

PRINCIPLES FOR EFFECTIVE URBAN INFRASTRUCTURE

Lessons learned from the Next Steps for
Cities programme

NATIONAL
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COMMISSION

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The Commission

The Commission's remit

The Commission provides the government with impartial, expert advice on major long term infrastructure challenges. Its remit covers all sectors of economic infrastructure: energy, transport, water and wastewater (drainage and sewerage), waste, flood risk management and digital communications. While the Commission considers the potential interactions between its infrastructure recommendations and housing supply, housing itself is not in its remit. Also out of the scope of the Commission are social infrastructure, such as schools, hospitals or prisons, agriculture, and land use.

The Commission's objectives are to support sustainable economic growth across all regions of the UK, improve competitiveness, and improve quality of life.

The Commission delivers the following core pieces of work:

- a National Infrastructure Assessment once in every Parliament, setting out the Commission's assessment of long-term infrastructure needs with recommendations to the government
- specific studies on pressing infrastructure challenges as set by the government, taking into account the views of the Commission and stakeholders, including recommendations to government
- an Annual Monitoring Report, taking stock of the government's progress in areas where it has committed to taking forward recommendations of the Commission.

The Commission's binding fiscal remit requires it to demonstrate that all its recommendations for economic infrastructure are consistent with, and set out how they can be accommodated within, gross public investment in economic infrastructure of between 1.0% and 1.2% of GDP each year between 2020 and 2050. The Commission's reports must also include a transparent assessment of the impact on costs to businesses, consumers, government, public bodies and other end users of infrastructure that would arise from implementing the recommendations.

When making its recommendations, the Commission is required to take into account both the role of the economic regulators in regulating infrastructure providers, and the government's legal obligations, such as carbon reduction targets or making assessments of environmental impacts. The Commission's remit letter also states that the Commission must ensure its recommendations do not reopen decision making processes where programmes and work have been decided by the government or will be decided in the immediate future.

The Commission's remit extends to economic infrastructure within the UK government's competence and will evolve in line with devolution settlements. This means the Commission has a role in relation to non-devolved UK government infrastructure responsibilities in Scotland, Wales and Northern Ireland (and all sectors in England).

The Infrastructure and Projects Authority (IPA), a separate body, is responsible for ensuring the long-term planning carried out by the Commission is translated into successful project delivery, once the plans have been endorsed by government.

The Commission's members

Sir John Armitt CBE (Chair) published an independent review on long term infrastructure planning in the UK in September 2013, which resulted in the National Infrastructure Commission. Sir John is the Chair of National Express Group and the City & Guilds Group. He also sits on the boards of the Berkeley Group and Expo 2020.

Professor Sir Tim Besley CBE is School Professor of Economics and Political Science and W. Arthur Lewis Professor of Development Economics at the LSE. He served as an external member of the Bank of England Monetary Policy Committee from 2006 to 2009.

Neale Coleman worked at the Greater London Authority from 2000 to 2015, leading the Mayor's work on London's Olympic bid, the delivery of the Games and their regeneration legacy. He also led the Mayor's first approach to housing, regeneration, health and devolution.

Professor David Fisk CB is the Director of the Laing O'Rourke Centre for Systems Engineering and Innovation Research at Imperial College London. He has served as Chief Scientist across several government departments including those for environment and transport, and as a member of the Gas and Electricity Markets Authority.

Andy Green CBE holds several Chair, Non-Executive Director and advisory roles, linked by his passion for how technology transforms business and our daily lives. He chairs Lowell, a major European credit management company and has served as Chair of the Digital Catapult, an initiative to help grow the UK's digital economy.

Bridget Rosewell CBE is a director, policy maker and economist. She served as Chief Economic Adviser to the Greater London Authority from 2002 to 2012 and worked extensively on infrastructure business cases. She has served as a Non-executive Director at Network Rail and Non-executive Chair of the Driver and Vehicle Standards Agency. She is currently Chair of the Atom Bank and the M6 Toll Road.

Professor Sadie Morgan OBE is a founding director of the Stirling Prize winning architectural practice dRMM. She is also Chair of the Independent Design Panel for High Speed Two and one of the Mayor of London's Design Advocates. She sits on the boards of the Major Projects Association and Homes England.

Julia Prescott is a co-founder and Chief Strategy Officer of Meridiam and sits on the Executive Committee of Meridiam SAS. She has been involved in long term infrastructure development and investment in the UK, Europe, North America and Africa. Since 2019 she has sat on the board of the Port of Tyne.

Executive summary

One of the central recommendations made in the first National Infrastructure Assessment was the need to improve transport networks in cities, recognising that the current system of funding and planning for urban transport – with its lack of long-term planning – is holding back much needed progress.

The Commission recommended significant central government investment in urban transport and devolved, long-term funding settlements to all cities to give them the freedom and resources to plan and deliver effective transport networks. The Commission also recommended that government identify and invest, alongside cities, in a wave of major transport projects in the fastest growing, most congested cities to enable sustainable growth.

The Commission's Next Steps for Cities programme launched following the publication of the National Infrastructure Assessment. The programme aimed to help cities prepare ambitious, effective and integrated strategies for transport, employment and housing. The programme was built around a series of events for cities to share knowledge and best practice on key topics of relevance to integrated infrastructure planning. Alongside this was in-depth work with a selection of five case study cities as they embarked on developing their own local infrastructure strategies.

In partnership with cities from across the country, the National Infrastructure Commission has developed guidance for cities seeking to develop ambitious, effective infrastructure strategies. The guidance in this resource highlights some of the approaches that can support success, informed by real life examples from engagement with a large group of cities as well as in-depth work with five case study cities. It provides advice that can be applied by cities of all sizes and operating under all governance models.

Originally developed prior to the Covid-19 pandemic, this programme and guidance has subsequently taken on a new significance, with significant uncertainty regarding future travel demand and employment patterns.

Putting in place ambitious, effective strategies for transport, housing and employment in growing and congested cities will be essential to support economic recovery. Locally, such strategies will allow cities to make the most of devolved powers and contribute to the national objectives of ensuring balanced growth across every region of the country.

The findings of this programme include eight key principles for effective and ambitious urban infrastructure strategies. The principles demonstrate the cycle that strategy development should go through, from developing a shared vision for the city's future to choosing priorities based on the best evidence and bringing partners along.

Building on these principles, this resource provides a review of themes that urban infrastructure strategies in different places may need to consider, based on the knowledge and expertise that cities and researchers shared over the course of the programme. The issues discussed are all at the heart of what citizens expect their infrastructure to provide, from economic opportunity to inclusive places and a clean environment.

Finally the programme shares the experiences of five local authorities who have been developing their own infrastructure strategies over the last eighteen months, in Basildon, Derby, Exeter, Liverpool and West Yorkshire.

Eight principles for effective and ambitious strategies for urban infrastructure



Vision: An infrastructure strategy should demonstrate an ambitious, yet realistic long-term vision that sets the trajectory for future change. Cities should develop an infrastructure strategy based around achieving their vision, rather than the other way around.



Scope: Scoping sets clear boundaries within which the strategy will be developed. An infrastructure strategy might involve neighbouring authorities and is likely to consider issues beyond infrastructure, such as health and wellbeing, inclusion, environment and the economy.



Engage and consult: Some of the most successful infrastructure plans and strategies have emerged from processes that have sought to engage and build consensus, including with internal colleagues, external stakeholders and across political parties. Insufficient engagement is the biggest risk to the plan not getting traction.



Evidence: Cities will need a range of evidence sources about their existing assets, future needs and the benefits of intervention to inform their strategies. Collecting evidence might be as much about analysing and modelling existing data as it is about commissioning wholly new datasets.



Options: Cities should consider a wide range of options for meeting their objectives. Not considering options risks missing solutions that might offer better social value. Options such as maintenance, regulation and pricing are often more cost-effective and efficient than building new infrastructure.



Test: The strategy should be adaptable to uncertainties and risk. Potential interventions need to be stress tested to understand whether they are likely to cope with a range of future outcomes and sifted to consider their acceptability, effectiveness, feasibility, deliverability and affordability.



Prioritise: An infrastructure strategy should not be an unachievable wish list. The priorities for action should be clearly identified and linked to the objectives. The best schemes may be those that are part of a longer term direction of travel, even if they do not have the best return when viewed individually.



Evaluate: Proper evaluation of interventions is crucial to creating a robust evidence base which can be used to justify further investment. Cities should build in evaluation from the early stages to ensure that budget and resource is approved alongside the main schemes or interventions.

Introduction

The impacts of Covid-19 and the subsequent economic downturn have been felt across the whole of the UK. However, we know from previous recessions that the economic crisis is unlikely to follow the same trajectory in every location. History suggests that cities can and do bounce back from major shocks, but is it too early to understand what the long-term implications might be.¹ Infrastructure, alongside a range of other policy measures, will play a crucial role in the economic recovery and delivering government's commitment to 'level up' the UK economy, by bolstering economic opportunity and productivity in areas with the potential for higher growth.

Despite the uncertainty, higher quality urban infrastructure and better integrated services should still be among the country's top priorities for investment. Though central government needs to provide significant long-term funding for this, it will also be down to local areas to help finance infrastructure projects and deliver on improvements in their areas.

Infrastructure is necessary but not sufficient to secure economic growth. Transport investment can alleviate bottlenecks to growth in congested areas, while infrastructure improvements can, alongside wider policies such as skills and innovation, increase growth in lower productivity areas. There are already many great examples of success in local infrastructure delivery, and to maximise the benefits of increased funding and local autonomy it will be important for city leaders across the country to learn from what has worked elsewhere.

In partnership with cities from across the country, the National Infrastructure Commission has developed guidance for cities seeking to develop ambitious, effective infrastructure strategies. The guidance in this resource highlights some of the approaches that can support success, informed by real life examples from engagement with a large group of cities as well as in-depth work with five case study cities. It provides advice that can be applied by cities of all sizes and operating under all governance models.

Originally developed prior to the pandemic, this programme and guidance has subsequently taken on a new significance, given the uncertainty regarding future travel demand and employment patterns. Putting in place ambitious, effective strategies for transport, housing and employment in growing and congested cities will be essential to support economic recovery. Locally, such strategies will allow cities to make the most of devolved powers and contribute to the national objectives of ensuring balanced growth across every region of the country. The Commission will be investigating the likelihood and scope of long-term behavioural impacts due to the pandemic on the demand for infrastructure.

