

Recommendation Report

On-street Electric Vehicle charging points within Warwick District

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Acronyms:

EV(s): Electric Vehicle(s)

WDC: Warwick District Council

Definitions:

Charging Rate: Charging infrastructure can be classified according to different charging modes which result in different charging rates. The charging modes vary primarily in charging power and security level. ^[1]

Slow: 3kW: this is the oldest standard and can typically be supplied by a standard household 3-pin plug, a wall or post mounted purpose built unit or via a street light charging point.

Fast: 7kW a newer standard that requires a dedicated power source and connecting cable type.

Rapid: 43kW AC/ - 50kW DC: this aims to recharge EV batteries within a short period similar to that for gasoline refueling of conventional vehicles. For fast charging to be classified as such, it must charge up to 80% of battery capacity in 20 minutes. Both the current and power ratings in fast charging are so high, because of this the fast chargers are recommended to be installed in service stations/centers which are supervised.

Pay As You Go: Where the chargepoints are also accessible to the wider public (rather than just local residents)

Plug-in Hybrid Electric Vehicle (PHEV): these are vehicles which have a petrol/diesel engine alongside an electric motor. They have a short range on electric power but using both systems can return 130 miles per gallon (eg: Toyota Prius and BMW i8).

Restricted chargers: have restricted access e.g. limited hours; customers only; privately owned site etc.

Unrestricted chargers: offer continuous, open access to EV users e.g. limitless hours, pay as you go customers, publically owned.

Ultra-low emission vehicle (ULEV): is the term used to describe any vehicle that: uses low carbon technologies, emits less than 75g of CO₂/km from the tailpipe and is capable of operating in zero tailpipe emission mode for a range of at least ten miles.

Executive Summary

The UK government has set out an ambitious plan to combat climate change while keeping automotive manufacturing competitive under the UK's Road to Zero Strategy. This strategy's primary target is to phase out diesel and petrol cars by 2040. As a part of this strategy, the Government Office for Low Emission Vehicles (OLEV) is committed to supporting the development of Electric Vehicle (EV) charging points throughout the UK. In January 2016, OLEV announced the four successful cities who secured funding for the Go Ultra Low City Programme nationally, these include: Nottingham, Dundee, Oxford and York. The progress of Oxford and Nottingham's Schemes in terms of installations and community engagement will be outlined and then applied to Warwick District Council (WDC) in this report.

Throughout the UK, the local authorities will play a key role in supporting this EV transition. Councils can help release the latent demand for EVs by providing EV charging infrastructure in their areas, thus increasing driver confidence. Councils can also encourage drivers to switch to electric cars in a range of ways, including by identifying an EV champion or committing to free or discounted parking permits for EVs.

Therefore, this report will consider the most appropriate course of action for installation of electric vehicle charging points in the District. This forms part of the wider agenda to encourage the adoption of electric vehicles by residents, visitors and businesses. As well as the environmental incentive, there is a strong economic incentive also to buy an EV. Indeed, OLEV offer a grant for EV users which covers the installation cost of building EV charging infrastructure in homes. Furthermore, a public charger can cost as little as 5p per mile, which is significantly lower than 12p per mile for petrol cars. Although current EVs are more expensive on average than petrol and diesel cars, the lower cost of refuelling combined with having lower maintenance costs and vehicle tax, makes electric vehicles the more economically and environmentally sustainable option in the long term.

Recent statistics show that Warwickshire's EV ownership has increased over 3000% since 2012, which is double the increase that England as a whole has experienced. Despite this growth, having a lack of EV infrastructure is a primary barrier to this adoption. As ownership is projected to rise significantly over the coming years, it is therefore crucial that this on-street charging infrastructure is provided in the District. This report will further review potential installation, maintenance and ownership options available for WDC to pursue.

1.1. EV Charging Guide:

There are three main types of EV charging –slow, fast and rapid. Ultra-rapid is another type but this will not be considered in the context of WDC due to the lack of EVs currently on the UK market that can be charged by ultra-rapid. These charger types represent the power outputs, and therefore charging speeds, available to charge an EV. Power is measured in kilowatts (kW).

Slow chargers/Standard:

- Provide 3.5kW to 7kW of power
- Are best used for overnight charging and usually take between 6 and 12 hours for a pure-EV, or 2-4 hours for a Plug in Hybrid Electric Vehicle (PHEV)
- Add between 10-25 miles of range per hour
- Are useful in locations where the car will be parked overnight or for a long period of time.

Fast chargers:

- Provide power from 7 kW to 22 kW
- Can fully charge an EV in 3-4 hours
- Common fast connectors are a tethered Type 1 or a Type 2 socket (via a connector cable supplied with the vehicle).
- Are useful at destinations where EVs are parked for a few hours, for example; in car parks, in supermarkets and leisure centers.

