

# Electric Vehicle Charging Infrastructure Strategy

2024 - 2027

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## Contents

1	VISION STATEMENT .....	3
2	INTRODUCTION.....	3
3	WHY DO WE NEED AN ELECTRIC VEHICLE INFRASTRUCTURE (EVI) STRATEGY?.....	4
4	TYPES OF ELECTRIC VEHICLES .....	5
5	WHY IS THERE A NEED TO TRANSITION TO ELECTRIC VEHICLES? .....	5
6	CURRENT POSITION WITHIN BROXTOWE BOROUGH .....	7
7	SCOPE OF THE STRATEGY .....	10
8	STRATEGIC AIMS AND OBJECTIVES.....	11
9	ACCESSIBILITY AND INCLUSIVITY .....	12
10	KEY STAKEHOLDERS .....	12
11	EVI 01 DESTINATION CHARGING .....	13
12	EVI 02 RESIDENTIAL (PRIVATE) OFF STREET PARKING .....	15
13	EVI03 RESIDENTIAL (PRIVATE) ON STREET PARKING.....	16
14	EVI04 COMMUNITY HUBS/CHARGING HUBS .....	17
15	EVI 05 CHARGING AT BROXTOWE BOROUGH COUNCIL SITES.....	18
16	IMPLEMENTATION PLANNING .....	18
17	ACTION PLAN.....	20
18	MONITORING AND KEY PERFORMANCE INDICATORS (KPI'S).....	24
19	REFERENCES AND LINKS .....	24
20	DOCUMENT REVIEW AND CONTROL .....	25
21	GLOSSARY OF TERMS .....	25
22	APPENDIX 1 .....	27
23	APPENDIX 2.....	28

## **Figures**

- Figure 1: Sustainable Transport Hierarchy
- Figure 2: Source of Broxtowe Borough's emissions in 2021 (kt CO<sub>2e</sub>)
- Figure 3: Broxtowe Borough Council public EV chargepoint locations as of Q2 2023
- Figure 4: Broxtowe Borough and surrounding public EV chargepoint locations
- Figure 5: Vehicle Parc Summary for the Borough of Broxtowe 2022 (actual) and 2035 (projected)
- Figure 6: Proposed locations for 50kW chargepoints
- Figure 7: Example of new build EV charge point
- Figure 8: Example of electric vehicle cable channels for off street EV charging
- Figure 9: Gamston Community Hall Solar Electric Charging

## **Tables**

- Table 1: EV chargepoint type guide
- Table 2: Key Stakeholders
- Table 3: Current Broxtowe Borough Council EV Chargepoint locations

# 1 Vision Statement

To facilitate access to a reliable Electric Vehicle Infrastructure (EVI) for residents, businesses and visitors, which will help to support the decarbonisation of transport and travel within the Borough.

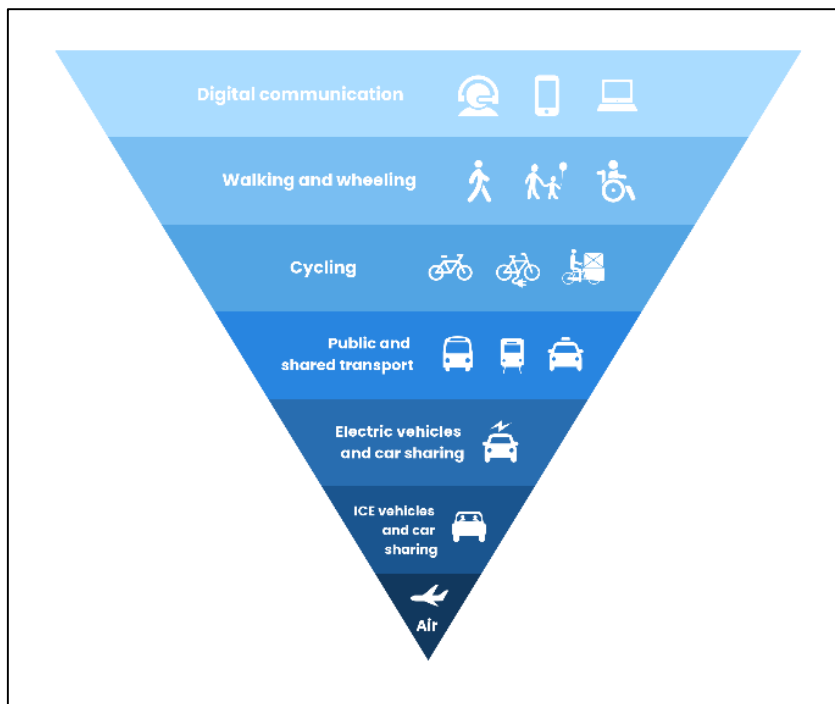
# 2 Introduction

The EVI infrastructure that is required across the Borough needs to be:

- Available for on and off street charging for private and commercial drivers.
- Fairly priced.
- Inclusively designed, accessible and open to all.
- Seamlessly integrated into a smart energy system.
- Innovative to meet drivers' needs, lower costs and increase convenience.

The Council acknowledges the rapidly evolving Electric Vehicle (EV) technology in both vehicles and charging infrastructure across the UK and the rising demand for these.

Although towards the bottom of the sustainable transport hierarchy, as shown in **Figure 1**, it is accepted that for residents, businesses and visitors, travel by vehicles will remain a popular mode of transport. The Council needs to support and influence the transition from petrol and diesel vehicles, to ultra-low emissions vehicles, in line with the UK Government's commitment to ban the sale of all Internal Combustion Engine (ICE) vehicles and hybrid cars by 2035.



**Figure 1: Sustainable Transport Hierarchy** (reference: <https://energysavingtrust.org.uk>)

The Council recognises the following challenges:

- That it does not have the funding to support a widespread EVI rollout.
- The pace of rollout is currently too slow.
- Too often public charging is too slow, not available or there are not enough charging sites.

- In the past, connecting new chargepoints to the electricity system has been slow and expensive. The impact of grid connection costs has since been mitigated by the Significant Code Review (April 2023). However, high powered Electric Vehicle Chargepoints (EVCPs), still have significant costs associated with them.
- More local engagement, leadership and planning is needed.
- Limitations or delays to installing EVCPs due to insufficient electrical supply to meet future demands may exist in the Borough.

The Council has committed to becoming carbon neutral by the end of 2027 for its own operations and investment into actions to achieve this will take priority. However, given that in 2021 transport accounted for 29% of the Borough's total carbon emissions, it is recognised that the Council must take steps to facilitate and influence their reduction. The financial implications for installing chargepoints across the Borough are significant, as highlighted in **Section 16**. The cost of installing EVCPs and the associated infrastructure ranges between £2,500 for a standard (7kWh) and over £75,000 for a rapid (50kWh ultra rapid (150+ kWh) per chargepoint. The Council will need to consider the most appropriate methodologies to encourage and assist with EVI growth.

This Strategy does not consider Zero Emissions Powered Light Vehicles (zePLVs) i.e. e-cargo bikes, e-motorbikes, e-bikes or e-scooters. These vehicles come under a separate vehicle classification and have different charging infrastructure requirement needs. They will therefore be considered under the Climate Change and Green Futures Strategy.

### 3 Why do we need an Electric Vehicle Infrastructure (EVI) Strategy?

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In 2019, Broxtowe Borough Council declared a climate emergency and have committed to becoming carbon neutral by the end of 2027 for its own operations and net zero beyond.

Transport and travel is one of the ten fundamental programme themes addressed within our Climate Change and Green Futures Strategy 2023-27, to support our ambitious carbon reduction targets.

The creation of an EVI Strategy for the Borough is one of the actions of the Climate Change and Green Future's Strategy. In order to support the predicted rapid growth of electric vehicles (EVs) used within Broxtowe, the Council should have an ambitious, yet achievable plan in place for both the Council's fleet, and for those vehicles used by residents, businesses and visitors.

Technology for transportation is rapidly evolving, which will inevitably open up additional fuel options for example hydrogen, for the Council to consider. The Council will ensure it remains well-informed of these developments, so that alternative transport options and their feasibility can be explored.

