West Midlands Combined Authority

NIC Baseline Assessment: WMCA Response

February 2022

Background

West Midlands Combined Authority

The West Midlands Combined Authority (WMCA) was set up in 2016 and aims to make the West Midlands a more prosperous and better connected region which is fairer, greener and healthier.

Its geography covers the seven constituent authorities of Birmingham City Council, Coventry City Council, Dudley Metropolitan Borough Council, Sandwell Metropolitan Borough Council, Solihull Metropolitan Borough Council, Walsall Metropolitan Borough Council and the City of Wolverhampton Council.

Response

1. Introduction

Question 1: Do the nine challenges identified by the Commission cover the most pressing issues that economic infrastructure will face over the next 30 years? If not, what other challenges should the Commission consider?

The WMCA supports the focus on the nine challenges identified by the NIC.

To enable targeted action, recognition of 'existing housing' as critical infrastructure with significant place-based variations in its value, type and quality would aid the challenge of decarbonising heat. Attempts to make energy efficiency improvements to housing by central government, including the consumer vouchers aspect of the Green Homes Grant, were notably unsuccessful, however, place based solutions have been much more successful and could be improved further with longer term commitments to upgrading this critical infrastructure to be fit for a decarbonised future. Heat in itself is a difficult challenge but is more easily addressed when other aspects of 'housing' are considered; including access to services through spatial and energy planning; and the causes of fuel poverty relating to social inequalities in health, culture and access to employment.

Transport is clearly critical and whilst investment in appropriate new infrastructure remains important, there is a pressing need to consider how existing infrastructure is used most efficiently and to consider how travel behaviours will need to change to support this. Furthermore transport policy and strategy at the national, regional and local levels together with wider spatial and economic strategy must present a coherent framework to support progress against the strategic themes; priorities for us all.

It is important that these challenges include avenues to ensure how the most vulnerable are also able to benefit from infrastructure changes without incurring unmanageable costs. Any transition or changes need to be fair and equitable for all and this needs to be a key underlying thread within any developments or policy changes.

Question 2: What changes to funding policy help address the Commission's nine challenges and what evidence is there to support this? Your response can cover any number of the Commission's challenges.

Over the past five years, Local Authorities have come together through the WMCA to accelerate delivery of our shared agenda in the West Midlands. The devolution of powers and funding resources to the WMCA has enabled the West Midlands to tackle significant infrastructure challenges including transport and housing land remediation.

The work of the NIC, through the first NIA, has already changed Government's approach to funding for transport with the City Region Sustainable Transport Settlements for Mayoral Combined Authorities (MCA). Whilst this was welcomed, more needs to be done. Therefore, the NIC should continue to challenge governments overall funding approach to current and future infrastructure. The NIC should investigate the

policy rationale for the wider empowerment and the devolution of resources to MCA's and Local Authorities in order to tackle the challenges identified in this second NIA. The Deepening Devolution Deal process, announced in the Levelling Up White Paper, and the West Midlands' 'trailblazer' status creates a significant opportunity to do this.

This is particularly pressing for the Net Zero and energy system agenda which are brought out in the challenges of decarbonising heat, electricity system decarbonisation, reducing transport emissions, new networks and new digital technologies:

1. **Retrofit Commissioning Framework** - Changing the funding mechanisms to deliver the £5bn of retrofit funding, already committed by Government, to the places where it is most needed and will have the greatest carbon and societal benefit, is critical. The WMCA recommend the establishment of a Retrofit Commissioning Framework within Combined Authorities initially (as this market needs to be developed in stages), based on what is currently in place and has been hugely successful for new housing (Single Commissioning Framework). This will enable places to target and plan this committed spend effectively and leverage in the vital private sector investment needed. By building a pipeline of work over a long period, places will be able to convince local supply chains to invest in the necessary skills and capacity to deliver cost effectively.

2. **Local Area Energy Planning** – The need for integrated planning for energy that links to spatial, planning, transport planning and retrofit programmes locally has been clearly made by local area energy planning advocates. However, how this is funded remains a huge challenge for Government. Our recommendation based on a £2m Innovate UK funded 'Prospering from the Energy Revolution' project called the West Midlands Regional Energy System Operator project, is that a collaboration of local partners including network operators and local authorities needs to be formed to undertake this planning process which most importantly, directs investment into infrastructure to support the transition. This therefore needs to be linked to the network operator's uncertainty mechanisms to unlock investment and could be funded in part, by the energy system, through allocations currently made to DNOs to engage with local authorities.

The NIC recognises the importance of resilience and climate adaptation. Yet, there have been no significant funding opportunities identified for this nationally. The focus of government to date has been on efforts to mitigate climate change, but adaptation measures will now be critical to ensuring communities are resilient to locked in climate breakdown. Without this, our infrastructure in relation to housing, transport and energy will become increasingly vulnerable.

Question 3: How can better design, in line with the design principles for national infrastructure, help solve any of the Commission's nine challenges for the next Assessment and what evidence is there to support this? Your response can cover any number of the Commission's challenges.

For design to be improved and ensure it is meeting the needs of the right people, better consultation practices are required. This should ensure that a variety of people are being consulting, covering different ages, races, genders and those with disabilities. Measures need to be put in place to enable consultation with a range of people such as offering it in different formats, different times and places and considering the possible needs of the consultees (access, childcare etc.)

The WMCA is therefore in the process of establishing a Citizens Panel that reflects the diversity and differing needs of the people of the West Midlands.