Rapid chargers:

- Are one of two types – AC or DC [Alternating or Direct Current]
- Current Rapid AC chargers are rated at 43 kW while most Rapid DC units are at least 50 kW
- Both will charge the majority of EVs to 80% in around 30-60 minutes (depending on vehicle)
- Only can be used on EVs with rapid charging capability.
- Provide 100 miles of range in half an hour
- Are useful are at locations where EVs are parked for a quick break, for example; service stations, taxi ranks.

Chargepoints come in a variety of forms and can be placed both on-street and off-street. Many of the public chargepoints used by other Councils are integrated into a free-standing column (similar in size to a bollard) and the rapid chargers are similar to a large parking payment machine. Lamp posts can also act as chargepoints, connecting the car to the electric network. Whether or not an EV can take AC or DC charging will depend upon the car model and attachment types. A person may need to buy different



3kW charging point



7kW charging point post



Rapid 50kW
charger

cables including portable charging cables that allow safe charging at home.

Examples of the main types of on-street charging points

1.2. Paying for public electric chargers:

On a public charger, an activation process is required to initiate charging. Depending on the network provider, this may require the use of an RFID card or smartphone app, often linked to an account which has been set up beforehand. An RFID card refers to an identification badge or card that transfer its contents to the reader via Radio Frequency Identification (RFID).

Contactless pay-as-you-go units are also becoming more common on newer units. Once activated, the units will conduct further connection and account checks before starting to charge the vehicle. (See Table 1 for further information of payment options).

The Government on the 15th July 2019, set out that it wants to see all newly installed rapid and higher powered charge points provide debit or credit card payment by Spring 2020. This is following the Zero Road Strategy, which allows EV users to pay for electric through a single payment method, rather than needing multiple smartphone apps or

membership cards. The Government aims to intervene by using powers in the Automated and Electric Vehicles Act, in order to roll this out across the UK.

1.3. Innovative Electric Vehicle Charging Hubs:

Lamppost Charging



Char.gy is a start-up supported by the WMG in the University of Warwick. Currently, Char.gy has created and installed EV charging infrastructure across Coventry and London which uses existing lamp posts as a charging source. This is able to provide two EV charging solutions:

1. A lamppost smart charge point that fits onto existing street furniture.
2. A satellite bollard smart charge point for greater placement flexibility.

They have currently installed over 300 charge points and Southwark Council was the first council to roll out this technology in August 2018. This company's viability as a network provider for WDC will be explored further on under recommendations, but more information can be found on the company's website: <https://char.gy/>.

Pop-up Electric Chargers

Currently being trialled in Oxford, the start-up company Urban Electric have partnered with Oxford City Council to install a unique type of EV charger which pops up from under the ground. The Urban Electric Chargers provide electricity at 5.8 kWh which is not enough for rapid charging, but will fully charge a vehicle overnight. Therefore, making it most suitable for on-street, urban, residential areas as it also has an installation depth of only 16 inches. Using this technology would allow the deployment of EV chargers without major construction work and would allow each street to maintain its character.



This charger is activated via an app, which then rises and delivers a charge of up to 5.8 kW to each vehicle. After the charging session is complete it sinks back into the ground. Urban Electric as a company, were chosen by Innovate UK (the government backed imitative) for a £4 million demonstration project which will deploy 108 charge points

across Scotland and in Plymouth, England. Further information on this technology is explored under the Oxford City Council case study within this report.