This Strategy supports the Council's aspirations of:

1. The Corporate Plan with one of the six key priorities being, 'Environment – Protect the environment for the future'; and
2. The Climate Change and Green Futures Strategy 2023-2027.

## 4 Types of Electric Vehicles

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There are four types of Low Emissions Transport in the UK as defined by the Energy Saving Trust and National EV Insight and Support Service (NEVIS).

### **Battery-electric vehicle (BEV)**

Also known as a 'pure' or 100% electric. These are vehicles powered only by electricity. Charged by an external power source i.e. at a chargepoint. They do not produce any tailpipe emissions. Currently these have a real world range of approximately 220 miles on a full charge. As battery capacity grows the mileage range will grow and is anticipated to reach 400 miles within the next few years.

### **Plug-in hybrid electric vehicle (PHEV)**

These vehicles have a battery, electric drive mode and an internal combustion engine (ICE). They can be driven using the ICE, the electric drive motor, or both, and can be recharged from an external power source. Typically, PHEVs have a range of up to 50 miles. Once the electric battery is depleted, journeys can continue in the hybrid mode.

### **Extended range electric vehicle (E-REV)**

These are a version of plug-in hybrids. An E-REV combines a battery, an electric drive motor and a small petrol or diesel generator. The electric motor always drives the wheels, with the ICE acting as a generator when the battery is depleted. Currently the range of these vehicles can be between 150-300 miles.

### **Fuel cell electric vehicle (FCEV)**

These vehicles use hydrogen to produce electricity. They offer efficient and quiet transport with no exhaust emissions other than water. Refuelling a fuel cell car is comparable to refuelling a conventional or commercial vehicle. Pressurised hydrogen is dispensed at purpose built hydrogen refuelling stations. This takes less than 10 minutes. However, in the UK there are limited hydrogen refuelling stations available to the public. This, along with the lack of types of fuel cell cars on the UK market, plus the significant costs of these vehicles mean that this type of low emission vehicle is not part of this current EVI Strategy. (ref: Energy Saving Trust: A Guide to Ultra Low Emissions Vehicles for Fleet Managers, Department for Transport. <https://energysavingtrust.org.uk/wp-content/uploads/2020/10/A-guide-to-ultra-low-emission-vehicles-for-Fleet-Managers.pdf>).

## 5 Why is there a need to transition to electric vehicles?

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The transition to EVs and the reason for implementing this Strategy is being driven and directed at three levels across the UK.

### 5.1 National Level

The Government have set out their commitment to decarbonise the entire transport system in the UK within the [Transport Decarbonisation Plan](#), with its vision and action plan for the UK electric vehicle charging infrastructure set out within the [Taking Charge: the electric vehicle infrastructure strategy](#).

## 5.2 Regional Level

Midlands Connect (MC) researches, develops and progresses transport projects in the region, which have the biggest possible environmental, economic and social benefits. As part of MC the Midlands EV Infrastructure Consortium exists to ensure the right chargepoint is in the right location to meet future EV need. In September 2021, MC issued a landmark report, '[Supercharging the Midlands](#)' on the future of EVs in the Midlands where research indicates that EV use in the Midlands is due to increase 3000% by the end of 2030 and the speed at which the infrastructure for these users' needs to increase significantly.

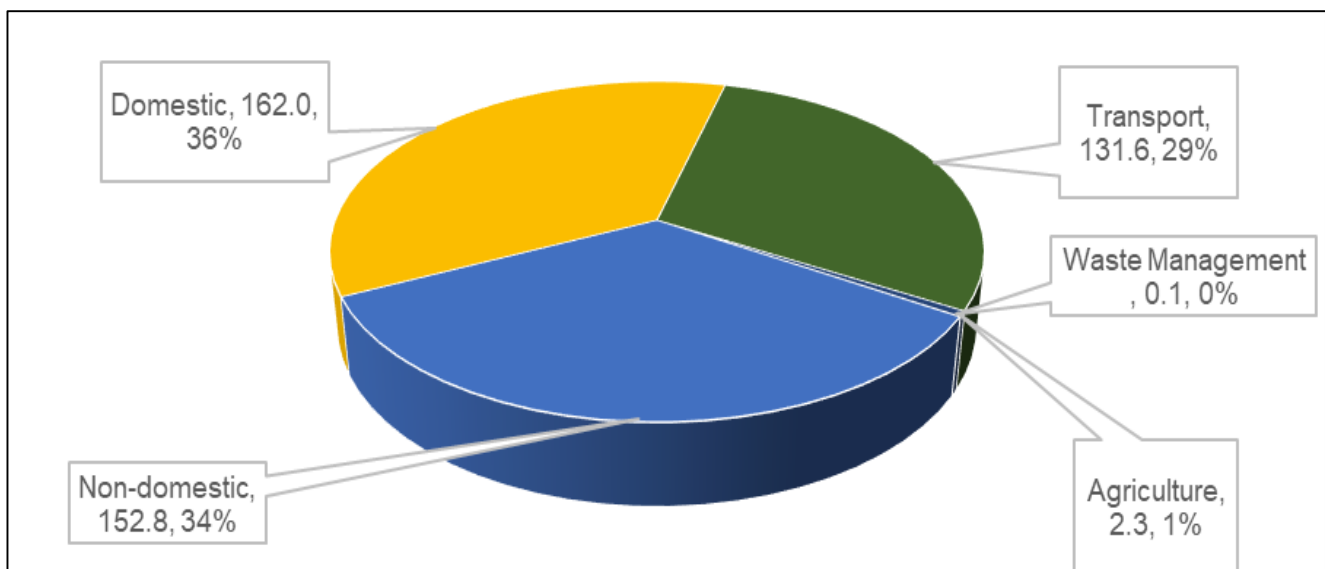
A new Combined County Authority through the East Midlands Devolution (if successful) will also be a key driving force in this transition and will be a source for collaboration and funding. More information can be found at: <https://www.eastmidlandsdevolution.co.uk/greener-environment/>

Charging Forward: Nottinghamshire's Electric Vehicle Chargepoint Framework. Building a Green Future, Nottinghamshire County Council's (NCC) new electric vehicle charging framework with five key objectives sets out how NCC aims to work with residents, businesses and communities to establish a public chargepoint network. A key aim is to ensure chargepoints are made available across the county including urban centres, rural areas, on the highway and in public spaces.

## 5.3 Local Level

Petrol and diesel vehicles release pollutants into the air via their exhaust pipes. These pollutants significantly contribute to climate change as well as contributing to poor air quality and subsequently poor public health.

In 2021, transport was responsible for 29% of carbon dioxide equivalent (CO<sub>2e</sub>) emissions in Broxtowe Borough, an estimated 131.6 kilotons of CO<sub>2e</sub> as shown in **Figure 2**.



**Figure 2: Source of Broxtowe Borough's emissions in 2021 (kt CO<sub>2e</sub>)**

Reference: [UK local authority and regional greenhouse gas emissions national statistics, 2005 to 2021](#)

"Local Authorities (LAs) have a responsibility to an enable the transition to EVs by providing a public charging network that gives confidence to those drivers who do not have access to private charging facilities. LAs are also ideally placed to identify the local charging needs

now and in the future” (reference: [Charging Ahead, using location data to boost local EV Chargepoint rollout, 2023](#)).

There are around 920,000 fully electric cars as at the end of October 2023 in the UK (reference: [zapmap](#)). It has been estimated that a minimum of 300,000 public chargepoints will be needed by 2030 in the UK. As of July 2023, there were 44,000. In the last two years, the total number of battery electric vehicles on UK roads has more than tripled. In 2022 and 2023, 1 in 5 new cars sold had a plug (ref: [Charging Ahead, using location data to boost local EV Chargepoint rollout, 2023](#)).

Drivers need to have the same confidence that they can charge their EV as they have when they refuel their current petrol or diesel vehicle.

