ITEM 07

Electromobility – Zero Emission Travel

Green City Region Partnership

23rd January 2025

Megan Black & Richard Banks – Transport for Greater Manchester

BEE NETWORK

Transport for Greater Manchester

Background & Purpose

- Electromobility is an umbrella term covering the use of electric cars, and other modes of transport such as electric buses. The common feature of all of them is that they are driven electrically, have a means of storing energy on board, and obtain their energy mainly from the power grid.
- Greater Manchester has set an ambitious target to become carbon neutral by 2038.
- To achieve this, the region needs to drastically reduce its greenhouse gas emissions from various sectors, including transport, which accounts for 30% of the total emissions in Greater Manchester. An increase of Electromobility, alongside a reduction in private car use, is important to Greater Manchester's ability to reduce transport emissions.
- GM's EVCI Strategy approved by the GMCA September 2021. The main rationale of strategy is the availability of and access to charging infrastructure is recognised as a critical barrier to the adoption of EVs.
- This slide deck updates on the "Electromobility: Zero Emission Travel" report, presented to the Bee Network Committee in September 2024.

Contents

Multi-modal presentation, covering:

- Growth and forecast demand of Electric Vehicles and Charging Infrastructure.
- Progress to electrification across taxi, rail, bus & e-bikes, scooters and cargo bikes.
- Update on EV programmes including the Local Electric Vehicle Infrastructure (LEVI) fund, and issues relating to charge point siting.
- Indicators introduced to monitor the transition to zero emission journeys in the region, through the adoption on a Zero Emission Journey Tracker and a tracker to monitor progress towards facilitating charging infrastructure in residential areas without a significant amount of off-street parking.

Electric Vehicle Uptake: Growth & Forecast Demand

Where we are:

As of August 2024, there are over 1.2m fully electric cars in the UK, approximately 3.5% of all cars. EVs account for 17% of all new cars registered this year.

In 2015, there were 752 electric cars registered in Greater Manchester and by 2019 this had increased to 2,000 cars. By the middle of 2024, GM EV ownership increased to over 13,000 in private keepership.

GM Travel Diary Surveys (TRADS) 2023 survey estimated that 3% of the distance driven in a car/van by GM residents was in an EV.

Where we need to be:

TfN's Decarbonisation tool shows that across the North, a minimum of 51% of the vehicle fleet will need to be battery electric in 2035 to support their decarbonisation trajectory.

Note: the Government has launched a consultation on phasing out the sale of new petrol and diesel cars from 2030 – closes 18 Feb. Phasing out sales of new petrol and diesel cars from 2030 and supporting the ZEV transition - GOV.UK

EV Charging: Growth & Forecast Demand

Where we are:

As of August 2024, there were 68,273 chargepoints across the UK, a year-on-year increase of 41%

In 2019, there were around 450 publicly available chargers across Greater Manchester, providing circa 900 connection points. In September 1,444 chargers (296 ultra, 286 rapids, 317 fast, 545 slow). This provides over 2,200 public connection points.

ENW also advise that there are circa 11,500 home chargers in April 2024. Recent research by Autotrader estimates the saving per 1000 miles, compared to an ICE vehicle, is circa 8 times more with a home charger compared to commercial charging.

The 2021 GM EV strategy provided a planning scenario with charger requirements of 2,700 fast and 300 rapid public chargers in GM by 2025.

