

Transport and Environment Committee

2.30pm, Tuesday, 5 March 2019

Electric Vehicle Business Case: Implementation Plan

Item number	7.6
Report number	
Executive/routine	Executive
Wards	All
Council Commitments	C18

Executive Summary

The Council has [approved](#) a Business Case for the installation of on-street electric vehicle infrastructure. A detailed Project Plan has been developed along with identifying specific locations for the installation of 66 on-street charging points (including 32 fast chargers, nine rapid chargers and 24 slow chargers across the city to strengthen the existing network. This Project Plan also includes key tasks such as determining the best procurement route, recruiting resources, ongoing discussions with the energy network operator on grid issues, progressing Transport Regulation Orders and liaison with contractors. The Project Plan has a pre-installation period of 10 months with the installation period running from January 2020 to December 2020.

A number of issues such as the specific type of infrastructure, tariff, charging and enforcement regimes require further development and will be reported back to Committee. A new Project Board will be set up to ensure robust governance of the project. Funding for the first phase of work up to 2020 has been secured from Transport Scotland via a £2.2m grant. The project will position Edinburgh as a leading, proactive city in the drive to decarbonise transport.

Electric Vehicle Business Case: Implementation Plan

1. Recommendations

- 1.1 The Committee is asked to:
 - 1.1.1 note the feedback from the consultation exercise and that some of the issues raised will be investigated further;
 - 1.1.2 note that the further investigation will be undertaken on the implications of removing the connection charge costs and that the proposed tariff for rapid chargers will now be in pence per minute rather than per kWh;
 - 1.1.3 approve the selected locations for 66 on-street charging points across 16 hubs in the city;
 - 1.1.4 approve the project plan for the installation of charging infrastructure;
 - 1.1.5 note the grant of £2.2m funding by Transport Scotland to cover all project costs of the infrastructure up to 2020;
 - 1.1.6 note that final tariffs and charges will be submitted to Committee in due course and will require approval by Council; and
 - 1.1.7 note that further progress reports will be submitted to Committee.

2. Background

- 2.1 The Council's Electric Vehicle Action Plan was approved at Committee on [7 December 2017](#). This Plan sets out the Council's approach to the development of Electric Vehicles (EVs) with one of the key tasks being the development of a Business Case to both identify the anticipated growth in EVs across the city and assess the infrastructure needed to meet that growth.
- 2.2 A Business Case was presented to Committee on the [4 October 2018](#). This proposed 211 on-street charging points by 2023 at a cost of £3.3m. A total of 68 locations hosting multiple charging points were also identified across the city creating strategic charging hubs for users. The predicted environmental benefits included carbon savings of 7,715 tonnes and savings in Nitrogen Dioxide of over 14 tonnes.
- 2.3 The Committee approved the Business Case and noted that a further report would be submitted in two cycles that provided a detailed project plan, final locations, the delivery mechanism to be used and details on enforcement and charging regimes as per the 2020 medium investment scenario.

- 2.4 This report provides a detailed project plan for the implementation of an EV charging programme including the locations of charging hubs.

3. Main Report

- 3.1 A short consultation exercise on the EV Business Case was undertaken with around 15 specialist groups including members of the Edinburgh Transport Forum, civic groups and user groups such as the Electric Vehicle Association of Scotland and Taxi Associations (including private hire). This resulted in responses (some detailed) from five of the organisations indicating support for the Council's plans. The consultation on city centre transformation, Low Emission Zone(s) and the new City Mobility Strategy also included a question on EVs which yielded over 4,000 responses, showing strong support for an EV programme by the Council.
- 3.2 A number of key issues were raised in the responses. These included:
- 3.2.1 proposing connection charges for all users might not be workable;
 - 3.2.2 having a cost per kWh for rapid chargers might not promote the quick turnover that would be needed for this type of charger; and
 - 3.2.3 having all fast DC chargers might not provide enough flexibility for residential users.
- 3.3 The Business Case proposed different connection charges for users. Feedback from EVAS¹, the taxi associations and also from council staff suggested that this particular charge might act as a deterrent to users. The likely impact of removing the charge will be a drop in revenue, however, it is very important to take the views of users into account as it is this group that will be using the infrastructure. Further investigation of the implications of removing this charge will be carried out with the findings reported back to Committee.
- 3.4 In terms of other charges, the current proposal is for a per kWh charge for EVs using rapid chargers with a maximum stay of 30 minutes. This type of charger has the quickest charge time of 25-40 minutes. The consultation feedback proposes that instead of a per kWh charge, the Council consider a '*pence per minute*' charge with the rationale that having a charge that focuses on a time limit rather than electrical consumption, will encourage users to only stay for as long as they need a "top up" rather than the full stay period. This has been investigated further and there is some merit to this suggestion. This is also standard practice in a number of countries, including in Norway considered one of the leading countries in EV usage. It is proposed therefore to use this metric and further investigate an appropriate charge to apply.