National Grid Electricity Distribution (NGED) carried out [Electric Nation](#), a National Innovation Allowance (NIA) project, which found that the average UK driver does less than 10,000 miles annually, only recharging their BEV every three to four days. The project also found that drivers were very aware of charge pricing and generally used the cheapest electric to charge their vehicles.

With the roll out of the [Government's Rapid Charging Fund](#) (also known as Project Rapid) the installation of rapid 150kW chargers at Motorway Services areas will help to solve charging over long distance travel.

## **6 Current position within Broxtowe Borough**

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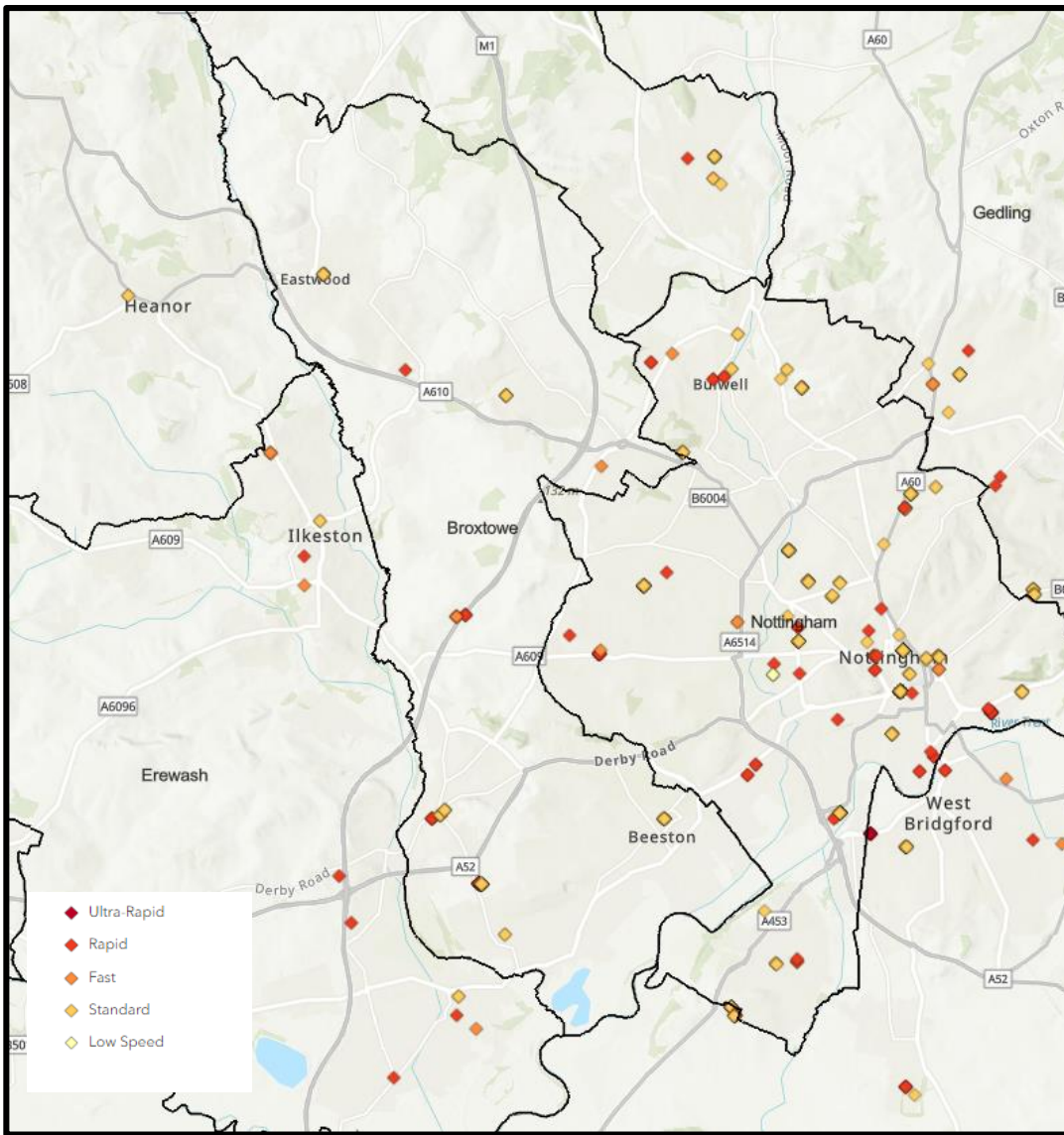
Broxtowe Borough Council first installed twelve twin outlet, 7kW EV chargepoint units in 2018, as part of a D2N2 (Derby, Derbyshire, Nottingham, Nottinghamshire) funded project. These were located in long stay car parks.

In 2021 a further two, tri connector 50kW chargepoint units were installed, once again in long stay car parks.

In Q2 of 2023 (April to June), the number of publicly available electric charging devices at all speeds per 100,000 of the population in Broxtowe was **35.2**. Their locations can be seen in **Figure 3**. Across the East Midlands, the mean number of chargepoints is **43.2** (reference: LG Inform), highlighting that Broxtowe Borough is currently below average with its chargepoint provision.

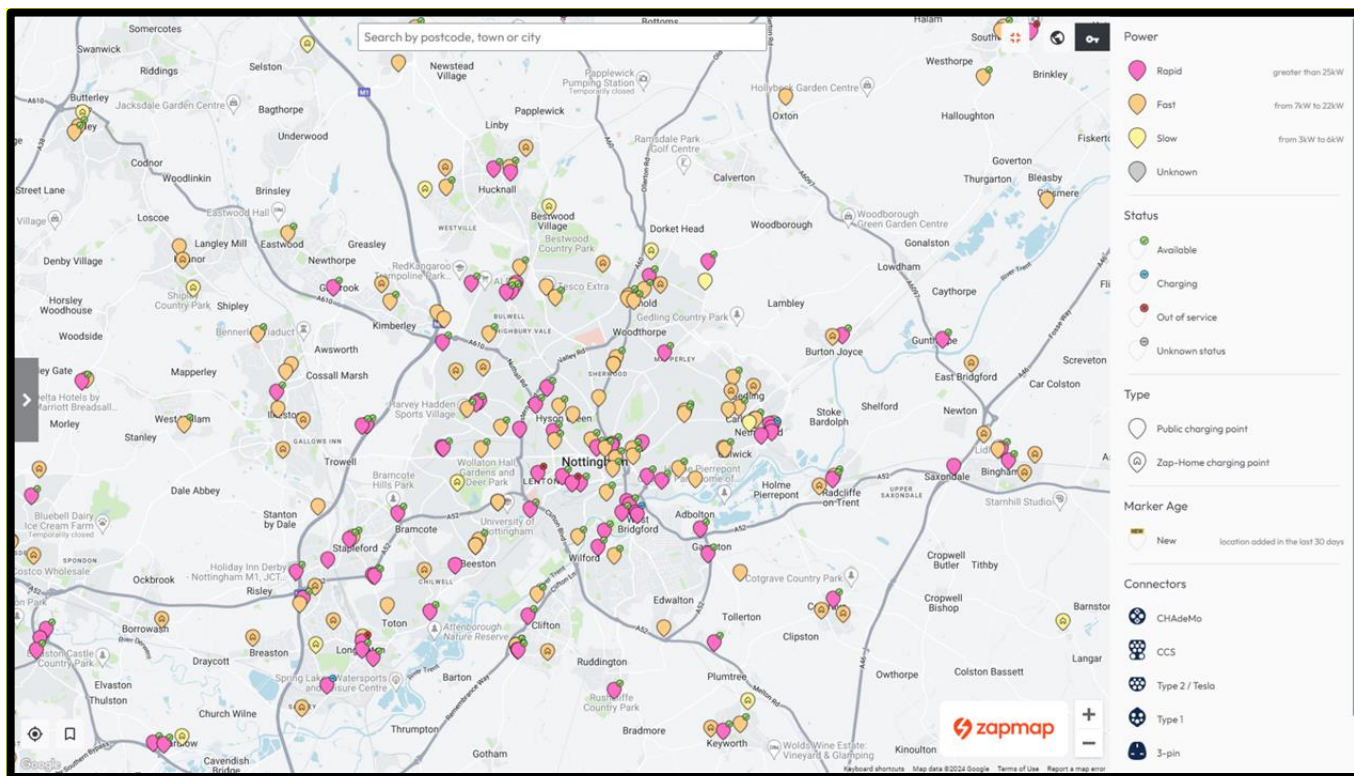
In 2022, all automotive vehicles in use (at the time of monitoring), also referred to as the vehicle parc, within the Borough of Broxtowe was 60,201. Of these, 551 (0.9%) were battery electric (cars 529, light goods vehicle 22).





