

Regional Electric Vehicle Unified Plan

D4.3 Final report on Consolidation, Development of Guide

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Introduction – Best Practice Guide

The government has made a commitment that no new petrol or diesel cars should be sold from 2030 onwards and no new hybrids from 2035. Charging facilities with the help from Local Authorities is essential for the government to be able to respond to the climate emergency and to limit carbon emissions from the transport sector.

Electric Vehicles will help to decarbonise road transport, but these vehicles will need to be able to access chargepoints. The private sector is already providing chargepoints around the country, but they usually focus on the sites with the best financial return such as motorway services, city centre car parks or other sites close to urban A roads with high traffic flows. The commercial sector is more interested in providing rapid chargepoints, with a higher turnover of EV cars leading to better financial turnover.

If the government is going to realise its ambition to net zero transport by 2050, there is unquestionably a role for Local Authorities to work with the private sector towards providing equitable chargepoint access which is affordable and easily accessible for all. Rural areas are a particular challenge for Chargepoint Operators (CPOs) or Local Authorities who want to provide Electric Vehicle Chargepoints (EVCs). Rural areas are less commercially viable for new EVCs. Electrical connection costs are higher in rural areas and there is less passing traffic so less EV turnover per chargepoint. Investors are less likely to invest in these rural areas.

The Government expects that most drivers will charge from or close to their home. This becomes difficult when homeowners do not have access to a driveway or a garage and therefore cannot install a home chargepoint (over 8 million households in the UK). As much as 40% of housing in areas can be without access to off-street parking. An example of this is County Durham in the North East of England, where 42% of the housing stock is terraced. The need to charge EVs close to people's homes, particularly in rural areas and less commercially viable area, means that Local Authorities need to engage with the issue.

This best practice guide which comes out of the 2022 Innovate UK funded REVUP and explains how Local Authorities can step up to the challenge.

The REVUP Project

Durham County Council, working with Transport North East and Cybermoor (www.cybermoor.org), were awarded funding from Innovate UK to research how Local Authorities in the North East region can accelerate the roll out of Electric Vehicle Charge Points (EVCPs). The project which was named the 'Regional Electric Vehicle Unified Plan' or REVUP, aimed to gather lessons learned from Authorities around the North East and beyond, and has developed this Best Practice Guide based on the project's findings.

The purpose of the toolkit is to support Local Authorities to facilitate the installation of Electric Vehicle Charge Points (EVCPs), especially in remote and underserved communities and to avoid the creation of a so-called 'Charge-Point Divide'.

The principle aims of REVUP were to learn and share best practice and to develop a process to enable regional LAs and other public sector bodies (e.g. emergency services) to collaborate on applications to the Office for Zero Emission Vehicles (OZEV) and apply for funding to install hundreds/thousands of EVCPs, necessary to deliver proper regional coverage. During the process of working on REVUP and meeting with other Local Authorities, it became clear that there were many experiences worth sharing Local Authorities around the whole EVCP installation process – from of the initial idea to right through to commissioning.

REVUP and the shared experiences will help deliver a common standard for the identification, costing and installation of EVCPs. The overarching aim is **'to change the current tortuous process, into one which is as simple as the installation of a new streetlight.'**

Purpose of Guide

This guide sets out common issues and suggested best practice for installing chargepoints for a Local Authority, covering key issues to consider and which departments in Local Authority need to be involved in the works, depending on the type of project. Often, there are different solutions depending on how the LA is set up, but the purpose of this guide is to target areas which have been identified as common challenges across all Local Authorities we spoke to as part of REVUP.

The aim of the guide is to simplify the process as much as possible, particularly for Local Authority officers. This guide was informed by 85 meetings with local and combined Authorities, the private sector, and the voluntary sector. Specifically relevant to this guide, was the individual meetings with all of the Local Authorities in the North East in both the North and South of the Tyne Combined Authorities that comprise the 'Joint Transport Committee (JTC).

One of the aims of the [REVUP](#) project was to lay a foundation for an innovative but simpler model for chargepoint delivery, one based upon the STEP model (Section 9). This best practice guide and the investigation of innovative ideas such as STEP, could enable the North East region to set up a network of well-located and accessible chargepoints, and help to decarbonise roads so that Councils can move closer to fulfilling their promises of being NetZero by 2050.

The [REVUP](#) best practice guide focuses on 9 key issues, that officers at Local Authorities need to be mindful of when planning new EVCPs. Each issue has a chapter in this best Practice guide that reflects some of the key learnings of the [REVUP](#) project.

They are:

1. Member Support
2. Resources
3. Strategy
4. On-Street Charging
5. Equalities and Accessibility
6. Legal – Procurement and Assets
7. Planning Permission
8. Electricity and Grid Connection
9. The STEP solution

We have done our best to keep issues distinct from each other but inevitably there is some overlap between chapters. Where appropriate, cross referencing has occurred.

1. Member Support

Member support, particularly at the Cabinet level, is the key to delivering more EVCPs, engaging with Members should be the priority for officers.

Elected members can provide a steer as to how involved the Local Authority should be in providing chargepoints, informed by resident's needs. Individual officers' concerns should be heard but should not delay rollout of infrastructure if the Authority view is that it will provide chargepoints.

Experiences from REVUP – Member Support

We found that all the Local Authorities belonging to the JTC had some member support. All Authorities had declared a pre-pandemic climate emergency, and some had resulting action plans. Yet, the REVUP team still found different levels of member support and interest within the North East relating to installing EVCPs.

Where Members were more engaged in EV issues, more resources followed on. In practice, this meant LA staff spent more time on EVCP projects and more funding was made available for EVCP delivery. When meeting with Northumberland, it was clear that they had particularly strong support from Members:

'Previously, funding had been an issue, but over the last year Northumberland has invested heavily on EVCPs. It is an important issue for members, so this is reflected in the investment.'

At the time of the meeting with Northumberland, they had 111 working EVCPs, with an additional 50 confirmed for 2022. Some of these have replaced the outdated 2009 'Plugged-in Places' EVCPs. In Authorities without this explicit Member support, resources and funding were more difficult to come by.

Regardless of the authority, if an Authority wants to roll out more EVCPs, it is critical to get member support. This support means more corporate support and in turn, more resources and funding.

REVUP Recommendations on Member Support

- Elected members can provide a steer as to how involved the Local Authority should be in providing chargepoints.
- The level of Member support across Local Authorities did vary - those Councils where Members were more engaged in EV issues, more resources dedicated to EVCPs resulted.