2.1. Network providers currently operating in the District

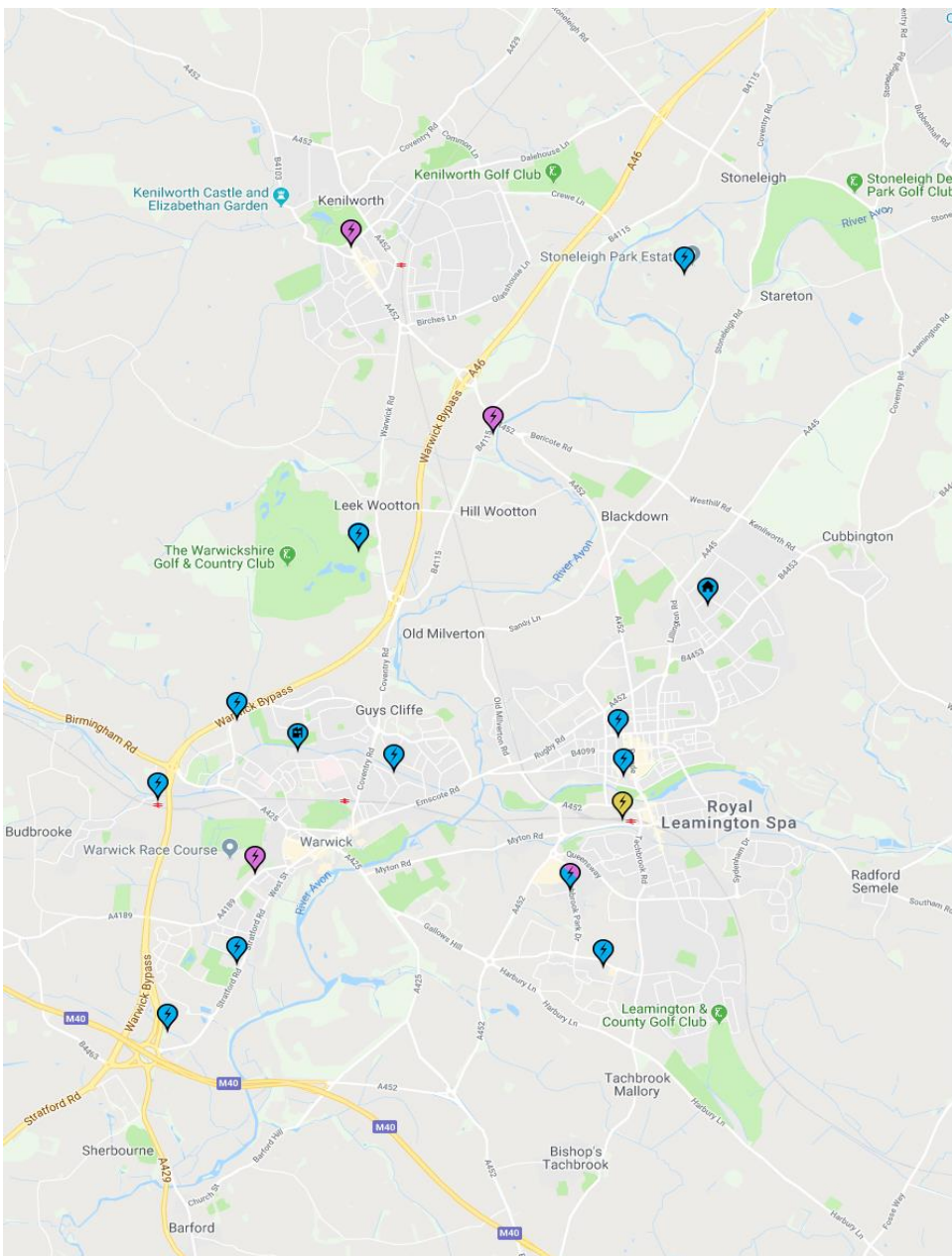
The major UK-wide networks include BP Chargemaster (known as Polar), Pod Point, Ecotricity (primarily on motorways so will not be explored as an option) and Charge Your Car. Most require you register with them and carry a swipe card (RFID) to use their machines. Some also offer a smartphone app and some are pay as you go. These options are comparable in the table below:

Network Provider	Cost					Accessed via:
	Membership	Fast Point	Rapid Point	Ultra Rapid (150kWh)	Minimum Transaction Amount	
Polar Plus	£7.85/month	12p/kWh	15p/kWh	20p/kWh		Smartphone App
Polar Instant		18p/kWh	25p/kWh	35p/kWh	£1.20	RFID Card
Polar Contactless		N/A	30p/kWh	40p/kWh	£1.50	Pay as you go
Pod Point	Sign up Free	Most points are free (where applicable tariffs are priced per hour)				Membership
Charge Your Car	£20/per annum	£1 connection charge (Rapid points require higher payments based on flat rate of per kWh used)				Smartphone App
ESB EV Solutions	£4/month		25p/kWh			Access Card
	Pay-As-You-Go		29p/kWh			Smartphone App
GeniePoint	Sign up Free	30p/kWh for Rapid chargers plus a £1 connection charge *Overstay charges: in the Rapid chargers after 1 hour vehicles are charged £10.00 In the Fast chargers after 4 hours vehicles are charged £10.00				Smartphone App
Char.gy	Casual	Regular chargers: 19.5p/kWh (£38.99 per month with 200kWh included)				RFID Card
	Unlimited	High mileage plan: £68 per month (unlimited kWh)				
	Pay As you Go	Occasional top up: 33p/kWh				Smartphone App
						Pay as you go

Table 1: Major operators in the UK and in the Midlands region; the cost and accessibility.