Infrastructure design also needs to go together with place making, encompassing the whole built environment. This will ensure that not only are the transport, housing, energy and employment needs met, but also the social and emotional needs of society. TfWM's new Local Transport Plan (LTP) is identifying how 15-minute neighbourhoods, where a good range of services can be accessed by "walking or wheeling" in a

round trip of no more than 15 minutes, can help to support this, and ensure everyone has close access to a number of facilities which will enable improved accessibility and Energy Capital, the WMCA's energy team, are exploring how Net Zero Neighbourhoods can help to decarbonise local communities and increase the update of retrofit measures.

In addition, the WMCA has been working with Local Planning Authorities, Developers and industry to improve housing design and the quality of our built environment. The West Midlands Design Charter[1] aims to promote, inspire and encourage great design initiatives and quality place-making across our region. This is supported by standards set out with the WMCA's Single Commissioning Framework[2]. In summary, in order to access WMCA funding to support housing and land projects, developers must meet a set of design principles.

Design will need to ensure that we are also responding to the challenges of climate change and supporting the recovery of nature, both to support the government's 25 Year Environment Plan, and the principle of Nature Recovery Networks, as well as to enable the Biodiversity Net Gain that will become more prominent through Local Nature Recovery Strategies. We need to carefully consider materials used in construction for both their contribution to the natural environment, as well as to ensure that infrastructure is easily dismantled for reuse to move us away from a linear economy approach. We will also need to think about sustainable urban drainage and how we incorporate this as part of urban design, as well as use of materials that will withstand increasing numbers of hot days and incidence of heat waves. Further consideration of this is given on the response to Question 4.

Question 4: What interactions exist between addressing the Commission's nine challenges for the next Assessment and the government's target to halt biodiversity loss by 2030 and implement biodiversity net gain? Your response can cover any number of the Commission's challenges.

All new development, shall be required, as per the provisions of the Environment Act 2021, to deliver Biodiversity Net Gain, this will ensure that impacts upon biodiversity (with regard to habitats only) are addressed with a gain of 10% in value over and above the pre development baseline. This is a statutory requirement.

It is however possible that a wider set of natural capital and biodiversity gains could be realised, that contribute further to the government's 25-year plan whilst addressing a number of the nine challenges and in some cases, they could be part of the solution.

The design and incorporation of green infrastructure into existing urban areas and new developments would help address the effects of climate change whilst providing greater potential to contribute to water management, urban cooling and building insulation (reducing the need to cool and heat our homes). The incorporation of Green Infrastructure into projects improving urban mobility and interurban transport can create a better environment for users, particularly pedestrians and cyclists, who benefit from such features in terms of wellbeing and air quality whilst additional benefits are gained for climate resilience, climate mitigation and biodiversity.

Where larger scale infrastructure projects are being developed, they should be designed and delivered in a way that goes beyond just mitigating its own impacts or meeting statutory requirements. Such schemes have the potential to provide a solid anchor point upon which other green infrastructure, biodiversity and climate resilience projects could extend from. This could assist in delivering several of the objectives of the yet to be produced Local Nature Recovery Strategies (LNRS) and in the delivery of the objectives of the 25-year plan.

[1] https://www.wmca.org.uk/media/3647/wmdesigncharter.pdf
[2] https://www.wmca.org.uk/media/4716/scf-booklet-accessible-v13.pdf

Question 5: What are the main opportunities in terms of governance, policy, regulation and market mechanisms that may help solve any of the Commission's nine challenges for the Next Assessment? What are the main barriers? Your response can cover any number of the Commission's challenges.

As set out in question 2, further devolution to MCA's presents a number of opportunities. Further enhanced partnership with Government through a further West Midlands Deeper Devolution Deal would help to support the delivery of national priorities; acting as both a testbed for new ideas, regulatory barrier busting and Sandbox environments; and an example of what can be delivered by effective partnership working.

The WMCA has already submitted initial thinking to help shape the Levelling Up White Paper. This includes a proposal within a Deeper Devolution Deal on how we will level up, closing the productivity gap with London and our international counterparts and driving a sustainable jobs-focussed recovery from Covid.

Our approach is underpinned by our ambitions to be global leaders in reaching Net Zero as the home of the first industrial revolution and now the green industrial revolution, combining a focus on reducing carbon emissions in the region with new investments and initiatives to realise the economic potential of the transition to a new green economy. New responsibilities to participate in the energy system are a key part of this and include:

- A requirement for the WMCA to coordinate and develop Local Area Energy Plans (LAEP) across the region in partnership with the network operators as well as a requirement for the WMCA to advocate the findings of LAEPs into the energy network price control process to ensure investment in energy infrastructure is targeted to meet local needs. It would also be helpful for MCA's to have the power to designate formal Energy Innovation Zones (EIZs) giving localities the opportunity to overcome local challenges within the national energy system
- A new Retrofit Commissioning Framework to enable the WMCA to channel retrofit funding effectively and build a local market to address domestic emissions, establishing a local first approach to energy market levies and including local control of future iterations of ECO funding to address persistent fuel poverty challenges
- Devolved / double devolved funding for electric vehicle connection programmes.

As a Pathfinder in Local Energy Systems, we can act as a testbed for new approaches that can be replicated nationally over time, given limited experimentation in this area to date.

Challenge 1: The digital transformation of infrastructure – the Commission will consider how the digital transformation of infrastructure could deliver higher quality, lower cost, infrastructure services.

Question 6: In which of the Commission's sectors (outside of digital) can digital services and technologies enabled by fixed and wireless communications networks deliver the biggest benefits and how much would this cost?

