Central Bedfordshire

Central Bedfordshire Electric Vehicle Infrastructure Strategy

2023 – 2030

A great place to live and work.

Revision History

Version	Description	Date	Initials
V1	Document Structure	05/07/2023	TP
V2	First Draft	10/09/2023	TP
V3	Appendices Added	13/09/2023	TP
V4	Final Amendments	26/10/2023	TP

Contents

Foreword

The increased uptake of electric vehicles is a key part of the government's pathway to net zero by 2050 and transport is a key area of focus in the Council's Sustainability Plan. To deliver on the national and local objectives, the Council must help to facilitate the development of electric vehicle infrastructure and a public charge point network. This will support and encourage the uptake of electric vehicles, whilst providing a good geographic coverage for residents, businesses, visitors, and those travelling through the area, and most importantly, target support for those who are unable to charge a vehicle at home.

The Council, in its capacity as both the Highways, Planning & Parking Authority, has a key role in enabling and supporting the delivery of this public infrastructure. I'm therefore pleased to present this document, the Council's Electric Vehicle Infrastructure Strategy, which sets out the context and the various approaches that the Council will take in this space.

This will primarily focus on working in partnership with private sector Charge Point Operators to install and manage charge point networks, through a number of projects and utilising several infrastructure types.

The Council recognises the growing demand for electric vehicle charging provision and this strategy sets out the approach being taken, the objectives being worked towards, and provides an overview of the context and our understanding. It also reflects on some of the challenges that will be faced in rural areas, such as Central Bedfordshire, where car reliance is higher and range anxiety may be an issue with charge points currently further apart. This highlights the need for convenient, close to home charging options, as well as other important infrastructure close to urban areas and main transport routes.

When considering a range of factors, such as the possible level of investment, technical expertise, resource to manage and maintain a network, and the risk involved, the strategy concludes that this can only be done through public/private sector partnerships with operators who are best placed to install and manage a network. This is reflective of the approaches taken by many other local authorities and a recommended approach when utilising government funding streams.

Cllr Tracey Wye

Executive Member for Sustainability & Climate Resilience

1. Introduction

1.1 Context

1.1.1 The decarbonisation of transport systems is one of the key drivers for delivering the Council's net-zero ambitions by 2030 and beyond, and for supporting the agenda set by Government in phasing out petrol and diesel vehicles.

1.1.2 Central Bedfordshire is well-connected with major transport routes running through the area, such as the M1, A1, A6 and A5 road routes, and the Midland Main Line, East Coast Main Line, and West Midlands railway routes. This connectivity presents a challenge in that the Council cannot directly address all of the emissions that are generated in the area, although as transport systems are decarbonised this will naturally reduce, bringing with it improvements to local air quality.

1.1.3 It is important to recognise the Council's wider focus on sustainable transport through improvements to active travel and public transport. We recognise the many benefits this brings to the individual, to places and to the environment more widely, and want to reduce car use across Central Bedfordshire in favour of more sustainable options.

1.1.4 However, the Council recognises that cars and vans remain an appropriate mode of transport, along with buses and trains, and so it is key to help facilitate the transition from petrol and diesel vehicles to ultra-low and zero emission vehicles. This helps to reduce the impact of those journeys and work towards meeting climate change and air quality ambitions.

1.1.5 The semi-rural nature of Central Bedfordshire also means that travel via car is often the easiest and most convenient option, and this is reflected through on-road emissions being responsible for nearly 40% of Central Bedfordshire's carbon footprint. This highlights the importance of the Council helping to support and facilitate the transition to electric vehicles for residents, businesses, and visitors.

1.2 Overview of Approach

1.2.1 The Council's adopted Sustainability Plan (2020-2030) provides the overarching vision for Central Bedfordshire's journey to net-zero, with a multitude of objectives that provide a pathway.

1.2.2 In 2021, the Council adopted its Electric Vehicle Charge Point Plan. This provided an overview of the wider context and current position and set out the approach for the delivery of electric vehicle charge point infrastructure for building the public network and providing charge points for residential use.

1.2.3 The Electric Vehicle Infrastructure Strategy builds on that initial plan and seeks to:

- Provide a blueprint for future projects that are delivering continued improvements to electric vehicle infrastructure
- Address the wider scope of electric vehicle infrastructure that the Council needs to consider and update the aims and objectives accordingly
- Reflect the Council's increased understanding of the subject area, the technology available, and the challenges that are faced

- Outline the progress made to date on the delivery of electric vehicle infrastructure
- Review the latest forecasting and infrastructure requirements
- Set out the direction for the utilisation of the Council's allocation of the emerging Local Electric Vehicle Infrastructure (LEVI) grant fund.

1.2.4 The support for electric vehicles will be realised through a number of initiatives, largely by the provision and growth of a public charging network, and other supporting infrastructure schemes.

1.2.5 This work is required to ensure consumer confidence and access to fair, equitable, and accessible charging options, and to support the increasing number of electric vehicles on our roads.

2. Policy Context

2.1 National Policy Context

2.1.1 There are a number of national policies which set the broad direction of travel for local authorities and seek to address issues on climate change, emissions, and transport.

The Ten Point Plan for a Green Industrial Revolution (2020)[1]

2.1.2 This plan sets out the approach government will take to build back better, support green jobs, and accelerate the path to net zero, addressing issues around energy, transport, heating, buildings, environment, and finance. The plan also introduced the ban on the sale of new petrol and diesel vehicles by 2030, with all new vehicles being required to have significant zero emissions capability from that date forwards. By 2035, all new vehicles will be fully zero emission at the tailpipe, phasing out hybrid vehicles over the five-year period.

2.1.3 In September 2023, the government announced its zero emission vehicle (ZEV) mandate which pushes the 2030 ban date back to 2035. This change still requires 80% of new cars and 70% of new vans sold in Great Britain to be zero emission by 2030, increasing to 100% by 2035. Larger vehicles have until at least 2040 to switch.

Net Zero Strategy: Build Back Greener (2021)[2]

2.1.4 This strategy follows on from the Ten Point Plan and sets out policies and proposals for decarbonising all sectors of the UK economy to meet the net zero target by 2050 and keep the UK on track with upcoming carbon budgets.

Decarbonising Transport: Setting the Challenge (2020)[3]

2.1.5 This document was created to accelerate the decarbonisation of transport in the UK and help to move forwards on the pathway to achieving net zero emissions by 2050. This sought to harness the UK as a centre of expertise to drive low carbon innovation and travel behaviour that has an impact globally, position the UK as a global leader for ULEV development and manufacture, and provide grants towards vehicles and charge points.

Decarbonising Transport: A Better, Greener Britain (2021)[4]

2.1.6 This plan replaces the 2020 document and outlines the government's transport decarbonisation plan, setting out commitments and actions needed to decarbonise the entire transport system in the UK. This includes the pathway to net zero transport, the wider benefits that can be realised, and the principles that underpin the approach.

[1] The Ten Point Plan for a Green Industrial Revolution
[2] Net Zero Strategy: Build Back Greener
[3] Creating the Transport Decarbonisation Plan
[4] Transport Decarbonisation Plan

UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations (2017)[5]

2.1.7 The NO_2 plan sets out the government's strategy to improve air quality by reducing the levels of NO_2 around the country's roads, aiming to deliver cleaner air in the shortest time possible, with support for local authorities to do this on a local level.

Automated and Electric Vehicles Act (2018)[6]

2.1.8 This piece of legislation provides regulations relating to the operation and installation of charge points and hydrogen refuelling points for electric vehicles. The second part of the act gives the Secretary of State the power to make regulations in relation to requirements for access to data and minimum standards for design, function and payment methods.

National Planning Policy Framework (2021)[7]

2.1.9 The NPPF sets out government planning policies for England and how they should be applied, acting as a framework for which Local Plans can be produced and must be considered in the preparation of a development Plan. Section 9 'Promoting Sustainable Transport' refers to local parking standards ensuring provision for charging vehicles.

Taking Charge: The Electric Vehicle Infrastructure Strategy (2022)[8]

2.1.10 This strategy sets out the government's vision and action plan for the rollout of electric vehicle infrastructure in the UK ahead of the initial 2030 and 2035 phase out dates, focusing on building a public charge point network to enable long distance journeys and supporting those without off-street parking. This document is central to the work that the Council's Electric Vehicle Infrastructure Strategy is outlining and sets out the requirement to do so. The strategy stresses the need for balancing fast and rapid charging, with a focus on the requirement for slower, overnight, on-street charging for many users.

Building Regulations Part S: Infrastructure for the Charging of Electric Vehicles (2022)[9]

2.1.11 This update in June 2022 saw the introduction of requirements for the installation and location of electric vehicle charge points with the aim of futureproofing homes and buildings. Broadly, the document provides a requirement for active and passive charge point provision in all new build homes and mixed-use buildings (including those undergoing major renovation), buildings undergoing a change of use, and new non-residential properties such as commercial builds and retail units.

[5] Air Quality Plan for Nitrogen Dioxide in UK (2017)
[6] Automated and Electric Vehicles Act 2018
[7] National Planning Policy Framework
[8] UK Electric Vehicle Infrastructure Strategy
[9] Infrastructure for charging electric vehicles: Approved Document S

Electric Vehicles: Accessible Charging Specification (PAS 1899:2022)[10]

2.1.12 This guidance produced by the British Standards Institute aims to provide an inclusive experience for people with accessibility needs and a new standard giving designers, procurers, and installers essential specifications on how to provide accessible public charge points for electric vehicles. It covers a variety of topics including the physical aspects of the surrounding environment, the location, placement and spacing of charge points, information, signals and indicators for users, and design and specification factors to be taken into account.

2.2 Regional Policy Context

2.2.1 In a regional context, England's Economic Heartland (EEH) is the most relevant body for planning, forecasting, and working within the space of electric vehicle infrastructure. This brings together the region's Local Transport Authorities in a strategic partnership that works with the region's local enterprise partnerships to provide leadership on strategic infrastructure.

EEH Regional Transport Strategy: Connecting People, Transforming Journeys (2021)[11]

2.2.2 The strategy outlines how EEH seeks to be ambitious in supporting a green economic recovery, working with business and research communities to harness the region's world-leading expertise in clean, green, and smart technologies, and reduce the reliance on the private car through investment in strategic public transport infrastructure and local active travel measures.

2.2.3 In addition, it addresses projects that focus on electrification, the development of technology associated with the use of electric vehicles, and the provision charging infrastructure and electric vehicle car clubs.

2.3 Local Policy Context

2.3.1 There are a number of relevant local policies applicable to the Central Bedfordshire area which outline the Council's approach and expectations to development and the delivery of infrastructure.

Central Bedfordshire Sustainability Plan (2020-2030)[12]

2.3.2 This plan sets the direction for improving the Council's own operations and processes, for facilitating investments in infrastructure-led projects, and for influencing, supporting, and enabling residents and local businesses to adopt sustainable behaviours and practices.

2.3.3 The Sustainability Plan is currently being updated and this strategy will align with the revised objectives of that plan, following progress made on those in the original version.

[10] British Standards Institute
[11] Regional Transport Strategy
[12] Climate Change - Tackling It and Our Strategy

2.3.4 As adopted, the Sustainability Plan outlines a range of actions related to electric vehicles, including:

- Facilitating staff to live more sustainably through advice and guidance
- Introduction of incentives to encourage electric vehicle uptake through staff salary sacrifice lease schemes
- Production of design guidance related to electric vehicle charging points
- Investment and facilitation of the delivery of a charging network
- Investigate delivery models, finance mechanisms, emerging technologies, and potential locations for charge point provision
- Transition the Council's fleet to electric vehicles when possible.

Central Bedfordshire Local Plan (2015-2035)[13]

2.3.5 The Local Plan is the core Planning Policy document and sets out the strategy to guide development within Central Bedfordshire and plan for the infrastructure, homes and jobs that are required over the next 20 years. It also contains a suite of policies which are used in decision making.

Electric Vehicle Charging: Technical Guidance for New Development SPD (2022)[14]

2.3.6 This supplementary planning document sets out the requirements for the provision of electric vehicle charging points in all new developments in Central Bedfordshire, providing guidance on the types, design, layout, and standards of electric vehicle charging, as well as the information that developers are required to provide at the planning application stage.

Parking Standards for New Developments SPD (2023)[15]

2.3.7 This document provides detailed guidance on parking for cycles, cars (including disabled parking) and powered two-wheeler parking for both residential and non-residential developments, including layouts and dimensions for parking spaces in various contexts. Regarding electric vehicles, there is content on Car Clubs, general charging provision, management plans, accessible charge point provision, and a range of example layouts for electric vehicle charge point provision in residential and non-residential settings.

Central Bedfordshire Local Transport Plan 3 (2011-2026)[16]

2.3.8 This plan sets out the Council's transport priorities for a 15-year period. Since 2011 there have been several changes that have affected transport priorities in the area, such as the adoption of the Sustainability Plan and Local Plan, and the release of new national guidance on cycle infrastructure design. The Council has therefore decided to start work on Local Transport Plan 4 to ensure these changes and others are captured.

[13] Central Bedfordshire Local Plan
[14] Electric Vehicle Charging: Guidance for New Developments
[15] Parking Standards for New Developments SPD
[16] Local Transport Plan

On-Street Parking Management Strategy[17]

2.3.9 This document forms part of Local Transport Plan 4 and sets out our approach to managing on-street parking, replacing the Car Parking Strategy (2011). The strategy explores the reasons why the demand for on-street parking has become so high and the effect this has on other road users, seeking to provide practical advice on how to consistently manage the most common issues that we face. A well-planned and managed approach to parking can help make our towns and local communities better places to live, work and visit and we have a legal obligation to manage the road network appropriately. The requirement for electric vehicle charging and how this is delivered and managed will have to be considered alongside local parking provision and the associated pressures.

Air Quality Management Areas & Action Plans[18]

2.3.10 There are currently three air quality management areas in Central Bedfordshire – Ampthill town centre, Dunstable town centre, and adjacent to the A1, Sandy. The three areas have dedicated action plans in place following detailed assessment that showed pollutant levels were exceeding those expected. The main source of air pollution within the area is generated from road transport and this highlights the benefits of decarbonising transport.

[17] On-Street Parking Management Strategy
[18] Air Quality

3. Vision, Objectives & Principles

3.1 Vision for Central Bedfordshire

3.1.1 Our vision is for Central Bedfordshire to be an area that offers a suite of charging options for residents, businesses, visitors, and those travelling through the area, with the Council acting as a facilitator and enabler to support the decarbonisation of transport and improvements to local air quality.

3.1.2 Our primary aim will be to provide local solutions for those who cannot easily charge at home through a range of technologies, whilst enabling the growth of rapid charging hubs in strategic locations to serve the major road network and town centres.

3.1.3 Our focus will be on ensuring a fair, geographic coverage that caters for identified demand and need, and providing options that are reliable, accessible, equitable, inclusively designed and powered by renewable energy sources.

3.1.4 Our operations will also be addressed as we seek to improve charge point provision at our offices, depots and public buildings, work to offer charging solutions to serve our housing stock, support the transition of the Council's fleet vehicles, facilitate the switch to electric taxis and buses, and look to utilise our land assets in the best way to enable all of the above.

3.2 Objectives

Objective 1

Maximise private investment to widen the charging network across Central Bedfordshire and meet the needs of residents, businesses, visitors, and those travelling through the area

Objective 2

Utilise a range of technologies to provide charging solutions for those residents who do not have the ability to charge at home easily and safely

Objective 3

Ensure the network of charging options is reliable, accessible, equitable, inclusively designed and financially sustainable, and fairly spread across Central Bedfordshire with options in as many settlements as possible to meet identified need and demand

Objective 4

Play our part in transport decarbonisation, facilitating the reduction of emissions from road vehicles, the resulting improvements to air quality, and an overall reduction in car use. Underpinned by the use of renewable energy in powering the public charge point network, linking in with emerging local renewable energy generation and storage projects

Objective 5

Support local economic growth through job creation, reduced transportation costs and increased disposable income for residents

Objective 6

Utilise our land assets in the best way to enable the sustainable development of electric vehicle charging infrastructure, including improved charge point provision at our offices, public buildings, depots, and housing stock, and supporting the transition of the Council's vehicle fleet and contractor vehicles, including buses, refuse trucks and private taxis.

3.3 Principles

3.3.1 Below are a set of principles at the core of our delivery of electric vehicle infrastructure.

Inclusive

Charge point infrastructure should meet the needs of disabled drivers, with the aim of following best practice as set out in PAS 1899:2022, and provide accessible-sized bays

Integrated & Easy

All infrastructure provided should allow any driver to connect, with clear pricing and, where possible, contactless payment systems

Reliable & Maintained

All infrastructure should be reliable and well maintained to give users confidence in the network, with data available to show availability and utilisation

Affordable

Charging should be affordable, even for those reliant on the public charge point network

Safe & Secure

Sites hosting infrastructure should be safe, secure, well-lit, and visible

Environmentally Positive

Renewable electricity sources should be used to power infrastructure, with suppliers and operators demonstrating truly sustainable values, green credentials, and supply chains

Resilient

The resilience of the electricity grid and the available capacity will need to be considered, especially as demand increases locally and regionally.

Commercially Astute

The future procurement for the delivery of charge point infrastructure will maximise private sector investment and be underpinned by the most beneficial commercial agreement available.

4. Electric Vehicle Infrastructure

4.1 Overview

4.1.1 The following section aims to provide an overview of the various infrastructure technologies, centered around charge points and use cases, user groups and locations.

4.1.2 It is estimated by the International Energy Agency (IEA) that there will be 250 million electric vehicles on the world's roads by 2030, with the Climate Change Committee (CCC) predicting that there will be 18 million electric vehicles in the UK by the same date. Global electric vehicle sales exceeded 10 million units in 2022, up 55% from 2021 and in the period from 2017 to 2022, sales have jumped from around 1 million to 10 million.

4.1.3 Although this is on a much smaller scale, Figure 1[19] shows the increase in licensed electric vehicles in Central Bedfordshire, with an exponential rise in recent years. This is reflective of the direction set by government and the transition to electric vehicles by major car manufacturers. Growth like this emphasises the requirement for increased charge point infrastructure to be provided across the UK, with government setting a target of at least 300,000 public charge points by 2030. This will be explored further in Section 6.

4.1.4 As vehicles come to the end of their useful life, or finance/lease period, residents will move to an electric vehicle if the cost is the same or less to buy/finance, insure and run, and the vehicle offers the same level of convenience. For some, this will depend on their ability to charge the vehicle at home and the nature of the trips and mileage they do. Affordability will remain an issue, but this will reduce as increased electric vehicles come onto the market. Latest estimates suggest that by 2027, the equivalent electric vehicle will be cheaper to manufacture. There will also be a far larger choice of vehicles in the second hand market, where the majority of annual vehicle sales in the UK take place.

4.1.5 However, many employers now have their own sustainability objectives, and an increasing number of company cars and fleet vehicles are being transitioned to electric. This means residents require local charging access in some form if they cannot charge at home.

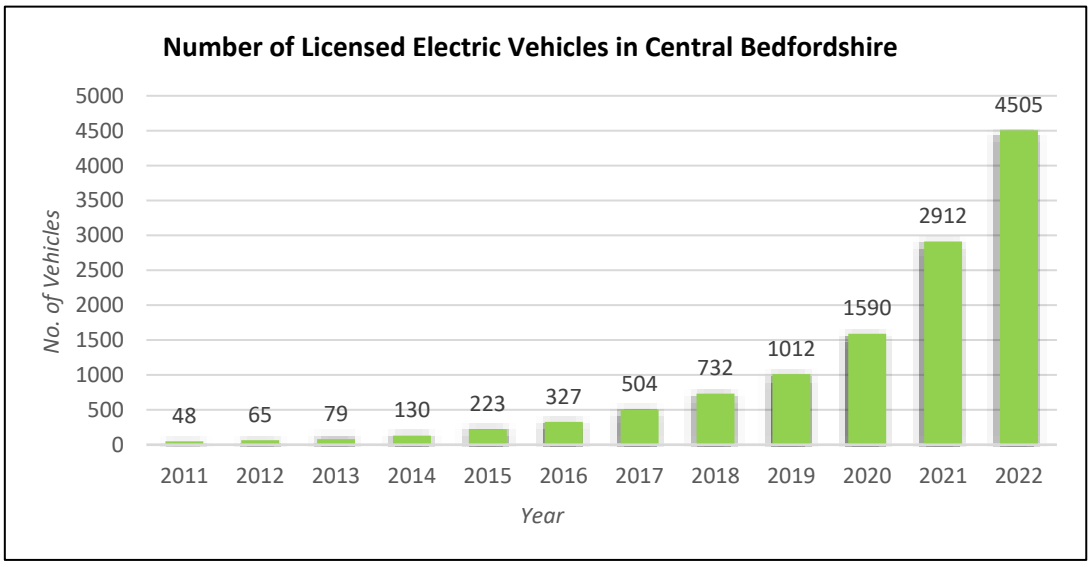


Figure 1: Number of licensed electric vehicles in Central Bedfordshire (2011-2022)

[19] DfT Vehicle Licensing Statistics (VEH0132) (data as at Q4 for each annual period)

4.2 Types of Charging Infrastructure

4.2.1 There are a range of charging solutions for electric vehicles which are ever evolving due to the ongoing technological advancements and increasing investment in this space. In addition, the uses for and users of electric vehicles are also evolving.

