

Midlands Connect – Technology and Innovation Program

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“Midlands Connect is the strategic **transport partnership** of our region”.

Brings together 22 Local Authorities, 9 Local Enterprise Partnerships.

Along with National Highways, HS2 Ltd, Network Rail and our Sponsor the Department for Transport.



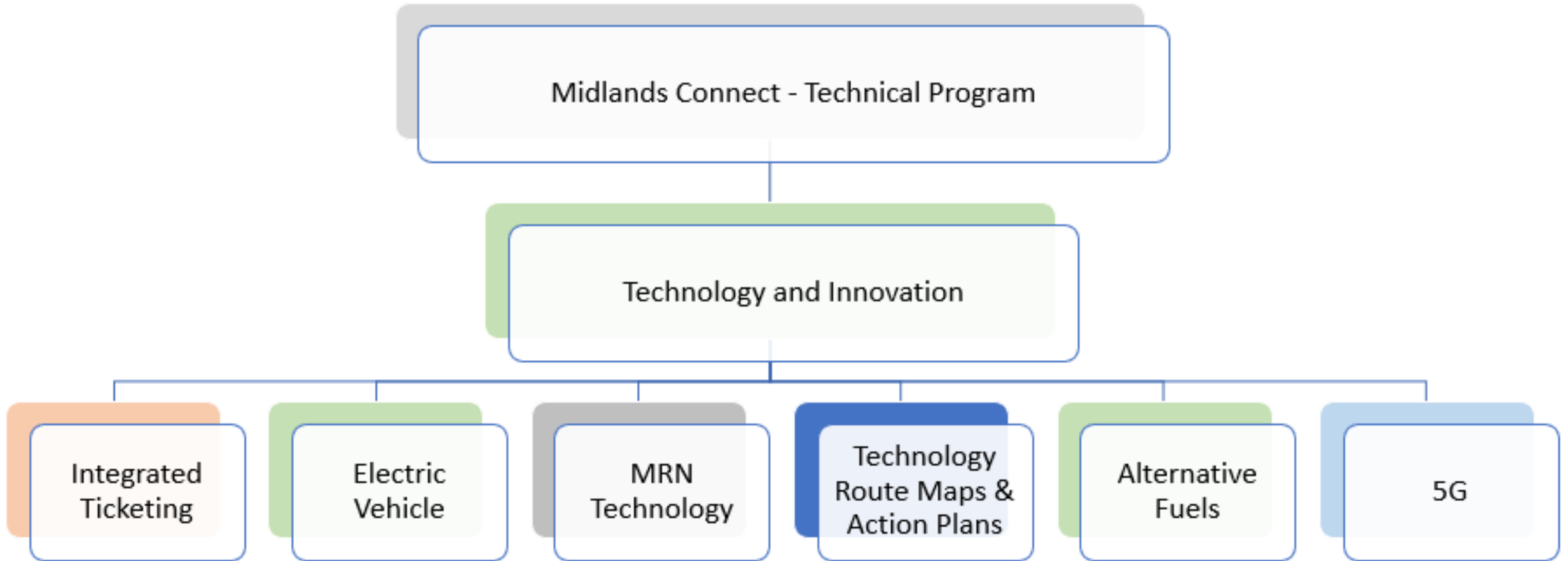
STBs & MC partners



Midlands Connect & Midlands Engine	Airports	Shire & Unitary Authorities	West Midlands Combined Authority (WMCA) Councils	Non WMCA City Councils	Chambers of Commerce	Local Enterprise Partnerships	Government Agencies	Government Departments
Midlands Connect	Birmingham Airport	Derbyshire	Birmingham	Derby	Black Country	Black Country	Great British Railways	Department for Transport
Midlands Engine	East Midlands Airport	Herefordshire	City of Wolverhampton	Leicester	Coventry & Warwickshire	Coventry & Warwickshire	National Highways	Department for Business, Energy and Industrial Strategy
		Leicestershire	Coventry	Nottingham	East Midlands	Derby, Derbyshire, Nottingham, Nottinghamshire (D2N2)	HS2	Department for Levelling Up, Housing and Communities
		Lincolnshire	Dudley	Stoke-on-Trent	Greater Birmingham	Greater Birmingham & Solihull	Network Rail	
		Nottinghamshire	Sandwell		Herefordshire & Worcestershire	Greater Lincolnshire		
		Rutland	Solihull		Lincolnshire	Leicester & Leicestershire		
		Shropshire	Walsall		Shropshire	The Marches		
		Staffordshire	West Midlands Combined Authority		Stoke & Staffordshire	Stoke & Staffordshire		
		Telford & Wrekin				Worcestershire		
		Warwickshire						
		Worcestershire						

Figure 3: The partners that we work with

Technology and Innovation Program

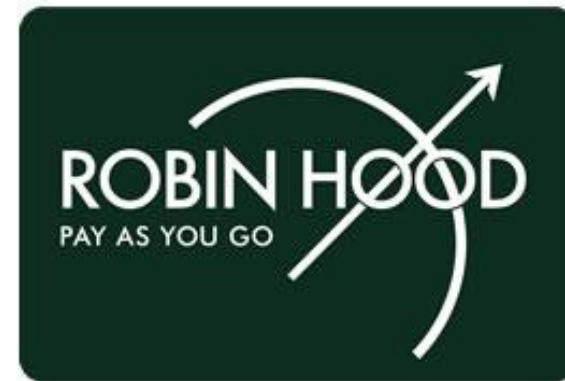
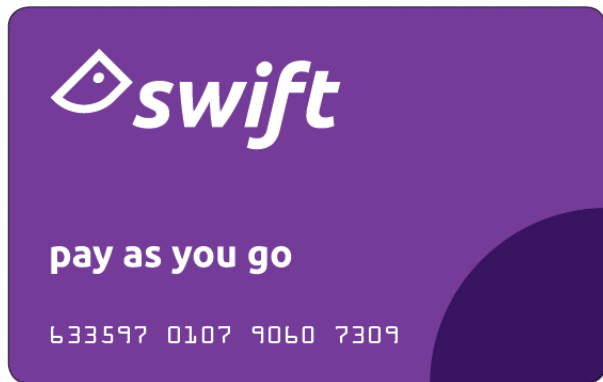




