ENGLAND'S ECONOMIC HEARTLAND

Connecting economies:

Peterborough-Northampton-Oxford

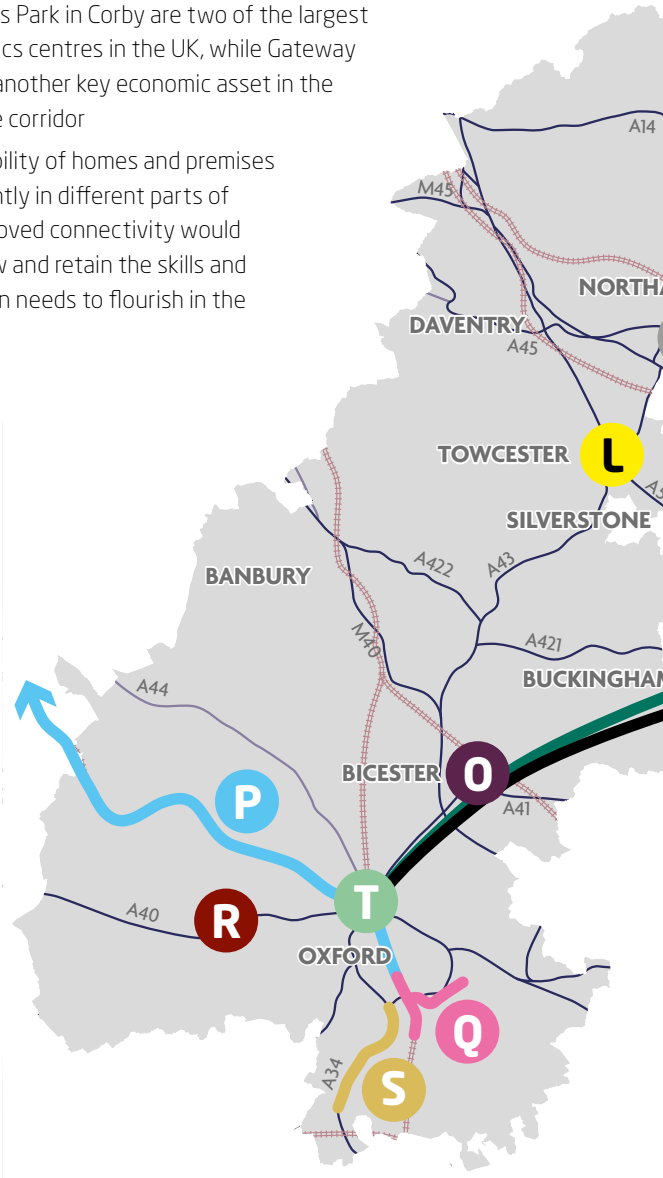
Unlocking economic potential through improved connectivity

// SUMMARY

Framed by two of England's six 'fast growth cities' at either end, and with assets including the world's number one ranked university and the home of British motorsport, the Peterborough-Northampton-Oxford corridor already contributes nearly £50bn to the UK economy every year.

New research by Cambridge Econometrics suggests that with improvements to its transport system, it could deliver even more. Benefits of improved connectivity for the corridor include:

- Boosting the growth of the advanced engineering sector, a major strength of the corridor, fuelled by assets including Oxford's world-leading innovation ecosystem and the motorsport and technology cluster around Silverstone. Several related strengths, including manufacturing and agri-tech, would also stand to benefit from this growth
- Supporting the corridor's major role in the UK's freight and logistics sector. Daventry Rail Freight Terminal, the Midlands Logistics Park in Corby are two of the largest intermodal logistics centres in the UK, while Gateway Peterborough is another key economic asset in the north-east of the corridor
- With the affordability of homes and premises varying significantly in different parts of the corridor, improved connectivity would help attract, grow and retain the skills and businesses Britain needs to flourish in the 21st century



About this brochure

This brochure provides a compendium of both evidence and asks to government, which England's Economic Heartland, its local and combined authority partners, MPs, private sector and others can use to make the case for improved connectivity and infrastructure investment in our region. It provides the high-level economic narrative for improving connectivity in the corridor, based on expert analysis by Cambridge Econometrics. It then details the flagship transport improvements which England's Economic Heartland's evidence base suggests would significantly contribute towards economic growth. EEH is producing seven 'Connecting Economies' brochures in total. Of specific relevance to this area are the brochures outlining the economic narrative and priority interventions for the following corridors:

- Cambridgeshire and Peterborough
- Luton-Bedford-Corby (to be published autumn 2024)
- Thames Valley-Buckinghamshire-Milton Keynes-Northampton
- Swindon-Didcot-Oxford

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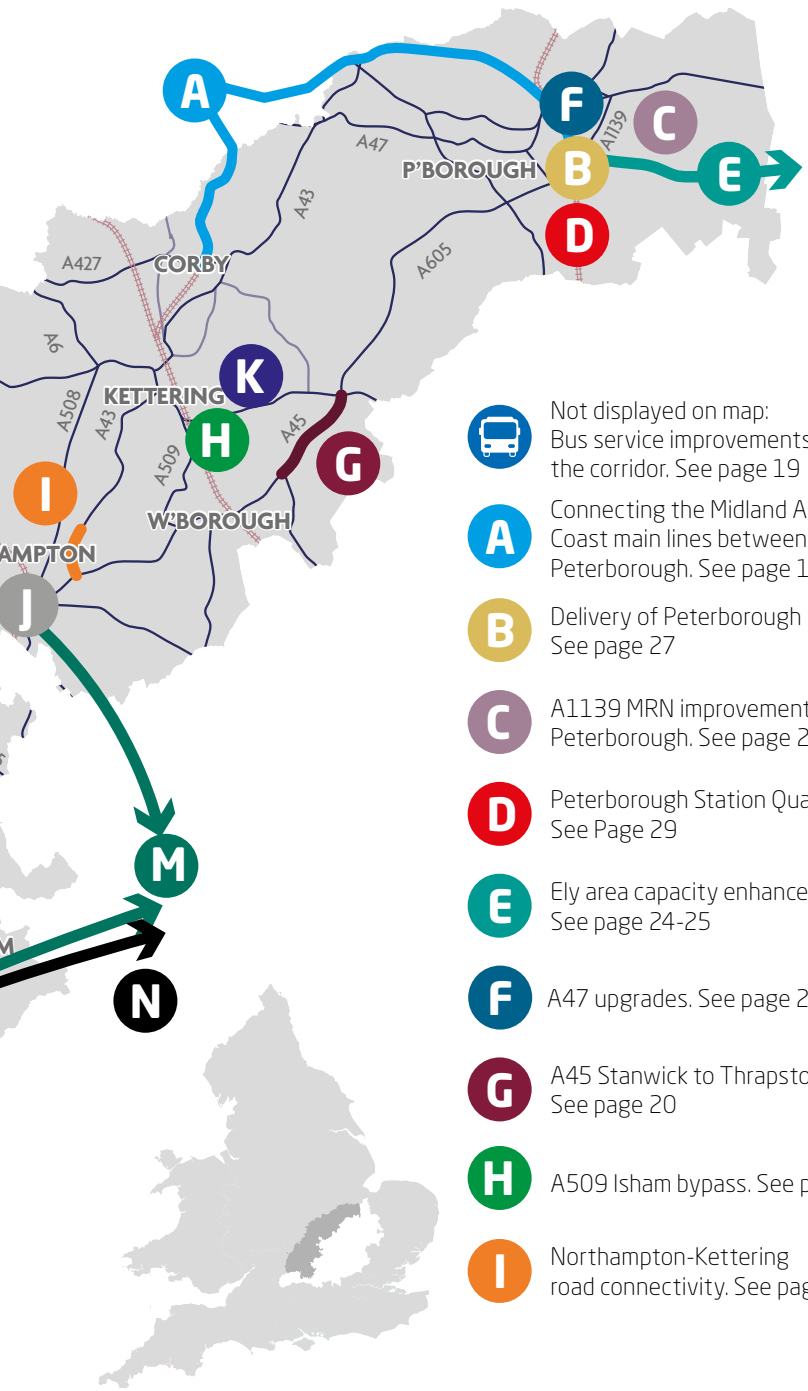
PRIORITY INTERVENTIONS

The interventions below represent investments that are essential for our region's – and our country's – economic prosperity. They all have strong strategic value, including their benefits to local and regional connectivity and economic growth – and they have strong political support from our local and combined authority partners. They form a compendium of our ask to government, MPs and wider stakeholders. These schemes must be supported, progressed and delivered at the earliest opportunity for the benefit of the region and the UK as a whole.



- Not displayed on map: Bus service improvements along the corridor. See page 19
- A: Connecting the Midland And East Coast main lines between Corby and Peterborough. See page 18
- B: Delivery of Peterborough Bus Depot. See page 27
- C: A1139 MRN improvements, Peterborough. See page 28
- D: Peterborough Station Quarter. See Page 29
- E: Ely area capacity enhancements. See page 24-25
- F: A47 upgrades. See page 28
- G: A45 Stanwick to Thrapston. See page 20
- H: A509 Isham bypass. See page 21
- I: Northampton-Kettering road connectivity. See page 20
- J: Strategic road connectivity in Northampton. See page 21
- K: A14 Junction 10a. See page 20
- L: Towcester connectivity including A5 relief road. See page 22
- M: Maximising opportunities from East West Rail and HS2 released capacity. See page 26.
- N: Varsity Way active travel corridor between Oxford, Bicester and Winslow and onwards to Cambridge. See page 30
- O: Improving connectivity around Bicester, including M40 junctions /A41 and a solution for London Road. See page 26
- P: The North Cotswold Line enhancements. See page 23
- Q: Reopening of Cowley branch line. See page 34-35
- R: A40 improvements. See page 32-33
- S: Improving bus journeys along the A34 between Abingdon and Oxford. See page 31
- T: Upgrading Oxford Station. See page 35

GVA: £46.6M (2021)

Economic growth (measured by GVA, in real terms) from 2011-2019 was 2% compared to 2.2% nationally. Corridor GVA is 27% of total EEH GVA.

JOBS: 792,300 (2022)

At 1.7% per annum, jobs growth equalled the national average between 2011-2019. As of 2023, there are 77,400 firms in the corridor, their number growing above national average.

POPULATION: 1.58M (2021)

Population growth within the corridor was almost double the national average (1.3% per annum vs 0.7%) between 2011-21. 73% of residents live in urban areas.

PRODUCTIVITY

The corridor has a long-standing productivity deficit which as of 2021 stood at 12% below the national average, whilst productivity growth pre-pandemic averaged only a third of the national average.

FAST GROWTH CITIES

Oxford and Peterborough are two of only six 'fast growth cities' identified by the Centre for Cities (2021). These are defined as 'some of the most successful and innovative places in the UK'.

INEQUALITIES

The Fens, Peterborough, Corby, Kettering, Wellingborough, Daventry, Northampton and Oxford all contains neighbourhoods within the 10% most deprived in the country.

// ENGLAND'S ECONOMIC HEARTLAND

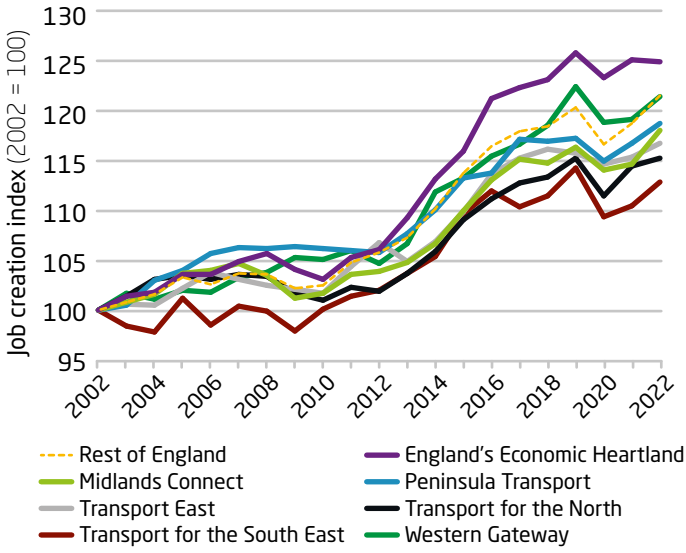
There's a reason why we're called England's Economic Heartland. Stretching from Swindon and Oxfordshire in the west through to Cambridgeshire and Hertfordshire in the east, our region is unrivalled in the country for the number of economic specialisms and clusters existing within it. Its success brings benefits and opportunities for the whole of the UK.

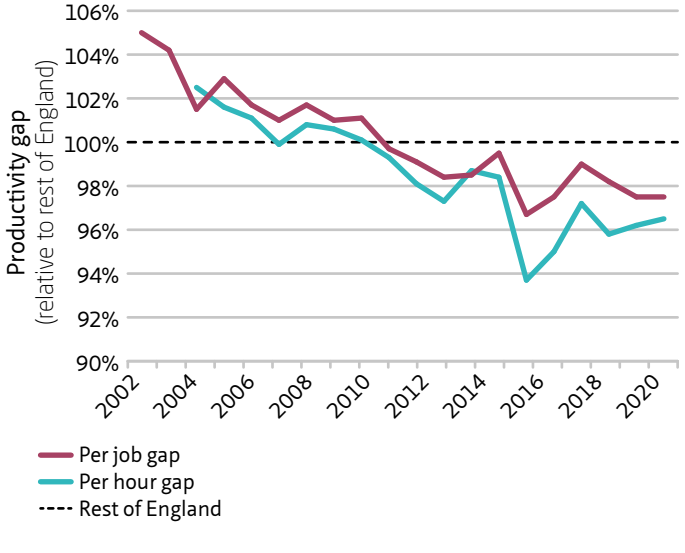
ECONOMY

For methodology see our website and p39

GVA: £172bn (2021) **JOBS:** 2.68m (2022) **FIRMS:** 275,400 (2023)

- **Jobs:** The region contains 10% of all jobs in England. Of the seven sub-national transport body (STB) regions which cover England outside of London, none has created more jobs than EEH over the past 20 years
- **Growth:** Economic growth (2.4% p.a. real terms) was also faster than the rest of England (2.2%), making EEH the fastest-growing STB region
- **Fast growth cities:** The EEH region hosts five of the six fast growth cities in the UK (Centre for Cities study): Cambridge, Milton Keynes, Oxford, Peterborough and Swindon
- **Exporting:** EEH has the highest exporting intensity of any STB region with total exports £56bn in 2021 (up 22% on 2016)
- **Foreign investment:** EEH also hosts significant foreign direct investment, with 7.3% of firms foreign owned (rest of England 6.4%) – only London has a higher share
- **Firm enterprise and survival:** EEH has the second highest firm enterprise rates of the STB regions and business survival rates are above average. 85% of firms are micro-sized
- **Commercial floorspace:** 55.3bn m^2 of commercial floorspace, with floorspace delivery rates 6x the average across the rest of England, 2013-23
- **Productivity:** Slow productivity growth (only 0.2% p.a) means EEH is now 3% less productive (per job) than the rest of England (20-years ago, it was more productive)





No STB region has created more jobs than EEH over the past 20 years. However, productivity growth has stalled, reversing EEHs historic productivity premium.