Where we need to be:

The stated TfN EVCI visualisation tool requirement is over 23,000 public chargepoint connections in Greater Manchester by 2035. This is a 10 fold increase over the next decade. The Greater Manchester Local Area Energy Plan states that EV ownership is projected Zap Map data acquired by TfN

Publicly accessible devices, home chargers & vehicles

Charge Points								Vehicles Q2 2024***		
	Publicly Available Devices*									
Authority	Locations	Devices	Connectors	Ultra	Rapid	Fast	Slow	Home Chargers**	Private Keepership	Company Registered
Bolton	30	71	120	12	25	16	18	1,112	1,362	860
Bury	35	57	106	15	14	15	13	974	1,085	1084
Manchester	91	424	572	54	22	81	267	1,173	1,572	2,882
Oldham	47	109	183	33	30	21	25	652	914	628
Rochdale	27	81	136	23	21	19	18	750	1,026	559
Salford	58	167	275	10	20	55	82	820	1,061	763
Stockport	45	126	214	38	54	17	17	1,999	2,041	93,932****
Tameside	28	52	97	11	14	13	14	769	932	486
Trafford	53	215	310	80	46	34	55	1,895	1,966	924
Wigan	48	142	216	20	40	46	36	1,394	1,742	730
Total	462	1444	2229	296	286	317	545	11,538	13,715	102,851

*Data supplied by TfN/Zap Map September 2024 data
** Supplied by ENW, April 2024
*** DfT Statistics
**** In Q2 2020 a national leasing company began registering vehicles from all over the NW and beyond to a postcode in the Stockport Council area. TfGM is in discussion with the company to obtain a breakdown of these to the "true" location.

Progress to electrification - Taxi

Zero emission private hire and Hackney vehicles licensed by a Greater Manchester Authority – August 2024					
Authority	PHV Electric	Hackney Electric	Total	Total Number of Licensed Vehicles	% of Licensed Vehicles that are EVs
Bolton	8	0	8	1544	0.52%
Bury	5	1	6	747	0.8%
Manchester	39	26	65	4002	1.62%
Oldham	13	1	14	1607	0.87%
Rochdale	6	0	6	1701	0.35%
Salford	13	0	13	968	1.34%
Stockport	16	0	16	1023	1.56%
Tameside	10	8	18	781	2.3%
Trafford	11	0	11	1005	1.09%
Wigan	21	3	24	977	2.46%
Total	**142**	**39**	**181**	**14355**	**1.26%**

Progress to Electrification - Bus

As of 8 January 2025: There are 206 ZEBs operating in Greater Manchester.

By the end of 2025, further ZEBs are due to come into operation in Greater Manchester taking the total electric fleet to approx. 25%.

Progress to Electrification - Rail

Since the early 2010's there has been a series of projects to electrify rail lines in Greater Manchester the progress and plans of electrifying various rail lines in Greater Manchester, which allows the conversion of diesel traction to electric.

The government's deadline of 2040 for the use of diesel only trains, and the expectation that new train fleets will use alternative technologies such as battery or hydrogen, or have bi-mode capability to operate on non-electrified lines, will help the journey to zero emission travel.

Rail Operators have plans for the replacement of the old diesel trains used on local services, and both Northern and TransPennine Express are looking for new bi-mode trains. Some freight operators are introducing bi-mode and tri-mode locomotives, but the lack of full electrification is a barrier to faster adoption of sustainable traction.

Progress to Electrification – E Scooters, E Bikes & E-Cargo Bikes

- Both Amazon and Zedify are using **e-cargo bikes** for last mile deliveries within Greater Manchester. Greater Manchester was chosen for pilots of this infrastructure, in part, due to the cycling infrastructure meeting the requirements of e-cargo bikes.

- To support a ‘green’ restart of local travel and help mitigate reduced public transport capacity, in July 2020, DfT made regulations allowing trials of **rental e-scooters** to be fast tracked and expanded. As a result, a trial in Salford has been developed and continues to run with the operator Lime – the latest trial extension has given a license for local authorities to continue until May 2026, when legislation is expected on the legality of this mode.

- The current Starling Bank Bike Hire scheme has 20% **eBikes** (~300) and these outperform standard bikes as they are ridden at least twice as often. In May 2024 there were 2.71 rides per eBike per day and 1.26 rides per standard bike per day.

