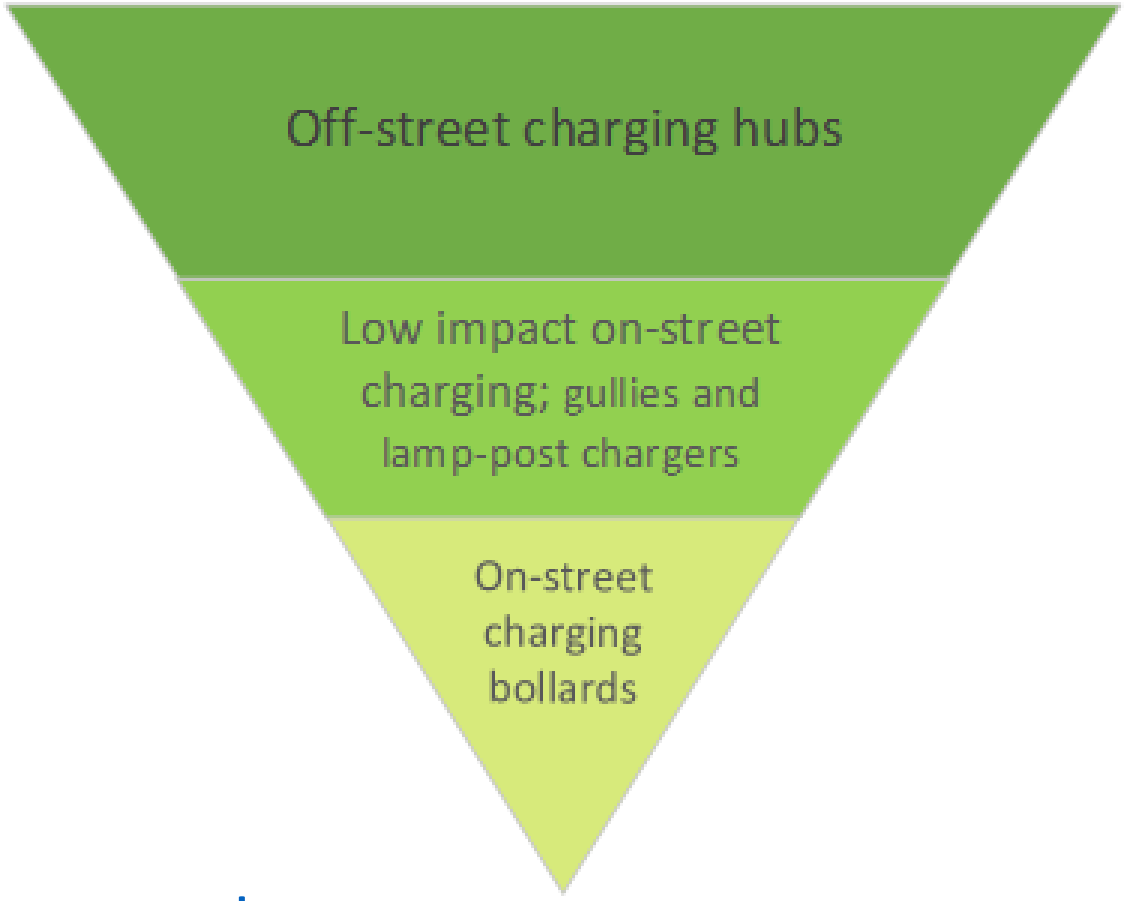
Lack of off-street parking is another barrier

In Oxfordshire, **30-40% homes** do not have access to off-street parking

Oxfordshire EV Infrastructure Strategy (OEVIS)



Download the full strategy here

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On-street EV chargers not always ideal

On-street EV chargers *can*:

- be very **expensive** to install and harder to make business case
- create local **disruption** during installation
- add to general **clutter** with excessive street furniture and **congestion**.
- lead to **conflict** with other car owners

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- Trailing cables not condoned by OCC – trip hazard goes against Highways Act

- Even with a cable mat or cover, this is still not condoned

Gul-e

- Low-tech, affordable solution
- Allows cable from wall-mounted home charger to safely cross to kerbside through a channel recessed into the pavement
- Aiming for product and process to be available in spring 2023
- Register interest at www.gul-e.co.uk

DoorStep project

elementenergy

Brent

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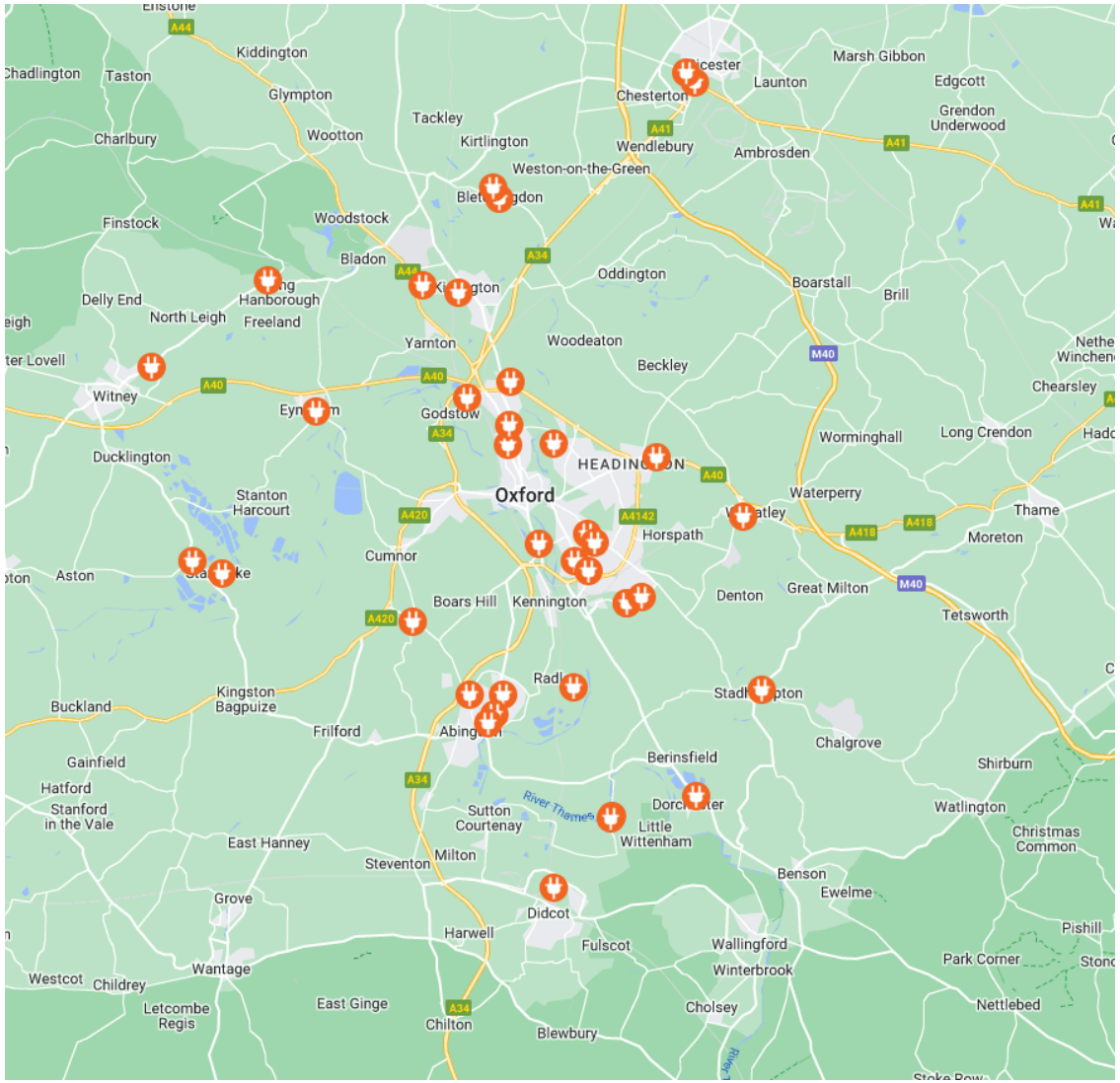
TROJAN ENERGY LTD

Other options – peer-to-peer EV charger sharing

www.co-charger.com

This is a great platform that allows people to share their own personal EV chargers with their neighbours/other people, or to find neighbours who are sharing their own personal EV chargers.