4.2.2 The suitability of a type of charging infrastructure is influenced by a variety of factors such as vehicle type, use case of the individual, location, and power supply available. Most electric vehicles are supplied with two charging cables, one with a 3-pin plug for slow charging, another with a Type 2 connector for fast AC charging. In the case of rapid charge points, the cable is tethered to the unit, much like a petrol pump and the users selects the applicable connector for their vehicle. There are three types of DC rapid charge point connectors on the market in the UK – CHAdeMO, CCS, and Tesla.

Table 1: Charge Point Technologies

Type	Example	Power Output (kW)	Current/Supply Type	Charge Time
Domestic Socket	3-pin internal/external socket	2.3-3kW	AC: Single Phase	Up to 24 hours
Slow	Lamppost charge point	3-7.1kW	AC: Single Phase	Up to 12 hours
Standard	Domestic wall-mounted unit or standalone bollard	7.1kW	AC: Single Phase	6-8 hours
Standard	Standalone bollard	11-22kW	AC: Three Phase	2-4 hours
Fast	Standalone bollard	22-43kW	AC: Three Phase	30-60 mins
Fast	Larger standalone unit	50kW	DC	30-45 mins
Rapid	Larger standalone unit	50-150kW	DC	30-45 mins
Ultra Rapid	Larger standalone unit	150-1000kW	DC	10-30 mins

*Quoted charge times are dependent on vehicle specification, battery capacity, and state of charge

4.2.3 Generally, the faster the charge, the more it will cost, although the comparative affordability of slow and standard speed public charging has reduced with the recent challenges in the energy market. Home charging is still cheapest option by some distance.

4.2.4 It is important to recognise that different makes and models of electric vehicle support different charging speeds. Many vehicles can only charge up to 11kW with an AC current which means there is 11kW of power not utilised when using a 22kW charge point, often making it more suitable and cost effective to install 7.4kW units.

4.2.5 The maximum DC current rapid charge a vehicle can accept also varies by make and model. Across Europe, most vehicles will utilise a CCS connector for DC rapid charging and a Type 2 for AC slow to fast charging, with the aim of consistency across charging networks.

4.3 Charging Locations

4.3.1 Currently, most electric vehicle charging occurs at home, and this presents the opportunity for the greatest savings in running costs for drivers, with the ability to utilise the domestic electricity supply and switch to a tariff which favours overnight, off-peak smart charging.

4.3.2 However, not every resident of Central Bedfordshire will be able to easily and safely charge from home and so our primary focus as a local authority is to work to find solutions close to where the need is i.e., the clusters of properties which do not have dedicated on-plot off-street parking.

4.3.3 This provision will be made through several projects, which will vary depending on a number of factors, but this will be covered further in Section 8.

4.3.4 It is important to provide a range of charging options for all use cases and so there will be a requirement for charge points at destinations, workplaces and on main transport routes. The table below summarises the most common locations for charging.

Table 2: Charging Location Types

Location	Example Charge Point	Description
Home Charging	Domestic wall-mounted standard home charge point	Home-based charging is the most common, with users relying on overnight home charging to ensure their vehicle is ready for use in the morning. In most cases, this is the cheapest time to re-charge and the most convenient. Home charging typically takes place on driveways, in garages and in off-street residential parking areas. Although, many people do also charge their vehicles at home when parked on-street outside their property which presents a risk to footway safety but an opportunity to utilise technology to overcome this.
Workplace Charging	Standalone slow or standard bollard	Charging at work can be a convenient way to charge a vehicle during the day, with charge points becoming increasingly important for employers to provide, especially with their own sustainability objectives. This is particularly essential for fleet vehicles which often need charging at the workplace or depot, but sometimes at home.
Destination Charging	Standalone standard bollard or rapid charge point	Destination charging locations are publicly accessible and provide an important option for drivers to add some charge whilst undertaking an activity, such as visiting a supermarket, cinema, or leisure centre.
En-route Charging	Rapid or ultra-rapid charge point	Intermediate charging is largely carried out at publicly accessible locations, such as motorway services or fuel forecourts, where the journey is only briefly stopped. This use case is usually applicable to longer journeys or needing to charge quickly in an emergency, and so rapid and ultra-rapid charge points are used.

4.4 Off-Street Charge Points

Car Park Destination Charge Points

4.4.1 Most publicly accessible charge points are located in town centre car parks, but also in retail, leisure, and hotel car parks.

4.4.2 These charge points are typically standard or fast, with the length of stay often being the determining factor in how much the car charges in a given time. For example, a slower charge point would be suitable at hotel car parks where there are overnight stays, whereas a faster charging rate would be required for supermarkets or leisure centres.

Residential Charging Hubs

4.4.3 These are hubs of several slow to fast AC charge points, set in a residential area within an off-street car park or parking bays, usually intended to cater for catchments areas where residents typically have to park on-street.

4.4.4 The approach of the Council is to work in partnership with commercial charge point installers to provide as many of these as possible across Central Bedfordshire, to offer local access to charging within a 5-10 minute walk for residents who cannot charge at home. Whilst these will not be the most convenient option in comparison to parking on street, most drivers will only need to charge once or twice a week. Hubs also offer the chance for local authorities to utilise their landholdings and ownership of the public highway in order to widen charge point coverage, often a stipulation of the grant funding that is available.

Rapid Charging Hubs

4.4.5 These are hubs with banks of rapid and ultra-rapid charge points, with the higher charging speeds providing drivers with the option of charging quickly and conveniently. This type of provision is essential to increase the uptake of electric vehicles as it provides consumers with the confidence of being able to charge on the go without a timely wait.

4.4.6 Rapid charging hubs will often be used for an intermediate stop on the route to a final destination, with sites predominantly located along main transport routes and in busier urban areas. These sites are often co-located with or near to useful local facilities, which drivers can use whilst waiting for the vehicle to charge. This also works to increase footfall in town centres and promotes local economic growth.

4.5 On-Street Charge Points

Residential

4.5.1 The majority of charge points for residential on-street parking will typically be slow to standard (3-7kW) and located kerbside serving those residents without access to off-street parking. The power supply to the unit will vary depending on the type of charge point, but also the available electrical capacity in the area.

4.5.2 Whilst the Council has no statutory responsibility to provide parking for residents who do not have the facility to do so within the curtilage of their property, it is accepted that there will be demand to park on the public highway. The Council seeks to accommodate this demand, whilst ensuring that it can discharge its obligations to all users under Section 16 of the Traffic Management Act for free and unobstructed passage. This includes assessing road safety hazards, including inappropriate parking and trailing cables.

4.5.3 The Council has the facility to use Traffic Regulation Orders to manage the use of available kerb space and will typically give priority to requests for dedicated parking for car club vehicles, cycles, police vehicles, and blue badge holders.

4.5.4 As the disruption to residents and the cost for operators to install kerbside charge points is significant, the preferred option to date has been to progress the model of residential charging hubs. However, it is important to have a suite of charging options and so the provision of kerbside, on-street infrastructure is an option that the Council is exploring.

4.5.5 Lamppost and lamppost-linked charge points are another way of providing convenient, on-street access to charging, whilst utilising an existing asset and its power supply. The existing power supply in the area will impact on the power output from any lamppost charge point, however most of the market range from 3-5kW. Whilst this is slower than other types of charging infrastructure, it does provide the convenience of being located closer to home for residents.

4.5.6 If lampposts are located at the back of the footway, satellite posts can be installed kerbside instead. Whilst this does increase costs, the satellite post utilises the same power supply as the lamppost which significantly reduces the construction and electrical connection work involved. These posts are located in close proximity but far enough away from the lamppost that they do not cause obstruction to the free movement of the footway, and far enough away from the kerb to avoid being regularly struck by vehicles.

4.5.7 The option to locate the satellite post kerbside on the path is only available where there is sufficient width within the footway so as not to cause an inconvenience or obstruction to other users. An alternative option is for the satellite post to be installed within the carriageway, on a raised protective platform. This would be considered where the provision of a satellite post on the footway would restrict the available width to less than 2 metres. However, raised platforms may present their own accessibility issues and have an impact on carriageway drainage and so must be sensitively designed.

Destinations

4.5.8 On-street charge points at destinations are typically standard or fast AC charge points, to mirror the expected dwell time of the users at the destination. These charge points are more likely to be the conventional, standalone bollard type and provided by the relevant facility at the destination.

5. Context of Central Bedfordshire

5.1 Emissions

5.1.1 As highlighted in Figure 2[20], transport represents the largest contributing source of greenhouse gas emissions in the Central Bedfordshire area. This in part reflects the great connectivity of the area with major road and rail routes running through, but also its semi-rural nature, which means the car is often the easiest and most convenient mode of travel and so there is a reliance on this for movement.

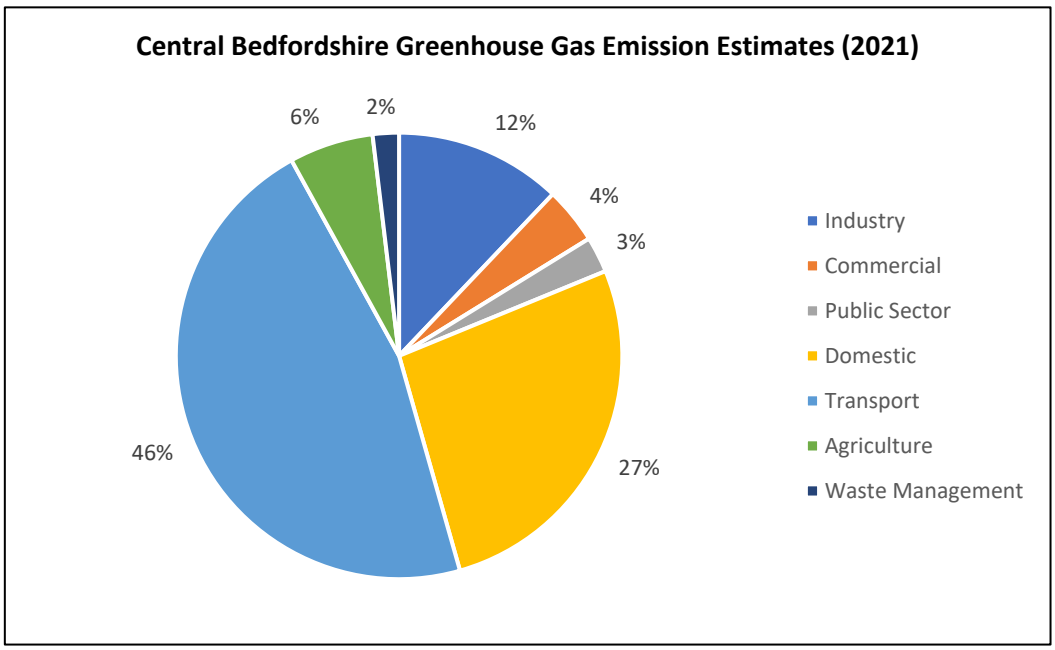


Figure 2: Percentage split of greenhouse gas emissions in Central Bedfordshire (2021)

5.1.2 This proportion of emissions from transport is reflective of the national picture, with transport accounting for an estimated 34% of all territorial carbon dioxide emissions in the UK in 2022, with 91% from road transport[21].

5.1.3 If the UK is to achieve net zero emissions by 2050 then road transport has to be decarbonised and supported by the appropriate infrastructure, requiring commitment and investment across the energy, chargepoint, automotive and public sectors.

5.1.4 In December 2020, the Climate Change Committee published The Sixth Carbon Budget [22]report which provides ministers with advice on the volume of greenhouse gases the UK can emit during the period 2033-2037. This is based on extensive analysis, consultation and consideration and is a requirement under the Climate Change Act.

[20] UK Local Authority and Regional GHG Emissions National Statistics (2001)
[21] DESNZ & ONS 2022 UK Greenhouse Gas Emissions
[22] Sixth Carbon Budget

5.1.5 A key recommendation of the report outlines that a pathway is required to reduce UK territorial emissions by 78% between 1990 and 2035. This can be met through reducing demand for carbon intensive activities, such as fewer car miles travelled, expansion of low-carbon energy supplies, such as clean electricity through renewable energy, and the take up of low-carbon solutions, such as transitioning vehicles and building heating systems to electric. Figure 3 below shows the trajectory of the balanced net zero pathway and the size of the sixth carbon budget, highlighting the scale of the emissions reduction that the UK needs to deliver.

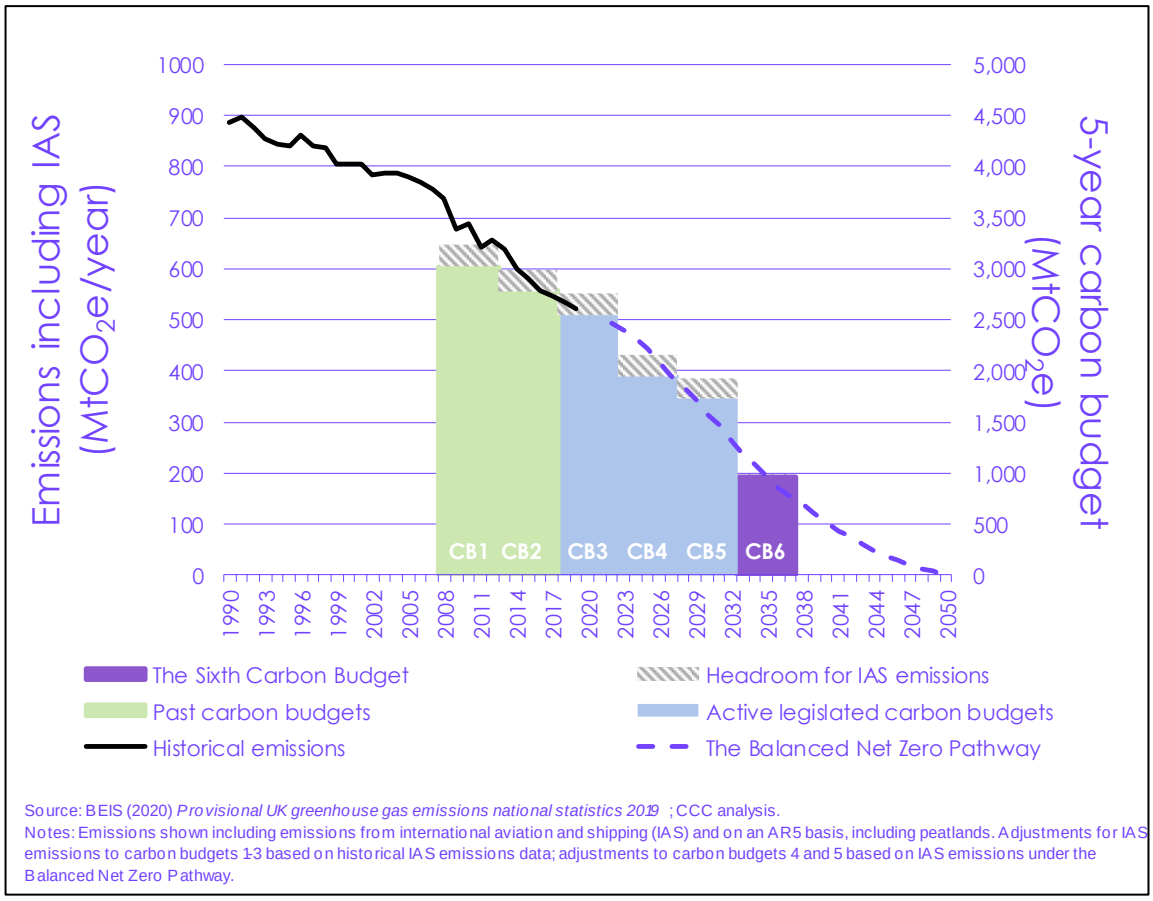


Figure 3: Recommended Sixth Carbon Budget and Balanced UK Net Zero Pathway

5.1.6 In terms of emissions from cars and light goods vehicles on the roads in Central Bedfordshire, Figure 4[23] shows the split of CO_2 emissions released from 2015-2022 by vehicles with different fuel types – electric, petrol, diesel and other. Diesel accounts for the greatest proportion of CO_2 emissions, and this is reflected in the data for nitrogen oxide emissions (see Figure 5) and particulates too.

[23] Cenex NEVIS Insights Toolkit

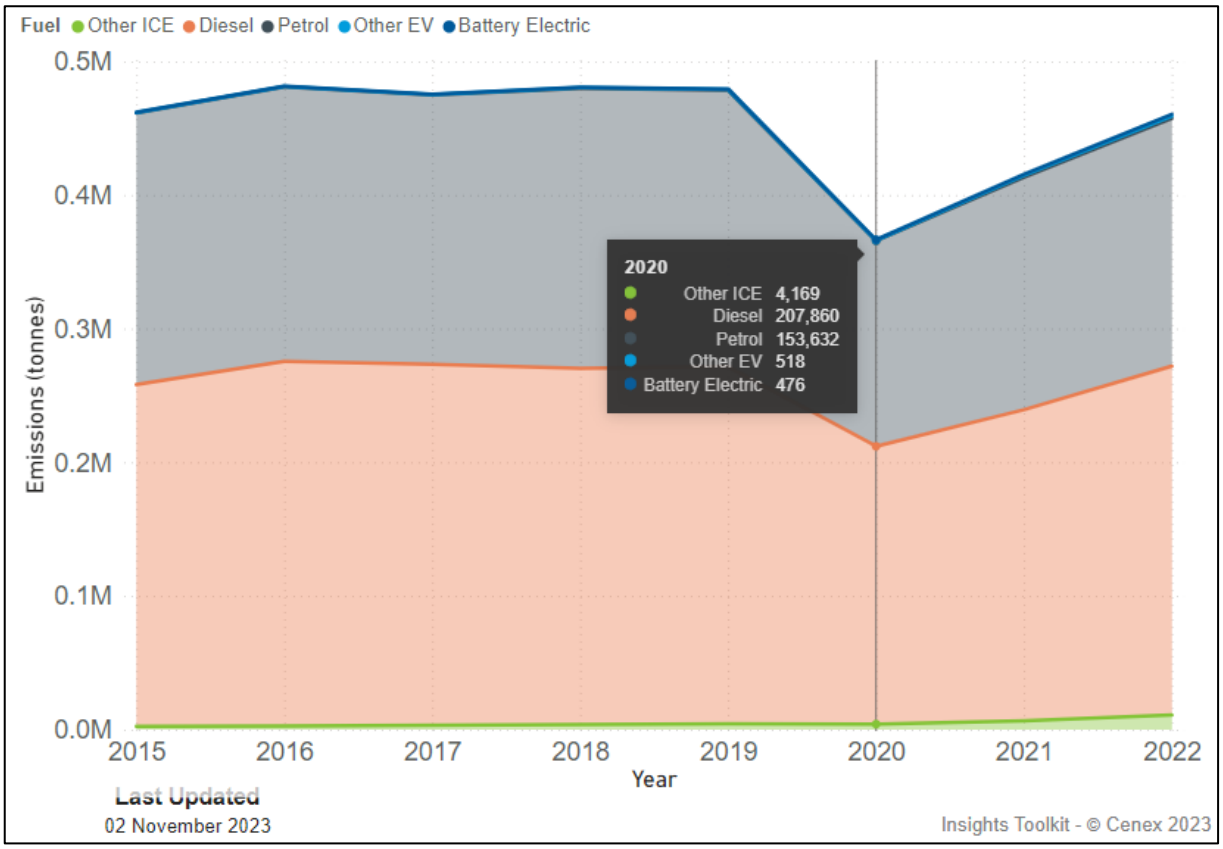


Figure 4: CO_2 emission breakdown by vehicle fuel type in Central Bedfordshire (2015-2022)