2. Resources

Sometimes because of Member support, the next most important factor to drive delivery of EVCPs in Local Authorities was to ensure enough resources were allocated, to both staff time and finance.

Experiences from REVUP - Resources

Most Authorities spoken to, wanted to do more work on EVCPs but did not have the workforce. In the JTC area, only Durham has a dedicated EV Officer. Having a dedicated officer appointed to pursue the installation of EVCPs would be a major benefit to every Authority.

In Authorities with large rural areas, residents tend to be more car dependent, and as a result these Authorities have invested more staff time and finance into the delivery of EVCPs. In the large North East rural Authorities (Durham and Northumberland), both Authorities have each invested in over 150 new EVCPs since they declared climate emergencies in 2019.

Some Local Authority officers that were spoken too, often experienced problems providing an internal business case for new EVCPs. Officers could not purchase the hardware from a capital budget as EVCPs are effectively losing money until more people own EVs. Therefore, LA officers looked to work in partnership with private sector chargepoint operators to obtain the chargepoints. Chargepoint operators sometimes required unusually long-term contracts, for as long as 15 or 20 years until the EVCPs become profitable. These long-term contracts can raise the concerns of procurement officers, especially as the EVCP market is still maturing.

Involve Parking and Highway Officers – Making Local Authority officers from Highways and Parking responsible for the delivery of EVCPs reduces tensions or concerns around the loss of parking revenue. These officers understand the local traffic flows and the locations of car parking where pressures relating to off street or on-street parking will be felt. They have good knowledge of locations that will make good charging destinations. However, unless they are EV drivers, they may make false assumptions about charging behaviours, e.g. imagining that people will only use rapid chargers.

For example, officers at North Tyneside had identified a strategic opportunity related to their parking assets. Through a combination of analysis and local knowledge they had identified that there were numerous council-owned car parks near terraced housing. In an urban area like North Tyneside, this can be the appropriate local solution, especially when they understand that providing on-street charging could be unpopular and could also potentially have a negative impact on their active travel ambitions. The involvement of highway and parking officers can be a major advantage to Local Authorities interested in installing more EVCPs.

EV Working Groups – It is not only officers from the highways department that have much to contribute when it comes to delivering EVCPs, there are many departments in each authority that are required to be involved in the delivery process. It’s important that an individual from each relevant LA department takes ownership of contributing to the delivery of EVCPs in each LA area.

An effective EV working group can include colleagues from assets, highways, parking, procurement, legal, fleet, planning, transport, policy, equalities etc. Durham set up a working group which met face to face at a standing meeting where work on the provision of EVCPs was shared and problems addressed. As a minimum, a shared channel or space could be set up on a platform such as Teams, where work could be shared and be commented upon.

One issue to be aware of when setting up an EV working group is the amount of internal sign offs to be required when delivering chargepoints. Because of the numbers of officers and departments involved, sometimes the communication works better at smaller Authorities where fewer officers are required to be involved and often only one opinion or sign off is needed. The flip side of this is that smaller Authorities generally have less resources to deliver EVCPs. The complexity of internal sign off is further explored in Chapter 6.

Recommendations from REVUP

- After member buy-in, the most important factor to drive delivery of EVCPs in Local Authorities would be to ensure enough resources are allocated – staff time and finance.
- Making LA officers from Highways and Parking teams responsible for the delivery of EVCPs is advantageous
- There are many departments from every authority that are required to be involved in the delivery process for EVCPs - setting up an EV working group within Local Authorities is highly recommended.

3. Agree on Strategy

Agreeing an approach or strategy to chargepoint installation internally can help guide decision making and streamline the process of getting EVCPs in the ground. An agreed organisational approach can help avoid delays in aligning individuals who may have different views on processes.

Experiences from REVUP on EVCP Strategy

When looking at the 7 Local Authorities within the JTC, we found only 2 (Durham and North Tyneside) had developed a specific EVCP strategy. Both Authorities set out actions that demonstrate that their organisation should be a lead player in providing EV infrastructure.

All Authorities agreed that having a long-term plan was necessary, even if that plan was to leave the provision of EVCPs to the private sector. It can also signal to private chargepoint operators that their investment will not be crowded out by public chargepoints, funded with grant money and able to provide lower cost charging. The collaborative process of writing a strategy relating to EVCP provision and getting it adopted by the Cabinet is a way to actively engage with Members and to raise the profile of the issue in individual Authorities.

Northumberland do not have a formalised strategy; however, they are an ambitious Authority in regard to EVCP provision. Although they do not have a strategy set out on their website, they had made key internal decisions that set a direction of travel which includes significant investment in EVCPs. For example, they have a circular investment model, where they invest and own the hardware which means the Authority holds onto revenue generated at the EVCPs. They then re-invest any profit into strengthening their EVCP network.

Having a long-term EVCP strategy in place could assist with the strategic context with funding bids and set the ambition of an Authority. However, as Northumberland demonstrated, an actual document on the website, is not as important as having local Members driving the process and supporting officers responsible for delivering EVCPs.

It is essential that Officers and Members have a unified approach to EVCP delivery. For example, decisions need to be made about whether the Council is to take the lead in terms of owning EVCPs, filling in gaps in the EVCP network, or supporting the private sector to deliver chargepoints. The answer to this question will depend often on geographic, commercial and political circumstances within individual Authorities.

Naturally, the private sector will focus on sites most likely to generate an income, so there may well be a role for the Local Authority in ensuring equitable and affordable access to chargepoints in less viable areas, or areas where individuals are unable to charge at home as they lack off-street parking.

For example, over 40% of the housing stock in County Durham did not have access to off-street parking. A more comprehensive or 'active' EVCP strategy may well be more relevant for the rural Authorities to take more of a hands-on role to EVCP provision. It may be more suitable in urban areas to leave it to the market, where there is likely to be more private sector investment. The key point is that it will be different depending on geography and resources.

A common argument against Councils working to install chargepoints is that Local Authorities have never operated their own petrol stations. However, many Authorities are committed to decarbonising both council activities and the wider authority area so ensuring that residents have good access to a network of chargepoints is essential to enable the decarbonisation of road transport.

Recommendations from REVUP

- It is essential that officers and members have an agreed approach to EVCP delivery.
- The process of writing a strategy relating to EVCP provision and having it adopted by the Cabinet is a way officers can actively engage with members on the issue.
- When writing a strategy, consider the urban/rural nature of the Authority.
- Having a strategy can help support funding bids.