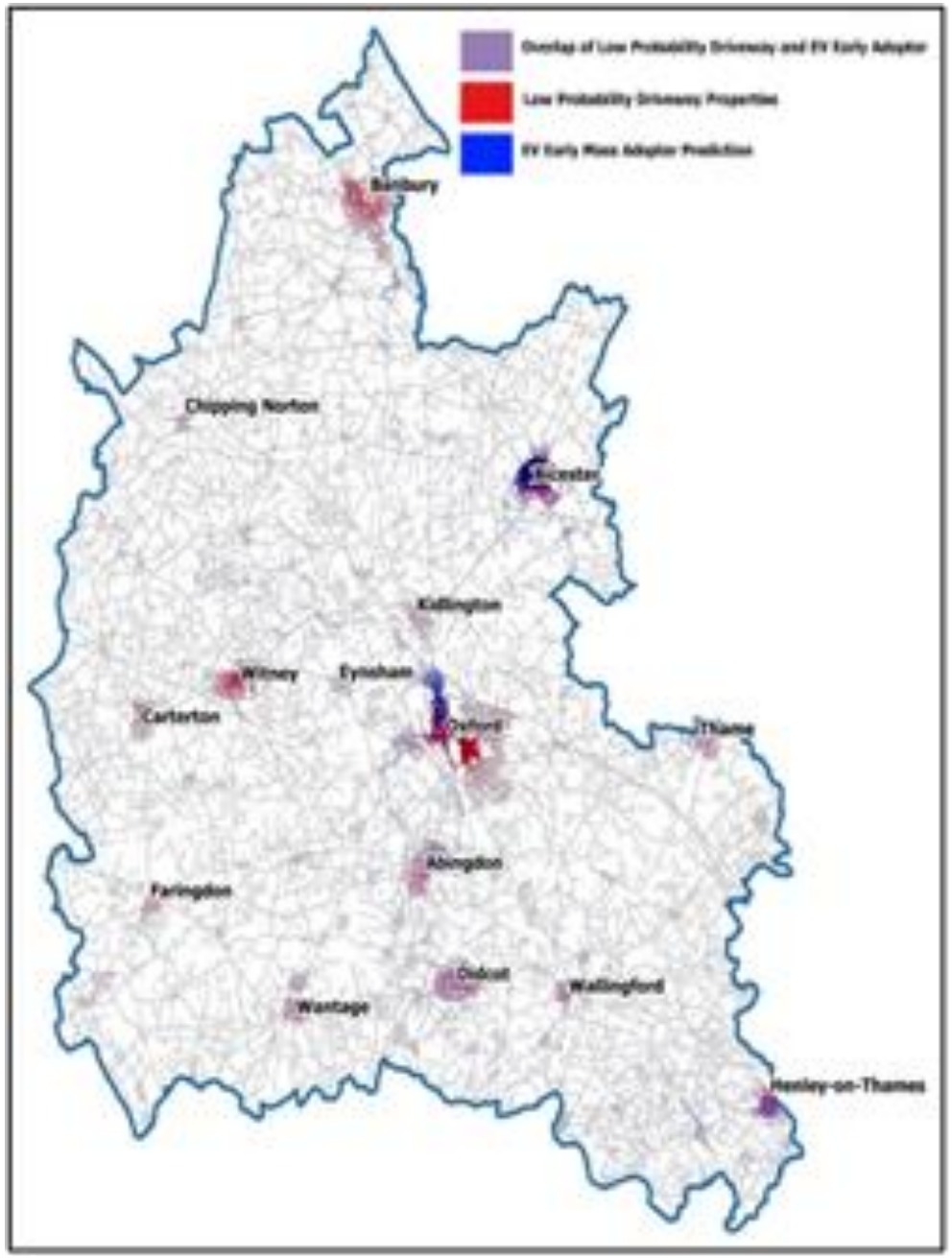


The Park and Charge solution

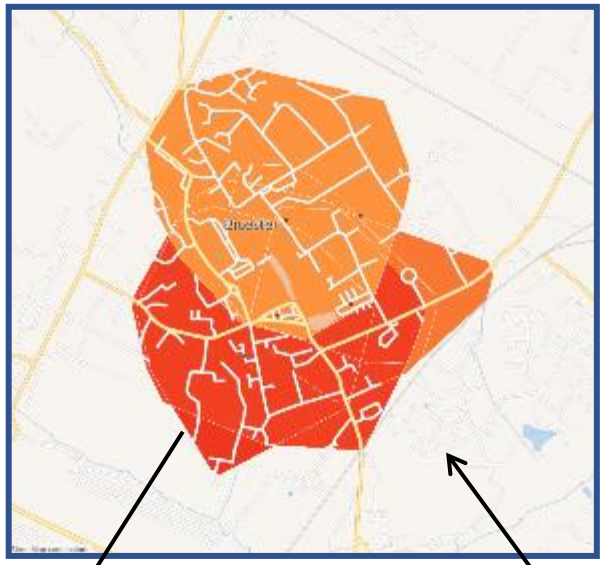
- Creating **EV charging hubs** in District Council owned car parks
- **Overnight charging solution for nearby residents** without off-street parking – park for free and charge overnight
- Total of **125 double chargers/250 chargepoints across 20 sites** - average of 12 EV charging bays per site
- Greater EV charging provision supplied for commuters and visitors to use during the daytime
- High visibility of public chargers leading to increased confidence. More reasons to visit and stay for longer
- Project funded by Innovate UK and OZEV

Office for Zero Emission Vehicles
Innovate UK
zeta Specialist Lighting
University of Oxford
[ui!]uk urban integrated ltd
West Oxfordshire District Council
Cherwell District Council
South Oxfordshire District Council
Vale of White Horse District Council
Oxfordshire County Council

Oxfordshire's predicted early mass EV adoption & low driveway probability hotspots. Sources: Energeo 2020, EMU 2018, ACORN 2020, DfT 2020. Higher colour intensity indicates higher density of occurrence.



Car park site selection – GIS tool



Viability Criteria		
Criteria	Value (5min)	Value (10min)
Min. Mean Annual Income	40000	
Min. Number of Cars	150	800
Min. Population	400	3000
% without off street parking	30	
Car Park Ownership	1	
SSE Rating	90	

Decile Factor		
Decile Description	%	
Crime Decile	10%	
Vehicle Crime Decile	20%	
Qualification Decile	20%	
Income Decile	50%	
	100%	Value must equal 100
Early Adpter Factor	20%	

- Ownership
- Size of local population within 5 mins walk
- Average income
- Number of cars
- % unlikely to have off street parking
- Early adopter area
- Electrical supply
- Crime rates

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The Park and Charge offering

- Locally designed and built chargers that are reliable, robust and easy to use
- Three phase AC ‘Fast’ 7-22kW chargers – both tethered and socketed
- Tap and Go contactless payments
- Optional EZ-Charge membership to unlock cheaper charging tariffs
- Booking facility – certainty of getting a charger when you need one

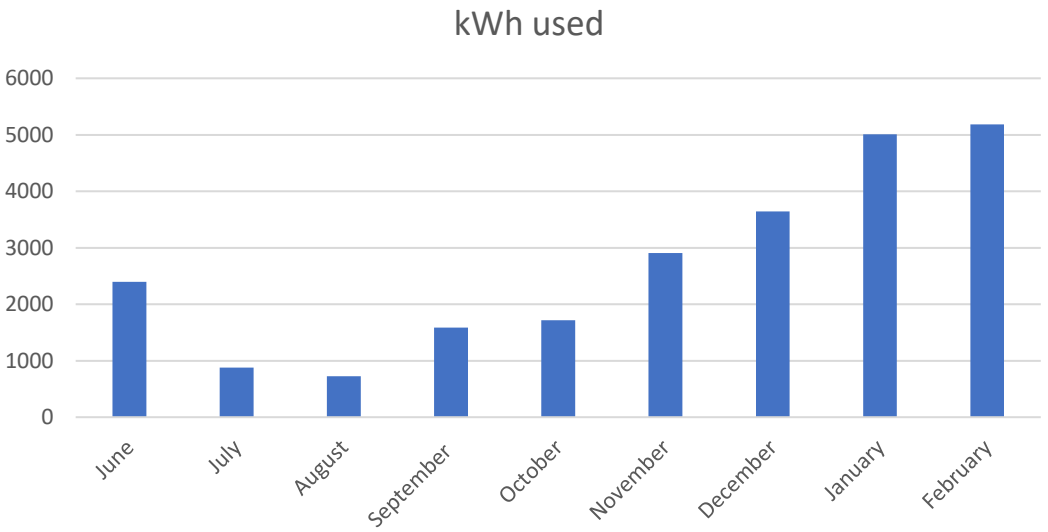
EZ-CHARGE

www.ez-charge.co.uk

First Park and Charge hub launched in Bicester in May 2021

Bicester Cattle Market pilot car park

- 6 double chargers installed - 12 ‘EV charging only’ bays created
- Car Parking Orders changed to allow enforcement in case of mis-use (non-EV or non-charging)
- Free parking overnight (6pm until 8am)
- Pay separately for parking and EV charging (where parking charges apply)



All 20 hubs now live – 250 chargers in total

Find all the site details at www.parkandchargeoxfordshire.co.uk/map

Park and Charge Oxfordshire event:

Wednesday 6 July, 9am to 12pm,

Southern Road car park, Thame

Park and Charge Oxfordshire event:

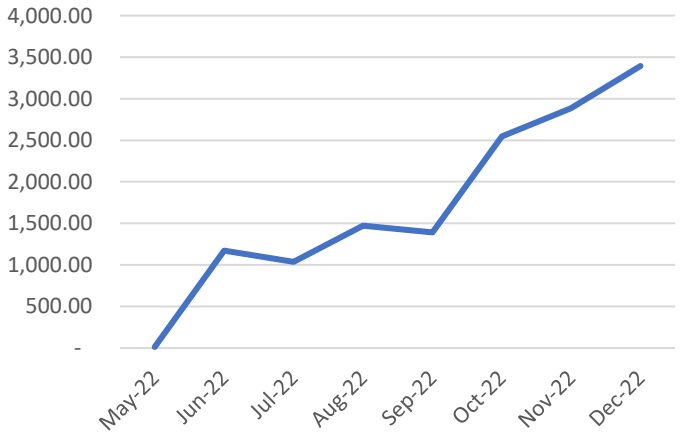
Wednesday 6 July, 1pm to 4pm,

Calthorpe Street West, Banbury

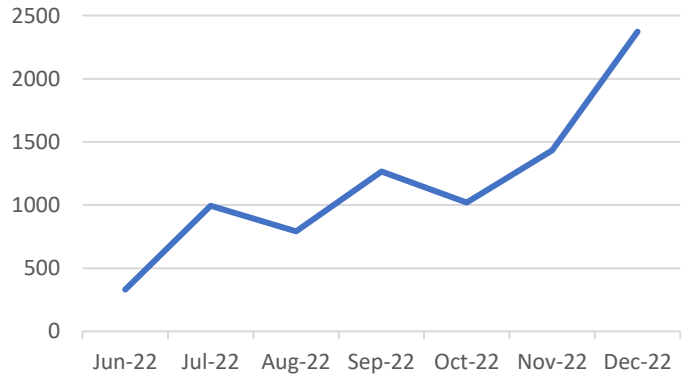
Videos from some of our events can be found on the website here

Usage continues to rise at all sites

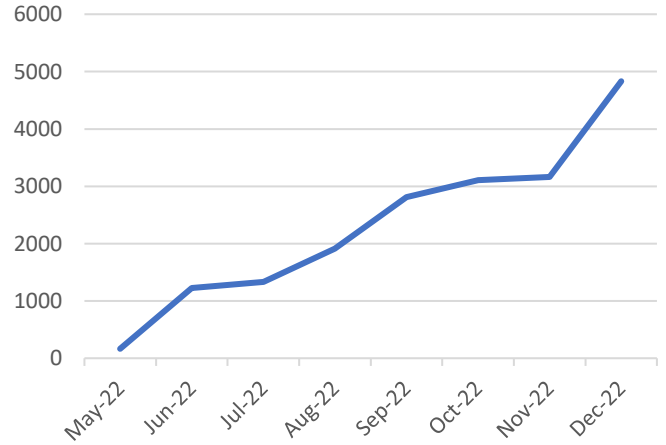
Examples from some of the closest sites to Harwell – figures shown are in kWh sold per month



Abingdon – Audlett Drive



Wallingford – Goldsmiths Lane



Wantage - Portway

Data supplied by EZ-Charge Ltd

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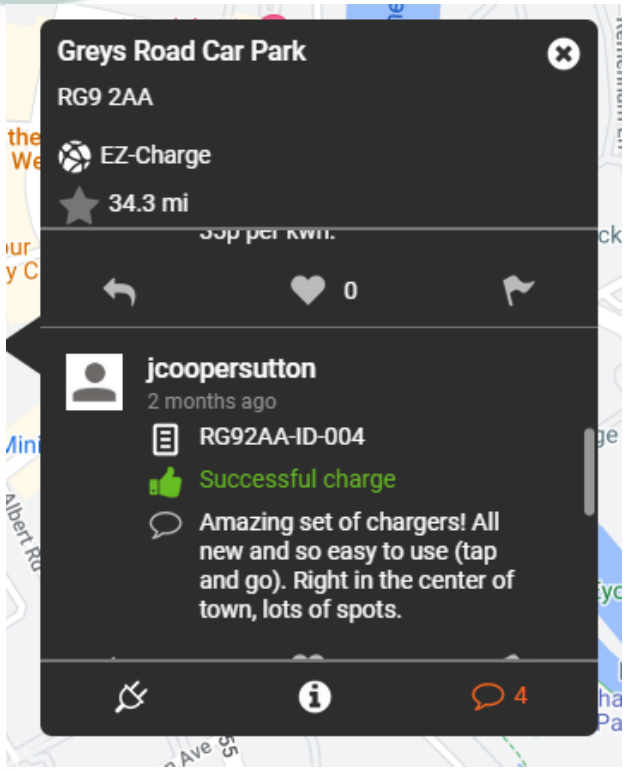
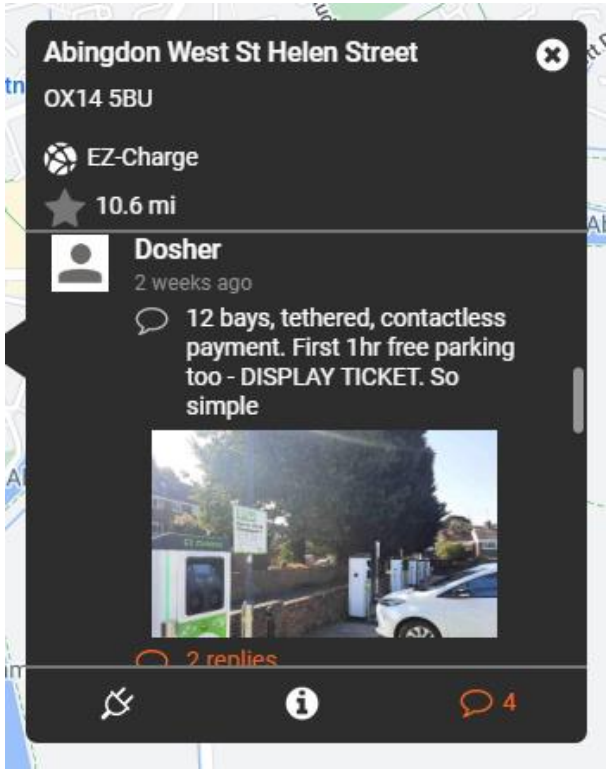
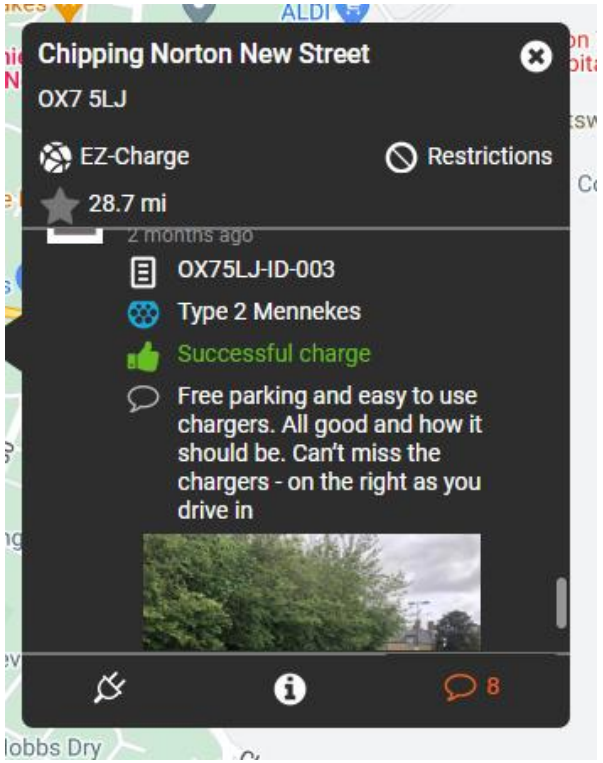
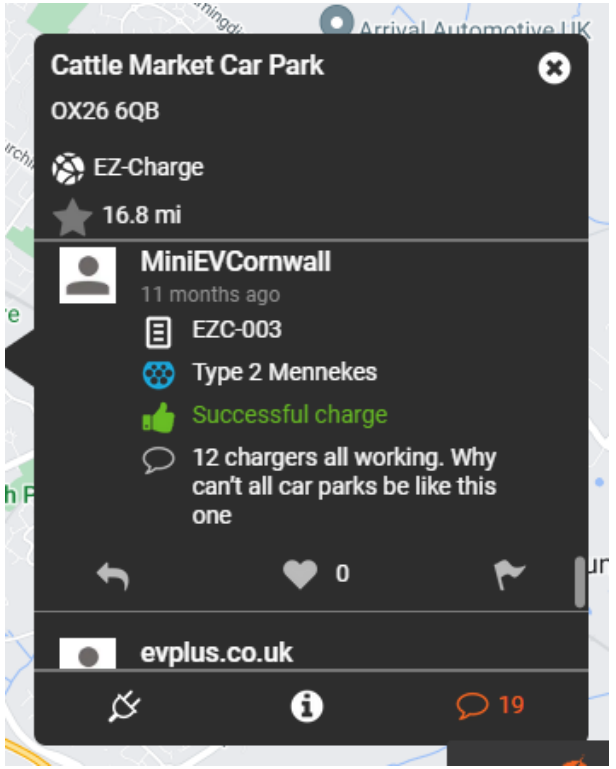
And we have some very happy customers ☺