Map of the locations of network providers

As shown below, the accessibility of all current EV charging points across the District is limited. This is primarily due to a lack of infrastructure and investment in public charging points, in both the high street and residential areas alike. The Image below from Zap.com showcases this issue.



Pod Point is the largest network operating within the District with 16 chargers in total. Despite this quantity, 10 slow chargers are in one location (Leamington Railway Station) and the only 4 remaining are fast.

The network Polar has the predominate scope across the District having 9 chargers operational in total. An advantage of this network is the supply of rapid and fast chargers.

However, Polar chargers are installed beside Warwick bypass rather than on-street in the urban areas.

Image 1: the EV charging points located within the District (Source: ZapMap)

The profiles of the major network providers are described below:



BP Chargemaster/Polar is the UK's largest public charging network, with charge points ranging from three-pin units to rapid chargers available. Access is via smartphone app or

RFID card, and there is both a pay-as-you-go or a subscription membership available. Polar are official charging partners with the leading electric vehicle manufacturers including: BMW Jaguar, Land Rover, Mercedes-Benz and Renault. Plugged in Midlands Network is the regional network covering the East and West Midlands and is operated by BP Chargemaster, which means the former Government-backed Plugged-in Places charge points now come under the Polar network umbrella.

With more than 1,000 charging points and 1,800 connectors available, Pod Point is one of the UK's largest charging networks. Pod Point operates the Pod Point network, which aims to offer a charge point everywhere drivers park for an hour or more. The network focuses on Fast charging options, with only a few slow chargers available, and a small but increasing number of rapid charge points installed. Pod Point has official charging partnership arrangements with the likes of Hyundai, Kia, Nissan, Renault, Volvo, and VW.



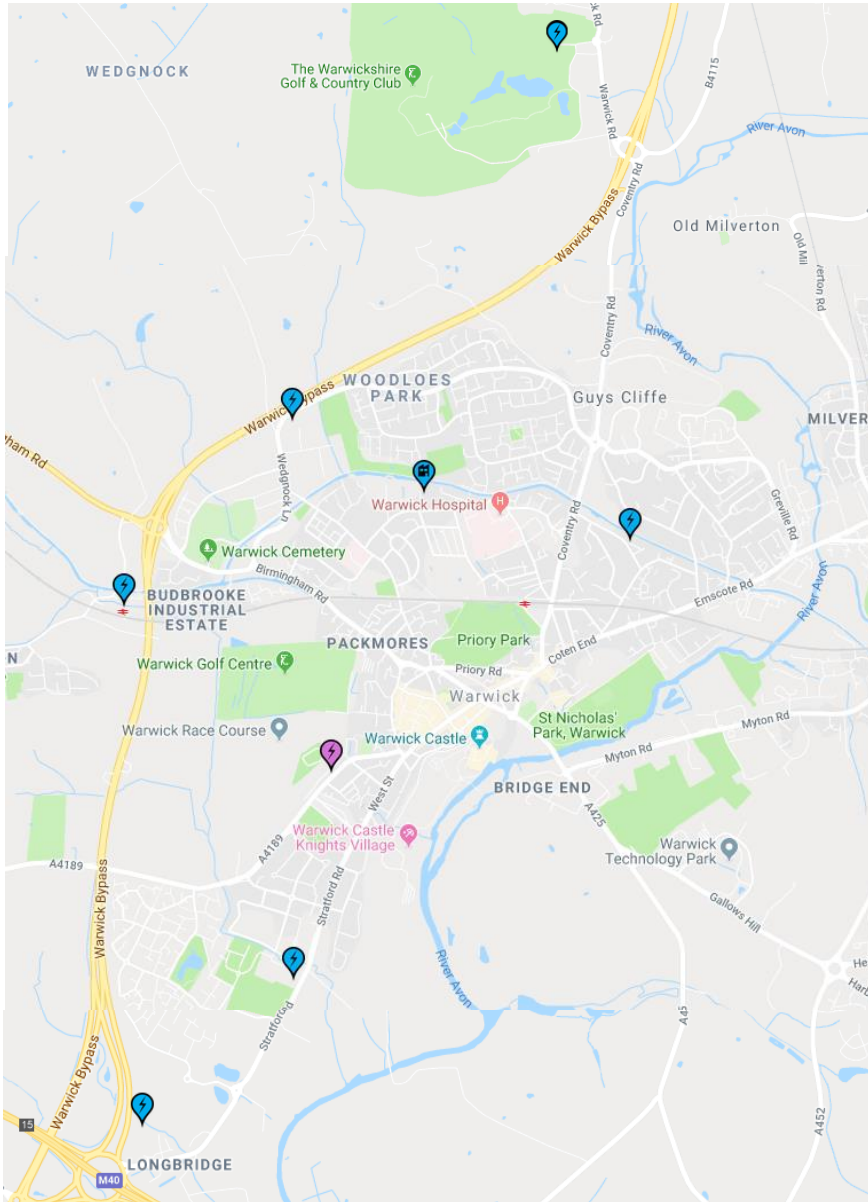
Charge Your Car operates a network of charge points across the UK, but unlike many other public networks, does not own any of the units. Instead, CYC is a back office provider and offers access to charging points on behalf of the unit owners. Tariffs