Integrated Ticketing

Smart Ticketing Midlands Vision

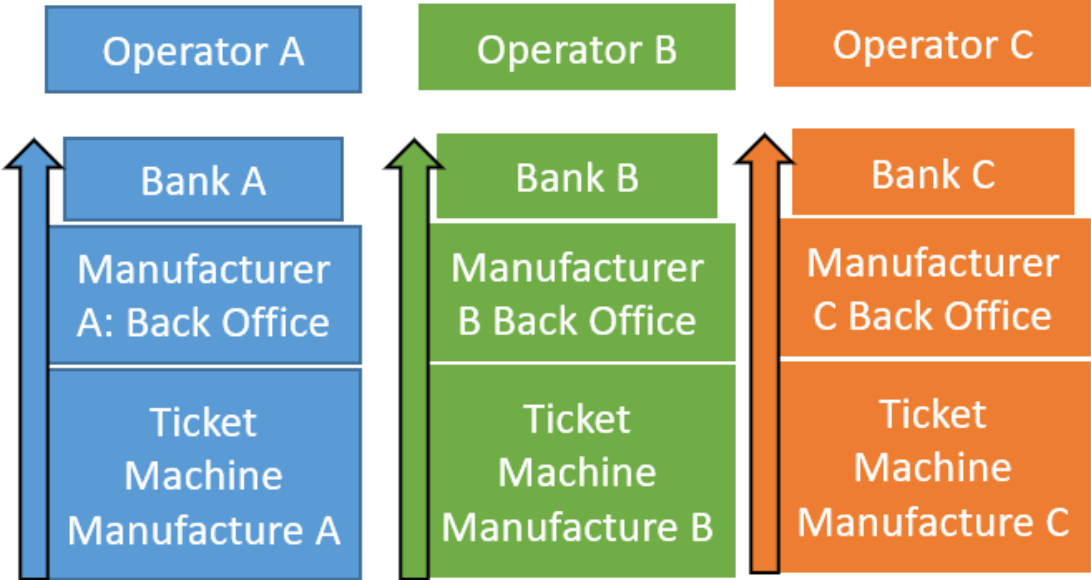
- “A single card or account that is acceptable to travel on public transport anywhere within the Midlands”
- Making ticketing and travelling options simpler and more transparent across the Midlands
- Enable seamless travel between different operators and all modes of transport
- Promote Swift and Robinhood schemes in Midlands
- Leverage existing relationship in the region



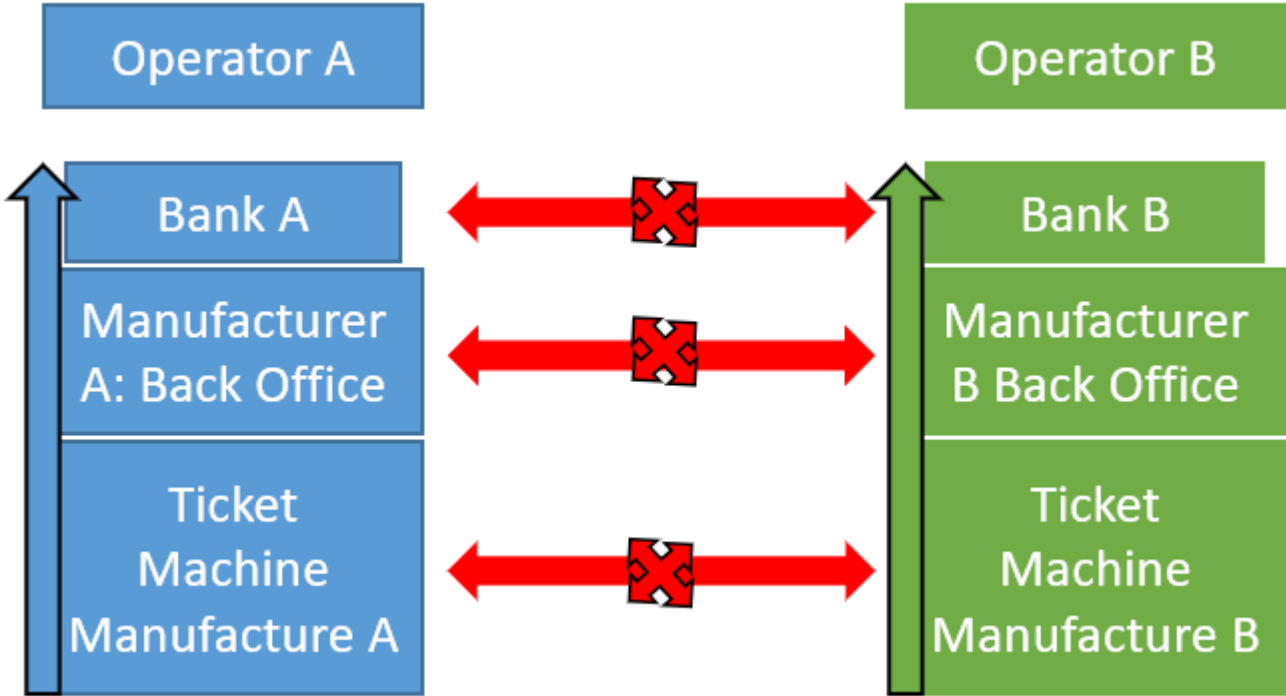
The Challenge



Each operator has purchased their own technical solution for contactless bank card acceptance



The contactless bank card solutions purchased by operators cannot communicate with each other



Bus Operator Hardware (ticket machine + payment provider)



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+



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2017 – 2021

2018

In partnership with TfWM, NCC and ROG – funded and designed the functional/technical specification (Broker Solution)

Budgetary asks to DfT for £20m – paused due to other existing national ticketing program