POPULATION

5.37 million (2021), 9% of the population of England

- **Growth:** Population growth (1.2% p.a.) was almost double the average across the rest of England (0.7%) between 2011-21, and fastest of any STB region
- **Housing:** 233,800 additional homes delivered over the past decade (2012-22), with housing delivery rates 1.4x higher than across the rest of England. Housing is 11% less affordable than the rest of England, with prices 10.4x household incomes
- **Rural:** 35% of EEH's population reside in rural areas and market towns

ENVIRONMENT

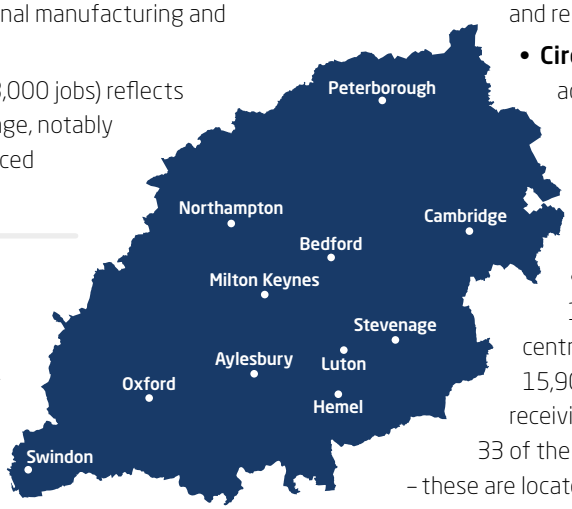
- **Total emissions:** Per capita CO_2 emissions were 4% higher than in the rest of England in 2021, & have declined at a slower rate (-24% 2005-21, rest of England -27%)
- **Transport emissions:** Transport accounts for 37% of total EEH emissions (rest of England 31%), and decreased more slowly (-8% 2005-21, rest of England -12%)
- **Agriculture:** 965,000 hectares of land in EEH is actively farmed, with 85% arable or mixed use. 50% of UK Grade 1 agricultural land is found in The Fens

PRIME SECTORS

The EEH area is home to several sectors of national importance, many of which produce knowledge, ideas and innovations that then flow across the entire national innovation ecosystem, benefiting firms across a far wider geography than the region itself. This cannot be overstated in the context of national strategic economic priorities.

Cambridge Econometric's analysis found the following sectors are 'prime' capabilities across EEH: highly-concentrated sectors that typically exhibit above average productivity, export and R&D/ innovation intensity, and pan-regional representation. These are:

- **Life Sciences** (79,400 jobs across EEH - that's 25% of all life science jobs in England!) includes the region's historic, research-based strengths related to pharma, medicinal manufacturing and bioscience
- **Advanced Physics & Engineering** (253,000 jobs) reflects diverse engineering specialisms and heritage, notably automotive, electronics, machinery, advanced materials, and related consulting
- **Logistics & Freight** (140,700 jobs) capitalising on the region's central geographic location and connectivity assets, this includes freight and goods storage, handling and transport across road, rail and air
- **Digital & Creative** (139,300 jobs) includes a wide range of digital-based activities, including software publishing, IT services and consulting, film, TV and media, and telecoms
- **Higher Education** (97,800 jobs) captures the many leading universities and higher education institutions across the region, and associated teaching, research, and support activities
- **Agri-food** (71,100 jobs) reflecting the rural and agricultural heritage of the region, this includes farm-based agriculture and support services, food and drink production and processing, and related wholesale
- **Circular Economy** (22,600 jobs) vital to addressing the region's environmental pressures, includes activities related to water and waste



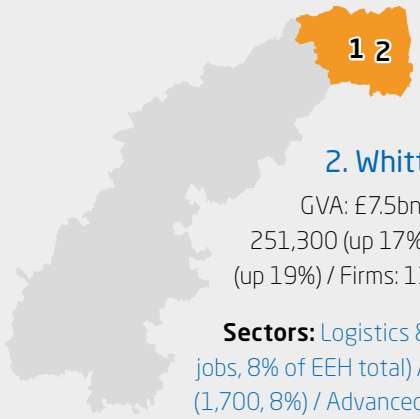
INNOVATION

- **Research and development:** Almost 1 in 10 jobs (240,000 total) in EEH are R&D-intensive, the highest share of any STB region and also London. Almost a third (28%) of EEH firms report undertaking R&D, more than any other STB region, whilst a quarter (24%) are innovation active, introducing new methods of work
- **Patents:** The World Intellectual Property Organization ranks Cambridge as the most intense scientific & technology cluster globally, with Oxford 5th. Collectively they account for 2 in 10 UK patents. EEH generated 20,700 patent filings (2010-2015; most up to date complete data) more than any other STB region and London equivalent to 46 patents per 10,000 residents
- **Innovation clusters:** There are 183 established innovation clusters centred on the EEH region, hosting 15,900+ knowledge-intensive firms & receiving £855m of public research funding. 33 of the clusters have a UK top-10 ranking – these are located in Cambridgeshire, Oxfordshire, Milton Keynes and Hertfordshire. See next page for more information on innovation clusters.
- **Universities:** University of Oxford tops The Times' global university rankings with Cambridge fifth. EEH universities employ 6,100 dedicated research staff, whilst there are 2,900 central government research staff based in the region
- **Innovate UK:** Almost 2 in 10 Innovate UK funding projects are awarded to research projects in the EEH region, more than any other STB region and London

ENGLAND'S ECONOMIC HEARTLAND SUB-NATIONAL TRANSPORT BODY

England's Economic Heartland (EEH) is one of seven sub-national transport bodies (STBs) which cover the entirety of England outside of London. It is overseen by the leaders of our 13 transport and combined authority partners, allowing us to speak with a single, powerful voice. EEH works closely with partners including Department for Transport, national infrastructure agencies such as National Highways, East West Railway Company and Network Rail, Science Supercluster Board, Arc Universities Group, Oxford to Cambridge pan-Regional Partnership and neighbouring STBs, ensuring work is joined-up across the wider region. A core role is to advise the Secretary of State on the improvements to our transport system which will realise economic growth while lowering emissions. To do this we have produced multimodal connectivity studies across several important corridors, alongside many other modally-specific studies. All our studies are aligned to the principles set out in our overarching transport strategy for the region, published in 2021.

// WHERE'S WHERE IN THE CORRIDOR



Settlements include:
1. Peterborough and
2. Whittlesey

GVA: £7.5bn (up 16%) / Population: 251,300 (up 17%) / Jobs: 125,700 (up 19%) / Firms: 11,400 (up 42%)

Sectors: Logistics & Freight (11,100 jobs, 8% of EEH total) / Circular Economy (1,700, 8%) / Advanced Physics & Engineering (12,900, 5%) / Agri-food (4,000, 5%) / Business Support Services (14,900)

Knowledge clusters: EdTech / Food Tech / Cyber / Electronics Manufacturing / Agency Market

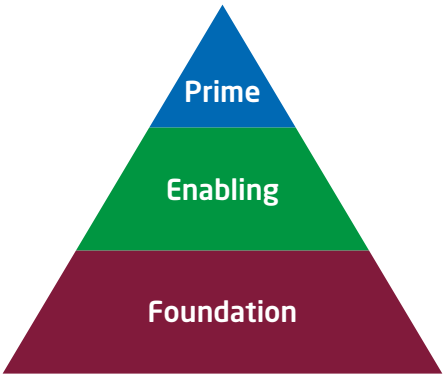
Economic assets include:

- ARU Peterborough, a new, purpose-built university offering a range of higher education and professional development
- Gateway Peterborough, a 240-acre manufacturing and distribution park hosting global brands
- Peterborough railway station, a major interchange serving both intercity north-south and east-west connections

Insights:

- 30% of jobs are in EEH 'prime' sectors, the seventh highest share among EEH areas, whilst 53% are in 'foundational' sectors, the fourth highest share
- Productivity gap with the national average is -10%
- Housing delivery rates 1.4x the national average, with housing 22% more affordable than the national average
- It has the third lowest old age dependency ratio in EEH, with 85% of residents young or working age (national average 81%)
- Average commercial floorspace costs 30% below national average
- 11,000 jobs are R&D-intensive, which as a share of total jobs (9%) is above the national (7.4%)
- 32% of neighbourhoods are among the most deprived in the country – the highest share of the 18 EEH areas. Relative poverty rates (22%) are the second highest
- 33% of residents have received a higher education, the lowest share among EEH areas

SECTORS AND INNOVATION CLUSTERS



For the purposes of its analysis, Cambridge Econometrics has split the sectors within the EEH economy into three (colour-coded) layers:

- **'Prime' sectors:** these are specialist, innovative, export-focused sectors, such as advanced engineering and scientific R&D (see page 5)
- **'Enabling' sectors:** these are established, high-productivity, high-wage sectors with a largely domestic focus, such as business management support and financial services
- **'Foundational' sectors:** these are the critical sectors without which the economy would not function. They employ the majority of workers. This includes activities like food and drink retail, education, health, leisure and social services. They have a critical role in determining the wellbeing and quality of life for residents in the region and improving productivity

The EEH website contains a full breakdown of the EEH economy, sector by sector – see page 39 for more details.

Innovation Clusters: Sectors include all firms that do a particular activity, whether they are 'innovative' or not. That's why the Department for Science, Innovation and Technology's innovation cluster data is also used. These are spatially concentrated groups of firms, research capabilities, skills, and support structures in related industries that benefit from spillovers associated with agglomeration. The clusters includes firms – regardless of sector – that are: 'Research, Development and Innovation' active; spatially co-located; engaged in related activities; actively engaged in collaboration on public funded R&D projects.

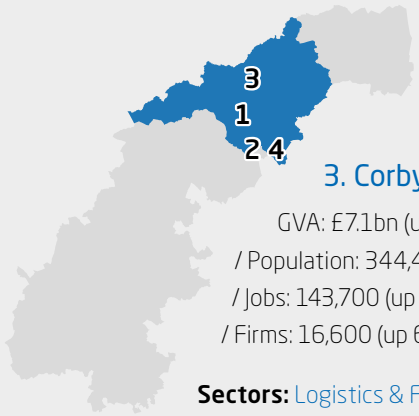
Real Time Industrial Classifications (RTICs) are used to classify innovation clusters. Many firms in EEH's prime sectors are part of, will interact with, and indeed benefit from, its innovation clusters.

The visitor economy: With its rich history, stunning countryside and modern leisure hubs, travel and tourism plays an important role in the region's economy. During 2024/25 EEH will undertake study on how our transport system supports the region's visitor economy.

Key

GVA: up = growth between 2011-19 / **Population:** up = growth between 2011-21 / **Jobs:** up = growth between 2011-19) / **Firms:** up = growth between 2011-21 / **National average**: England / **Productivity:** Per job.

Comparison to other areas: For the Connecting Economies project (which considers a total of seven corridors / areas) Cambridge Econometrics defined 18 'sub-areas' across the EEH region, using workplace density and commuter zone analysis from Economic and Social Research Council-commissioned research. The areas are separate from administrative boundaries, using middle layer super output area (MSOA) geographies. Where an area is 'ranked' in comparison to other EEH areas, it is therefore out of a total of 18 areas within EEH. See our website and page 39 for further notes.



Settlements include: 1. Kettering, 2. Wellingborough, 3. Corby and 4. Rushden

GVA: £7.1bn (up 18%) / Population: 344,400 (up 15%) / Jobs: 143,700 (up 17%) / Firms: 16,600 (up 60%)

Sectors: Logistics & Freight (14,200 jobs, 10% of EEH total) / Agri-food (9,300, 13%) / Advanced Physics & Engineering (15,000, 6%) / Wood Products (4,400) / Chemicals & Materials (3,800) / Textiles Products (1,600)

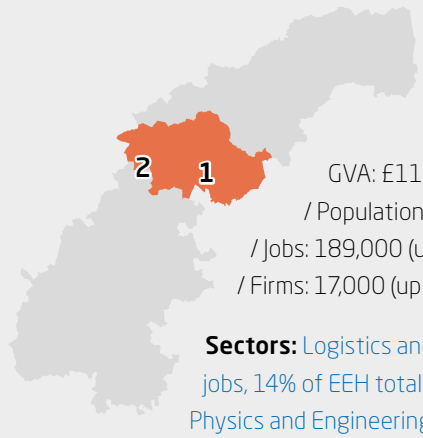
Innovation clusters: Food Tech / E-Commerce / Electronics Manufacturing

Economic assets include:

- Midlands Logistics Park, one of the biggest logistics opportunities in the UK
- Chelveston Renewable Energy Park, the largest facility of its kind in the UK, generating wind and solar power, with on-site storage
- Kettering Energy Park offers one of the best opportunities in the UK for businesses to benefit from on-site renewable energy

Insights:

- Firm enterprise rates were over 5x the national average over 2016-21, and highest among all EEH areas. 86% of firms are micro-sized
- Has EEH's largest productivity gap relative to national average (-27%), whilst productivity growth was half the EEH average pre-pandemic
- Commercial floorspace costs are 47% below national average (and second lowest in EEH)
- Housing delivery rates 38% above the national average and housing is 15% more affordable than the national average



Settlements include: 1. Northampton and 2. Daventry

GVA: £11.8bn (up 20%) / Population: 351,200 (up 14%) / Jobs: 189,000 (up 9%) / Firms: 17,000 (up 47%)

Sectors: Logistics and freight (20,100 jobs, 14% of EEH total) / Advanced Physics and Engineering (17,400, 7%) / Wood Products (3,400) / Electricity (1,200) / Textile Products (1,700) / Chemicals & Materials (3,200) / Business Support Services (19,100)

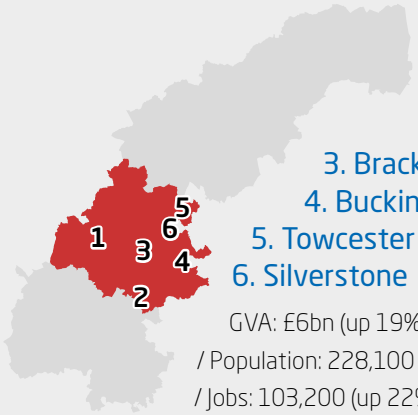
Innovation clusters: Supply Chain Logistics / Immersive Technologies / Agency Market / E-Commerce