¹ EVAS Electric Vehicle Association for Scotland (the national EV users group).

- 3.5 The third key issue raised during the consultation relates to the type of chargers. The Business Case proposes Direct Current (DC) for all fast chargers on the basis that these are the quickest chargers. However, consultation feedback pointed out that not all cars can accept DC and that Alternating Current (AC) chargers might be required. This will be developed further in discussion with Transport Scotland.
- 3.6 Since the approval of the Business Case in October 2018, work has progressed on the development of a project plan to install the first tranche of EV chargers up to the end of 2020.
- 3.7 A number of components of the project plan have been further developed:
- 3.7.1 finalising a list of the locations;
 - 3.7.2 addressing planning issues;
 - 3.7.3 agreeing a possible enforcement regime;
 - 3.7.4 assessing the procurement route; and
 - 3.7.5 the governance and management.

Locations of Charging Hubs

- 3.8 For locations up to 2020, it is proposed to install a total of 66 charging units located in 14 on street EV hubs across the city. As per the Business Case these would be made up of:
- 3.8.1 City Centre area – six Rapid 50kW DC charging units in three proposed hubs;
 - 3.8.2 Residential area – 32 Fast 22kW DC charging units in eight proposed hubs; and
 - 3.8.3 Park and Ride Sites – 25 Slow 7kW charging and three Rapid 50kW DC charging units in three proposed hubs.
- 3.9 Detailed work has been done on many of the locations in liaison with Planning and Parking Teams. Appendix 1 (Figure 1) shows the proposed locations for the 14 charging hubs. These have been carefully selected to try and provide a spread of infrastructure across the city and ensure compliance with planning guidance. Many are located in high density residential areas. Appendix 1 (Table 1) details the streets that will host the first tranche of hubs and the type of infrastructure currently proposed.
- 3.10 The new locations have also been selected to complement the existing off street EV charging sites. Demand for these has increased year on year. Appendix 1 (Figure 2) shows all charging points both existing and proposed demonstrating a much-strengthened network of charging points across Edinburgh that will be publicly accessible.

- 3.11 Determining the locations of charging hubs has required a number of tasks:
- 3.11.1 Liaison with Scottish Power Energy Networks (SPEN) as the Distribution Network Operator (DNO) to determine if there are any grid constraints and also to assess indicative costs;
 - 3.11.2 Working with the Council's Parking Team to assess best locations and any impact on existing parking spaces; and
 - 3.11.3 Liaison with Planning colleagues on streetscape issues and any planning requirements.
- 3.12 Feedback from SPEN has been positive with the Council commended for having a strategic plan in place for this infrastructure. Proposed locations have been overviewed by the SPEN EV team and in general most have local connections available which is good news albeit there will need to be some upgrades required in certain areas. However further detailed work will be needed to go through each individual location with SPEN and to determine precise costs. This is incorporated into the project plan timeline.
- 3.13 In identifying specific locations for charging hubs with the Parking Team, a preference for end-on parking spaces emerged, although this is not possible in all locations. This would enable the charging infrastructure to be located on the road rather than the pavement and allow for a better use of road space. Where possible, locations were selected that were in the vicinity of, but not directly adjacent to, residential properties to ensure that charging hubs would not prevent residents from parking outside their own homes. Areas of kerbside adjacent to parks or greenspace are therefore preferred. Locations are also not near bus stops or bus lanes and are all within a short distance of existing electrical sub stations. A key constraint on the locations of hubs is that they cannot be within 2m of a lamppost or any other on-street electrical equipment to comply with electrical safety regulations.
- 3.14 The Parking Team have been fully involved in the selection of the hub locations and are satisfied there is no detrimental impact on current parking provision.

