

ICE response to England's Economic Heartland Outline Transport Strategy

October 2019

Executive summary

We welcome the opportunity to respond to the Outline Transport Strategy and await the publication of the draft Transport Strategy. This response has been written in consultation with ICE members in the South East, South West and East of England.

Our response focuses on four areas:

- Collaboration across sectors
- Improving transport connectivity
- Zero carbon ambition
- Digital infrastructure

ICE has and continues to be an advocate of the devolution of infrastructure policy and service delivery.¹ Devolution in England has focused on city-regions and on the conceptualisation of new economic geographies such as the Northern Powerhouse and Midlands Engine. As the programme of devolution progresses it is critical that the different levels of decision-making and service delivery are effectively joined-up, both with one another and with strategic developments at the national level.

We believe that, as devolution policy progresses, it would be beneficial for subnational transport bodies to be mindful of these links between economic infrastructure and housing so as to inform better decision-making about spatial planning and infrastructure requirements going forward.

Key points

- ICE has previously argued for the creation of cross-sectoral regional infrastructure forums, bringing together government, regulators, businesses and stakeholder representatives to develop regional infrastructure strategies. We believe the Outline Transport Strategy must be more detailed in its links between transport, other infrastructure and housing, allowing the region to reach its full growth potential over the next thirty-year period.
- We agree that improving transport connectivity should be a priority for the draft Transport Strategy. We recognise that East West Rail is being progressed separately by Network Rail, however, the Transport Strategy should advocate for the full electrification of the East West Rail line or explore alternative options (e.g. hydrogen or battery powered trains) in order to meet the ambition of zero carbon by 2050.

¹ ICE (2016), [State of the Nation 2016: Devolution](#)

- We welcome the ambition to deliver a zero-carbon transport system in the region by 2050. Consideration should be given to establishing a set of carbon budgets, for example of five-yearly periods, in order to meet this ambition and drive further carbon efficiencies.
- The Outline Transport Strategy should be more cognisant of the trends in working practices enabled by greater digital connectivity that will impact on how and where people travel and the frequency at which they do, including the potential this will bring for freeing up capacity on existing routes.

Collaboration across sectors

There are inextricable links between housing, energy and water supply, waste services and the provision of transport. Within this, many different public and private sector organisations are responsible for infrastructure delivery. A strategic approach to their delivery can foster a better understanding of overall system need. Setting in place a framework to inform where ultimate decision-making over the implementation and delivery of a given area of infrastructure policy should be located is imperative. It is as important to establish a system of identifying infrastructure need at multiple political and economic levels.

The choice of location for housing determines a wide range of subsequent long-term infrastructure requirements. For example, a location that does not permit active travel options such as walking or cycling, or support high-frequency public transport tends to necessitate the allocation of more land for car parking.² At present, too many housing developments are being built with insufficient regard to the sustainability of the location.³ In particular, despite growing awareness of sustainability concerns, large greenfield developments continue to be built without quality access to dense, diverse public transport networks, and in locations where there are few practical alternatives to car ownership and use.⁴ This tends to create a legacy of low-density, car-dependent housing, which will have long-term consequences for energy use, carbon emissions and air quality.

In a survey of over 2,000 British adults conducted as part of ICE's 2019 State of the Nation report, 53% believe the highest priority should be given to public transport infrastructure, such as rail and buses, when planning the building of new homes in their area.⁵ Across those who support the development of more housing in their area, this increases to 62%.

Effective and strategic collaboration across infrastructure sectors is crucial for infrastructure resilience, allowing the region to reach its full growth potential over the next thirty-year period. For example, the Transport Strategy could help to improve connectivity by acknowledging the need to coordinate planning for sustainable transport with utilities and housing, suggesting ways in which this could be achieved in order to develop a more integrated system overall.