The Levelling Up White Paper identifies the West Midlands to have a clear opportunity to develop as the UK's first 'Smart City Region' with a view to scaling up digital opportunities across the region in health tech, future mobility and smart energy. It will drive new digital start-ups through practical business support and a supply of patient venture capital to attract global innovators. And it will deliver digital catch-up programmes so that everyone in the region can gain the skills and confidence to access the opportunities this will bring.

As regards health, the Smart City Region programme will build on successful trials including, for example, taking forward exciting plans to use remote diagnostics to tackle the backlog of non-elective patient care and driving forward pioneering plans being developed by University Hospitals Birmingham with BT to transform electronic health records and hospital management systems.

Considering energy, the work of the Smart Local Energy System West Midlands RESO project has shown a net present value over 30 years of £720m if the energy system was to digitalise and consider a local dimension, compared to the current data light national approach.

From a transport perspective, it should be noted that in question 17, we demonstrate the triple access system (spatial proximity, mobility, and digital connectivity). This considers how improvements in digital infrastructure can be opportunistic in increasing accessibility and changing travel behaviours. Through reducing the need to travel, using data to improve travel behaviours, innovation opportunities (MAAS, CAVs, mobility hubs etc.) and enabling freight movements to operate better, digital enhancements and wider connectivity will provide a significant advantage in reaching our transport aims such as decarbonisation and increasing accessibility.

Question 7: What barriers exist that are preventing the widescale adoption and application of these new digital services and technologies to deliver better infrastructure services? And how might they be addressed? Your response can cover any number of the Commission's sectors outside digital (energy, water, flood resilience, waste, transport).

The West Midlands has recently produced a Digital Roadmap with 5 clear, inter-related missions, including one on digital infrastructure.

Within the West Midlands many communities and organisations lack access to fibre broadband, with only 1% of buildings connected to fibre in some deprived areas[3] – and 4G connectivity, with around a third of stations and hospitals lacking good 4G coverage[4]. Even when considering areas where good quality, fast connectivity is available, many do not have the digital know-how or funding to be able to access it. Government need to accelerate and enable the deployment of full fibre and mobile connectivity more widely, ensuring the funding is available and targeted in areas where there is currently digital poverty, and offer digital workshops and mentoring schemes to ensure everyone has the knowledge and ability to use the digital infrastructure available to them.

However, the West Midlands also offers a prime example for how a decent funding mechanism alongside good partnership working can enhance digital connectivity and innovation. The West Midlands 5G (WM5G) Testbed through working with local authorities and Mobile Network Operators (MNOs), has accelerated 5G deployment by over six months, resulting in the West Midlands being amongst the best-connected places for 5G in the UK. This was achieved through investments from UK Government (£21m over 3 years) alongside investment from local government and the private sector.

Both nationally and regionally we need to build on the success of examples such as WM5G to roll-out fixed and mobile connectivity, particularly in areas where lower connectivity holds back growth and Levelling Up, through the devolution of DCMS funding relating to urban connectivity trials and testbeds.

We also need to ensure that rural areas are not ignored when considering digital access. Although many rural areas often suffer from poorer digital accessibility than their urban counterparts their reliance on digital infrastructure for home deliveries, telecommuting methods and social connectivity can be huge. Improving access to digital products within rural areas can also help to reduce some of the longer distance trips which may otherwise have been taken.

[3] Farrpoint detailed fibre access analysis for WM5G, Q1 2020/21
[4] WM5G initial analysis of 4G coverage not-spots and hotspots using Digital Map, August 2020

2. Reaching net zero

Challenge 2: Decarbonising electricity generation – the Commission will consider how a decarbonised, secure and flexible electricity system can be achieved by 2035 at low cost.

Question 8: What are the greatest risks to security of supply in a decarbonised power system that meets government ambition for 2035 and what solutions exist to mitigate these risks?

To meet its legally binding climate targets, the UK must reduce its overall greenhouse gas emissions by 78 per cent compared to 1990 levels by 2035 and completely decarbonise the electricity network. The greatest risk to achieving this is ensuring there is sufficient flexibility within the system to enable grid balancing to meet the demand profile of the UK.

This either requires a wholesale change to the energy system to smarten it and facilitate significant demand side response, with significant distributed storage capacity assets throughout the network; or it requires a huge energy storage solution.

With the way the system operates currently, it is likely that a national framework is adopted and reliance is placed on large scale storage, through the development and use of solutions like hydrogen, which come with a whole host of risks which may increase inequalities. Uncertainty around the pace of change makes investment difficult to justify, placing increasing pressure on existing infrastructure. The combination of intermittent supply and uncertain demand will make forecasting future demand increasingly complicated and lends argument to the more localised smarter approach to energy system management, with increased monitoring, aggregated flexibility and increased equity of access to the market.

For areas in the UK such as the West Midlands, that are net importers of energy, the drivers for a smarter more distributed solution to managing the energy network are obvious.

Challenge 3: Heat transition and energy efficiency – the Commission will identify a viable pathway for heat decarbonisation and set out recommendations for policies and funding to deliver net zero heat to all homes and businesses.

Question 9: What evidence do you have on the barriers to converting the existing gas grid to hydrogen, installing heat pumps in different types of properties, or rolling out low carbon heat networks? What are the potential solutions to these barriers?