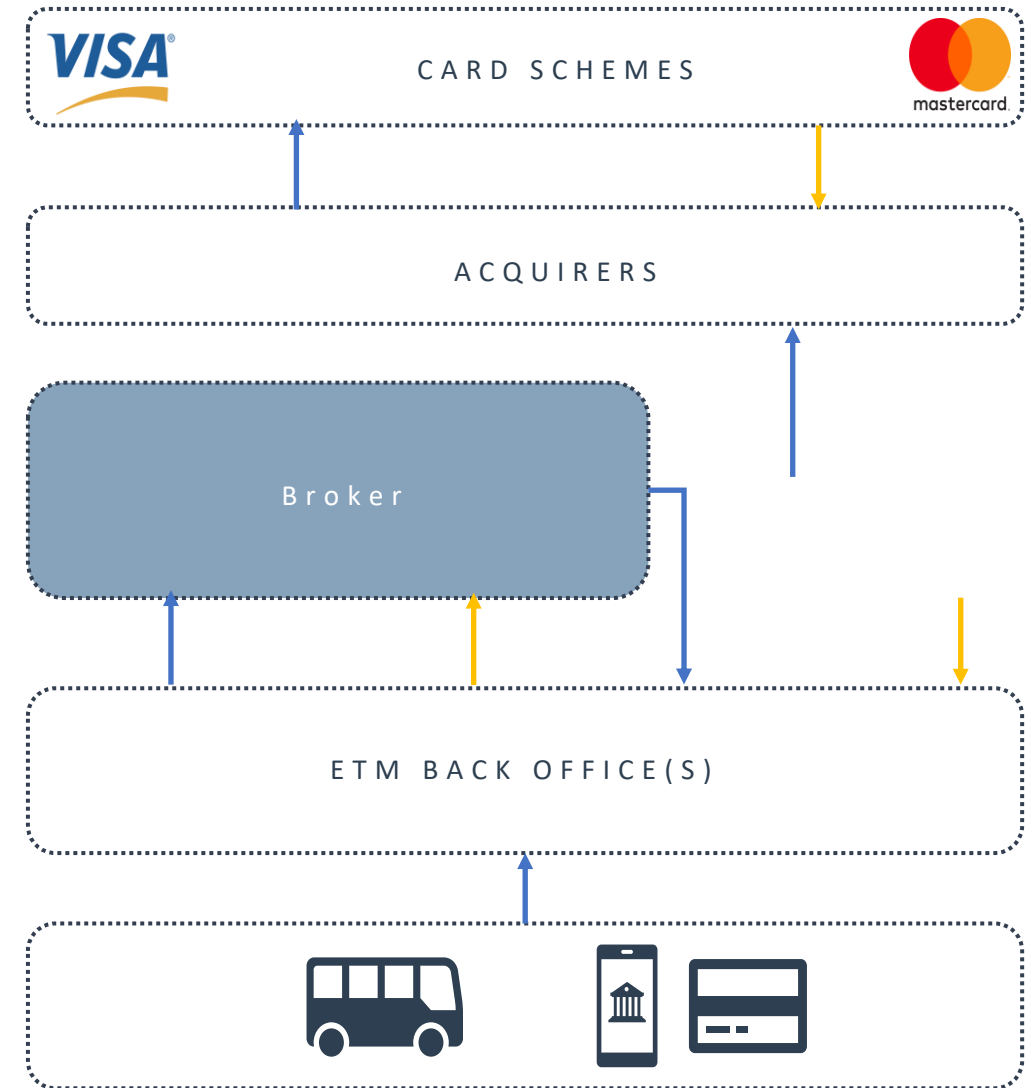
2021

Updated the Broker business case with input from TfWM and NCC

Continuous engagement with multiple LTAs, DfT and soft market testing of the Broker Solution

Proposed Broker Solution

- A trip aggregation service for trips occurring within the multi-operator scheme (aggregating trips across multiple operators)
- A revenue apportionment service for the multi-operator scheme (ensure each operator receives the correct revenue for multi-operator trips)
- Minimise the effort to integrate to the broker
- Minimise impacts to the normal back office / PSP transaction processing flows
- Minimise PCI-DSS implications
- It does not prevent single-operator capabilities (single-operator capping, aggregation, offers, etc.)
- Minimise GDPR implications
- It does not require customer registration
- Support multi-operator M2 aggregated PAYG across one or several transit schemes or regions



DfT BSIP Bulletin – 19th May 2022

Next Steps for Ticketing

We have received a number of queries from LTAs over next steps for ticketing.

We are supporting the delivery of a single, nationwide solution to enable the integration of the back offices of different bus operators. Work is underway to develop an Outline Business Case with Confederation of Passenger Transport (CPT), Transport for West Midlands (TfWM) and Midlands Connect (MC) to develop a 'broker' system subject to a satisfactory case being made.

A broker would enable operators, participating in ticketing schemes arranged through their EP, to apply multi-operator pay-as-you-go (PAYG) fares capping and quickly apportion revenue between participants. We hope to have clarity on the cost, benefits, and delivery timeframe of the investment by summer 2022.

To enable the establishment of successful PAYG schemes, individual back offices may require minor upgrades to enable fares capping. We would encourage discussions with your respective bus operators to confirm any changes needed.

Midlands Connect will be developing guidance and materials to help LTAs and operators in their preparations for integration into the broker solution once it is ready for deployment.

Working with Transport for West Midlands, CPT and Midlands Connect we plan to host a workshop to give LTAs an opportunity to learn more about the proposed system and provide input as the business case is developed. Further information will be issued shortly.

In the meantime, please consider how any existing paper or smartcard-based ticketing products can be made more attractive and user-friendly for local bus users.

Recent developments (2022 till now)

Workstream 1

- Development & implementation of Broker in WMCA and NCC area

Workstream 2

- National – Outline Business Case for Broker

Workstream 3

- Preparing LTAs and other STBs for broker

Workstream 1

1. TfWM got access to £18m to develop broker solution for West Midlands and then wider Midlands
2. TfWM have agreed to fund the CAPEX with OPEX eventually being provided by the operators
3. In progress – Joint Venture (TfWM and Project Coral)
4. Project team includes TfWM, MC and Project Coral
5. Tender spec is under review
6. PIN notice to be issued very soon
7. Currently aiming for a supplier day in October
8. MC will make sure the solution can be expanded to other Midlands LAs.