Background

The Commission's recommendations for urban transport

In 2018 the Commission published its first **National Infrastructure Assessment** examining the long term infrastructure needs of the UK. One of the central recommendations made in the Assessment was the need to improve transport networks in cities, recognising that the current system of funding and planning for urban transport – with its lack of long-term planning – is holding back much needed progress.

The Commission recommended significant central government investment in urban transport and devolved, long-term funding settlements to all cities to give them the freedom and resources to plan and deliver effective transport networks. The Commission also recommended that government identify and invest, alongside cities, in a wave of major transport projects in the fastest growing, most congested cities to enable sustainable growth.

At the Budget in March 2020, the government announced that it would provide five-year funding settlements to cities with combined authorities led by elected metro mayors. This is a welcome development, delivering on the first part of the Commission's recommendation on transport funding, at least in eight of England's larger city regions.²

There is a need to support better quality infrastructure across all towns and cities. Government should also go beyond existing commitments by providing devolved transport budgets to local leaders in cities or towns with populations above 100,000, where congestion becomes a larger problem. Funding should gradually be increased to around 30 percent more than historic local transport spending levels.

This would enable councils to set and deliver infrastructure strategies that are fundamental to driving the economic recovery, establishing investor and business confidence, and respond to the economic and social needs of their communities – improving prosperity and quality of life for millions of people. Devolved spending would allow local leaders to efficiently deliver smaller scale local projects that have very high returns but don't currently have budgets to deliver them.³ Local knowledge and accountability should ensure money goes to the projects that are highest priority in every place, rather than putting resource into constant rounds of bidding for more.

Government should also set out plans for the selection and development of a new wave of major transit projects in the fastest growing, most congested cities across the country. At the time of the 2018 Assessment, the Commission estimated that more than £30 billion will be needed for this between now and 2040. This would be enough to fund schemes like new rail tunnels or completely new tram lines in a handful of larger cities, as well as bus rapid transit networks for some smaller cities and larger towns. The Commission recommended that cities benefiting from major projects should make commitments on housing delivery and provide at least 25 per cent of funding.⁴

The Next Steps for Cities programme

The Commission's **Next Steps for Cities** programme launched following the publication of the National Infrastructure Assessment. The programme aimed to help cities prepare ambitious, effective and integrated strategies for transport, employment and housing.⁵ These integrated strategies help ensure that infrastructure contributes to the productivity of cities and the quality of life of their citizens, and will be vital for cities to make the most of the investment and devolution of funding.

The programme was built around a series of events for cities to share knowledge and best practice on key topics of relevance to integrated infrastructure planning, alongside in-depth work with a selection of five case study cities as they embarked on developing their own local infrastructure strategies. More detail about the programme can be found in the programme [launch document](#).⁶

The Commission is grateful for the commitment, time and enthusiasm from the officials and politicians of all the cities and experts who took part in all aspects of the programme. Every case study city with which we have worked has risen to the challenge – the Commission hopes that this, combined with the guidance set out here, will give other cities and places the confidence to develop ambitious infrastructure strategies for the long term.

The Commission will continue working closely with cities in future, particularly through a specific focus on the role of infrastructure in ‘levelling up’ through the second National Infrastructure Assessment, due to be published in 2023. The Commission is also investigating the likelihood and scope of long-term behavioural impacts due to the pandemic on the demand for infrastructure.

Contents

This document summarises the lessons learned from the Commission’s work with cities as part of this programme. The document comprises:

- principles underpinning the development of effective integrated infrastructure strategies
- examples of good policymaking on some of the key issues that urban infrastructure strategies may need to address
- an overview of the infrastructure strategy development work that has been done by the five Next Steps for Cities case study cities.

Defining cities

In the Commission’s work on devolution of funding to cities, we have defined cities as:

- The nine cities with a combined authority, with or without a mayor
- Greater London
- The 35 other cities defined by the Centre for Cities as a Primary Urban Area - including all built up areas with a daytime population of 135,000 or more.⁷ This roughly corresponds to a residential population of over 100,000.

The list in this report includes 45 cities in total.

Cities involved in the Next Steps for Cities programme



1. Principles for developing a local infrastructure strategy

This section, developed from the Commission’s knowledge sharing events and work with five case study cities, sets out the key guiding principles for developing an effective infrastructure strategy – from the strategic vision through objective setting, options development and prioritisation, to data and evaluation – and some suggested resources for doing so.

City leaders taking decisions in the short term will shape the quality of life in cities and the productivity of cities and the country in the future. Ambitious, effective strategies for transport, housing and employment in growing and congested cities are essential to support balanced growth across every region of the country. These offer the opportunity for cities to reflect their own economic and social priorities in a place-based, visionary and strategic way, based on local knowledge and accountability.⁸

The Commission’s National Infrastructure Assessment recommended that city leaders should develop long term plans for their city-region reflecting their own economic and social priorities, based on their own local knowledge and accountability.⁹ The impacts of the pandemic have only served to reinforce the importance of this recommendation.

An effective and credible local infrastructure strategy will integrate transport policy with a clear long-term plan for where housing growth can be accommodated in and around cities, an understanding of where employment growth is likely to occur, and broader policies to make the best use of existing and new infrastructure. It should clearly complement other work, including local industrial strategies. It should cover maintenance and renewals as much as new schemes. Quality of life and other urban infrastructure, such as digital and flood resilience, also need to be considered.

Throughout its engagement with cities, the Commission has consistently heard that, alongside devolution of powers and funding, city leaders and officials want guidance and resources to develop a compelling future vision and local infrastructure strategy for their city. This best practice guidance, developed through the Commission’s work with cities, sets out the underlying principles for developing a local infrastructure strategy and ideas of the kinds of issues an infrastructure strategy could address. The principles and guidance sit alongside the Commission’s Design Principles for National Infrastructure.¹⁰

These principles need not be considered in sequence – they should be used as appropriate to local circumstances. They may not all be used – some may already have been completed locally or there will be existing work that can be used. The examples and suggestions provided are indicative and not intended to be templates or exhaustive.¹¹

The principles set out in this guidance are primarily aimed at cities and city regions¹², but will also apply to other places as appropriate to their governance or devolution settlement. They are intended to apply across all sectors of infrastructure, though they are principally illustrated throughout this guidance with examples relevant to developing integrated strategies for transport, employment and housing, which was the focus of the Commission's recommendations in the National Infrastructure Assessment and the work of the Next Steps for Cities programme.

Capacity and capability within cities will be essential to make the most of these eight principles. Strategies will not have the desired impacts without understanding 'what works' and how to deliver successfully at a local level. This is true for the development process itself as much as the strategy: at inception, senior sponsors (officials or elected members) should be convinced that there is a need to develop an infrastructure strategy, and value in investing the resources to do so. The programme's case study cities each had senior sponsors and dedicated resource focused on their strategies (though they varied in size and scale). As will be seen below, strategies need to be underpinned by a clear delivery plan and sound evidence base for tested and prioritised interventions.

An appropriate level of devolution is a significant success factor for the development of a credible and successful local infrastructure strategy, empowering and enabling cities through relevant powers and control over funding. However, even for places that do not currently benefit from devolved settlements, a well-designed infrastructure strategy can make a positive difference, despite ad hoc funding arrangements.

1. Vision

An infrastructure strategy should demonstrate an ambitious, yet realistic long term vision that sets the trajectory for future change. Cities should develop an infrastructure strategy based around achieving their vision, rather than the other way around.



This long-term vision should incorporate the economy, climate change impacts, local environment and geography, based on a comprehensive understanding of existing infrastructure networks (ideally over a longer term than a 15 year local plan horizon). In some cases, this vision might already exist within local plans or have been developed in pre-existing work. As part of the development process, it is likely to be helpful for cities to have an idea of the type of outcomes they want in future (for instance improving city centre accessibility by public transport) before thinking about the types of infrastructure or specific schemes that might form part of their strategy.

If this vision does not already exist, cities should commit to developing a genuinely compelling and clearly expressed place-based vision for the long term. As well as covering sustainable transport this should ensure that health, inclusion and environmental needs are integrated from the start – infrastructure planning should not be limited to transport planning.¹³ A good vision will be ambitious, yet realistic over the long-term. Derby City Council identified the absence of an overarching, long term vision as a challenge for developing their Integrated Infrastructure Plan. The council has moved to address this, laying out plans for a commission of key stakeholders and community leaders to develop a clear vision for the city. By bringing key stakeholders on board from the start, this process will seek to build a broad base of support for the vision and help the council to develop their long-term strategy and objectives.

The final report of the Milton Keynes Futures 2050 Commission demonstrates an articulate vision for the future of the city. This vision has endured and set the direction for a subsequent strategy for 2050.¹⁴ Exploring visions and aspirational values can be one of the most easily accessible starting points for conversations about the future of a city. The process of setting out a vision can help build consensus and get business, the public and wider stakeholder groups onboard with the strategy, if the narrative resonates with them and addresses their interests. This frames the development of an infrastructure strategy, and other policies in areas such as economic development, to ensure they align towards the same desired outcome.

Resources:

- Government Office for Science (2016), **Foresight for Cities: A resource for policymakers**
- Planning Advisory Service (2009), **A steps approach to infrastructure planning and delivery**
- MK Futures 2050 Commission (2016), **Making a great city greater**
- Bristol Connected City (2019), **Connecting Bristol: laying the foundations for a smart, well-connected future.**

2. Scope

Scoping sets clear boundaries within which the strategy will be developed. An infrastructure strategy might involve neighbouring authorities and is likely to consider issues beyond infrastructure, such as health and wellbeing, inclusion, environment and the economy.



Having an early understanding of the scope and objectives of the strategy is crucial, as it sets the boundaries (such as geography, time and infrastructure sectors) within which the strategy will be developed, and prevents the strategy trying to cover too much. The objectives of the strategy should be clearly and pragmatically aimed at achieving the place-based vision. Setting clear objectives at the start of the process has allowed West Yorkshire Combined Authority to create a framework for assessing potential interventions and identifying which ones will meet local needs and overarching objectives most effectively.

An infrastructure strategy is likely to encompass issues beyond simply infrastructure, including health and wellbeing, inclusion, environment, the economy and energy efficiency. The scope and objectives should therefore consider other policy documents and strategies (such as local industrial strategies) that have been or are being developed elsewhere in the city or in neighbouring areas, with a clear understanding of how the infrastructure strategy complements or builds upon these documents. This is likely to be an iterative process and bringing these documents together to complement each other over time could be identified as a longer-term ambition in the strategy.