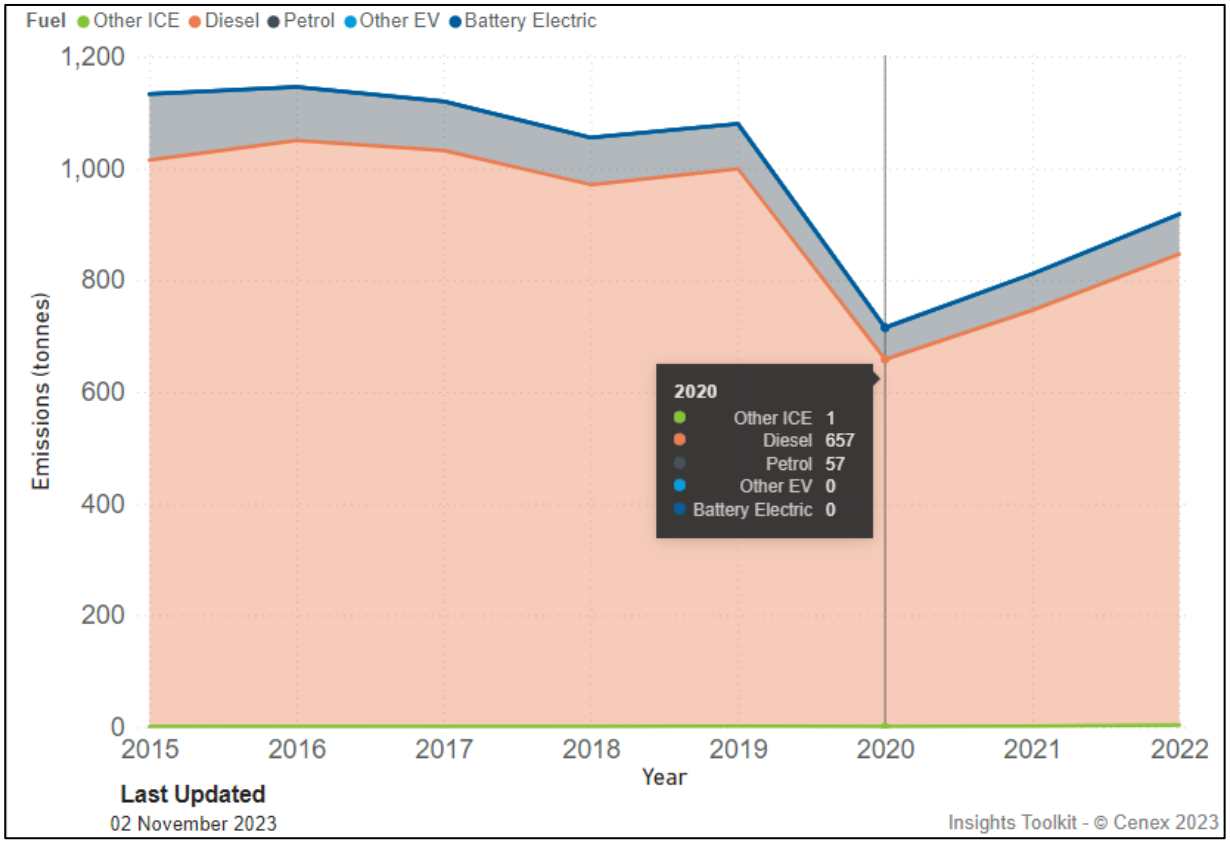


Figure 5: NO_X emission breakdown by vehicle fuel type in Central Bedfordshire (2015-2022)

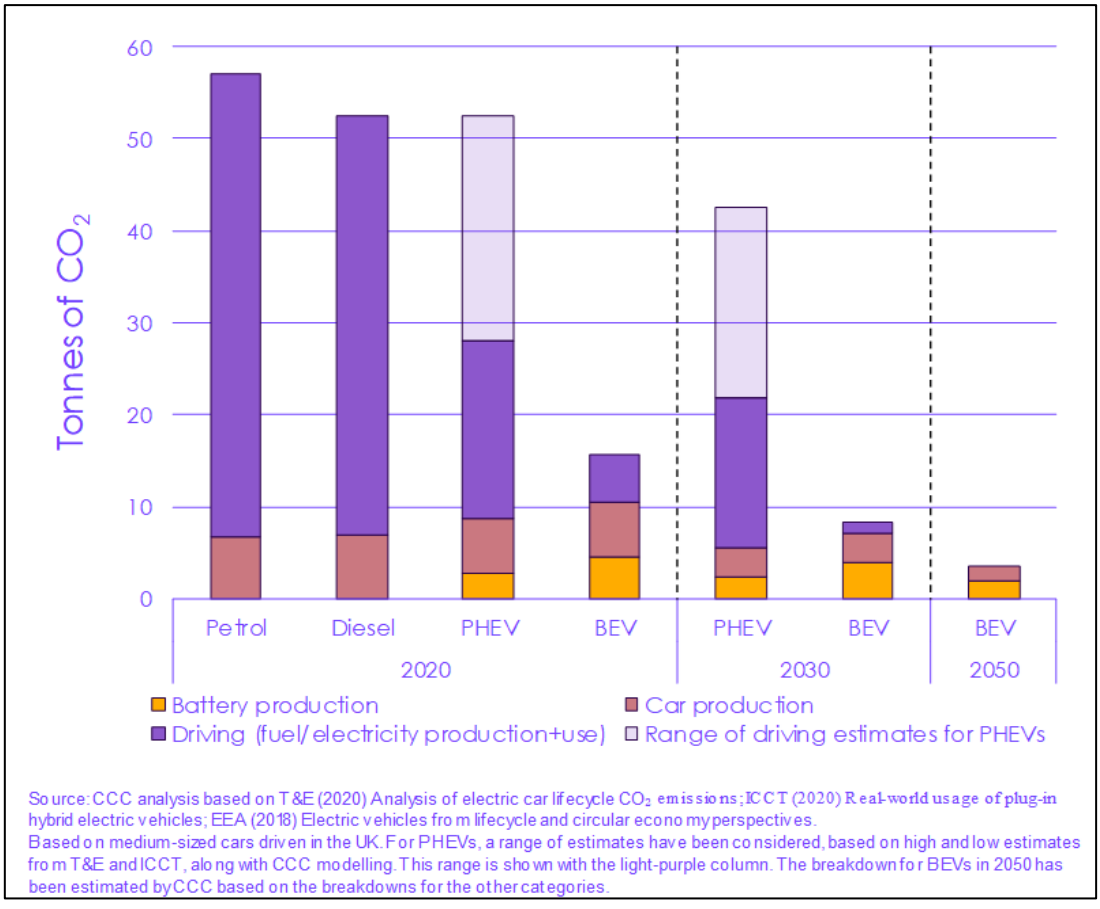
5.1.7 The transition to electric vehicles will assist in dramatically reducing the level of emissions and the impact of harmful pollutants, both in the UK and in Central Bedfordshire.

5.1.8 There is some concern over the true sustainability of electric vehicles when looking at the production process of the vehicle and the materials used in the batteries. However, technology is moving at such pace that the latest batteries are moving away from using precious metals such as lithium and cobalt, and are getting smaller, lighter, and more efficient. Developments like this mean it is difficult to predict exactly what the future will look like for electric vehicles and charging infrastructure, and so this strategy has to largely outline objectives based on the understanding we currently have.

5.1.9 However, the comparison between the emissions of fossil fuel and electric vehicles across their whole lifecycle in the UK highlights the need to transition, as seen in Figure 6 below. The majority of emissions from petrol and diesel vehicles are from driving and the combustion of fuel, significantly higher when compared to battery electric vehicles, even considering the production of the battery itself.

5.1.10 Plug-in hybrid vehicles have their part to play to bridge the transition, with the ability to do long-distance journeys with an engine and local, urban journeys with no tailpipe emissions. However, these vehicles have two powertrains and so overall costs are increased in vehicle engineering and development, as well as maintenance for the driver.

5.1.11 After 2035, when all new cars and vans sold in the UK will be zero emission at the tailpipe, overall emissions from vehicular transport will continue to fall. In combination with wider decarbonisation of the electricity grid, this will help to achieve targets for carbon budgets, continue the net zero pathway, and realise air quality improvements.



Source: CCC analysis based on T&E (2020) Analysis of electric car lifecycle CO_2 emissions; ICCT (2020) Real-world usage of plug-in hybrid electric vehicles; EEA (2018) Electric vehicles from lifecycle and circular economy perspectives.
Based on medium-sized cars driven in the UK. For PHEVs, a range of estimates have been considered, based on high and low estimates from T&E and ICCT, along with CCC modelling. This range is shown with the light-purple column. The breakdown for BEVs in 2050 has been estimated by CCC based on the breakdowns for the other categories.

Figure 6: UK lifecycle emissions of fossil fuel and electric cars

5.2 Transport Links

5.2.1 The access to wider major road and rail links is useful for connectivity and brings with it several benefits, however the emissions released on these routes by vehicles passing through the area presents a challenge for the Council in directly addressing and reducing these. Generally, as the transport system is decarbonised and the majority of vehicles transition to electric, or alternative fuels, this will naturally reduce the level of emissions released from vehicles on these major routes, resulting in local air quality improvements.

5.2.2 These major road routes passing through the area also provide the Council with opportunities to deliver rapid charging facilities in suitable locations to serve these strategic road networks, utilising land assets and partnering with private sector providers.

5.2.3 The geographic profile of Central Bedfordshire and existing public and active transport options means that there is a strong reliance on the car. This is highlighted in Figure 7[24] which shows that in comparison to data for England, Central Bedfordshire has a higher-than-average number of households with 2 or more cars or vans, and a considerably lower-than-average number of households with no cars or vans.

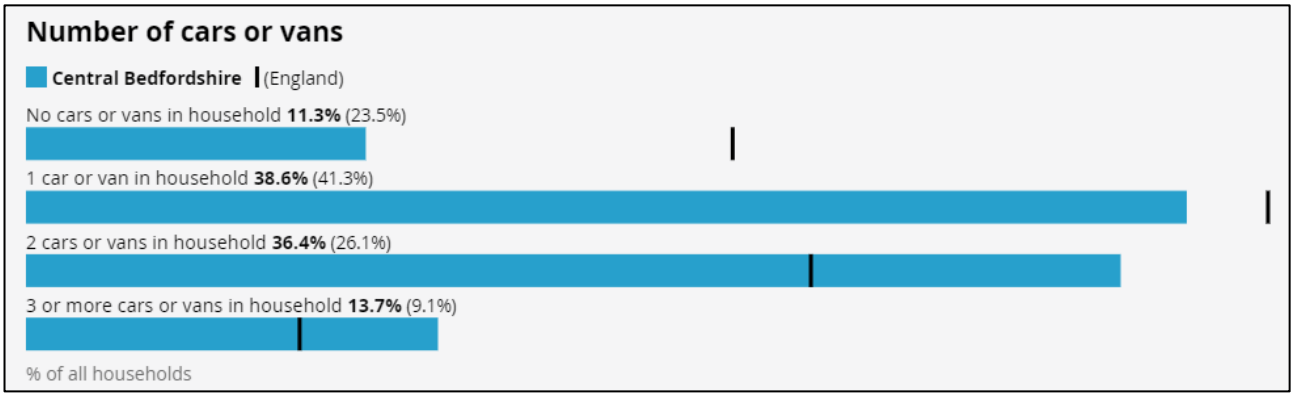


Figure 7: Number of cars and vans per household in Central Bedfordshire (2021)

5.2.4 Whilst it is prudent to help facilitate the transition to electric vehicles, it is also important for the Council to reduce the demand for car travel, working to improve public transport links and routes for safe, convenient movement by active travel modes. Networks for Central Bedfordshire are being developed through the Council's emerging Local Cycling & Walking Infrastructure Plans. These help to support active travel, seek to reduce the level of car reliance and ownership in the area, and encourage those travelling to use the most appropriate and lowest carbon mode of transport for their journey.

5.3 Charge Point Provision

5.3.1 As of July 2023, there are 128 publicly available electric vehicle charging devices in Central Bedfordshire, of which 17 units are classed as rapid and above, representing 43.3 units per 100,000 population in comparison to a UK average of 65.7[25].

5.3.2 These have been delivered through private sector investment and through grant funded projects taken forward by the Council. To date, the Council has secured a total of £635,150 of grant funding through the government's On-Street Residential Charge Point Scheme[26] to deliver charge points for residential use, providing vital infrastructure for both current electric vehicle drivers, and those considering the switch.

5.3.3 The Council has followed the model of utilising local car parking assets and highway parking bays to deliver banks of charge points in residential areas. These are to serve clusters of properties without access to dedicated off-street parking and provide local access to standard charge points within a 5-10 minute walk.

5.3.4 This rollout has been a public and private sector partnership with BP Pulse, who the Council has worked with to identify and assess sites, produce detailed costings for viable sites, apply for funding, and ultimately deliver charge points and expand the network across Central Bedfordshire. The Council's application for grant funding in 2021/22 secured the maximum amount of £360,000 for the provision of 96 charge points over 12 sites, and the majority of these were delivered at the start of 2023.

Table 3: Residential Charge Point Sites (Phase 1)

Site	Address	Parish	Postcode	Units
The Baulk Car Park	The Baulk	Biggleswade	SG18 0PU	8 x 7kW
Priory Gardens Church Street Car Park	Church Close	Dunstable	LU5 4RS	8 x 7kW
Gravenhurst Village Hall	Recreation Rise	Gravenhurst	MK45 4JG	8 x 7kW
Henlow Park Pavilion	Groveside	Henlow	SG16 6AP	8 x 7kW
Tithe Farm Recreation Ground Car Park	Tithe Farm Road	Houghton Regis	LU5 5JF	8 x 7kW
Baker Street Car Park	Baker Street	Leighton Linslade	LU7 1FP	8 x 7kW
Linslade Memorial Playing Fields Car Park*	Mentmore Road	Leighton Linslade	LU7 2NZ	8 x 7kW
Parking Bays	The Brache	Maulden	MK45 2DZ	8 x 7kW
Parking Bays	Market Square	Potton	SG19 2NP	8 x 7kW
Shefford Town Memorial Association Hall	Hitchin Road	Shefford	SG17 5JQ	8 x 7kW
Stotfold Memorial Hall*	Hallworth Drive	Stotfold	SG5 4HR	8 x 7kW
Brook Street Car Park	High Street	Stotfold	SG5 4LQ	8 x 7kW

*Site not yet operational due to issues with connection to electricity grid

[24] Office for National Statistics: Census 2021
[25] Electric Vehicle Charging Device Statistics (July 2023)
[26] On-Street Residential Charge Point Scheme

5.3.5 In July 2023, the Council secured another £275,150 of grant funding to take forward a second phase of residential charge point rollout, working to widen coverage and fill gaps across Central Bedfordshire settlements. Subject to requested updates to grid connection costings, the Council is hopeful to bring forward charge point provision at the sites listed below before the end of the 2023/24 financial year.

Table 4: Residential Charge Point Sites (Phase 2)

Site	Address	Parish	Postcode	Units
Recreation Ground Car Park	High Street	Arlesey	SG15 6TS	8 x 7kW
Cranfield Village Hall	Court Road	Cranfield	MK43 0DR	8 x 7kW
Flitwick Village Hall	Dunstable Road	Flitwick	MK45 1HP	8 x 7kW
West Street Car Park	West Street	Dunstable	LU6 1SE	8 x 7kW
Downside Community Centre	Suffolk Road	Dunstable	LU5 4ES	8 x 7kW
The Vyne Car Park	Weston Avenue	Leighton Linslade	LU7 4JT	8 x 7kW
High Street Car Park	High Street	Sandy	SG19 1AG	8 x 7kW

5.3.6 In addition, to the residential charge point sites listed in Table 3 and 4, the Council is also working with BP Pulse on a programme to replace and upgrade the handful of existing charge points which have been installed in Council car parks and at public buildings over the last 5-10 years. Many of these legacy units are now of an age that means they cannot be repaired and so plans are progressing to decommission these units and replace them with brand new infrastructure.

5.3.7 This upgrade programme includes further investment from BP Pulse to widen the network of public charge points, largely through the provision of rapid charge points in some of the car parks owned by the Council or relevant Town Council. These 30 units are due be installed throughout 2023/24 and are a valuable step forward into the widening of rapid charging infrastructure in the area.

5.3.8 As with any project to install charging infrastructure, a key focus for the Council is ensuring geographic spread across the area. Rapid charge points are more suited to urban areas and so our initial scoping is to find workable sites within our towns, often close to main transport routes and existing services and facilities. The Council will work to fill any gaps in coverage across our towns and villages through various future projects.

Table 5: Rapid Charge Point Sites (includes replacement sites)

Site	Address	Parish	Postcode	Units
Priory House	Monks Walk	Chicksands	SG17 5TQ	2 x 150kW 2 x 50kW 2 x 7kW
Grove View Car Park	Court Drive	Dunstable	LU5 4JD	4 x 50kW
Priory View	Church Street	Dunstable	LU5 4HN	2 x 50kW
St. Mary's Gate Car Park	West Street	Dunstable	LU6 1SL	2 x 50kW
Houghton Hall Park	Park Road North	Houghton Regis	LU5 5FU	2 x 50kW
All Saint's View	Sapphire Place	Houghton Regis	LU5 5LP	2 x 50kW
Hockliffe Street Car Park	Hockliffe Street	Leighton Linslade	LU7 1RW	4 x 50kW
Town Centre Car Park	High Street	Sandy	SG19 1AG	4 x 50kW
Town Centre Car Park	Old Station Way	Shefford	SG17 5ED	2 x 50kW
Stotfold Football Club	Arlesey Road	Stotfold	SG5 4HE	2 x 50kW

5.4 Housing

5.4.1 The various house types, layouts and orientations within Central Bedfordshire provide both opportunities and challenges for providing useful electric vehicle infrastructure and for determining the scope and coverage of public sector intervention. If a property has dedicated on-plot parking, then the resident has the capability to install a domestic charge point and benefit from home charging and off-peak tariffs.

5.4.2 However, this is not the case for all residents and so there has to be a focus on providing a range of charging options for residents who cannot park and charge at home off-street. It is estimated that 32% of households in Central Bedfordshire do not have access to off-street parking, with only 8% currently within a 5 minute walk from a public charge point[27].

5.4.3 Section 7 of this strategy will cover the various types of electric vehicle infrastructure which the Council plans to utilise to provide local access to charging.

[27] Field Dynamics: Accelerated Insight Platform

6. Forecasts, Demand & Need

6.1 Forecasts

6.1.1 There are a variety of forecasts across the industry with regards to the expected number of electric vehicles on the roads and the subsequent number of public charge points that are needed to support this transition, ranging from low, medium to high scenarios.

6.1.2 To assist local authorities, the National EV Insights and Support (NEVIS)[28] service is a system provided by Cenex to support in their delivery of electric vehicle infrastructure, offering access to reliable, independent, up-to-date information. This is in the shape of data, modelling, and mapping as part of their Insight Toolkit, and case studies, guidance, and advice as part of their Knowledge Repository. All of this resource available to local authorities is invaluable and helps to bridge the gap between the public and private sector. This data will be referenced throughout this section, utilising the medium uptake scenarios.

6.1.3 With the ban on the sale of new vehicles that the government have proposed for 2035, it is expected that the composition of vehicles on the road in the UK and in Central Bedfordshire will continue to shift. This will happen as more people transition to electric vehicles and the remaining petrol and diesel vehicles sold new towards the end of the decade will come towards the end of their life cycle by 2050. Figure 8 below highlights this for Central Bedfordshire, which follows the national trend.