4. Home charging for residents without off-street parking

Where should people with no off-street parking charge? Should they use on-street chargepoints, plug in at work or drive to use rapid chargepoints at supermarkets or petrol stations?

The fastest chargepoints can now take as little 20 minutes to charge a car to 80%. Many Authorities and private sector organisations in the UK see rapid charge points as the answer, but the cost benefits of switching to EV's clearly depreciate when people use rapid chargepoints as opposed to [home charging](#). Convenience and lower prices will mean a segment of people will charge near their home when they can plug in daily at a time convenient to them and where the electricity is cheaper than at rapid charging sites.

Experiences from REV UP – On-Street Charging

On the continent, particularly in the Scandinavian countries, there has been more focus on home charging which is more convenient, cheaper for residents, and does not require driving to charge. Rapid charging at destinations has the disadvantage that could result in queues and 'dead' time for customers waiting for the car to charge. The Scandinavian model supports the quick way of living, more home charging and creates less burden on the DNO as people can charge overnight when there is less pressure on the Grid as opposed to the 'Petrol Station model' where people will charge on the shoulders of a working day.

However, the lack of off-street parking, makes the home charging model problematic in the UK. Nationally, there are 8 million homes (a quarter of all homes) without off-street parking. The North East as a region has a significant level of terraced housing (42%) where often, residents do not have driveways or off-street parking where they could install a chargepoint.

Most Authorities we spoke to as part of [REVUP](#) had not examined in detail the implications of 'on-street charging', most Authorities were still concentrating on placing EVCPs in public car parks. Durham, South Tyneside and Northumberland had already replaced their older semi-redundant 'Plugged-In Places' EVCPs and were now concentrating on locating new EVCPs in Council owned car parks before considering the technicalities of installing EVCPs on-street. The remaining Authorities in the North East were waiting on the outcome of a regional procurement process.

Locating EVCPs in Council car parks were the 'low hanging fruit' for Local Authorities wanting to install new EVCPs. These locations avoid the controversial issues around on-street parking and the potential

for neighbour disputes and unwanted complaints to the Council's highway department.

The larger rural Authorities have targeted Council owned car parks as locations for new EVCPs over the last 2 years and have received few complaints for doing so.

When considering 'on-street' charging, most highways officers interviewed were reluctant to support EVCPs being located on-street. There was a general concern that EVCPs 'on-street' would unofficially create private parking spaces 'on-street' for residents and thus lead to tension between residents. A preferred option, but also risky for Authorities, was to permit residents to trail cables across footpaths. This had been previously deliberated by most of the Authorities but there was no consensus on to deal with this tricky issue.

Lamppost chargers or bollard chargers that rise from the ground have also been proposed as solutions that would minimise street clutter, but still run the risk of causing trip hazards and are more complicated than a standard chargepoint to install and maintain.

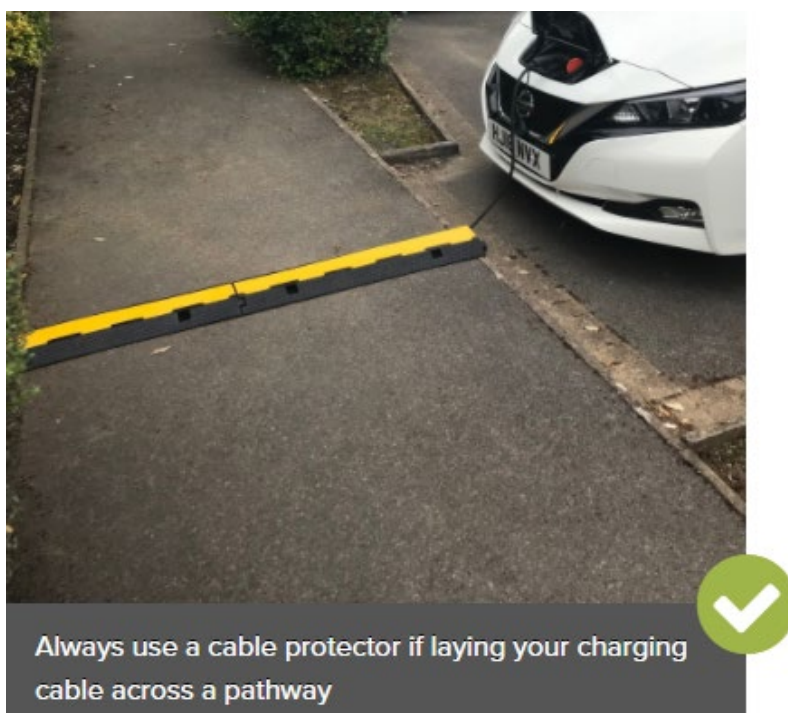
Different UK approaches – Cables Across Footpaths

Some Authorities have permitted charging cables to be laid across the footpath where they are either secured in a channel dug into the footpath or covered with a cable guard, to minimise potential trip hazards. Many people will wish to charge overnight for convenience, meaning that loose cables are not left trailing across the pavement where they will pose a hazard to pedestrians. It is also important to note that from a grid capacity perspective, off peak charging overnight can help balance the grid by avoiding peaks on the 'shoulders' of working days.

Hampshire County Council have been 'trailblazers' by being the first LA to publicly state support for residents that want to home charge by placing cables 'across footpaths.

They have recognised the significant benefits of EVs, particularly in relation to air quality and public health's and have released [guidance](#) on their website that's permits residents to place power cables across footpaths to charge cars. Their guidance recommends that residents always use a cable protector that extends the full width of any footway and verge between the property and vehicle laying your charging cable across a pathway. The permit costs £145 to apply for and the applicant must have public liability insurance and other details regarding the location of the power cable.

Picture 1 – An Example of Cable Protector taken from Hampshire County Council



As noted as part of the [REVUP](#) project, most Authorities spoken to and that have thought about this approach have been concerned about the impact on other non-car users, particularly those users who may have mobility issues that may find cables across footpaths an extra hazard to navigate. The Hampshire model feels like a straightforward solution but our conversations with mobility groups as part of the [REVUP](#) project did raise fundamental concerns with cable guards. This would be accentuated at night and with people who were visually challenged. One council cited an example where an elderly resident had tripped on a cable, breaking their hip which led to a hospital stay, social care costs and reduced mobility.

Oxford City Council have designed a novel but very practical solution (see picture 2) that may solve the issue of a potential trip hazard, rising bollards or using streetlights to charge EV cars. To enable home EV charging for those who park on the street outside their homes, the Gul-e product provides an easy-to-use, convenient, and simplistic solution. Gul-e is a durable gully/channel that is seamlessly and permanently encased in the footway and includes a unique tool to aid its use. To charge the electric vehicle, the user simply parks in front of their home, presses the charging cable into the gully and plugs their vehicle into their own home charger.