As part of the scoping stage, it is critical that cities identify the geographic area that the strategy covers and ensure that their vision is both appropriate to that area and deliverable. It may be appropriate for cities to look at the functional geography of an area involving one or more neighbouring authorities. This is particularly the case when transport, accessibility and housing are considered alongside other infrastructure, as it may mean examining the travel to work or housing market area.¹⁵

In some cases, this can lead to strategic partnerships with neighbouring cities, allowing for a stronger combined bidding power on joint projects. This approach can be seen in action in collaborative work between Derby and Nottingham.¹⁶

At this stage it may also be useful for cities to consider the mechanisms to deliver the strategy, for example whether it should be statutory or non-statutory and how to break the long term ambition into a series of shorter delivery plans that set the trajectory for achieving the place-based vision.¹⁷ During the development process, Exeter considered how their strategy could be delivered through a range of approaches, including a community interest company.

Resources:

- **Exeter case study**
- **West Yorkshire Combined Authority case study**

3. Engage and consult

Some of the most successful infrastructure plans and strategies have emerged from processes that have sought to engage and build consensus, including with internal colleagues, external stakeholders and across political parties. Insufficient engagement is the biggest risk to the plan not getting traction.



Infrastructure planning cannot and should not be undertaken by planners alone and the value of organisational partnerships in building capability and capacity should not be overlooked. Building consensus can take many forms, including engaging with internal colleagues or external stakeholders or working across political parties.

Officials leading the development of a strategy should seek to build relationships with colleagues inside and outside their own organisations. This could include official agencies, such as district and county authorities, private companies (such as utilities providers), and political parties (such as cross-party cooperation to provide longer-term buy in for strategies). It may also be possible to seek contributions from national institutions (for instance Homes England). If the strategy doesn't properly engage with different stakeholders, as well as the institutional and financial constraints and opportunities that the city faces, this will be the biggest risk to the strategy not having the desired impact.

Basildon adopted a collaborative approach, working productively with Essex County Council and learning from a relationship with a mentor city to develop their strategy, yielding real benefits in pooling resources and expertise. Developing relationships with officials in other cities can be valuable when looking for independent challenge or advice on specific policy areas. The Commission's case study cities developed mentoring relationships with other UK cities for this purpose.

Cities should also maintain an open and transparent relationship with external stakeholders such as business and civic groups about the challenges faced in implementing any infrastructure plan throughout the process, as this can keep stakeholders on board and pre-empt external challenge to any proposals. The strategy development phase can be used as an opportunity to work with local stakeholders to establish how things like the climate crisis or sustainable mobility could affect them. When developing their MK Futures 2050 vision, Milton Keynes Council invited challenge throughout the process. This allowed officials to pre-empt and accommodate criticism in the planning stages and gave access to expertise that would otherwise be unavailable.

In some areas of policy development and decision making it may be helpful to utilise different methodologies to engage the public.

It is also worth bearing in mind that process of engagement also produces other benefits that are often less visible, such as new relationships and commitment to long-term change.¹⁸

Resources:

- MK Futures 2050 Commission (2016), **Making a great city greater**
- **Basildon case study**
- **Newcastle City Futures** – various reports of public engagement exercises.

4. Evidence

Cities will need a range of evidence sources about their existing assets, future needs and the benefits of intervention to inform their strategies. Collecting evidence might be as much about analysing and modelling existing data as it is about commissioning wholly new datasets.



Securing funding demands credibility, and credibility needs to be built on evidence. Cities developing a strategy should invest time and resources in thorough evidence gathering about existing assets, future needs and the benefits of intervention.

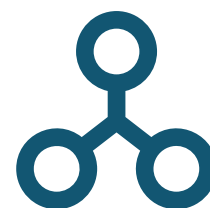
Assessing infrastructure needs over the next ten to 30 years is always challenging, and it is likely that cities will need a range of evidence sources to inform their infrastructure strategies. Given uncertainties in future demand, the strategic case for infrastructure investment should be clear – including the role of infrastructure in promoting growth, not just responding to demand. These could include developing scenarios, modelling, stakeholder engagement, social research, expert roundtables, commissioning new analysis, cost benefit analysis, analysis of local plans and strategies and learning from international best practice.¹⁹ To develop their connectivity plan, West Yorkshire Combined Authority reviewed existing programmes to identify funding gaps and commissioned assessments of the infrastructure need for 22 transport corridors within the region. These corridor reviews collated a wide variety of data including deprivation indicators, availability and accessibility of public transport, average journey to work times and car ownership.

Collecting evidence might be as much about analysing and modelling existing data as it is about commissioning the gathering of wholly new datasets such as vehicle movement data, which is likely to be costly and time consuming. Data is a powerful tool for developing infrastructure strategies, but it needs to be accessible and intelligible if it is to be helpful or meaningful. The tools for data analysis must be transparent to both maximise their use and enhance the credibility of any evidence produced. The data gathering process should take place without bias or exaggeration, using approaches consistent with standards applied by central government.

Resources:

- **West Yorkshire Combined Authority case study**
- CIHT (2017), **Futures in practice: Smarter thinking for a better future.**

5. Options



Cities should consider a wide range of options for meeting their objectives. Not considering options risks missing solutions that might offer better social value. Options such as maintenance, regulation and pricing are often more cost-effective and efficient than building new infrastructure.

Cities should use creative exploration and the development of future policy options to seek to generate a range of possible roadmaps to achieve the objectives of the strategy. Options and interventions should be guided by, and consistent with, the four Design Principles for National Infrastructure – climate, people, places and value – outlined by the National Infrastructure Commission’s Design Group.²⁰

Cities being genuinely open to a wide range of different options for meeting the objectives of their strategies will be more effective than rejecting options out of hand. Starting out with a narrow set of options or a pre-determined solution risks missing the opportunity to explore more novel, innovative solutions that might offer better social value.²¹ It is inevitable that some of the options may be more desirable than others, or that some may appear radical or politically unappealing. But the process of generating a range of ideas with input from a range of stakeholders will provide a richer picture of what the future could look like in terms of programmes, investments, interventions and actions.

For infrastructure, it is also helpful at this stage to expand consideration beyond just what should be built, but also to include regulation, pricing, operating models, and timetabling as alternative options. These are often more cost-effective than building new infrastructure and can be much more efficient ways to achieve the vision. This process could be informed by an existing evidence base, stakeholder consultation or engagement, lessons learned from previous interventions or international best practice.²²

Over the course of the Next Steps for Cities programme, Basildon Borough Council and Essex County Council considered a wide range of different approaches for their transport network before identifying which would best meet their strategic objectives. West Yorkshire Combined Authority’s corridor-based strategy took a similar approach, identifying a wide range of interventions that could be used to address key issues in each corridor.

This process can be started by reviewing the content of existing strategies and understanding what has worked in the past, but cities should look beyond an existing list of potential schemes, and should not be constrained by previous approaches. Sometimes, looking at issues in a non-traditional way can help to generate different options – the Commission has heard about places that have literally turned maps upside down to approach potential options afresh. Options generation should also assess the need to maintain and upgrade existing infrastructure, rather than just wholly new infrastructure.

Resources:

- Government Office for Science (2016), **Foresight for Cities: A resource for policymakers**
- **Basildon case study**
- HM Treasury (2018), **The Green Book**. Central government guidance on appraisal and evaluation.

6. Test

The strategy should be adaptable to uncertainties and risk. Potential interventions need to be stress tested to understand whether they are likely to cope with a range of future outcomes and sifted to consider their acceptability, effectiveness, feasibility, deliverability and affordability.



Infrastructure strategies should take into account uncertainties and risk because cities are extraordinarily dynamic and the future will always be uncertain. A ‘predict and provide’ approach, where policymaking is vulnerable to failure due to unanticipated change, is likely to be insufficient.²³ An infrastructure strategy, more than ever, should not simply assume that the future will follow a linear progression and that ongoing trends will continue – it should also be capable of accommodating shocks and surprises, being adaptable to unanticipated change.^{24,25}

Having generated an initial long list of options, it can then be useful to conduct a simple sifting exercise to identify those to look at more closely. The sifting exercise should consider how effective each option is at addressing the identified challenge, how feasible it is, for example in terms of cost and deliverability, and how acceptable it is likely to be to users, the wider public and to stakeholders. An integrated impact assessment or multi-criteria analysis – for example considering environmental, social and design impacts – could be undertaken to identify any areas of concern that would require mitigation.²⁶ This will help to identify any specific legal requirements for local strategies, such as those relating to reducing carbon emissions.

The options also need to be stress tested to understand whether they are likely to cope with a range of future outcomes. Scenario planning and foresight resources should be used to help plan for uncertainty.²⁷ This process can be used to identify the approaches with no, or fewest, regrets, and which are therefore more robust to future uncertainty – and those which are more dependent upon certain future conditions being fulfilled.²⁸ For example, Transport for London adopted this approach when identifying interventions for the Mayor’s Transport Strategy. They used strategic modelling to forecast future growth and passenger numbers across the network, which enabled them to establish a baseline to assess different packages of interventions against in varying scenarios.²⁹

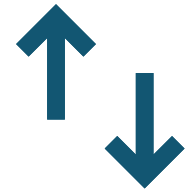
While not everywhere will be able to undertake this level of testing, stress testing alternative options through different scenarios and iteratively using this process to adapt and refine potential options is fundamental to devising an effective, sustainable and deliverable strategy. The Government Office for Science’s Foresight for Cities resource contains a number of techniques for testing potential interventions through different scenarios.

Resources:

- Mayor of London (2018), **Mayor’s Transport Strategy**
- Government Office for Science (2016), **Foresight for Cities: A resource for policymakers**
- Mayor of London (2017), **Mayor’s Transport Strategy Integrated Impact Assessment**
- CIHT (2016), **Uncertainty Ahead: Which Way Forward for Transport.**

7. Prioritise

While an infrastructure strategy should be an ambitious document, it should not be an unachievable wish list. The priorities for action should be clearly identified and linked to the objectives. The best schemes may be those that are part of a longer-term direction of travel, even if they do not have the best return when viewed individually.



An infrastructure strategy needs to remain pragmatic and achievable to stay credible. Taking the outputs from the options and testing stages above, the strategy should identify priorities for action, with each of the individual schemes or approaches selected linked clearly to the objectives of the strategy.