Economic assets include:

- MAHLE Powertrain, UK's first Real Drive Emissions vehicle test chamber
- DIRFT, recognised as one of the UK's most successful intermodal logistics parks
- The University of Northampton, the Waterside development and the Vulcan Works Creative Hub £14m project in the town's Cultural Quarter
- Every single F1 engine to have a Mercedes badge since 1995 has been constructed at its base in Brixworth, which supplies the current Mercedes F1 team as well as Aston Martin, Williams and McLaren

Insights:

- Pre-pandemic productivity growth (1.3% p.a. 2011-19) was EEH's 2nd fastest, & above the national average (0.6%), closing its productivity gap (now – 11%)
- The area has the second highest share among EEH areas for head office sites
- Commercial floorspace costs 40% below national average (third lowest in EEH)
- Housing is 11% more affordable than the national average, with housing delivery rates 19% above the national average
- Employment rate (77.3%) is above the national average (75.7%) and saw the third largest increase among EEH areas pre-pandemic (2012-19)



Settlements include:
1. Banbury,
2. Bicester,
3. Brackley,
4. Buckingham,
5. Towcester and
6. Silverstone

GVA: £6bn (up 19%) / Population: 228,100 (up 15%) / Jobs: 103,200 (up 22%) / Firms: 12,700 (up 15%)

Sectors: Agri-food (6,300 jobs, 9% of EEH total) / Advanced Physics & Engineering (12,900, 5%) / Chemicals & Materials (1,100) / Arts & Recreation (5,800) / Retail (11,300) / Business Support Services (9,100)

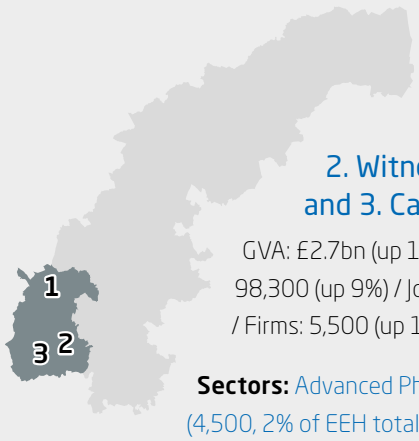
Innovation Clusters: Advanced Manufacturing / In-Orbit Space Manufacturing / Sensors / Life Sciences

Economic assets include:

- Silverstone, the home of Formula One in the UK. It is part of an enterprise zone, home to a high-tech cluster, testing facilities for materials and vehicles. This area is the heart of 'Motorsport Valley': Aston Martin's F1 team is based at Silverstone, while Mercedes is based in Brackley and Haas has a factory in Banbury
- Catesby Aerodynamic Research Facility, a worldwide benchmark for aerodynamic testing
- University of Buckingham, the only independent university with a Royal Charter
- Bicester Motion, a world-leading mobility technology cluster home to the brightest minds shaping the future of transportation
- Bicester Village designer outlet retail centre – a magnet for shoppers both from the UK and abroad – is expanding into an additional 2,690 square metres of floor space

Insights:

- The area has lowest unemployment rate (1.7%) among EEH areas
- 8,000 jobs are R&D-intensive, increasing by a rate of 1.9% p.a. over 2015-22, above the national average of 1.7%
- Commercial floorspace costs 3% below national average
- 14,600 additional homes delivered over the past decade (2012-22), with housing delivery rates more than twice the national average. Housing affordability matches the national average



Settlements include:
1. Chipping Norton,
2. Witney and
3. Carterton

GVA: £2.7bn (up 17%) / Population: 98,300 (up 9%) / Jobs: 41,200 (up 17%) / Firms: 5,500 (up 10%)

Sectors: Advanced Physics & Engineering (4,500, 2% of EEH total) / Metal Products (1,800 jobs) / Chemicals & Materials (700) / Textile Products (400) / Wood Products (800) / Arts & Recreation (2,700) / Accommodation (800)

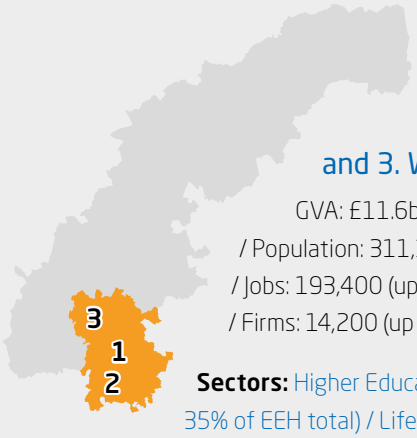
Innovation clusters: Agri-tech (in UK top 10) / Space Energy

Economic assets include:

- RAF Brize Norton the largest RAF Station with approximately 7,300 Service Personnel, civilian staff & contractors
- Abbot Diabetes Care Ltd leading pharmaceutical company specialising in developing and marketing medical products

Insights:

- 5,000 jobs are R&D-intensive, which as a share of total jobs (12%) is the 3rd highest among EEH areas
- It has EEH's 2nd highest & fastest increasing old age dependency ratio, with only 79% of residents young or working age
- Commercial floorspace costs 17% below national average
- Housing is 14% less affordable than the national average, with the 6th highest house price – income ratio in EEH



Settlements include: 1. Oxford, 2. Abingdon and 3. Woodstock

GVA: £11.6bn (up 12%) / Population: 311,100 (up 9%) / Jobs: 193,400 (up 13%) / Firms: 14,200 (up 13%)

Sectors: Higher Education (33,800 jobs, 35% of EEH total) / Life Sciences (9,700, 12%) / Circular Economy (1,400, 6%) / Advanced Physics & Engineering (14,100, 6%) / Digital & Creative (12,100, 9%) / Healthcare (20,900)

Innovation clusters: Quantum Economy (2nd largest in UK) / Autonomy & Robotics (3rd largest) / Omics (4th largest) / Photonics (4th largest) / MedTech (6th largest) / Pharma (7th largest) / EdTech (9th largest) / Food Tech (9th largest)

Economic assets include:

- University of Oxford, ranked as the best university in the world, a global leader in science and technology research and worth £15.7bn to UK plc. Includes the Bioescalator, Oxford Robotics Institute (ORI), Institute for Ethics in AI , Oxford Internet Institute and The Oxford Machine Learning Research Group
- Oxford Brookes is one of the UK's leading modern universities and has specialisms in advanced AI and robotics
- Culham Campus, home to UKAEA (the United Kingdom Atomic Energy Authority) and the Culham Centre for Fusion Energy, the UK's national fusion energy laboratory, which will design and build the world's first compact fusion reactor by 2040. The government is investing £184 million by 2025 in new fusion facilities, infrastructure and apprenticeships at Culham
- Other leading science and technology assets including: Oxford Science Park, with 100 occupiers & 600,000 sq ft of development; Begbroke, with 60+ world-leading research & tech companies, 900+ staff; Oxford BioEscalator; the Jenner Institute; Oxford University Hospitals Trust; and the Centre for Applied Superconductivity
- Oxford North is the city's new innovation district (in development). The 64-acre site will provide one million square feet of laboratories workspace, 480 new homes and provide 4,500 new jobs

Insights:

- WIPO ranks Oxford as the fourth leading scientific & technology cluster globally, & generates more than 1 in 20 UK patents
- The area has 25 established innovation clusters centred locally, 9 of which are amongst the biggest (ie top 10) in the UK (second only to Cambridge among EEH areas), hosting 2,500+ knowledge-intensive firms & £390m of public research funding (the highest in EEH)
- Commercial floorspace costs 31% above national average
- Housing is 24% less affordable than the national average

The world famous Silverstone circuit


The Radcliffe Camera in Oxford

// UNLOCKING ECONOMIC GROWTH THROUGH IMPROVED CONNECTIVITY

Cambridge Econometrics has identified several ways in which improved connectivity could unlock opportunities for further economic growth along the corridor.

This includes:

Growing the advanced physics and engineering sector

A consistent thread along the corridor is the prevalence of the advanced physics and engineering prime sectors, which encompasses a range of specialisms vital to the production of electronics, machinery, advanced materials, automotives, and related R&D enterprises.

The corridor supports around 80,000 jobs in this sector, equating to more than 30% of advanced physics and engineering jobs in the EEH region. The corridor boasts advanced engineering hubs centred around Oxford, Northampton and Peterborough, alongside assets such as Silverstone Park and the wider Motorsport Valley, and the Catesby Aerodynamic Research Facility, among many others.

Greater transport connectivity would facilitate the diffusion of advanced engineering expertise across the wider corridor. The sector would also stand to realise agglomeration effects through repeated interactions and closer competition made possible by improved transport infrastructure.

Boosting manufacturing and food industries

There are several related prime sectors, particularly in the central part of the corridor, that benefit from the ubiquity of the advanced physics and engineering specialisation in the corridor, producing a variety of goods related to immersive technologies, electronics, and agri-tech. These manufacturing hotbeds obtain synergies from the localisation of engineering expertise and R&D occurring in the advanced physics and engineering sector.

Similarly, the agri-food sectors – based primarily in the Corby-Rushden and Banbury-Buckingham-Towcester areas – may benefit from the production of inputs (such as agri-tech products) in the corridor. Transport infrastructure is vital to connecting these various specialisms across the corridor and ensuring that local prime sectors, such as manufacturing and agri-food, are able to realise the potential gains from regional R&D and co-production.

3C Test, based at Silverstone Park, is one of the UK's leading laboratories in electromagnetic compatibility and environmental testing for the automotive and commercial industries.

For a quick guide to the relationship between connectivity, productivity and economic growth turn to page 38.

Engineering students at ARU Peterborough

Increasing productivity and business growth

The north-eastern and central parts of the corridor (Peterborough through to Banbury) are characterised by relatively low labour productivity levels. Investing in transport connectivity is a potential means of continuing to support productivity improvements in areas such as Northampton-Daventry, which enjoyed the second fastest pre-pandemic productivity growth in EEH, and stimulating productivity growth in other areas.

The south-western end of the corridor exhibited stronger relative productivity figures. However, while productivity in the Oxford area is in line with the EEH average, a sluggish pre-pandemic productivity growth rate has seen the emergence of a 5% productivity gap to the national average.

The ample supply of affordable commercial real estate in the eastern half of the corridor (Peterborough-Northampton / Daventry) may be a contributing factor to the proliferation of new businesses and high enterprise rates. Conversely, enterprise rates further west fall well below the national average. These areas are characterised by less available and more expensive commercial floorspace. Improved connectivity could provide new and expanding businesses with more choice over where they locate or grow, while still retaining their existing workforce.

Linking skills and talent

North-eastern parts of the corridor have a younger but relatively lower skilled populace. Moving south-westwards along the corridor, the average age of residents increases, as does the proportion of residents with higher education.

The newly established ARU Peterborough has filled a higher education gap in the north of the corridor. The University of Oxford is the world's top university, while Oxford Brookes, Buckingham, and Northampton are all highly regarded and vital components of the corridor's R&D ecosystem. Silverstone University Technical College, a purpose built centre of excellence for young people wanting to break into high performance engineering, is also noteworthy in the context of the corridor's prominent advanced physics and engineering sector.

Investing in transportation can help narrow the skills gap in the corridor by improving access to and expanding the range of education options available to people. Enhancing workforce mobility will also create avenues for the population in the east to attain gainful employment, ultimately contributing to reducing economic inequalities in the corridor.

Reducing housing pressures

Housing affordability gradually declines moving south-westwards along the corridor. The creation of new development sites is constrained by the green belt and the flood plains in Oxford, resulting in a relatively lower housing delivery rate over recent years. However, build out rates in other parts of the corridor have been higher than the average over the last ten years.

There is reason to believe that improving transport connectivity in the corridor will reduce the housing pressure in areas that are less affordable and where housing growth is constrained.

HEADLINE CONCLUSIONS

Cambridge Econometrics concluded that the two biggest benefits of increased interaction along the corridor via better connectivity are:

- **Encouraging the advanced engineering specialism along the corridor, and to invigorate specialist knowledge to flow along the corridor:** bringing together the world-leading advanced physics (notably quantum) and robotics-related clusters around Oxford, with the applied engineering specialisms across the centre of the corridor where these technologies could be developed and implemented, and the well-established logistics, manufacturing, and agrifood specialisations in the centre and eastern end of the corridor, that could be used as an adoption test bed for these ideas to be adopted and employed to boost productivity
- **Facilitating greater sequential labour market flows between neighbouring areas would bring benefits to the entire corridor.** There are a lot of arbitrages that could potentially be exploited here, both in terms of providing workers towards the eastern end of the corridor with access to higher productivity and higher wages employment choices, and workers towards the western end of the corridor with the option of more affordable housing choices, taking the pressure off the housing market in Oxfordshire in particular

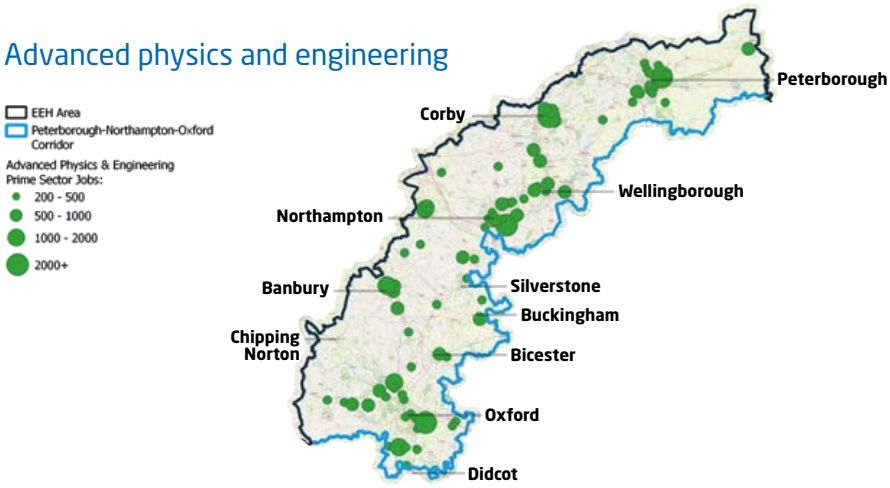
The Daventry International Rail Freight Terminal