are set by the unit owners, not CYC, and thus can vary for each point – although many CYC units are free to use. The company runs networks for a number of large regional providers, such as ChargePlace Scotland and Source West.



ESB EV Solutions uses 100% renewable energy and the mileage each person will get per kWh will depend on the vehicle and driving style of the individual. They have 13 charging points in Coventry City and 70 in London, and an EV can be charged in as little as 30 minutes at 80% of its battery's capacity.

2.2. Current Issues within the District: EV Charging Points in Warwick Town



Warwick Town:

EV Charging Points: 8

Total Charger Number: 25

Operator	Charger Type	Number of Chargers	Access
Pod Point	Fast	4	R
	Fast	4	UN
EV Charge.O nline	Fast	2	UN
Zap-Work	Fast	2	R
Polar	Fast	4	UN
	Fast	3	R
Polar (in Warwicks hire Gold and Country Club)	Fast	2	UN
Unknown	Fast	2	R

R = Restricted

UR = Unrestricted

Currently in WDC, public access to charging bays are used exclusively for EV/hybrid recharging and Warwick County Council have EV/hybrid recharging points which are shared with disabled (blue badge) parking. As evident from the map above, 11 chargers are restricted and therefore not accessible to the public compared to 12 which are unrestricted. Yet there still lacks adequate infrastructure for EV charging points that are on-street, in town and fully accessible to the public. Installing on-street EV charging points would encourage the use of EV within the population and would provide further incentive for visitors coming into the town for shopping or leisure.

2.3. Recommendations for network provider

Char.gy

Char.gy offer a concession specifically for Councils who want to rapidly deploy infrastructure with OLEV's support and want to invest in future revenue streams.

Operations: Char.gy provide software for councils to track and manage the workflow of each charging device. The data collected assesses each charge point, the usage reporting, the performance reporting, the user statistics and job management.

Maintenance: they distribute Council Zero to each council, which is a complete package of hardware, installation and servicing that is zero cost to the council over 10 years. It is the company's responsibility to maintain the chargepoints, as they proactively test and clean the Char.gys to ensure they are safe. Any defects identified during inspections are repaired by the company.

This company is fully grant compliant with OLEV Funding and is a fully managed system (company provides software, hardware and full servicing). It is powered by renewable energy (by Octopus Energy). Similar lamp post charging technology is being installed in Berlin, Germany with the company Ubitricity.

For more information, see: <https://char.gy/>

Pod Point

Pod Point has the most chargers in the District with 16 chargers (4 Fast and 12 Slow). Polar is the largest provider for the country and it has 12 chargers in the District (6 Rapid and 6 Fast), 80% of these in the UK are free for subscribers.

Being the second largest provider in the District, this may be a viable option for Leamington, Kenilworth and Warwick to consider for installing, running and managing its EV on-street vehicle charging stations. It focuses on fast charging options which are suitable for on-street parking in the town centres and increasingly is installing rapid charge points. It's partnership arrangements enables a plethora of vehicles to be charged at these stations.

For more information, see: <https://pod-point.com/>

Genie Point



ChargePoint Service (known as GeniePoint) has been partnering with Councils across the UK to install rapid GeniePoint chargers.

For example: in Havant Borough Council, Torridge District Council and in the neighboring district of Coventry City Council. This provider supports local authorities in their efforts to provide EV infrastructure in there. This provider may be the most suitable option for the installation of rapid EV chargers particularly along the highstreets or in the busiest parts of the District's urban areas.

For more information, see: <https://www.geniepoint.co.uk/ds/>

BP Chargemaster:

Leading Go Ultra Low City Nottingham have partnered with BP Chargemaster to deliver their EV charging network to the city. The Business Support Officer of Go Ultra Low Nottingham, Becca Potts has outlined their relationship with BP Chargemaster below:

"This company has end-to-end service that includes the site assessments, dealing with the DNO, the installation, management and maintenance of the equipment. Their own in-house team undertake the installations so everything runs pretty smoothly. In terms of maintaining, they perform biannual maintenance on each charge point, as well as any daily issues (out of service/communication/faults etc.) that we send them via daily monitoring using this map <https://www.chargeyourcar.org.uk/>. We have a point of contact who responds to these issues within a few hours, first by rebooting the charge point and if this does not clear the issue, an engineer will be sent to the site. Issues are usually cleared within 1-2 days unless it is a large fault."