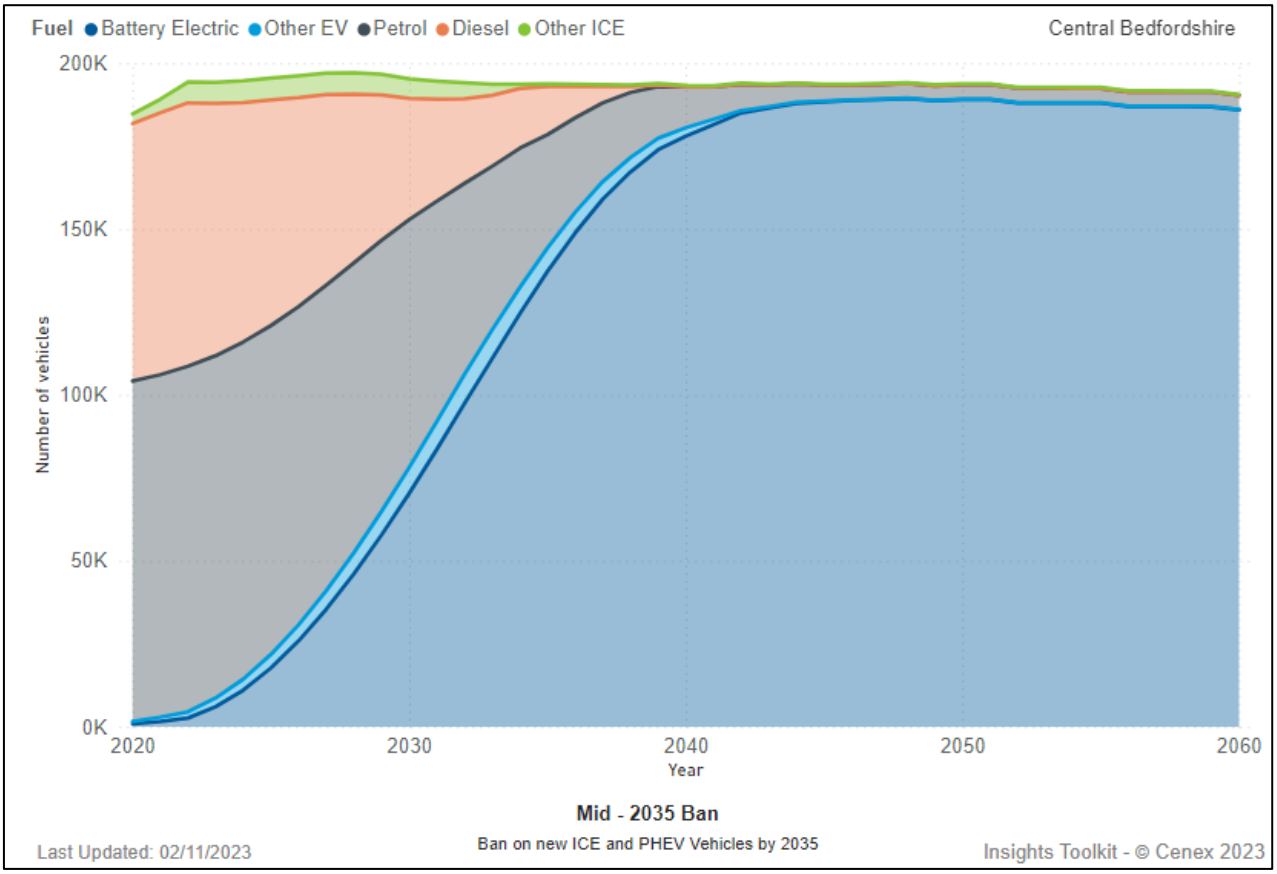


Figure 8: Projected vehicle composition for Central Bedfordshire (2020-2060)

[28] Cenex NEVIS Insights Toolkit

6.1.4 The Council has also previously worked with consultants WSP to look at forecasts for the future. Figure 9 provides a spatial representation of the forecast propensity of residents in Central Bedfordshire to switch to an electric vehicle. This uses data on socioeconomics, attitudes towards new technologies and environmental issues, and takes into account existing electric vehicle/hybrid ownership. The areas shown as having a lower propensity also broadly correlate with areas without access to off-street parking and home charging. These areas are often the older, centrally located parts of towns and villages, or residential estates where parking provision was not provided on-plot.

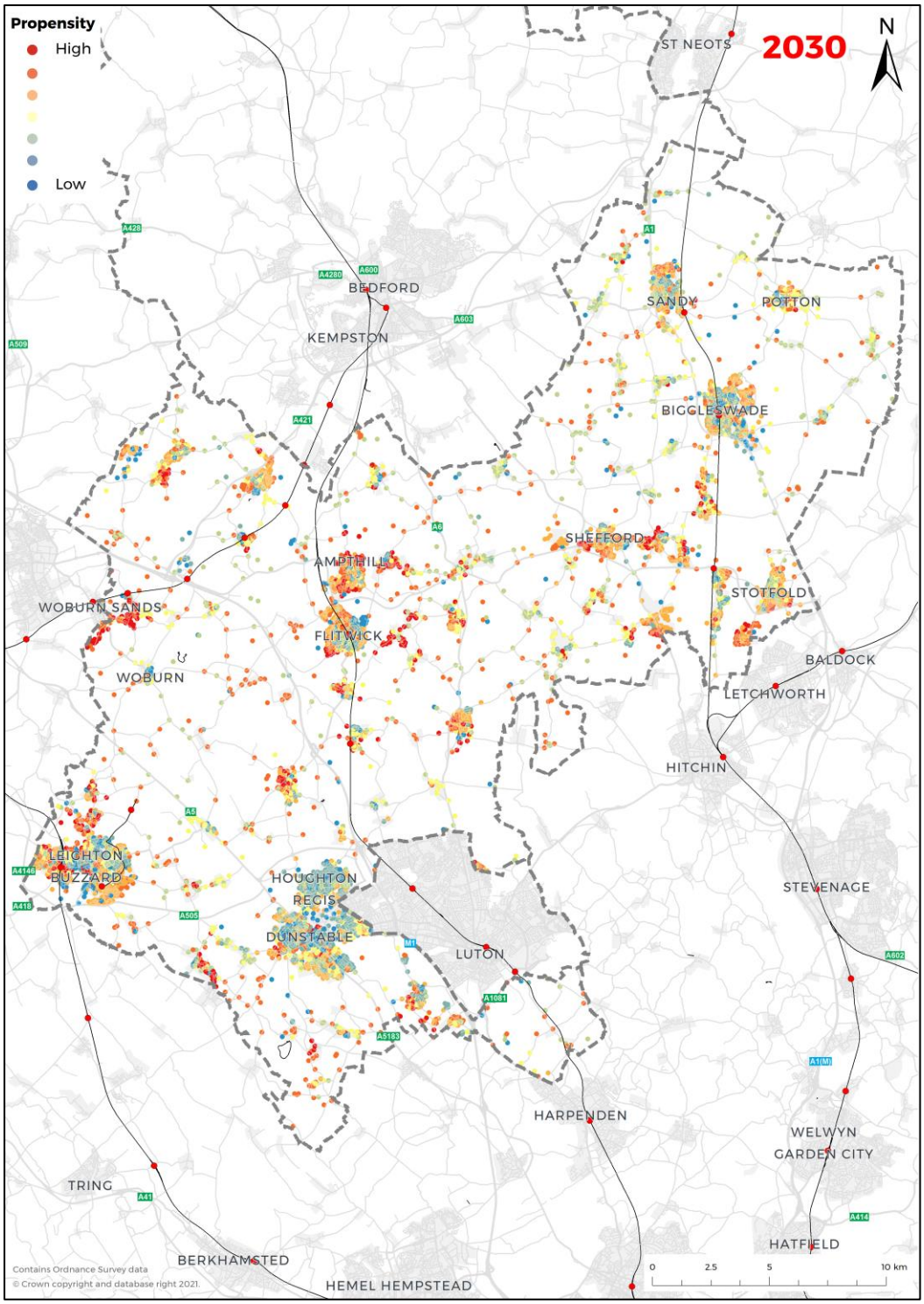


Figure 9: Forecast propensity of residents to switch to an electric vehicle (2030)

6.1.5 Figure 10 provides a spatial representation of forecast electric vehicle uptake across Central Bedfordshire in 2030, in terms of the expected number of electric vehicles registered. This highlights the expected higher levels in urban areas, towns, and larger villages. It is a useful indicator of the overall uptake, but areas with high uptake will likely reflect areas with higher population and vehicle ownership density.

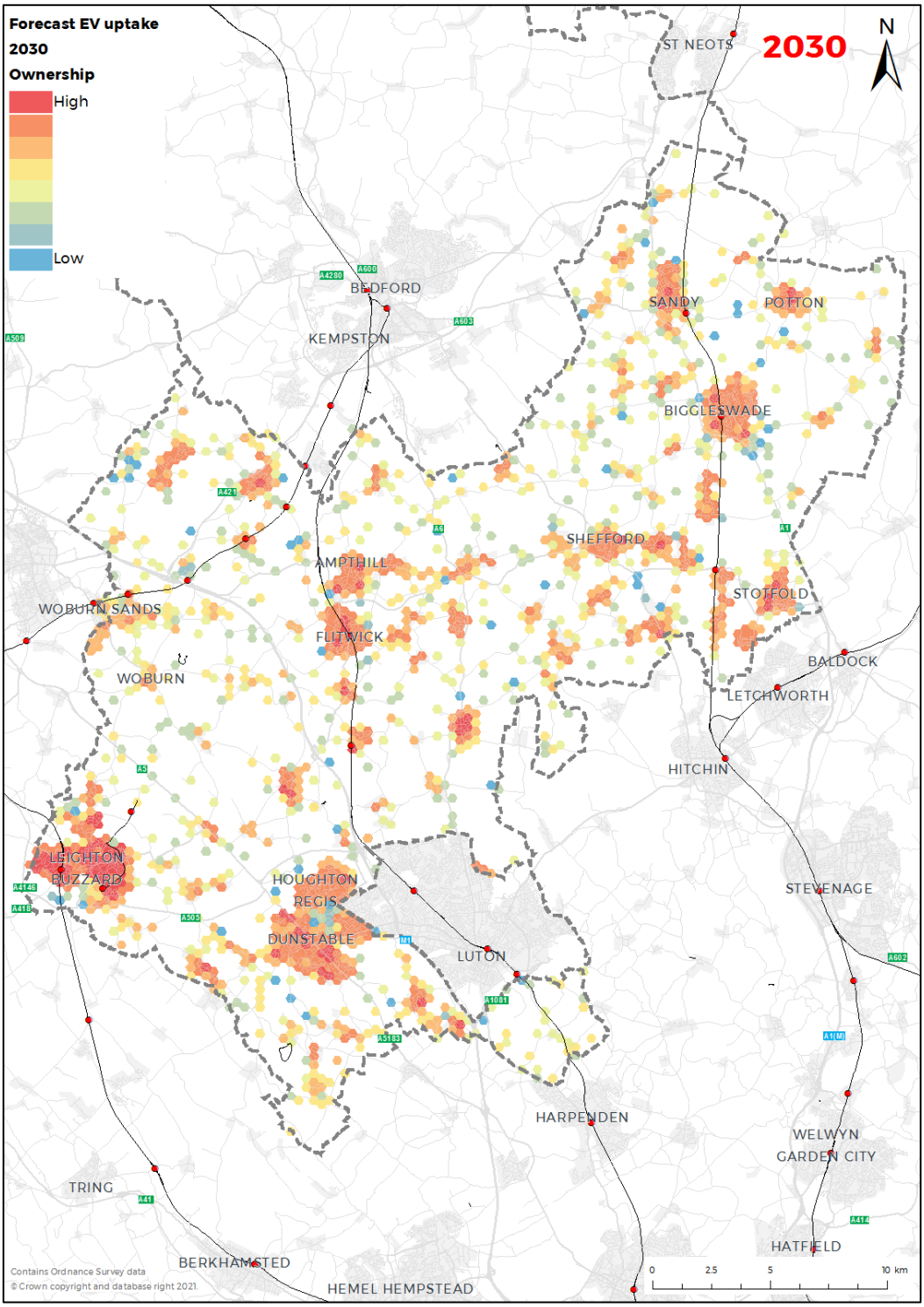


Figure 10: Forecast electric vehicle uptake (vehicles registered, 2030)

6.1.6 Figure 11 provides a spatial representation of forecast electric vehicle uptake across Central Bedfordshire in 2030, but in terms of the expected number of electric vehicles registered as a proportion of total vehicles. This provides a clearer sense of where electric vehicle ownership is expected to be higher in relative terms, with the more rural areas and the peri-urban areas having the greatest percentage electric vehicle share as a proportion of total vehicles. Again, this is likely to be due to the presence of on-plot off-street parking enabling home charging and greater affluence in rural areas. However, over time and as infrastructure and consumer confidence improves, this picture will change.

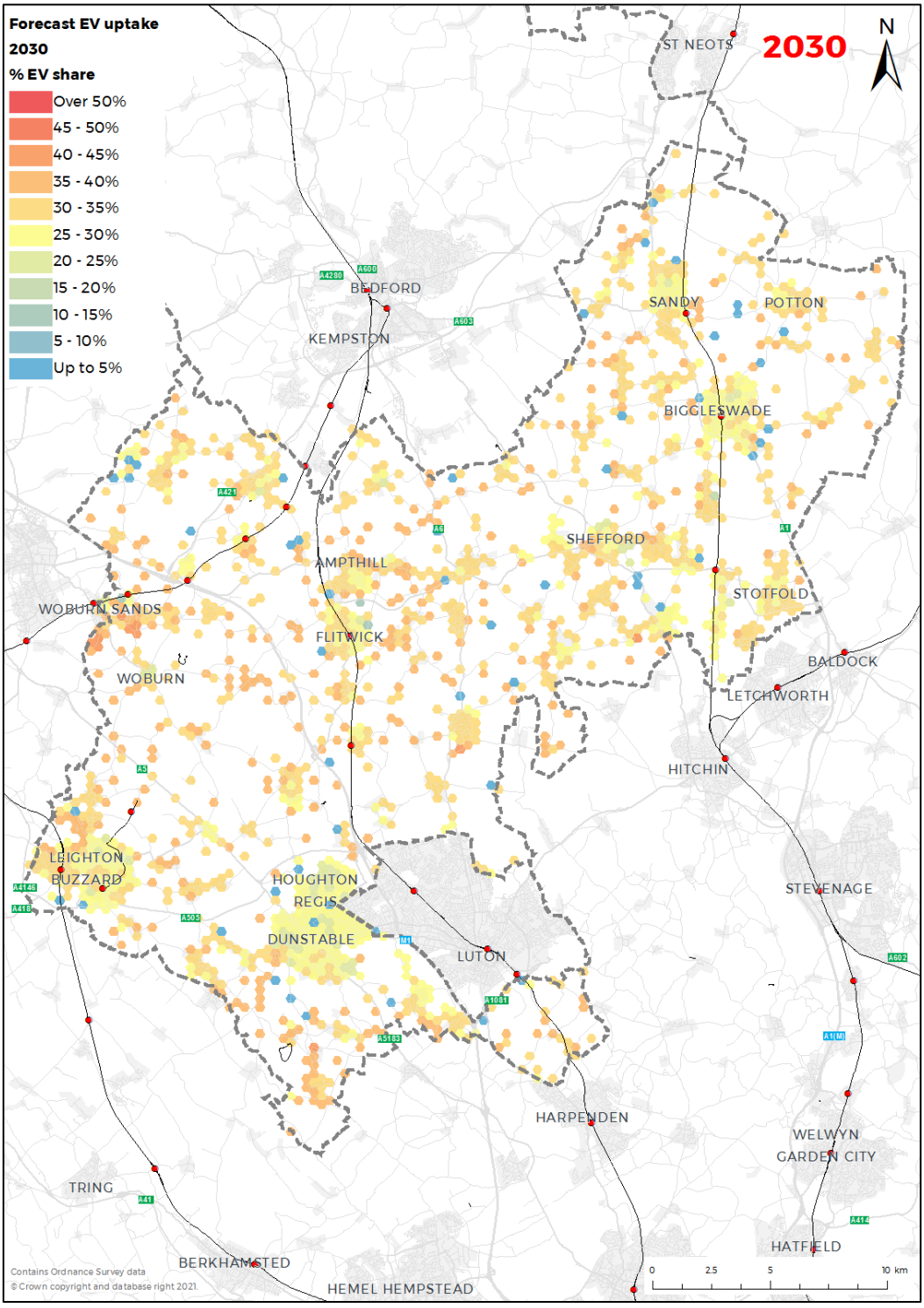


Figure 11: Forecast electric vehicle uptake (proportion of total vehicles, 2030)

6.1.7 To support the expected number of electric vehicles, the government expects there to be a minimum of 300,000 public charge points in the UK by 2030, with over 6,000 high powered chargers along the strategic road network by 2035[29].

6.1.8 Forecasts for Central Bedfordshire estimate that the number of public charge points/sockets required by 2030 is around 2,300, increasing to around 6,400 by 2050. These forecasts are based on the medium uptake projections and an approach blending residential and hub provision.

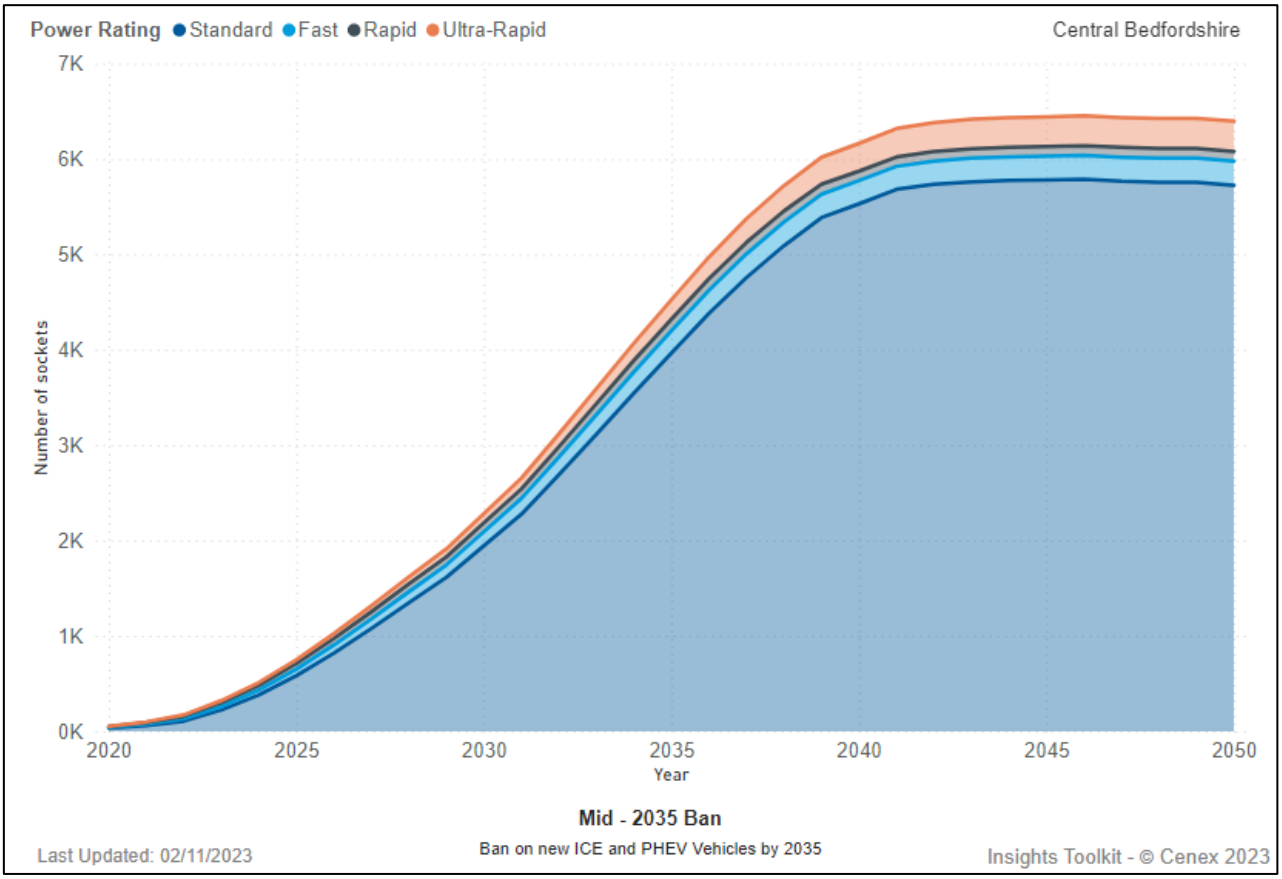


Figure 12: Projected electric vehicle infrastructure requirement for Central Bedfordshire

Table 6: Summary of Charge Point Projections

Year	Standard	Fast	Rapid	Ultra-Rapid	Total
2025	582	69	59	41	751
2030	1,946	148	91	98	2,283
2040	5,531	244	100	291	6,166
2050	5,725	255	102	316	6,398

[29] Taking Charge: The Electric Vehicle Infrastructure Strategy

6.1.9 It is important to note that not all of these charge points are to be provided by the Council and public sector investment. The provision will be scattered across the variety of uses and locations outlined in Section 4, such as supermarkets and other popular destinations, widening the charging options available to drivers.