Planning Issues

- 3.15 The locations of any charging infrastructure also need to comply with the Edinburgh Street Design Guidance and any other planning requirements. This includes the Design Factsheets for Footways (especially important to maintain clear 'Footway Zones') and Street Clutter including positioning of bollards.
- 3.16 There has been ongoing discussion with Planning on the proposal to locate all charging equipment on the road rather than on the pavement. This is a new approach to the installation of this infrastructure in the UK. While this is a new approach it avoids many of the issues with trailing cables and obstructions on the pavement as seen in other cities. More importantly Planning are satisfied that the positioning of charging infrastructure on plinths that extend into the road ensures compliance with the Council guidance and is not adding to street clutter. There will be some electrical cabinets and signage situated on the street but this would be the same for any utilities such as broadband.

3.17 For Permitted Development rights, Planning has advised that on-street charging units should be covered under Class 30 for street furniture. The Council would still need to apply for a certificate of lawfulness prior to installing any infrastructure.

Enforcement Regime

3.18 It is proposed that the EV hubs will operate 24 hours per day, seven days a week. There are no parking charges proposed with the use of a charging bay. However these bays are not intended to provide unlimited parking within any Controlled Parking Zones and are only intended for the use of EVs, therefore, only these vehicles will be allowed to use them. Consequently, a new enforcement policy is being developed by the Parking and Sustainability Teams.

3.19 This new policy will include maximum stays and no return periods to ensure facilities are available as much as possible. Penalties can then be applied to any driver who stays in the charging bay past the maximum stay period. These are still in draft stage but proposed conditions are shown in Table 1 below:

Charger Type	Main User(s)	Max Stay	Max Stay Applies & CPZ Status	No Return Period
Slow	Park and Ride	10 hrs	Outwith: At per signage Central: M-Sat 8.30am-6.30pm Peripheral & Extended: M-F 8.30am-5.30pm	N/A
Fast	Residents and Business	Subject to charger type		4 hrs
Rapid	Taxi/Private Hire and General Use	30 mins		4 hrs

Table 1 Draft Conditions of Use for EV Charging Hubs

3.20 The introduction of EV charging will also require the promotion of a Traffic Regulation Order (TRO). This process not only allows the Council to designate part of the carriageway for use by a certain group but also allows the issuing of parking tickets to those who park in contravention of any regulations. To ensure compliance with the TRO, each charging hub will need suitable bay markings, road legends and appropriate signage. The timeline for the TRO process is included in the project plan.

3.21 An important supporting measure to the enforcement regime is what is termed the “back office” function. This is the overall management including the software and administrative functions that enable monitoring usage, reporting of faults, collection of payment and collation of data. Currently ChargePlace Scotland (CPS) is the national EV charging network set up by the Scottish Government and provides this function to the Council. It is also a condition of any Transport Scotland grants that the CPS system be used.

3.22 Should it be possible for maximum stays and no return periods to be carried out automatically by CPS this could mean that enforcement becomes more straightforward. This will need further discussion.

The Project Plan

- 3.23 The project plan is seen in Appendix 2. There has been considerable work undertaken to date to develop as much detail as possible and provide timelines and milestones. If the project plan is approved some immediate key tasks will be:
- 3.23.1 setting up of a Project Board to be chaired by the Head of Service for Place Management;
 - 3.23.2 recruitment of project resources likely to be a Project Manager (PM) and a Project Officer (PO) who will sit with the Council's Sustainability Team until delivery of the programme;
 - 3.23.3 development of the procurement process which will involve a full OJEU process to appoint a contractor to supply and install the infrastructure. Options as to the type of procurement route will be explored. This process can take six to nine months and upon completion would need to be approved by Committee;
 - 3.23.4 processing of the required TRO applications would begin immediately as this can also be a lengthy process taking a minimum of six months; and
 - 3.23.5 engagement with SPEN to allow further assessment of hub locations, determine costs and deal with any complicated wayleave issues.
- 3.24 The programme of works will run in two phases:

The Pre-Installation Phase [March - December 2019]

- 3.24.1 This will involve all further development of issues such as charging and enforcement regimes. Once in post, the PM and PO would be responsible for managing the TRO process, DNO engagement and grid connection applications. They would also work closely with Procurement throughout the procurement process and prepare the Committee report for approval of the successful contractor. During this time the PM and PO would ensure all design drawings are completed and that the Communications Strategy and any other relevant plans are developed.