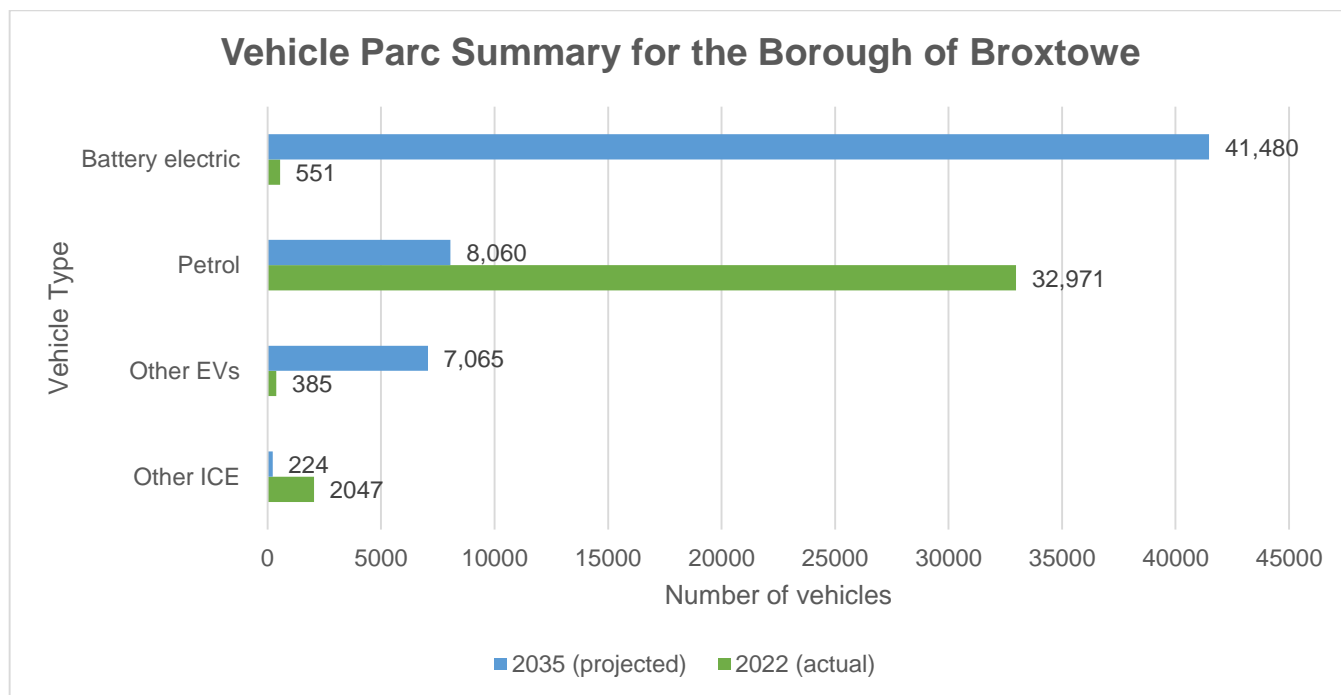
**Figure 3: Broxtowe Borough Council public EV chargepoint locations as of Q4 2024**  
 ( Reference: <https://nevis.cenex.co.uk/maps/c7f7f587-ff13-4293-94b5-7ee7334eb5c9>)

**Figure 4** shows the location of EV chargepoints publically available across the Borough and beyond the Borough boundary.



**Figure 4: Broxtowe Borough and surrounding public EV chargepoint locations** (reference: <https://www.zap-map.com/live/> on 12 February 2024 ).

Figure 5 provides further detail on vehicles and their fuel type in the Borough as of 2022 and projected for 2035. (ref: <https://nevis.cenex.co.uk/reports/current-status/>).



**Figure 5: Vehicle parc summary for the Borough of Broxtowe, 2022 (actual) and 2035 (projected)** (Reference: NEVIS)

## Future projections for Broxtowe

In 2035, it is projected that the vehicle parc for Broxtowe will be 59,775 of these 41,480 will be battery electric (cars 36,950, light goods vehicles 4,530). **Figure 5** provides further detail on the fuel types for these vehicles in 2035.

EV uptake projections in the Borough of Broxtowe, highlight that to meet growing chargepoint demand, between **891** (based on a low EV uptake projection and a blend EVI Strategy approach) and **1,105** (based on a high EV uptake projection and a blend EVI Strategy approach) public chargepoints will be needed by 2035 (Ref: NEVIS). This will require a variety of chargepoint types as defined in **Table 1**. Current figures indicate 88% of CPs required will need to be standard, 5% fast, 4% ultra-rapid and 3% rapid.

Chargepoint infrastructure has evolved over the past decade. However, having sought advice from the Energy Saving Trust, it is believed the charging infrastructure is at a point whereby chargepoint sockets and connectors are now standard. It is anticipated that these will remain this way, allowing both the old and new EVs on the roads to charge.

Type	Capacity (kW)	Charge Time	Suitable Location
Standard	3	6-8 hours	Homes, workplaces.
Fast	7-22	3-4 hours	Destinations e.g. train stations, leisure centres, charging hubs, workplaces.
Rapid	43-50	20-30 minutes	Destinations, charging hubs, taxi ranks, en-route charging, supermarkets, retail parks. Also used by fleet or commercial vehicles.
Ultra Rapid	150+	15-20 minutes	Motorway service stations, retail parks.

**Table 1: EV chargepoint type guide (ref: ref: Energy Saving Trust: A Guide to Ultra Low Emissions Vehicles for Fleet Managers, Department for Transport.**

<https://energysavingtrust.org.uk/wp-content/uploads/2020/10/A-guide-to-ultra-low-emission-vehicles-for-Fleet-Managers.pdf>) and Osprey: Beginners Guide to EV Charging (<https://www.ospreycharging.co.uk/beginners-guide-to-ev-charging>).

## 7 Scope of the Strategy

This document outlines how the Council will support and facilitate charging provisions for EVs across the Borough, to ensure sites keep pace with demand between 2024 to 2027. This short time horizon allows for the Strategy to focus on:

- What is currently known.
- What can be practically delivered.
- Allowance for the UK EV market to mature.

It is imperative that the Council ensures the provision of the 'right chargepoints in the right locations' across the Borough.

This Strategy covers five different programme themes and will evolve over time, to reflect updates as required. As a minimum it will be review annually in conjunction with the Climate Change and Green Futures Strategy; however, due to the rapidly evolving nature of this

subject, it may be necessary to trigger more frequent reviews. This will be due to items such as additional guidance, legislation and funding updates and opportunities.

### **EVI 01 Destination charging (top up charging)**

Serving all EV users, providing top up charging over a few hours. These are typically standard and or rapid speed. Defined as publically accessible, off street chargepoints in destinations such as public car parks, retail parks, leisure centres and tourist attractions. Drivers get a charged car without making a trip specifically for charging.

### **EVI 02 Residential (private) off street parking**

Serving residents with overnight charging, usually a standard speed on their driveway. Planning requirements on new developments for future uptake of EVs is essential for this strand.

### **EVI 03 Residential (private) on street parking**

Defined as chargepoints located outside or near an EV owner's home (overlap with destination charging to be considered). These serve residents primarily for overnight charging and are important for residents that lack private off street parking at home. These are typically within a five-minute walk from the home and are standard speed for overnight charging.

### **EVI 04 Community hubs**

Serving all EV users, where a group of chargepoints are available at a central location. Providing 20 to 30-minute charging at a rapid/ultra-rapid charge speed. Convenient for as many users as possible. Sufficient grid capacity must be available to accommodate high powered charging. Power can also be generated from onsite renewable sources e.g. car park solar canopy.