<u>Hydrogen</u>

Hydrogen transportation along pipelines is possible with the United States having approximately 1600 miles of hydrogen pipelines. Problems arise however when pipelines originally designed for transportation of natural gases are then used to transport hydrogen. The main problems are the potential for hydrogen to embrittle the steel and welds used to fabricate pipelines, this will lead to a lower integrity of pipes and make hydrogen permeation and leaks more likely, it has a wide flammability range and only requires a small amount of energy for ignition (this introduces safety concerns with how to manage potential flashback in domestic appliances).

The greatest problem however is in developing a lower cost, more reliable and durable way of compressing hydrogen for transportation. Current compressors will not be able to compress hydrogen sufficiently with them needing to be replaced now if the gas mix exceeds 40% hydrogen. Hydrogen has one-third the caloric heating value of methane, but at its lower density has a flow velocity up to three times greater also – consequently the same amount of energy can be theoretically transported if the required pressure can be sustained along the length of the pipeline.

Heat pumps

Heat pumps are a viable option in many homes, particularly in new build homes where they can be built to the specifications of a heat pump without needing to retrofit the heating system of the house. As a result of their intense demand on electricity it is necessary that the fabric of a home/building is at a standard where a heat pump is economical, but this is easily regulated in new build, providing monitoring is facilitated.

However, if people want to retrofit their house to use heat pumps, a multitude of challenges exist, not least accessing appropriate independent advice to support this process. Heat pumps will not be suitable in many properties for a range of reasons, so alternatives will need to be sought and infrastructure solutions provided through the development of heat zones.

Low carbon heat networks

Low carbon heat networks provide a broader solution to heat decarbonisation across a communal or district area where other solutions may not be appropriate. Local Authorities are well placed to identify where these would be appropriate, but many lack the capacity to undertake this work even when funded by BEIS to do so. In the WMCA area, Energy Capital is being asked by a number of the smaller constituent authorities to provide this capacity, demonstrating the value of working at a regional level on these and many similar issues.

Barriers to the development of heat networks relate to defining a heat network area in the first place and then establishing/running it at a level where the private sector is satisfied that sufficient de-risking has taken place that they are willing to operate it commercially. Regulation of the heat sector is needed and it should be considered whether it fits appropriately within the scope of OfGEM or an alternative model.

Question 10: What evidence do you have of the barriers and potential solutions to deploying energy efficiency in the English building stock?

The evidence we have comes from:

- Supporting the delivery on the ground in relation to national programmes,
- the findings of our regional retrofit and fuel poverty research programme,
- modelling during our smart local energy system innovation projects in Coventry and Rugeley,
- and continued and worsening fuel poverty levels in the West Midlands.

The main barriers identified include:

- Rising costs and limited supply chain capacity, caused by the way in which schemes are currently funded.
- Limited skills and competence of the industry to deliver high quality outcomes, again caused by the way in which current schemes are funded.
- Insufficient stock data to target measures to meet current funding criteria.

Potential solutions include:

- The establishment of a West Midlands ‘Sustainable Market for Affordable Retrofit Technologies (SMART) Hub’ set up to secure devolved retrofit funding (Retrofit Commissioning Framework) and provide capacity to support our local authorities, allows us to create a long-term pipeline of retrofit work, leverage private finance and support the market to invest and upskill.
- The SMART Hub has pooled resources from across our 7 metropolitan areas to fund a comprehensive stock data analysis to support our LAs to target retrofit measures appropriately. The integration of actual measures data remains a challenge but can be worked around until a wider solution is found.
- Supporting Modern Methods of Construction to service the retrofit as well as new build market could help to bring down costs and reduce supply chain capacity challenges.

- The UKIB underwriting the risk of a portfolio, place-based approach to financing energy schemes, building on the work of the Smart Local Energy System programme is needed. The current aggregation model, which sees industry bring forward a range of single technology schemes across multiple geographies will result in the public sector having to pick up the bill for retrofit which remains commercially unattractive. A portfolio approach in a single geography of mixed technologies, including retrofit addresses this problem, requires the UKIB to pay a role in facilitating this.

Challenge 4: Networks for hydrogen and carbon capture and storage - the Commission will assess the hydrogen and carbon capture and storage required across the economy, and the policy and funding frameworks needed to deliver it over the next 10-30 years.

Question 11: What barriers exist to the long-term growth of the hydrogen sector beyond 2030 and how can they be overcome? Are any parts of the value chain (production, storage, transportation) more challenging than others and if so why?

The sustainable supply of green hydrogen remains an important issue and one that must be taken seriously to avoid becoming trapped into the ongoing use of fossil fuel derived hydrogen. Clear policies to increase the amount of renewable energy generation in line with estimates of required capacity should be implemented as the role out of specific use cases for hydrogen are enabled. Issues with maintaining a supply of green hydrogen are largely that there is a reliance on renewable energy generation to power the electrolysis process. Although there are growing areas of research where wastewater offers hydrogen generation potential, the challenges remain in scaling this up to a commercial level.

Hydrogen storage is most effectively done when hydrogen is liquefied. This is an energy intensive process, and energy intense in the materials needed to ensure the temperature can be kept low enough to sustain hydrogen in its liquid state. If the aspiration is to store hydrogen in geological formations, much like carbon capture and storage, there are significant challenges to overcome, as the size of a hydrogen molecule is tiny in comparison to carbon. The result being that the sequestered hydrogen will likely migrate to the surface and into the atmosphere.

Hydrogen transportation issues have been detailed in question 9.

Question 12: What are the main barriers to delivering the carbon capture and storage networks required to support the transition to a net zero economy? What are the solutions to overcoming these barriers?

The WMCA felt that it is not best placed to respond to this question.