In 2016, ICE argued for the creation of cross-sectoral regional infrastructure forums, bringing together government, regulators, businesses and stakeholder representatives to develop regional infrastructure strategies.⁶ Feedback from the evidence-gathering process for the 2019 State of the Nation report on infrastructure and housing shows that support for those forums is still high, and that housing must also be central to this, ensuring any planned infrastructure supports new housebuilding.⁷

² Transport for New Homes (2018), [Project Summary and Recommendations](#)

³ RTPI (2016), [The Location of Development](#)

⁴ Urban Transport Group (2019), [The Place to Be](#)

⁵ ICE (2019), [State of the Nation 2019: Connecting infrastructure with housing](#)

⁶ ICE (2016), [State of the Nation 2016: Devolution](#)

⁷ ICE (2019), [State of the Nation 2019: Connecting infrastructure with housing](#)

We believe that forums for developing regional infrastructure strategies should be convened and managed by subnational infrastructure bodies – these bodies would be created by extending the current remit of organisations like England's Economic Heartland, Transport for the North and Midlands Connect to include other economic infrastructure sectors, as well as housing.

It is important to emphasise that adequate infrastructure for housing is not simply a matter of transport connections. It is well known that transport infrastructure acts to support economic expansion and provision of new housing, and hence targeted investment to increase capacity should remain a priority.⁸ But with a net zero carbon emissions target in place and a need to mitigate against potential impacts from climate change, other infrastructure – such as heat and power networks, digital communications, electric vehicle charging and flood resilience – need to be considered, as well as a focus on sustainable travel options. Strategies at a regional level must consider all this in their development, focusing on how infrastructure and housing can be catalysts for reducing environmental impacts, utilising innovation and new technology to its greatest effect.

We believe the Transport Strategy must be more detailed in its links between transport and housing. Transformational infrastructure projects – such as East West Rail – will fundamentally change how the region functions at a spatial level. What is currently a series of strategic housing markets will become one, while local and regional economies will change as access to labour and markets are improved by investment in strategic infrastructure.

We recognise that each regional infrastructure strategy will be different and, depending on geography, have a multitude of stakeholders to engage. This would include, but not be limited to, combined authorities, regulators, local businesses, Local Enterprise Partnerships, community groups, national and local delivery bodies and central government departments. These strategies must go beyond individual political cycles, both at a national and local level. Appropriate governance mechanisms must be created around them, allowing flexibility for principles and needs to evolve over time and in line with policy developments.

Improving transport connectivity

ICE agrees that improving transport connectivity should be a priority for the Transport Strategy. Ensuring good transport infrastructure that allows people more choice in their travel options would help enable economic growth, create more jobs and improve links with other regions, making it a more viable place to live.

Investment in strategic transport corridors is integral to this. The Outline Transport Strategy acknowledges the need for improved East-West links, though we believe that other strategic transport corridors should be recognised in the draft Transport Strategy:

East-West Rail

Despite the relatively low proportion of people who currently choose to travel by rail compared to road, there is significant potential for rail to take an increased share of the growing demand for transport, particularly for the city-to-city and town-to-town trips required to unlock transformational economic growth.⁹

We recognise that the major regional transport schemes, East West Rail and the Expressway, are being progressed separately by Network Rail and Highways England respectively. However, we believe the Outline Transport Strategy

⁸ IPA (2016), [National Infrastructure Delivery Plan 2016–21](#)

⁹ Department for Transport (2018), [Transport Statistics Great Britain 2018](#)

should advocate for the full electrification of East-West Rail or alternative options (e.g. hydrogen or battery powered trains) in order to meet the ambition of zero carbon by 2050 and align with the proposed schemes that will be in the draft Transport Strategy.

High Speed 2 (HS2)

The Outline Transport Strategy refers to the delivery of HS2 but does not offer further detail on the opportunities that this will offer the region in the next thirty-year period. Consideration of how this route will help to increase connectivity and reduce capacity on other lines would be useful in establishing the benefits it will offer and further link to wider infrastructure and housing strategies.

Crossrail 2

As the Crossrail 2 rail route is planned to serve Hertfordshire, it would be useful for the draft Transport Strategy to include detail about how this route will impact transport connectivity in the region, as well as on the potential for housing growth.