Picture 2 –A gulley channel (Gul-e project) for an EV charging cable provided by Oxford City Council



Whilst the Gul-e may not be suitable for all residences, Oxford expect it to form part of the overall holistic package for EV charging infrastructure. Phase 1 prototypes of the Gul-e have been in successful use in Oxford since 2017 as part of the [Go Ultra Low Oxford project](#). The project has shown that they can be successfully used in a range of contexts, including Controlled Parking Zones. For more information, contact Oxford City Council.

The cost of installing gullies is around £700 plus survey and administration costs. Planning permission is also needed in cases where a chargepoint is close to the highway. This could potentially take the cost of a charger up to the £1500-£2000 with an ongoing requirement to license / maintain the gulley which could be around £20 / year. There are choices over the extent that councils will absorb these costs in the short and long term.

Recommendations from REVUP – Home charging for residents without off-street parking

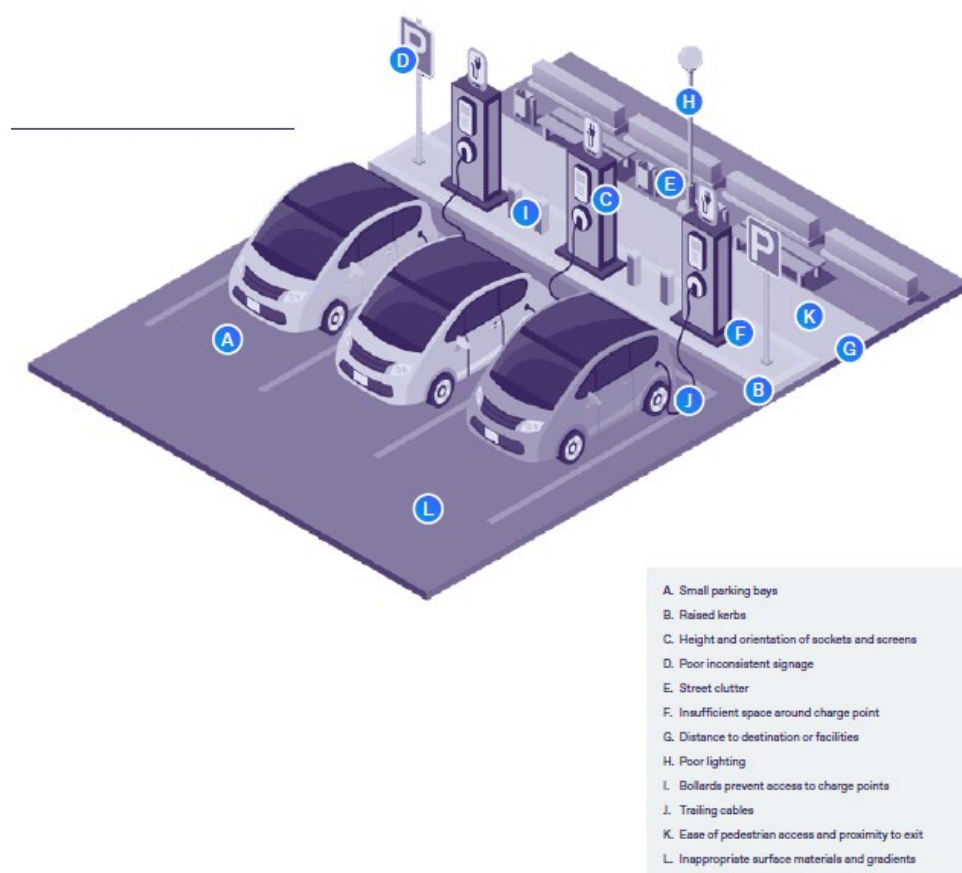
- In the Scandinavian countries, there has been more focus on home charging than in the UK.
- Most Local Authorities spoken to as part of REVUP had not examined in detail the implications of ‘on-street charging’.
- Most highways officers interviewed were reluctant to support EVCPs being located on-street.
- Locating EVCPs in Council car parks avoid the controversial issues around on-street parking and the potential for neighbour disputes and unwanted complaints.
- Some Authorities were particularly concerned about the impact of cables on those with mobility issues and those active travel users.
- Elsewhere, in the UK, councils such as Oxford and Hampshire have issues regarding guidance on how to charge on-street by minimising the risk of trailing cables.
- It’s important that any solution provides level access and avoids becoming a trip hazard.
- The cost of a home charger and gulley is still likely to be more expensive than for a resident with their own off street parking.

5. Accessibility of EVCPs

The Equality Act (2010) protects people with protected characteristics¹ from direct and indirect discrimination. It requires Local Authorities to consider the needs of all individuals in shaping policies and delivering services. Nearly 5% of the UK population use a Blue Badge for disabled parking. Therefore, the location and specifications of EVCPs should have regard to protected characteristics and aim to minimise or resolve issues where different needs can be reasonably accommodated.

Age and disability are particularly likely to be impacted by the move towards electric vehicles and CPOs or any organisation such as a LA involved with installing EVCPs must ensure the design of EVCPs are consistent, underpinned with universal design principals and relevant stakeholder groups are engaged².

In a [2021 report by Urban Foresight](#), the following schematic identified some common problems encountered on typical EVCPs.



¹ The Equality Act covers the following protected characteristics: Age, Disability, Gender reassignment, Pregnancy and maternity, Race, Religion or belief, Sex, Sexual orientation

² Urban Foresight; Improving Electric Vehicle Charging Infrastructure Guidance (September 2021)

The same [Urban Foresight](#) report has a useful schematic on Pg. 19/20 illustrating some of the solutions and then sets out some detailed recommendations.

The Durham EVCP Accessibility Trial Event – October 2021

On 6 October 2021, a user-trial was conducted at Sniperley ‘Park and Ride’ in the City of Durham. The trial site had three operational Alfen charging devices on the MER Charging UK network, including two models with different socket height: two single-socket devices and a higher twin-socket unit. In addition to the installed charging devices, a mock-up device was set up to test theories about a possible inclusive socket height and protection bollard arrangement.

The results collected during the trial include data from tasks completed by 6 wheelchair users, 6 ambulant disabled persons and one non-disabled person. The trial was successful at highlighting additional issues that had never been previously considered by designers.