3. Climate resilience and the environment

Challenge 5: Asset management and resilience – the Commission will consider how asset management can support resilience, barriers to investment, and the use of data and technology to improve the way assets are maintained.

Question 13: In what ways will current asset management practice need to improve to support better infrastructure resilience? Your response can cover any number of the Commission's sectors.

As the competing demands for land uses continue to grow, the strain on existing infrastructure and need for new investment becomes greater and an approach to better manage current assets will help ease this pressure.

Although the National Infrastructure Commission does not cover housing, social infrastructure, land use and agriculture it is important to consider the interactions between these uses and the National Infrastructure recommendations.

An approach at the WMCA, through The WMCA Corporate Land and Property Acquisition and Disposal Framework, has been aimed at delivering a commercially aware approach for acquiring and disposing of land and assets in order to achieve the strategic priorities of the WMCA. These WMCA strategic priorities include supporting the economic infrastructure in the region and this provides an effective approach of combing asset management practices with better infrastructure resilience. This kind of approach has many benefits for the organisations in managing its own land assets.

When there is an opportunity for WMCA to acquire or dispose of land, it is essential that there is a robust framework in place to ensure that the thinking and decision making aligns with WMCA's strategic aims and objectives, alongside central government's desire to create ensure an efficient, fit-for-purpose and sustainable public estate that meets future needs.

In response to question 13 on asset management practices, there will be a need to ensure the following:

- Support for the Zero Carbon agenda, including measures to support climate adaptation
- Brownfield land first
- Support for potential future commercial opportunities
- Support for inclusive growth by responding to community aspirations and the local area's economic, environmental and social needs and challenges
- Alignment with broader regional priorities
- Unlocking regeneration and renewal
- Has suitable identified funding opportunities in place
- Supports local people's vision of what good looks like for their neighbourhood
- Supports the reduction of car use by enabling and creating better links with walking, cycling and public transport infrastructure
- Provides good value for money and is financially sustainable with a clear business case and any potential impact upon the financial plan fully mitigated

To ensure asset management practice better supports infrastructure resilience there is a need for regular and appropriate asset reviews, which could be conducted through workshops for example. Clear frameworks to assess assets will enable the organisation to understand all of the opportunities and the identification of risks or constraints.'

Challenge 6: Surface water management – the Commission will consider actions to maximise short-term opportunities and improve long term planning, funding and governance arrangements for surface water management, while protecting water from pollution from drainage.

The Commission will carry out a separate call for evidence on this challenge, as the Commission will deliver this as a separate study and report to government by November 2022, in advance of its other recommendations.

Challenge 7: Waste and the circular economy – the Commission will examine the role of the waste sector in enabling the move towards a more circular economy.

Question 14: What are the barriers to and solutions for expanding recycling capacity, both now and in the future to deliver environmental and net zero targets?

Recycling capacity is a long running issue in the UK. We are the 4th largest producer of plastic waste in the world, and export 50% of our waste internationally, with limited traceability of how it is disposed of. At present the UK only has capacity to domestically recycle 20% of the waste it produces, showing a clear need to expand our recycling capacity. However, expanding recycling capacity is complicated by what the LGA has termed the "smorgasbord" of approaches to waste collection and management in the UK, with over 300 different collection systems currently in operation. This makes it difficult to plan for the types of waste that will need to be recycled. Additionally, as exporting waste is a commercially viable alternative to recycling, there is currently little incentive to expand recycling capacity. This situation could be improved by the adoption of a National Recycling Framework, mandating the types of materials used and agreeing a singular approach to waste collection and management by waste authorities. This would not only make it easier to expand recycling capacity but would also result in cost savings due to simplified processes. The situation would be further improved by legislation restricting the amount of waste, particularly plastic and WEEE, that is exported to other countries.

Ultimately, for the UK to move towards a more circular economy, and deliver on its environmental and net zero targets, there is a need to take a more holistic approach to waste management where recycling is seen not as the solution, but as part of the solution, alongside repair, reuse, repurposing, and the use of alternative materials. Key dimensions of this work could be better organised at a regional and local scales, to this end, the West Midlands has produced a Circular Economy Routemap.

Question 15: What is the likely environmental impact of waste streams from construction across economic infrastructure sectors, over the next 30 years, and what are the appropriate measures for addressing it?

The construction sector produces the most waste of any sector, producing 8 million tonnes of waste in the West Midlands, and around 120 million tonnes of waste nationally. In the West Midlands, we know that the majority (4.5 million tonnes) of waste produced from construction goes straight to landfill. It is clear that at present, waste streams from construction have a negative impact on the environment. The negative impacts of construction waste can be avoided by introducing more circularity in the sector, as is a key focus of the WMCA's Circular Economy Routemap.

Appropriate measures for reducing the environmental impact of construction waste steams require a holistic approach to the issue, considering the whole life cycle of buildings through the design, manufacture, construction, and end of life phases. This could involve greater emphasis being put on modular and advanced methods of construction, incentivizing the use of recycled and recovered materials over virgin materials, incentivizing the recovery and reuse of unused materials (it is estimated 13% of materials used in the sector go straight to landfill), and taking a repurposing first approach to buildings at the end of life stage, which addresses the waste produced by demolishing viable buildings. The Construction Leadership Council's Routemap to Zero Avoidable Waste in Construction[5] sets out how this can be achieved over the next 30 years.

Challenge 8: Urban mobility and congestion – the Commission will examine how the development of at scale mass transit systems can support productivity in cities and city regions and consider the role of congestion charging and other demand management measures.