The Mini plant in Oxford

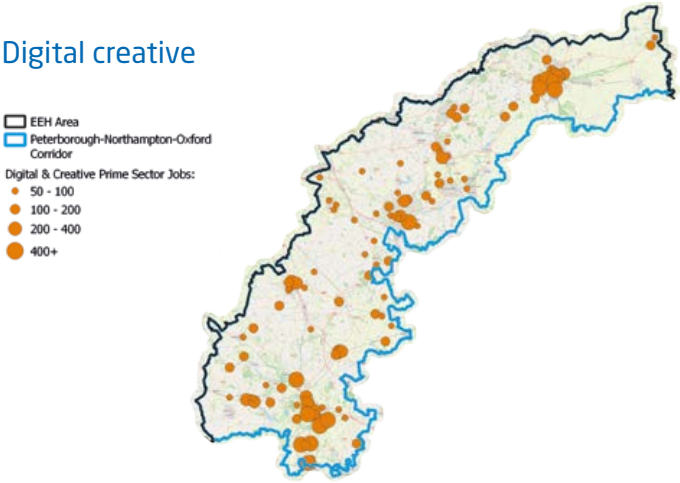
PRIME SECTORS

See page 5 for prime sector definitions

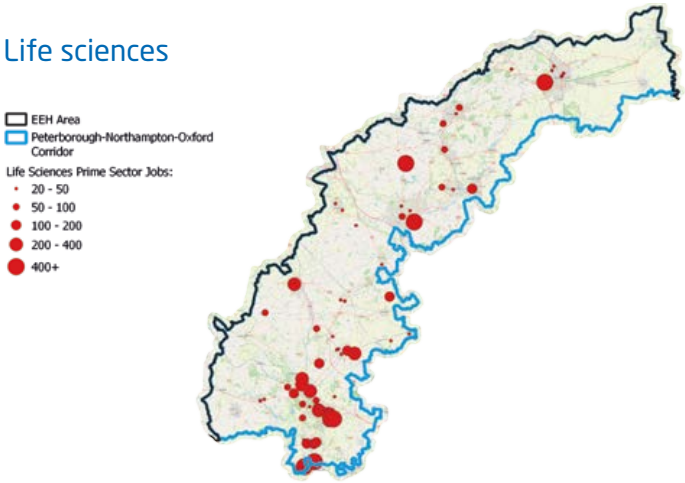
Advanced physics and engineering



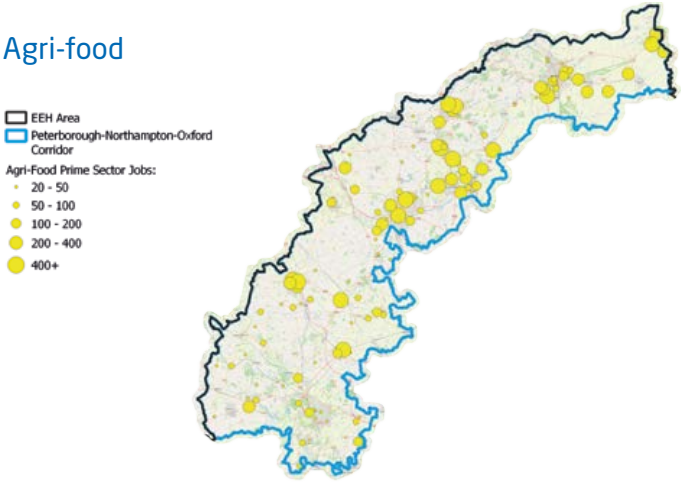
Digital creative



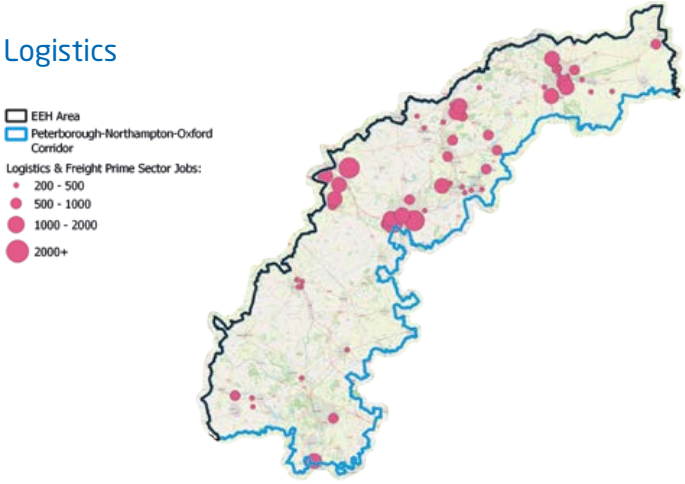
Life sciences



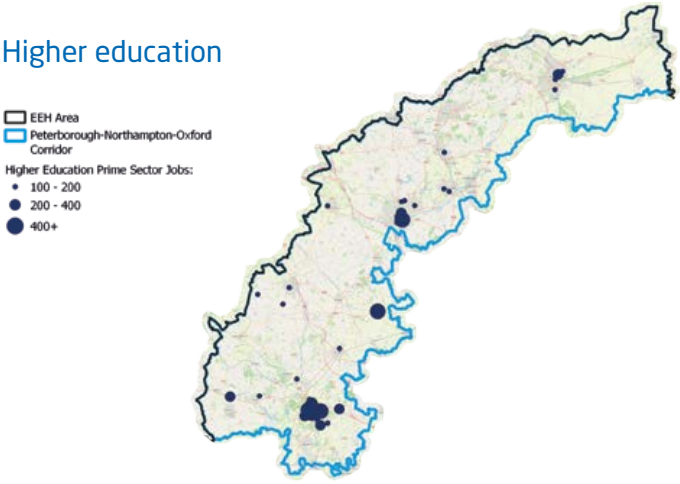
Agri-food



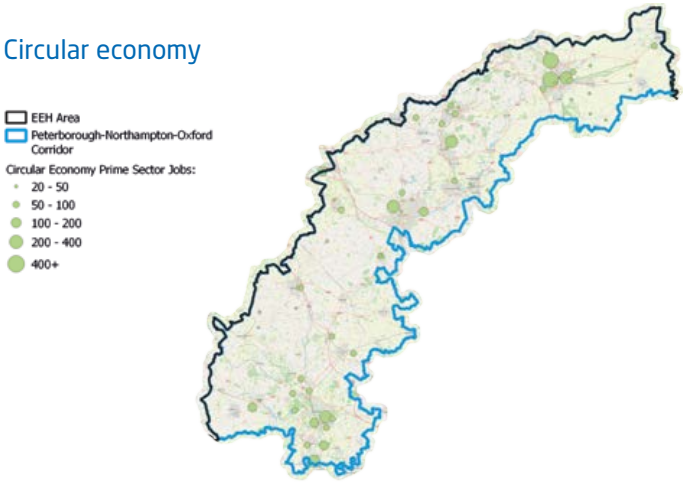
Logistics



Higher education



Circular economy

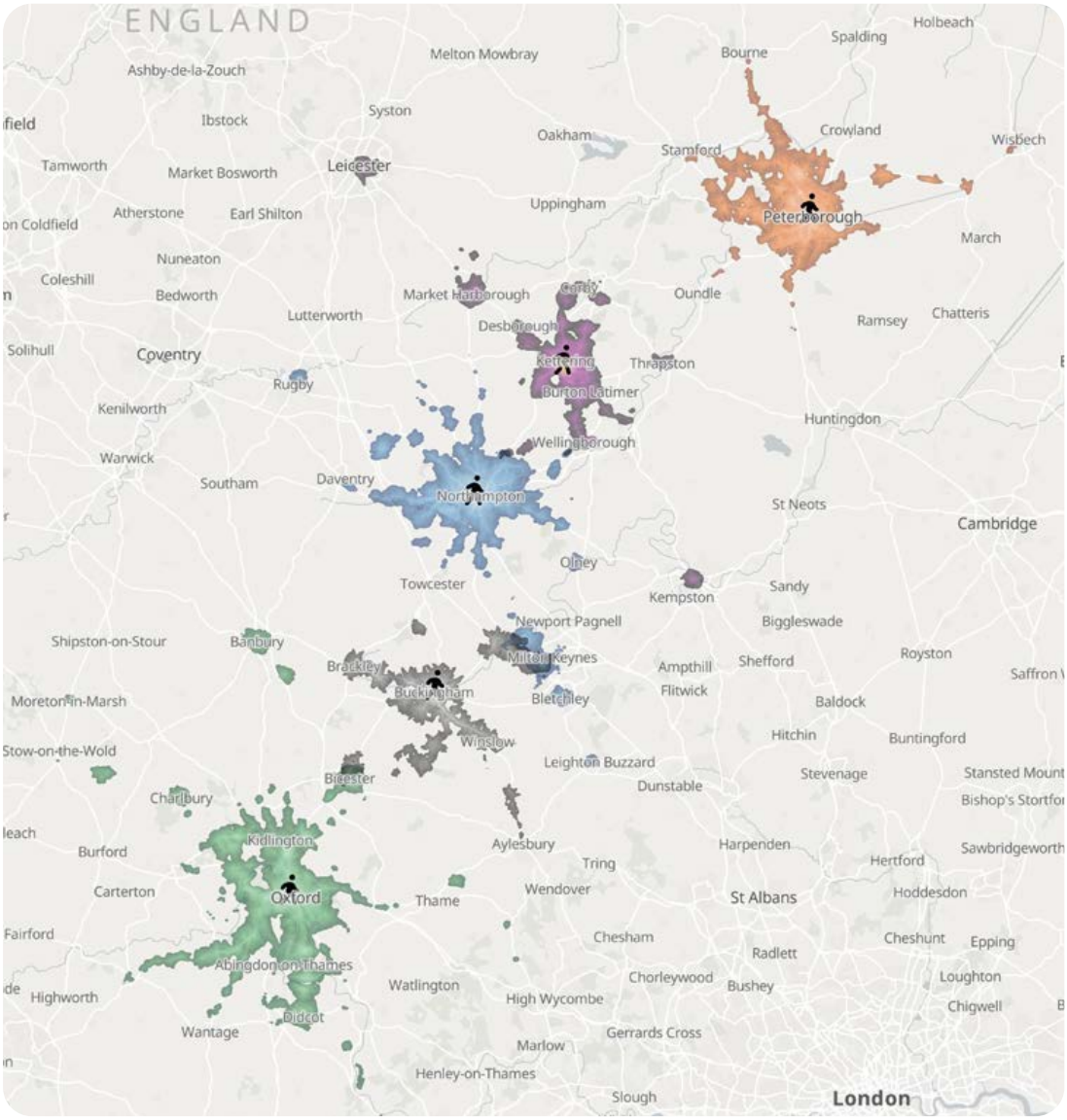


// CONNECTIVITY IN CONTEXT

This section contains a selection of maps, graphics, tables and stats which help build a snapshot of the corridor's transport system. It is by no means exhaustive – for a comprehensive range of evidence and data please see EEH's website.

PUBLIC TRANSPORT

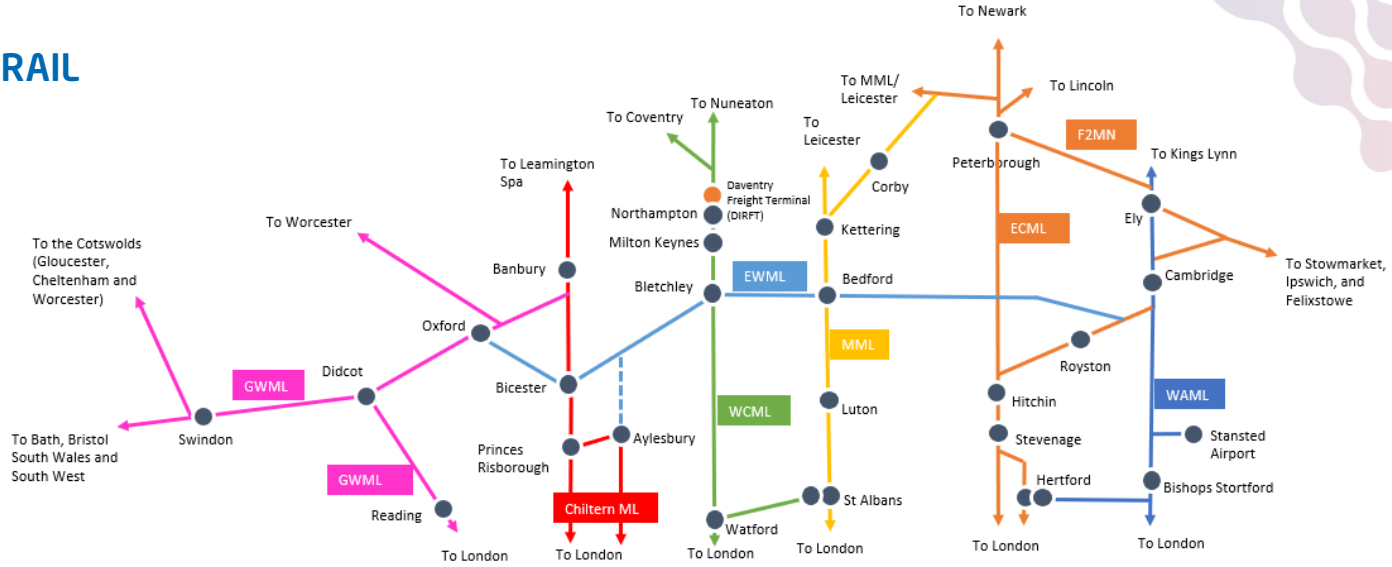
This map factors in average journey times and service frequencies to give a balanced indication of places which can be travelled to within 60 minutes on a weekday morning from a journey starting on foot and using bus and rail. These are from Peterborough (orange); Kettering (purple); Northampton (blue); Buckingham (grey); and Oxford (green). The journeys have been started outside the main rail station (aside from Buckingham, which starts at its bus station). For methodology see p39. The map visually demonstrates the challenges of travelling across the corridor by public transport.



BUS

Relatively few high frequency local bus services connect towns and cities in the corridor (notable exceptions to this include Oxford and Bicester, Corby and Kettering) There is a lack of high frequency local bus services along the A43 corridor, which provides access to the key employment site of Silverstone. Other noticeable links without high frequency local bus services are Kettering and Rushden. Frequencies could be improved between the towns of Northampton-Wellingborough-Rushden, Northampton-Kettering and Wellingborough-Kettering.