### **EVI 05 Charging at Broxtowe Borough Council sites**

These will be chargepoints installed at the Council's depot in Kimberley and at the Council Offices in Beeston. This will help support the electrification of the Council's operational and pool fleet. Sufficient grid capacity must be available to accommodate high powered charging.

**Sections 11 to 15** cover each of these strands in detail and how the Council will support/influence these.

## **8 Strategic Aims and Objectives**

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### **Aims**

The Council will work to:

- Lower the Borough's carbon emissions from transport.
- Improve local air quality in support of the Air Quality Strategy for Nottingham and Nottinghamshire.
- Double the number of EV chargepoints within the Council's car parks within the next five years (if funding is available).
- Review the feasibility of expanding Kimberley Depot's electrification infrastructure to support future transition of fleet vehicles to EVs and assist the transition of Refuse Collection Vehicles (RCVs) to Battery Electric Refuse Collection Vehicles (BE RCVs) and Fuel Cell Rubbish Collection Vehicles (FC RCVs).
- Ensure a renewable energy source for all charging points on Broxtowe Borough Council land, either through the Council's energy provider or onsite generation.
- Have 'shovel ready' EVI projects, which can be used to bid for external funding opportunities.



- Explore funding opportunities (Land Lease, Own and Operate, Public-Private Commercial Partnership (PPCP) - Concession, Public Private Commercial Partnership-External Operator). Definitions of each of these in **Appendix 1**.
- Ensure that public charging is safe, secure and accessible (complying with the British Standards Institute (BIS) PAS 1899 chargepoint accessibility standards) and can be used without the need for multiple apps and Radio Frequency Identification (RFID) cards.

## Objectives

1. Establish an annual target of chargepoints to be installed (private and public stakeholders), using growth projection scenarios. Based on current projections (as highlighted in **Section 6**), this will range from between 81 chargepoints per year (based on a low projection scenario) and 100 chargepoints per year (based on a high projection).
2. By 2035, all Council car parks to have installed appropriate EV charging facilities.
3. By 2035, 70% of Borough homes without driveways are within a five-minute walk of a public chargepoint.
4. 100% of new EV chargepoints installed by the Council will (where feasible) meet British Standards Institute (BIS) PAS 1899 for chargepoint accessibility standards.
5. Support the Council's fleet reduction in carbon emissions to become as close to zero as possible by the end of 2027.
6. Enable the Council's estate to be equipped with suitable chargepoints to support this transition.

## 9 Accessibility and Inclusivity

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Equity of chargepoint provision for diverse groups of residents needs to be an important consideration, particularly considering the 2035 petrol and diesel vehicle sales ban and the introduction of [PAS1899:2022 Electric Vehicles Accessibly Charging Specification](#).

The Energy Saving Trust have produced a report '[Summary: barriers and solutions for disabled consumers getting and using electric vehicles](#)', on the issues affecting disabled drivers along with a summary of the PAS, these are key documents for the Council to refer to throughout the implementation of this Strategy.

Recognised as a key stakeholder, the Broxtowe Borough Council Disability Forum have been invited to review and feedback on this proposed Strategy. No comment or feedback has been received to date. The Energy Saving Trust has offered to provide further guidance on the PAS1899 standards via an online webinar for this group.

The cost of EVs, their charging and the availability of suitable charging infrastructure can be a barrier for many. The UK Government's Local Electric Vehicle Infrastructure (LEVI) fund supports local authorities in England to work with the chargepoint infrastructure industry to improve the roll out and commercialisation of local charging infrastructure helping to overcome some of these barriers.

## 10 Key Stakeholders

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In order for this Strategy to be successful it is essential that all stakeholders, both internal and external are identified and engaged with at the appropriate times. Those identified to date are listed in **Table 2**.

Internal	External
Members (Councillors)	Midlands Connect
GMT	Residents
Head of Environment Services	Private Chargepoint Investors
Head of Planning and Economic Development	VIA East Midlands
Head of Finance	Broxtowe Borough Council Disability Forum
Communications, Culture and Civic Manager	Energy Saving Trust
Climate Change Manager	Nottinghamshire County Council
Transport and Stores Manager	National Grid Electricity Distribution – Strategic Engagement Officer; NGED Development Engineer Low Carbon Technologies (LCTs).
Parking and CCTV/Security Manager	Town and Parish Councils
Procurement Officer	Neighbouring Local Councils
Environmental Health	Local Schools, community centres, village halls
GIS Officer	Local businesses (private fleet)
	Landowners in the Borough
	Taxi and private hire companies

**Table 2: Key Stakeholders**

## 11 EVI 01 Destination Charging

In October 2018, an agreement was signed between Broxtowe Borough Council and ChargeMaster to install 14 EV chargepoints. These were funded by Nottingham City Council as part of a D2N2 project. ChargeMaster, now rebranded as bppulse, are responsible for the operation and maintenance of these chargepoints. This includes the supply of electricity, at no cost to the host, for a ten-year period commencing from the time of installation.

During the site selection process, it was felt that long stay car parks would better serve the capabilities and infrastructure requirements. Some car parks were not capable of serving a 40kW charger (available at the time) and greater investment would have been required, which would have included the installation of substations. The majority of EV vehicles in circulation at the time of initial installation were only capable of taking a 7kW charge.

Technology has now improved and most EV's are now capable of accepting a 50kW charge, hence the recent installation of 2 x 50kW chargepoints in Stapleford. Improved rapid charge capabilities mean that EV charging in short stay car parks would now be possible; however, the infrastructure (electric supply) to these car parks may not meet the demand of a 50kW charger.

The utilisation rates for the Borough's current chargepoints are deemed high for both types of CPs at 30%.

**Table 3** summarises the Council's destination chargepoints. These are all within long stay car parks.

Address	Town	Postcode	No. of units	Type
Portland Street Car Park	Beeston	NG9 2LQ	4	Twin outlets 7kW
Victoria Street Car Park	Eastwood	NG16 3AW	4	Twin outlets 7kW
Victoria Street Car Park	Kimberley	NG16 2NH	2	Twin outlets 7kW
Cliffe Hill Car Park	Stapleford	NG9 7HD	4	Twin outlets 7kW
Victoria Street Car Park	Stapleford	NG9 7AP	2	Tri Connector 50kW

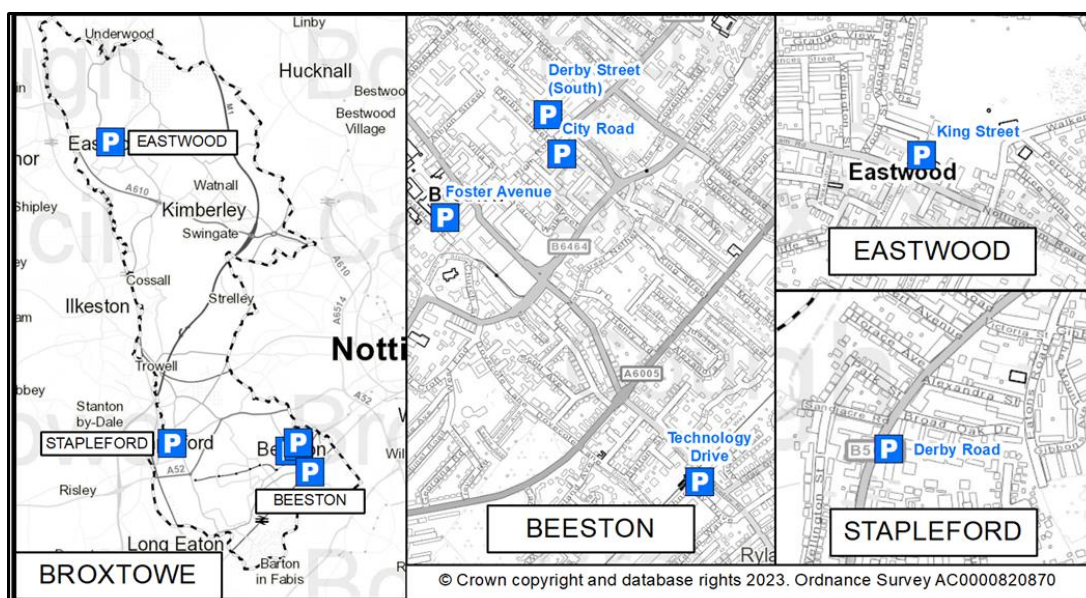
**Table 3: Current Broxtowe Borough Council EV Chargepoint locations**

Following internal stakeholder engagement, six car parks have been identified as possible locations for future 50kW chargepoints. These are listed below and can be seen in **Figure 6**. Criteria considered included:

- Location in the Borough.
- Type of car park (short, medium, long stay).
- Accessibility for local residents.
- Potential electrical infrastructure already in place.