The strategy should outline how each proposed project was selected, the analysis behind the proposed costings and details of any aspects of the project which were rejected during the selection process. Care should be taken that prioritisation does not lead to unintended outcomes and any scoring solutions employed to help the prioritised should be sense-checked to ensure that the outcomes are consistent with the wider vision.³⁰

Focusing on short term bids should not crowd out longer term, strategic projects. While it will not always be possible or preferable to make big changes to transport all in one go, cities can stagger smaller changes to public transport to build towards longer term strategic goals. It is worth considering where the strategy starts, which schemes and approaches are most important to achieving particular objectives, and the schemes that unlock the greatest benefits. The best schemes may be the ones that are part of a longer-term direction of travel which will eventually provide well-evidenced, cumulative, programme-level benefits, even if they do not have the best return when viewed individually.

At this stage, it might be helpful to consider what policy levers are required to implement the infrastructure strategy and the extent to which they are within the local authority's control. In the event that further devolution of powers is required to deliver the strategy, it might be worth setting out what can be delivered using existing policy levers and what more could be achieved through further devolution.

The Transport for West Midlands Movement for Growth strategy is a good example of prioritisation and a staggered approach to delivery in practice. By accompanying the overarching strategy with its 2026 Delivery Plan, which identified priority corridors and the rationale for choosing them, Transport for West Midlands have been able to prioritise interventions for the short, medium and long term, and tailor their interventions to the strategic objectives of the wider strategy.³¹

Resources:

- Transport for West Midlands (2017), **Movement for Growth and 2026 Delivery Plan**
- Gloucestershire 2050 (2018), **Delivery Vehicles for Transformational Change.**

8. Evaluate

Proper evaluation of interventions is crucial to creating a robust evidence base which can be used to justify further investment. Cities should build in evaluation from the early stages to ensure that budget and resource is approved alongside the main schemes or interventions.



Ongoing, robust monitoring and evaluation of transport strategies is essential. Developing clear methods to monitor infrastructure and the impact of interventions will create a richer evidence base which can be used for future plans. Evaluation should not necessarily wait until the strategy has been fully implemented, it may be more useful to do earlier evaluation because it may allow cities to redesign certain parts of the intervention whilst it is being implemented.

It is vital that cities consider evaluation at the early stages of the strategy development process to ensure that budget and resource for doing so is considered and approved alongside the main schemes or interventions. Cities should also set out how they intend to use the data and knowledge from evaluation.

Evaluation should be a priority while interventions are being delivered and on an ongoing basis once interventions have been implemented. Evaluation is difficult for infrastructure as randomised control trials are very rarely an option – but creating a baseline is still necessary and possible, provided the right influencing factors are identified. Bristol City Council’s transport strategy is a good example of this in practice. The strategy outlines their key objectives and interventions, but importantly also identifies the metrics the council will use to monitor impacts and the data sources that will be used to evaluate the efficacy of interventions.³²

The What Works Centre for Local Economic Growth has produced a range of resources to help evaluation of policies and projects, including an eight step guide to better evaluation.³³ There are a wide range of metrics that can serve as barometers for success, including: public opinion, passenger numbers, reliability, customer satisfaction, congestion and air quality. Evaluation should be proportionate to the size of the city and the scale of the programme, prioritising specific areas if necessary. It may be helpful to share evaluations or overall lessons learned with other cities to benefit from.

Resources:

- What Works Centre for Local Economic Growth (2018), **How to evaluate**
- Bristol City Council (2019), **Bristol Transport Strategy**
- Transport for Greater Manchester (2018), **Greater Manchester Transport Strategy 2040: Progress Report.**

2. Issues to address in a local infrastructure strategy

Local infrastructure strategies address economic, environmental and social priorities in a place-based way. While the priorities and the reasoning behind them will be different in each place, there are common issues that are likely to arise.

The Commission's programme of knowledge sharing events explored five of these important issues over the course of the Next Steps for Cities programme:

- public transport and the efficient use of road space
- infrastructure and placemaking to support quality of life
- clean air and decarbonisation
- managing urban freight
- funding, finance and governance.

The following section summarises some of the key considerations, approaches and areas of discussion under each of the issues. The examples provided are intended to provide a starting point for approaching an issue and are not exhaustive.

Public transport and the efficient use of road space

Providing more and better space for walking, cycling and public transport is essential in making efficient use of limited road space in urban areas. This can increase transport capacity but also create opportunities to redesign car focused spaces to provide a safe and welcoming urban environment.

Planning for mass transit should be situated and communicated within the broader context of the local area

Understanding how transport sits in the broader context of an area is crucial to delivering projects that can effectively meet local needs. This requires coordination at a policy level to understand how transport is likely to impact on related policy areas such as skills, education and employment, which often means working across local authority boundaries. This approach ensures that transport interventions are not implemented as an end in themselves, but can be used to open up a broader range of opportunities for residents, linking communities to key employment locations, retail facilities, leisure, health and education services. Extending accessibility to jobs in areas of deprivation has been a key priority for Basildon's intra-urban strategy for growth (see the **Basildon case study** for further information).

Reallocation of road space

In urban areas, increasing capacity by continually building or widening roads is not a long term solution to tackling congestion.³⁴ Focusing on journey reliability and predictability for all road users offers a way to encourage individuals to walk, cycle or use public transport and reduce pressure on road networks.

Reallocating road space from cars to walking, cycling and public transport is key to increasing the reliability of public transport, improving punctuality and, by extension, the attractiveness of buses. Updated road design is also important to create space for social distancing in the current circumstances. Policies to rethink use of road space have been supported by many stakeholders, (including business, public health and environmental stakeholders), as shown in the consultation on the draft Mayor's Transport Strategy in London.³⁵

However, they can also attract controversy, including political challenge from representatives who oppose any perceived effort to restrict car users' choices, or from road users who find the system confusing.³⁶ Some cities, such as London and Belfast, have demonstrated how reallocation and prioritisation can work well and deliver significant benefits. The key to this success is applying new rules clearly and consistently to avoid confusion, effectively communicating the benefits of prioritisation for meeting future network capacity needs, and meeting social or environmental objectives such as public safety or reducing emissions.

Leaders should also consider the potential for financial incentives to support greater use of public transport alternatives. London's Congestion Charge and Nottingham's Workplace Parking Levy have helped create a shift in travel patterns in their areas. Public acceptance can be a challenge to adopting these measures, but well-designed policy packages do have the potential to be popular, particularly if combined with investments in alternatives to driving.

The importance of a high quality service

Encouraging greater use of public transport requires services to be of a standard which makes them an attractive option to the public. Bus services are often perceived negatively in local areas, and this view can be entrenched and difficult to shift, even more so since the pandemic. To counter this, cities must work consistently and persistently to demonstrate the value and safety of buses and the quality of the service they offer. The frequency of services and information provision to passengers will be key to luring users away from private options. The 'Glider' bus rapid transit system opened in Belfast in 2018 and early signs suggest that it is a good example of a high quality service with similar characteristics to a tram system, but at a lower cost.³⁷ Translink, who operate the Glider buses, have emphasised that communication and marketing was key to the early success of the Glider.³⁸

New technologies in public transport

Understanding the challenges and opportunities posed by new technologies is an important element of planning for the longer-term. Some new technologies are already being used effectively across the country, such as smart ticketing, live travel information (including vehicle crowding) and low emission (hydrogen, hybrid or electric) buses. On demand bus services summoned by users could enable buses to become viable in more areas, including low density suburban and rural areas. Services are available now in Oxford and in Ealing and Sutton in London.^{39, 40}

Making a success of on demand buses needs careful thought, for instance about how ‘virtual bus stops’ are designed, whether to make pre-booking possible, and how to get the best data on door-to-door travel patterns. Services may be able to reach commercial viability but are likely to need investment at the start, which can be helped by getting local business partners on board.

Technology poses risks as well as opportunities for public transport. Ride hailing apps and other ‘on demand’ modes risk increasing congestion for all road users, making bus services less attractive and potentially at risk of withdrawal if a large number of passengers stop using them. This would have a particularly significant detrimental effect on people who cannot afford or access these services.



Miller's Crossing, Exeter

Infrastructure and placemaking to support quality of life

Infrastructure can be utilised to meet the challenges facing cities and society as a whole, helping to make cities attractive places for people to live and work. This includes measures aimed at boosting social inclusion, health outcomes, and releasing additional housing capacity.

Delivering transport schemes to support quality of life

Transport is a central part of people's daily lives, and so provides a platform to give people the opportunity to make healthy choices that support a good quality of life. By integrating active travel targets into the planning and delivery of infrastructure, Transport for London have ensured that opportunities for daily physical activity are central to all schemes and have been able to balance the competing priorities of managing congestion and placemaking. Through conducting research to understand how the city's population will grow and the current appetite for active travel, they have been able to identify solutions which produce feasible predictions for future increases in trip capacity for the city.

Prior to the pandemic, creating new car free zones delivered new, social spaces in the city to promote human interaction, whereas following the pandemic this has been pursued with the intention of creating space for social distancing and active travel. Strong leadership at both political and official level is important to deliver better places through transport investment. Cities such as Groningen and Lyon have embedded placemaking at the centre of their plans, pedestrianising key areas of the cities to encourage sustainable transport choices and support densification of housing.

City leaders may need to act boldly in delivery of transformative plans. Schemes that create positive environmental and health outputs in the medium or longer term may not be received well initially as short-term change and disruption is more visible, but once well-designed schemes are embedded public attitudes can change significantly.

Evaluating the full range of benefits infrastructure can deliver

Built infrastructure has the potential to deliver a wide range of societal benefits such as improving quality of life, reducing health inequalities as well as creating more resilient and connected communities. Considering the full range of benefits, even in a qualitative manner, can aid the consideration of alternative choices, such as green infrastructure in the place of traditional hard engineering solutions (for further information, see **Principle 5: options**). The Commission's Rail Needs Assessment has used multi-criteria analysis to assess impacts on economic growth and competitiveness alongside sustainability and quality of life.⁴¹

When looking to deliver social inclusiveness it is also necessary to look beyond physical connectivity to consider digital connectivity. Covid-19 has reinforced the importance of the widespread availability of high quality, reliable digital connectivity. An important aspect of wellbeing is to avoid individuals and communities feeling like they have been left behind or that they need to 'move out to move on', having to leave the area they come from if they want to pursue prosperity.