6.1.10 The Council will be seeking to partner with private sector providers of electric vehicle infrastructure to install and grow the network within Central Bedfordshire. From the perspective of charge points, this will largely involve the installation of slow/standard/fast units for residential use, at a rate of circa 300 units per year, as this is where the bulk of the need is. These will be complemented by rapid/ultra-rapid units in strategic locations, such as town centres and close to main transport routes, with this type of provision also having a role to play in residential charging.

6.1.11 Based on the estimate that 32% of households in Central Bedfordshire do not have access to off-street parking and the facility to charge at home, it is possible to extrapolate the number of these households which would be served per standard speed (7.4-22kW) public charge point, if forecasted targets were met. Table 6 breaks down these figures for 2030 and 2050, assuming standard public charge points that are suited for residential use are delivered in line with expected levels.

Table 7: Households without off-street parking to be served by standard public charge points

Type	Number
Forecast population of Central Bedfordshire in 2030	311,650
Forecast number of households in Central Bedfordshire in 2030	127,900
Households *with* access to off-street parking	86,972 (68%)
Households *without* access to off-street parking	40,928 (32%)
Forecast number of standard public charge points required by 2030	2,174
Households per charge point in 2030	19*
Forecast number of standard public charge points required by 2050	6,702
Households per charge point in 2050	6**

*Rounded up from 18.83 **Rounded down from 6.11

6.1.12 This provides an indication of how much of the need is being served if infrastructure is delivered as forecast, but additional work is needed on a local level to determine the relevant scale, location, and coverage of charging infrastructure in any given area.

6.1.13 For example, provision on-street in an area may not be possible but a local car park or parking area provides the opportunity for a residential charging hub to be located close to clusters of properties without off-street parking. Conversely, there may be a lack of suitable local car parks or parking areas to provide a hub, but there is sufficient space on the footway for charge points to be installed on-street or within kerbside lampposts.

6.2 Demand

6.2.1 Within this strategy, demand is defined as the locations where residents are telling us that charge point provision is required. In order to collect this information, the Council has an Electric Vehicle Charging Register on our website[30] which seeks to capture information on location, type, charging preferences, vehicles, and parking.

6.2.2 This information, particularly the spatial data on specified locations, helps to paint a picture of where the Council needs to consider providing electric vehicle infrastructure and provides useful evidence to justify site selection in grant funding applications.

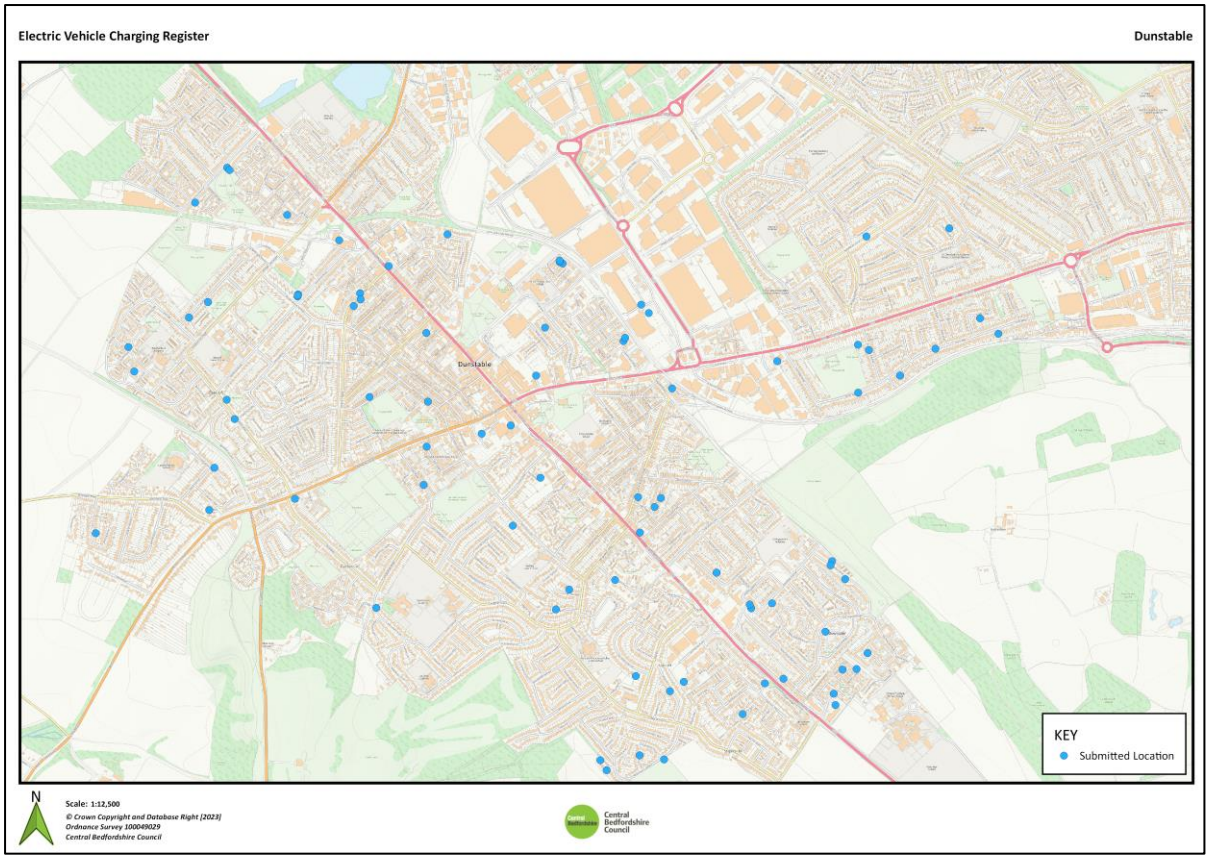


Figure 13: Extract of locational information from Electric Vehicle Charging Register

6.2.3 As the pace and geographic spread of electric vehicle infrastructure grows, the Electric Vehicle Charging Register will provide a useful tool to understand demand from residents in Central Bedfordshire, particularly as the requirement for installations on-street increases.

6.2.4 Aside from the locational information, the questions asked within the Charging Register were relevant at the time of its creation. However, it may be prudent to review and revise the information we are requesting based on our increased understanding of electric vehicle infrastructure, the wider policy context, and the various projects that are proposed to be taken forward in the future in Central Bedfordshire.

[30] CBC Electric Vehicle Charging Register

6.3 Need

6.3.1 Separate to the active demand that the Council is being informed of via the Electric Vehicle Charging Register, there is a wider need which has to be at the centre of the Council's work.

6.3.2 This need can be classed as all of the properties in Central Bedfordshire which do not provide the occupiers with the facility to park off-street and charge an electric vehicle safely and easily. If the transition from petrol and diesel to electric vehicles is to be a reality then there needs to be a proportionate, accessible, affordable, and reliable charge point network for residents to access in convenient, close-to-home locations.

6.3.3 In due course, drivers will have a variety of options for charging with the siting of charge points along main transport routes, and at places such as supermarkets and workplaces. However, the ideal is to have charge points and other enabling infrastructure in locations that are as close as possible to where these properties are. When analysing the housing stock in Central Bedfordshire, it is important to consider all property types and the variety of barriers that residents face when trying to charge at home.

Table 8: Summary of property types and considerations

Property Type	Description	Barrier
Flat/ Apartment	Parking usually within a shared residential car park linked to the building. Car park often owned/ managed by a management company or residents association. In some cases, resident may be trying to run a charging cable out of window.	Potential lack of willing from management company to invest in charge points due to cost involved. Potential lack of consensus and/or need from residents over the requirement, location, management, and cost of installing charge points within the car park. Availability of sufficient power to meet charging needs. Cost to provide a point of connection to the electricity grid.
Terraced House	Properties which have no driveway and are reliant on parking on-street as close to home as possible.	Charging from home may be possible but this may introduce the hazard of trailing cables over the footway from property to vehicle. It may not be possible to park outside the property or on the same road.
Property with shared off-street parking area	Parking space(s) likely to be some distance from the property itself. Car park often owned/ managed by a management company or residents association.	Potential lack of willing from management company to invest in charge points due to cost involved. Potential lack of consensus/need from residents over the requirement, location, management, and cost of installing charge points within the car park. Potential need for permission from landowners/local authority.
Property with no driveway but separate garage provision	Garage may seemingly provide a place to park and charge but may not be of a suitable size and/or may not have a power supply.	Lack of space does not allow a car to be parked inside. Lack of power supply means that there is the potential for considerable trenching from the domestic electricity supply at significant cost to the resident. Potential need for permission from landowners/local authority.

6.3.4 The multitude of house types, building orientations, and parking arrangements means home charging may not be possible for some residents. This brings into focus the work the Council needs to do to provide public charging infrastructure to plug this gap.

6.3.5 Local authorities have access to grant funding to tackle this, which will be covered in Section 7.

6.3.6 There is not one solution that works in all use cases and so several infrastructure types and locations will have to be considered, with decisions made on balance and underpinned by data and local understanding. The type of provision to be introduced in a specific location, area, or settlement will depend on a number of factors, including:

- Geography of a settlement
- Land available in the area to locate residential charging hubs
- Space available in local parking areas
- Space available on the highway/footway
- Condition/layout of footway
- Other street furniture/highway assets
- Existing parking arrangements and restrictions
- Ability to connect to the electricity grid
- Capacity in the local electricity grid for new connections
- Grid connection costs
- Expected usage
- Commercial attractiveness to operators
- Accessibility 24 hours a day
- Success of funding bids
- Value for money
- Ability to share the infrastructure with other uses

6.3.7 To understand the level and location of need across Central Bedfordshire, the Council has utilised both the work previously undertaken with WSP, and efforts made in-house to understand property types and access to off-street parking on a settlement-by-settlement basis.

6.3.8 Figure 14 shows the areas across the authority which have low through to high off-street parking availability. This spatial representation highlights the high availability in the rural areas of Central Bedfordshire where there is generally a greater number of larger properties and plots to accommodate off-street parking provision.

6.3.9 The low availability areas tend to correlate with residential estates of all ages which have been built with shared or rear parking areas, or the historic cores of settlements where there is a greater concentration of terraced properties and on-street parking. This can be seen to some extent in the majority of settlements across Central Bedfordshire, but is most prevalent in Biggleswade, Dunstable, Houghton Regis, and Leighton Linslade, with some larger pockets in all of the other towns and larger villages.

6.3.10 Ultimately, there are properties in most settlements which will be unable to charge at home and will require access to public charging provision or other enabling infrastructure.

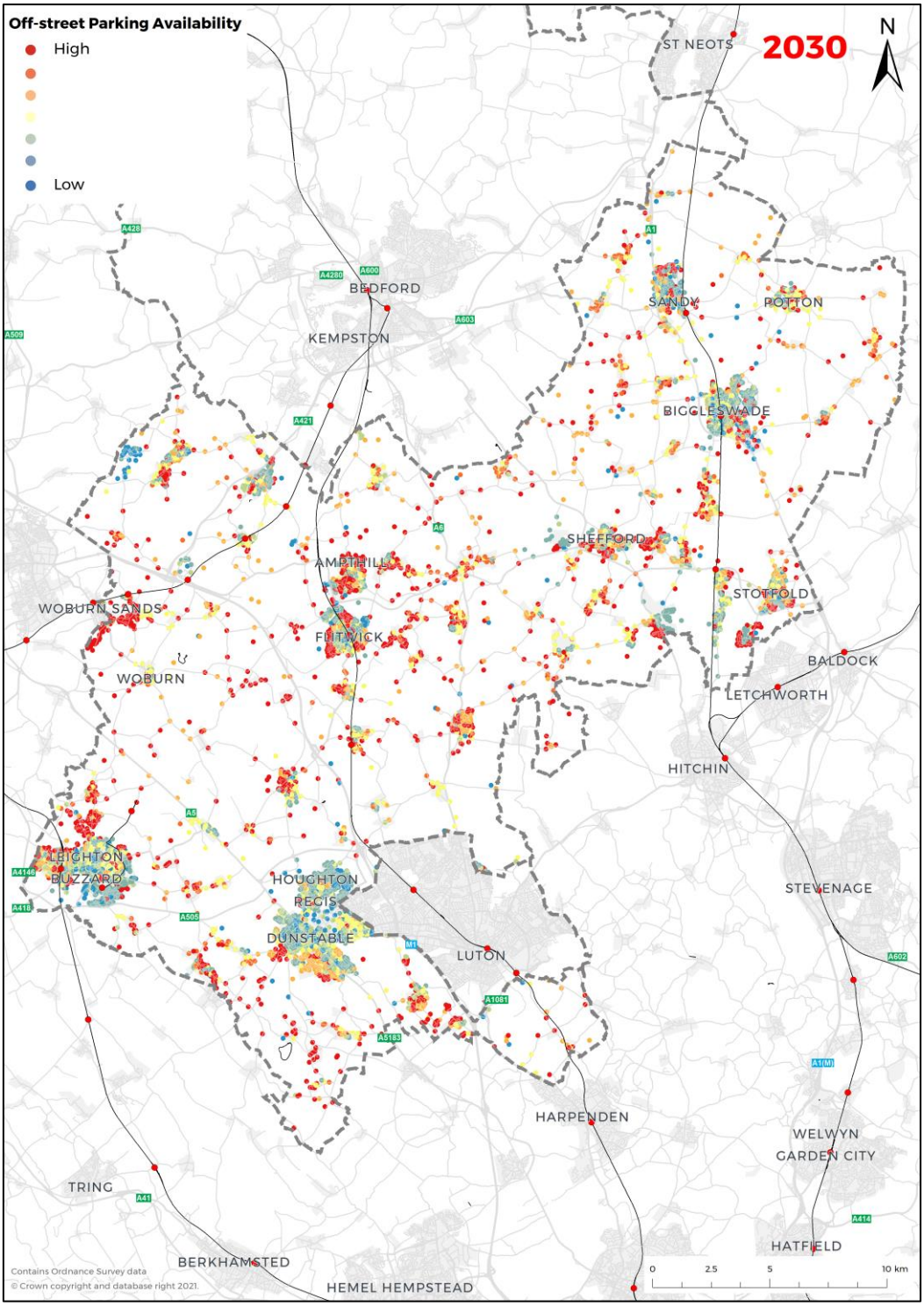


Figure 14: Off-street parking availability across Central Bedfordshire

6.3.11 On a more local level, the Council has been working to understand the specific properties and clusters of homes which do not have dedicated on-plot off-street parking and thus the ability to charge at home safely and easily. This involves utilising Ordnance Survey base mapping, aerial photography, and Google Street View to map out relevant properties on a settlement-by-settlement basis. Figure 15 provides an example of the data held. This has been used to support grant funding bids and narrow areas of focus when looking for suitable sites for residential charging hubs. This dataset will be expanded to cover the whole of Central Bedfordshire in due course.

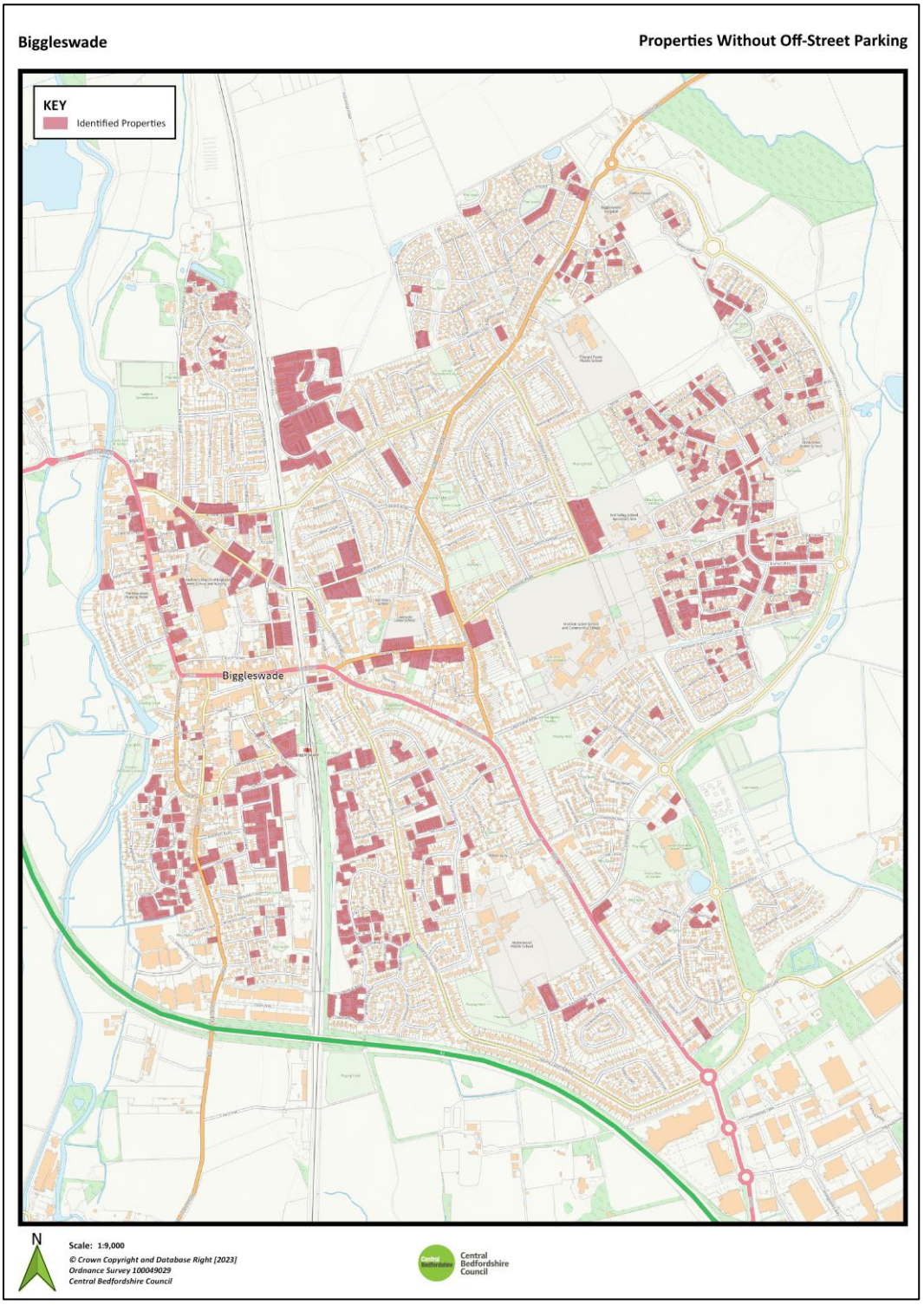


Figure 15: Properties in Biggleswade without access to off-street parking

7. Operating Models

7.1 Types of Commercial Arrangement

7.1.1 This section describes the various commercial approaches for charge point networks. Operational models can be complex and need to consider the on-going technological advancements and the requirement for infrastructure updates.

Table 9: Operating Models

Model	Description
Own & Operate	This is the most involved commercial arrangement for the local authority. They invest all capital costs, cover all operational costs, and retain all ownership, control, responsibility, risk, and revenue. They have sole control over tariffs, a facility not available under other models where market-based pricing is used.
Public Private Commercial Partnership	This is a flexible approach that shares aspects of capital cost, operational cost, control, and risk between public bodies and service providers, covering a broad spectrum of arrangements. At its most basic, it can encompass an approach where a supplier operates charge points installed by the local authority, in exchange for a small revenue share. Another approach is the 'Concession' approach, where the local authority provides some capital investment, for example to establish an electrical connection point to enable a service provider to install and operate charge points. The local authority retains some control over the quality of service and location of the infrastructure by having an active role in contract management and performance monitoring. The responsibility and risk associated with installation, maintenance, operations, and asset utilisation is transferred to the service provider who finances the capital, the replacement costs of the charging infrastructure, and sets user tariffs. More complex arrangements can be achieved through design or negotiation, with the resulting revenue share settled according to the share of risk and investment or the differing strategy requirements with regards to coverage or control of tariffs for residents.
Joint Venture	This is a separate business entity created by two or more parties, often including the local authority and at least one service provider. These are an alternative to a purely contractual agreement with a service provider and are usually established because the parties have complementing objectives, but can be very complex to establish. The risk, responsibilities, and benefits are usually shared based on financial contributions, often on a broad sliding scale.
Land Lease	This is a low-risk revenue option where the local authority retains little control over the resulting service by leasing land it owns to a service provider and is the least involved option for the local authority. All capital and operational costs are covered by the service provider who also retains the risk and responsibility for installation, maintenance, and asset utilisation. The lease allows a grant of possession of the land for a defined period, with no control over the eventual infrastructure that is deployed.