Using the results of the trial, a full detailed report of 32 recommendations for improving the accessibility to EVCPs was undertaken by ‘AcCeSs Consultancy Support’. The report and a host of other best practice guidelines for accessible EVCPs can be accessed [here](#) .

REVUP Recommendations – Accessibility of EVCPs

Some of the key findings of how to improve EVCP set out in this trial report, the [best practice](#) work done by ‘AcCeSs Consultancy Support’ and the [Urban Foresight](#) report are set out below.

- Location is clearly signposted and visible
- The weight of the charging cables should be as light as necessary to satisfy its required electrical duty
- Bollards and kerbs should not prevent access to EVCPs or to plugging in
- Sufficient lighting of bay and instructions
- Plenty of space around bays, a minimum width of 1500mm should be maintained for access at the side of vehicle charging bays
- Appropriate separation distance is required between adjacent sockets on double-socket charging devices, so that there is adequate clearance for a two-handed grip around the cable plug when inserting and removing the cable connection
- ‘Flaps, lips or tabs’ should be designed to support those with limited manual dexterity
- An optimum EVCP socket should be approx. 900mm above the surface
- Access to the chargepoint network should be simplified to enable access without the need for internet or Wi-Fi access
- Information on the screens should be simplified, minimised and easy to read.

- Minimising the amount of information in the display makes it easier and less time consuming for users to obtain the information they are likely to readily need.
- Charging device operational status should be evident before alighting from vehicle, preferably by standardised colours using high contrast LEDs.

A good example of an easy-to-follow screen, with essential info only, is set out below.

Fixed Display	Variable Information
Cost per kWh (£)	(Digital Values)
Estimated full-charge time (Hrs and Mins)	(Digital Values)
Cost of Charge (£)	(Digital Values)

6. Legal, Asset and Procurement Agreements

One of the major challenges Local Authority officers face is the number of legal agreements required when installing new EVCPs. Procurement and Asset contracts can be particularly complicated for officers with little experience in dealing with legal agreements. Both procurement and assets are essential where a private sector partner is needed by a Local Authority to install EVCPs. Many of the procurement or asset agreements need legal approvals. If the legal team have competing work priorities or resource issues it can hold up and delay the procurement or assets process significantly.

The following section reflects on the learning and experiences of the [REVUP](#) project, but for a general guide to the procurement process please read a report for the Energy Saving Trust (2019) entitled '[Procuring Electric Vehicle Infrastructure as a Local Authority](#)'.

Experience from REV UP project – Procurement

The sign off for a procurement can be complex. There are several different ways to procure chargepoint operators such as land leases, call off contracts, and concessionary agreements. There is also the 'own and operate' model where the LA take responsibility for owning and operating, but a charge point operator supplies and maintains equipment. Using established procurement frameworks is another way to ease the procurement process and should mean less involvement for legal teams in your Authority. Each type of contract has advantages and disadvantages depending on circumstances. Please see [ESTs](#) guidance for more detail on the different types of procurement contracts. The best options for the Local Authority vary from whichever agreement brings in the most revenue with the least capital outlay, or the most chargepoints across the area.

Some EVCPs projects have already been delivered across the North East region since 2016, including the first Electric Vehicle filling station in Sunderland and 11 new rapid charging hubs. Notwithstanding these regional success stories, it has been difficult to organise an 'at scale' EVCP project that rolls out public sector chargepoints at a significant scale and that could replace the 'plugged-in places' EVCPs that were delivered 13 years previously in 2009. While innovative and ground-breaking at the time, the 'plugged in places' project had left a legacy of EVCPs no longer fit for purpose and in need of replacement.

Maintenance had not been fully factored into the original procurement contracts. The concession contracts with the existing company did not include long term maintenance plans and this had left a legacy of broken EVCPs. At the time of writing in 2022 the North East Procurement Office is co-ordinating a regional procurement framework for the Authorities in the Joint Transport Committee Area, North and South of the river Tyne.

Even Authorities using procurement frameworks developed by other public bodies or other off the shelf or specialist procurement frameworks can find the process challenging. One Authority used a well-known public body framework rather than developing their own 'in house' procurement contract. However, the procurement process still took 10 months and only returned one bid.

When negotiating individual contracts, the length or number of years of the contracts is to be negotiated between the Local Authority and the Charge Point Operator (CPO). As there is a shared responsibility model, it is important to reach an agreement on the revenue split. Call-off contracts allow revenue to be split (e.g. 50/50, 70/30 etc.) between an individual Local Authority and the private sector supplier. Sometimes, built into a contract, is that after a certain number of years, the Local Authority would own everything i.e. profits, costs and EVCP hardware. A call-off contract was used for Durham's SOSCI project which allowed a revenue split for a certain amount of chargepoints with Durham owning the equipment after a certain number of years of operation. CPOs generally want longer contracts – to give them a better chance of recouping their up front installation costs and LAs want shorter contracts, to give greater flexibility to take advantage of potentially better technology and commercial terms that will be available in the next 10 years.

For Local Authorities developing their own procurement framework, it is essential, that the ongoing maintenance of EVCPs was given a higher priority for all new contracts. The procurement process is further complicated by the need to get profit share agreements correct between the Local Authority and charge point operator. There is no set formula to this currently as there are several delivery/ownership models and the viability of an EVCP varies by location. For example, rural chargepoints are usually less profitable than EVCPs in urban areas.

Experiences from the REV UP project - Assets

An Assets team within a Local Authority will need to establish who owns the land and if there are any specific restrictions (e.g. covenants) on how it can be used before a chargepoint can be installed.

Even if the land is owned by the Local Authority, it may not be a straightforward exercise to get the appropriate approvals in place to install a chargepoint. For example, Education land needs Department for Education consent before it can be used. Likewise, a Local Authority Assets team may need to check with different departments within an authority such as planning, transport, or highways to ensure there are no restrictive covenants or planning permissions required. On Highways land, a section 50 agreement will likely be needed to allow a chargepoint to be installed.

Local checks are also necessary to ensure there are no informal agreements in place, for example allowing a neighbouring business to use certain bays or renting out part of the car park, etc. It is generally not possible to speed up this work – two neighbouring parcels of land may be subject to completely different agreements, so each site needs to be checked individually.

If the land in question is leased to a third party outside of Local Authority ownership, a Local Authority may need an individual lease or licence agreement with the third party for an EVCP to be installed on that land. If a third party, such as chargepoint operator, own the hardware/equipment even on Local Authority land, then it is likely that a property agreement will be required. A lease agreement is more of a long-term agreement than a license agreement, but a license can be granted quickly. Leases over 7 years need to be registered with the Land Registry, requiring additional legal input.