Question 16: What evidence is there of the effectiveness in reducing congestion of different approaches to demand management used in cities around the world, including, but not limited to, congestion charging, and what are the different approaches used to build public consensus for such measures?

[5] Construction Leadership Council, https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2021/07/ZAW-Interactive-Routemap-FINAL.pdf

Demand management typically comes under three categories

- Pricing (road user charging, congestion charging etc.).
- Road space reallocation (through physical change, giving more road space to more sustainable modes)
- Regulatory change (regulations in place so that certain vehicles can/can't use it)

There are also broader regulations such as vehicle design regulations and/or speed limits. Each of these vary in the investment needed to implement them, the revenue generated from them, the person(s) affected and their equity level.

Demand management within transport is not a new concept and has been carried out for years within the UK. However, interventions, outside of Greater London, have tended to concentrate on limited geographies, such as historic town centres (e.g. York, Cambridge, Bath) or high streets across the UK (via pedestrianisation).

There are other examples of smaller scale demand management measures within the West Midlands, such as temporary pop-up cycle lanes during the Covid pandemic, Low Traffic Neighbourhoods (LTNs) and School Streets. As these methods of demand management only affect a small area, they are likely to see only localised behaviour change. These are measures are still being trialled and monitored for their impact.

Whilst there are plenty of (in the context of a nation) micro examples of demand management and its effects, there are few, macro examples (for example on the scale of a whole city region) within the UK. Central London is perhaps the only area in which some attempt at demand management (through ULEZ zones and the Congestion Charge Zone) have seen an impact.

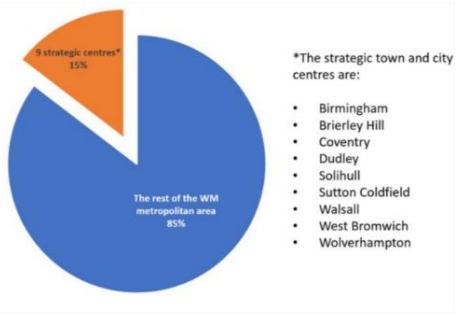
Yet, there is plenty of evidence that the scale of demand management which we need to help drive the quantum of necessary reduction of transport carbon emissions is much greater than is currently being implemented in the UK[6]. This has also been reflected in technical modelling work which TfWM commissioned as part of refreshing the West Midlands Local Transport Plan (LTP) and the Reimagining Transport in the West Midlands Green Paper[7] published last summer.

The Green Paper identified 5 Motives for Change to frame society's relationship with transport and how transport can help shape the sort of society and places in which we want to live. The modelling undertaken demonstrated that the application of demand management would need to be wider than simply measures which might simply impact those trips into and out of centres. As the chart below shows, in the am peak, only around 15% of all traffic enters our strategic centres in the West Midlands. A further implication is that simply targeting some forms of demand management in specific locations could (or is at least perceived to) result in unintended consequences e.g. businesses could choose to relocate to less accessible locations or new investment simply goes elsewhere.

[6] LGA, https://www.local.gov.uk/sites/default/files/documents/5.89%20carbon%20ambition_3.pdf
[7] https://www.tfwm.org.uk/media/tcgf3ik2/local-transport-plan-green-paper-final.pdf

Car accounts for most travel, except to particular centres

Destinations of car trips made in the morning peak



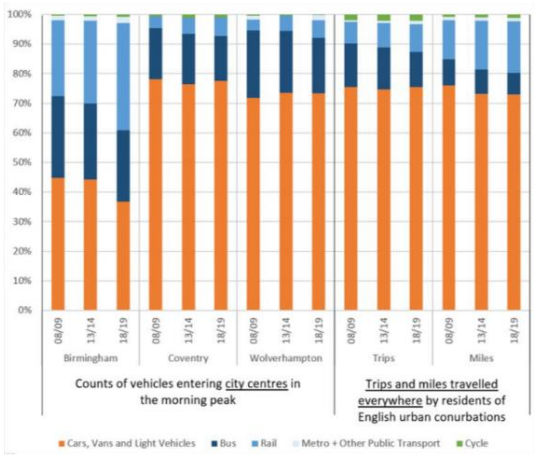
Source: PRISM

Most travel is not to or from our centres, even in the peaks.

While public transport has remained a popular choice for accessing some of our big city centres, the car is king for travel across the wider region.

For those who do use public transport, train is popular for accessing some big city centres and longer distance travel, but bus is used most frequently overall.

Comparing mode shares to/from centres with mode share for all travel



Source: TfWM Cordon Counts and National Travel Survey (DfT)

These schemes are controversial and generally unpopular and there has been limited political appetite for introducing them. However, through engagement on the evidence developed for the new LTP, Leaders in the West Midlands have recognised the case and imperative for demand management. This is clearly politically risky as Government has acknowledged the role of road user charging (particularly in relation to addressing the reduction in Vehicle Excise Duty) but has not committed to using national policy levers to manage demand.

In terms of demand management techniques, there is usually less acceptance of 'restrictive' policy options such as road pricing[8] from the general public due to the possible restrictions on travel and lifestyle and the distrust in the 'Big Brother' effect from the Government. However, there is general agreement that this method would most likely solve congestion issues. Similar findings were found from our Keep the West Midlands Moving Online Community (MROC) research for LTP refresh, as respondents thought that giving up the freedom and independence which the car provides is perceived as too heavy a price to pay, particularly regarding visiting family, friends and places of interest further afield. However, a Quick Poll survey by TfWM showed that to achieve changes through policy, 68% people agreed with the use of 'sticks' to achieve significant change in travel behaviour[9].