7.1.2 To date, the Council has progressed a concession approach as part of the public private commercial partnership model, with the primary aim of increasing charge point coverage across Central Bedfordshire. The rapid charge point roll out has been a blend of the supplier-funded concession and land lease approaches, bringing investment and new local authority-led infrastructure to the area.

7.1.3 The Council has also utilised the government's On Street Residential Charge Point scheme to obtain grant funding to complement private investment in the roll out of residential charging hubs. This approach has helped to retain a level of control, secure revenue share for landowners, and enabled the Council to work closely and positively with private operators on charge point roll out.

7.1.4 Moving forward, the grant funding landscape has changed, providing local authorities with additional resource and capital to widen networks and progress multiple projects. The Council's future approach will be to continue with the public private commercial partnership model taken forward to date, but with the ability to increase our investment as part of these working relationships.

7.1.5 Factors such as revenue share and contract length are to be reviewed with the aim of finding the optimum arrangement with each service provider to bring forward greater levels of electric vehicle infrastructure, ensure greater affordability for residents, and unlock provision in more challenging areas, subject to the constraints of financial viability.

8. Funding & Investment

8.1 Funding

8.1.1 There are various grant and capital funds available to local authorities, landlords, businesses, residents, and drivers, which will be summarised in this section.

Local Electric Vehicle Infrastructure (LEVI) Fund[31]

8.1.2 A £450m booster fund launched to help local authorities leverage private sector investment into sustainable, long-term electric vehicle infrastructure. This fund comprises of capital funding to support charge point delivery and capability funding to ensure that local authorities have the capacity to plan, deliver and manage charge point infrastructure.

8.1.3 Unlike previous grant funds which have had to be bid into, this fund is allocated to local authorities. It aims to deliver a step-change in the deployment of local, primarily low power, on-street charging infrastructure across England, and accelerate the commercialisation of, and investment in, the electric vehicle infrastructure sector.

8.1.4 The capital funding can be spent on all costs associated with the installation of charge points, including hardware, electrical connection costs, civil engineering costs, and other installation costs. Rapid charging is eligible for funding as part of projects, but the expectation is that most of the funding supports the delivery of lower power charge points. This focus of the funding helps to address the gaps in provision and the provide access to charging for those residents who do not have dedicated on-plot off-street parking and the facility to charge a vehicle at home.

8.1.5 As part of the LEVI fund, the Council has been allocated a total of **£348,000** for capability funding[32] and **£1,413,000** for capital funding[33]. This funding will be used to support several projects which will be outlined in Section 8.

On-Street Resident Charge Point Scheme (ORCS)[34]

8.1.6 This scheme provides partial grant funding for local authorities to install residential charge points with £15 million allocated into the 2023/24 fund. The ORCS fund has been utilised twice by the Council to secure £635,150 of funding to bring forward two phases of roll out.

8.1.7 For electric vehicles, charging at home usually occurs off-street in garages or driveways. However, in many areas off-street parking is not available to residents. This fund assists installations on-street or in public car parks to provide access close to home, ensuring that on-street parking is not a barrier to realising the benefits of electric vehicles.

8.1.8 8.1.9 The available funding through the scheme has decreased in recent years, largely driven by improved commerciality of charge points and other emerging funding streams, such as the LEVI fund.

[31] Local Electric Vehicle Infrastructure (LEVI) Fund Guidance
[32] Local Electric Vehicle Infrastructure (LEVI) Fund - Capability Funding Amounts
[33] Local Electric Vehicle Infrastructure (LEVI) Fund - Capital Funding Amounts
[34] On-Street Resident Charge Point Scheme Guidance

8.1.9 The fund is open to support the installation of charge points up to 22kW in speed and with a minimum payment method, in residential areas where need exists and can be demonstrated, in locations which are accessible 24/7 and meet the needs of residents.

Rapid Charging Fund (RCF)[35]

8.1.10 This is a £950 million fund to future-proof electrical capacity at motorway and major A road service areas, helping operators prepare the network for 100% zero emissions vehicles. The RCF is available to fund a portion of costs at strategic sites in cities and rural areas across the strategic road network where the costs of upgrading sites to meeting future charging demand is not commercially viable.

8.1.11 In addition, the fund is available to help businesses with the costs of connecting high-powered charge points to the electricity grid, where those costs would prevent private sector investment.

8.1.12 Similar to other grant funding streams, the government expects the private sector to deliver charge points where they are commercially viable and will only intervene when there is a clear market failure. The fund is not currently open for applications or open to local authorities, with further details available in due course.

EV Charge Point Grant for Flat Owner-Occupiers & People Living in Rented Properties[36]

8.1.13 This scheme provides grant funding of up to 75% towards the cost of installing electric vehicle smart charge points at domestic properties across the UK.

8.1.14 It replaces the previous Electric Vehicle Homecharge Scheme which was open to all homeowners with dedicated off-street parking as part of their property. The latest iteration now focuses the funding on those in flats and rented accommodation.

EV Charge Point & Infrastructure Grants for Landlords[37]

8.1.15 This covers two grants available to landlords for installing charge points and the relevant infrastructure. The Charge Point Grant provides either £350 or 75% off the cost to buy and install a charge point socket, whichever amount is lower. Each financial year, landlords are able to apply for up to 200 grants for residential properties or up to 100 grants for commercial properties. These can be used across several properties and installations or for one property.

8.1.16 The EV Infrastructure Grant provides money off the cost of wider building and installation work that is needed to install multiple sockets, both active and passive. Up to £30,000 or 75% off the cost of the work is available, with the amount available dependent on how many parking spaces the work covers. Each financial year, landlords are able to apply for up to 30 infrastructure grants, with each grant being used for a different property.

8.1.17 The Council encourages landlords to utilise available grant funding streams whilst they are still available.

[35] Rapid Charging Fund
[36] EV Charge Point Grant
[37] EV Charge Point & Infrastructure Grants for Landlords

EV Infrastructure Grant for Staff & Fleets[38]

8.1.18 This scheme extends to small or medium-sized businesses who are seeking funding to install charge point infrastructure in parking reserved for staff or company fleet vehicles.

8.1.19 The grant covers up to 75% of the cost of installing the infrastructure needed for charge points to operate and for future charge points to be installed, as well as the cost of any charge points installed. Applicants can receive up to £350 per charge point socket installed or £500 per parking space enabled with supporting infrastructure, with a limit of £15,000 per grant and a maximum of 5 grants per business.

Workplace Charging Scheme (WCS)[39]

8.1.20 This is a voucher-based scheme that provides eligible businesses, charities, and public sector organisations with grant funding of up to 75% towards the up-front costs of the purchase and installation of charge points, capped at a maximum of £350 per socket and 40 sockets across all sites per applicant.

8.1.21 This grant can be used in conjunction with the EV Infrastructure Grant for Staff & Fleets, with the Workplace Charging Scheme available to add charge points at a later date following the previous installation of passive provision, such as ducting and cabling underground. Both grants may be used for the same site but not the same charge points.

8.1.22 It is expected that government will continue to fund the WCS until at least 2024/25.

Plug-in Vehicle Grant[40]

8.1.23 This scheme is available for manufacturers and distributors of plug-in taxis, motorcycles, vans, trucks, and wheelchair-accessible vehicles. The aim is to reduce the cost of the vehicle to the customer at the point of purchase, bridging the price gap between ultra-low emission/zero emission vehicles and petrol/diesel vehicles.

8.1.24 As of June 2022, the plug-in grant scheme for cars is closed.

8.2 Investment

8.2.1 The Council will utilise the LEVI funding, as well as some annual budget allocated to support enabling work, to deliver improvements to electric vehicle infrastructure.

8.2.2 There is an expectation that this funding will be used to support areas where there is a clear market failure, for example in locations where the cost to upgrade electrical grid capacity is prohibitive, or where there is a lack of demand and expected usage.

8.2.3 Through future procurement exercises and partnership working, the Council will seek to leverage maximum private investment to expand the network of public charge points and other complementary electric vehicle infrastructure across Central Bedfordshire.

8.2.4 The Council will also investigate other funding/investment opportunities that arise, including emerging grant fund pots, internal budgets, and S106 developer contributions.

[38] EV Infrastructure Grant for Staff & Fleets
[39] Workplace Charging Scheme
[40] Grants for Plug-in Vehicles

9. Public Charging Infrastructure Projects

9.1 Overview

9.1.1 There are several projects that the Council is currently progressing with regards to electric vehicles and their associated infrastructure. This section of the strategy seeks to summarise those that are to be delivered using the Local Electric Vehicle Infrastructure (LEVI) fund to widen the public network of charge points and other supporting infrastructure.

9.1.2 As previously mentioned, the primary focus of the Council's work to deliver electric vehicle infrastructure is to provide charge points for residential use and widen the public network. This aligns with the key objective of the LEVI funding to provide local, primarily lower power, on-street charging infrastructure for residents without off-street parking.

9.1.3 Not all of the allocated LEVI funding will be used for specifically on-street or local infrastructure, but a large majority will be, complemented by charge points of other speeds and types, in other suitable locations, depending on the area in question and the relevant local requirements.

9.1.4 The scope of these projects will involve utilising existing car parks, parking areas, highway land, footways, local buildings, and strategic land assets to provide multiple types of infrastructure.

9.1.5 It is important to focus on all settlements for future infrastructure installations, particularly to find suitable locations in those settlements which are currently not hosting any Council-led charge point infrastructure. However, even if a settlement has installed or planned charge point provision, it is still likely that additional sites will need to be found in order to widen coverage and cater for all of the identified need.

9.2 Residential Charging Hubs

9.2.1 Where there are suitable and available local car parks or parking areas, close to identified areas of need, the Council will utilise these land assets for the delivery of residential charging hubs. Sites will be in accessible locations within a 5-10 minute walk of nearby residents and be safe and secure, with improvements made to access and lighting if needed.

9.2.2 These will largely be banks of standard speed (7-22kW) AC charge points with parking spaces dedicated to electric vehicle charging through Traffic Regulation Orders. Charge Point Operators may require a minimum level of provision to ensure the viability and future-proofing of a site.

9.2.3 In some cases, it may be possible to install a level of rapid charge point provision in hubs, dependant on proximity to major road routes, expected usage, and financial viability.

9.2.4 Sites for residential charging hubs may be in the ownership of the Council, or under the control of the Council as adopted highway land, or owned by Town & Parish Councils or local community organisations. In these cases, the Council will seek to work proactively with these third parties to provide infrastructure at a suitable level based on the context of the site, with some benefit to the landowner or operator of the land or building on site. This could be in the form of revenue share or the benefit of charge points to serve the existing use on site, such as a community hall.

9.2.5 Depending on the location, size, and configuration of a hub, it may be possible for expansion to become a 'mobility hub' with the addition of provision for shared and active travel systems, such as bike/scooter hire, public transport, and electric vehicle car clubs. This helps to co-locate uses, offering residents a range of options to travel and the scope to lower car ownership.

9.2.6 The ability to deliver residential charging hubs will be dependent on the:

- Availability of local car parks and parking areas
- Agreement and cooperation of landowners
- Scale of the local need
- Proximity to properties without off-street parking
- Capacity in the electricity grid and the cost to get a suitable connection
- Accessibility, safety, and security of the site
- Space on site/number of parking bays
- Impact on the existing use on site
- Expected usage

9.2.7 In providing residential charging hubs, the Council will seek to strike a balance for provision that is:

- Sensitive to existing parking provision/demand and other uses on site/in the vicinity
- Meeting current and future need, incorporating passive provision if required
- Safe and accessible for all residents/users
- Commercially attractive for Charge Point Operators
- Of a scale that is suitable if other infrastructure types are also possible in the area
- Supported by local renewable energy generation, where possible

9.3 On-Street Charge Points

9.3.1 In many areas across Central Bedfordshire, it will not be possible to find suitable car parks and parking areas to provide residential charging hubs, and so there will have to be charge point provision made on-street, either kerbside or on a protected platform in the road.

9.3.2 These will largely be lower power units, up to 7.4kW, with a slower charge time that is more suited to a domestic environment. The Council will consider the use of Traffic Regulation Orders to ensure that on-street charge points are available to use by electric vehicle drivers at all times. This process may extend the timescales for delivery of infrastructure and so may not be a requirement initially. These restrictions can be considered in due course once issues start to arise regarding access to the charging infrastructure. The ability to monitor this across the authority may be a challenge but as the general vehicle fleet transitions to electric and usage and demand for charging increases, this will likely become less of an issue.

9.3.3 In some locations, the provision of charge points on-street may reduce the available parking capacity for non-electric vehicles. This will be problematic in streets that are most heavily parked, where residential parking demand exceeds the available capacity in a particular street. In these instances, the principles defined at Section 3.3 and the approach set out in the Council's On-Street Parking Management Strategy will apply.

9.3.4 The Council will use the data it holds on the location of properties without off-street parking, combined with an understanding of other potential site opportunities in the area, to analyse which areas may be suitable for provision directly on the street. In order to prioritise the streets which receive on-street infrastructure, the Council will use the forecast data available to them and submissions through the online Charging Register.

9.3.5 In some cases, there will not be the requirement for a bollard style charge point to be installed on-street, as a more suitable option will be to utilise an existing lamppost or to install a pavement cable channel.

9.3.6 The ability to deliver on-street charge points will be dependent on the:

- Demand for parking on the street
- Current and future demand for charging on the street
- Available space in the highway or within the footway for charge points to be sited
- Existing street furniture and trees
- Capacity in the electricity grid and the cost to get a suitable connection
- Ability to expand provision on the street in the future
- Design of the charge point

9.3.7 In providing on-street charge points, the Council will seek to strike a balance for provision that is:

- Sensitive to the streetscape, context, and character of an area
- Accessible to the nearby properties without off-street parking
- Allowing free, unobstructed use of the footway
- Limiting the increase of street clutter
- Sited in the best location to serve an entire street
- Limiting the impact on specific properties
- Accessible to all users
- Supported by residents
- Sensitive to the loss of parking where buildouts in the carriageway are required
- Limiting the impact on existing residents parking zones
- Potentially designating parking spaces for charging

Residential Charging Hubs & On-Street Charge Points

As part of the delivery of charge points for residential use, the Council will seek to work in collaboration with at least one Charge Point Operator (CPO) to deliver residential charging hubs and provision at on-street locations.

The Council's expectation is that this arrangement will:

- Reflect the objectives and principles as set out in Section 3 of this strategy
- Utilise the majority of the Council's allocated LEVI funding, whilst leveraging maximum private investment to widen the charge point network and its coverage
- Balance the objectives of the Council and the operator to ensure the most suitable financial arrangement with regards to contract length, investment levels, scope of roll out and revenue generation
- Follow the structure of the NEVIS Heads of Terms to assist during procurement

9.4 Lamppost Charge Points

9.4.1 The utilisation of the existing street lighting network is a useful way to increase the provision of local, low power charge point infrastructure for residential use.

9.4.2 There are several benefits with this type of charge point:

- Generally cheaper to install, utilising existing infrastructure
- Less intrusive if installed within or on the lamppost, reducing the need for additional street furniture
- Usually cheaper to use for the driver due to the low power output and quicker return on investment for the Charge Point Operator
- Removes the need for a new mains electrical connection or upgrade
- No need for planning permission or street works permit
- Faster to install and widen charge point coverage
- Option to take power feed from column and install a separate kerbside bollard in close proximity if required
- Closer proximity to properties without off-street parking
- Convenient, accessible infrastructure
- Opportunity to also install in car parks where bays are located next to lampposts

9.4.3 Whilst there are many benefits to using lamppost charge points, it is also important to consider their constraints. Some local authorities, including this Council, have initiatives as part of lamppost upgrade programmes to move columns to the back of the footway to improve accessibility. This makes them unsuitable for retrofitting with charge points, but the alternative approach is to install a kerbside satellite post.

9.4.4 Whilst this does bring additional street furniture, the units are slimline and unobtrusive in their design, located close enough to be able to utilise the existing electricity feed to the lamppost and keep civil engineering works to a minimum, whilst being sited far enough away to remove the potential obstruction to users of the footway. This option is only available where there is sufficient width within the footway so as not to cause an inconvenience or obstruction to other users. If this is the case, then an alternative is to install the satellite post within the carriageway on a raised protective platform. This would be considered where the provision of a satellite post on the footway would restrict the available width to less than 2 metres. However, raised platforms may present their own accessibility and carriageway drainage issues and so must be sensitively designed.

9.4.5 Lamppost charge points are classed as ‘slow’ with a common power output of 3-5kW, meaning a vehicle will take up to 24 hours to fully charge, although this is dependent on the specification of the vehicle, and it is unlikely that a driver will need to do a full charge.

9.4.6 Lamppost charge points form a useful option as part of the suite of charging infrastructure that is required to serve the variety of use cases and locations. Even with the presence of a residential charging hub or some level of on-street bollard style provision in the vicinity, they still have a role to play and complement the wider offering.

9.4.7 In terms of managing parking provision and the use of the lamppost charge points, the Council will consider the use of Traffic Regulation Orders to ensure their dedicated use as charging facilities. This may not be the optimum solution and so the Council will also consider increasing the number of charge points in lampposts on a given street, if possible. The lower cost of the infrastructure may mean this is a viable option, whilst benefitting residents with a wider pool of options to charge close to home.

9.4.8 The ability to deliver lamppost charge points or satellite posts will be dependent on the:

- Location of the lamppost being kerbside
- Lamppost being adjacent to a suitable area for parking
- Age and condition of the lamppost
- Available width/space within the footway for satellite posts to be sited
- Facility to site a charge point within the carriageway, on a protected island
- Demand for parking on the street
- Current and future demand for charging on the street

9.4.9 In providing lamppost charge points, the Council will seek to strike a balance for provision that is:

- Sensitive to the streetscape, context, and character of an area
- Accessible to the nearby properties without off-street parking
- Limiting the increase in clutter on the footway
- Supported by residents
- Wide in its coverage, if possible
- Aligned with the Council's lamppost replacement programme

Figure 16: The 'Backpack' lamppost charge point offered by Char.gy

Lamppost Charge Points

As part of the delivery of charge points for residential use, the Council will seek to work in collaboration with at least one Charge Point Operator (CPO) to deliver lamppost charge point infrastructure.

The Council's expectation is that this arrangement will:

- Reflect the objectives and principles as set out in Section 3 of this strategy
- Utilise a proportion of the Council's allocated LEVI funding, whilst leveraging maximum private investment to widen the charge point network and its coverage
- Balance the objectives of the Council and the operator to ensure the most suitable financial arrangement with regards to contract length, investment levels, scope of roll out and revenue generation
- Follow the structure of the NEVIS Heads of Terms to assist during procurement

9.5 Pavement Cable Channels

9.5.1 Pavement cable channels are an emerging piece of infrastructure that seek to remove the hazard of trailing cables over the footway from property to vehicle in areas where residents park on-street outside their home. Existing drainage channels are an example of similar infrastructure in common use across the highway network.

9.5.2 Some residents with electric vehicles will already be running charging cables across the footway, often with some form of cable cover. However, this introduces a trip hazard to users of the footway, particularly those with mobility issues and visual impairments, and local authorities do not feel comfortable endorsing the use of cable covers without having due process of and regard for the legislation.[41] To address this, technological solutions have been emerging in recent years for local authorities to consider.