A feasibility study for each of these will need to be completed to ensure their viability.

1. Foster Avenue, Beeston.
2. Derby Street South, Beeston.
3. City Road North, Beeston.
4. Technology Drive, Beeston.
5. Derby North, Stapleford.
6. King Street, Eastwood



**Figure 6: Proposed locations for 50kW chargepoints**

### **Opportunities and Benefits**

1. Explore feasibility of upgrading current 7kW chargepoints to fast/rapid.
2. Funding – government/private/capital investment.
3. Widening the current network required as one of the most densely populated Borough's in the East Midlands.

### **Barriers and Challenges**

1. Network availability/capacity.
2. Costs of chargepoints and infrastructure installation and maintenance.
3. Infrastructure currently available may not support the upgrade required.
4. Requirement of new sub stations.
5. Car parking charge requirements.
6. Space within car parks lost to EV chargepoints e.g. Foster Avenue.

## **12 EVI 02 Residential (private) off street parking**

Following a consultation by the Office for Zero Emissions Vehicles (OZEV) in 2019, the UK passed a new set of regulations to try and ease the transition to EV vehicles.

These regulations came into force in June 2023 and require all new builds and homes undergoing major renovation and/or retrofit and commercial properties in England to have EV chargepoints fitted, (as shown in **Figure 7**).

However, there will be a delay in seeing this come into force, due to schemes being accepted prior to this date.

The number of residential off street parking CPs within Broxtowe have been monitored by the Planning Department since 2018. These are currently being captured and mapped by the GIS Officer and will continue to be reviewed and updated as required.



**Figure 7: Example of new build EV charge point**

(Reference: <https://www.yourparkingspace.co.uk/insights/new-home-ev-charger-rules-explained>)



### **Opportunities and Benefits**

1. Larger schemes (>10) stipulating EV chargepoints is likely to work and the Council can link this with the Climate Change and Green Futures Strategy.

### **Barriers and Challenges**

1. Suitability of properties for practical installation of EV units.
2. Restrictive national and local planning policies with regard to stand alone EV charging points.
3. For smaller schemes (<10 properties), stipulating EV chargepoints will not work at this moment in time.

## **13 EVI03 Residential (private) on street parking**

This programme theme requires installation of chargepoints on highways, enabling residents that do not have access to off street parking to have an EV charging solution. Highways are managed by Nottinghamshire County Council (NCC) who have recently been awarded £5.5 million from the Government via the LEVI fund. The fund supports local authorities in England to work with the chargepoint industry, to improve the roll out and commercialisation of a local charging infrastructure with a primary focus on those who do not have access to off street parking.

NCC have trialled a number of electric vehicle cable channels (EVCC), as shown in **Figure 8**. LEVI funding will be used to roll out this scheme across Nottinghamshire.

It is imperative for the Council to work collaboratively on this programme theme to ensure that Broxtowe Borough residents will benefit from the funding.



**Figure 8: Example of electric vehicle cable channels for off street EV charging.**

### **Opportunities and Benefits**

1. LEVI fund awarded to Nottinghamshire County Council 2023.
2. On-Street charging infrastructure for residents.

### **Barriers and Challenges**

1. Supportive planning powers (locally and nationally) to encourage EV usage.
2. Physical space constraints within the street to locate EV charging points.
3. Safety concerns (cables over pathways)

## **14 EVI04 Community Hubs/Charging hubs**

Community charging hubs will be located close to residential areas without access to off road parking. Ideally, this will be less than 500m walk for the majority of users. A range of chargepoint speeds could be offered at these. Community hubs offer the opportunity for onsite renewable energy generation, the energy from which can be used to power the chargepoints, via a solar canopy, as see in **Figure 9**. This should be included as part of any feasibility study. The Council will look for government funding opportunities for such schemes.



**Figure 9: Gamston Community Hall Solar Electric Charging Hub**

Portland Street in Beeston has been recognised as a possible viable location for the Council's first community hub. This is for the following reasons:

- It currently has eight EV chargepoints already in situ which can potentially be incorporated into such a scheme and/or upgraded if required.
- It is centrally located.
- It is embedded within a dense residential area comprising of terrace style houses with no off-street parking.
- It is surrounded by local businesses.

### **Opportunities and Benefits**

1. Modernising the EV network to meet the demand and rapid growth in EV use within dense urban neighbourhoods.
2. Use existing infrastructure/facilities to upgrade to rapid charging.
3. Enable residents without off-street parking to access convenient and affordable public chargepoints.
4. Embrace onsite renewable energy generation e.g. solar.

### **Barriers and Challenges**

1. Network availability/capacity.
2. Lack of funding.
3. Costs of chargepoints and infrastructure installation and maintenance.
4. Loss of valuable parking spaces for conventional vehicles.
5. EV growth may slow and demand for space may not reach that expected or forecasted, leaving spaces underutilised.

## **15 EVI 05 Charging at Broxtowe Borough Council Sites**

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There are currently two 7kWh EV chargepoints (off a three pin plug) installed at Kimberley Depot. These are used by the nine fleet vehicles.

The Council has acquired funding through D2N2, to supply and fit a further two, 7kW charging points in 2023/24. These facilities will be available to other local authorities to use. Broxtowe Borough Council's fleet is also able to use shared charging points in the D2N2 area as part of this scheme.

Opportunities at other Council sites require identifying to expand on this infrastructure.

### **Opportunities and Benefits**

1. Obtain information on the current market options for fleet replacement.
2. Shared charging across D2N2.
3. Consider alternative to electrification i.e. Hydrogen Powered Vehicles.

### **Barriers and Challenges**

1. Costs in excess of £18.2 million for EV infrastructure and vehicles for refuse fleet.
2. Kimberley Depot's future.
3. Fledgling technology.
4. Procedural paralysation.
5. Power constraints.

## **16 Implementation planning**

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### **Priority of EVI**

The Council will prioritise EVI based on the biggest benefits identified to the end user. Current prioritisation has been categorised in the following order:

1. EVI04 Community Hubs/Charging Hubs.
2. EVI05 Charging at Broxtowe Borough Council Sites (own fleet).

3. EVI03 Residential (private) on street parking.
4. EVI01 Destination Charging.
5. EVI02 Residential (private) off street parking.

## Costs

The costs associated with the implementation of the EVI across the Borough will depend on:

1. Rate of EV uptake: high, medium, or low.
2. EVI Strategy roll out approaches: residential, hub, or blend.
3. Commercial Arrangement (CA): land lease, own and operate, Public-Private Commercial Partnership (PPCP) concession, or PPCP external operator.
4. Funding opportunities i.e. [On-Street Residential Chargepoint Scheme \(ORCS\)](#); [Local Electric Vehicle Infrastructure Fund \(LEVI\)](#).

Full details of each of these points above can be found in **Appendix 1**. A business case will be presented to Cabinet explaining the partnership agreement for the EVI to agreed upon.

Identifying the ownership models that are available for the Council and the benefits and drawbacks of these can assist and help focus procurement approaches. The Energy Saving Trust have produced a guide on [procuring electric vehicle charging infrastructure](#), which will be used to develop this element of the Strategy.