Trans-European Transport Network (TENtec)

There is room for the Transport Strategy to acknowledge the A14 route, which runs from Felixstowe to the Midlands and offers opportunities for freight transport. This forms a strategic route and is part of the Trans-European Transport Network, which is key to linking businesses across the European Union (EU).

M4 corridor from Swindon

The M4 corridor from Swindon to the South West's leading economic generator in Bristol is a strategic route, and it would be beneficial to acknowledge this in the draft Transport Strategy.¹⁰ Furthermore, whilst the Great Western Main Line is noted in the document as passing through Swindon, it could be further explained that this route provides continuous connectivity to the whole of the South West region, down to Penzance, as well as to South Wales. In turn, this demonstrates the connectivity of the region to other areas of the UK and highlights further potential for economic growth.

Utilising waterways

The case for a new waterway, the Bedford to Milton Keynes Waterway Park, has been highlighted in the Outline Transport Strategy, however there are other canals in the region that could be regenerated. Upgrades to towpaths and canals more generally could allow for new transport corridors, helping to reduce the amount of traffic on the roads and develop more cycling infrastructure, alongside other benefits such as biodiversity improvements.¹¹

Making transport inclusive

The Outline Transport Strategy has identified hubs in the region that are likely to need improved infrastructure and services to support growth due to a rising population. ICE welcomes the inclusion of a comparison diagram showing population densities in 2016 and predicted figures in 2046, though it would also be beneficial for the Transport Strategy to show how England's Economic Heartland will approach transport connectivity in the less densely populated areas.

ICE welcomes the Outline Transport Strategy's identification of population growth areas and its recognition of certain trends, such as the changes in attitude amongst the population to a preference for travel options that offer more flexibility.

¹⁰ ONS (2014), [Regional GVA accounts 2013](#)

¹¹ [Why restore inland waterways?](#) A. J. M. Harrison and R. D. Sutton, Proceedings of the Institution of Civil Engineers - Municipal Engineer 2003 156:1, 25-33

It would be beneficial for the draft Transport Strategy to include further detail about the population demographics, including information about how data such as age and living preferences will change over the next thirty-year period.

How transport will be made more accessible for an ageing demographic, and the challenges associated with developing inclusive infrastructure, particularly in the more rural sections of the region, should also be highlighted. Addressing connectivity in the less densely populated areas and specifying how infrastructure in these locations will be approached would help to make growth inclusive for everyone.

The Outline Transport Strategy has referenced the Luton Inclusive Growth Commission as a case study, noting that affordable housing is mostly situated in the north of Luton with most jobs situated in south Luton, and suggesting that improvements to the main town gateways may help to overcome this problem. By considering similar issues that exist in the less densely populated parts of the region and identifying possible solutions that apply to those areas, the draft Transport Strategy could help to promote an inclusive system.

Reducing demand

As outlined earlier in the response, transport connectivity and development locations are inextricably linked, and need to be studied in conjunction with each other. Building a new network may be the most suitable solution in some cases, but greater consideration must be given to how this approach impacts on an already overloaded network and what measures, such as greater use of road space reallocation, consideration of congestion or road user charging, and the application of workplace parking levies, can be put in place to reduce demand.^{12 13}

Zero-carbon ambition

Being the largest carbon dioxide emitting sector, accounting for 33% of all UK carbon emissions in 2018, transport has a significant role to play in meeting commitments to reach net-zero emissions.¹⁴ We welcome the ambition to deliver a zero-carbon transport system in the region by 2050, in line with the government's commitment to bring all greenhouse gas emissions in the UK to net zero by 2050. This means that national road transport emissions will need to be near-zero, almost every vehicle on the road will need to be of an ultra-low emission type, and rail will need to be decarbonised by 2050.

Consideration should be given to establishing a set of carbon budgets, for example of five-yearly periods, up to 2050 to effectively monitor and manage emissions across the region in order to meet this ambition and drive further carbon efficiencies.