The Installation Phase [January - December 2020]

- 3.24.2 Throughout the installation phase both the PO and PM would manage the day to day installation, quality assurance, commissioning, back-office compatibility and metering. They would also ensure that the contractor is following the installation process as set out and that works are delivered on-time and to specification. This would also include all financial administration and budget control measures. Communications and profiling of the programme with the public will also be key tasks during this stage.
- 3.25 At this stage it is not possible to say where the first infrastructure will be installed or the order of the installations. This will depend on further discussions with SPEN and the Council's Roads teams. For example, it will be crucial to know if any utilities work is planned over coming months or if a road has to be closed off for any period.

3.26 This project will run up until March 2021. As described above many of the project plan elements can take considerable time to progress. Once a preferred partner has been procured, the installation of EV hubs is likely to run from January 2020 to December 2020. This will include full installation works, bay markings, commissioning, meter installations, back office functionality etc. As this is a year-long installation programme, it will be a phased implementation with certain units coming online earlier than others.

Project Governance and Delivery

- 3.27 For a project of this size, cost and complexity it will be important that robust governance and management arrangements are in place. A new Project Board will be set up chaired by the Head of Service for Place Management. This Board will meet every two months overseeing the implementation programme and having responsibility for all key decisions relating to this.
- 3.28 Supporting the Board will be the EV Working Group which will continue to meet every two months with representatives from Transport, Planning, Parking, Licensing, Fleet, Procurement and Environmental Health. This group will provide ongoing monitoring and support for the programme. A key role of the group will be to ensure synergies with relevant areas in particular planning, parking and licensing. The group will also link with other relevant strategies such as the new City Mobility Strategy, Low Emission Zone(s) and City Centre Transformation.
- 3.29 Reporting to the Board will be the Sustainability Team and the new PM and PO. This is to ensure synergies between the programme and the overall EV Action Plan which is led by the Sustainability Team. This plan has wider actions than just the on-street charging. The development of e mobility projects, liaison with other employers across the city, links with renewable energy initiatives and other related EV projects will be important. The new project resource will only focus on the on-street charging programme.
- 3.30 While the programme will be supported by new resources in the first two years and then self-funding, the intention is that this area of work will be managed internally and will be considered as an asset similar to street lighting. It is proposed that responsibility for EV charging will fall to a new team which will be created to take charge of the management and maintenance of the infrastructure, both new and existing.

Procurement

- 3.31 If the Project Plan is approved, it is proposed to start the pre-procurement stage with the development of a robust specification for the installation of charge points. This will also involve further work to determine the procurement options and type of contract that might best serve this work. For example, a partnering contract might be an option to drive out innovation in this area and maximise the benefits for the Council. Alternatively, a concession type contract might also be a route to market.

- 3.32 A soft market testing exercise will be undertaken to assist in the selection of a procurement route and an options appraisal will be undertaken to determine the preferred option.

Communications

- 3.33 There is already a growing awareness of EVs across the city from both residents and businesses. It will be crucial that there is ongoing engagement with these groups to promote the new Council programme and encourage uptake. This engagement will also provide information to the public that can assist with the TRO process.
- 3.34 The current EV charging points in Edinburgh are all off-street but the majority are publicly available. To encourage uptake of EVs these sites should be proactively promoted during the implementation of the Project Plan. This action will also help provide confidence of existing charge points across the city that can be used until the new on-street infrastructure goes live.
- 3.35 A detailed communications plan will be developed as part of the overall programme with some tasks including:
- 3.35.1 a workshop organised with each locality to assess their input and contribution to promoting the project. In particular local networks will be used for engagement including community councils, and community groups;
 - 3.35.2 use of the Council's social media channels; and
 - 3.35.3 communications through the CPS network and Charge Your Car website.

Next Steps

- 3.36 This work is both demanding, resource intensive and technically complex as it is a new and developing area with few precedents (in terms of UK councils) that could assist the work.
- 3.37 A number of elements of the Business Case need to be investigated further including key elements such as charging, tariffs and the best mix of infrastructure. These however can be developed in parallel alongside the procurement process. Other elements such as enforcement regimes will be finalised. It is hoped to report back to the next meeting of the Committee on any proposed changes to the tariffs and any other elements of the work.
- 3.38 The new Project Board will be set up now to provide governance of the plans and will meet every two months. The Board will be supported by the EV Working Group also meeting bi monthly. Liaison will continue with colleagues in Planning, Parking and Licensing. As work elements get further refined this can be used by other service areas to enable updates to strategies and documents such as the Edinburgh Design Guidance.
- 3.39 Given than this is a new developing area it will be important to keep the project plan under continual review. In particular, a key issue might be that demand outstrips the

available infrastructure. It is proposed to also select some back up locations in order to be responsive to this and ensure maximum flexibility in the plan.

