Manchester Electric Vehicle Charging Strategy 2024-2035

(v2. September 2024)

Contents

Front cover image: EV charging station — Image source: MCC

Manchester City Council Logo — Image source: MCC

1.0 Introduction

In Manchester, transport emissions account for approximately a third of all emissions in the city. As a result, reducing these emissions is a priority for Manchester City Council in helping meet the City's target to become zero carbon by 2038. Electric vehicles (EV's) are part of the mix and in order to assist residents in the transition to EVs as cleaner and greener vehicles, they need access to a range of charging facilities and charging options. An increase in charging infrastructure will provide greater confidence for residents to transition as this is currently seen as a barrier to change.

This strategy will look at the role of Manchester City Council (MCC) in delivering EV infrastructure for both the public and residents and sets out principles of how the council will engage with this infrastructure. This will include how the council can assist in supporting the commercial rollout of EV infrastructure.

This strategy will primarily set out the current situation in relation to EV charging infrastructure, future forecasted demand and a way forward to the ban on the sale of new petrol and diesel cars and vans in 2035. This strategy will specifically focus on cars and vans used by private residents to meet forecasted demand through the provision of both public and private charging infrastructure. Public chargepoints are those that are intended for use by the general public whereas private chargepoints are those for exclusive use by a particular type or make of vehicle or groups of people. In particular this strategy will focus on assisting those residents without off-street parking.

The electrification of public transport, including buses, coaches, HGVs and other forms of electric vehicles is beyond the remit of this strategy as these require a different level of infrastructure which will be co-ordinated at a regional level by TfGM. Also, different types of users such as at the micro-mobility level including e-scooters and e-bikes are also emerging and some consideration may need to be given to infrastructure requirements for these types of options going forward but they are not specifically included within this strategy.

Image source: TfGM

2.0 The Vision, Aims and Objectives

Setting a vision will help the council and other stakeholders to plan for a charging infrastructure network and understand their role in delivering or accessing it.

The Vision

To make Manchester's EV charging infrastructure fit for purpose so that it is affordable and accessible to all across the city, helping Manchester to become a greener, cleaner and more resilient city.

Aims

The following are the main aims of this strategy:

- to provide a range of EV charging opportunities to enable our residents and businesses become net zero by 2038
- to improve air quality along the city's roads and assist the transition to cleaner vehicles
- to provide inclusive access to charging opportunities for all and particularly for those without off-street parking
- to provide affordable charging opportunities for all
- to help Manchester meet its 2038 zero carbon emissions target

Objectives

The following are the main objectives the council is seeking to achieve:

- All residents without off street parking have access to charging facilities within a 300 metre (approximately 5 minute) walk from their home by 2038
- MCC to plan for the provision of 600 public chargepoints and other charging infrastructure (such as cable gullies) by 2028
- MCC will advocate for the accessibility of all public chargepoints including for less mobile and wheelchair users, to a PAS1899 or equivalent standard
- Work with the Government to reduce the VAT charged for public charging to a comparable level to domestic charging

3.0 Policy Context and Background

Policy Context

To help combat transport produced emissions, the main aim of national, regional and local transport policies is to both reduce the need to travel and where possible to use more sustainable means such as public transport or active travel modes and as a result reducing car use and numbers.

However, this may not always be feasible and there is an acceptance that cars will still be used for some journeys. In these cases, cars should be as least polluting as possible and as such, access to EV charging infrastructure is a core enabler for this transition. MCC has a role to play in assisting the transition to net zero emission vehicles where we are able to, which includes ensuring it is maximising its planning and development powers around charging infrastructure, understanding and overcoming barriers for transition where possible, accessing funding and finance opportunities and working with industry to improve the city's charging infrastructure.

Background

In 2019 the UK Government set a national net zero emissions target of 2050. Manchester has set an even more ambitious target to be a zero carbon city by 2038. Transport is the largest single contributor to UK domestic greenhouse gas (GHG) emissions, accounting for 26% of emissions in 2021. The majority (91%) of these emissions are from road vehicles with cars and taxis making up 52% of domestic transport emissions[1]. Appendix 1 outlines the three main national and local transport policy documents relating to EV delivery.