For underground works, other legal agreements are required. A wayleave should be agreed with Northern Powergrid/the local DNO to allow them access as required. This will mean that works can be done when needed without delays in arranging access to Local Authority or third-party land to carry out the works.

Some examples from Durham’s experiences illustrate the complexity around establishing land ownership. When putting EVCPs in as part of Durham’s SOSCI project, the Highways teams said a car park was owned and operated by the council, which it was (mostly). After checks, the Asset team then said (correctly) that some of the car park was leased land and a whole new set of agreements was needed to install a single EVCP. In some cases, land is not registered and its ownership cannot be determined, increasing the risk that any works will be subject to challenge from the owner at a later date.

As part of the [REVUP](#) and other EV installation projects occurring at Durham, it was realised early on that the various checks and permissions required by the Assets team would be a time-consuming and complicated process. To tackle this issue, an internal working group with Asset officers from Durham County Council worked specifically on a ‘process map’ so that the EV project officer could better understand the process of Asset checks with each individual EVCP installation.

REVUP recommendations – Legal, Assets and Procurement Agreements

- Procurement and Asset legal agreements are complex. Having officers from these teams on any EV working group, is essential within Local Authorities.
- Ongoing maintenance must be factored into the original procurement contracts.
- An Assets team within a Local Authority will need to establish who owns the land and if there are any specific restrictions (e.g., covenants) on the land.
- Local checks are also necessary to ensure there are no informal agreements in place.
- Where a third party is involved, a lease, licence or property agreement may be required.
- A wayleave agreement and a Section 50 license may also be required to permit underground works.
- Process mapping checks relating to Assets can help project manage EV installation projects.

7. Planning Permission

Planning permission is required for EVCPs when an EVCP is classed as ‘development’ and is either over a certain size or when they are positioned close to public highways. Planning permission is also required when you change a use of land. For example, when public open space is used for recreational space becomes an area of land used for parking and charging an EV. There is some ambiguity around whether people charging at home will require planning permission for their home charger, Appendix 2 states the exact regulations which can help clarify when planning permission is and is not required.

Planning permission can be given by the Local Authority, but there is a three-figure sum attached and it usually takes a minimum of 8 weeks to be processed. Most planning applications for EVCPs are approved but in certain circumstances, where they are not popular with residents and elected members, an application can lead to a refusal if the proposed development is not in accordance with Local Plans. Objections can be mitigated by carefully considering the location of the chargepoint, colour of the feeder pillar (cabinet containing electrical equipment) and speaking with local people who use the parking bays.

Experiences from REVUP - Planning Permission

Surprisingly, it was found during the [REVUP](#) project that planning has not been as prominent of an issue as expected when the [REVUP](#) project began. Durham’s experience when discussing planning with other Authorities in North East was that planning regulations had not been a major ‘showstopper’ with regard to the roll out of EVCPs. In most cases, planning permission is not needed to install an EVCP as they are classed as permitted developments.

Planning was an issue on larger EV projects, where the installations were over a size which constituted development that required planning permission. An example of such a structure, was the rapid charger station at Sunderland where the chargepoints, the canopies and the change of use of land, required planning permission. However, the General Permitted Development Order (see Appendix 2) does allow the majority of EVCPs to be fitted without the need for a planning application. As most EVCP installations to date have been on units less than 1.6m in height, off-street and on existing Council Parks away from the public highway, there has not been a need to obtain planning permission. Usually, the biggest challenge is to get permission from the Assets team so a CPO has the correct licences or leases in place. This is linked to the legal documents that form part of the procurement process (see section 6 on Legal Assets and Procurement).

Notwithstanding the above, planning does have the potential to be a major disruptor to project timelines going forwards, especially on bigger projects, and Local Authorities need to consider this

issue in their EV strategy. Primarily, it will be an issue for streets without off-street parking.

Where off-street parking exists, it is usually straightforward to erect an EVCP without applying and receiving planning permission. However, where there is no off-street parking and the EVCP will be within 2 metres of the public highway, planning permission will be required. This is already proving to be a challenge with some of the Authorities who are trying different models for charging on-street.

As LA's ramp up efforts to increase EVCPs on streets without off-street parking, the question of whether you need planning permission or not will be more contentious. Also, as the low hanging fruits of council and public car parks began to fill up with EVCPs, Local Authorities will begin looking at other publicly owned spaces to provide alternatives to on-street parking. This may mean looking at public spaces that are not already parking spaces such as green amenity spaces that need a change of use planning application.

REVUP recommendations – Planning Permission

- Surprisingly, we found during the [REVUP](#) project that planning has not been as prominent of an issue as we were expecting when the [REVUP](#) project began.
- In most cases, planning permission is not needed to install an EV chargepoint as they are classed as permitted developments.
- Usually, the biggest challenge for Local Authority is to get permission from the Assets team so a chargepoint operator has the correct licences or leases in place.
- Notwithstanding the above, planning does have the potential to be a major disruptor to project timelines going forwards, especially on bigger projects are on streets without off-street parking.

8. Electricity and Grid Connections (D3.6)

The Distribution Network Operator (DNO) will always be an essential partner for the Local Authority regardless of the procurement model. The DNO are the network licence operator who will facilitate the request, where a new connection is required. The DNO can provide information on available capacity in the area and provide an estimate of cost or a firm cost based on the readiness of the site. It is possible to use an Independent Connection Provider (ICP) who are accredited to carry out contestable works under the Lloyds Register. However, the DNO will always be required to authorise the point of connection.

Experiences from REVUP – Electricity and Grid Connection

A key part of [REVUP](#) was developing a strong working relationship with the local DNO, Northern Powergrid. As part of the REVUP, a better working relationship was established through regular meetings and workshops to address pinch points. Findings were presented jointly at the REVUP showcase event in March 2022. The project consortium and Northern Powergrid are working on linking tools that can speed up the process of quotations for connection costs. The REVUP team took time to understand the processes and constraints that the DNO must work to. Durham County Council have also been looking at future opportunities to form stronger partnership arrangements with Northern Powergrid.

The DNO will always need to authorise any connection requests as they are the statutory body with the responsibility of completing these works. No procurement process is needed for Northern Powergrid to complete this work as it is their statutory obligation. However, Local Authority, independent, or private sector operators could undertake some underground works, such as laying cables, digging trenches and installing the chargepoint itself, if they are accredited to do so.