The draft Transport Strategy should set out specific objectives which demonstrate how carbon reduction will be achieved. For example, this could be through making improvements to existing infrastructure in the region, such as rail routes, to promote a modal shift from road to more sustainable, lower-carbon transport options. The role of existing infrastructure and repurposing this should not be forgotten. For example, utilising current infrastructure could allow for more high-quality 'green' routes to be developed; for example, by using canal towpaths to create better cycling infrastructure, which Transport for London (TfL) estimates has a benefit-to-cost ratio of £13 for every £1 spent.¹⁵

The Outline Transport Strategy highlights Cambridge as an example of a city with a significant modal share for cycling. It would be beneficial for the draft Transport Strategy to provide further detail on how this positive case study could be

¹² ICE & IHT (2009), [Joint memorandum from the Institution of Civil Engineers and Institution of Highways and Transportation](#)

¹³ Centre for Cities (2017), [Funding and financing inclusive growth in cities](#)

¹⁴ BEIS, ONS (2019), [2018 UK greenhouse gas emissions, provisional figures](#)

¹⁵ TfL (2018), [Walking & cycling: the economic benefits](#)

replicated across the rest of the region, with further analysis of the policy decisions that led to this outcome.

Charging infrastructure

Recent research indicates that electric vehicles have the potential to reduce greenhouse gas emissions by over 50% compared with equivalent conventional petrol and diesel vehicles over the lifetime of their use.¹⁶ For reference, ICE published a report in July 2018 on this subject, entitled *Delivering electric vehicle charging infrastructure in the UK*, which recommended a review of the strategies and incentives for charging infrastructure in the UK to ensure appropriate alignment and the optimum use of available resources.¹⁷

The Outline Transport Strategy does not currently include reference to charging points for electric vehicles. The draft Transport Strategy could contribute to its objective to reduce carbon emissions in the region by setting explicit targets, such as stating how many charging points there currently are and how many there should be by 2050.

In addition, greater consideration should be given to providing rapid charge points at a community hub level in new developments, particularly in areas of high urban density. This has a number of benefits, including delivery of and access to the infrastructure in a single place, which will allow the network operator to better monitor and manage the impact on the local grid as well as install potential technological upgrades in the future.¹⁸

Connected and autonomous vehicles

With the EV transition and onward shift towards increasingly connected and automated vehicles (CAVs) comes a far greater strategic opportunity to rethink private car use. By only replacing today's privately-owned cars with smarter future equivalents, this misses the opportunity to create a healthier transport system that can support future communities and is accessible to all. The introduction of shared fleets at place or community level would bring significant new potential to reduce and manage EV-related peak charging demand, maximise congestion reduction and offer new prospects to make productive use of land that would otherwise have been used for parked vehicles.

While we welcome the Outline Transport Strategy's recognition that the region is at the forefront of developing and trialing CAV technology, analysis of the impact that CAVs will have on the wider transport network and spatial geography of the region would allow for a wider evidence base to help inform transport decisions now and in the future.

Digital infrastructure

With technology changing rapidly, it is difficult to predict exactly how the digital landscape will evolve over the next 30-year period. However, there are certain areas that ICE believes should be highlighted in the Transport Strategy, that would likely increase the region's prospects for economic growth.

For example, by improving digital connectivity across the region, more rural areas could become attractive as a place to live, with more jobs being created in these locations and access to a better quality of life. Achieving this would also feed into the broader ambition for a zero-carbon transport system, with more people able to work from home and travel less, helping to free up capacity on the existing routes. Some key areas that could likely benefit the region and should feed into

¹⁶ European Climate Foundation (2018), [Fuelling Europe's Future](#)

¹⁷ ICE (2018), [Delivering electric vehicle charging infrastructure in the UK](#)

¹⁸ ICE (2019), [State of the Nation 2019: Connecting infrastructure with housing](#)

the Transport Strategy have been outlined below. The Outline Transport Strategy should be more cognisant of these trends in working practices that will impact on how people travel and the frequency at which they do.