The importance of considering different perspectives when designing sustainable transport infrastructure

Historically, city planners have sometimes designed infrastructure with insufficient consideration for the full range of potential users. This can lead to the delivery of active transport infrastructure which some groups are unwilling or unable to use – for instance footbridges or vehicle restrictions not wide enough for pushchairs to pass through. Future plans for active transport should consider the needs of all potential users.

To achieve this, engagement will be an integral part of the design process. City planners should conduct wide ranging stakeholder engagement when designing new, sustainable transport initiatives. This includes engaging parts of the community who are not easily accessible to capture their needs and avoid the perception that the proposed measures would not be for them.

To ensure this engagement is successful, city planners should present potential sustainable transport options in clear and concise language. There are a wide spectrum of social research methods that can be used, including citizens' assemblies, deliberative engagement or direct one to one interviews. It is also important for cities to proactively engage with local housing developers to ensure they incorporate active travel into their projects in an inclusive way.

Linking planning for housing to infrastructure

Planning for new housing will have significant impacts on future infrastructure requirements. In particular, simply extending the city outwards evenly can lead to lack of alternatives to very high car use, putting pressure on existing roads.

Where possible, land near existing public transport routes can enable new housing to be built with much reduced need for new infrastructure. Concentrating demand in certain locations improves the business case for bus routes or higher capacity transport investments. These sites may not be the priority of developers, particularly if they are on brownfield land. Making a success of them can require consistent backing from the local authority and national road and rail providers. The experience of Basildon has also highlighted the need for long-term thinking – changing the distribution of housing sites requires a long-term approach and will often be the result of incremental schemes delivering cumulative benefits rather than one big project, as has been seen in Basildon.



Derby from the air

Clean air and decarbonisation

Cities are places that concentrate economic activity, but also concentrate air pollution, particularly nitrogen dioxide and fine particulate matter. The sources of air pollution vary across cities – road transport represents the biggest source of local nitrogen dioxide emissions in 54 cities – yet is an area where local policies can exert significant control.⁴²

Almost two thirds of local authorities in the UK have declared a ‘climate emergency’ in a first move towards achieving net zero carbon emissions and creating an imperative to deliver more sustainable transport system.⁴³ There are a range of targets for achieving ‘net zero’ that cities are working towards. Measures such as London’s Ultra Low Emission Zone (ULEZ) have proved to be an effective method of delivering changes in local transport emissions, although it is important these targets are realistic, consider the local challenges of decarbonisation and aligned to decarbonising sectors that the city can have a policy influence over.

Clean Air Zones are not the only approach but, if implemented, there could be co-benefits

Clean Air Zones have the potential to make a significant difference to air quality hotspots fairly quickly, and could also be part of a longer-term strategy to move towards zero emission zones to meet carbon targets.

The process for developing a business case can be long and challenging, and there are also political hurdles. This is particularly true if private cars are to be included in the restrictions, although in many places it is possible to achieve significant air quality benefits without doing this. Cities shouldn't expect that Clean Air Zones will raise revenue or even cover the costs of enforcement, since it is more likely that most people will adapt to comply with the zone by purchasing cleaner vehicles or changing whether or how they travel.⁴⁴ But infrastructure such as enforcement cameras can also be put to other uses, for instance traffic monitoring and network management.

When implementing a Clean Air Zone this shouldn't be at the expense of promoting sustainable transport more broadly. Clean Air Zones may not always be the right approach – since the pandemic a number of cities are revisiting their Clear Air Zone plans in favour of measures targeted at particular hotspots, or particular road users such as bus retrofitting, may be a more cost effective way of achieving air quality improvements.

Supporting the transition to electric vehicles should be a priority, but it will not solve all the issues associated with high reliance on cars

Cities need to plan for the local infrastructure to support the rapid adoption of electric vehicles. Cities should be considering electric vehicle charging in local plans and planning requirements for new development, and should particularly focus on setting policies to make space for charging points on residential streets and other locations. There is also scope for upgrading cities' own fleets to electric vehicles, and supporting car clubs allowing shared use rather than ownership.

Zero tail-pipe emission cars will significantly alter the environmental case for reducing car use beyond the 2030s, especially once full decarbonisation of electricity generation has been achieved (though there will be residual particulate pollution). But this is not the only consideration driving local transport policy. Public transport, cycling and walking will continue to need strategic planning and support to achieve benefits for reduced congestion and high-density land use, improved health and wellbeing, and social inclusivity. In the long term, the business cases for alternatives to car use will need to focus on these objectives, although decarbonisation will continue to be an important objective for alternatives to the car to help meet immediate Carbon Budget targets.

Authorities will also need to begin to consider how they can support transition to zero carbon emissions for other forms of transport in their area, especially buses, taxis and private hire vehicles.

Managing urban freight

The Commission's Freight Study found that national government and local authorities often had little understanding of why and how to plan for freight.⁴⁵ This has resulted in policy makers or planners being unable to take account of, or plan effectively for, the needs of freight.

Boosting the visibility of freight within the planning system

Growing demand for faster, cheaper, and more convenient deliveries means the availability of land for freight distribution centres and other infrastructure is crucial for the efficient operation of the sector and for enabling optimised 'last mile' operations. Plans for new housing or commercial developments often only reflect consideration of the final delivery of goods, not accounting for the wider supply chain. This, combined with the release of industrial land for nonindustrial uses, has led to a lack of freight warehousing capacity close to new developments meaning freight deliveries have to travel further to fulfil this additional demand. Cities need to consider the impact of increased delivery demand linked to new housing in their spatial planning strategies, allocating land to freight and logistics to reduce the need for surplus delivery vehicle mileage.



Liverpool2 Container Terminal

As part of its response to limited land availability and a medieval street arrangement, the City of London is taking a proactive approach to reduce the number of freight vehicles in the Square Mile. Their initial estimates are that 50 per cent of current deliveries can be replaced by implementing alternative delivery approaches such as consolidation centres and converting some assets such as underground car parks into 'local delivery hubs'. They have also worked with the freight industry to promote the retiming of deliveries to remove vehicles at times when they are filled with other road users, such as the morning rush hour and lunch times. This has enabled the industry to make more efficient use of its vehicle assets and the City to create additional capacity for active transport users.

Improved movement data could improve the visibility of the freight sector in the planning system. A University of Westminster study found that drivers of delivery vans typically stop for eight minutes per item delivered and, on a typical city centre parcel delivery round, drivers travel further on foot than they do in their vans. This research highlighted the potential efficiency and congestion benefits of utilising alternative delivery approaches such as ‘human portering’, where a person meets a van at the roadside and collects a consignment of parcels to deliver on foot before the van leaves to drop off another consignment.⁴⁶

Local authorities working with the freight sector

Achieving shared goals, including zero emission freight and reducing congestion in city centres will require cities to work with the freight sector. Closer engagement is important for when cities are considering options which either incentivise changes of behaviour, such as grants for new cleaner delivery vehicles or those that look to reshape road use through measures such as clear air zones. Closer collaboration is also likely to avoid unintended consequences of policy interventions, such as daily entry fees which make it cheaper for companies to run two vans instead of one larger lorry.

Freight quality partnerships, such as the ones operating in North East England and Central London have proved an effective mechanism of bringing together the right people to discuss the prominent freight issues in the local area. These have worked best when they have been set up with a clear and agreed purpose at the start of the partnership. This has led to partnerships considering working on a variety of outcomes including creating safe urban driving courses and best practice guidance for freight operators.

Governance, funding and finance

Funding, by raising taxes or charging user fees; financing, by borrowing money to build or upgrade infrastructure; and governance for effective infrastructure delivery, are some of the most difficult issues that cities are grappling with. Getting each of these issues right will be vital for enabling the delivery of ambitious infrastructure strategies and delivering transformational infrastructure projects. Though this is now more challenging in the face of uncertain future demand, any credible infrastructure strategy will need to demonstrate that it can be paid for and successfully delivered. The strategic case for infrastructure investment should be clear – including the role of infrastructure in promoting growth, not just responding to demand. The Commission will be investigating the likelihood and scope of long-term behavioural impacts due to the pandemic on the demand for infrastructure.

Engagement and building consensus

Some of the most successful infrastructure plans and strategies have emerged from processes that have sought to engage and build consensus around the strategy. This can take many forms, including with internal colleagues or external stakeholders or working across political parties. Early identification of key stakeholders followed by broad collaboration and engagement should be a key part of developing a strategy or project. A significant share of transport funding is delivered through combined authorities or at larger scales than local authorities – in some areas it will be important to build consensus between local authorities.

Particular emphasis should be placed on involving traditionally hard to reach groups such as BAME populations, young people and those in deprived communities. Liverpool City Region’s engagement for the Spatial Development Strategy prioritised engaging these underrepresented groups.

Actively and meaningfully involving community voices and getting public support can help to demonstrate to politicians that these initiatives have a level of popular support, and can be helpful in overcoming reluctance among political actors for interventions they perceive as contentious.

Local politics will always have an important role to play in decision making, even in long term projects with secure funding. Bringing political partners along through the process with clear and consistent communication can help to mitigate the risk of political governance uncertainty, particularly in cities that elect a third of councillors at each election on a rolling basis. Strong leadership is critical in transport planning, allowing the prioritisation of wider, strategic concerns over smaller local objectives that offer less benefit.

A cross party working group can also be a good way to bring politicians together behind the proposals, helping to build a broader base of support and mitigate risks by preventing political hurdles posing challenges to the programme. Sometimes, these give panel members anonymity to allow them the freedom to express genuine views of the strategy. This approach was used by Milton Keynes when developing their MK Futures 2050 vision.

Governance and delivery mechanisms

One of the biggest benefits of devolution is that it allows cities to adopt systems of governance that give them the levers they need to meet their objectives, promote growth and support their communities. Cities should consider the governance and delivery mechanisms that would best meet their needs to bring their local infrastructure strategy to fruition.

An additional benefit of having a strategy is that it can help to coordinate the various parties responsible for delivering the strategy such as private developers, public transport operators or distribution network operators.

This could be through existing agencies and institutions such as local enterprise partnerships or Business Improvement Districts, or it could be through new agencies such as development corporations. In developing their strategy, Exeter considered how it could be delivered through a range of approaches, including Exeter City Futures, a community interest company bringing together local councils, service delivery agencies and universities.