The cost of connecting to the grid can be estimated using [AutoDesign](#), and formalised by requesting a firm quotation from Northern Powergrid. AutoDesign can help Local Authorities assess where is financially feasible and where there is spare capacity on the network to install a chargepoint. AutoDesign is a self-serve tool which can be used by other organisations to produce budget estimates for connections up to 210kVA. The tool uses a digital map of Northern Powergrid's low voltage network in a format which can be easily understood by all customers. A simple red, amber and green traffic light system is used to identify which cables have spare capacity to connect. Northern Powergrid are the first DNO to offer a self-serve tool such as AutoDesign and have held several workshops for interested stakeholders.

Northern Powergrid explained during [REVUP project](#) that they require an understanding of the power requirement for each EVCP to generate a quote, i.e., how many kilowatts are likely to be used and also whether the supply will be single or three phase. Therefore, they need the Local Authorities to be specific on where the EVCP would be located, and the load required. They need to know in advance of connection whether the EVCP would be slow, fast, rapid, or ultra-rapid. This would enable Northern Powergrid's Engineers to carry out a network assessment and provide a quote to the LA or CPO for the works required. Each quote from Northern Powergrid is valid for 90 days and is free of charge. The network is dynamic and capacity changes quickly as third-party customers connect, so the quotes would not be accurate for longer than that.

AutoDesign has become an essential planning tool for customers to retrieve budget estimates and assess the proximity of the low voltage network to a potential site, however there are certain quotation elements which cannot be considered in AutoDesign. This did lead to some Local Authority officers feeling frustrated that estimates were not accurate but there will always be unknown variables at individual sites. For example, connecting to the network can be subject to traffic management costs, road closures, complications with other utilities and even weekend working. As part of the REVUP process, Northern Powergrid workshopped a new tool with Local Authority Officers called the 'Small Works Enduring Solution'. This tool has more complex features and will allow the DNOs small works connection team to process for firm quotations up to 69KVA. The solution aims to reduce the time to quote and make the online application form easier for customers.

Chargepoints that will use more than 276kVA are likely to require a new distribution substation to support the site which obviously comes at additional cost, this also means using a small plot of land for the substation and establishing wayleaves and legal agreements. Timescales for substation installation are therefore 6-9 months and could create a barrier to rolling out new EVCPs if not suitably planned for.

Once in place, the DNO will generate a Meter Point Administration Number (MPAN)³. The MPAN registration should therefore be requested immediately to avoid unnecessary delays. In many cases where a car park and EVCP is associated with a building, an existing electricity supply may be utilised or increased, enabling a chargepoint to be installed where creating a new connection could be prohibitively expensive or more complicated to achieve, in terms of permissions. Buildings have effectively already got their own STEP process (see section 9 on the STEP model). Where capacity is not available from the network or would be too expensive to connect an EVCP, the electricity can be

³ A unique 13-digit reference that identifies each electricity supply point

taken from an existing building, this then circumnavigates much of the costs and asset agreements associated with a new connection.

It's important that Local Authorities allow time for the connection request to be processed with a DNO or ICP and post acceptance the associated delivery timescales will need to be considered. LAs need to build this time into their work programmes and planning when installing batches of EVCPs. The cost of connection is not only about making the connection with live cables and connections to cut outs, but also about physical labour and the time it takes to carry out the underground works relating to trenching. It is estimated that around half of the connection costs come from all the groundworks including excavation, replacement of ground materials and resurfacing.

Northern Powergrid's ability as a company to address multi-location applications is an issue they are seeking to address. As part of [REVUP](#) and in advance of the LEVI funding pilot, Durham County Council have used AutoDesign to produce budget estimates for all 100 schemes to ensure the EV chargers are in an optimum position close to a Low voltage main. Durham then submitted all 100 sites to the connections team in advance to get firm connection costs. 100 is currently a lot for the Northern Powergrid team to process, but by working together, it allows the DNO to manage their work better offering flexibility between the organisations.

As part of REVUP and the earlier SOSCI project, it was apparent that rural connection costs were more expensive than urban connection costs. Northern Powergrid have been able to advise that in urban areas the demand is much greater therefore the infrastructure is in place, which will include larger transformers and 3 phase equipment. In rural areas the demand on the network is much lower, meaning there may be a requirement to upgrade power lines and equipment, which would be chargeable to the customer. Local Authorities need to be aware of greater connection costs in rural areas when planning new EVCPs.

REVUP recommendations – Electricity and Grid Connections

- It's important to understand the grid connection process better by collaborating with the local DNO.
- Northern Powergrid (NPG) were open with the REVUP project team on resources and have dedicated time to addressing some of our concerns relating to the cost of connection.
- Using tools such as NPG's Auto Design tool can help speed up the process of gaining accurate connection costs.
- Some of the stakeholders interviewed during REVUP stated that the Independent connection providers can provide value for money when undertaking the civil work relating to connecting to the network.

- If submitting large numbers of EVCPs at multiple locations, contact the connection team at the local DNO in order to discuss.
- Local Authorities need to be aware of greater connection costs in rural areas when planning new EVCPs.

9. STEP Solution

Despite the success of the SOSCI project in Durham, at the national level, the Office of Zero Emission Vehicles (OZEV) has been disappointed by the lack of other Local Authorities coming forward and applying for grants to provide on-street EVCPs.

Durham's experiences on the SOSCI and the REVUP project found that there are a lot of hidden costs and paperwork associated with installing EVCPs the standard way which derails the current procurement model as contractors cannot deliver to budget. The STEP model goes some way to removing the barriers of getting EVCPs in the ground for Local Authorities.