RAIL



The diagram above shows the main lines within the EEH region (including the proposed East West Rail line between Oxford and Cambridge). Within the corridor, several radial rail lines exist for both passengers and freight, including Cherwell Valley, Chiltern Main Line, Midlands Main Line and East Coast Main Line. With the exception of rail connectivity between Oxford, Bicester and Banbury, rail travel across the corridor is currently not practical, with exceptionally uncompetitive journey times compared to the car. For example a journey between Peterborough and Kettering would take a generalised journey time (which factors in frequency and interchange) of three hours by train, compared to around 50-60 minutes by car.

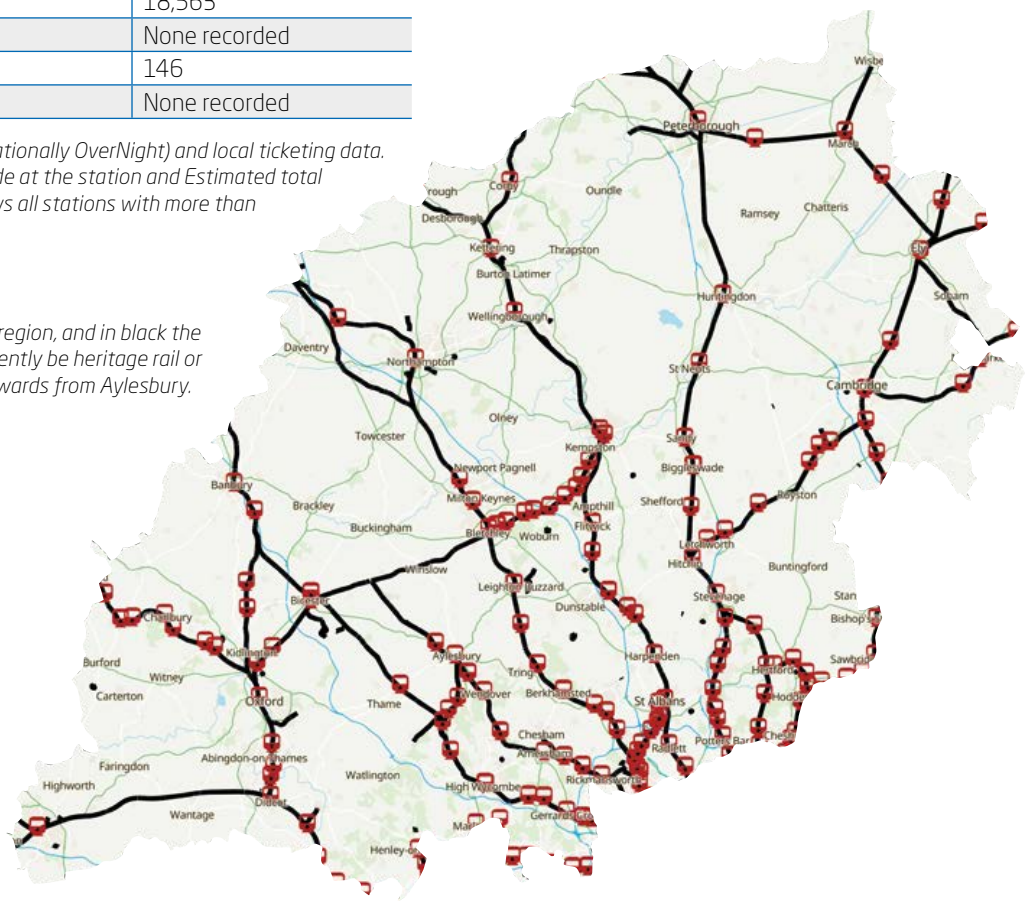
Station usage

Station	2022-23	Interchanges 2022-23
Oxford	6,581,606	514,180
Peterborough	4,519,016	773,281
Northampton	2,407,228	946
Banbury	1,813,406	234,856
Bicester Village	1,610,596	616
Oxford Parkway	584,930	None recorded
Kettering	1,007,900	369,017
Wellingborough	738,900	4,220
Bicester North	632,544	18,563
Long Buckby	250,046	None recorded
Corby	402,244	146
Hanborough	262,498	None recorded

Source: LENNON (Latest Earnings Networked Nationally OverNight) and local ticketing data. Estimated total number of entries and exits made at the station and Estimated total of interchanges made at the station. Table shows all stations with more than 250,000 users

Station locations

This map shows the locations of stations in the region, and in black the entire network of rail track. Some track may currently be heritage rail or freight only, for example, the line heading northwards from Aylesbury.



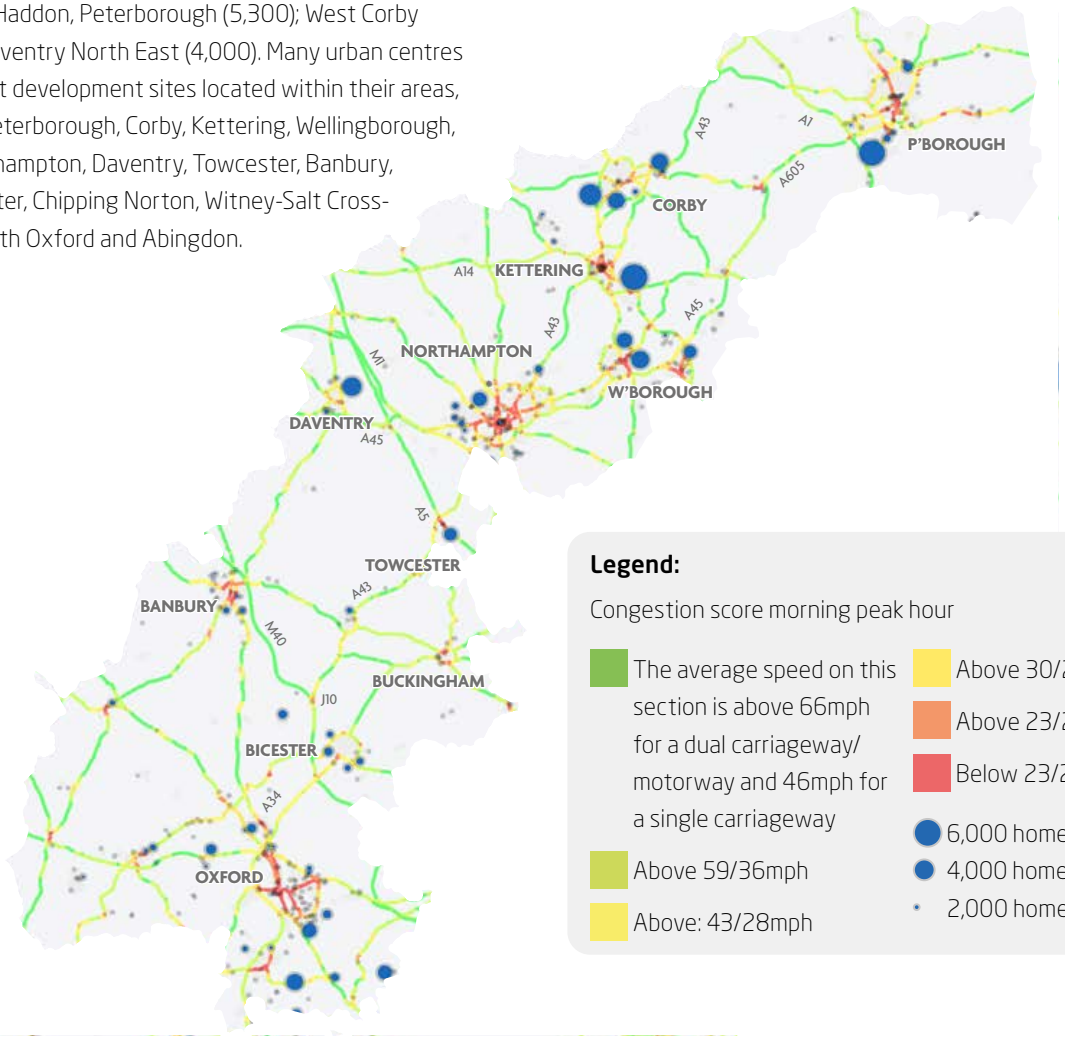
CONGESTION

The map below scores sections of road based on how their average speed during the morning peak compares to the average across the entirety of EEH network for that road type (see definitions section on p34 for methodology and assumptions, including full list of expected speeds based on road type). Examples of pinch points on the local and strategic highway network include:

- A43 between Northampton and Kettering
- A5 between Milton Keynes and Towcester
- A1139 in Peterborough
- Junction 10 of the M40
- The A5/A43 junction in Towcester

HOUSING

The map is overlaid with housing sites allocated in current local plans. There are major development sites allocated throughout the corridor, including, for example, Hanwood Park, Kettering (5,500); Great Haddon, Peterborough (5,300); West Corby (4,500); and Daventry North East (4,000). Many urban centres have significant development sites located within their areas, for example: Peterborough, Corby, Kettering, Wellingborough, Rushden, Northampton, Daventry, Towcester, Banbury, Brackley, Bicester, Chipping Norton, Witney-Salt Cross-Kidlington, South Oxford and Abingdon.



Legend:

Congestion score morning peak hour

- The average speed on this section is above 66mph for a dual carriageway/ motorway and 46mph for a single carriageway
- Above 59/36mph
- Above: 43/28mph
- Above 30/24mph
- Above 23/20mph
- Below 23/20mph
- 6,000 homes
- 4,000 homes
- 2,000 homes

SMART JUNCTIONS

A study by City Science for EEH, due to be published shortly, identifies initial opportunities for smart junction technology for existing signalised junctions on key strategic corridors in EEH.

Smart junctions are emerging as a key way in which road capacity can be optimised, easing traffic flow or supporting journeys by public transport or active travel. This is based on vehicular demand, including for HGVs, congestion, key bus routes and collisions.

It identified the following as being potential focus areas for smart junction technology:

- M40/A41 junction, Bicester
- M40/A43 junction, Ardley
- A45/A5076 junction, Northampton

In addition, Oxford City which has the second-highest number of signalised junctions (168) in EEH, alongside a high number of collisions involving a pedestrian or cyclist and the presence of an AQMA, was also identified as a priority urban area for smart junction technologies.

DIGITAL CONNECTIVITY

A Settlements include: Peterborough and Whittlesey

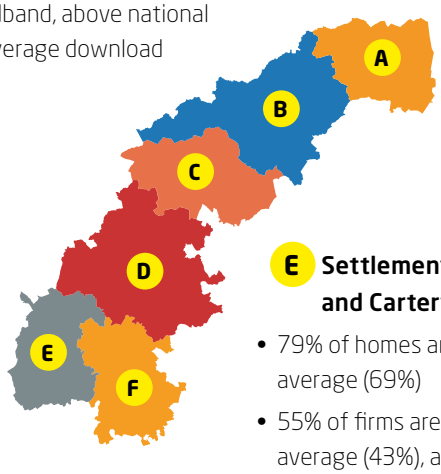
- 84% of homes are covered by ultrafast broadband, above national average (69%)
- 68% of firms are covered by ultrafast broadband, above national average (43%) and highest in EEH, whilst average download speeds are 23% faster

B Settlements include: Kettering, Wellingborough, Corby and Rushden

- 80% of homes are covered by ultrafast broadband, above the national average (69%)
- 46% of firms are covered by ultrafast broadband, above national average (43%), whilst download speeds are 10% faster

C Settlements include: Northampton and Daventry

- 85% of residences are covered by ultrafast broadband, above the national average (69%)
- 61% of firms are covered by ultrafast broadband, above national average of 43% (and second highest of 18 EEH areas), whilst download speeds are 6% faster.



D Settlements include: Banbury, Bicester, Brackley, Buckingham, Towcester and Silverstone

- Only 47% of homes are covered by ultrafast broadband, the lowest coverage in EEH.
- Only 25% of firms are covered by ultrafast broadband, the lowest among all 18 EEH areas, almost half national average (43%). Download speeds are in line with national average.

E Settlements include: Chipping Norton, Witney and Carterton

- 79% of homes are covered by ultrafast broadband, above national average (69%)
- 55% of firms are covered by ultrafast broadband, above national average (43%), although average download speeds are 9% slower

F Settlements include: Oxford, Abingdon and Woodstock

- 71% of homes covered by ultrafast broadband, above national average (69%)
- 37% of firms are covered by ultrafast broadband, below the national average (43%), whilst average download speeds are 6% faster

Key

Ofcom Connected Nations 2023. First bullet relates to home premises only, second is for commercial premises only.

IMPORTANCE OF DIGITAL INFRASTRUCTURE

Digital infrastructure is crucial to a high-performing, greener transport system and the wider economy. This includes through removing the need to travel in the first place, unlocking new technologies to enhance business productivity, and improving physical movements via intelligent transport systems and smart journey planning. Its transformative potential is particularly strong in rural areas, where digital services have traditionally been poor, yet where there is often a high reliance on journeys by private car.

ENGLAND'S CONNECTED HEARTLAND

England's Connected Heartland (ECH) is a 5G 'Innovation Region' encompassing Oxfordshire, Buckinghamshire, Central Bedfordshire, Cambridgeshire and Berkshire. EEH supported its successful grant application to Department for Science, Innovation and Technology and works closely with its project team. Acting as a 'real world' testbed, its projects are designed to be replicable within the region and across the UK.

This includes:

- Deploying a 5G network along poorly connected sections of East West Rail between Bicester and Bletchley. This will improve passenger connectivity as well as deliver functional improvements for onboard devices, for example around train condition sensors and CCTV. It will offer connectivity options for trackside neighbours including public services providers, agricultural and other rural businesses and potentially communities.
- Deploying a 5G network at the Harwell Science and Innovation Campus in Oxfordshire. Advanced wireless connectivity provides a key foundation for enabling the digitalisation of R&D and advanced manufacturing sectors. The project will improve understanding of how similar networks can be deployed across other science or innovation parks in the region and elsewhere.

// PRIORITY INTERVENTIONS

Having outlined the economic rationale for improved connectivity along the corridor, the following section forms a compendium of our investment requirements: the specific improvements which our evidence base demonstrates are key investments for our country's economic prosperity. They all have strong strategic value, including their benefits to local and regional connectivity and economic growth – and they have strong political support from our local and combined authority partners. Our ask to government, MPs and wider stakeholders over the coming months is to work with us, to ensure our highest priority schemes are supported, progressed and delivered at the earliest opportunity.