BP Chargemaster have a log in via a map link which enables the Council to monitor the start time and finish of charges as well as the level of power dispensed. If this company were to partner with WDC, then internal monitoring could be plausible.

For more information, see: <https://bpchargemaster.com/>

3.1. Glasgow City Council: Phases of development

By 2032, all petrol and diesel vehicles will aim to be phased out in Scotland. Indeed, Glasgow will be Scotland's first Low Emission Zone (LEZ), with restrictions being extended to all vehicles by 2022 as a part of the second phase of development. As a city not a part of the Go Ultra Low City Scheme, their methods of engagement and projected installation of EV charging points will be interesting to explore.

In June 2019, it was announced that through Transport Scotland's Switched on Towns and Cities Challenge Fund, 70 additional charging points will be added in the city. In order to appropriately allocate the EV charging points, a trial run will take place. This will be in an on-street residential area in order to address the barriers which may arise for EV users without a dedicated car parking space. In conjunction with this, an electric vehicle parking permit scheme will also be investigated to address the issue of enforcement and availability.

Engaging Residents: In November 2018, a policy strategy was released by the Council outlining the development of their EV strategy. Prior to this, Glasgow City Council ran two EV events in October 2018 to engage two distinctive community groups:

- 'Greenfleet' was targeted at commercial operators and fleet managers. This event specifically was aimed at taxi fleets and couriers. Greenfleet itself was commissioned to assist local authorities to uptake electric and plug-in vehicles as well as encouraging the installation of more charging infrastructure. Greenfleet held an event in Kenilworth, Warwickshire on the 25th October 2018, which allowed members of the public to experience driving Ultra Low EVs.
- Public members: over 150 drivers tested electric vehicles that are currently available on the market in the Greenfleet Event.

Learning Points for WDC:

- WDC may look to replicating this event again, in order to promote EVs in conjunction with the installation of the charging infrastructures in the District.

3.2. Nottingham City Council: Charge Point Project

As part of the Go Ultra Low Nottingham project, this Council are investing £2 million into creating a comprehensive electric vehicle charging infrastructure network. Working in partnership with Nottinghamshire County Council, Derbyshire County Council and Derby City Council over 200 charging points will be installed across the region. These will be a mix of fast and rapid charge points at strategic locations on the major road network, and also at council owned car parks, public transport interchanges such as park and rides, and retail outlets.

In 2017 the contract to deliver this project was awarded to Chargemaster, who installed and now maintain the charge point infrastructure on behalf of the four councils. These charging points are part of the newly created D2N2 network, which offers reduced tariffs for residents of both counties (holding the D2N2 postcode).

Network providers: BP Chargemaster. The relationship of this partnerships has been explored above.

Engaging Residents: Nottingham City Council prior to piloting the scheme, invited the public to suggest locations for charge points. They have also set up a webpage outlining the progress of the sites in terms of installation and usage. An EV Champions group was also instigated in which members of the public who already own EVs, act as a sounding board and help out with events, writing blogs and appearing on promotional videos.

Learning Points for WDC:

- The creation of the D2N2 network in Nottingham, may be applicable to residents in WDC who hold the CV/CV3 postal codes.
- WDC may consider establishing an EV Champions group like that of Nottingham, with residents who could promote the use of EVs in the District and provide local advice on EV charging and technology.

3.3. Oxford City Council: Pop Up EV Charging Points

This council has been trialling 6 different charging technologies at 30 different locations to find the best option for residents on street parking on the narrow streets of Oxford town. Oxford have taken a “whole street” approach in consideration of both electric and petrol or diesel fuelled vehicles. To meet the needs of both drivers, they have not implemented dedicated charging bays. Therefore, retaining accessibility to parking of all drivers. Both the OLEV and the Pop-up Electric Chargers Trial aim to inform the roll out of 100 chargers across the city within 5 years.

Two schemes running:

1. Pop-up Electric Chargers Trial by Innovate UK/Urban Electric: this funding was difficult to obtain for Oxford City Council but assessing how successful this technology is may give WDC insight into how to implement a similar trial or alternative technology in the District.
2. OLEV’s Go Ultra Low City Scheme: this was awarded to Oxford in the 2016 bid. Using the OLEV funding, all capital costs (including equipment and installation) were fully covered and therefore retains ownership of the chargepoints. Here, the chargepoints are leased to operators for four years, therefore making the operator responsible for the maintenance and operation of the chargepoints (including customer service, payment collections and power supply). Once profitable, the revenue share is returned back to the Council.