The switch to Ultra Low Emission Vehicles (ULEV), will be a key component in the drive to meet Manchester's zero carbon targets. The government has announced a ban on the sale of new petrol and diesel cars by 2035 which will result in increasing numbers of EVs on our roads, both those privately owned by residents, and commercial vehicles which will require regular battery charging.

The main barriers to the transition to EVs are the high initial purchase or leasing costs of the vehicles, range anxiety (how far you can travel on a single charge) and chargepoint anxiety (the availability and reliability of chargepoints when you need them). Lack of access to charging infrastructure is seen as one of the biggest barriers to adopting EVs both by residents and businesses. The council has a role to play in this last point helping to relieve concerns over chargepoint anxiety.

Most of the charging of private cars takes place overnight at residential properties (although 89% of people do use the public charging networks at some point[2]). Within Manchester, approximately 60% of homes do not have access to off-street parking, therefore MCC needs to develop an approach to assist these residents with where and how EV charging will be accessed.

[1] Transport and environment statistics: 2023 - GOV.UK (www.gov.uk)
[2] ZapMap Annual Survey 2023 (https://transactions.sendowl.com/products/79040420/C5AA6CA5/view)

MCC particularly needs to look at using its own assets to be able to help respond to future demand as EV numbers. It should be noted that there is no statutory requirement for local councils to provide EV chargepoints, however, MCC does have a role to play in helping to achieve the zero carbon targets set for 2038.

There is a significant amount of work to be undertaken in the coming years to meet both the overarching ambition for a zero carbon environment and to make the city fit-for-purpose as the sale of new petrol and diesel vehicles are phased out. The Council recognises that there is a need for an overarching strategy, supporting objectives and a delivery mechanism, certainly for the short to medium term to make the city fit-for-purpose as the sale of new petrol and diesel vehicles are phased out and ensure that development does not occur in an ad hoc manner.

Image Source: TfGM

4.0 EVs and Future Predictions

In Manchester, demand for EVs is forecasted to increase. As such, it is imperative that the infrastructure to support EVs also increases. This includes good coverage across the city and different types of charging options to meet the needs of the different users. This section provides further detail on the future growth in EVs, charging demands, types of charging options and different types of users who need to be accommodated.