CONNECTING THE MIDLAND AND EAST COAST MAIN LINES BETWEEN CORBY AND PETERBOROUGH

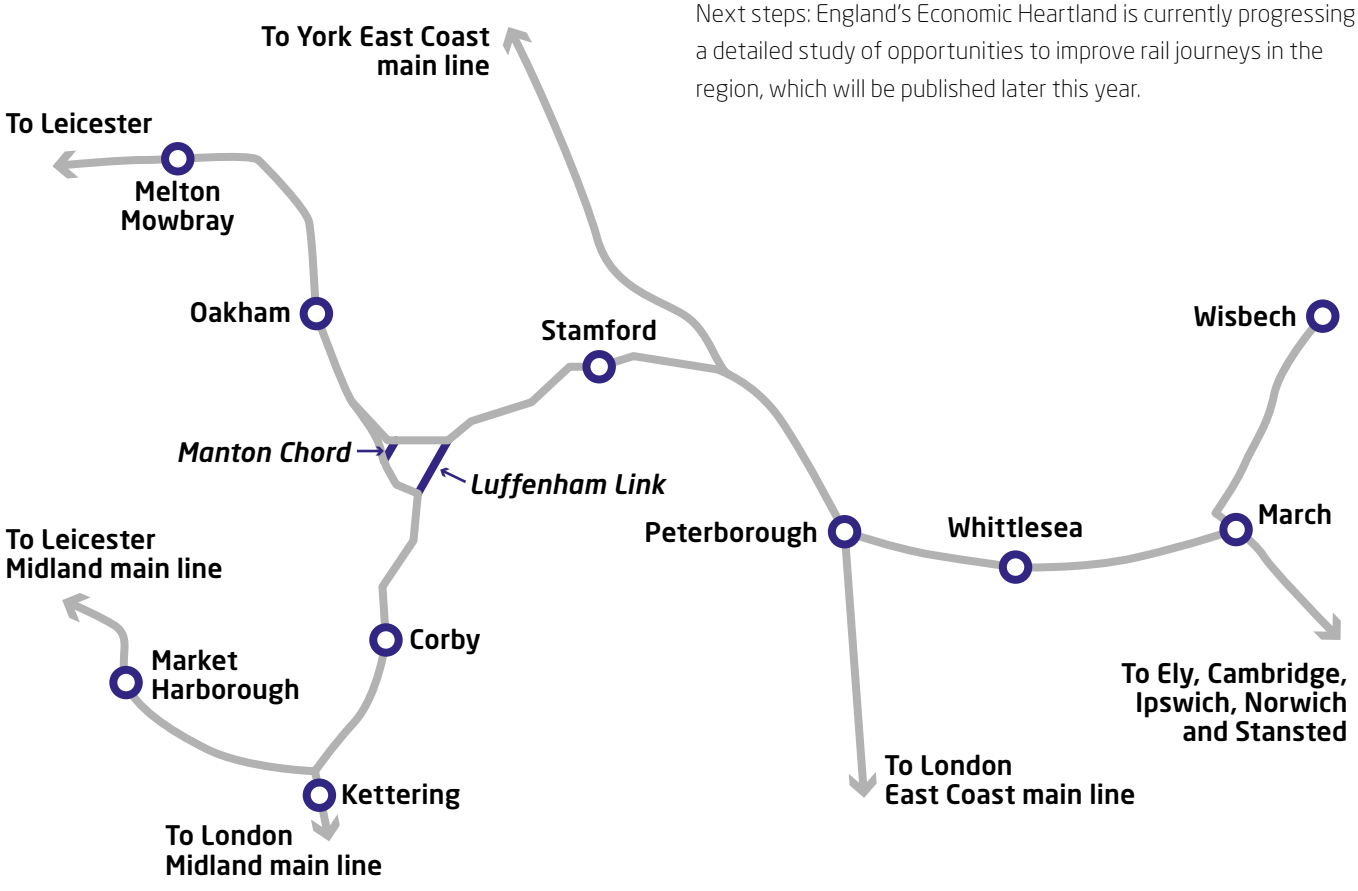
There is an opportunity to transform east-west rail connectivity along the corridor, by providing a link between Corby on the Midland Main Line and Peterborough on the East Coast Main Line.

Crucially, most of the infrastructure is already in place. However, currently, trains heading north of Corby can only turn westwards towards Oakham onto the cross-country route between Peterborough and the Midlands (used extensively for freight), rather than eastwards towards Stamford and Peterborough.

A solution requires construction of the Luffenham link and/or Manton chord, which sit just outside of EEH in Rutland. The former is a more complex, longer 3.5 mile solution, the latter a shorter, cheaper option but which would result in slower journey times.

Either way, services could be unlocked, for example, between Kettering, Corby, Stamford, Peterborough and March. According to the Welland Valley Rail campaign, utilising a Luffenham link could lead to journey times of 30 minutes between Corby and Peterborough and 40 minutes between Kettering-and Peterborough, competing with car journeys.

Next steps: England's Economic Heartland is currently progressing a detailed study of opportunities to improve rail journeys in the region, which will be published later this year.



Bus, taxi and e-scooters outside Northampton Station

BUS SERVICE IMPROVEMENTS ALONG THE CORRIDOR

EEH's Peterborough-Northampton-Oxford connectivity study (2022) identified three strategic bus corridors in the corridor:

- March-Peterborough-Wellingborough
- Corby-Northampton-Silverstone-Brackley
- The Kettering-Wellingborough-Northampton triangle

It also identified the opportunity for mobility hubs – which bring together different modes with other services to create a critical mass of users – to serve key settlements and economic centres including, amongst others, Northampton, Buckingham, Silverstone, Wellingborough and Peterborough. These would allow better connectivity and interchange: where rural mobility solutions can connect into interurban services.

The high-tech cluster at Silverstone Park, located next to the world famous Formula One track, is a classic example of an economic jewel in the crown, located in a rural area, for which public transport accessibility is currently poor. Rail stations in Bicester, Winslow, Northampton and Milton Keynes are all around a half-hour journey by road from it.

Improved bus connectivity and interchange between the main lines which cross the corridor would also unlock new journey opportunities for transport users, for example better linking Wellingborough (on the Midland Main Line) and Northampton (on the West Coast Main Line) which are only 14 miles apart.

Enhanced bus journeys could include provision of mobility hubs, improved bus stations/ stops, and bus priority measures.

Next steps: EEH is currently undertaking a major programme of work to improve bus journeys across the region, which includes looking at how more inter-urban and regional journeys can be delivered. We are also putting together an investment prospectus for mobility hubs, and have designed a mobility hub mapping tool which identifies their potential locations.

A45 STANWICK TO THRAPSTON

There is only one section of the A45 between the A14 and M1 which has not been dualled – and that is the section between Stanwick and Thrapston, just noth of Rushden.

Upgrading this road would support the major planned housing and economic growth in key settlements in the area, including Rushden, Irthlingborough, Wellingborough and Kettering, alongside that in nearby Northampton. Several new logistics and business parks are being built in the area, including at Raunds, which sits directly on the A45, and Titchmarsh, just north of Thrapston.

Next steps: Work with partners to continue to make the case for the scheme.

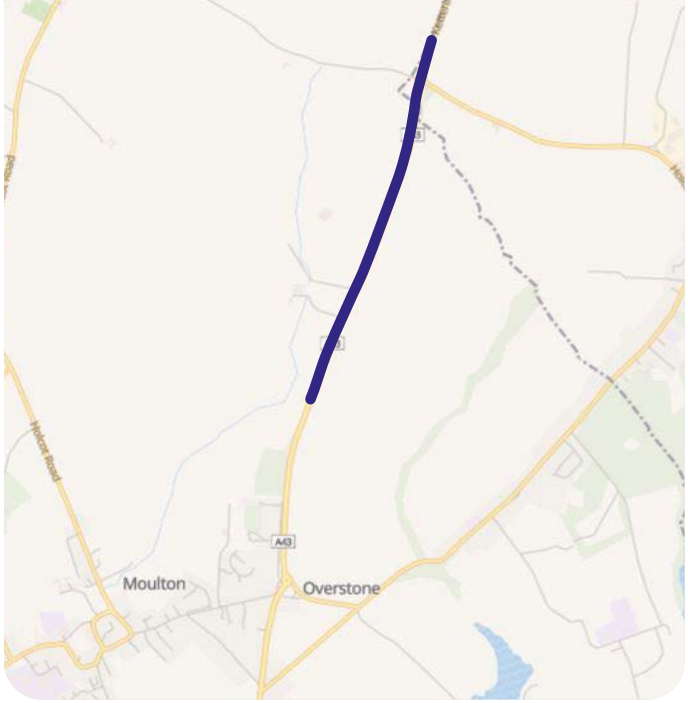
A14 JUNCTION 10A

Junction 10A on the A14 is a new road junction which forms critical infrastructure to enable the delivery of the 5,500 dwelling Hanwood Park development to the east of Kettering.

It allows the land to be opened up for development.

The scheme has a strong business case, particularly because it has a high level of developer funding, with a memorandum of understanding in place between National Highways and the developer to progress the scheme. Of the dwellings, 2,117 have been consented under an outline planning permission, of which around 1,400 have already been occupied. Delivery of the final 2,000 of these dwellings is subject to withdrawal of a holding direction by National Highways, which in turn is dependent upon delivery of Junction 10A.

Next steps: Previous statements from the Department for Transport have confirmed that subject to some additional technical work and North Northamptonshire Council providing revised planning permission, the junction would be included in the Road Investment Strategy for 2025-30 (RIS3). With all outstanding actions now completed, funding for Junction 10A in RIS3 must be confirmed as soon as possible.



NORTHAMPTON-KETTERING ROAD CONNECTIVITY

The A43 is an important regional north-south link providing access into Northampton from Kettering and Corby as well as connecting the A14 and A45 corridors along with wider access to the M1.

Improvements to the A43 corridor between the A45 at Northampton and the A14 at Kettering are being delivered in phases.

Following previous phases 1a (additional lanes at the Round Spinney roundabout), 1b (Moulton Bypass dual carriageway) and 2 (dualling from Moulton bypass to the entrance to the Overstone Gate roundabout); the phase three improvements will provide capacity enhancements to the A43 between Overstone Grange and Holcot/Sywell, reducing congestion on this section of the A43, providing benefits to the strategic movements as well as supporting planned developments to the north of Northampton.

The phase three scheme will include a shared-use cycle path, forming an extension of the existing cycling route provided via the earlier phases. It will increase local capacity, reduce congestion and support strategic housing growth including the Overstone Leys development.

While recent improvements works have reduced congestion along parts of the A43, there are still issues with slow moving traffic at pinch points north of Northampton, which the third phase of dualling works sets to address.

Next steps: The scheme forms part of the major road network and a strategic outline business case was submitted to the Department for Transport in May 2022. Work is now underway to further develop the design of the scheme and prepare an outline business case with West Northamptonshire Council acting as lead authority in partnership with North Northamptonshire Council.

STRATEGIC ROAD CONNECTIVITY IN NORTHAMPTON

Northampton is the single largest urban area in England's Economic Heartland, and one of the most congested.

The area is a key freight and logistics hotspot, making the performance and capacity of its strategic roads of fundamental importance to the UK economy.

In addition to the A43 phase three works, described above, the following interventions are required:

- Reliability and safety improvements on the A45 between Wellingborough and Northampton
- Northampton Northern Orbital Road Infrastructure which will provide capacity improvements to help relieve traffic congestion north of Northampton and within surrounding villages

In addition, the new Strategic Rail Freight Interchange at SEGRO Logistics Park Northampton, employing 7,000 people and with five million square feet of warehouse space, will see thousands of tonnes of goods switch between rail and road beside junction 15 of the M1 every day.

Its arrival only reinforces the need for improvements on A45 and A43, described above, and in the future, additional work to alleviate further pressure on M1 junctions.

Next steps: West Northamptonshire Council is exploring options for the provision of highway improvements to the north of Northampton to relieve existing settlements of the impacts of traffic and to facilitate more reliable journey times in this part of the town. Consultation on a number of options for part of this route was undertaken in 2017, further work is now underway to provide an updated understanding on the need, benefit, costings and potential funding sources. Options being considered are: the completion of the route between the northwest relief road (which is currently under construction) and the A43 to the north of Moulton; a longer route between junction 16 of the M1 and the A43 north of Moulton in the longer-term; and more localised, targeted, interventions to reduce congestion.

A509 ISHAM BYPASS

The A509 is an important regional north-south link providing direct access between Kettering and Wellingborough as well as the A14 and A45 strategic road network corridors which provide regional east-west strategic connectivity.

However, low traffic speeds and congestion occur on the A509 during its approach to and through the village of Isham.

The proposed A509 Isham Bypass will enhance the capacity and operation of the A509 between Kettering and Wellingborough, providing improved links to the A14. The scheme is a dual carriageway which will bypass the existing A509 through the village of Isham.

The scheme is essential to supporting the significant housing and jobs growth planned in Wellingborough and Kettering, including Hanwood Park (3,630 dwellings), North of Wellingborough (1,765 dwellings and 6.7 hectares of employment), West of Wellingborough (3,000 dwellings) and Appleby Lodge (52 hectares of employment).

The bypass will reduce congestion and improving journey times as well as providing substantial quality of life improvements to the residents of Isham.

Next steps: The outline business case submitted to government seeks funding to further develop the bypass. Subject to further development funding being secured and a grant of planning permission, work will continue to develop the design of the bypass, secure the necessary land and develop the full business case to release Government funding to build the bypass.

TOWCESTER RELIEF ROAD

Towcester has longstanding issues with the high levels of traffic passing through its historic town centre, causing environmental, safety and accessibility concerns to residents and businesses.

The A5, which forms part of the strategic road network, goes directly through the town's historic core. A new relief road between the A5 and A43 will provide an alternative route to the A5, providing relief from through traffic and improving the lives of those who live, work and visit the town.

The new relief road will be complemented by a National Highways scheme of traffic calming and public realm improvements on the existing A5 in the town centre that, along with new signage, will help to encourage through traffic, particularly heavy goods vehicles, to use the new link road as an alternative to the A5.

Next steps: West Northamptonshire Council is working with the developer and National Highways to deliver both the relief road and complementary town centre traffic calming scheme.

West Northamptonshire's Cllr Phil Larratt with former South Northamptonshire MP Andrea Leadsom at the official opening of the A5 roundabout in November 2023, a significant step towards the realisation of the relief road, pictured with representatives from Persimmon Homes and National Highways.

THE NORTH COTSWOLD LINE ENHANCEMENTS

Enhancement of The North Cotswold Line would achieve a significant upgrade to public transport connectivity between the cities of Oxford and Worcester by doubling the frequency of trains from one train per hour to two trains per hour on this route.

This would be achieved by double tracking less than ten miles of line between Oxford and Hanborough in Oxfordshire, and Evesham and Pershore in Worcestershire, alongside delivery of additional platforms at Hanborough and Pershore stations, with the opportunity for them to be redeveloped as modern transport hubs.