For the purpose of this Strategy the estimated costs of EVI implementation across Broxtowe according to the different commercial arrangement options have been generated using NEVIS. These have been based on a medium EV update and a blend EVI Strategy.

Estimated costs generated range as follows:

- Indicative cumulative capital costs (2021 to 2025): £0 (land lease) and £10.6million (own and operate).
- Annual operational costs for 2035: £0 (land lease) and £310,000 (own and operate).
- Revenue costs for 2035: £1.5million (land lease) and £8.3million (own and operate)

Once the Council has decided on the Commercial Agreement route and the EVI Strategy approach these costs will be required to be calculated accurately.

## Reliability

It is vital that any EVI installed is well maintained, reliable and that service issues are dealt with promptly. An easily accessible reporting system to allow users to feedback on their experience (positive and negative) will be essential.

## Communication

Regular communication with employees, residents, local businesses is important to support initial uptake of any new EVI or upgrades installed. Council controlled communication platforms i.e. website, environment bulletins, social media will be used to regularly promote the EV chargepoint network. A function to allow residents to request new chargepoint locations will be beneficial in mapping areas of need and planning expansions.

## General Principles

There are a number of general principles the Council will be required to consider when implementing chargepoints, both with regards to location and operation. This ranges from consistent signage to appropriate payment systems.

A full checklist for the Council to consider is presented in **Appendix 2**.

# 17 Action Plan

## EVI 01 Destination Charging

Ref	Action	Target for 2024/25	Responsible Officer	Cost	Status
EVI01/01	Look to expand the number of public destination chargepoints across the Borough.	Benchmark all public EV chargepoints across the Borough and set an annual number of installations required.	Head of Environment/Parking and CCTV/Security Manager/Climate Change Manager	£	In progress
		Undertake a feasibility study on two sites and look for funding opportunities to support this.		£££	Not started
		Consider contract/partnerships with third parties.		£	In progress
		To produce 'shovel ready' EVI projects for suitable Council car parks.		£	Not started
EVI01/02	Look at the viability of upgrading from slow charge to rapid charge.	Upgrade one Council car park site to rapid charge (if funding is available).	Parking and CCTV/Security Manager/ Climate Change Manager	£££	In progress
EVI01/03	Keep up to date with accessibility guidance, standards, challenges and opportunities.	Review chargepoints already in situ and identify those that can be redesigned to become accessible.  Accessibility of all new chargepoints to be included within design.  Accessible chargepoints to be installed where ever feasible.	Head of Environment/Parking and CCTV/Security Manager/Climate Change Manager	££	In progress



**EVI 02 Residential (private) off street parking**

Ref	Action	Target for 2024/25	Responsible Officer	Cost	Status
<b>EVI02/01</b>	Outline the planning processes to ensure the public better understand the methods through which they can install home EVI.	Develop and implement a suitable communication plan for residents.	Head of Planning and Economic Development/ Communications, Culture and Civic Manager	£	Not started
<b>EVI02/02</b>	Monitor planning applications for EVs on existing housing stock.	Map all existing EV chargepoints across the Borough and keep records up to date.	GIS Officer/Climate Change Manager	£	In progress

**EVI 03 Residential (private) on street parking**

Ref	Action	Target for 2024/25	Responsible Officer	Cost	Status
<b>EVI03/01</b>	Promote opportunities with the County Council regarding resident applications for LEVI funding .	Support the installation of two on street chargepoints for residents in the Borough.	Climate Change Manager/Head of Planning and Economic Development	£	Not started
<b>EVI03/02</b>	Provide guidance notes, or update policy (where relevant) to ensure the faster adoption of offsite EV.	Preparation of a suitable Supplementary Planning Document (SPD) for EV charging.	Head of Planning and Economic Development.	£	In progress

### EVI 04 Community Hubs/Charging hubs

Ref	Action	Target for 2024/25	Responsible Officer	Cost	Status
EVI04/01	Work with local businesses to encourage uptake and provision for electric vehicles, to support town centre evening economy around community hub area, food deliveries etc.	Set up a climate change business forum.	Climate Change Manager/Planning Development and Regeneration Manager	£	Not started
EVI04/02	Work with local public transport, taxi- and private hire companies to facilitate a charging infrastructure that supports their transition to zero emission vehicles.	Establish network opportunities with other stakeholders.	Climate Change Manager	£	Not started

### EVI 05 Charging at Broxtowe Borough Council Sites

Ref	Action	Target for 2024/25	Responsible Officer	Cost	Status
EVI05/01	Promote EV chargepoints already installed across the Borough.	Ensure that the EV Strategy communications plan is captured as part of the CC& GF programme.	Climate Change Manager/ Communications, Culture and Civic Manager	£	Not started
EVI05/02	Promote car lease scheme to employees.	Ensure regular promotion within employee matters email bulletin of the car lease scheme.	HR Manager/ Climate Change Manger	£	Not started

## EVI 06 Other Actions

Ref	Action	Target for 2024/25	Responsible Officer	Cost	Status
EVI06/01	Engage with DNO to understand energy/network capacity within Broxtowe, their current plans are and how these may affect the Borough.	Share EV Strategy with DNO and obtain feedback.	Head of Environment/Climate Change Manager	£	Completed
EVI06/02	Work with neighbouring Districts to ensure a collaborative approach to EV facilities in the region.	Regular agenda item of the Carbon Neutral Officers Group and Environment Strategy Working Group	Head of Environment/Climate Change Manager	£	In progress
EVI06/03	Keep up to date with accessibility guidance, standards, challenges and opportunities.	Accessibility of all new chargepoints to be included within design. Accessible chargepoints to be installed where ever feasible.	Climate Change Manager/Head of Planning and Economic Development/ Parking and CCTV/Security Manager	££	In Progress
EVI06/04	Develop an EV implementation plan to monitor the progress of the EVI Strategy action plan.	Finalise the procurement model. Write the EV Implementation plan.	Climate Change Manager	£	Not started
EVI06/05	Engage with Midland Connect to understand their role	Remain up to date with current/ future plans and funding. Reach out to key contacts establishing direct contact for stakeholder engagement.	Climate Change Manager	£	Not started
EVI06/06	Establish an annual target of CPs to be installed across the Borough.	Use growth projection scenarios to set targets.	Climate Change Manager	£	Not started

\*Low £ (<£5K)

Medium ££ (£5 to £20K)

High £££ (£20K+)



## 18 Monitoring and Key Performance Indicators (KPI's)

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The Council will monitor and review the EVI installed across the Borough to assist in the identification of future network expansion and CP speed decisions.

Provision of this data will better enable the Council to set targets and identify priority areas for network expansion.

Potential KPIs for chargepoints include:

1. Installation time.
2. Utilisation rate.
3. Reliability.
4. Downtime i.e. for repair, out of order.
5. Number of enquires/complaints.

These will evolve once a procurement model has been decided upon and incorporated within an implementation plan.

## 19 References and Links

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- Broxtowe Borough Council Climate Change and Green Futures Strategy 2023-2027.
- Broxtowe Borough Council Potential Joint Bid – Local Electric Vehicle Infrastructure Fund (LEVI) presentation.
- [Charging Ahead, using location data to boost local EV Chargepoint rollout, 2023](#)
- [Charging Forward: Nottinghamshire's Electric Vehicle Chargepoint Framework. Building a Green Future, Nottinghamshire County Council's](#)
- Electric Vehicle Strategy 2019-2023; West Sussex County Council
- Electric Vehicle Strategy 2021 to 2023; Dorset Council
- [Electric Nation](#)
- Energy Saving Trust: A Guide to Ultra Low Emissions Vehicles for Fleet Managers, Department for Transport. <https://energysavingtrust.org.uk/wp-content/uploads/2020/10/A-guide-to-ultra-low-emission-vehicles-for-Fleet-Managers.pdf>
- Geospatial Commission.
- [Government's Rapid Charging Fund](#)
- Local Government Association – Climate Change in Broxtowe Report issued in 2023.
- [Local Electric Vehicle Infrastructure Fund](#)
- [On-Street Residential Chargepoint Scheme](#)
- Osprey: Beginners Guide to EV Charging <https://www.ospreycharging.co.uk/beginners-guide-to-ev-charging>).
- [PAS1899:2022 Electric Vehicles Accessibly Charging Specification](#)
- [Procuring electric vehicle charging infrastructure](#)
- Royal Borough of Windsor & Maidenhead Electric Vehicle Chargepoint Implementation Plan, February 2023
- Solihull's Electric Vehicle Strategy – Going Electric – updated July 2022
- ['Supercharging the Midlands'](#)
- ['Summary: barriers and solutions for disabled consumers getting and using electric vehicles'](#),
- [Transport Decarbonisation Plan](#)
- [Taking Charge: the electric vehicle infrastructure strategy.](#)
- [UK local authority and regional greenhouse gas emissions national statistics, 2005 to 2021](#)
- [zapmap](#)
- <https://energysavingtrust.org.uk>