Workstream 2 - National Outline Business Case for Broker

- DfT is supportive of a single multi-operator ticketing solution for England
- Identifying broker as the optimal solution workable outside London
- MC is leading on the National OBC work with DfT and TfWM – Bus + Tram
- National OBC will be completed over the next two months
- In discussions with DfT to scope the next stages of development.

Workstream 3: Preparing Midlands LTAs and other STBs for Broker

1. The work will include:
 - Midlands wide assessment of LTAs and bus operators hardware/back-office
 - Guidance on setting up a multi modal and multi operator ticketing scheme
 - Guidance and materials for integration into broker
2. Work is complete but have a mix of data and information – with key elements missing across the board. The information will be recovered on an individual basis working with operators and LTAs
3. MC will be setting up an Integrated Ticketing Advisory Forum (ITAF) over the next few months to help Midlands LTAs and national STBs with the onboarding process and broker requirements

Work in progress.....



Midlands Connect
Transport | Investment | Growth

Multi-modal product trial – Bus, Tram & Rail

- Research into specific travel corridors across Midlands – East to West or within East Midlands where a multi-modal product can be trialled
- Review of rail demand patterns in MC area – door to door journey from various data sets like MC's Rail Evidence database, MiRANDA and MOIRA
- Identify Customer, Fares and identifying a trial corridor
- Stakeholders engagement for the trial corridor
- Technology options and implementation plan for the trial corridor
- Expected to commence work on Oct, delivery in 3-4 months.

Regional MaaS Ecosystem Study

- Benefits of MaaS system are known
- Review at regional and national level, who is doing what
- How can we leverage existing systems and infrastructure
- What are the various commercial models?
- How can we make it commercially successful longer term
- What does a Midlands wide MVP look like?
- STBs USP: Economies of scale across region
- Expected to commence work on Oct, delivery in 3-4 months



A close-up photograph of a person's hand plugging a charging cable into the port of an electric vehicle. The image is overlaid with a semi-transparent blue filter. The text 'EV Charging Infrastructure in Midlands' is centered over the image in a white, sans-serif font.

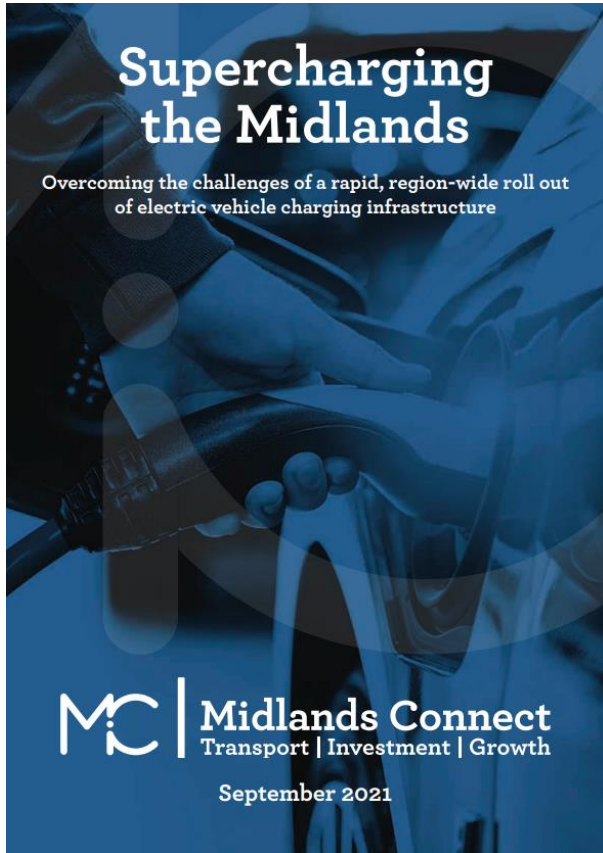
EV Charging Infrastructure in Midlands

Technology Gap Analysis

Rank	Technology
1	Electric vehicle fast charge points (7-22kW)
2	Electric vehicle rapid charge points (43-50kW)
3	Account based CPC Model 2 / 3
4	Electric vehicle ultra-rapid charge points (150kW+)
5	MaaS applications
6	Contactless card centric payment systems e.g. ITSO Swift and Robinhood (smart cards with credit required prior to use)
7	Contactless Payment Card (CPC) Model 1 (prepay as you go)
8	Demand Responsive Transport (DRT) digital infrastructure
9	Micro mobility (bicycles, eBikes, eScooters etc)
10	Bus Rapid Transit, Very Light Rail (VLR) and Autonomous VLR

Accelerating EV charging in the Midlands

In 2021 we published our Regional Infrastructure Strategy



EV Charging Strategy and Policies

EV Charging Technology Standards

Baseline Assessment

EV Charging Monitoring, Evaluation and Validation

Forecasting Future Trends

Inhouse EV Forecasting Tool



EV and EVCP forecasts

EV Uptake:

In the Midlands we are expecting:

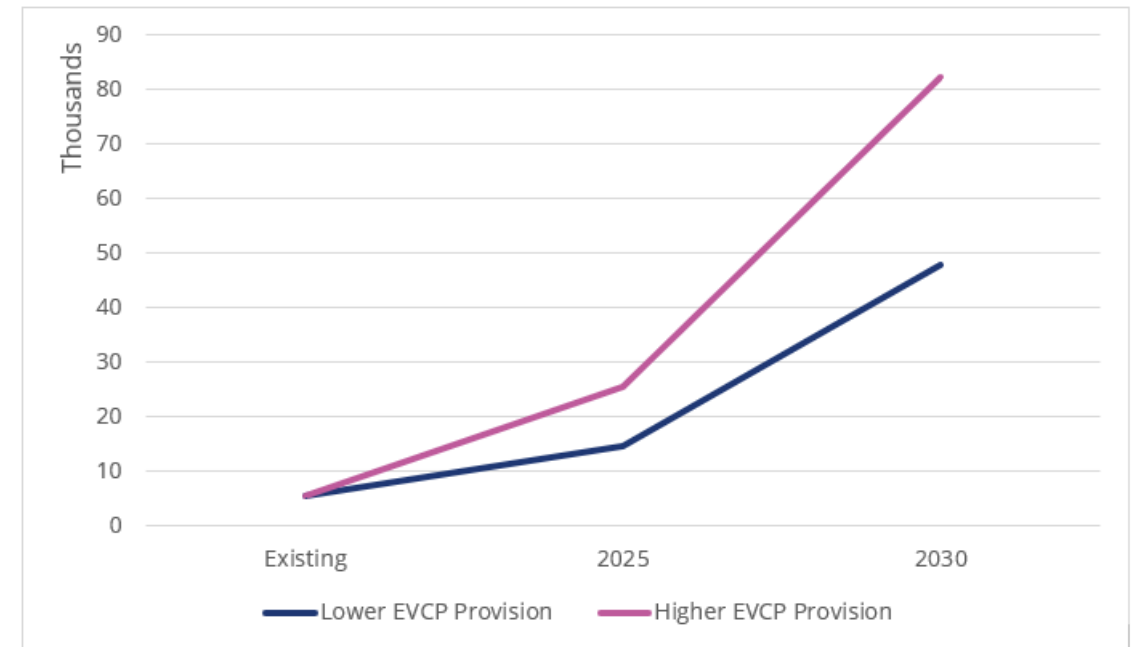
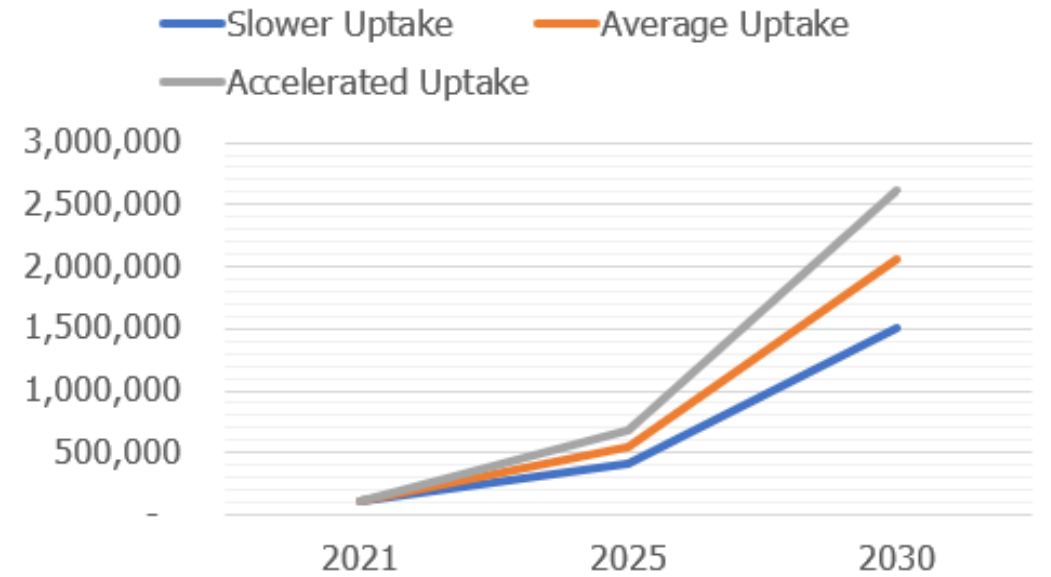
- **546,713 EV's by 2025**
- **2,059,611 EV's by 2030**

EVCP Forecasts:

- In 2021, we estimated 39,410 EV CPS
- In 2022, we estimated 41,662 EV CPS
- In 2023, we estimate

65,087 EV Chargepoint Sockets required by 2030

Forecast EVCP Requirement	Baseline (Jan 2023)	2025	2030
Lower EVCP Provision	4,434	15,772	47,755
Higher EVCP Provision		25,421	82,418



Delivering the requirements



Planning ahead: Planning for the right charge point, in the right location, at the right time



Overcoming grid capacity constraints



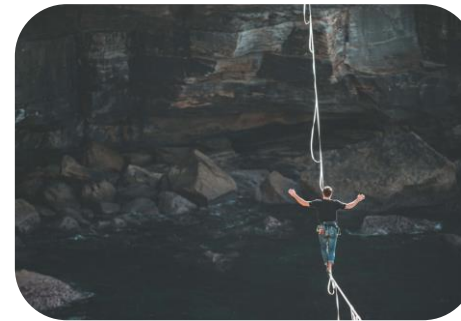
Harnessing the optimum delivery and funding models