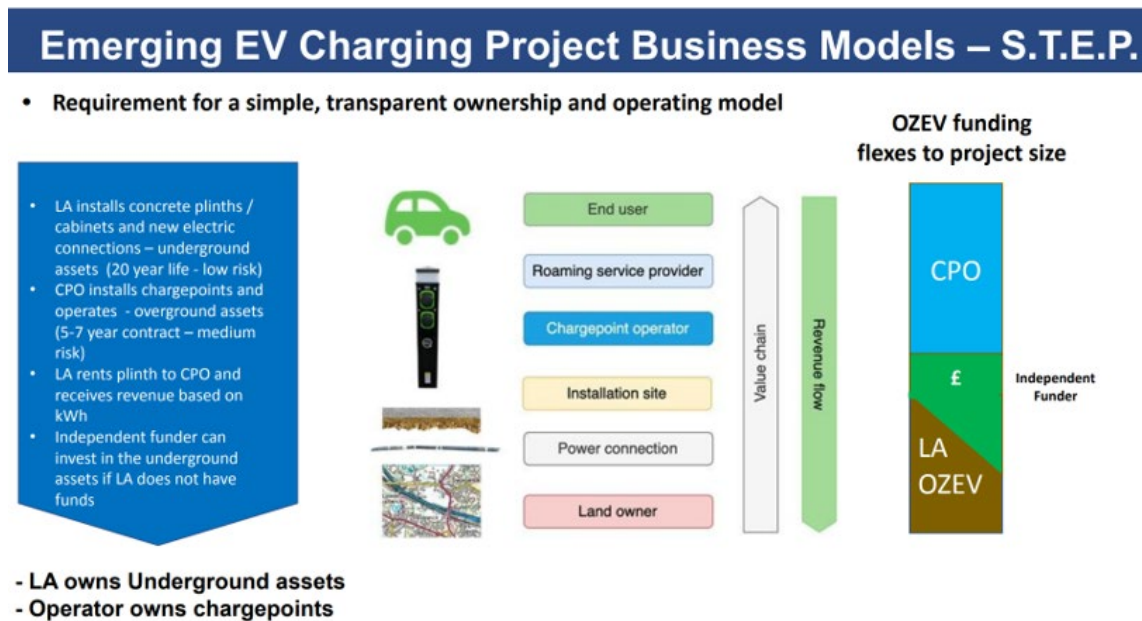
Experiences from REVUP - The Step Solution

As part of REVUP, the project team have devised and considered a new model called the 'STEP' model, for delivering EVCPs more quickly, simply and with less costs and paperwork for the local authority. The STEP model stands for 'Standard Terminal for Ev Points' has more advantages to Local Authorities than the business models being currently used nationwide to install EVCPs.

The STEP model (see Fig 3 below for a pictorial explanation of the STEP model) splits responsibility - the Local Authority commit to providing funding and then own the underground works of a charge point. Effectively, after partnership working with the local DNO, the Local Authority would own the 'underground socket/space' that sits beneath the surface and connects the above EVCP to the electricity grid. This underground work can be delivered via funding from Local Authorities, support from central government funding providers (i.e OZEV) or an independent funding partner. The underground infrastructure will then remain with DCC in perpetuity leaving the chargepoint operator (CPO) responsible for the overground works only.

The CPO will then be responsible for the above ground unit itself and for customer interface, including charging rates, mobile phone apps, roaming and maintenance queries. With this division of assets, the Council could rent the 'underground socket/space' in to a CPO avoiding protracted procurement arrangements. This rent would be based on usage (kWh delivered over the year), rather than opaque profit share agreements which feature in concession agreements. The overground land could then be rented out to CPOs for 5-7 year periods rather than 10-15-year procurement contracts that are the current norm in the EV space.

Figure 3 – The STEP model



The STEP model could support Local Authorities to deliver hundreds of EVCPs and simplify the process for all parties. It will also give Councils an ongoing and reliable income stream and leave the above ground innovation and customer interface to the private sector.

REVUP Recommendations on the STEP approach

If the STEP model works:

- It will help Local Authorities overcome some of its biggest challenges when coordinating the installation of new chargepoints, namely, the procurement contracts, the legal agreements, internal permissions regard land ownership, leases, Section 50 licenses, planning permissions etc.
- The underground connection of the EVCPs to the grid has been a significant challenge on EVCPs projects and this model will enable the underground connection to be sorted upfront, possibly with the help of Local Electric Vehicle Infrastructure (LEVI) funding.
- These could all be sorted out in advance of getting the above ground charging equipment.

Appendix 1 – When do you need Planning Permission for EVCPs?

Most EVCPs do not require planning permission. This appendix provides a link to and then sets out the relevant text of the Town and Country Planning (General Permitted Development) (England) Order 2015.

This legislation is usually referred to as the GPDO or PD rights.

[Part 2, Class D and E, and Part 12, Class A of the Town and Country Planning \(General Permitted Development\) Order 2015](#)

Class D - Electrical Outlet for Recharging Vehicles

Part 2, Class D of the GPDO permits ‘the installation, alteration or replacement, within an area lawfully used for off-street parking, of an electrical outlet mounted on a wall for recharging electric vehicles’.

In order to be considered permitted development the outlet must not:

- a) exceed 0.2 cubic metres;
- b) face onto and be within 2 metres of a highway;
- (c) be within a site designated as a scheduled monument; or
- (d) be within the curtilage of a listed building.

Please note, the development is also subject to the conditions that when no longer needed as a charging point for electric vehicles—

- (a) the development is removed as soon as reasonably practicable; and
- (b) the wall on which the development was mounted or into which the development was set is, as soon as reasonably practicable, and so far as reasonably practicable, reinstated to its condition before that development was carried out.

Class E - Electrical Upstand for Recharging Vehicles

Part 2, Class E of the GPDO permits ‘the installation, alteration or replacement, within an area lawfully used for off-street parking, of an upstand with an electrical outlet mounted on it for recharging electric vehicles’.

In order to be considered permitted development the upstand and outlet must not:

D4.3

- (a) exceed 1.6 metres in height from the level of the surface used for the parking of vehicles;
- (b) be within 2 metres of a highway;
- (c) be within a site designated as a scheduled monument;
- (d) be within the curtilage of a listed building; or
- (e) result in more than 1 upstand being provided for each parking space.

Please note, the development is also subject to the conditions that when no longer needed as a charging point for electric vehicles—

- (a) the development is removed as soon as reasonably practicable; and
- (b) the land on which the development was mounted or into which the development was set is, as soon as reasonably practicable, and so far as reasonably practicable, reinstated to its condition before that development was carried out.

Development by Local Authorities (including Parish Councils)

Part 12, Class A of the GPDO allows the erection or construction and the maintenance, improvement, or other alteration by a Local Authority of b) electric vehicle charging points and any associated infrastructure, and similar structures or works required in connection with the operation of any public service administered by them.

Planning permission will not therefore normally be required to install an electric vehicle charging point or upstand in connection with an existing parking space. However, where the intention is to create a new, or amend an existing, parking space then planning permission will normally be required for a change of use of the land for the purposes of parking.

Using or Removing Grass Verges to Install a Chargepoint

In some areas where parking is constrained it is necessary to create a new bay to allow a chargepoint to be installed.

In these cases a COU application will likely be required to approve the change from a grass verge to a parking bay. The chargepoint itself would still be considered permitted development.