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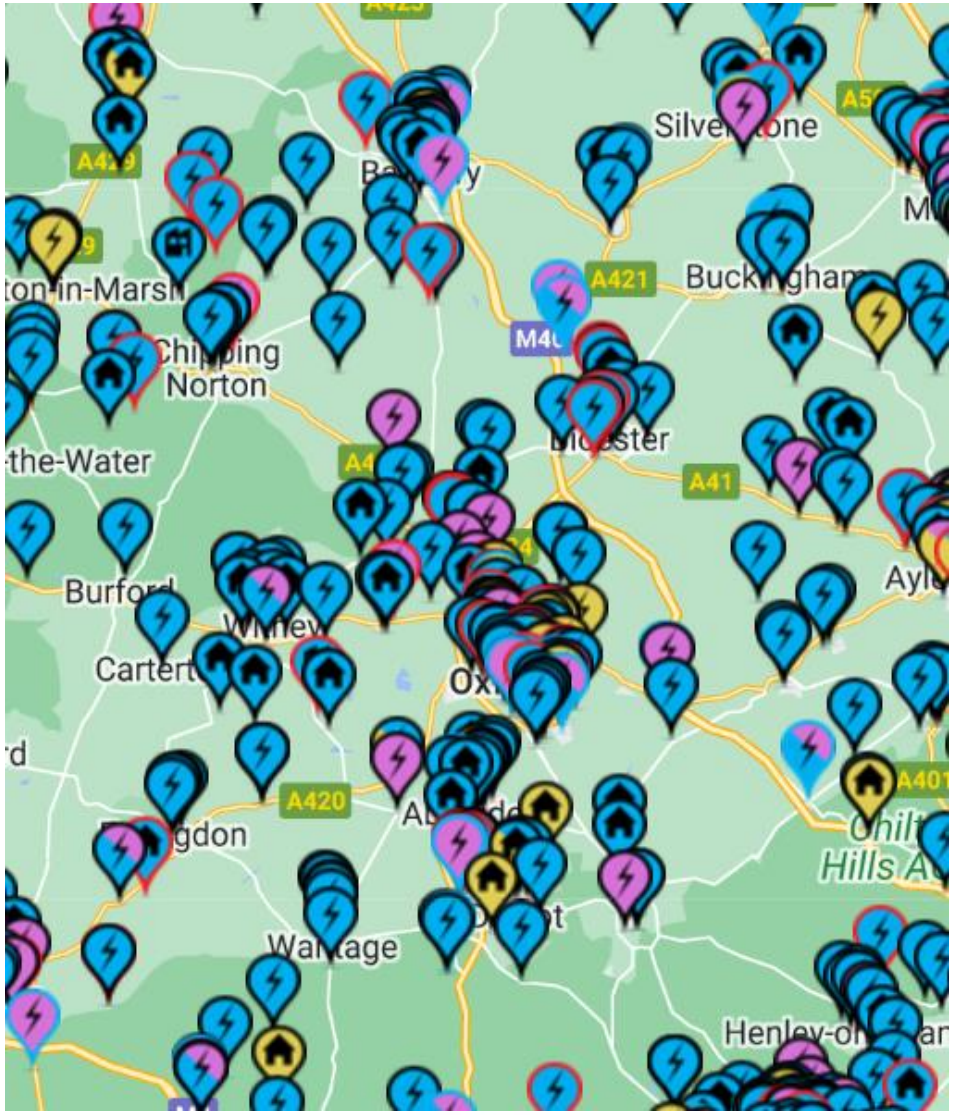
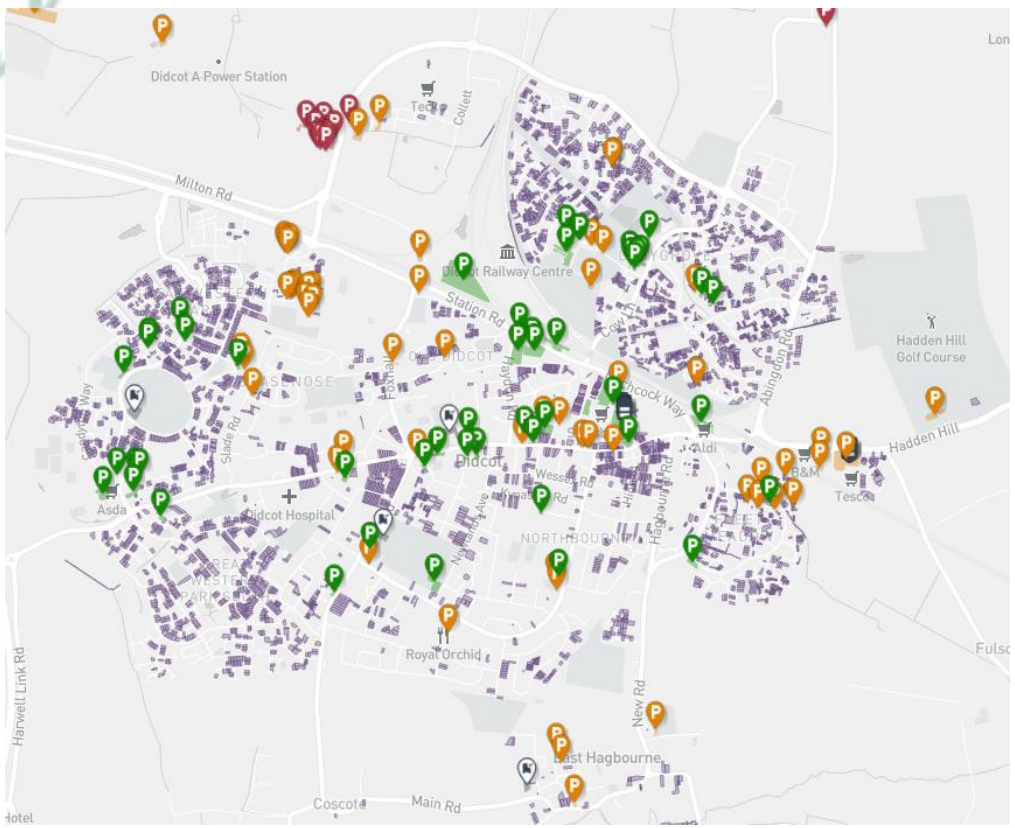
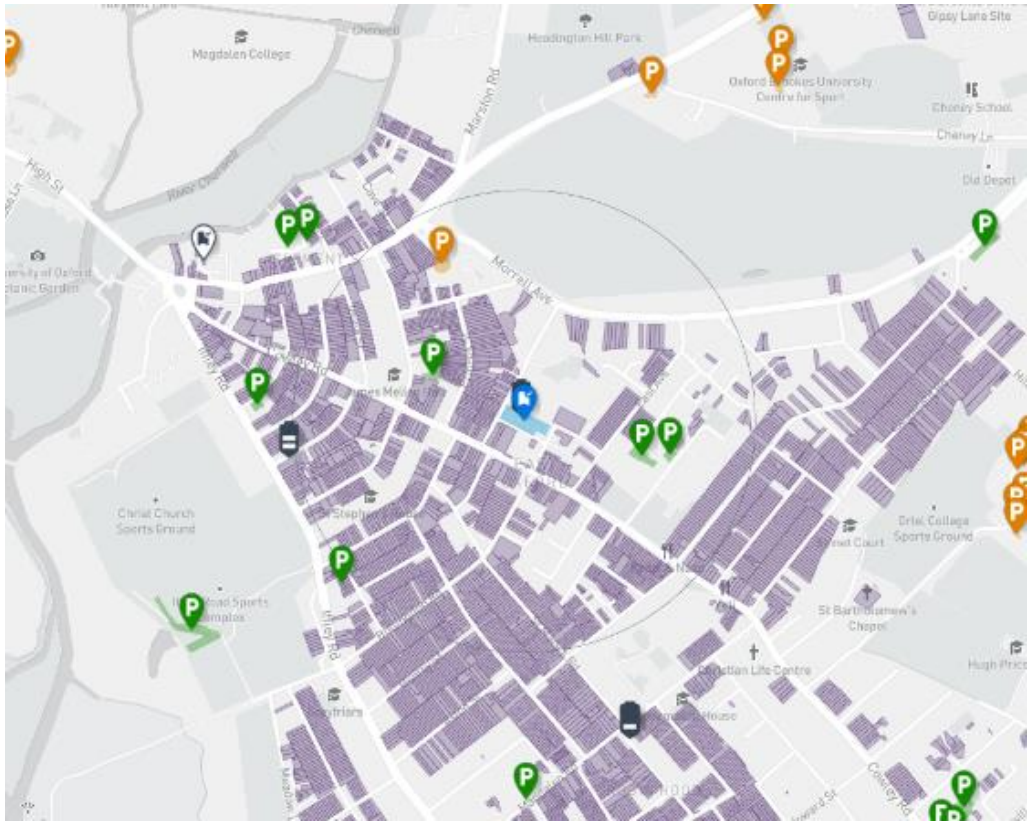
What next? More hubs!