9.5.3 These solutions not only help to remove the trip hazard, but also provide a more affordable and accessible option for residents and local authorities to utilise, opening up home charging for certain properties without off-street parking. This allows the resident to save money by using their domestic electricity supply to charge their vehicle, with the option to switch to an off-peak tariff to increase the available savings. In Central Bedfordshire, the Council will require the resident to install a dedicated wall or post mounted home charge point, where this is possible, prior to any pavement cable channel installation.

9.5.4 These benefits help to overcome some of the inconvenience and forward planning that is needed when public charging, as well as the increased cost to do so. This represents a significant barrier to electric vehicle adoption. The Council is conscious of local parking pressures and the difficulty a resident may have in getting parked outside their property, however most electric vehicle drivers will only need to charge once or twice a week, depending on the journeys undertaken and mileage driven.

9.5.5 In due course, there is also scope for the cable channel and home charge point to be rented to and shared with neighbours to further widen the pool of options for charging close to home.

9.5.6 The Council sees pavement cable channels as being a key part of the electric vehicle infrastructure offered in Central Bedfordshire and supported by the LEVI funding, largely due to the benefits they bring to equity, accessibility, affordability, ease, and safety.

9.5.7 With this in mind, the Council has been active in trialling the most suitable products on the market to understand more about their usage and the experiences of residents, whilst considering and developing the best approach for their roll out to residents.

9.5.8 During 2022, the Gul-e by ODS[42] was trialled in 20 locations across Central Bedfordshire as the first phase of a pilot scheme of pavement cable channels. These were installed across a range of use cases and locations in Aspley Guise, Biggleswade, Brogborough, Campton, Dunstable, Fairfield, Flitwick, Henlow, Leighton Buzzard, and Pulloxhill.

9.5.9 Residents registered an interest, with all locations assessed, and 20 sites shortlisted for inclusion. The Council funded the purchase and installation of the pavement cable channel units, in return for feedback on the experiences of residents using the cable channel to charge their vehicle over a 6-month period.

9.5.10 The Council is also progressing the second phase of its pilot scheme, trialling the Kerbo Charge[43] cable channel in another 20 locations. Following its completion, we will analyse and compare the feedback we receive from participants, and make a decision on the inclusion of one, or both, of the products, their future roll out.

9.5.11 The ability to deliver pavement cable channels will be dependent on the:

- Width, condition, surface, and gradient of the footway
- Footway having no grass verge (unsuitable surface for fixing the unit)
- Ability to park adjacent to the cable channel
- Proximity of a property and the relevant parking space to a junction or other feature
- Existing parking arrangements of the property (not suitable if a property has a driveway and the resident wants the convenience of not having to swap vehicles)
- Planned works to the highway by the Council and utility companies
- Ability of the Council's Highways contractor to integrate installation process into their programme of works

9.5.12 In providing pavement cable channels, the Council will seek to strike a balance for provision that is:

- Sensitive to the streetscape, context, and character of an area
- Accessible to the nearby properties without off-street parking
- Limiting the increase in clutter on the footway
- Wide in its coverage if this is possible in the location
- Aligned with the Council's lamppost replacement programme
- Conscious of any forthcoming maintenance/upgrade works to the footway

Pavement Cable Channels

As part of the delivery of electric vehicle infrastructure, the Council will seek to offer pavement cable channels to residents of Central Bedfordshire. Following the completion of the pilot schemes, the Council will outline its intentions to incorporate one, or both, of the trialled products into its portfolio of charging options in the area and confirm the most suitable approach and administration process for their roll out.

The Council will seek to utilise a proportion of the allocated LEVI funding to integrate pavement cable channels in Central Bedfordshire and make them available to residents.

[41] Highways Act 1980, Section 178
[42] Gul-e by ODS
[43] Kerbo Charge

Figure 17: A vehicle charging using the pavement cable channel offered by Kerbo Charge

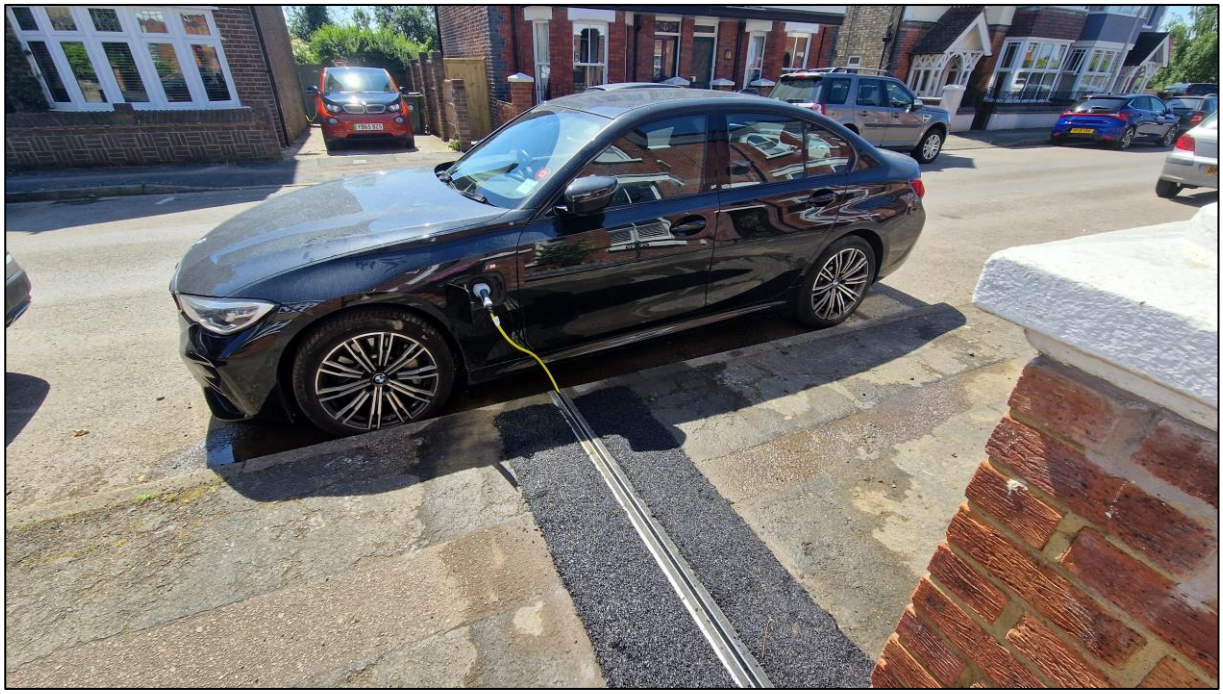


Figure 18: A vehicle charging using the Gul-e pavement cable channel as part of the trial

9.6 Local Community Buildings

9.6.1 Much of Central Bedfordshire is rural in its nature and so there are often limited local car parks and parking areas that can be utilised for electric vehicle charging within settlements. In some villages, the only option may be to explore using the car park of a Village Hall or similar community building to provide a residential charging hub. As part of the Council's initial phases of charge point roll out, it has been possible to do this, utilising some Village Hall car parks to provide hubs.

9.6.2 However, in some settlements this will not be suitable due to:

- Lack of space within the car park to accommodate charging bays
- Impact on users of the community building
- Lack of agreement and cooperation from landowners
- Capacity in the electricity grid and the cost to get a suitable connection
- Not open 24/7 for use as a hub
- Safety and security of the site
- Low level of need
- Expected usage
- Community building is not close to the identified need

9.6.3 In the Council's previous phases of installations, 8 bays worth of electric vehicle charging provision has been installed in local community building car parks. This has been a mix of bays dedicated to electric vehicle charging and bays available for any vehicle to use, helping to limit the impact on the existing users of the building and car park. This level of provision caters for existing demand and future need. It has not, and will not, be possible to install at that level at all community buildings in Central Bedfordshire, even with landowner support for charging provision on site.

9.6.4 However, to widen the available network of public charge points the Council seeks to utilise as many local community buildings as possible for residential charge point provision.

9.6.5 To do this, the Council is seeking to progress a project to work with owners and operators of village halls and other similar buildings, to overcome constraints and install at a level that is sensitive to the space available on site and the level of need in a settlement.

9.6.6 This approach may be particularly suited to smaller, rural settlements where there are only pockets of properties which do not have off-street parking, and so one or two charge points can be provided locally at a community building to provide access to charging. However, even if the level of local need is higher, it still may only be suitable to install a small number of charge points at a local community building due to the constraints outlined above.

9.6.7 As with any provision in an area, it will be balance of what is achievable and suitable based on the geography of the settlement and the context of the site. This may be in the form of a small number of units at a community building, a charging hub in the car park, on-street provision, lamppost charge points, or pavement cable channels, or all types in combination.

9.6.8 A project to install charge points at local community buildings would bring the following benefits:

- Scale of provision is sensitive to the space available and the existing use
- Power can often be taken from the building which reduces the need for costly civil engineering works
- Scope for revenue generation for the community building and its operator, improving its viability
- An asset to the community building and its users
- Providing the community with important access to local charging, largely overnight
- Scope for improved safety and security at the site
- Potential for additional benefits through solar and battery storage, reducing the cost of electricity thus increasing the profit margin for the building operator or helping to reduce the cost for residents to charge

Local Community Buildings

As part of the delivery of charge points for residential use, the Council will progress a project to work with operators of local community buildings to install charge points and widen the local access to electric vehicle charging for residents.

Where a larger charging hub cannot be accommodated or supported, then smaller-scale provision that is sensitive to the available space, the use of the building, and the local need will be proposed. This will likely involve the provision of wall-mounted charge points connected to the building's power supply, but may cover pedestal-mounted units or lampposts within the site.

It is expected that provision at these sites will be delivered by the CPO providing on-street/charging hub infrastructure, or alternatively the CPO delivering lamppost charge point infrastructure, if this is more appropriate when considered on a site-by-site basis.

If these sites are not attractive to either CPO then the Council will consider utilising a small proportion of the allocated LEVI funding, along with Council funding and/or match funding, to progress small-scale installations on local community buildings in commercially-challenging areas, installed in collaboration with a local electrical installer.

9.7 Rapid Charge Points

9.7.1 The provision of rapid and ultra-rapid charge points will play an important role in ensuring a suitable public charging network for residents of Central Bedfordshire and those visiting and driving through.

9.7.2 This type of provision has some role to play in catering for residential charging, providing residents with an option for quick and convenient charging when needed. In most cases, rapid charge points will be delivered within existing car parks or purpose-built spaces as charging hubs, located in urban areas and close to the strategic road network or other important routes.

9.7.3 These hubs or banks of charge points will provide those visiting or driving through Central Bedfordshire with the facility to charge at speed and are often co-located with or near to local facilities. This provides drivers with a more enjoyable experience when stopping and waiting, and increases local footfall and economic growth. This type of provision is essential to increase consumer confidence and uptake of electric vehicles, particularly for those undertaking longer journeys.

9.7.4 It may be suitable to include rapid charging provision in residential charging hubs, if the hub is located in an area where usage would be sufficient. In some cases, it may also be suitable to consider on-street provision of rapid charging units, complementing other lower powered charging infrastructure.

9.7.5 The ability to deliver rapid charge points will be dependent on the:

- Availability of suitable local car parks and parking areas
- Agreement and cooperation of landowners
- Proximity to major road routes
- Expected usage
- Capacity in the electricity grid and the cost to get a suitable connection
- Ability to locate close to existing facilities or provide new ones on site
- Accessibility, safety, and security of the site
- Land available to create new bespoke charging hubs

9.7.6 In providing rapid charge points, the Council will seek to strike a balance for provision that is:

- Sensitive to the existing parking provision and other uses on site/in the vicinity
- Sited in locations that do not attract additional trips into already congested areas
- Safe and accessible for all users
- Commercially attractive for Charge Point Operators
- Providing wider benefits to local services and facilities
- Meeting identified demand/need
- Supported by local renewable energy generation, where possible

Rapid Charge Points

As part of the delivery of electric vehicle infrastructure, the Council will seek to work in collaboration with a Charge Point Operator to deliver rapid charge points, primarily in hubs but also other suitable locations.

To improve the commerciality of locations and complement other planned infrastructure, the Council will seek to work with the operator appointed to deliver residential charging hubs and provision at on-street locations in Central Bedfordshire, or alternatively work with a separate operator. This will be dependent on the ability of the operator to deliver multiple infrastructure types and the location being considered.

Whichever route is chosen, the procurement process and contract will be aligned with the NEVIS Heads of Terms.

If required, the Council will seek to utilise a proportion of the allocated LEVI funding to support rapid charge point provision for residential use, as accepted under the defined funding criteria. However, it is expected that the private sector will deliver the majority of this infrastructure without the need for public sector involvement.

The Council will also seek to analyse its land holdings to identify any opportunities for strategic hubs to be delivered in partnership with private sector investors and operators.

Figure 19: An example of a rapid charging hub

9.8 Charge Point Hosting & Sharing

9.8.1 The Council supports the use of platforms which allow residents with domestic electric vehicle charge points and dedicated off-street parking to host these facilities. These hosted charge points provide access for other local residents who need to charge but do not have the facility to do so at home themselves.

9.8.2 This arrangement allows the resident with the charge point to generate revenue, encouraging other residents who are thinking of making the switch to an electric vehicle to consider installing a home charge point. Increasing the number of domestic charge points and the number of people using these platforms helps to widen the network of publicly available charge points and strengthen consumer confidence in being able to switch to an electric vehicle.

9.8.3 JustCharge[44] by JustPark and CoCharger[45] are two of the most popular platforms which facilitate community charging and charge point hosting. The Council signposts to these options through content on our electric vehicle web pages[46] and we encourage residents to consider using these systems to host and rent their parking space and charge point.

9.8.4 Data made available by CoCharger through the NEVIS system shows that there are Central Bedfordshire residents who are using their platform to provide access to charging to other residents in their community.

Table 10: Residents using the CoCharger platform by settlement (as of July 2023)

Settlement	Number of Residents
Barton-le-Clay	2
Biggleswade	5
Clifton	1
Dunstable	3
Flitwick	1
Haynes	1
Heath & Reach	2
Houghton Conquest	1
Leighton Linslade	3
Sandy	1

[44] JustCharge
[45] CoCharger
[46] CBC – Charging electric vehicles

Charge Point Hosting & Sharing

As part of widening access to electric vehicle infrastructure, the Council will continue supporting and promoting platforms that allow the hosting and sharing of local domestic charge points and charging infrastructure, particularly those residents who install a pavement cable channel.

The Council may seek to utilise a small proportion of the allocated LEVI funding for marketing and promotion of these platforms, ideally in collaboration with the service providers themselves. This may involve targeted local communications to raise the profile of existing locations, or increase uptake in settlements where there is identified need and room for growth.

9.9 Mobility Hubs

9.9.1 Mobility hubs are highly visible, safe, and accessible spaces where public, shared, and active travel modes are co-located alongside improvements to the public realm, along with community facilities where relevant. The redesign and reallocation of space away from the private car enhances the experience for travellers and creates a more pleasant environment for everyone.[47]

9.9.2 Mobility hubs help to:

- Achieve wider decarbonisation aims by facilitating modal shift and sustainable travel
- Plug gaps in the public transport network, providing travel options to railway stations and bus stops
- Provide convenience to residents through micromobility
- Limit issues of street clutter associated with dockless micromobility services
- Create a more pleasant public realm, converting parking areas to green space and waiting areas, improving the user experience

9.9.3 The services and facilities provided at a mobility hub can include:

- Bike/scooter hire
- Bike repair stations
- Secure bike parking
- Electric car club vehicles
- Electric vehicle charge points
- Enhanced public spaces with greenery, seating, and shelter
- Local information, such as timetables, maps, and noticeboards
- Wider services, such as parcel lockers and coffee carts

[47] CoMoUK - Mobility Hubs

9.9.4 These hubs aim to improve access to local areas by offering affordable and easy options for travel, build community focal points around sustainable travel, provide new ways to travel to transport nodes, and reduce level of car reliance and ownership.

9.9.5 The way people and goods travel is changing, and people want short journeys, particularly those in urban areas, to be cleaner, greener, and healthier. Whilst Central Bedfordshire is semi-rural in nature with no cities or central urban area, there is still a need to try and accommodate shifting local journeys away from the car in as many places as possible.

9.9.6 Micromobility is a term covering electric bikes, scooters, skateboards, cycles, cargo bikes, tricycles, and other small vehicles designed for one or two people, often powered by electricity. As demands and trends change, technology is responding, and the sector is changing rapidly. At present, many micromobility vehicles are not legal on UK roads and so government and industry are considering the best way for their implementation. The potential benefits are key to improving our health, spaces, and built environment

9.9.7 Where possible, the Council will seek to introduce mobility hubs and/or the services and facilities outlined into suitable locations across Central Bedfordshire. From the perspective of public electric vehicle charging provision, it may be possible to expand charging hubs to include a wider choice of travel options and access to services. Conversely, it will be prudent to consider general electric vehicle charging provision in any mobility hubs that emerge. Whilst micromobility is not a topic to be discussed in detail within this strategy, the Council will seek to support any opportunities for co-locating any of the relevant infrastructure and charging provision within the scope of its work, as and when usage is legislated and managed.

9.9.8 Where mobility hubs are progressed, the Council will seek to deliver these in line with the CoMoUK guidance and accreditation process[48].

9.10 Car Clubs

9.10.1 Car Clubs are essentially car hire services, offering pay-per-trip travel to individuals and organisations, without being tied to ownership. These are popular services in urban areas but are becoming an increasingly important option to consider in many other locations.

9.10.2 The sector continues to grow as more and more people decide to travel sustainably or have less need for a second car with increased home working. As of September 2022, there were a total of 752,560 car club members in the UK, with 323,527 of these being active members who have joined, renewed their membership, or used a vehicle within the last 12 months, across a fleet of nearly 6,000 vehicles.[49]

9.10.3 The Council has already progressed several car club schemes, with the focus on electric vehicles as part of new developments. The intention is to continue to explore opportunities to widen the coverage and location of electric vehicle car clubs, with emerging charging hubs and mobility hubs providing options to co-locate charging and car club vehicles.

[48] CoMoUK – Mobility Hub Accreditation
[49] CoMoUK – Shared Cars

Mobility Hubs & Car Clubs

As part of increasing electric vehicle infrastructure, the Council will consider the opportunity to create mobility hubs and introduce electric vehicle car clubs at suitable sites.

Charging hubs may provide the opportunity for mobility hubs to be created, or relevant services introduced, to widen the available transport options and improve the viability of a site.

The Council will seek to utilise a proportion of the allocated LEVI funding to deliver charging infrastructure to support the use of electric vehicle car clubs and micromobility vehicles, with the aim of meeting wider transport decarbonisation objectives. The provision of car clubs and their associated infrastructure will also be supported and delivered using other funding sources, such as S106 developer contributions.

9.11 Innovation

9.11.1 Electric vehicle charging infrastructure is a space that is always evolving, with innovative new products, services, software, and solutions coming to market. The Council is keen to consider the potential of these as part of the offering in Central Bedfordshire, as has been the case with the pavement cable channels.

Innovation

As part of increasing electric vehicle infrastructure, the Council will consider emerging innovative technological solutions.

If suitable solutions are found, the Council will seek to utilise a small proportion of the allocated LEVI funding, or other funding streams, to progress trials and assessment.

10. Other Areas of Focus

10.1 Our Fleet

10.1.1 The Council has a range of fleet vehicles that assist in service delivery across a variety of functions. Some of these vehicles are directly operated by the Council, others are managed and run by contractors and private operators who fulfil some of our services, such as refuse trucks used for waste collections and buses for public transport. Within the overall fleet, the Council already operates a small group of electric vehicles, with charge point provision available at our Priory House office and Thorn Turn depot to support their operation.

10.1.2 As set out in the Council's Sustainability Plan, the rest of the fleet will be transitioned to electric vehicles. This transition will be phased, with electric vehicles being onboarded once leases are up for renewal, when it is commercially viable, and when the vehicles available are able to serve their function. There is an expectation that this will apply to appointed contractor vehicles too, with this transition being delivered by the contractor either as part of their own sustainability ambitions or as a requirement of future procurement and contract award with the Council.

10.1.3 The Council's Sustainable Transport & Active Travel team are responsible for delivering the majority of projects within this strategy and will seek to support the Fleet Services team, who are directly responsible for fleet vehicles, and other internal departments who contract out their operations, such as the Waste and Public Transport teams. It is also important that the necessary charge point infrastructure is provided at the relevant bases for these vehicles to facilitate electrification, with grant funding utilised to support this.