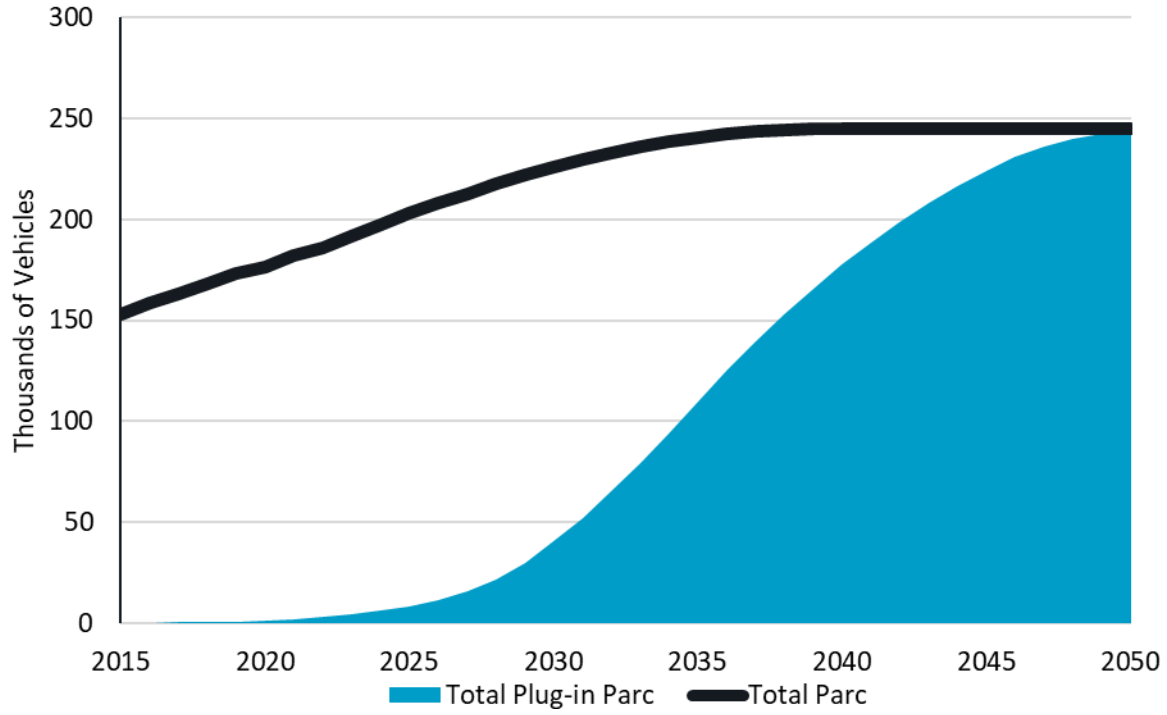
Growth in vehicles

As can be seen in Figure 1 below, the demand for EVs is expected to grow over the next few decades, supported by falling cost of vehicles and batteries and a developing second-hand EV market.

The number of zero emission vehicles licensed within Manchester currently makes up only 2% of the total vehicle fleet, which is below the UK average of 4%. However, as demand increases, the supporting infrastructure, both publicly accessible and private will also need to increase.

Figure 1 below indicates the forecasted growth in EVs in the city showing the steep rise in the total number of Plug-in vehicles as a proportion of the total number of vehicles. By 2050 it is expected that all cars and LGVs in the city will be plug-in vehicles (around 250,000 vehicles).

Figure 1. Forecast Penetration of Plug-in Cars and LGVs in Manchester



Source Steer Consultants

Future charging infrastructure needs

Although there is an expectation that those EV owners that can, will charge at home there is likely to be a need for all EV drivers to use the public network from time to time. For those who are unable to charge at home the public charging network and ease of access to it will be critical.

There are currently 348 publicly available EV chargepoints (as of April 2024) located in Manchester. As mentioned above, there is a need to increase the number of charge points across the city, at a variety of locations including on public and private land, such as Council car parks, supermarkets, other retails and existing diesel and petrol stations. Table 1 below shows the forecasted number of public chargers that will be required up until 2050 across Manchester. Appendix 2 shows those areas in the city that have the greatest demand and potential for charging infrastructure with the highest areas of demand focussed around the wards of Moss Side, Rusholme, Longsight and Levenshulme and around the regional centre.

Table 1: Forecast Number of Public Chargers for Manchester City Council area

Year	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Standard/ Fast	420	2,011	4,912	7,005	8,855	9,985
Rapid/Ultra	85	435	1,098	1,598	1,819	2,120
Total	**505**	**2,446**	**6,010**	**8,603**	**10,674**	**12,105**

Source: Steer Consultants

Note that the actual number of public chargers required may be fewer if residents are able to utilise solutions that allow them to access their private, home energy supply to charge their vehicles

Types of charging

Chargepoints come in a variety of forms and can be located in both on-street and off-street locations. There are four main types of chargepoints: ultra-rapid, rapid, fast and standard/slow. A comparison of the various types is shown in Appendix 3 along with the different charging typologies. The most common form of public chargepoint is a freestanding unit.

Whilst there is a clear commercial case for the installation of rapid charges, the economic case for the provision of fast and standard/slow chargers that could provide off-peak, overnight charging for residents is less attractive. As a result, the provision of this type of charging infrastructure may require additional financial support.

The key priority of the council is to support measures to reduce the need to travel and a modal shift towards active travel and public transport. This should lead to a slow down in the growth, or reduction, of the overall Manchester fleet of cars and vans over time. The council will revisit the modelling work through the strategy period to ensure there is a right balance of EV infrastructure provision for the size of the overall fleet.

Types of users

For the purpose of this strategy a number of user profiles have been identified to assist in providing a focus for the provision of charging infrastructure[3]:

- Private cars - close to residential properties in locations which are perceived to be safe and accessible.
- Taxis/Private Hire Vehicles (PHV) - along key routes and within the regional centre.
- Light Goods Vehicles (LGVs) – may charge at the workplace, at residential properties or using the public charging network
- Local authority and other public sector fleets – workplace charging
- Car clubs - there are a range of car club locations from on-street to car parks in both commercial and residential areas
- En route – those requiring a quick top up charge as part of longer journeys.