- <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2021>
- <https://www.eastmidlandsdevolution.co.uk/greener-environment/>
- <https://nevis.cenex.co.uk/reports/current-status/>
- <https://nevis.cenex.co.uk/maps/c7f7f587-ff13-4293-94b5-7ee7334eb5c9>
- <https://lginform.local.gov.uk/>
- <https://nevis.cenex.co.uk/>
- <https://www.yourparkingspace.co.uk/insights/new-home-ev-charger-rules-explained>

## 20 Document review and Control

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The document will be reviewed at least annually by the Head of Environment and in conjunction with the Climate Change and Green Futures Strategy 2023-2027. However, due to the rapidly evolving nature of this subject it may be necessary to trigger more frequent reviews due to additional guidance, legislation and funding.

## 21 Glossary of terms

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AQMA	Air Quality Management Area. Geographical areas where pollution levels are, or are likely to exceed national air quality objectives at relevant locations where the public may be exposed to harmful air pollution over a period of time, e.g. residential homes, schools etc.
BEV	Battery Electric Vehicle Also known as a 'pure' or 100% electric. These are vehicles powered only by electricity. Charged by an external power source i.e. at a chargepoint. They do not produce any tailpipe emissions. This abbreviation is used for cars.
BE HGV	Battery Electric Heavy Goods Vehicles.
BE LCV	Battery Electric Light Commercial Vehicles.
BE RCVs	Battery Electric Refuse Collection Vehicles.
BIS	British Standards Institute.
CA	Commercial Agreement. A legally binding contract between parties that defines terms and conditions.
CP	Chargepoint. A charging socket which is connected to an electric vehicle via a charging cable to allow the battery to be recharged with electricity.
D2N2	The Local Enterprise Partnership for Derby, Derbyshire, Nottingham and Nottinghamshire.
EVI	Electric Vehicle Infrastructure. The infrastructure needed to enable electric vehicles to charge including the grid connection, the chargepoint and the parking bays.
EV	Electric Vehicle, the vehicle is powered by electricity, so requires plugging in to recharge the battery. Zero tailpipe emissions.
EVCC	Electric Vehicle Charging Cables

EVCP	Electric Vehicle Chargepoint.
E-REV	Extended range electric vehicle These are a version of plug-in hybrids. An E-REV combines a battery, an electric drive motor and a small petrol or diesel generator. The electric motor always drives the wheels, with the ICE acting as a generator when the battery is depleted. Currently the range of these vehicles can be between 150-300 miles.
FCEV	Fuel Celled Electric Vehicle.
FC RCVs	Fuel Celled Refuse Collection Vehicles.
ICE	Internal Combustion Engine vehicle, the vehicle is powered by a regular combustion engine using fuel (petrol, diesel) to power it.
LA	Local Authority. An administrative body in local government.
LCTs	Low Carbon Technologies.
LEVI	Local Electric Vehicle Infrastructure Funding.
MC	Midlands Connect.
NCC	Nottinghamshire County Council
NEVIS	National EV Insight and Support
NGED	National Grid Energy Distribution.
NIA	National Innovation Allowance
ORCS	On-street Residential Charging Scheme.
OZEV	Office for Zero Emissions Vehicles.
PHEV	Plug in Hybrid Electric Vehicle. These vehicles have a battery, electric drive mode and an internal combustion engine (ICE). They can be driven using the ICE, the electric drive motor, or both, and can be recharged from an external power source. Typically, PHEVs have a range of up to 50miles. Once the electric battery is depleted, journeys can continue in the hybrid mode, meaning there is no range limitation.
PPCP	Public-Private Commercial Partnership
RCVs	Refuse Collection Vehicles
RFID	Radio-Frequency identification is used for wireless automatic identification.
Vehicle Parc	All automotive vehicles in use at any time given.
ZEV	Zero Emissions Vehicles. Vehicles that produce no tailpipe emissions.

## 22 Appendix 1

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### Rate of EV uptake (as defined by [NEVIS](#))

High – ban on new ICE by 2030 and PHEV by 2035.

Medium - Ban on new ICE and PHEV by 2035.

Low – Following minimum [Zero Emissions Vehicles \(ZEV\) mandate](#).

### EVI Strategy roll out approaches:

Residential – this provides a projection with a preference towards standard charging near-home.

Hub – this provides a projection with a preference towards ultra-rapid charging which is similar to the current fuelling station approach;

Blend – this provides a projection with a blend between the two other options.

### Commercial arrangements

#### Land Lease

Land Lease – this is the least involved option for the LA. This is a low risk-low revenue Commercial Arrangement where the LA retains little control over the resulting service by leasing land it owns to a service provider. All capital and operational costs are covered by the service provider who also retains the risk and responsibility associated with installation, maintenance, and asset utilisation. Since a 'lease' is just an interest in the property, the party leasing the land has a grant of possession of the land for a definite period and for a definite payment arrangement. Consequently, the LA has no control over the eventual EVI that is deployed. This requires a strictly managed contract to ensure what is deployed, where and when.

#### Own and Operate

This is the most involved Commercial Arrangement for the LA. The LA pays for all capital costs, covers all operational costs and retains all ownership, control, responsibility, risk and revenue. It may choose to discharge some activities such as installation through sub-contractors.

#### Public-Private Commercial Partnership (PPCP):

Concession – the LA provides some capital, for example to establish an electrical connection point to enable a service provider to install and operate chargepoints. The LA retains some control over the quality of service and/or location of the EVI by having an active role in contract management and performance monitoring of the service provider. The risk and responsibility associated with the installation, maintenance, operations and asset utilisation is transferred to the service provider who finances the capital and replacement costs of the charging infrastructure.

External Operator – where a supplier operates chargepoints installed and owned by the LA, in exchange for a small revenue share.

## 23 Appendix 2

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### General principles when considering chargepoint locations and their operation:

- Chargepoints installed across the Borough will look and feel the same with consistent signage.
- Street furniture and clutter will be minimised.
- Chargepoints should be dual connectors.
- Installation will include the creation of charging bays with EV parking bay marking.
- Signage will be kept to a minimum and show clear information about associated costs.
- Users will be charged for the energy that they use plus car parking. The cost to the end user will form part of the procurement exercise for a CPO.
- Chargepoints will be easy for anyone to use with a contactless pay as you go system.
- Chargepoint management and maintenance needs to be included.
- Explore how to support smart charging, reducing demand on the grid at peak time.
- Provide chargepoints in places that people need them, but not in locations that encourage additional car use.
- Focus on areas where residents cannot make the switch to EV without access to public charging network.
- Ensure a good geographical spread across the Borough.
- Ensure any charging points are complementary to and not in direct competition to others operating in the area.
- Initial efforts to focus on areas where it is predicted there will be more charging points required.
- Enable and encourage residents to have the opportunity to suggest suitable specific sites for charging points to be installed.
- All chargepoint sites will be subject to full feasibility investigations including an assessment of local grid capacity.
- Chargepoints will be accessible and available 24 hours a day.
- Ideally chargepoints will be in busy locations with high footfall.
- Ideally urban sites will have CCTV and be well-lit for use at night.
- The Council should ensure that any contracts with chargepoint operators stipulates that the latest technology is being used and that the infrastructure is future proofed.