- 3.40 There is keen interest in the Edinburgh programme from a wide range of organisations as well as other councils. An initial meeting has taken place with Scottish Futures Trust (SFT) who have now been brought in by Transport Scotland to assist with the national EV programme. It is intended to continue to work with organisations such as Transport Scotland and SFT on this work.

4. Measures of success

- 4.1 The key measures of success for the EV Business Case will be an increase in the number of charging points across the city coupled with a growth in ownership of electric vehicles and increased usage of charging points.

5. Financial impact

- 5.1 The Business Case suggested that the funding needed for the installation of charging infrastructure up to 2020 was estimated at £1.1m. The grid connection/upgrade costs were however an unknown at the time the Business Case was drafted. Since then there has been ongoing discussions with SPEN to determine estimated grid costs.
- 5.2 An application for funding was made last year to Transport Scotland through the Switched on Towns and Cities Fund seeking £2.15m covering infrastructure costs (supply and install) estimated at £1.1m, around £0.9m to cover grid connection/upgrade costs and £0.15m for dedicated staff resources.
- 5.3 The application for funding was successful and the Council has been awarded £2.2m. In addition, Transport Scotland has made an additional £0.5m available to the Council for further charging points which could result in additional charging points being able to be installed. This effectively provides all of the investment needed plus contingency for infrastructure up to 2020 and possibly beyond. This grant will start from March 2019 and runs for a two year period on a draw down basis.
- 5.4 With the proposal to move to a pence per minute charge for rapid chargers, the impact of this in the financial business case will also need to be assessed, however there is confidence that this can be set at a level that will not adversely impact on any revenue.
- 5.5 One key area however where there could be an adverse impact on the financial revenue generated is the suggestion to remove the three connection charges recommended in the Business Case. This will result in far less revenue generated. As reported, EV users are not in favour of the charge believing it to be a deterrent to EV use. This needs further investigation as to the level of impact and careful consideration of the possible deterrent factor.

6. Risk, policy, compliance and governance impact

- 6.1 The installation of on-street EV charging points is a new area for the Council and generally for all councils across the UK. It is rapidly developing technology with new solutions and applications both for the charging infrastructure and the cars appearing frequently on the market. Consequently, any programme developed by the Council will need to be extremely responsive and flexible as this new market emerges. There will also be risks in taking any programme of work forward.
- 6.2 It is proposed to run a detailed workshop led by Risk colleagues with the Council's EV Working Group and a number of external invitees in attendance. The purpose of this will be to develop a detailed Risk Register and identify risks that might include:
- 6.2.1 not having enough chargers or the right mix to meet demand;
 - 6.2.2 chargers not in the right locations; or
 - 6.2.3 enforcement regimes not fit for purpose.
- 6.3 Actions to mitigate these risks will be identified along with contingency plans to provide a high level of confidence in taking the work programme forward. However given that the inherent risk is that this is a new developing area, close monitoring of the work programme will be critical together with regular reviews of the risk register.
- 6.4 As a key project under the SEAP, the EV programme will lead to a direct reduction in carbon emissions. In terms of complying with legislation, the project will positively contribute to the mandatory carbon emissions reporting under the Public Bodies Duties introduced by Scottish Government as well as complying with the Climate Change (Scotland) Act 2009. The reduction of carbon emissions is also a key Council pledge.

7. Equalities impact

- 7.1 There are no adverse equalities impact associated with this report.

8. Sustainability impact

- 8.1 The delivery of the Business Case will have a range of benefits particularly on carbon reduction and air quality. Compared to conventional cars, EVs emit substantially less carbon emissions thus contributing positively to the Council SEAP and carbon targets. The vehicles are also cleaner with far less exhaust emissions so delivering direct air quality improvements.

9. Consultation and engagement

- 9.1 Approval was given for a short consultation exercise with selected specialist groups. A number of responses were received raising very constructive issues and suggestions for the plan.