Image Source: TfGM

[3] From page 18 Greater Manchester Electric Vehicle Charging Infrastructure Strategy 2021 https://assets.ctfassets.net/byx0la40ncn8/4yrhqhQsLmKMLMlGB5FbkS/7b64b9de7bff9c6a1f77c2946c664e9d/23-0339_GM_EVCI_Strategy_Document_v1.pdf

5.0 MCC Role

Although there is no statutory requirement for MCC to provide EV chargepoints, the council has a significant role to play including:

1. Encouraging the transition towards EVs
2. Improving charging infrastructure
3. Identifying funding opportunities

Encouraging the transition towards EVs

Table 2 below sets out the council's priorities for action depending on how residents with different parking facilities are likely to charge. It is accepted that in the long term there is likely to be a mix of home charging, and publicly and privately managed/owned public charging infrastructure to provide facilities for different customers with different charging needs.

Table 2: MCC Priorities for Charging Support

Parking facilities	Type of Charging	MCC Response
Residents with access to off-street parking	Home charging	No action
Residents without off-street parking but safe access to the kerbside	Home charging with cable mat or gulley	Promote homecharging options and government subsidies.
Residents without off-street parking and no kerbside access	Public Charging	Support expansion of public charging network and assess other local charging solutions as they become available Petition government to lower VAT so that it is consistent between public charging points and home charging.

Affordability is a barrier to residents transitioning to EVs not only in relation to the upfront vehicle costs but also if they are dependent on the public charging network which is more expensive than charging at home using a domestic electricity supply. **MCC will petition Government to lower VAT so that it is consistent between public charging points and home charging.**

To enable more residents to charge at home, we support the use of cable gullies and cable mats where it is safe to do so, supporting guidance can be found on the council's web page[4]. In the case of both cable mats and cable gullies the parking space outside the home is not designated and residents will need to negotiate with their neighbours to be able to park outside to charge their vehicles.

As funding becomes available, we will identify ways to support those groups that are disproportionately impacted by the challenges associated with transitioning:

- Disabled and less mobile residents – ensuring that public chargepoints are as accessible as possible using the PAS1899 standard or equivalent
- High mileage users – taxi, private hire drivers, delivery vehicles and car clubs will be a key group in the acceleration towards the 2038 target.
- Lower income groups

Manchester City Council has published guidance for the provision of EV charging points as part of new residential and commercial developments (Appendix 4). The recommendations go beyond those found in the Building Control Regulations (Part S) which came into force in June 2022.

As well as providing infrastructure solutions, the council will use its unique position as a city leader to accelerate the uptake of EVs by:

- Providing clear guidance on our website
- Promoting the Transport for Greater Manchester (TfGM) webpage which provides further information
- Press Releases – communicating grants, funding and technological advances
- Internal staff communications
- Disseminate through local group and business networks
- Promoting the MCC staff salary sacrifice scheme for the lease of EVs

Improving Charging Infrastructure

The council supports the expansion of the public charging network as funding streams become available. Almost all public chargepoints, whether on council owned land or not, will be owned, installed, maintained and operated by commercial businesses.

To support those without kerbside parking the Council will expand the public charging network through utilising council owned, publicly accessible car parks and land assets to provide a geographic spread of infrastructure across the city. There is an aim that 10% of parking bays within MCC publicly accessible car parks should be installed with charging infrastructure.

One of the most significant issues in relation to the installation of EV charging infrastructure is the capacity of the electricity grid and as a result collaboration with Electricity North West (ENWL) as the electricity provider will be essential. Some of these issues may be solved by installing fast rather than rapid chargers or by balancing the network to spread the load amongst a number of chargepoints at the

[4] www.manchester.gov.uk/info/500370/zero_carbon_and_climate_change/8437/electric_vehicle_charging

location. Where appropriate MCC will work with ENWL to help find solutions to these issues.