Progress to Electrification: Metrolink and PPA

In anticipation of an increase in electricity demand for public transport, TfGM are progressing work on the procurement of a Power Purchase Agreement (PPA). A PPA is a contract between a buyer and a seller of electricity, which will be from incremental renewable sources to the national grid. The buyer agrees to pay a fixed price for a certain amount of electricity over a specified period of time, while the seller guarantees to deliver the electricity from a specific renewables project.

PPAs provide a stable and predictable cash flow allowing investors them to raise the necessary capital to fund investment in renewable energy sources; and to protect buyers from the significant ‘spikes’ that have occurred in energy prices in recent years.

Progress to Electrification: Metrolink and PPA Cont.

An initial PPA for Metrolink's electricity consumption, would act as a pathfinder, enabling future PPAs to address future demand growth from an electrified bus fleet and to encompass other organisations within GM.

It is anticipated that the Pathfinder PPA will be concluded in 2025 with energisation of the renewable power facility anticipated to be in 2027 / 2028, subject to the final agreement.

EV Programme Update

Dedicated Taxi Electric Vehicle Charging Infrastructure

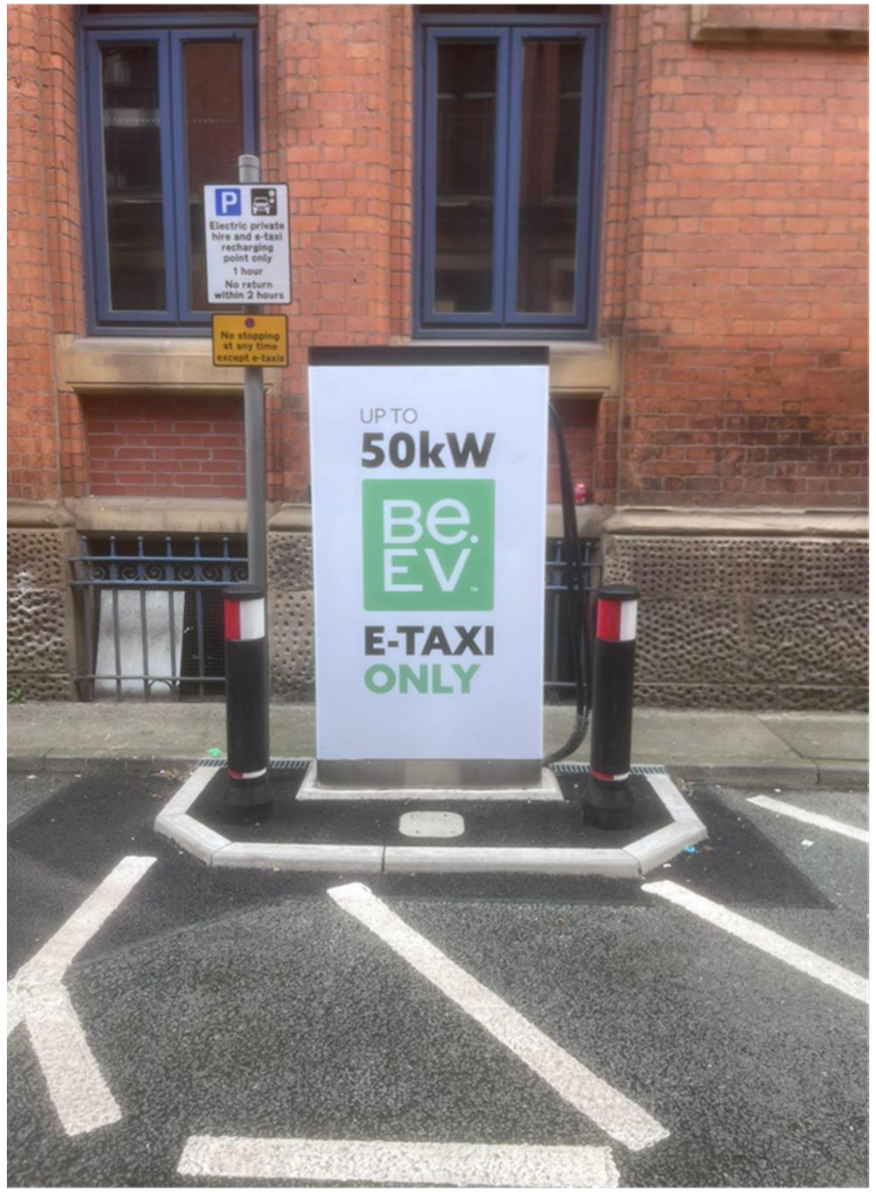
- 60 charging points are now live

Early Measures – EV Awareness and Infrastructure

- 24 rapid charging points are live. Final site (Chadwick St booked for meter installation 7 Feb)

Local Electric Vehicle Infrastructure (LEVI) fund/CRSTS

- Capital element of GM's LEVI allocation £16,158,000
- £8.5m allocated with GM CRSTS funding for the roll out of EVCI, £1.086m funding allocated to the 10 GM LA's to support capability (resource) requirements. remainder, using a formula agreed at the GMCA in March 2023, allows authorities to bring forward proposals of their own or to include their allocation in LEVI procurement.
- OZEV funding is designed to move away from previous funding models of an owner-operator model, into that of a more commercial arrangement. Aim of funding is to:
    - Deliver a step-change in the deployment of local, primarily low power, on-street charging infrastructure across England and to