Innovative Charging Technology:

As electric vehicles are not currently the prominent vehicle of choice, Oxford have opted to install the “UEone” charger which was developed by the OxPops projects. For every 3 retractable charging posts there will be 1 feeder pillar. This retractable pavement bollard is being trialled under the Pop-up Electric Chargers Trial, which allows the charging point to pop up when in use then sink down into the pavement when not in use. This is the world’s first Pop Up electric vehicle charging points to be installed. This project by Oxford City Council and their partnering organisation Urban Electric is funded by Innovate UK, specifically for residents who do not have access to off-street parking nor dedicated spaces for electric vehicles. The trial is projected to cost £600,000 for the testing and installation of these EV chargers. Indeed, this trial forms part of the larger Go Ultra Low project.

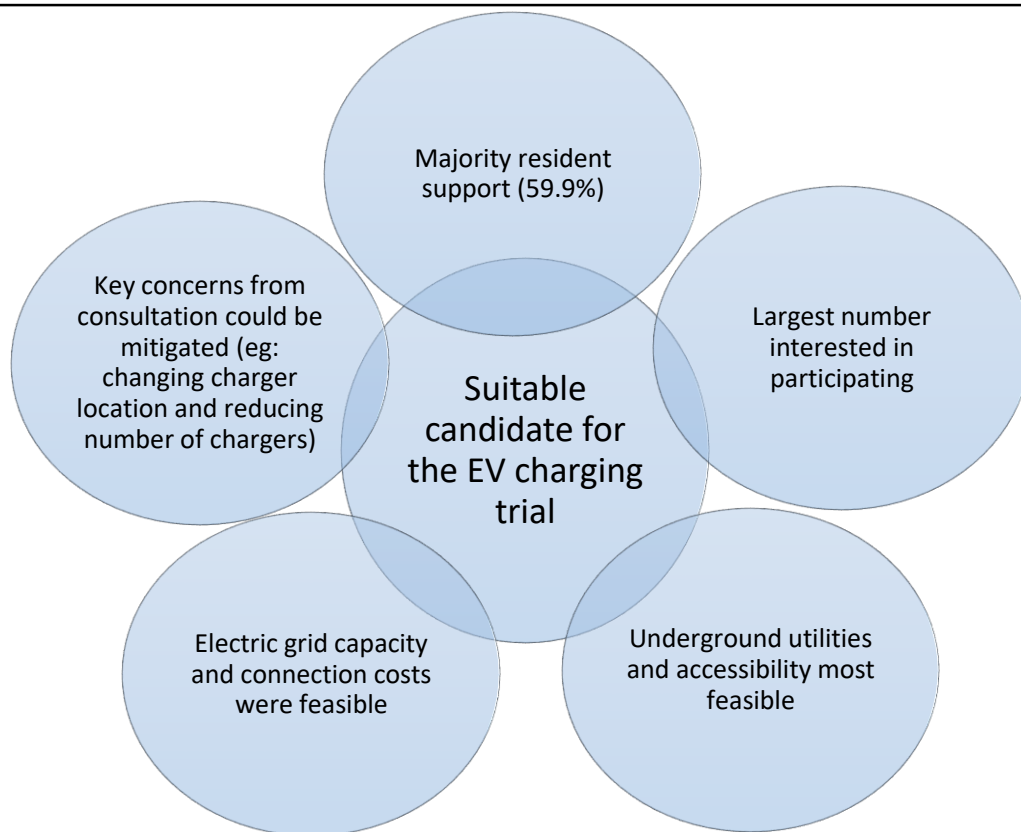
Currently, this technology is being rolled out in phases and is expected to have the first pop-up chargers on the streets by 2020. Oxford City Council by November 2020 may be able to offer an evaluation of this trial to WDC and give recommendations on points of improvement.

Network provider: Oxford City Council uses SSEN as electric providers.

3.4. Methods of residential engagement by Oxford: Nomination and Consultation

The streets for these electric vehicle points were nominated by the local residents. Through social media and a Council press release, which was distributed by local newspapers, the public were informed of this street trial and could nominate their street accordingly. Eight streets were nominated and three were shortlisted based on how suitable they were for installation, particularly in terms of their access to electric supply.

A public consultation was carried out with the residents living on the three shortlisted streets, spanning just over one month. The information gathered here was used to inform the next steps of the trial, which involved cutting two of the three streets and keeping only one in the trial. The final shortlisted streets were communicated to all residents involved in the consultation. The final candidate for the trial met the following criteria and was therefore selected.