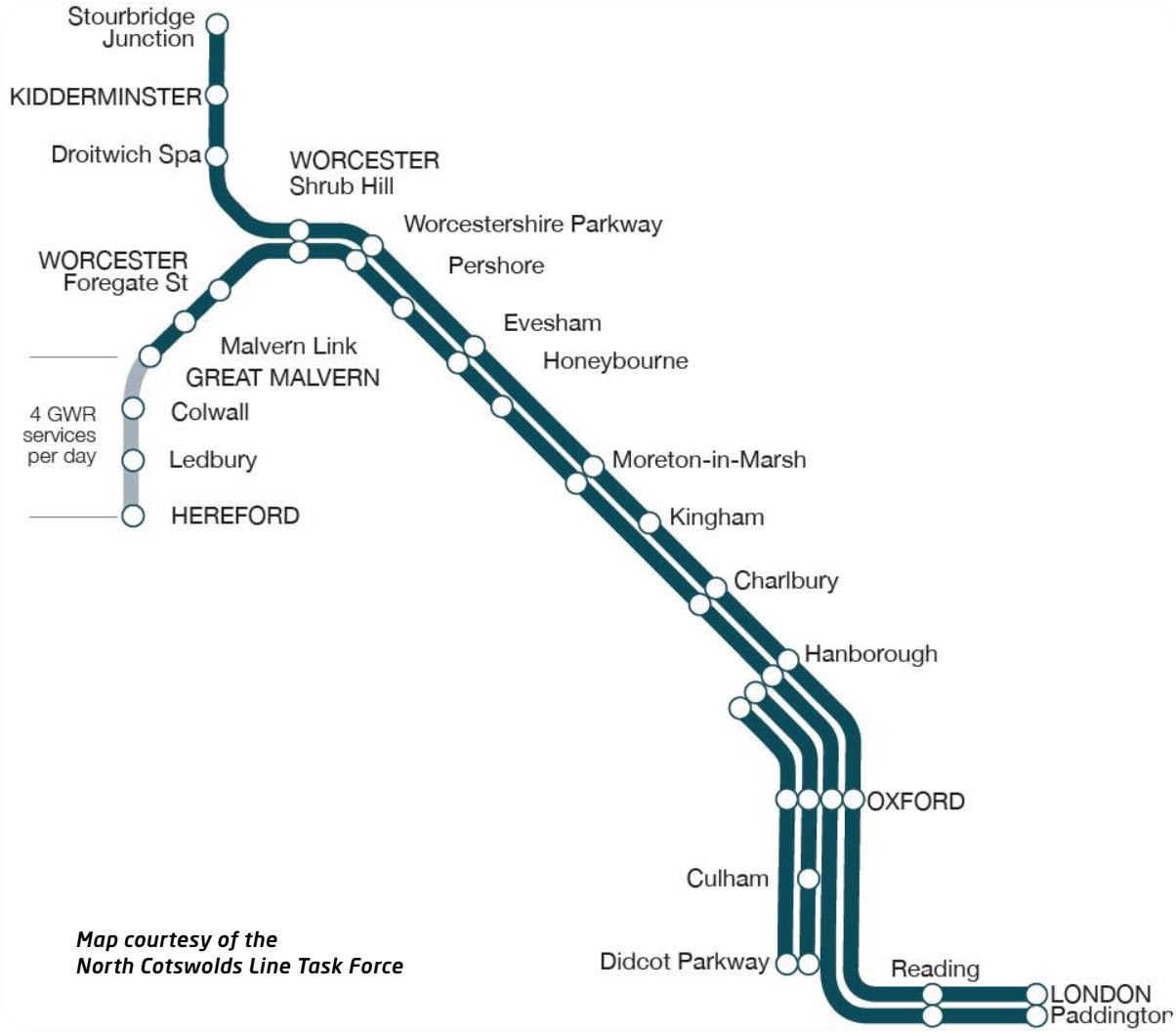
The North Cotswold Line Partnership, which includes local authorities and other stakeholders along the route, submitted its Strategic Outline Business Case for the scheme to government in 2020, as case which is currently being refreshed.

It indicated a strong value of money case, with 400,000 new passengers expected to benefit from improvements each year.

It would also help support delivery of around 60,000 homes along the route, sustainable transport access for the 90 million annual visitors to what is an area of outstanding natural beauty, as well as adding £33 million GVA to the economy per year.

These measures would also build on recent investment in the line, in particular delivery of a new Parkway station in Worcestershire, which has supported delivery of 15,000 new homes and attracted significant new rail users.

Next Steps: Through the North Cotswold Line Partnership secure funding to progress the Outline Business Case, including reviewing delivery in more detail.



Map courtesy of the North Cotswolds Line Task Force

ELY AREA CAPACITY ENHANCEMENTS

Great news for passengers as well as freight!

Network Rail's preferred service configuration would not only result in more freight paths, but the ability to run extra passenger services between Peterborough and Ipswich (from one train every two hours to one train per hour); and King's Cross-Ely-King's Lynn (from one train per hour to two trains per hour). Network Rail predicts that by increasing frequencies and making commuting more attractive, the new services will facilitate 277,000 extra rail passenger journeys every year and cut total journey times (due to the increase in frequency). Increasing services between Peterborough and Ipswich would significantly improve connectivity from East Anglia to the Midlands and the North. Extra capacity at Ely will also support the realisation of passenger services on the East West Main Line from Suffolk and Norfolk through to Swindon, Bristol and south Wales, and to Reading and Southampton. Ely is fundamental to helping address the disparity in provision between the north and south of Cambridgeshire: passenger service enhancements at Whittlesea, March and Manea cannot happen without these improvements.

When you think of Ely, images of its impressive cathedral may spring to mind. But perhaps what is less well known about the ninth smallest city in the UK is the crucial role it plays in the moving of goods (and people) around Britain and to the rest of the world.

This is because Ely sits on the cross-country route of the 'Felixstowe to the Midlands and the North' (F2MN) freight corridor, which is the most intensively used and nationally important intermodal rail freight corridor on the network, connecting Felixstowe – the UK's busiest container port – and key destinations across the Midlands and the North.

However, a mixture of single-track sections, restricted speeds, signalling limitations and level crossings in the Ely area act as a barrier to meeting increased demand for freight paths on the routes to and from the UK's industrial heartlands.

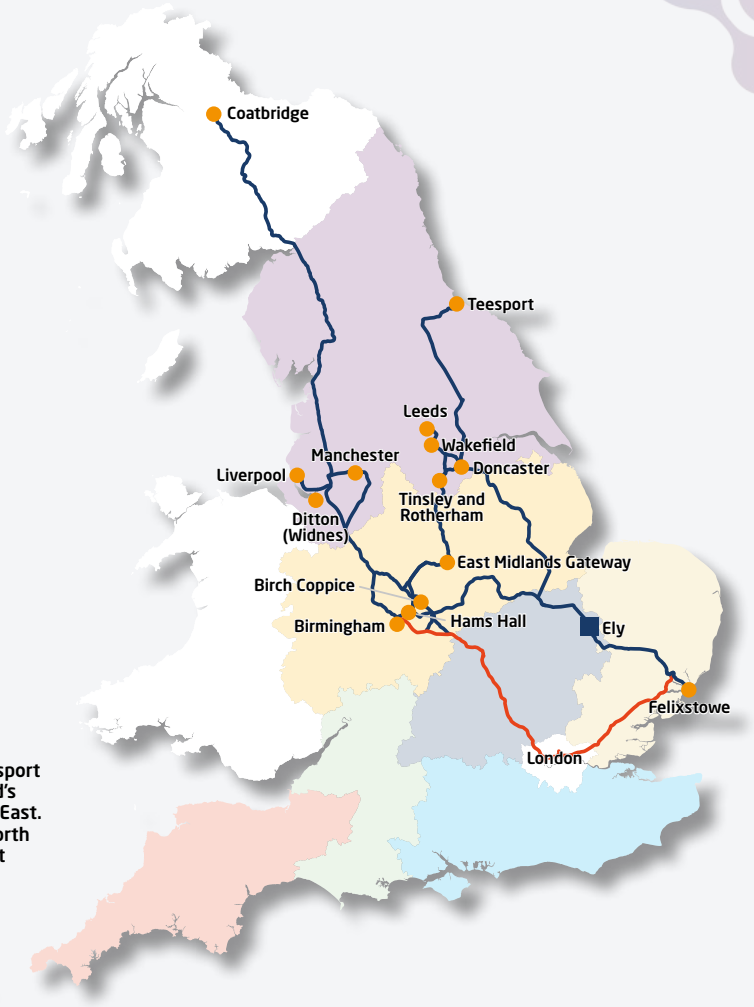
It means goods are needlessly transported long distances to the Midlands and the North by road. Moving goods by rail offers many advantages including reliability, speed, and cost effectiveness, while also relieving congestion and cutting emissions.

The Ely Area Capacity Enhancement scheme supports economic growth across the country's regions by increasing access to global markets to and from the Midlands and north, where 70% of containers from Felixstowe are destined.

According to Network Rail, 2,900 extra freight services would be able to operate to and from Felixstowe per annum, removing 98,000 lorry journeys off the road every year, reducing congestion by 5.6 million hours, and cutting carbon emissions by 1.7 million tonnes over 60 years. By allowing extra passenger services between Ipswich and Peterborough and King's Cross-Ely-King's Lynn, the scheme would also stimulate 277,000 extra rail passenger journeys. The scheme has a very high benefit-cost ratio – returning over £4.89 of benefits to the UK for every £1 invested.

The strategies of four sub-national transport bodies – Transport for the North, Midlands Connect, England's Economic Heartland and Transport East – all reference the benefits of upgrading Ely for their regions.

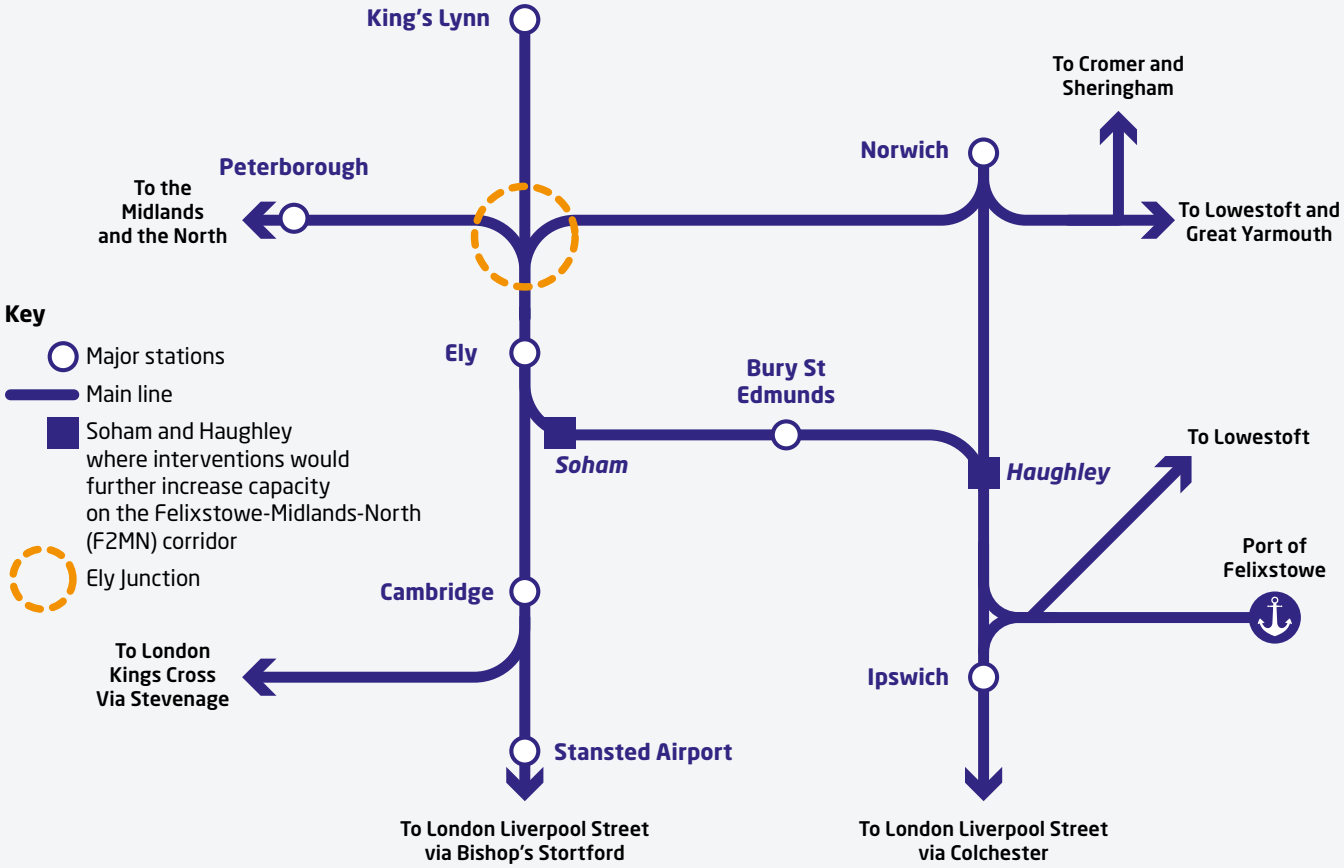
Next steps: In October 2023, the government confirmed funding would be made available to deliver the Ely Junction improvements. We ask that funding is now released to Great British Railways so that detailed planning for the scheme's delivery can commence, and that they are supported as a priority through to their delivery.



Key:

- Felixstowe to Midlands and North route (F2MN)
- Routes via London
- Rail freight terminals

The map shows the boundaries of sub-national transport bodies throughout England. Ely is located in England's Economic Heartland. Felixstowe in within Transport East. The terminals served by the Felixstowe-Midlands-North route are within the Midlands Connect and Transport for the North regions and Scotland.



IMPROVING CONNECTIVITY AROUND BICESTER, INCLUDING M40 JUNCTIONS / A41 AND A SOLUTION FOR LONDON ROAD

Bicester is a rapidly expanding town, with thousands of new homes planned and being built, including a mixed-use housing and employment 'eco-town' which could ultimately deliver around 6,000 homes to the north west of the town.

With a growing and dynamic economy, it is located to the north of Oxfordshire's 'knowledge spine', described in the county's local industrial strategy as stretching from Milton Park and Didcot, through to Oxford and then onto Bicester to the north. And, of course, it is home to Bicester Village, an international tourist destination to the extent that rail services have included announcements in Mandarin.