    - Accelerate the commercialisation of, and investment in, the local charging infrastructure sector.



Installing EV Infrastructure

The key considerations in installing infrastructure include;

- Finding suitable locations for the chargers that are accessible, convenient, and safe for EV drivers, as well as compatible with the existing electricity network, Streets for all Design Guide and planning regulations.
- Individual Local Authority appetite for on-street charging (compared to off street charging, in for example, Local authority car parks)
- Local Authority interest in different types of chargers for example flush fitting chargers or pedestal chargers and the potential, and the mechanism, for charging from street lighting columns which has been implemented successfully elsewhere in the country but not, to date, in Greater Manchester.
- Securing the cooperation and consent of landowners, and other stakeholders who are involved in the installation and maintenance of the chargers.
- Consideration of pavement channels/gullies for home charging, and the implications of this

Monitoring Electric Travel

GM has adopted two new indicators:

1. the percentage of residential properties (without access to off-street parking) that are within 300m of charging infrastructure. This allows Greater Manchester to track progress towards facilitating charging infrastructure in residential areas without a significant amount of off-street parking. **2024 baseline = 22%** (reported quarterly)

2. a Zero Emission Journey Tracker. This would allow GM to monitor the progress of journeys by mode that do not emit any greenhouse gases or air pollutants from their operation, which supports the ambition for the city region to be carbon neutral by 2038. **2023 baseline = 36%** (TRADS data – GM residents) (reported annually)

Currently we have the Right mix tracker – this recognises that different modes of transport have different strengths and weaknesses, and that the best transport system is one that offers a range of options that suit different needs and preferences.

A zero emission tracker would recognise that we need to see all journeys switch to transport modes that do not emit any greenhouse gases or air pollutants from their operation and to monitor the transition to zero emission journeys in the region.