Intelligent infrastructure

Developments in Artificial Intelligence (AI) and machine learning mean that the number of opportunities to enhance and improve infrastructure are growing, with access to far greater datasets than ever before, the ability to enable predictive maintenance and implement more preventative approaches in the built environment.¹⁹

The Outline Transport Strategy highlights the work of the Innovation Working Group in exploiting these opportunities and using AI and data as a catalyst for the development of new models of delivery for transport services. It would be beneficial for the draft Transport Strategy to include further detail about how AI could optimise existing infrastructure and help to meet the growing levels of demand. This could include, for example, innovations in vehicle-to-vehicle and vehicle-to-infrastructure technology to optimise vehicle speeds, location management and traffic light operation, while minimising crash risk.²⁰ In addition, the use of platooning in road freight transportation to reduce the environmental impact of transportation, optimise fuel use and address safety issues could be considered.²¹

ICE believes that the Transport Strategy should place more of an emphasis on smart infrastructure solutions. Systems such as smart motorways, smart electricity meters and the Digital Railway will play a vital role in increasing efficiency and economic growth in the region, and it would be useful for the strategy to outline how it expects these developments to impact its transport system and the opportunities that they will offer.

Fibre

Installing high capacity fibre throughout the region to allow for faster broadband connection in more homes, in line with the UK government's commitment to guarantee access to full fibre connections across the UK by 2033, would help to boost connectivity and economic growth.²²

ICE welcomes the work that England's Economic Heartland is currently doing with the government and the private sector to achieve this throughout the length of the East West Rail route. It is recommended that there is also a focus on achieving this in other parts of the region too, including the less densely populated areas. A real 'step change' in connectivity allows for greater use of cloud-based systems and the ability to do more for less. This is especially useful for rural areas where poor road, rail and air infrastructure could be mitigated by digital connectivity. This might take the form of remote working, virtual meetings, increased connectivity to customers or the reduced need for courier services for large files.²³

Smart ticketing

The Outline Transport Strategy has acknowledged the need for integrated ticketing solutions that provide passengers with ease of access and frictionless travel. By implementing smart ticketing, such as contactless cards, passenger travel experience could be improved with the ability to purchase tickets online, store travel data easily and manage one card as

¹⁹ [Innovation in transport: intelligent transport system developments](#), Dariusz M Trzmielak and Remigiusz Kozłowski, Energy and Mobility in Smart Cities. January 2019, 99-114

²⁰ Ibid

²¹ Ibid

²² ICE (2016), [National Needs Assessment](#)

²³ Superfast Cornwall Project (2013), [SME Benefits and Business Opportunities with Superfast Broadband: the Virtuous Circle of Connectivity](#)

opposed to multiple tickets for each journey. This mode of ticketing would also offer more security, with the ability to cancel cards online in the case of loss or theft.

Digital signage

Real-time, digital signage helps to ensure that passengers are given accurate information when travelling and reduce capacity in busy stations at peak hours by keeping passenger traffic moving. By identifying areas that would benefit from digital signage, the Transport Strategy could help to meet its goal to create a user-centric transport system with easy access to information.²⁴

Data security

Developments in digital infrastructure mean that there is a need to ensure it is equally as resilient and that systems are secure enough to resist cyberattacks. By identifying the risks and vulnerabilities for infrastructure as a result of these developments, the Transport Strategy could help to prevent security breaches and minimise the likelihood of threats.²⁵

About ICE

Established in 1818 and with over 93,000 members worldwide, the Institution of Civil Engineers exists to deliver insights on infrastructure for societal benefit, using the professional engineering knowledge of our global membership.

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²⁴ [Technology to support independent travel in the UK](#), Simon J. Edwards, David Partington, Bryan Matthews, and Phil Blythe, Proceedings of the Institution of Civil Engineers - Municipal Engineer 2015 168:2, 140-149

²⁵ IET (2015), [Automotive Cyber Security](#)