When awarding contracts to chargepoint operators (CPOs), the council will take into account the EV principles set out in Appendix 5 and give preference to those operators who:

- source electricity from renewable sources - overall, the UK is committed to a decarbonised energy system by 2035
- provide the ability to make payments for charging available by contactless debit or credit card and an associated app based system
- provide a 24 hour customer service help facility
- have a proven track record in relation to the reliability of chargepoints with a high level of availability
- ensure the accessibility of chargepoints, including for less mobile and wheelchair users, to a PAS1899 or equivalent standard
- provide clear, consistent and up to date chargepoint information, which is openly available, helping drivers choose when, where and how they charge
- provide a fair pricing structure and clear pricing information making it easier to compare prices between operators

The council will work with the growing number of commercial CPOs that are also supplementing the public network to install 6,000 public chargepoints by 2035 in accessible locations for all to use. These locations include supermarkets, retail parks, car parks, local charging hubs etc. and many of the major petrol filling station providers are also beginning to provide chargepoints.

New technologies in relation to charging infrastructure are constantly emerging. The council will consider and assess the appropriateness of these emerging technologies for the city and its residents as they develop. Some technologies have an important role to play in smoothing the load on the electricity grid, and in potentially lowering the cost of recharging a vehicle - such as smart charging. MCC will work with chargepoint suppliers to explore how these technologies can be integrated into both on-street and council car park chargepoints.

Identifying Funding Opportunities

The council will need to consider how best to access and utilise grant funding streams as and when they become available. Some consideration will need to be given to the best routes going forward to supplement these grants. Over time, we expect CPOs to be able to put forward proposals for the installation of public chargepoints in a way that could be cost neutral to the council (with or without including any grant funding as demand and chargepoint utilisation rates increase and they become more financially viable.

There may also be some limited options for revenue generation (fixed bay rentals/ revenue share) although this should not be at a scale that would make any such scheme unviable to the supplier.

Where funding allows, the Council will promote grants for those groups disproportionately impacted by the challenges of transitioning to EVs.

Table 3 below summaries our actions to accelerate the transition to EVs and the installation of EV charging infrastructure. These will be supported by a delivery plan.

Table 3: Recommended Actions

Recommended Actions
The council will take a leading role in accelerating the transition to EVs as part of the drive towards the city's 2038 net zero emissions target
The council will petition Government for the reduction of VAT charged for public EV charging to be in line with VAT rates for charging from domestic electricity supplies
The council will support residents without off-street parking but with the ability to safely and legally park at the kerbside to use suitable cross pavement solutions to enable affordable and convenient charging at home
For those residents who are unable to charge at home the council will support the expansion of the public network making it accessible to all at a rate that is both manageable and accommodates the rise in uptake of these vehicles
The council will support particular groups of residents where the transition to EVs might be more difficult
The council will identify and enable locations which could serve taxis and PHVs to increase the take up of EVs within this group, either on-street or off-street
The council will identify and enable locations that encourage the electrification of the car club fleet, either on-street or off-street
The council will negotiate with developers to ensure the most appropriate EV solution as part of new developments
The council will use its media sources to raise awareness and encourage EV uptake
The council will support the expansion and improvement of the public charging network
The council will consider the suitability of locations within its own land assets for the installation and operation of public chargepoints by private suppliers
The council will assess and consider the appropriateness of new technologies as they evolve
The council will seek to make the best utilisation of funding opportunities as they become available to expand and improve the charging network and charging opportunities to residents

6.0 Monitoring

In order to monitor the deployment of charging infrastructure the Government use metrics to compare disparities between local areas in terms of type and number of chargepoints such as chargepoints per capita and regionally, average time to walk to a public chargepoint in areas with less off-street parking and utilisation of public chargepoints

Data, in relation to both car ownership and public chargepoint availability, is collected centrally by the Department of Transport (DfT). We will continue to analyse this data to ensure that assumptions around demand modelling remain appropriate.

Local monitoring data is collected and analysed by TfGM in relation to the publicly owned infrastructure and this provides useful information on local demand for charging. Such data can help to identify future locational needs and assists with further planning the expansion of the network and includes:

- Utilisation rates
- Amount of kW charged
- Number of charging sessions
- Chargepoint down times and response times for fault repairs

MCC will also monitor similar data in relation to the installation of infrastructure under the council's own contracts.