Cities need to find their own ways to finance projects, alongside devolved funding

Locally raised finance, alongside government settlements, will be critical to delivering infrastructure strategies. The National Infrastructure Assessment recommended that government should allocate significant long term funding for major transport capacity upgrades in selected growth priority cities. The recommendation made clear that cities benefiting from these major projects should provide at least 25 per cent of the funding.⁴⁷ In terms of funding and financing, cities should look at innovative methods to raise funds for infrastructure projects.⁴⁸ A range of mechanisms have been used by cities across the UK to partially fund or forward fund infrastructure provision, including Nottingham's Workplace Parking Levy and the Milton Keynes Tariff.^{49,50} In both cases there were legislative provisions at a national scale that were able to be used to introduce these measures. Many cities have become more commercially oriented in how they finance projects, though these kinds of approaches will not be more than a partial replacement for funding from central or local taxation.

3. Case study cities

The Commission has worked with and provided support to five case study cities as they have embarked on the process of creating ambitious and integrated local infrastructure strategies for transport.

Five case cities – Basildon, Derby, Exeter, Liverpool City Region Combined Authority and West Yorkshire Combined Authority – were selected as they represent different situations and challenges, and were all planning to embark on new infrastructure strategy work.

This range ensures the lessons learned will be relevant across the country. The Commission kept in close contact with the cities, advising, observing and learning from the processes and methodologies they undertook to gain first-hand experience of developing local strategies. A key part of the programme was convening challenge panels with a variety of experts, including Commissioners, representatives from other city councils and experts from academia, with expert support from the What Works Centre for Local Growth and the Centre for Cities to share best practice and knowledge with the case study city.

The cities also identified mentors from other city councils around the UK who had faced or are facing similar challenges. These cities included London, Greater Manchester, West Midlands and West of England city regions. Through utilising the existing experience and learning from the mentor cities, the case study cities were able to apply this knowledge to the processes they were undertaking and compile their own infrastructure strategies.



The five case study cities are Basildon, Exeter, Derby, West Yorkshire Combined Authority and Liverpool City Region

Basildon's intra-urban strategy for growth

Basildon in context

Basildon is a 'new town', built in the 1950s to house London's expanding population. This vision was based on high levels of social housing and local manufacturing jobs, many of which have gradually declined. It currently has a population of approximately 183,000 people, with the figure expected to rise to 210,000 by 2035.

Basildon has both challenges and opportunities in its geography: it is well connected to London and the wider Essex region by road and rail along an East/West axis, but the placement of the busy A127 road leading to the capital poses a challenge in terms of traffic and air quality as well as access to opportunity. Like many New Towns, Basildon was designed around the private car and has poor connectivity by sustainable transport to the rest of Essex outside of the main rail lines into London. As such, it has a high rate of private car use, with the mode accounting for 80 per cent of journeys to work – roads in Basildon now at or beyond full capacity at peak times.

Basildon makes an important contribution to the Essex economy with a number of large multinational companies being based there. It has an estimated economic output of £6.0 billion GVA per annum (the largest in Essex)⁵¹ and is one of the largest employment centres in the Thames Estuary area with 87,000 jobs hosted in the borough.⁵² Productivity and GVA growth are around the average for England,⁵³ with higher-skilled residents often tending to commute out of Basildon for work, and higher paid work locally being done by inward commuters. It struggles with inequality in income, skills, life expectancy, and health outcomes – it is the joint sixth most unequal city in Britain by Gini Coefficient (0.42).⁵⁴

Basildon has also been hit hard by the Covid-19 pandemic and lockdown. It has had a significant number of Universal Credit claims due to the makeup of its employment base of low skill, low pay jobs and high numbers of self-employed workers, who are vulnerable to economic shocks.

The strategy development process was conceived as a way to articulate the infrastructure and investment required to deliver transformative change.

Developing the strategy

As two-tier authorities, Basildon Borough Council and Essex County Council have worked together closely to develop the strategy for the town. The process was kicked off with a series of workshops bringing together officers from both authorities to discuss the issues facing Basildon and establish the scope of the strategy. This was accompanied by a wide-ranging review of the evidence that was already available to the team from previous strategies and work programmes.

The authorities also conducted a mapping exercise of all the strategic programmes and bodies that had an interest in or relevance to an intra-urban infrastructure strategy. This allowed the councils to better understand what the strategy would account for and enhance existing or forthcoming work programmes, and the externalities that could affect it.

Partnership working in strategy development

Throughout the 11-month development process, Essex County Council and Basildon Borough Council held:

- Six workshops
- Ten workstream sessions
- Three workshops on cross-cutting issues (digital connectivity, sustainability and strategic policy planning)
- Three focus groups with residents.

The councils adopted Mariana Mazzucato's 'Mission-based Innovation' model to set ambitious, time-bound targets for action encompassed by an overarching 'Grand Challenge' to give unifying strategic direction agreed by both Authorities.⁵⁵

To build these missions the councils jointly established three task and finish groups, focussed on housing and place shaping, transport connectivity, and economic growth. These task and finish groups helped to develop the priorities that underpin the strategy. In line with the missions-based approach, each task and finish group took ownership of four missions designed to complement the wider objectives of the strategy.

Alongside this process the councils also gathered new evidence where the existing base was lacking. This included a Citizen's Insight Report, informed by surveys and focus groups with residents to better understand their concerns and priorities to inform the strategy's development. The councils also undertook a review of comparator cities' experiences and initiatives and worked closely with the West Midlands Combined Authority as their assigned 'mentor' city to inform the development of their strategy.

Strategic objectives

Basildon Borough Council and Essex County Council identified a set of priorities that their strategy would need to address, namely:

- Addressing inequality, improving economic opportunity, housing and health and education outcomes for all residents,
- Making the most of Basildon's proximity to London,
- Getting the right level of attention from central government,
- Demonstrating the impact that funding would have and establish a model for how two-tier authorities can plan and deliver strategic projects collaboratively.

To this end the strategy is led by a 'grand challenge' to make Basildon a thriving place by 2050, as defined by the widely recognised Thriving Places Index by 2050⁵⁶. The index covers a range of different measures such as sustainability, local conditions and equality.

Underpinning this grand challenge are three themes:

- Becoming a 'New City', an evolution from Basildon's New Town status
- A focus on equal access to opportunity in Basildon
- Improving digital and transport connectivity to address outcome disparities for residents.

The content

The strategy itself lays out how Basildon will achieve the 'missions' set out beneath its 'grand challenge'. Their approach sets the overarching aim of the strategy at 2050, but also includes milestones in 2025 and 2035 to give the strategy short, medium and long-term outcomes.

The strategy includes the objectives of the three workstreams that will lead to meeting the grand challenge of the strategy by 2050, outlined below:

- **Transport Connectivity:** A four-tiered approach to connectivity, from neighbourhood-level initiatives to improve walking and cycling infrastructure to the links between Basildon and strategic road and rail routes
- **Economic Growth:** Four missions looking at improving skills, reducing in-work poverty, equality of access to opportunity and enabling business to flourish
- **Housing and place-shaping:** Four missions looking at developing housing stock that is affordable, high-quality and connected to opportunity, as well as regenerating existing neighbourhoods in deprived areas.

The actions that underpin these missions vary in scale from neighbourhood-level improvements to improve connectivity to major proposals for transport infrastructure in the town. Taken together, the suite of proposals outlined represent a transformational package of interventions over the next 30 years.

Lessons learned so far

Though the strategy has not yet been published, the process undertaken to develop it has already had a positive impact in developing a strong working relationship between Essex County Council and Basildon Borough Council. The collaborative approach taken by the two authorities in the early stages of the strategy's development has been carried through the entire process and yielded real benefits in pooling resource and expertise.

Through the process the councils have found value in identifying comparator cities to better understand how other areas have addressed similar challenges to those that Basildon faces. This is a useful exercise for any place embarking on an infrastructure strategy; there will be intra-urban areas that have faced similar challenges, or which have achieved similar ambitions. Learning from their experiences should be a priority.

The process has allowed the councils to develop a detailed evidence base understanding the town's challenges and opportunities and to inform future work. The process has also allowed the councils to refine their long-term vision for Basildon as a place, which in turn has helped them to identify their priorities.

The Covid-19 pandemic has presented significant logistical challenges for the strategy with much of both authorities' efforts focussed on the immediate response and protecting their residents from the worst of the effects of the virus and economic lockdown. However, the long-term and ambitious vision for infrastructure and investment developed through this process will be essential to the city's approach to supporting economic recovery.

Where next?

If adopted, this strategy will form the basis for the councils' ongoing work towards the 'grand challenge' of 2050. The councils will use the vision and strategy to set the direction of and make the case for investment in Basildon.



Basildon sun dial

Exeter's transport infrastructure prospectus

Exeter in context

Exeter is one of the UK's fastest growing cities and the economic centre of a large county.⁵⁷ The city's compact size provides opportunities for active travel and high-quality brownfield development and regeneration. These are being promoted through a proactive housing delivery programme and an innovative transport strategy.

The city has successfully encouraged alternatives to the car for travel to work, with the majority of residents in the city now not driving to work. However, Exeter's travel to work area is the second largest in the country, with the majority of workers commuting in from outside the city travelling by car. Transport provision will need to accommodate a range of very different travel patterns, enable brownfield housing within the city and 'Garden Communities' on the edge.

Collaboration between the city council, the neighbouring authorities and the county council is vital to maintain growth; in this two-tier authority area, Exeter City Council has housing and planning powers and Devon County Council has transport powers. Working together, the Councils have produced the Exeter transport infrastructure prospectus.

The transport strategy in the prospectus outlines how transport infrastructure can support the development of the wider area as a great place to live and enable new jobs, housing and leisure opportunities. These principles are central to the Liveable Exeter concept and the Exeter and East Devon Garden Community designation.

Developing the strategy

The starting point was a long-term vision for the city within the wider Greater Exeter area. Following this, three key themes were developed to steer the transport strategy towards more innovative, people and place-based outcomes.

Public consultation confirmed there was support for the strategy and a more sustainable direction of travel, but with a desire to go further in reducing carbon emissions within the city. Based on this feedback, an infrastructure plan was produced for the years 2020-2025 along with a robust cost base for the proposed measures.

To identify accurate cost estimates, the Councils have commissioned a series of technical reports and have made use of benchmarking against projects previously delivered locally.

The transport strategy

The transport strategy is based around three key themes:

- **Greater connectivity** focuses on travel into the city from outside Exeter's boundaries. This will see enhancements made to key transport corridors in order to support growth in productivity. It proposes providing a consistent standard of frequency of both rail and interurban bus routes, and strategic cycle trails between key settlements. To capture those from the city's rural hinterland with limited sustainable travel choices, there will be a Park and Ride on all key corridors into the city.