What next? More hubs – using LEVI funding



Didcot



East Oxford

Mapping tools can help identify and prioritise areas for EV charging hubs
Purple indicates residential properties that are estimated to lack off-street parking

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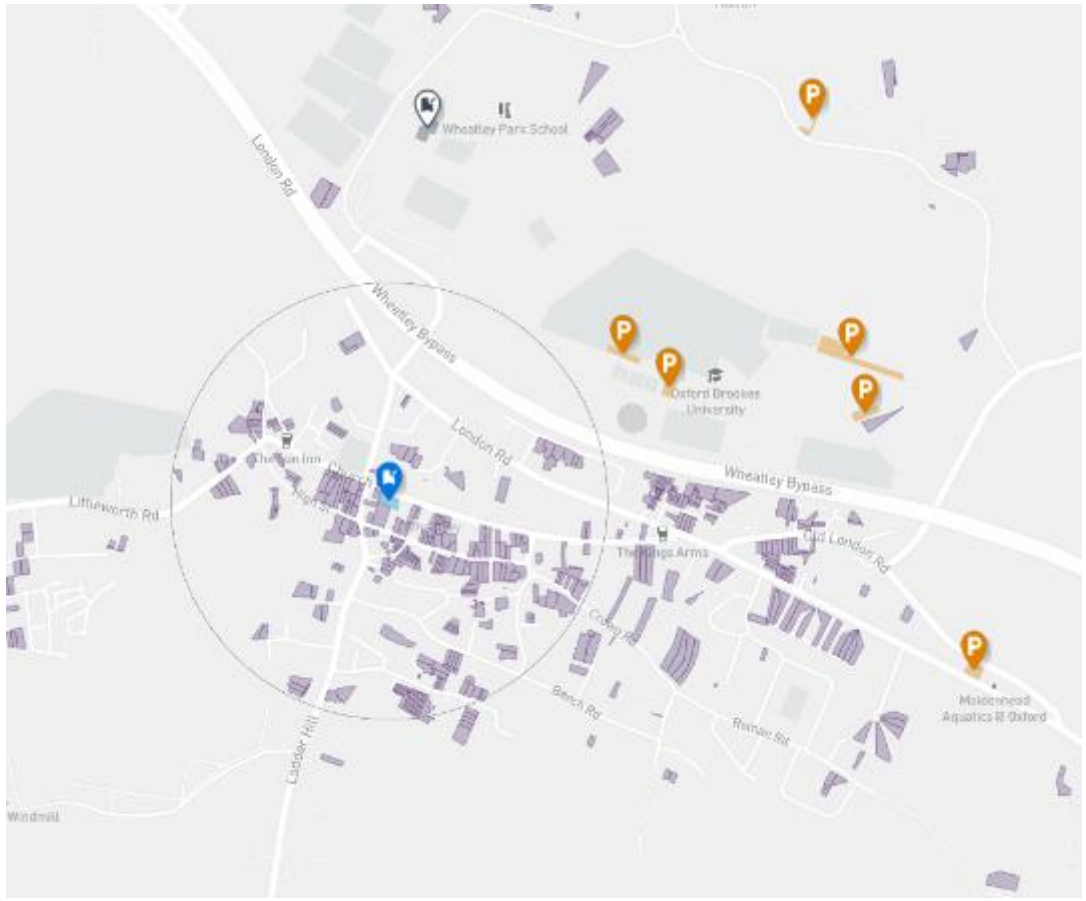
What next? Rural EV charging microhubs



Oxfordshire Town and Parish Council EV survey

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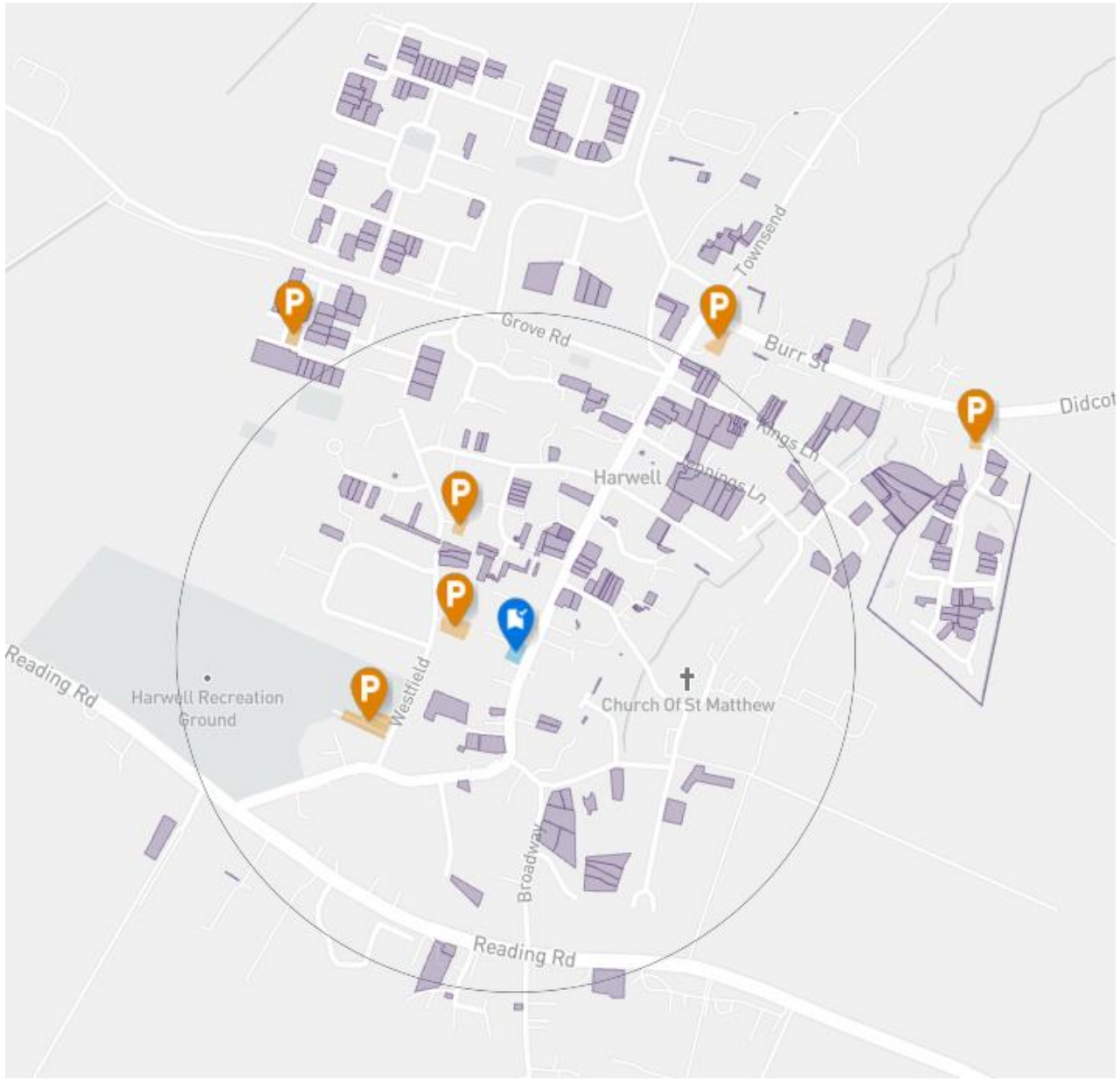
Plug-In Suffolk model