In its Zero Emission Strategy and Transport Decarbonisation Plan, Government acknowledges the need for significant behaviour change to help deliver transport's contribution to UK decarbonisation targets. It is clear that it expects local authorities to lead on implementation of such measures to achieve this and it is prepared to use its control over our funding to influence this. We have seen that this has already started to happen in the way that Government has focused City Region Sustainable Transport Settlements (CRSTS) on measures that deliver road space reallocation and quantifiable carbon reduction. However, putting the onus on local and mayoral authorities shifts the responsibility, and therefore politically charged decisions, away from Government.

Whilst it is acknowledge that there is more that can be done at the local authority level to manage demand, it is likely that these will have a limit to the level of impact they deliver – in part because of the scalability and due to concerns about unintended consequences, especially if one area goes first and puts itself at a

[8] The Climate Assembly, https://www.climateassembly.uk/report/read/how-we-travel-on-land.html
[9] https://governance.wmca.org.uk/documents/s6389/Appendix%202.pdf

perceived disadvantage. Consideration of a national road user scheme or pay as you go driving could be better tools and would help to close the funding gap created by reductions to Vehicle Exercise Duty (VED).

Possible approaches to a national road pricing scheme could be the use of an external, not-for-profit organisation who manages the system, rather than government or the use of insurance companies, who already collect and manage all data which would be necessary for road pricing, as featured in the 'Miles Better' 2017 Wolfson Economics Prize proposal[10]. Detailed examples of road pricing schemes, mainly internationally, can be found in our submission to the Transport Select Committee[11].

However, when considering demand management, we also need to consider the social aspect of their implementation. For instance, although road user charging is likely to have an impact on reducing the number of people driving, or vehicle miles, it will likely affect those on the lower incomes the most. This is hugely inequitable and could place them in a situation of even lower socio-economic status and consideration to measures to mitigate these impacts would be necessary. On the other hand, road space reallocation generally affects everyone equally therefore presenting a more equitable method of demand management.

Many examples of road space reallocation were seen during the recent pandemic where the DfT updated its statutory guidance under the Traffic Management Act 2004 to make it easier and quicker for local authorities to make significant changes to road layouts to make it easier to encourage active travel modes. Within the West Midlands a number of schemes were implemented with support from the Emergency Active Travel Fund (EATF), enabling people to walk and cycle more easily across the city. DfT have set out wider plans to improve design and space for cycling schemes by embedding LTN120 standards and reforms to the Traffic Management Duty to provide improved priority infrastructure and measures for buses.

A draft West Midlands LTP Core Strategy[12] has been published and is now out for public consultation. The draft strategy reflects discussions had with West Midlands Leaders and acknowledges that demand management tools will be needed to significantly change people's transport behaviours beyond particular centres/corridors. Behaviour change measures, to be successful, also need measures which support improved accessibility. The implementation of both demand management and public investment together will be vital for improving the coverage, affordability and frequency of revenue dependent transport services such as public transport and car clubs and other sustainable travel options.

Summary

Demand management could evidently have a positive outcome for the UK in reducing private vehicle usage, and therefore help in reaching our carbon targets however, it's conceived unpopularity with the general public makes political representatives often unwilling to implement such measures.

A step forward would be political leadership in fronting debate with the public about the choices to make and the consequences of those. The NIC should investigate how national Government takes a more proactive lead on national demand management (esp. on achieving carbon targets) and future pricing options for vehicles, as we electrify the transport system.

[10] Miles Better, Wolfson Economic Prize, 2017, https://policyexchange.org.uk/wp-content/uploads/2017/07/Gergely-Raccuja-Miles-Better-Revised-Submission.pdf
[11] TfWM's submission to TSC, 2021, https://committees.parliament.uk/writtenevidence/22819/html/
[12] WM Draft LTP Core Strategy, https://governance.wmca.org.uk/documents/s6388/Appendix%201.pdf

Challenge 9: Interurban transport across modes – the Commission will consider relative priorities and long term investment needs, including the role of new technologies, as part of a strategic multimodal transport plan.

Question 17: What are the barriers to a decision making framework on interurban transport that reflects a balanced approach across different transport modes?

Before answering this question, it is important to note that we should not ignore rural areas when considering our transport links and networks. Whilst the West Midlands is mostly an urban area the WMCA contains various rural areas within its boundary and on the periphery of the Metropolitan area. Although interurban trips are important, it is also vitally important to connect our rural locations with our towns and cities to ensure access to employment, healthcare, education and leisure activities are available to all. Not considering rural locations when looking at the transport network runs the risk of isolating those living and working there and increasing their car dependency.

We must also note that we cannot separate the networks used for interurban travel from those used for intraurban. It must be understood that there is often a trade-off with regards to capacity over the shorter, local trips within towns and cities versus the longer journeys between urban centres.

Examples of this are particularly evident in rail, which pre-pandemic was often reaching full capacity at peak times with virtually no room to add extra services onto already-full train paths. The following competition has contributed to this:

- General trade-offs between intraregional and interregional services (i.e. is it more important to have local connectivity or connectivity to places further away).
- Specific trade-offs between which destinations are more important to connect (e.g. is it more important to provide a connection between Birmingham and Leicester or Wolverhampton and Nottingham).
- Between fast trains that don't stop a lot and slow trains that stop everywhere.
- Between freight services and passenger services.