- 9.2 Ongoing engagement also takes place with the EV Working Group and there is regular liaison with relevant service areas across the Council.
- 9.3 A new communications plan is proposed which will have a strong emphasis on consultation and engagement with a wide range of stakeholders including the public.

10. Background reading/external references

None.

Paul Lawrence

Executive Director of Place

Janice Pauwels, Sustainable Development Manager

E-mail: janice.pauwels@edinburgh.gov.uk | Tel: 0131 469 3804

11. Appendices

Appendix 1	Locations of Charging Infrastructure
Appendix 2	EV Programme Project Plan

LOCATIONS OF CHARGING INFRASTRUCTURE

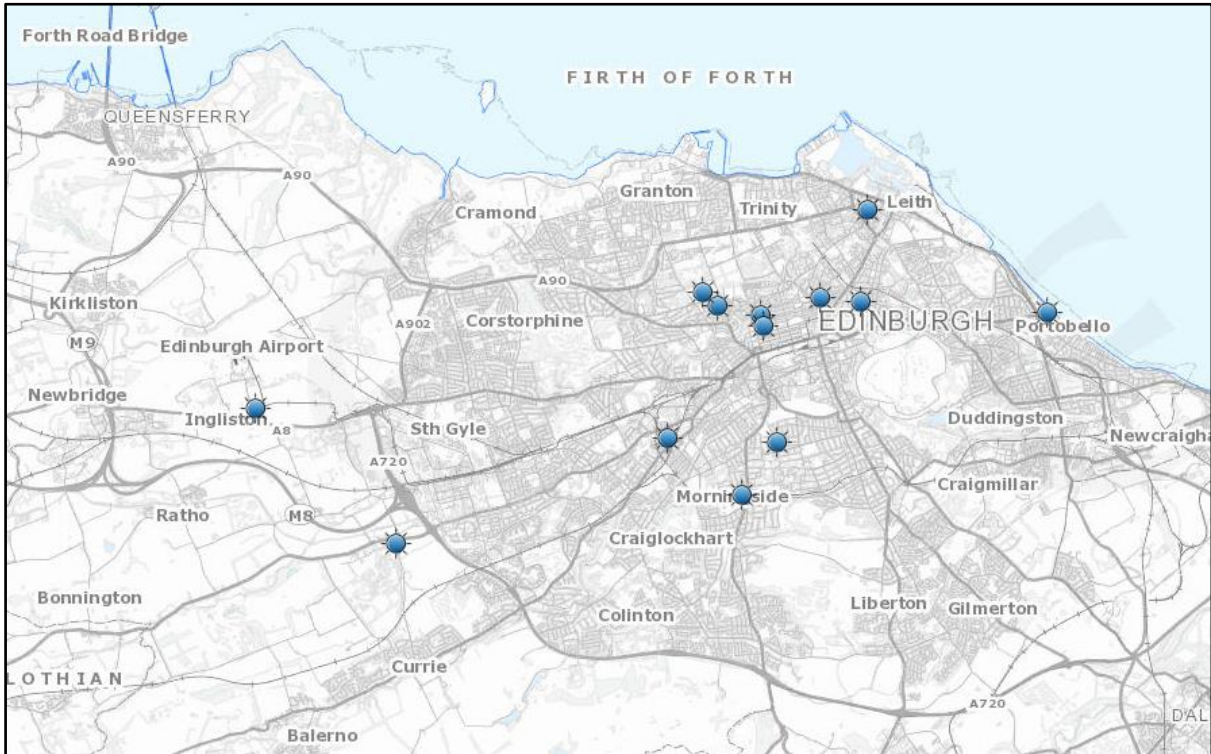


Figure 1: Proposed Locations for New On-Street Charging Infrastructure

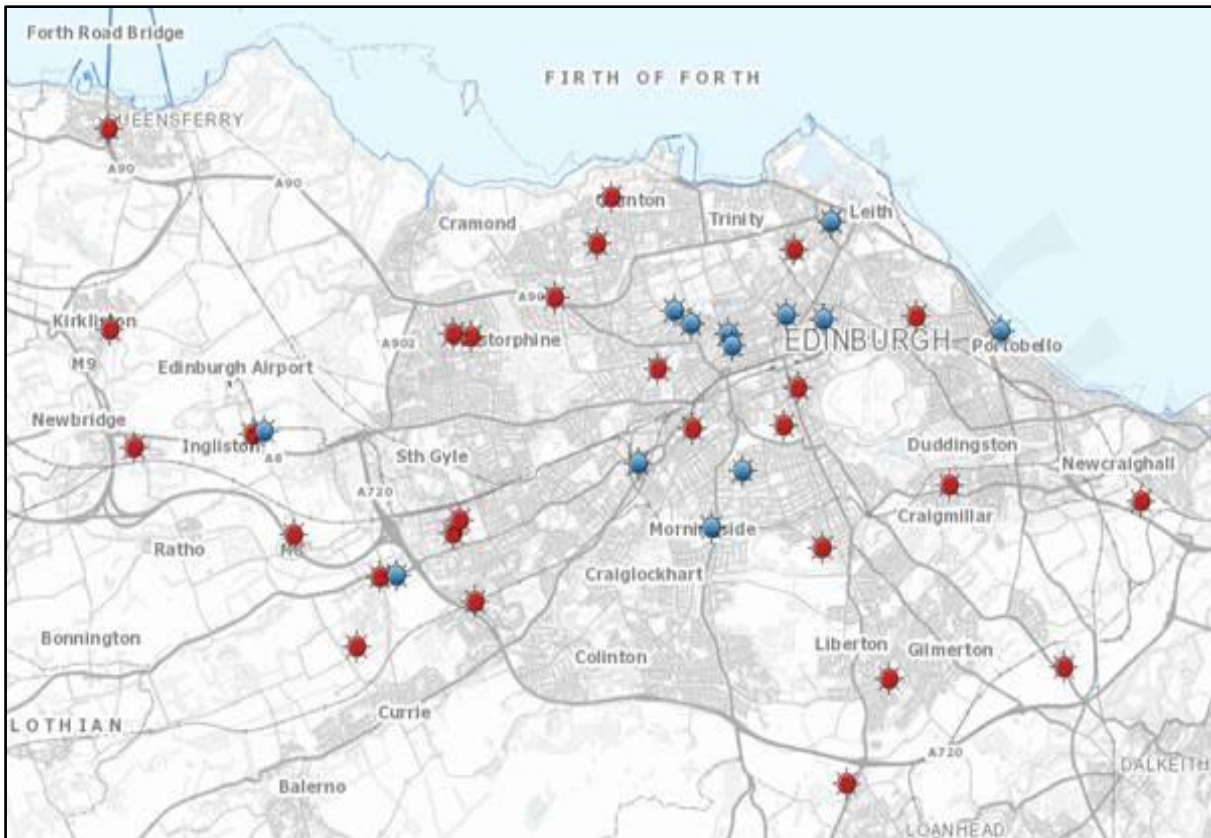


Figure 2: Locations of All Charging Infrastructure in Edinburgh

☀ Red indicates existing charge points
 ☀ Blue indicates location of new charge points

Table 1:**ON STREET CHARGING: Street Location and Type of Charging Infrastructure**