Air quality, including nitrogen, pollutants and particulate matter, is monitored at automatic monitoring stations and diffusion tube sites throughout the city and reported annually[5]. Through this data trends in air quality can be identified although it should be noted that road traffic isn't the only source of these pollutants.

Image Source: TfGM

[5] https://cleanairgm.com/data-hub/monitoring-reports

7.0 Appendices

Appendix 1: National and Local Policy

National Policy

The table below sets out the current regional and local policy landscape

National Policy	
Decarbonising Transport: A Better, Greener Britain (DfT 2021)	Sets out the path to net zero transport in UK, it identifies the benefits it can deliver and the principles to underpin the approach to delivery
EV Infrastructure Strategy: Taking Charge (2023)	Sets out the vision, strategic aims and action plan to deliver EV infrastructure (EVI). It looks to remove lack of infrastructure as a barrier to the adoption of EVs
Zero Emission Vehicle (ZEV) Mandate (2024)	Supports the delivery of zero emission vehicles by requiring 80% of new cars and 70% of new vans sold in the GB to be zero emission by 2030 increasing to 100% by 2035.

Regional and Local Policy

The table below sets out the current regional and local policy landscape

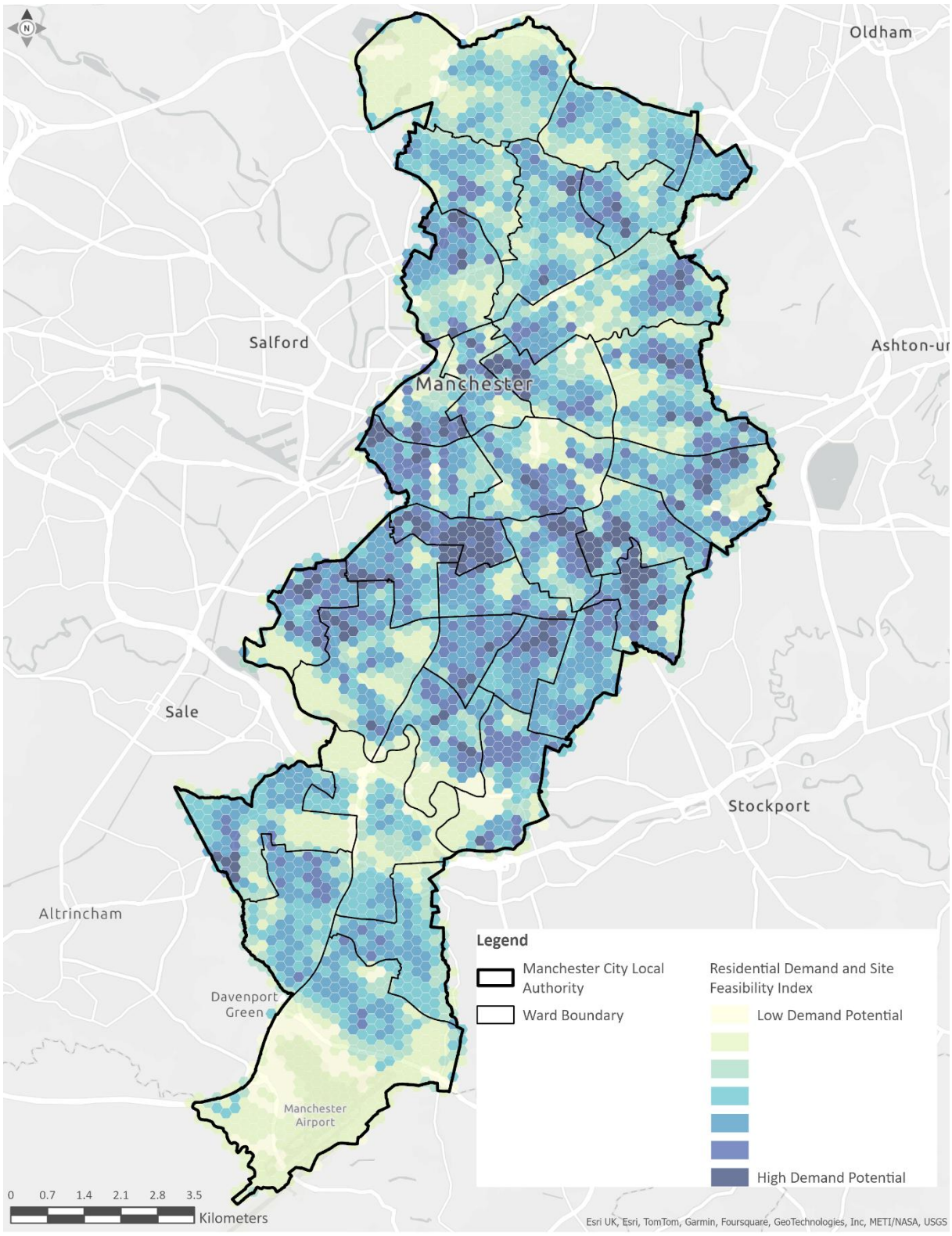
Regional and Local Policy Context

Regional	
Greater Manchester Transport Strategy 2040 (GM2040) (2017)	Includes four key elements: • to support sustainable economic growth • improve quality of life for all • protect the environment • develop an innovative city-region
Clean Air Plan (ongoing)	Aim is to tackle illegal levels of NO2 emissions at the roadside

Greater Manchester EV Charging Infrastructure Strategy (EVCI) (2021)	This is a sub-strategy to GM2040 outlined above. It provides a vision, objectives and strategic principles to inform a delivery plan for the deployment of EV charging infrastructure
Local	