The evolution of interurban connectivity should be balanced with, and coordinated with national policy, such as spatial planning and economic strategy, to deliver growth, which ideally should be achieved through sustainable urban settlement patterns, and economic/industrial strategy, particularly focusing on those industries with substantial freight requirements (including the logistics sector itself which also underpins general servicing of sectors that are less associated with goods movement (e.g. service based industries)).

There are decisions on how best to use existing (and where necessary supplement) infrastructure and how to prioritise the users of it. This is the same for both the road and rail networks. In terms of rail particularly there is a need to think carefully about how limited capacity should be used (or enhanced) most effectively e.g. in urban areas such as the West Midlands, to resolve the conflict between local rail and interurban passenger and freight services. This is an area where inter and intraurban transport strategy intersect and highlights the need for more coherent national, regional and local transport (and supporting) policy.

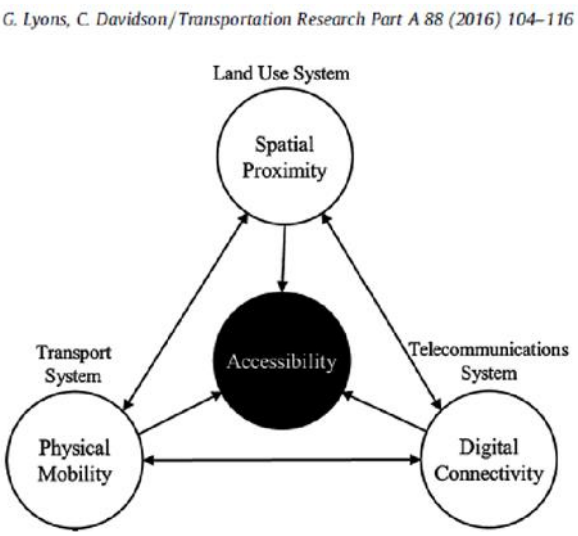
The capacity on heavy rail networks is more constrained than our road networks, and heavy rail provides particular advantages in catering for long distance mass transit. Ideally, markets currently served by local rail stopping services in metropolitan areas might otherwise better be served by road/light rail based public transport, freeing up capacity on heavy rail networks for interurban travel. However, the success of this is dependent on alternative provision for intra-urban mass transit being forthcoming.

There is also competition on motorway networks where freight movements, longer distance private trips and short distance junction hopping trips all lead to motorway capacity being stretched. This is a particular issue for the West Midlands, a region with multiple strategic centres and a central UK location, making it a prime choice for freight and logistic locations and movements and many of the issues with the West Midland's 'motorway box' are a result of these behaviours.

It can be argued that both long interurban and short intraurban trips are equally important making it difficult to prioritise them. Although longer trips tend to be associated with economic activity that is often considered higher value (on a per trip basis), these are far less frequent and fundamental to the day to day lives and social and economic needs of our population. Both types of trips are strategically important for local, regional and national objectives. National transport strategies need to see the vital importance of both types of trips and strike the right balance between enabling both, providing guidance and advice on how the whole integrated transport system can support this.

In order to improve the sustainability of long-distance trip making we need to consider three aspects:

- There should be a review into what the long-distance trip-making is providing access between and to; and looking at the triple access system (spatial proximity, mobility, and digital connectivity) to consider the full suite of options for improving access. This should also include exploring how future RIS objectives are assessed against this review.
- Where long distance trip making does need to occur, given the much greater capacity constraints on rail, we need to be more creative for how roads can be used to provide access through longer distance forms of road based public transport if we want to reduce vehicle km's.
- We need to look at creating and optimising additional tools which can help to manage the demand and use of the infrastructure (e.g. telecommuting methods).



It should be noted that the Covid-19 pandemic has changed both capacity levels for different transport modes, and the way we live our lives. Considering this, there is still a lot of unknown around how capacities may change if, and when, we return to normal and how differently our behaviour will change. However, we are seeing a car-led recovery, which will undermine any attempt to ensure a green recovery.

If transport connectivity, spatial planning and digital connectivity is evolved in the right way, improving access to opportunity and markets needn't mean encouraging (and inducing) higher rates of longer distance travel; this approach would be inconsistent with decarbonisation objectives (which require a reduction in energy demands of transport) and wider objectives relating to other external impacts of travel and equity of access.

Finally, although electric vehicles (EV) are not the solution to resolving long distance (or even short distance) trips, they will likely play a role in our future transport systems. Therefore, we need to ensure that Distribution Network Operators (DNOs) and local authorities are working together, alongside other key players in the EV industry, to ensure that EV infrastructure is being optimised and provided in the right locations.

Summary

Government has no national targets for vehicle mile reduction relating to decarbonisation or other objectives for transport, nor a position on how demand management/reduction should be distributed across travel between different places in the UK. The approach to national strategy is fragmented, and although we have mode-specific strategies (Gear Changes, Bus Back Better, Williams-Shapps Plan for Rail.), a common statutory framework should be developed with funding aligned to this, as opposed to being mode-based, to reflect an integrated transport system.

The policy framework for placemaking has also resulted in examples of inconsistency across the country, for example with gaps between Local Development Plans and LTPs. These need to share a common statutory framework for transport that is aligned with a wider strategic and statutory framework for place making, energy and other related sectors. Development is permitted which is continuing to create a car dependent transport

legacy (further entrenched in future RIS3 objectives) that will make decarbonisation and other objectives less achievable.

The NIC could explore the need for an overarching transport strategy to resolve the tensions between competing aims and give guidance on how to address the right balance between intra and interurban trips.