Zero Emission Journey Tracker

Journey Type	Zero emission position	Baseline annual trips 2023	GM Ambition
Walking	100%	630,400,000	To connect all communities in Greater Manchester with a comprehensive walking, wheeling and cycling network of safe and attractive routes that connect people to the places they want to go and to make active travel the natural choice for short journeys– see Home | TfGM Bee Active
Cycling	100%	44,500,000	
Bus	5%	83,000,000	The full electrification of Greater Manchester's bus fleets (and supporting infrastructure) by 2032, with 50% of the fleet to be zero emission by 2027 – see Greater Manchester Bus Strategy | Bee Network | Powered by TfGM
Metrolink	100%	28,000,000	To extend the Metrolink network to new areas and to increase the frequency and capacity of the existing lines – see The future of rapid transit | Bee Network | Powered by TfGM
Local Rail	35%	21,300,000	To work with the wider rail industry to maximise decarbonisation through extending electrification, replacing diesel trains through bi- or tri-mode trains and removing diesel operation under electrified lines.
Cars	1%	1,180,100,000	To promote the shift to electric vehicles as well as plan for growth in a way that reduces dependency on the car by ensuring that communities have easy and local access to amenities while encouraging sustainable modes of transportation.
Taxi	1%	38,600,000	To enable the transition to Low Emission Vehicles for the GM taxi fleet.
All Trips	36%	2,025,900,000	An integrated London-style transport system which will join together buses, trams, cycling and walking and rail.

TRADS data 2023 – GM residents

Off-street charging tracker

The table below show the percentage of residential properties without access to off-street parking that are within 300m of Electric Vehicle Charging Infrastructure. This distance is approximately 5 minutes' walk.

Authority	% of residential properties without access to off-street parking that are within 300m of charging infrastructure	
	JUNE 2024	**SEPT 2024**
Bolton	11%	12%
Bury	14%	14%
Manchester	30%	28%
Oldham	19%	20%
Rochdale	13%	12%
Salford	35%	34%
Stockport	16%	18%
Tameside	17%	18%
Trafford	25%	25%
Wigan	13%	16%
Total	**22%**	**22%**

Updates since BNC

Accessibility of electric vehicle charging infrastructure

PAS 1899 covers accessible electric vehicle charge points for those with diverse accessibility needs.

It provides guidelines on the physical environment, placement, information provision and design.

The provision of clear standards will help to improve the experiences of disabled people using public chargepoints and to ensure the transition to zero emission transport is inclusive for all.

Must consider:

- **Charge point design (provide for a range of uses)** – Height, Cables, Visual interface, Lighting, Signage, Security
- **Charge point placement and positioning (can be easily viewed, reached and operated from a fully standard position)** – smooth & stable ground, no low-level obstacles, bollards etc, space around, reach
- **The built environment around a public chargepoint** – e.g. street furniture should not present obstacles to disabled people
- **Chargepoint interfaces and digital platforms** – designed with consideration of accessibility e.g. content is accessible to a broad range of user, including font, size, colours, contrast and layout.

Government guidance on pavement channel solutions [1/3]

New guidance issued before Christmas confirms the decision to permit the installation of a cross-pavement solution in the public highway rests with the relevant LA. The document outlines the considerations and procedures for local authorities when approving and managing cross-pavement electric vehicle (EV) charging solutions.

It sets out that for residents, domestic charging is often more cost-effective and convenient compared to using public infrastructure.

Cross-pavement solutions:

- ✓ facilitate the safe transfer of an electric vehicle (EV) cable across or through pavements, allowing access to domestic tariffs for residents without dedicated off-street parking in certain cases.
- ✓ reduce the risk of trailing cables and allow a safe way of charging without off-street parking.
- ✓ enable drivers to access domestic flexible smart tariffs which further reduce the price of charging and benefit the electricity grid and enable increased utilisation of renewable energy.

Government guidance on pavement channel solutions [2/3]

There are 2 main types of solution that have been subject to trials and are currently on the market.

Cable channels embedded within the pavement

Sometimes referred to as ‘gullies’, these are proprietary systems designed to temporarily house the charging cable whilst the vehicle is being charged. The cable is removed once charging is complete.

Permanent under pavement cables

Solutions where a permanent charging cable is laid below the pavement, connecting the domestic chargepoint via removeable bollards, a lance, or other connectors to the vehicle.

There are 2 types of ownership model a local authority may wish to follow.