Our Manchester Strategy – forward to 2025 (2020)	Aims to build a more equal, inclusive and sustainable city through 5 key priorities: • a thriving and sustainable city • a highly skilled city • a progressive and equitable city • a liveable and zero-carbon city • a connected city
Manchester Local Area Energy Plan (2021)	The Plan defines the extent of the transformation needed across Manchester to provide a robust evidence base and plan to help engage businesses and residents in accelerating towards the goal of being carbon neutral by 2038. The Plan considers a range of decarbonising options, including the growth in EVs and the necessary charging infrastructure

Image Source: TfGM

Appendix 2: Residential Demand and Site Feasibility



MCC Public EVCI

Residential Demand and Site Feasibility Index (combined score)

steer

Scale: 1:86,000
Date: 17/04/2024
Creator: BBarik

Image showing a map indicating the varying demand for EV charging across the city

Appendix 3: Types of Chargepoint and Charging Typologies

Types of Chargepoint

	Ultra-rapid	Rapid	Fast	Slow/ Standard
Power current	over 50kW (Many are 100-150kW)	43-50kW	7-22kW	7kW and under
Suitable uses	When refuelling without a break Uses: service stations, petrol filling stations, charging hubs	When parked for shorter periods and quick breaks Uses: service stations, taxis/PHVs and commercial vehicles	When parked for a short while (1-2 hours) or for longer periods overnight Uses: incidental, top up charging, destination such as shopping centres, leisure centres, parks, community uses	When parked for long periods such as overnight, Uses: home

Source: https://www.local.gov.uk/electric-vehicles-what-are-different-types-chargepoint

There is a general rule of thumb that for a 43 kW battery three times the power in kW at the chargepoint will give you the miles range which will be added every hour. This means that a standard 7kW chargepoint will add 21 miles every hour that it is charging and a rapid 50kW chargepoint will add 150 miles every hour. These values scale directly in relation to the size of the battery so would be double in a battery of 86kW.