www.greensuffolk.org/plug-in-suffolk

Harwell



EV STATS

Existing EV sockets at site	0
Existing EV sockets within 400m	0

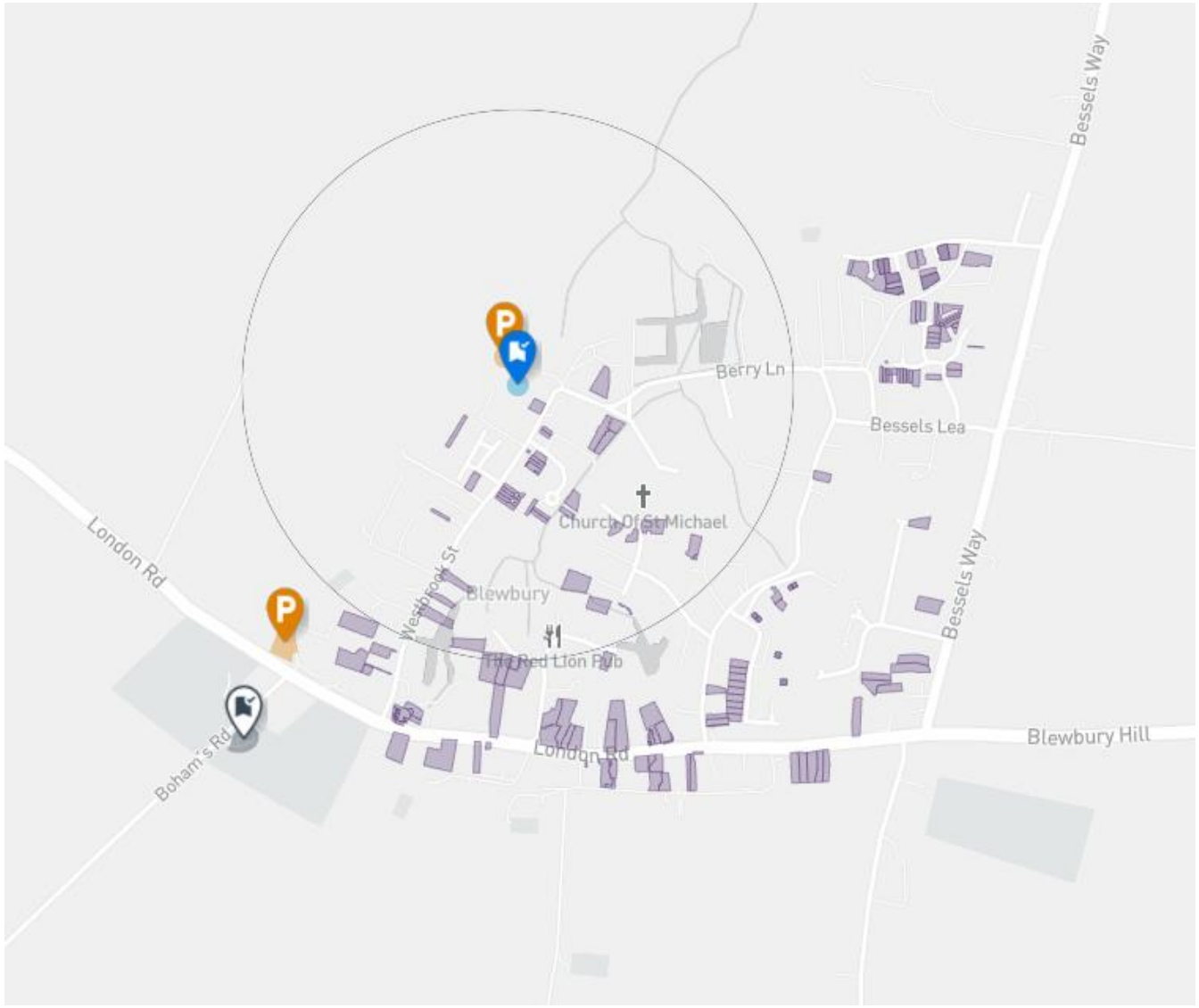
AREA STATS - WITHIN 400M

Est. residential population	1502
Est. properties without off-street parking	134 (21%)

AREA DEMOGRAPHICS

Overall Deprivation	BELOW AVERAGE
Income Deprivation	BELOW AVERAGE
Crime Deprivation	BELOW AVERAGE
Education Deprivation	BELOW AVERAGE
Health Deprivation	BELOW AVERAGE

Blewbury – Village Hall



EV STATS

Existing EV sockets at site	0
Existing EV sockets within 400m	0

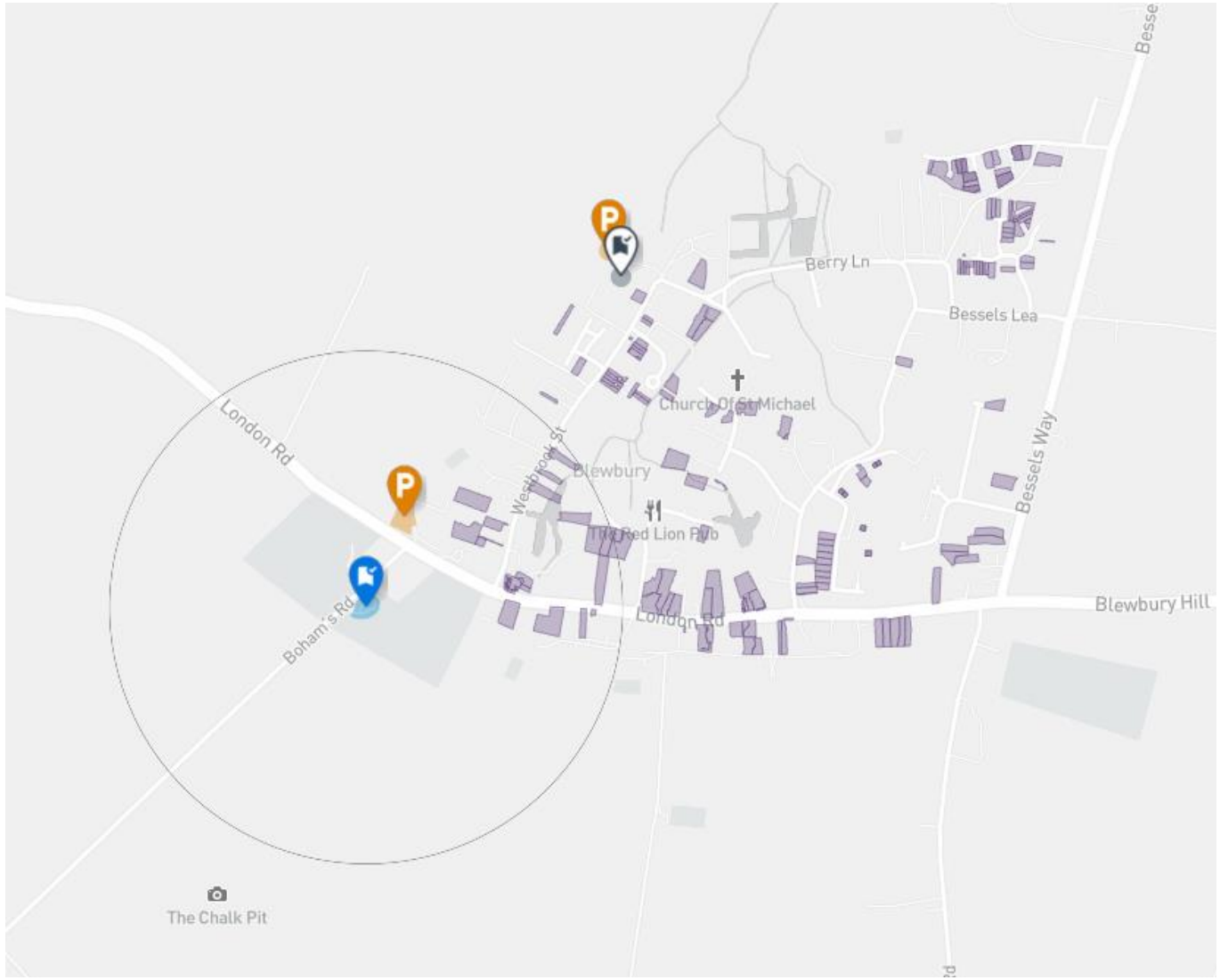
AREA STATS - WITHIN 400M

Est. residential population	497
Est. properties without off-street parking	40 (18%)

AREA DEMOGRAPHICS

Overall Deprivation	LOW
Income Deprivation	LOW
Crime Deprivation	LOW
Education Deprivation	BELOW AVERAGE
Health Deprivation	LOW