10.1.4 There are also a fleet of private taxis within Central Bedfordshire and whilst these are not operated by the Council, they are licenced. The Council encourages their transition to electric and expects that any operator will utilise home charging in the first instance to manage running costs, if possible. The Council will not be making direct electric vehicle charging provision dedicated for use by taxis, but will seek to locate public rapid charging provision close to town centre taxi ranks to provide access to the necessary infrastructure.

10.1.5 As part of wider fleet electrification objectives, the Council must also consider its grey fleet. This is classed as the private vehicles which employees use for business travel. Whilst this cannot be directly controlled, the Council can influence and incentivise their staff and steps have been taken to deliver on these aims. In 2023, the Council introduced an electric vehicle salary sacrifice lease scheme for employees, which provides a more affordable option in comparison to private purchase or lease. Future work will also involve the introduction of a pool of electric vehicles for staff to use for business journeys between Council satellite offices and public buildings, whilst also exploring other opportunities for incentivising fleet transition.

10.2 Our Offices, Depots & Public Buildings

10.2.1 To support the transition to electric vehicles, the Council is reviewing the sustainability of its existing offices, depots, and public buildings. This work is being led by the Facilities Management team to cover charging provision and management, renewable energy generation and storage, heating, and power capacity.

10.2.2 This work will help to meet wider decarbonisation objectives and those in the Sustainability Plan. This investment will be supported by grant funding, where available, and will help to futureproof our services and functions, and deliver on our pathway to net zero for our operations by 2030. New developments delivered by the Council, such as leisure centres and care homes, are seeking to include this provision from the outset, where possible.

10.2.3 Charging provision at our offices, depots, and public buildings is required to support the use of electric vehicles by staff, visitors, and those running fleet vehicles. There may be scope for some of the Council's public buildings to be utilised for residential charging provision, particularly outside of the core hours of function and overnight. This may apply to buildings such as offices, community buildings, and leisure centres.

10.2.4 To date, the Council's Thorn Turn depot has been a home for trialling innovative new products prior to their potential wider use in Central Bedfordshire. There is an expectation that this will continue, and the Council will explore opportunities for further product trials.

10.3 Our Housing Stock

10.3.1 The Council's Housing Services team is responsible for managing our housing stock and are progressing a Housing Sustainability Strategy and a Housing Asset Management Strategy. These documents set out areas of coverage and objectives for improving the sustainability of our homes.

10.3.2 The provision of electric vehicle charge points will need to be considered, along with wider decarbonisation projects linked to renewable energy generation and storage. Charge point provision may best be addressed through the work to provide a public charging network for residential use, with local access to charge points, rather than on-plot provision. The approach for this will be defined in due course.

10.4 Our Land

10.4.1 Utilising our land will be a key part of providing charging infrastructure and widening the public network, as previously set out in this document. There may also be scope to take advantage of our good connectivity in Central Bedfordshire, to identify larger parcels of land in strategic locations to be used for the provision of more commercial hubs for electric vehicle charging and/or refuelling stations for alternative fuels, such as hydrogen.

10.4.2 The Council will seek to review land assets which may facilitate this type of infrastructure and investigate opportunities for investment and/or partnership working with private operators. These projects may provide scope for long-term revenue generation, whilst leading the transition to a more sustainable future.

10.5 Assets on Private Land

10.5.1 There is a period of time following the update to the building regulations where charge points will have been included as part of a planning approval and subsequent development, but the Council's Electric Vehicle Charging in New Developments SPD was not adopted. In some instances, this may lead to the installation of charge points to satisfy planning conditions, without the necessary operation and management arrangements in that are in place and required to support their public use.

10.5.2 Many of these assets should be available to use by the public, but may be located on private, unadopted land. The Council may need an approach ensure these are available for use and have suitable management and maintenance arrangements in place.

10.6 Flats & Apartments

10.6.1 Whilst there is grant funding available to support residents and landlords of flatted development in installing charge points in communal car parks, this is likely to still be an area where roll out is slow and residents are not supported with the ability to charge at home.

10.6.2 The Council will consider all available options to improve this, including locating residential charging provision as close to relevant properties, where provision is not made within the applicable car park, and monitor any action from government on the issue.

11. Next Steps

11.1 This Strategy

11.1.1 The content of this strategy will be reviewed for effectiveness and conformity by Energy Saving Trust, who support the Office for Zero Emission Vehicles (OZEV) in their administration of the various grant funds. Following this, and internal review, the strategy will proceed through the Council's formal committee cycles.

11.2 Funding

11.2.1 In conjunction with the progression, review, and adoption of this strategy, the Council is preparing its application for Tranche 1 funding as part of the Local Electric Vehicle Infrastructure fund. The deadline for applications is 30th November 2023 and work is underway to meet this deadline.

11.2.2 Alongside the development of the application for LEVI funding, the Council will start to compile tender specifications for the various projects contained within this strategy, with a view to partner with operators and start work on delivery as soon as practicably possible.

11.3 Data

11.3.1 The Council has already started collating evidence and building datasets to support previous charge point projects and funding bids. The continued development of this work is imperative to understanding areas of focus and ensuring the best outcome for Central Bedfordshire. Information will be collected on topics such as:

- Properties without access to off-street parking
- Review of Council land assets
- Land opportunities in Town & Parish Councils/Community Group ownership
- Lampposts suitable for direct utilisation with charge points
- Location of lampposts which would require a satellite post
- Areas suitable for direct on-street provision
- Streets/properties which would be suitable for pavement cable channels
- Width, ownership, and condition of pavements

11.4 Engagement

11.4.1 As part of the rollout of electric vehicle infrastructure, it will be important to engage with a variety of external stakeholders, including residents, landowners, Town & Parish Councils, Charge Point Operators, contractors, suppliers, the Distribution Network Operator and OZEV. At the relevant trigger points, these stakeholders will be engaged and listened to.

11.4.2 Internally, the Sustainable Transport & Active Travel team already lead an Electric Vehicle Working Group which meet every 8 weeks to discuss projects, dependencies, issues, and opportunities. This will continue to be an important forum for successful collaboration.

12. Monitoring & Review

12.1 Monitoring

12.1.1 The delivery of the various projects to provide electric vehicle infrastructure will involve monitoring progress, achievements, areas for improvement, and various datasets. Corporately, the Sustainable Transport & Active Travel team already report on the number of charge points delivered as part of the corporate KPIs and this will continue. Alongside this the Council will monitor items such as:

- Submissions to the Electric Vehicle Charging Register
- Datasets being built to map out all relevant properties without off-street parking
- Areas of focus for the provision of charging infrastructure
- Usage and uptime of charge points once installed
- Grant funding spent per project
- Changes in forecasts

12.1.2 It is also important to monitor changes in legislation, funding opportunities, developments in industry, and technological advancements to ensure objectives and projects aims are still relevant, achievable, and effective. The coverage of this strategy is based on what we know now regarding national policy, local context, forecasts, need, understanding of electric vehicle infrastructure, and the challenges and opportunities in front of us.

12.2 Review

12.2.1 The Council commits to reviewing this strategy within 3 years from the date of adoption, to ensure the following:

- Relevance of the aims and objectives
- Alignment with national policy and government direction
- Reflecting on changes within industry and available forecasts
- Review progress made on projects and KPIs
- What has gone well
- What can be improved
- Understand lessons learnt and feedback received

13. Appendices

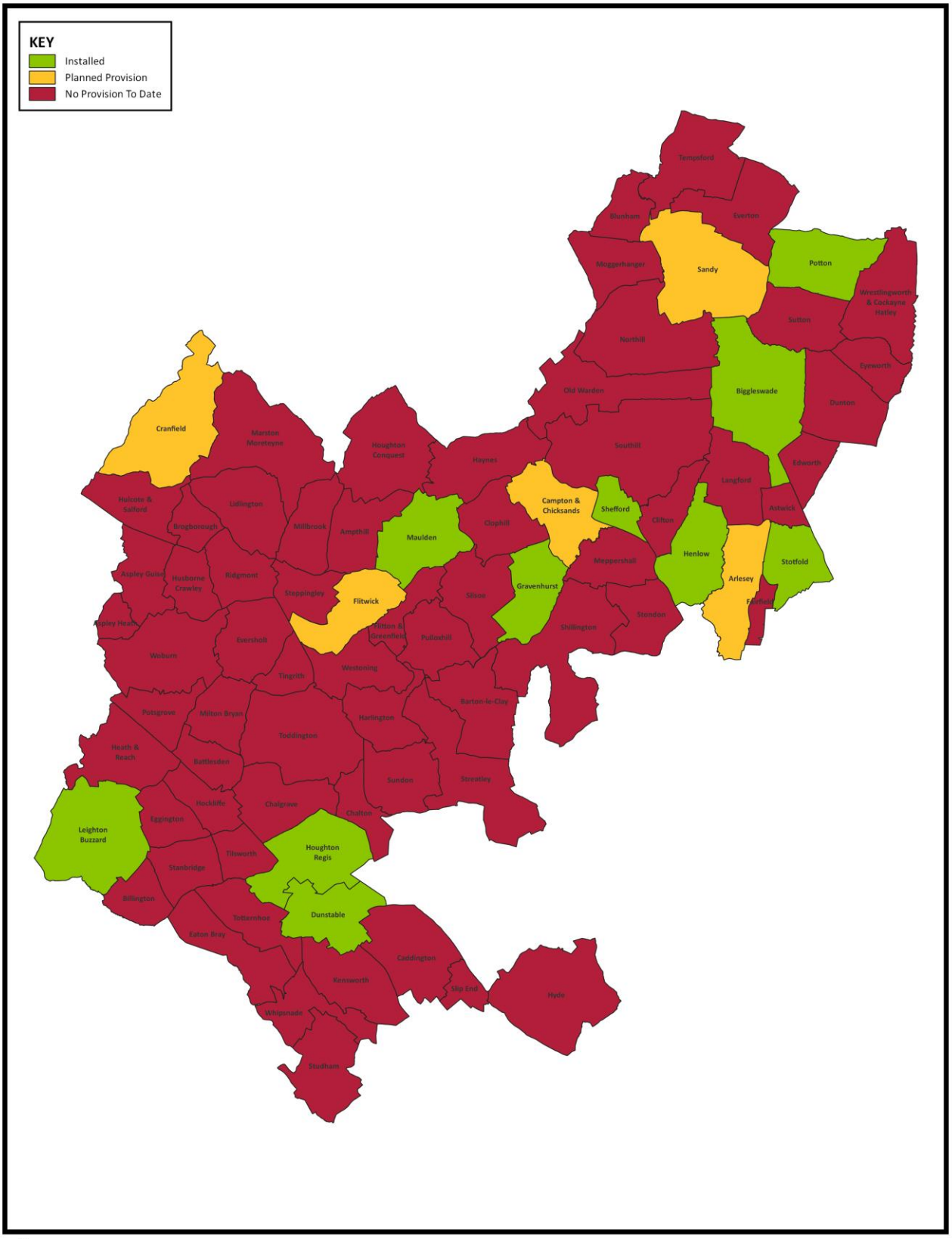
13.1 Appendix 1: Charge Point Provision in Settlements

13.1.1 The map overleaf provides a snapshot of the settlements covered by Council-led charge point installations:

- Settlements marked green are those that have had charge point provision installed
- Settlements marked amber are those with planned provision awaiting installation
- Settlements marked red are those that have not yet received charge point provision.

13.1.2 It is important to focus on all settlements for future installations, particularly to find suitable locations in those settlements highlighted red which are currently not hosting any Council-led charge point infrastructure. However, even if a settlement has installed or planned charge point provision, it is still likely that additional sites will need to be found in order to widen coverage and cater for all of the identified need.

Central Bedfordshire Council **Charge Point Provision in Settlements**



13.2 Appendix 2: Sites for Charge Point Provision

13.2.1 The map overleaf provides a summary of the sites for charge point provision led by the Council:

- Sites marked green are those where residential charging provision has been installed
- Sites marked blue are those with planned residential charging provision
- Sites marked blue are those with planned rapid charging provision

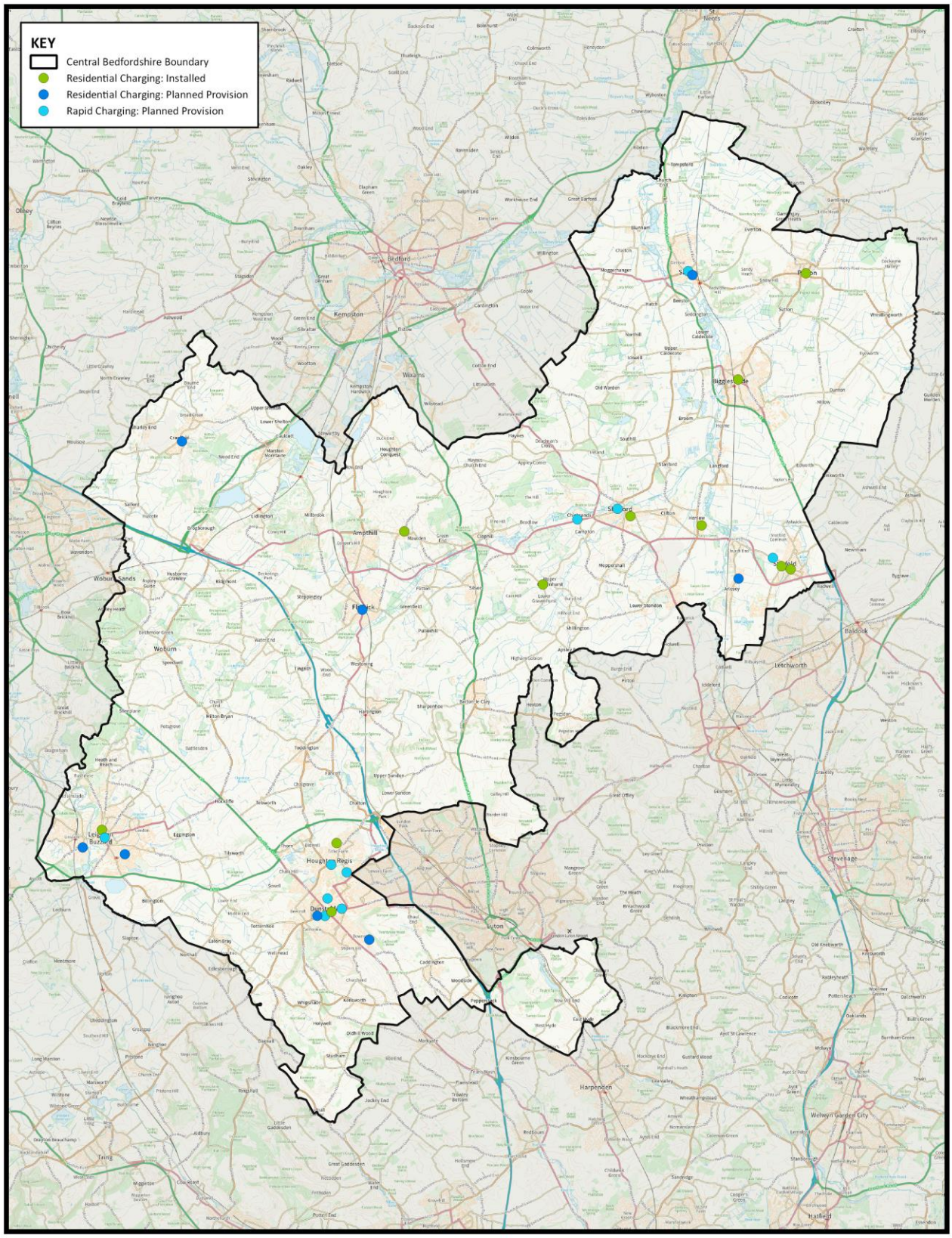
13.2.2 This map provides a spatial representation of the sites listed in Tables 3, 4 and 5.

13.2.3 There are some areas and settlements not covered by charge point provision through work undertaken to date. Ampthill is an example of a town which has not benefitted from any charge point provision, largely down to the lack of suitable sites, with those considered having constraints related to cost, size, access, or ownership.

13.2.4 The Council will seek to utilise all of the projects listed in this strategy to provide infrastructure in all areas, but with a particular focus on settlements such as Ampthill, and other large villages.

Central Bedfordshire Council

Charge Point Sites



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Central Bedfordshire Council

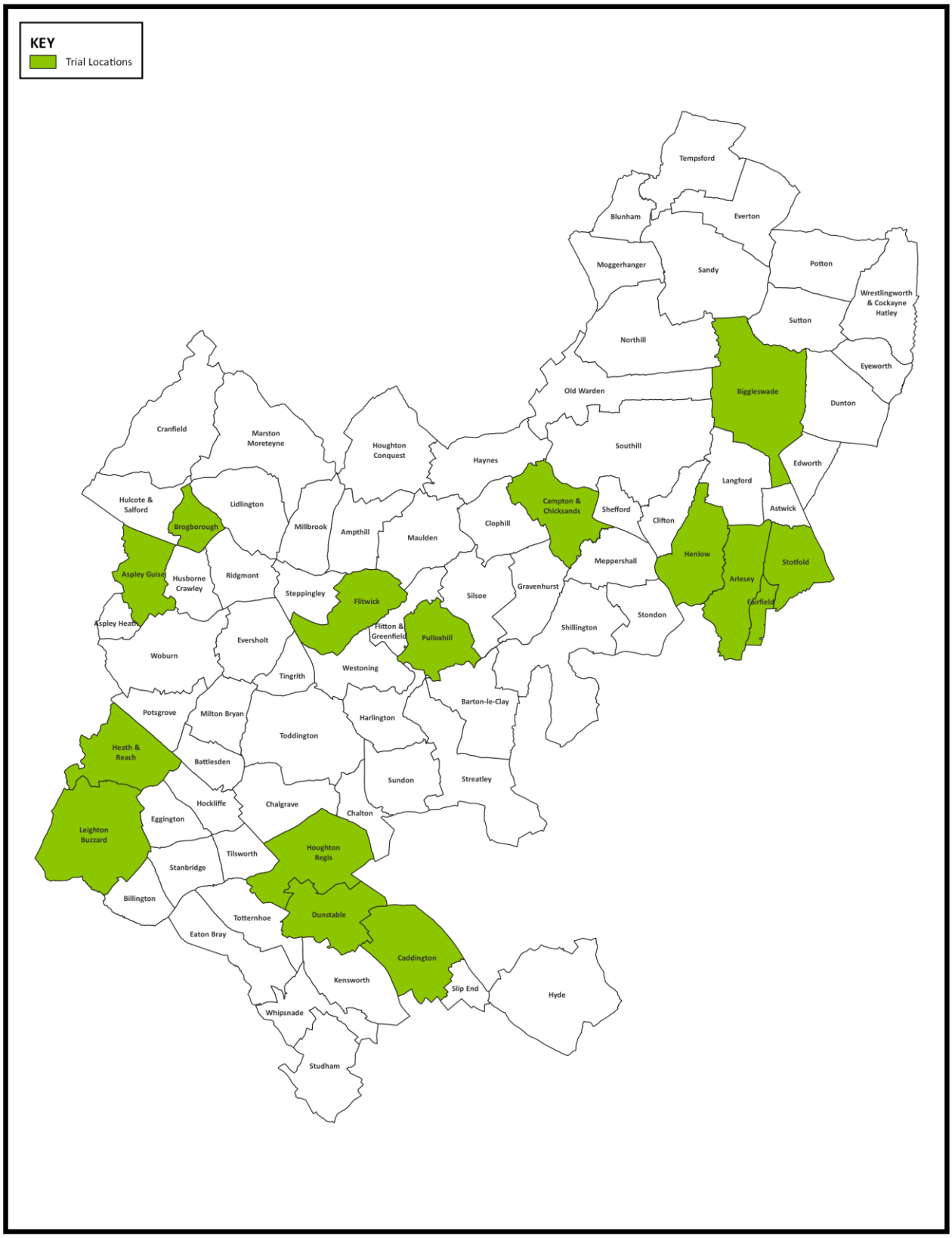
13.3 Appendix 3: Cable Channel Trials

13.3.1 The map overleaf shows the settlements where properties have been selected to participate in the Council's trial of cable channels.

13.3.2 A total of 40 locations have been taken forward as part of the two trials, however several of the larger towns in Central Bedfordshire have multiple trial locations within.

Central Bedfordshire Council

Location of Properties Trialling Cable Channels



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Scale: 1:140,000

Central Bedfordshire Council

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