Charging typologies

Home charging – refers to off-street or on-street charging at home, either at a private home or apartment, and is often overnight which takes advantage of longer dwell times and is best suited to slow or fast chargers generally up to 7kW

On-street charging - charging in on-street bays accommodates a range of dwell times and often provides for fast and rapid chargers

Business charging - car parks in commercial areas are often able to take advantage of long dwell times either while staff are at work or to charge fleet vehicles overnight and are best suited to fast chargers although this will depend on the business needs

Residential or local charging hubs – residential charging hubs located in residential areas with high levels of on-street parking and are again suited to fast chargers

Destination charging – this refers to charging in locations where the user doesn't reside and while carrying out other activities at your destination such as at the work-place, town/district centres, Park and Ride sites, retail parks, leisure centres and visitor attractions. This includes a broad range of dwell times and can accommodate fast, rapid and ultra-rapid chargers

On route - Motorway Service stations and petrol filling stations as well as lay-bys close to business activity. This would also include the emerging development of charging hubs. These will normally require rapid and ultra-rapid chargers as they tend to rely on a shorter dwell time

Image Source: TfGM

Appendix 4: Electric Vehicle Charging - MCC Best Practice Recommendations

Electric Vehicle (EV) chargepoints and infrastructure are recommended for the following applications:

- 1 or more residential units with any parking spaces.
- Non-residential development with any parking spaces.

EV charging recommendations:

Residential:

- On-site/allocated parking: 1 EV chargepoint (minimum 7kW*) for each dwelling.
- Unallocated parking: minimum 10% EV (minimum 7kW*) chargepoints, and cable ducting for all spaces.

Non-residential:

- 10 or less parking spaces: minimum 1 EV chargepoint, and cable ducting
- 11 or more parking spaces: minimum 20% EV chargepoints and cable ducting

Charging units dependent on end-use as follows:

- Minimum 7kW*: offices, hotels, nursing homes, sheltered accommodation, industrial units, retail units.
- Minimum 22kW*: supermarkets etc.
- Minimum 50kW*: service stations etc.

**Mode 3, 7kW (32A) single phase, or 22kW (32A) three phase, and for 50kW Mode 4 rapid charging may be required. See British Standard BS EN 61851-1:2019.*

[1] https://www.gov.uk/government/publications/electric-vehicle-homecharge-scheme-minimum-technical-specification/electric-vehicle-homecharge-scheme-minimum-technical-specification

Appendix 5: EV Principles

Below is a set of principles for how we will approach the expansion and opportunities for EV infrastructure going forward:

- **Integrated** – all infrastructure installed should allow anyone to plug into any chargepoint with transparent price charging and, where possible, use contactless payment systems.

- **Inclusive** – the location of charging infrastructure should ensure that residents in those areas where there is limited ability to charge off-street are not disadvantaged. This might be through local points and hubs in residential areas, for those travelling perhaps points at transport hubs, destination locations, etc.
  Consideration will also need to be given to disabled drivers and the ease of accessing charge points. Minimum standards and best practice guidance is provided in PAS 1899: 2022, EV – Accessible Charging – Specification in relation to the installation of chargepoints specifically adjacent to designated accessible parking bays.

- **Resilient** - consideration will need to be given to the resilience of the electricity grid and its capacity for meeting future charging demands. Future proofing the network will also need to be taken into account as demand increases.

- **Safe and secure** – charging infrastructure should be located where they are visible, overlooked with natural surveillance, have good lighting (either natural or artificial) and are perceived as a secure location.

- **Reliable and well Maintained** – the network needs to be reliable and well maintained for residents to have confidence in the provision in order to promote take up of EVs. Users need to be able to check the real live status of chargepoints and their availability. Having groups of charge points may help to resolve this issue. There is also a need to consider how best to manage non-EVs parking at chargepoint locations.

- **Viable** – where possible the operation and maintenance of publicly owned charging infrastructure should be cost neutral where possible.

- **Environmentally responsible** – electricity used at charging points should, where possible, be from renewable resources and also utilise local generation and storage. Installation, operation and maintenance of public charging points should use sustainable materials and construction methods where feasible.

- **Healthier** - the transition to EVs will lead to clean air benefits and can be encouraged through the provision of a well-planned and delivered EV infrastructure network. Such infrastructure will also provide health benefits when integrated with other active travel modes such as cycle hire and are provided as part of wider placemaking initiatives. All chargepoints should be located in a manner that doesn't create obstructions, particularly when located on the highway so as not to impede pedestrians and those with particular mobility needs. As a result a footway width of 1.8 metres will be considered the minimum width to be maintained.