Monitoring and evaluation



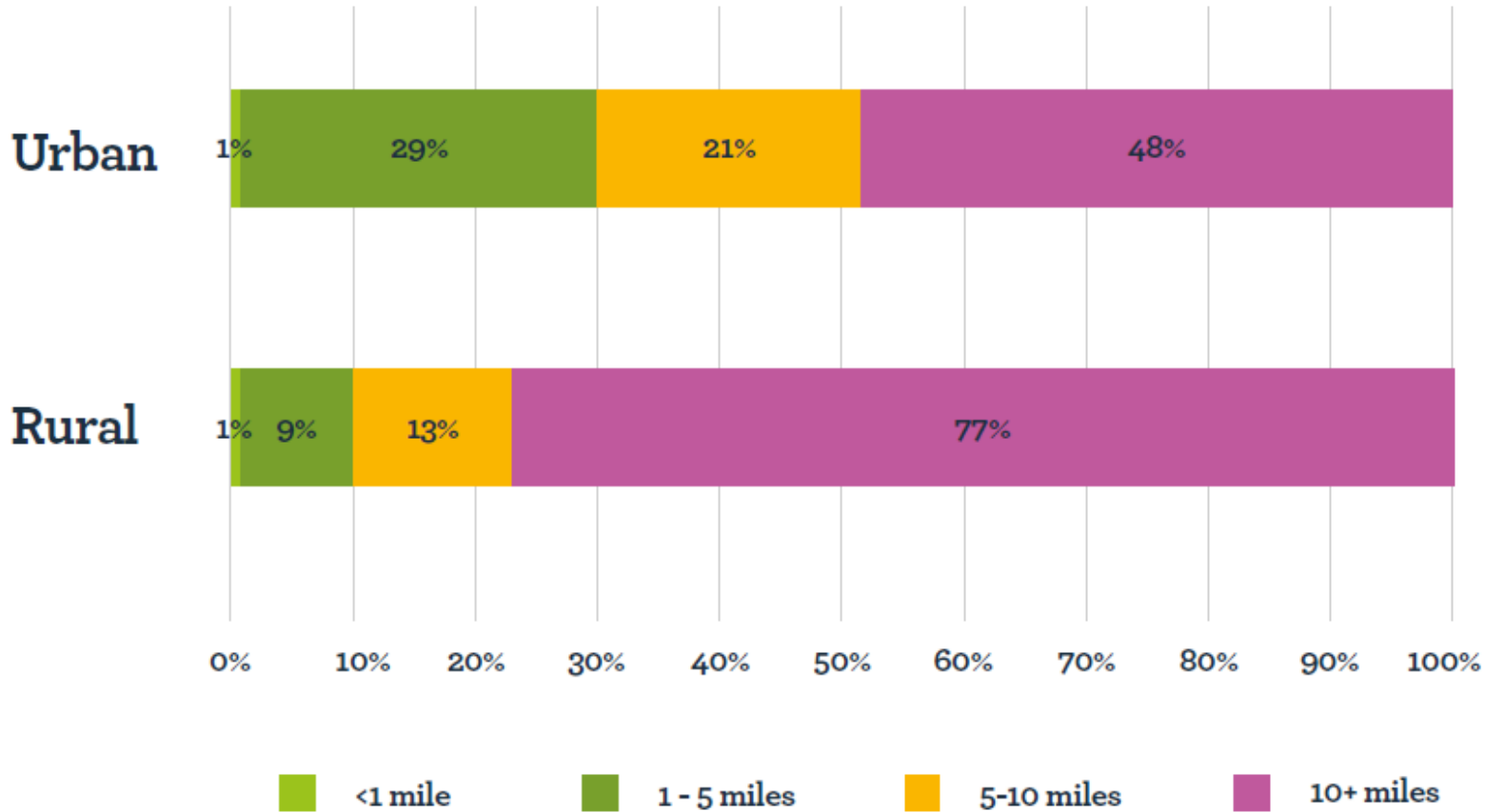
Collaboration and coordination



Recognising risk and uncertainty

Car Emissions by area type

Estimated car emissions by area type and trip length (origin of trips)



- MC data suggests that EVs may have an increasingly important role to play in rural areas.
- Larger proportion of emissions come from longer trip distances over ten miles.

Source: Midlands Connect Carbon Baseline Tool

Tackling the Challenge....

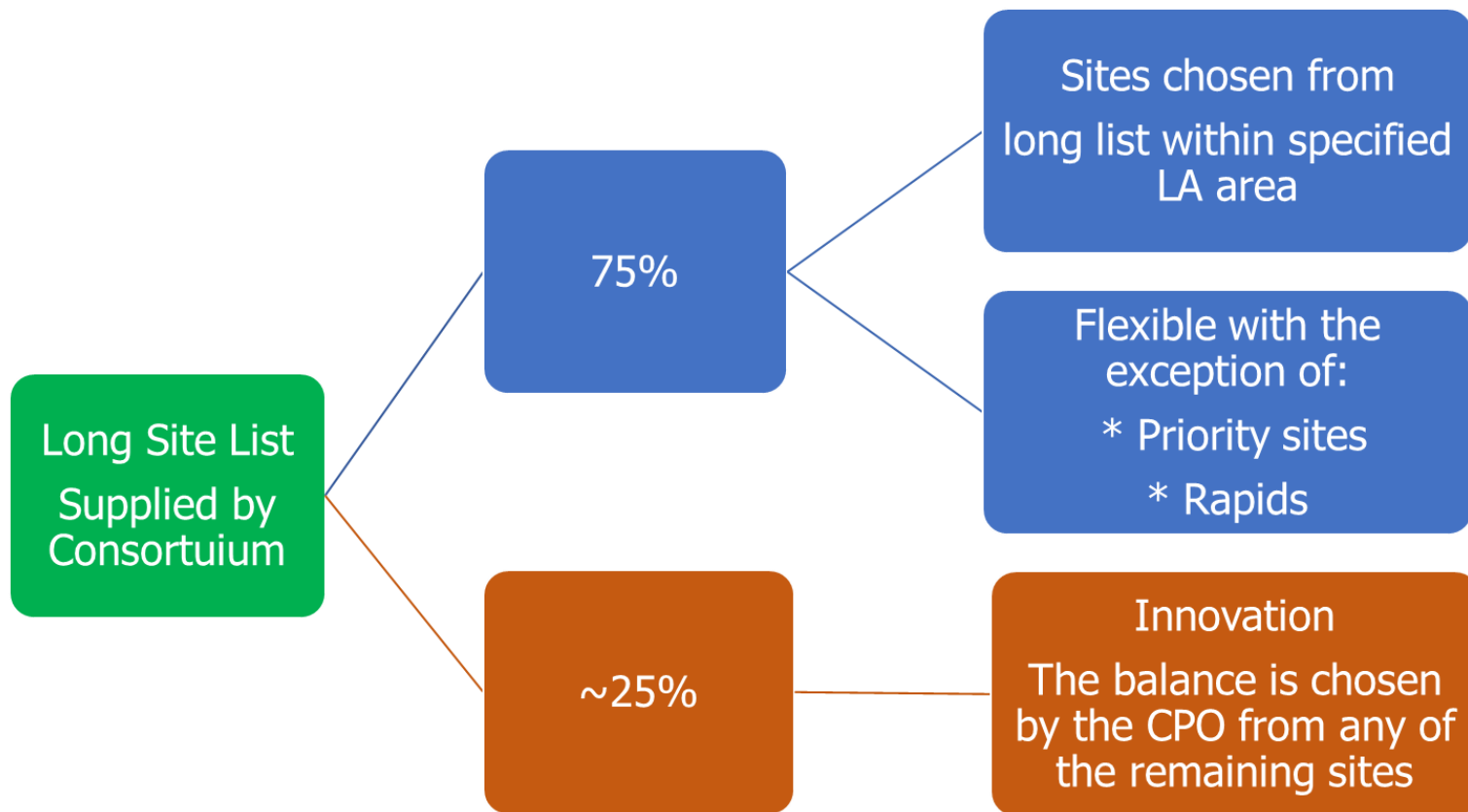
1. Development of SOBC (2022): Demonstrate how groups of LAs (Rural, Urban and Suburban) can work together to achieve economies of scale to deliver required CPs
2. Scope of the SOBC: To deliver a total of 9,412 EVCP units between 2023 and 2030 (as per MC forecast) across five selected local authorities in the Midlands
3. The work concluded:
 - 18% public sector contribution will be needed
 - This equates to £32.3m public sector funding over a ten-year period with £452m private sector investment
 - Total £485m
 - Standard/fastchargers (7-22kW): 1232
 - Rapid/ ultra-rapid chargers (50-150kW): 8180
 - Giving a given benefit-cost-ratio (BCR) of 3.74
4. We already had the business case ready, reworked for LEVI pilot submission