An important point to consider, is that provisionally throughout this trial, only residents would be permitted to use the chargers. The consultation revealed that some residents of this street were considering switching to electric if the trial were to continue. Indeed, for the project to be successful, Oxford City Council established that only 1-3 residents were needed. Despite the lower numbers of activate participants, the installation of 6 chargers was approved of in order to have the charging infrastructure in place as the UK transitions to zero-emission vehicles.

4.1. Installation and ownership

Warwick County Council's report suggested that the department with main responsibility for charge point infrastructure and maintenance should be Housing and Property Services – Asset Management. WDC does have the option of installing these chargepoints via its own source funding for capital costs and running costs. There are financial benefits to this option and projected profit in the long term. Charge your Car, is a network provider who follows this model of ownership, which would allow WDC to own each Charge Point and manage the tariffs set.

The majority of network providers do not provide online information regarding installation costs but do assert that they will maintain and operate the EV chargers. Research into network providers has indicated that using the Char.gy or BP Chargemaster, would detach the Council of installation and maintenance cost and be the more economically viable option. Through a software system supplied by these companies, WDC would be able to monitor usage and review the success of installations throughout the District. Nottingham City Council have followed this route of installation and ownership and asserted its success.

4.2. Current funding available from the Government

The Office for Low Emission Vehicles (OLEV) is a cross Government, industry-endorsed team combining policy and funding streams to simplify policy development and delivery for ultra-low emission vehicles.

In order to install EV charge points through OLEV funding there are specific technical specifications and accessibility criteria which must be met (which are outlined in the March 2019 Report). The costs eligible for funding is the installation of the charge points. The funding will be allocated by OLEV to successful applicants on a first-come, first served basis, whilst funds remain. Indeed, OLEV will prioritise applications from local authorities installing infrastructure in areas with particular air quality challenges, and Local Authorities who have not received Go Ultra Low, or other sources of funding for on-street residential infrastructure. Therefore, making WDC are suitable candidate for such funding. Warwick County Council are already applicants to the 2019/2020 funding but for future reference, WDC may consider following the OLEV route as EV charging points will increase in demand over the next 5 years (under Government projections).

4.3. Concluding Recommendations

The Go Ultra Low Cities have led the way in developing detailed and comprehensive EV strategies, given the funding allocated to each of them. As recommended by Local.gov.uk, where resources are limited within a Council, that local authority should focus on providing public chargepoints where they are most likely to be needed:

- Where drivers do not have access to off-street parking to charge at home
- For drivers who need to recharge during the day without returning home (eg: business workers in the highstreets of the District towns)
- At destinations where people might wish to recharge after long journeys (eg: park and rides or train stations)
- Where drivers are in transit to another destination but need to stop to recharge their vehicle to continue their journey.

Although on-street public charge points are needed in Warwick town, Leamington Spa and Kenilworth and other drivers may top-up using these, this will not be their typically everyday practise as it will be more expensive than charging at home. Therefore, it may be recommended not to install more than 1 charging point for every 10 EVs car within the District. This is best to be assessed using the future projected ownership numbers.

From provisionally researching the most appropriate chargers for the District, a mixture of slow, fast and rapid are all required. In locations around the District where EVs are likely to be left for prolonged periods of time, slow or fast chargers are likely to be enough. This would be most appropriate in urban areas of the District which have on-street parking used by residents, or where they otherwise could not install a charging point within their own property.

Fast or rapid chargers should be installed in the central areas of each town, where EVs are likely to be parked for 1 to 3 hours at a time. This will ensure the EVs are charged to almost full capacity and enable multiple cars to use these charging points throughout the day. Data from other Councils suggests that the most popular charging sites have a least 1 rapid within them, with the most popular sites being fully rapid.

In order to minimise risk to the Council, it is recommended that a concession contract be used. This allows some control over the network but puts the onus onto the network operator to run and manage it, meaning that any site that is out of action does not make money for them and thereby incentivises the operator to fix them quickly.

4.4. Further Recommendations

From researching the trials conducted in other Councils, residential engagement will form an essential part of the installation planning. Another recommendation which may be followed in the short term, would be to update the Warwick District Council website's section on Electric charging points. Even outlining the current plans and OLEV funding may encourage residents to invest in an EV, knowing this infrastructure will be provided on-street in the District. Furthermore, a Council page outlining the EVs currently most suitable in the market, would be beneficial for local residents considering purchasing an Electric Vehicle. By providing details of the local car dealerships or companies who are selling EVs, this may further encourage local residents to consider buying an EV, be it a Plug-In Hybrid or fully Electric as their next vehicle.