- **Greater places for people** is about travel within the city. It sets new targets for increasing the number of trips being completed on foot or by bike, aiming to deliver the councils' aspiration of making Exeter the most active city in the country. This will be done through enhancing pedestrian and cycling networks to connect residential areas to economic hubs around the city, reallocating road space for walking and cycling and creating more attractive public spaces.
- **Greater innovation** will see the councils looking to utilise new and innovative technologies to make travel easier and help the city's transport networks operate more flexibly and efficiently. A key innovation will be a new zero emission transport subscription service. This new platform brings together existing services to join up an electric vehicle car club, an on street electric cycle hire network and comprehensive city bus coverage into a single transport product.

Whilst the current Covid-19 pandemic has created uncertainty, the strategy remains resilient based on the travel behaviour findings during lockdown. There has been a reduction in traffic volumes in the city, a boost in walking and cycling and, although public transport patronage has been badly affected, the increased homeworking/social distancing has helped reduce the need to travel, resulting in reduced carbon emissions.

The Covid-19 pandemic has also created the opportunity to test out some of the ambitious walking and cycling initiatives in the plan and create a lower carbon transport network which supports the place-making ambitions of the strategy.

The transport prospectus

The aim of the prospectus is to illustrate the plan and the benefits of investment for the city and the wider travel to work area. The prospectus shows that Exeter City Council and Devon County Council have a proven track record in working together to deliver significant transport infrastructure investment, supporting the high-quality development of housing and jobs in one of the fastest growing cities in the country.

The prospectus identifies how the strategy themes clearly link with the city's development, energy, carbon, health and digital agendas.

The prospectus advocates the benefits of greater funding certainty. The majority of transport funding currently comes from external, uncertain, sources. A more certain funding arrangements would secure confidence that the transport measures to unlock and support clean growth can come forward over the next five years.

Key strengths

A key strength has been the close working relationship between Exeter City Council and Devon County Council to ensure a consistent vision and integrated approach to land use and transport planning. This builds on the lessons learnt from delivering other initiatives such as the Cranbrook new community, Exeter Science Park and new transport infrastructure at the East of Exeter Growth Point

The Commission Challenge Panel sessions challenged the participants to evaluate the best methodologies for delivering innovation within their strategies. The Councils have considered the solutions that best fit Exeter's strengths, building on the existing high bus use and service coverage, and on street electric bike hire as a basis for a single platform for bus tickets, electric cycle and vehicle hire.

Where next?

The transport infrastructure prospectus will sit alongside the Exeter Transport Strategy, set to be adopted by Devon County Council's Cabinet this autumn. These documents will support the new planning framework for the city, the Liveable Exeter housing delivery programme and the wider work to deliver net zero carbon emission targets in Exeter and the wider area.



Blackaller Weir, Exeter

Derby's Integrated Infrastructure Plan

Derby in context

Derby is a growing Midlands city of 257,000 people in the heart of the UK.⁵⁸ Derby's central location gives it fast connections to the national road network and it is an important hub on the rail network, with access to London and Edinburgh as well as Birmingham and Leicester. Derby has a long-standing industrial heritage of manufacturing and engineering. It hosts major employers and global businesses and their supply chains, including Rolls Royce and Bombardier, with Toyota just outside the city boundary in South Derbyshire.

To the east is the city of Nottingham, creating an axis through Derbyshire and Nottinghamshire for the future development of the HS2 East Midlands Hub at Toton. Derby also lies in close proximity to the East Midlands Airport, the second largest freight hub in the UK. Derby sits within the D2N2 Local Enterprise Partnership geographical area and is part of the East Midlands local authority family.

Derby City Council is a unitary authority with boundaries that align closely with the city's existing urban area. This means that space for future growth is a significant constraint. Derby's local plan requires 20,000 new homes by 2028, some of which may need to be built as urban extensions in neighbouring authorities. Derby has a high level of car use and congestion has traditionally been an issue at peak times. Transport corridors within the city focus on connectivity into and out of the centre rather than across it.

Like many local authorities, Derby has declared a climate emergency and is working with partners like the University of Derby in seeking ways to promote healthy, low-carbon lifestyles. In addition, Derby has significant flood risks from the River Derwent, which has been the focus of the innovative Our City, Our River programme of regeneration-led investment for flood defences.

The Integrated Infrastructure Plan (IIP) was envisaged as a strategic, long-term plan for the city up to 2050 that would allow Derby to tackle the key challenges it faces.

Developing the strategy – the City Vision and IIP

The Council began the IIP development process by drawing together existing evidence to understand the key long-term challenges being faced by the city which could be addressed in the IIP. These included tackling congestion, improving cross-city public transport connections, ensuring connectivity to key employment zones, building resilience to flood risk and providing sustainable utilities and services for a modern city, which came through as key challenges following the initial review.

While this process helped the council to identify potential objectives, it was decided that any long term plan would need to be guided by a more holistic 'vision' for the city, that would allow the council to present the IIP in the context of strategic goals for the city as a place, rather than an isolated plan for infrastructure improvements.

To this end, Derby City Council is developing a long-term vision for the city. This process will be led by an independent commission, comprised of experts in a variety of fields who have connections to Derby. The vision will be informed and ultimately adopted by a City Leadership Board, comprised of the Council and business, public and community leaders. This board will help to establish a broad base of support and consensus around the vision.

In parallel, the council is taking forward work on its Integrated Infrastructure Plan to inform the vision's development and ensure that Derby has a roadmap in place to achieve its ambitions. Derby will produce an Infrastructure Issues and Options report by the autumn 2020 from which the final IIP will be produced. This will identify the key issues facing the city and explore high level options for addressing these. An interim brochure has been produced that provides an overview of the key themes that are emerging, including:

- Improving connectivity – within the city and to its hinterlands
- Tackling congestion and air pollution
- Addressing climate change and improving resilience to flooding
- Promoting local renewable energy provision
- Improving the capacity of the sewerage network
- Ensuring new housing areas are properly supported by schools and health care and are designed to encourage sustainable and healthy activities and travel patterns
- Developing a 'smart city' through digital infrastructure and a high-speed broadband network
- Improving linkages to strategic green infrastructure within and outside the City boundaries.

Alongside the Derby Vision, the Council embarked on a programme of stakeholder consultation to gather further evidence for the challenges and priorities faced by the city to inform the IIP. Early meetings took place with key infrastructure providers, employers and other interest groups and the information gathered was used to inform in-depth research into Derby's infrastructure needs. The aim of this research is to identify high-level options that the Council could implement as part of the final IIP.

Although started, this work had to be paused during the Covid-19 pandemic and will now be re-set in the context of a city recovery plan. This will focus on supporting our economy and communities through diversification, decarbonisation, health and resilience. An important piece of work, relevant to the IIP, is the development of a new city centre masterplan to shape the heart of Derby following the dramatic changes brought by Covid-19. The new findings will be the basis of the ongoing public engagement programme and inform the work being undertaken on the city vision and help the council to prioritise interventions. The final IIP will be sequenced to deliver following the publication of the City Vision process next year.

Lessons learned so far

Like many councils, Derby faces significant constraints in resources, meaning it can be challenging to allocate staff and expertise to longer-term thinking alongside day-to-day pressures. Derby took the decision to dedicate a core team of staff members to work on the development of their strategy, and the benefits to the process have been clear. By ensuring a core of people at the heart of the process, Derby has been able to ensure that it retains its clarity of purpose and maintains momentum in the face of a challenging day-to-day environment.

Managing political turnover can be important. In authorities which have smaller majorities and more frequent council elections, this can result in frequent changes of administration which makes long-term planning a challenge. In such cases, councils must work to ensure cross-party support for any proposals to give them an element of resilience.

Linked to the above point on consensus building, Derby's recognition of the value of an overarching vision is a key lesson for other authorities seeking to undertake their own long-term infrastructure strategies. Securing buy-in for a strategy is easier if you have a vision for where that strategy aims to get your city as it can be used to bring partners and decision-makers on board. The strategy itself is more likely to address challenges in a way that contributes to effective place-making if it is guided by a clear set of goals.

Where next?

Derby's City Vision is working to launch in 2021, with the IIP aiming to publish after that. Over the next year, Derby City Council will proceed with public engagement on the IIP, using the findings of its in-depth infrastructure analysis to identify solutions to the major infrastructure challenges facing the city ahead of publication of the final strategy.



Derby Guildhall

West Yorkshire's connectivity plan and pipeline

West Yorkshire Combined Authority in context

The West Yorkshire Combined Authority (the Combined Authority) covers a large area, encompassing the five districts of Bradford, Calderdale, Kirklees, Leeds and Wakefield. The population of the city region is approximately 2.3 million residents with a workforce of approximately 1.5 million, both of which are expected to increase in the future as its economy grows. The growth in employment is expected to be predominantly focused in the region's city centres, with an increase in knowledge intensive business jobs.

The region is well connected to the road network, being within an hour's drive of seven million people. This has been a major contributing factor to cars and vans becoming the principal mode of transport for travel to work in the region. The Combined Authority's research shows 70 per cent of all journeys are completed with these transport modes.

The work conducted during the case study project has been focussed on establishing a consistent evidence base for the Combined Authority's upcoming connectivity plan and Pipeline. This has included detailed analysis of the drivers behind the transport challenges facing the region, to inform the creation of a pipeline of proposed infrastructure interventions through to 2040 which will be published for consultation in autumn 2020.

Developing the connectivity plan and pipeline

The starting point for this work was the West Yorkshire Transport Strategy 2040 published in 2017. This document set out the vision, objectives and policies to meet the transport infrastructure needs of the region up to 2040. This document identified four key priorities for the strategy:

- boosting productivity to help businesses to grow and bring new investment to the region, driving economic growth and creating jobs
- supporting clean growth to expand the region's economy while also cutting carbon emissions
- enabling inclusive growth, ensuring that economic growth leads to opportunities for all who live and work in the region
- delivering 21st century transport to create efficient transport infrastructure that makes it easier to get to work, do business and connect communities across the region

To support the delivery of the vision and priorities, the Combined Authority set a series of interim targets to 2027 for transport mode shift in the region, aiming to reduce the number of trips completed in cars and increasing those completed by sustainable transport, by foot, bus, train and cycle.