Model 1 - local authority owned

The local authority owns the cross-pavement solution and is responsible for installation and maintenance. The resident will then pay an up-front one-off fee or an ongoing subscription to use it

Model 2 - supplier owned

The supplier of the cross-pavement solution retains ownership of the solution. The supplier is responsible for maintenance and organising the installation once they have received necessary permissions from the local authority.

.

Government guidance on pavement channel solutions [3/3]

The decision to permit the installation of a cross-pavement solution rests with the relevant local authority. Local authorities should think about the following factors when considering their approach to cross-pavement solutions:

- Parking Availability: Authorities must assess parking availability near the applicant's property, ensuring no ownership or priority is implied, except for designated disabled bays.
- Physical Site Factors: Considerations include pavement construction, width, safety, and existing assets like utilities and tree roots.
- Maintenance Responsibilities: Maintenance responsibilities should be clearly defined, including regular and long-term tasks, and may involve fees or resident responsibilities.
- Permissions and Standards: Necessary permissions and compliance with standards for installation and apparatus must be obtained from relevant authorities.

For any cross-pavement solution proposed, a local authority should be satisfied that the apparatus itself is suitable and safe before agreeing for it to be placed on a public highway.

Manchester City Council CRSTS EVCI proposals

In March 23, GMCA agreed that CRSTS EVCI allocations could be allocated by formula to the LAs & TfGM

A number of Local Authorities have agreed to use their allocation within LEVI.

However, Manchester City Council are the first authority to bring forward a proposal which sits outside of LEVI.

The following slides outline this proposal and are being recommended to BNC for approval drawdown.

MCC Scheme Proposal: Cable Channels

Allocation	£125,000
Aim	Install 200 cable channels by end of March 2027 – costs are expected to be £1,000 - £1,200 per installation for residents
Purpose	To provide a convenient and cheaper option for those residents that are able to safely and legally charge at the kerbside
Method	• Installation by MCC contractors following application from resident and assessment of location – becomes Highways Authority asset • Procurement through Highways (product not service) • Initial pilot will be taken from those residents who have already expressed an interest and if successful then this will be rolled out to all residents with an introduction of the grant funding where appropriate
Funding to provide	• Initial order • Provide for approx. 100 fully funded channels for specified demographic groups while funding lasts to end of March 2026 • **Going forward expected to become BAU fully funded by residents**

BNC Capital programme Report:
"The "Electromobility: Zero Emission Travel" report, presented to the Bee Network Committee in September 2024, detailed that officers are working to evaluate the options for the implementation of cable channels. While we are awaiting formal guidance from the Department for Transport on their use, Highways officers believe that Manchester's proposal will serve as a valuable pathfinder as authorities examine the practicalities of this type of infrastructure."

MCC Scheme Proposal: Fit & Flush

Allocation	£733,160
Aim	Install 6-8 hubs of 7-10 chargepoints (max.80) by end of 2025 – unit cost of £7,600 - £9,500
Purpose	• MCC are keen to understand the benefits of this subscription based model including within resident parking permit areas • Potential to minimise pavement clutter
Method	Trojan are currently the only suppliers of this particular technology. They will install and operate this particular scheme Procurement routes are still to be discussed
Funding to provide	Up to 8 hubs (max 80 chargepoints). There is potential for this to be part funded by Trojan which could either allow for the consideration of additional hubs or freeing up funding for an additional scheme (TBD)

MCC Scheme Proposal: Lamppost Charging

Allocation	£50,000
Aim	Install up to 50 lamppost chargers by end of March 2026 Cost of £1,000-£2,000 per unit
Purpose	Where there are suitable columns located at the kerbside this technology can provide an alternative for residents, particularly for overnight charging in residential areas
Method	TBD Further discussions are required in relation to the PFI contract arrangements with Amey and discussion around potential procurement routes
Funding to provide	Installation of up to 50 chargers

Note: Lamppost opportunities are limited within the city as many streetlighting columns are located to the rear of the pavement and therefore present a greater challenge and a more expensive option

Discussion & Questions