LEVI Pilot

1. Midlands Consortium: Lincolnshire County Council lead the bid in partnership with Stoke-on-Trent City Council, Herefordshire Council, Leicestershire County Council and Rutland Council.
2. This project was chosen for its approach and innovation, in which it was awarded just under £1 million in grant funding to deliver >349 chargepoint sockets, with aim to bring in £2.8-£5.6 million in private investment
3. Potentially fund more chargepoint sockets than we expected, 84% funding private investment than the 75% forecasted
4. MC – Central program management role
5. Ongoing site selection, soft market testing, CPO and DNO engagement, commercial modelling and internal governance
6. Project planning and tender specification



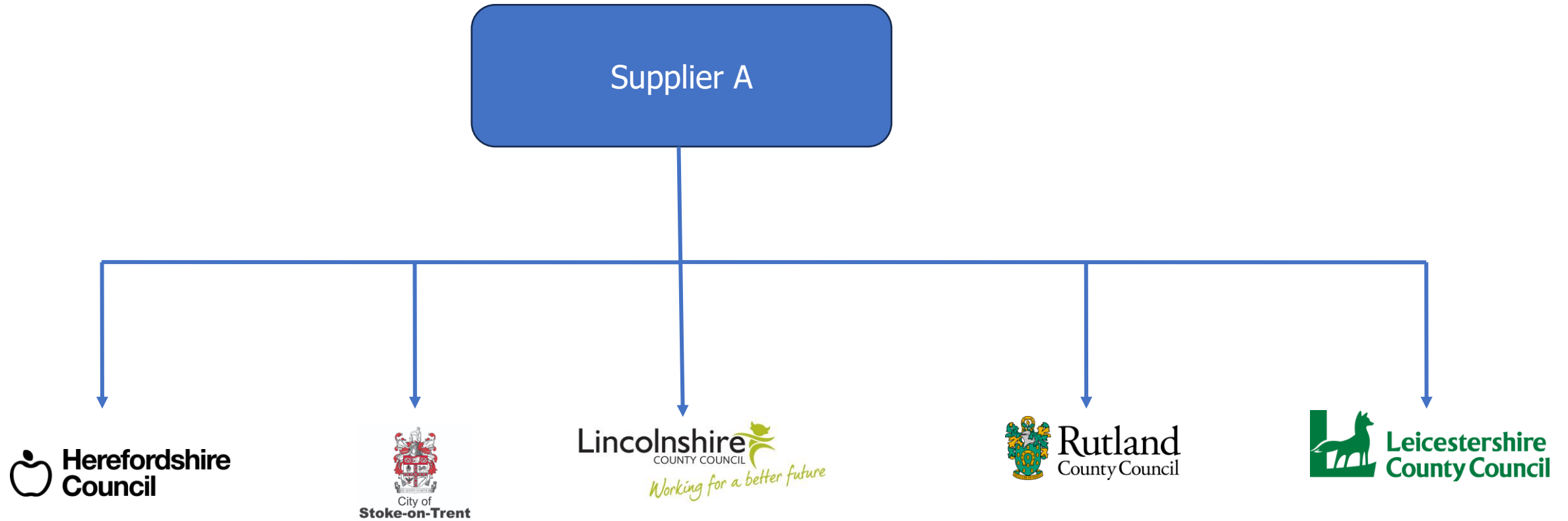
In summary



Whilst our site locations have been carefully selected to try to minimise any delivery constraints, we are aware this could be subject to change once we go into the delivery phase.

There will be an element of flexibility that can be agreed at tender stage.

Contract summary



FBC and LEVI Tranches

1. This pilot has helped us shape our 2023 Regional EV infrastructure aims and develop a Region wide full business case – Jan 2023
2. MC regional EV charging infrastructure with a lead authority or setting up a SPV
3. Announcement of LEVI Full funding March 2023: Indicative allocation of £66.5 million of UK government funding to invest in EV infrastructure across the Midlands
4. MC brought LTAs together for EV infrastructure Full Business Case 2023 workshops in early 2023 with Midlands Net Zero hub to provide additional district level engagement support.
5. LEVI process are made up of two tranches – one for 2023/24 and one for 2024/25.
6. MC FBC support offered regional consortium support, 13 LTA have joined together to form two consortiums which accounts for ~51% of the midlands indicative allocated LEVI funding.
7. LEVI tranche stages:
 - **Stage 1 – Expression of interest** - MC completed on behalf of the two consortiums for both Tranches on 26th May 2023,
 - **Stage 2 – Business case, criteria compliance and tender document review**
 - Tranche 1 – Both consortium moved to Tranche 1 , deadline – **End of November 2023**
 - **Stage 3 - Contract review**
 - o Tranche 1 deadline – September 2024