The connectivity plan will provide the detail setting out how the Combined Authority intend to deliver this vision. The purpose of this work is to provide a strategy-led, evidence-led approach to identifying the region's connectivity challenges and solutions – consistently applied across the whole of West Yorkshire and the wider travel to work geography.

The connectivity plan also provides a pipeline of transport interventions covering rail, bus, mass transit, cycling, walking and digital demand-responsive transport and other innovative solutions targeted at:

- enhancing productivity by connecting all of the region's important places, with a particular focus on disadvantaged and peripheral groups and communities
- responding to local plan and growth aspirations for housing and jobs.

To support the Combined Authority's aims, the approach tries to ensure that transport and inclusive economic growth interventions are aligned to have the most impact for people in the region. Therefore a key driver of the work is ensuring that transport is focused on areas of deprivation with a view to aligning skills, education and community initiatives to help lift areas out of deprivation. This is already being realised through the Transforming Cities Programme that is a first phase of interventions developed from the work.

Addressing carbon targets is also a key ambition for the connectivity plan and pipeline. Transport is the second highest emitter of carbon in the region, 90 per cent of which comes from road transport, particularly cars, lorries and vans. The Combined Authority published a West Yorkshire Carbon Emission Reduction Pathways (CERP) study in July to demonstrate the ways in which the climate emergency could be addressed. This is feeding into the plan and pipeline.

The plan and pipeline are based on detailed analysis of connectivity need and intervention options across 22 transport corridors. This included a review of existing programmes to identify funding gaps. The assessment of infrastructure need took the shape of 'Case for Change' reports.

These 'Case for Change' reports collated a wide variety of transport and socio-economic data including deprivation indicators, availability and accessibility of public transport, average journey to work times and car ownership for each corridor. These reports used maps and infographics to establish the spatial context for the corridor, highlight the drivers behind the identified infrastructure need, and identify areas which require new or improved connections. Based on this analysis the reports provide an overview of the connectivity options for each corridor, creating a long list of infrastructure options.

The Combined Authority is now creating an integrated long list of the potential infrastructure interventions for the region as a whole. This will be used to identify the most efficient connectivity options for the region and how it can contribute to the targets for modal shift. Underpinning the approach was the development of an appraisal methodology they will use to assess each of these proposed measures in a regional context in order to identify the most effective solutions in the short, medium and long term. This methodology assesses how each proposal would help to meet the Transport Strategy's key priorities and vision with the findings summarised within the connectivity plan's project pipeline document. The same underpinning evidence is also used to plan other interventions on areas such as skills and the development of spatial priority areas. The work is also linked to other pipelines such as housing and flooding.

As mentioned above, a key piece of aligned work is the combined authority's investigation of pathways to decarbonise transport (and the other sectors of buildings, industry, land use and power) towards achieving a target of net zero carbon by 2038. This is a new and highly challenging area of activity for the Combined Authority with potentially significant implications for individuals, communities, businesses and politicians. Aligning this work to the connectivity plan and pipeline will ensure the necessary technical robustness, and a zero carbon perspective that can be applied to refining and sequencing the final pipeline of interventions.

The emerging results of this pathways work is showing that technology will deliver some carbon savings, with electric vehicles making up as much as 40-50 per cent of the region's vehicle stock in 2030, but there will still be a need for a substantial shift in travel behaviour, requiring fundamental changes to the types of transport infrastructure and services that are delivered in future.

The impact of the Covid-19 pandemic is also something the Combined Authority are trying to mitigate. The Combined Authority has created an economic recovery plan and a complementary transport recovery plan. Part of the plan is for infrastructure investment to enable people to travel in safety and with confidence and to help the economy recover through green and inclusive growth.

Pre-Covid, the climate emergency, inclusive growth aspirations, and the challenge of reducing the productivity gap facing the region, were already demanding more from the transport networks. So whilst the pipeline started life prior to the crisis, the Combined Authority considers it still to be relevant – if not more so. As the schemes within the pipeline are developed further, it will be necessary to test them against different future scenarios as we learn more about the changing working and travel patterns that Covid-19 has so far created.



Centenary Square, Bradford

Lessons learned

One of the key lessons learnt as part of the project was how to reshape priorities and targets in response to changes in the background political context. The Combined Authority and partner councils declared climate emergencies and set carbon reduction targets during the scoping stage of the project and thus the analysis had to consider the role the connectivity plan could play in delivering this. Although clean growth was already a key priority for the strategy, target dates for various measures had to be brought forward to enable the region to achieve net zero by 2038.

The case study has highlighted the benefits of establishing a detailed evidence base at the start of a project in order to gain traction with partners on a shared understanding of connectivity needs and challenges, and to inform future decision making. The connectivity strategy work will continue to enable the Combined Authority and its partners to conduct rigorous analysis to consider the potential impact of each of their proposed infrastructure interventions.

Finally, the Combined Authority recognised they had a challenge around highlighting the benefits the connectivity plan could deliver which are not directly infrastructure related. This includes improved opportunities for local communities to develop new skills and the improved health outcomes offered by a modal shift to active travel. To resolve this, the Combined Authority will ensure these potential additional benefits are highlighted within the consultation materials used to identify the infrastructure interventions for the pipeline.

Where next?

The next stage of the connectivity plan's development will be an engagement activity with key stakeholders on the emerging themes and proposed pipeline of infrastructure interventions in autumn 2020. This engagement will inform the Combined Authority's prioritisation of short, medium and long-term infrastructure measures through the winter of 2020 and ensure the proposed interventions can be effective in delivering modal shift for the region.

Liverpool City Region's Spatial Development Strategy

Liverpool City Region in context

The Liverpool City Region comprises the six local authorities of Halton, Knowsley, Liverpool, Sefton, St Helens and Wirral.

The city region was historically shaped by its port and traditional industries, and with deindustrialisation the region's population was declining until as late as 2003. However, this trend has now been reversed with the population of 1.5 million expected to increase around 5 per cent by 2040 as its economy is supported by advanced manufacturing, modernisation of the port and a growing tourist trade based on its cultural history.

The work conducted during the case study project has been focussed on collating the initial evidence base for a Spatial Development Strategy (SDS) which will be published in 2021. The SDS has been developed as a means of identifying the policy framework and associated infrastructure needed to meet the challenges facing the region, establishing a consensus around a vision which delivers benefits across the city region as a whole. This initial work was centred around stakeholder engagement with the region's residents to understand their views and preferences for future infrastructure interventions.

Developing the Spatial Development Strategy

As part of the region's 2015 devolution deal, Liverpool City Region Combined Authority have a statutory duty to produce an SDS. Within this, they are required to outline the Mayor's strategic policies for land use and development in the region.

The SDS is being created in parallel with other work undertaken by the combined authority including their housing strategy, the mayoral transport strategy, plans for improved digital connectivity and the creation of a Local Industrial Strategy. The Local Industrial Strategy sets out a vision for a clean, globally competitive and inclusive city region, identifying its economic strengths and challenges together with the policy interventions required to meet them.

Through the Local Industrial Strategy, Liverpool City Region has identified a number of transformational opportunities, including: building a sustainable industrial future, open health innovation, utilising social innovation to solve society's deepest challenges, becoming a national leader in clean growth, and utilising specialisms in technology and data to improve society and address global challenges.

To realise these opportunities the Local Industrial Strategy sets out overarching priorities which were fed into the SDS. These are:

- Thriving and distinctive places
- The opportunity to turn potential into prosperity
- A dynamic business base creating opportunity
- Collaboration that translates innovation into impact
- Connecting all of our communities to opportunity.

The Liverpool City Region SDS will set out the Metro Mayor's 'vision' for the city region in terms of land use and development. This will be supported by high level strategic policies establishing the core principles of the SDS. These are expected to be inclusive economy, health and health inequalities, climate mitigation and the environment, place making, and social value. The SDS will then set out its spatial priorities, including the broad areas for development, and then it will set out the required policies and infrastructure interventions at a strategic level.

The majority of Liverpool City Region's work on the SDS so far has been centred around stakeholder engagement. A key part of this was wide ranging engagement through the 'LCR Listens: Our Places' consultation exercise. This exercise was designed to capture the views of residents on the challenges the region faced and the types of infrastructure options the combined authority might consider. This included proactive engagement with population demographics who tend to be underrepresented in consultation exercises. To do this the project team went out to meet with the residents in deprived communities and held 'Inclusive Accessibility Workshops.'

Through taking these additional steps, Liverpool City Region are aiming for the SDS to contain bespoke infrastructure interventions which are tailored to the region. These insights into the public's key priorities will also help the combined authority shape the messaging within the final SDS, highlighting how it can contribute to the realisation of these outcomes.

In conjunction with the engagement activities, the combined authority is developing an 'Integrated Impact Assessment' on all the measures they are proposing for the SDS to ensure they consider the potential impacts they may have on sustainability, health, equality and crime prevention. In addition to this, they are also conducting a 'Social Value Evaluation' on the SDS to understand its potential impacts on social mobility. The combined authority have also considered how the SDS can contribute to the region's target of achieving net zero carbon emissions by 2040.

Lessons learned so far

Through establishing a clear link between the infrastructure outlined within the SDS and the local industrial, housing and transport strategies, the combined authority will be able to demonstrate how the infrastructure interventions in the SDS are tailored to the region can help deliver additional wider policy priorities. This has also demonstrated how embedding shared priorities and a shared evidence base within the different documents can create a unified strategy for the region.

Through conducting rigorous engagement activities at the start of the project, Liverpool City Region have been able to consider the needs and views of the region's residents before presenting a long list of infrastructure interventions. This has the potential to enhance buy in for the measures, avoiding the perception that the combined authority has already identified the infrastructure it will progress and is simply conducting the engagement as a 'tick box' exercise.

The development of the Integrated Impact Assessment and Social Value Evaluation have demonstrated the value in conducting assessments and evaluations into the additional benefits the proposed infrastructure interventions could deliver. This has demonstrated how such analysis conducted during the project can help assess and improve the selection of infrastructure options and can potentially be utilised to obtain buy in for the finalised SDS from both the public and constituent councils.

Where next?

Liverpool City Region will conduct more engagement, this time on the long list of potential infrastructure interventions they may propose to include within the SDS in November 2020. Once they have reviewed the findings of this they are aiming to undertake a further engagement in summer 2021 and publish the final strategy for submission to the planning inspectorate in early 2022.



Liverpool waterfront

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