Blewbury – Boham's Road



EV STATS

Existing EV sockets at site	0
Existing EV sockets within 400m	0

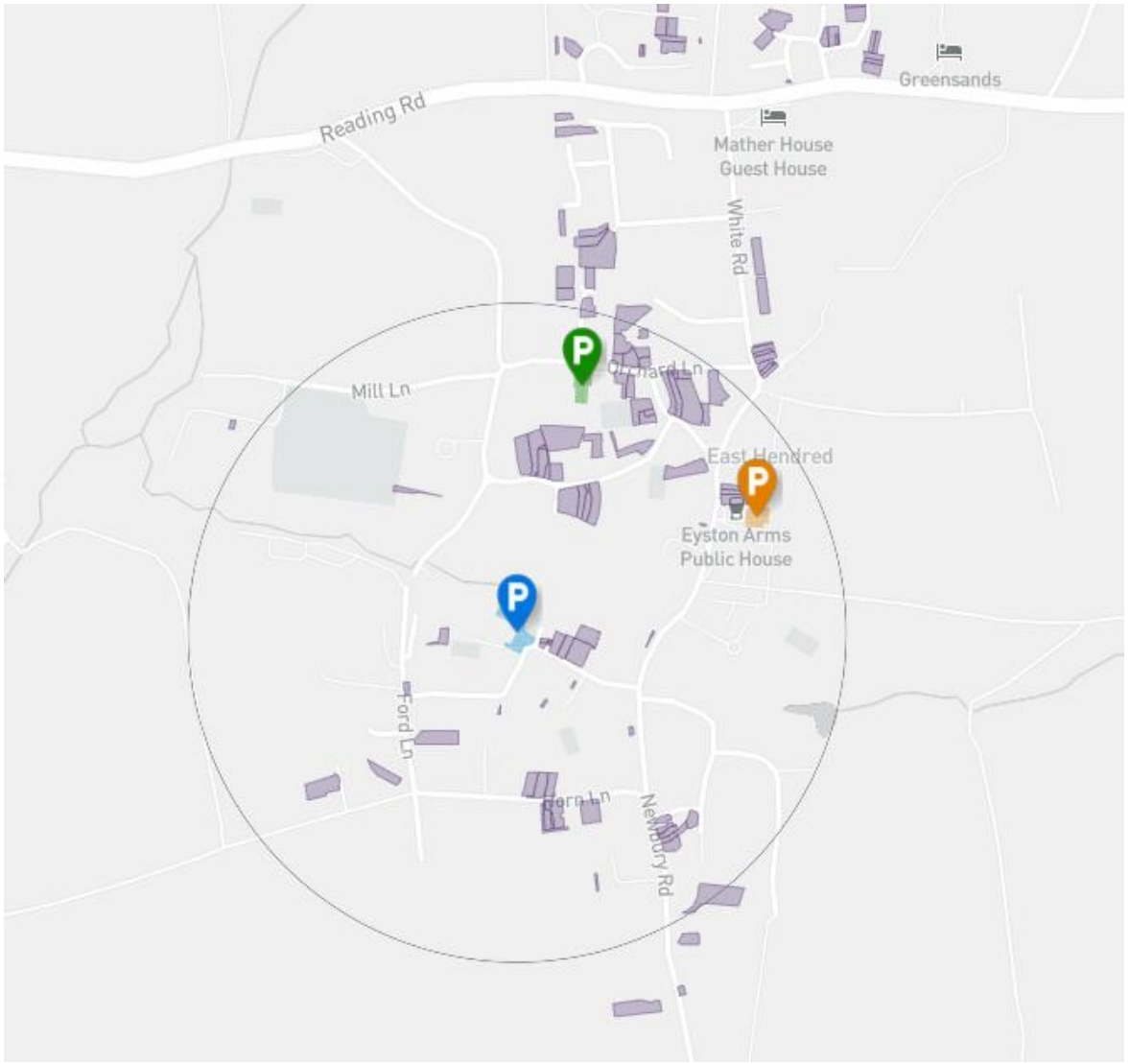
AREA STATS - WITHIN 400M

Est. residential population	140
Est. properties without off-street parking	28 (44%)

AREA DEMOGRAPHICS

Overall Deprivation	LOW
Income Deprivation	LOW
Crime Deprivation	LOW
Education Deprivation	BELOW AVERAGE
Health Deprivation	LOW

East Hendred – Snells Hall



EV STATS

Existing EV sockets at site	0
Existing EV sockets within 400m	0

AREA STATS - WITHIN 400M

Est. residential population	601
Est. properties without off-street parking	73 (32%)

AREA DEMOGRAPHICS

Overall Deprivation	LOW
Income Deprivation	LOW
Crime Deprivation	LOW
Education Deprivation	LOW
Health Deprivation	LOW

What communities can do:

- Think about where would be the best locations for off-street EV charging hubs and talk to landowners/the EV Team at the County Council
- Consider what funds might be available to cover the cost of installation – ballpark figure of £8k for a double charger using an existing e.g. village hall supply, with ongoing software and maintenance costs of around £360 a year
- Get residents to share their own EV chargers with others via e.g. Co-Charger app

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EV car clubs in rural areas

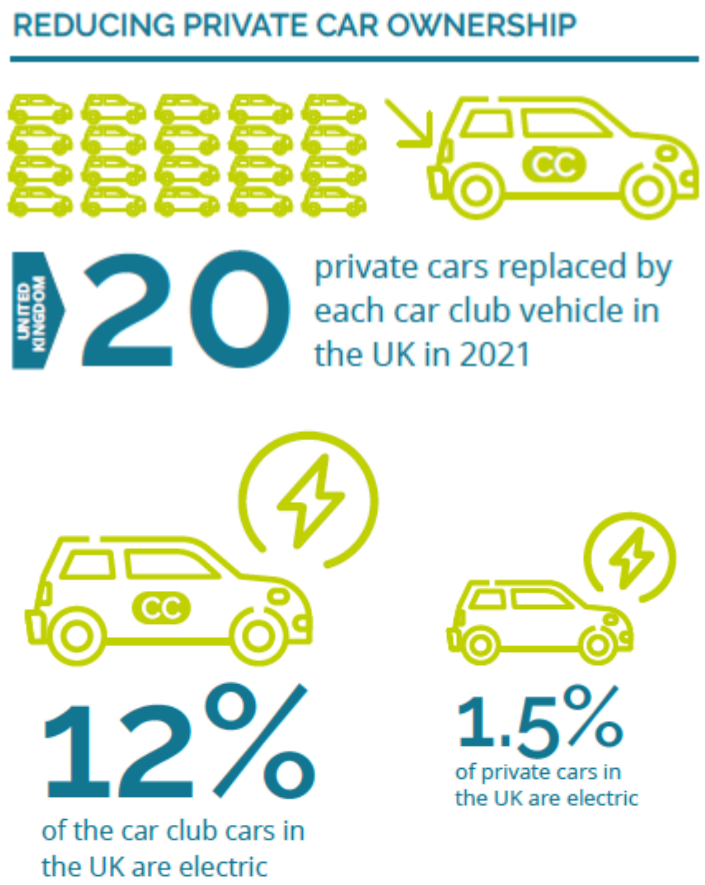
- The new Local Transport and Connectivity Plan (LTCP5 - adopted July 2022) includes target to reduce 1 in 4 car journeys by 2030

- LTCP5 also contains a car club policy:

Policy 39 *– We will support the provision of zero emission shared cars and car clubs, in combination with other measures, to reduce the dominance of private motor vehicles and create a more balanced transport network. This will include working proactively to encourage zero emission shared cars and car clubs in rural areas, smaller towns and villages.*

- In addition to car clubs enabling people to give up private car ownership, *EV car clubs* give people an option to try EVs without needing to buy, and make EV driving more affordable without needing to purchase outright

- OCC currently working on plans for mobility hubs across Oxfordshire – some of which would include EV car clubs - but also keen to empower rural councils to take ownership and set up own car share schemes/hubs



Taken from Co.Mo.Uk 2020 report “Electric Vehicles in Car Clubs’

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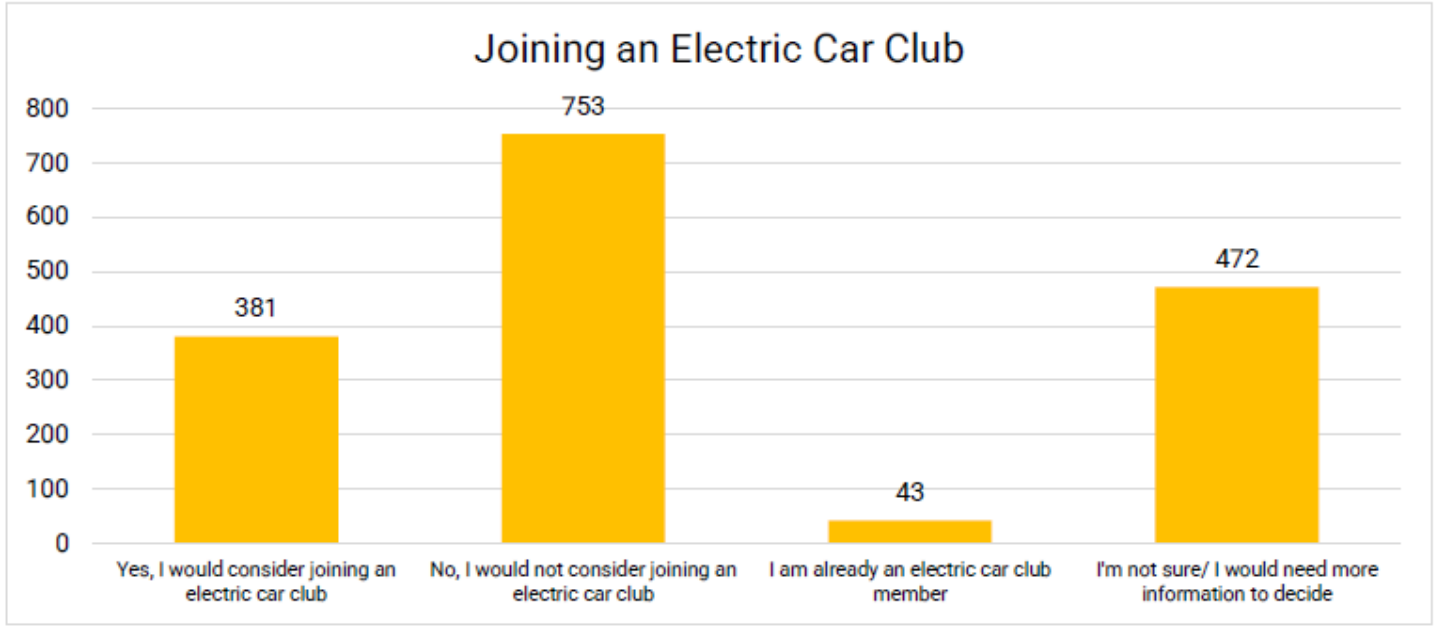
Demand for EV car clubs in Oxon

Would you consider potentially using an electric car club, if this service was available near you in Oxfordshire?