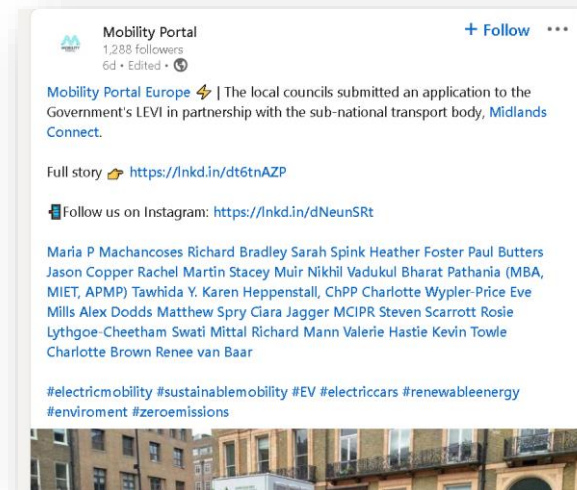
£39m funding

For 13 Local Authorities

To electrify EV charging network



Press release – 8th September



Through LEVI pilot and Tranches

1. We can get more chargepoints due to scale and help level up
2. Support areas where business case is harder - Rural locations may lack commercial sites
3. Leading on Regional partnerships - You can support other regions with limited legal, procurement and EVCI support
4. Build EVCI business case based on LAs site selection list
5. Lack of current internal resources from EVCI specialist to site selection support
6. MC took the central project management role:
 - Dedicated EV Infrastructure Programme Manager
 - Provide EVCI technical support
 - Site selection support
 - CPOs soft market testing with lead authority
 - DNO engagement
 - Financial modelling
 - Tender technical specification
 - FBC for Tranche 1 (2023)
 - Consortium Programme management and co-ordination
 - Regional voice for OZEV and DfT for EV
 - FBC for 2024 being developed for next year

Alternative Fuels for Freight

Workstream Update



Alternative Fuels for Freight Update

Overview

3 Key Activities

1. Site selection tool enhancement (migration to online platform)
2. Developing proposals for Energy Super Hubs (sites of national importance to recharging/refuelling freight infrastructure)
 - a) West Midlands Energy Super Hub (at UK Central)
 - b) East Midlands Energy Super Hub (at East Mids Air and Freeport)
3. Researching new technologies
 - a) E-highways and induction charging research
 - b) Future fuels/energy for freight research

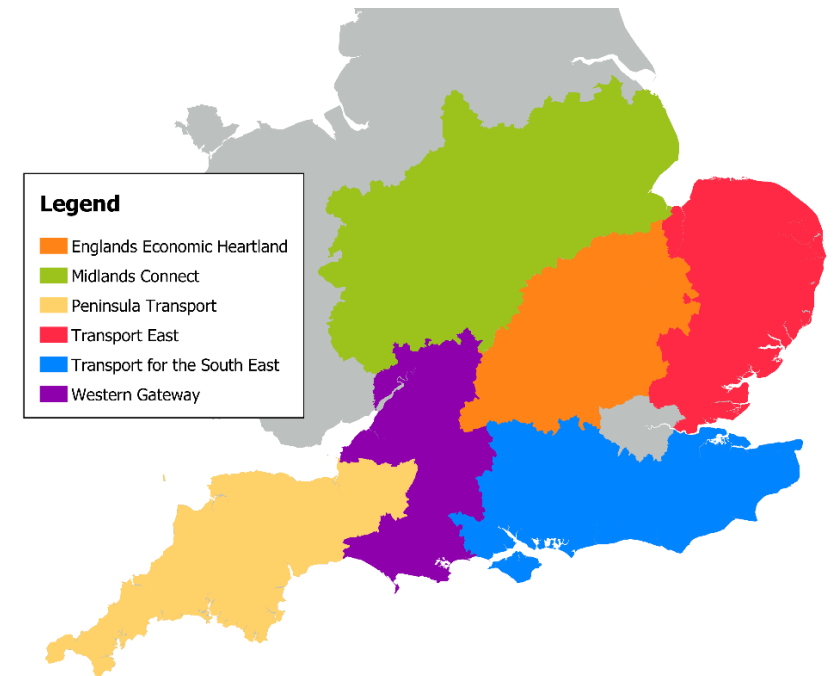
1 - Developing Tools to Assist Partners

Developing an Online Site Selection Tool

As Lead STB for Alternative Fuels Midlands Connect is coordinating the development of an online site selection tool for freight recharging/refuelling infrastructure across 5 STB regions (shown adjacent)

The work includes:

- Furthering our understanding of the opportunity alternative fuels and net zero presents
- Adopting a **consistent approach** to assessing infrastructure needs
- **Equipping partners** (Local Authorities and other STBs) with the tools required to empower them to have more meaningful discussions around the planning of alternative fuels infrastructure
- **Collaborating** across STB boundaries
- **Facilitating** the development of future business case proposals



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2 - Developing Proposals for Infrastructure

Energy Super Hubs and a Network of Recharging/Refuelling Sites

Our work on Energy Super Hubs looks to develop proposals for sites capable of delivering green energy to the HGV fleet of tomorrow. 'Super Hubs' will form the backbone of a national network of recharging and refuelling sites for freight.

- **Developing proposals to secure investment** 
- 'Energy Super Hubs' identified as sites of **national importance**. 
- Sites identified based on forecast **high demand for alternative fuels and strategic fit**. 
- Strategic Outline Business Cases to act as **catalysts for demonstrators and trials**. 

Currently working on proposals at East Mids Airport and UK Central

3 – Researching New Technologies

Exploring the potential for new technology in the Midlands

2 key research areas being explored during this financial year



1. E-Highways & Induction charging
2. Fuels of choice for HGVs less than 44 tonnes.

a) E-Highways & Inductive Charging

- Role for E-Highways &/or Inductive Charging in the GB freight and logistics sector?
- Existing technology trials and what are the benefits/disbenefits?
- Indicative business case components
- Applicability within the Midlands transport network

b) Fuels for HGVs Less than 44T

- Scenario development for anticipated fuel mix across GB HGV fleet
- What form and scale of infrastructure would be required to support these fuel mix scenarios?

Any Questions?



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