Location	Charging infrastructure	Primary user group
India Street/Circus Gardens	Rapid 50kW x2 (4 charging bays)	Taxi and general use
Fettes Avenue	Rapid 50kW x2 (4 charging bays)	Taxi and general use
East London Street	Rapid 50kW x2 (4 charging bays)	Taxi and general use
Ingliston P&R	Rapid 50kW x3 (6 charging bays)	Taxi and general use
Heriot Row	Fast 22kW AC/DC mix x4 (8 charging bays)	Residents
Kings Rd	Fast 22kW AC/DC mix x4 (8 charging bays)	Residents
Sheriff Brae	Fast 22kW AC/DC mix x4 (8 charging bays)	Residents
Comely Bank Avenue	Fast 22kW AC/DC mix x4 (8 charging bays)	Residents
Montgomery Street	Fast 22kW AC/DC mix x4 (8 charging bays)	Residents
Thirlestane Rd	Fast 22kW AC/DC mix x4 (8 charging bays)	Residents
Stewart Terrace	Fast 22kW AC/DC mix x4 (8 charging bays)	Residents
Maxwell Street	Fast 22kW AC/DC mix x4 (8 charging bays)	Residents
Ingliston P&R	Slow 7kW AC x15 (30 charging bays)	Visitors/Commuters
Hermiston P&R	Slow 7kW AC x10 (20 charging bays)	Visitors/Commuters