23% **46%** **3%** **29%**

Source: Park and Charge Oxfordshire survey October 2021 – from a total of 1,649 responses to this question

Different models of pay-per-use car club

- **Commercial model –** Commercial operators (e.g Co-Wheels, ZipCar, Enterprise) provide a car and run the service to make modest profit. They generally approach areas/cities where they see a good opportunity and expect/require 40 members/minimum 20-25% usage to make worthwhile. May 100% fund if they think will make profit – may need investment/subsidy if not. Operators responsible for all aspects of service.
- **Community car club –** Someone/the community buys a vehicle and then runs the system themselves, as in Hook Norton. Can take a LOT of volunteer time but very successful. Henley also doing same (by leasing cars for £6k a year).
- **Peer-to-peer -** Like AirBnB for cars, people (or organisations with fleets) share their own existing cars, using company such as Hiyacar to deal with tech/insurance/booking side of things and then take a small profit. Model becoming popular in Oxfordshire.
- **Peer-to-peer closed loop** – same as above but people only sharing with specific known neighbours – ShareOurCars model championed by Emily Kerr around Oxford area.

Lots more useful info at www.gov.uk/government/publications/car-clubs-local-authority-toolkit) and https://www.como.org.uk/shared-cars/existing-schemes-and-operators

Current car club/EV car club provision in Oxfordshire

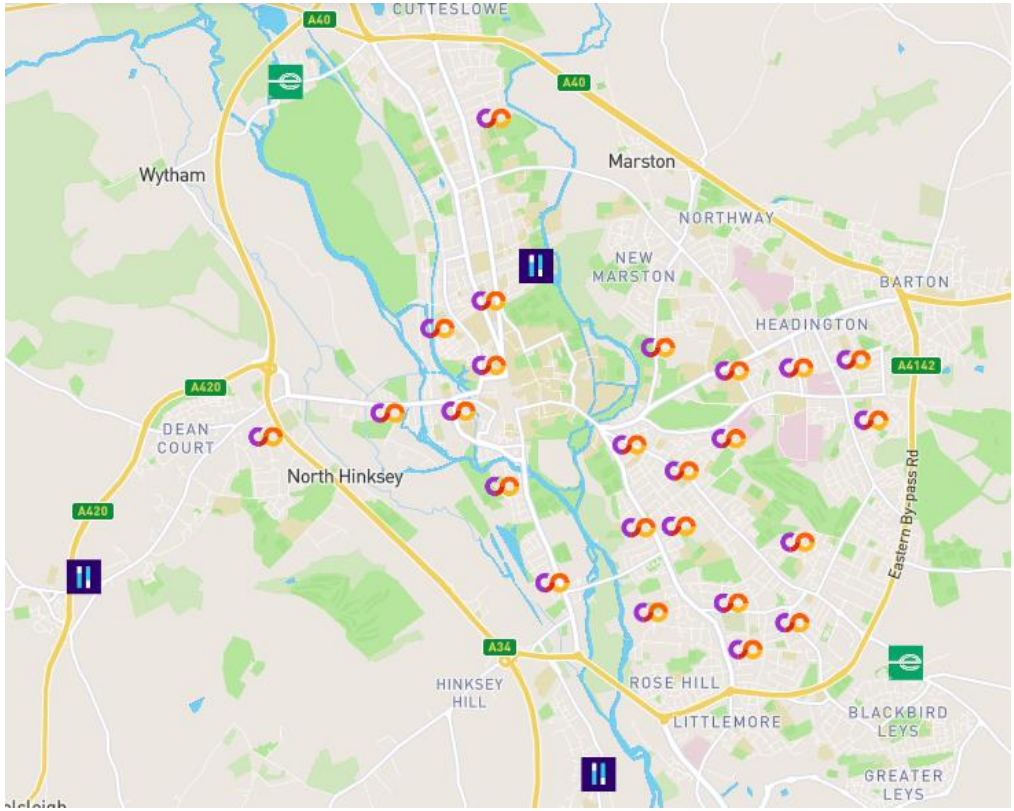
- The main commercial players operating here are **Co-Wheels, Hiyacar, ZipCar and Enterprise.** All slightly different costs and business models etc.

- Of these, I believe only **Co-Wheels** (formerly Commonwheels) so far have EVs in Oxfordshire

- **Co-Wheels** dominate in Oxford City with 45+ cars – **10 of which are fully electric** and are based at dedicated on-street chargers as part of Go Ultra Low Oxford (GULO) project

- Analysis of booking data for Jan 2021-Feb 2022 shows that the shared **EVs** in Oxford are always **more in demand** than other car club vehicles, particularly among younger club members who have joined more recently

- Co-Wheels looking to expand to 70+ and electrify further



https://www.como.org.uk/shared-cars/existing-schemes-and-operators

Coming up: Rural EV Car Club pilot

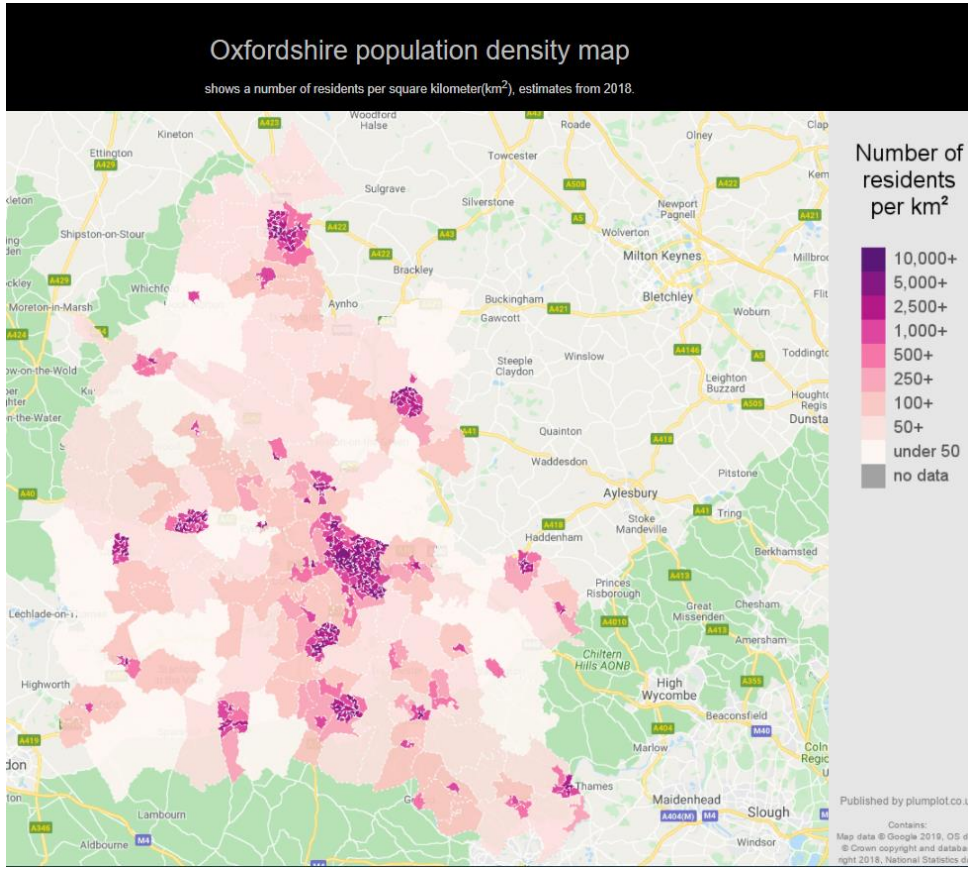
Success factors for (Electric) Car Clubs

Uptake to several previous schemes may have been poor, but could easily be put down to poor planning, poor promotion or poor management.

Criteria for success are *reasonably* well understood*:

- Population density of >4,000 people per sq. km
- Suitable EV charging location for car to be based
- Good public transport provision, so that car non-ownership is realistic
- Adequate promotion and incentivisation
- Community support and demand

In addition, the shift to working from home/co-working spaces model has changed people's patterns of car use and potentially shifted in favour of shared cars over car ownership



*Success factors adapted from: https://como.org.uk/wp-content/uploads/2018/06/Making-Car-Clubs-Work-guide-BK2.pdf

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What communities can do:

- See what demand there is for car clubs/pay-per-use car sharing schemes in your area
- Think about getting the community to set up their own scheme, and/or encourage residents to share their own cars
- Talk to local businesses with fleets and see if they could share their cars e.g. outside of working hours

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- LinkedIn - @Park and Charge Oxfordshire
- Twitter - @parkandchargeox
- Facebook - @parkandchargeoxfordshire
- Instagram - @parkandchargeoxfordshire
- www.parkandchargeoxfordshire.co.uk

Email – EVTeam@Oxfordshire.gov.uk