The town already benefits from good road and rail connections to Oxford, as well as towards London and Birmingham. Bicester is also set to benefit from increased rail connectivity as further stages of East West Rail are delivered, with new trains to Milton Keynes expected from 2025, and onward trains to Bedford and Cambridge expected in the longer-term.

However, there is a continued requirement to plan for improvements that will maximise the number of sustainable transport trips in the town, including linking in with programmed strategic transport improvements.

Firstly, targeted improvements to the road network are necessary, including upgrading the A41, M40 junction to the county boundary east of Ambrosden, through Bicester for all modes of transport, as well as place-making enhancements in the town centre. The current strategy includes a south east perimeter road, and the status of this proposal will be confirmed through the Oxfordshire Local Transport and Connectivity Plan, transport strategy and through the work on local plan review for Bicester.

In the wider area, there will need to be further improvements on the A34/ M40/ A43 strategic road route to the west of Bicester, including to ensure strategic freight movements are facilitated. In the short-term, upgrades to the M40/A43 are scheduled, which may need to be complemented by further improvements to the M40/ A34 junction in the longer-term. The M40 at Bicester was highlighted as performing poorly in National Highway's Oxford-Cambridge roads connectivity study.

Secondly, with increased future East West Rail services there will need to be new routes for those wishing to cross the rail line that passes through the centre of Bicester. In particular, finding a long-term solution to providing an alternative to the current level crossing road access at London Road will be essential given increasing crossing down-time as new train services come forward. The solution must provide alternative sustainable access for all modes of transport currently using this route, building off the extensive optioneering work undertaken to date. A final proposal should be addressed through the plans for the next stage of East West Rail, taking into account local access needs.

Next steps: EEH will work with Oxfordshire County Council and strategic partners such as National Highways to develop necessary road improvements. It is essential that East West Railway Company works with Oxfordshire County Council to ensure an acceptable solution for London Road is agreed as soon as possible and delivered before the sections to Bedford and Cambridge are opened.

MAXIMISING OPPORTUNITIES FROM EAST WEST RAIL AND HS2 RELEASED CAPACITY

East West Rail between Oxford, Bicester, Winslow, Bletchley and Milton Keynes will open in 2025, transforming east-west connectivity across the middle of England's Economic Heartland.

- EEH supports delivery of the next phases of East West Rail to Bedford and Cambridge at the earliest opportunity
- It is essential that the line is supported by superb door-to-door connectivity, enabling the maximum amount of people to access services as possible (EEH and its partners are engaging with East West Railway Company on its door-to-door strategy). This is particularly relevant to Winslow, a new station on this route
- There must be seamless integration between radial and east-west services at stations. For example, Wellingborough has a 'platform-to-platform' journey time of just 17 minutes to Bedford, which sits on East West Rail, making journeys to places such as Cambridge and Milton Keynes a realistic option for passengers
- EEH supports realisation of the Northampton-Milton Keynes-Aylesbury-Wycombe Old Oak Common corridor, which would provide easy onward connectivity to London, Heathrow and Reading. Delivery of the link between Aylesbury and Milton Keynes is critical to realising this
- It is disappointing that East West Rail between Oxford and Milton Keynes will open using diesel traction. It is vital that in the longer-term, East West Rail contributes fully to the UK's decarbonisation ambitions and operates as a net zero railway

HS2 released capacity: The West Coast Main Line south of Birmingham will benefit from released capacity following delivery of HS2. It is important that these benefits are felt by communities in Northampton through improved passenger services, as well as helping take lorries off congested roads through enhanced freight services. A specific opportunity, subject to further feasibility studies, is to provide additional and improved stations in the Northampton area to serve new communities. It would also support the ambitions for the Northampton-Milton Keynes-Aylesbury-Wycombe-Old Oak Common corridor (see above).

PETERBOROUGH BUS DEPOT

Cambridgeshire and Peterborough Combined Authority has received £4million to relocate Peterborough bus depot.

The current Lincoln Road bus depot in Peterborough is approximately 100 years old. It is surrounded on three sides by the back gardens of neighbouring residential properties, and on the fourth side it fronts on to a busy retail area. This makes expansion impossible.

Crucially, the new bus depot will be able to support the Combined Authority's commitment to electric buses, which will require more floor space, as each charger needs barriers to protect it from parking accidents. By providing a new depot that can support electric buses, it will be able to continue working towards its goal of ensuring all buses and taxis operating within the county are zero emissions by 2030.

The new depot will be multi-operator, with capacity to expand at a later date to meet any future market needs. It will also provide additional overnight parking capacity and maintenance facilities for buses and create a level playing field for bus operators who are bidding to operate bus services around the city.

This project will strategically support the Peterborough city public transport core network, improve air quality, and allow the allocation and operation of an expanded bus fleet. It also allows a mechanism to avoid charges of the Authority supporting one bus operator disproportionately by allowing successful bidders for service bus contracts to rent space withing the new depot at a standard rate applicable to all bus service providers.

Depending upon the location and configuration of the successful site, the project will also consider the possibility of charging electric vehicles (cars, coaches, vans, HGVs) in the daytime to make best use of the installed capacity.

Next steps: A number of potential sites are now being considered for the relocation, and the Combined Authority will be working closely with Peterborough City Council to drive the project forward.

The new ARU Peterborough Campus

A1139 MRN IMPROVEMENTS, PETERBOROUGH

The Embankment area, where the stunning new £80 million ARU Peterborough university campus opened in 2022, has been earmarked as a key area for the city's economic development.

It is served by the A1139 Fletton Parkway / Frank Perkins Parkway, which enables traffic to move strategically around Peterborough. This is a key commercial corridor linking Norfolk, and multiple regional and local businesses, with the strategic road network. In addition, Junction 5 provides one of the key access points to Fengate, a large employment area within Peterborough.

Performance issues with the A1139 were identified in National Highways' Oxford to Cambridge roads study, with a solution being regarded as one the most important to be taken forward for further development within the region.

Improvements to transport capacity in this area would enable growth and improve current peak hour congestion and delay at Junction 5. The provision of additional capacity at or close to Junction 5, will ease congestion, improve journey time reliability, and improve the network resilience of the A1139 Frank Perkins Parkway and major road network, as well as the surrounding local road network . As part of the project, consideration will be given to upgrading public transport infrastructure to support and promote bus use. A number of significant walking and cycling improvements are also planned to be delivered as part of the scheme, reducing severance, and providing safe facilities.

In doing so, improving the A1139 will unlock economic development opportunities and increase the attractiveness for potential investors within Fengate and to the east of Peterborough City Centre, including the Embankment.

Next steps: Cambridgeshire and Peterborough Combined Authority is producing the outline business case.

Following the publication of its Local Transport and Connectivity Plan, the Cambridgeshire and Peterborough Combined Authority are undertaking a number of strategies including working with Peterborough City Council to develop a transport vision for the city and wider area to help realise the growth ambitions of Peterborough. The strategy will be mindful of the ambitions for buses, active travel, and the redevelopment of the station quarter.

UPGRADES TO A47

East-west connectivity plays a crucial role in driving regional economic growth, enhancing accessibility, and ensuring the efficient movement of goods and people.

Recognising this, the CPCA is actively collaborating with National Highways to evaluate the feasibility of significant upgrades to the A47. These improvements are aimed at substantially enhancing east-west travel, thereby unlocking numerous economic and social benefits for the region.

Next steps: Alongside collaboration with National Highways, the Combined Authority is working closely with England's Economic Heartland to examine the complexities of transportation flows within the Oxford-Northampton-Peterborough corridor. This partnership seeks to identify and promote key infrastructure projects that emerge from comprehensive studies, ensuring that proposed schemes are well-informed and strategically beneficial. The aim of these concerted efforts is to bolster regional connectivity, drive economic prosperity, and improve the overall quality of life for residents.

An artist's impression of how the Gateway would look

PETERBOROUGH STATION QUARTER

Peterborough Station is a nationally important rail interchange on the East Coast Main Line, offering a commute to London Kings Cross in less than 50 minutes and direct connections to the North and Scotland.

Passenger usage of the station has almost returned to pre-pandemic levels of an annual throughput of five million passengers, including almost one million passengers who use Peterborough as an interchange for services to other destinations.

The Peterborough Station Quarter will be a new district in this ambitious and transforming city. It will create a welcoming series of new public spaces supported by a mix of homes, employment space, hotels, and leisure use, conveniently connected by high quality rail and bus links and safe and attractive walking and cycling options – a super connected gateway to the city and the wider region.

Peterborough Station Quarter Phase 1 - transforming the station into a high-quality gateway

The Levelling Up Fund allocation of £48m (alongside £1.5m of Towns Fund money and £15m from Network Rail) will improve customer experience, accessibility, and capacity of the station, enhancing the station as a gateway to the city. Surface car parking will be consolidated to unlock land for development as part of a multi-phased masterplan for development.

The project will:

- Catalyse a new city quarter;
- Connect the station to the city; and
- Create an interchange fit for the future.

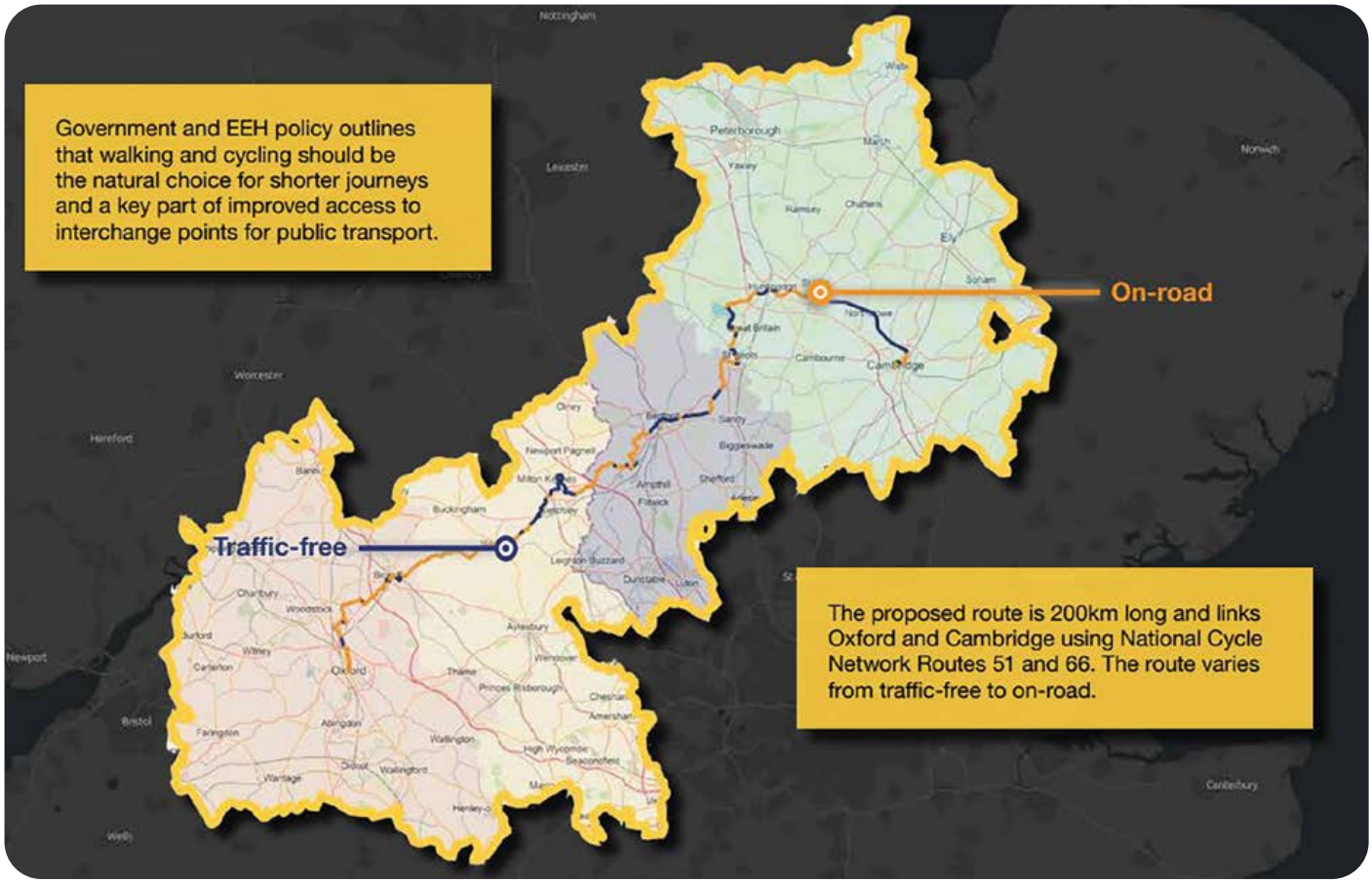
The phase involves creating a new western entrance to the station with a car park – to create a double-sided station. Green areas with biodiversity, community spaces and better step-free connections to the bus station and city centre will improve accessibility and make it safer and more attractive for pedestrians and cyclists. It will also improve rail passenger journeys and encourage more rail travel, which will have a positive economic impact on the city and regionally. In addition, it will support Peterborough in attracting more knowledge-intensive and high-level employers through its transport links.

Future Phases of the Station Quarter Masterplan

The first phase of the Peterborough Station Quarter programme and the consolidation of Network Rail's Maintenance Delivery Unit (for which Network Rail have committed £15m) will be a catalyst for future phases. The land unlocked will support future private investment for the delivery of a wider mixed-use masterplan seeking to deliver around 150,000m^2 of new commercial and residential developments, alongside further improvements to active travel infrastructure and local public transport connectivity.

Next steps: The full business case will be submitted to Department for Transport for £48m levelling-up funding in early 2025, with construction of phase one anticipated in 2025/26. Future phases will be developed from 2026 onwards.

VARSITY WAY ACTIVE TRAVEL CORRIDOR



EEH's flagship Varsity Way project would see an east west active travel route linking Oxford to Cambridge. It provides the opportunity for a 'green spine' across the Heartland; one that can act as a focal point for developing a region wide network of greenways – and attract tourists and leisure riders from across the country.

The existing route is part of the national cycle network (NCN). However, the condition of the route is varied, meaning there are opportunities where improving the route will encourage more active travel. Working with the sustainable travel charity Sustrans, partners and stakeholders EEH undertook a high-level options assessment of the route spanning from Oxford to Cambridge.

The assessment identified improvements which could be made to ensure the route is of good standard across the region to provide a high-quality link from Oxford to Cambridge. Currently 48% of the route is traffic free, with 157,236m of route considered 'good' or 'very good' and 133,317m considered 'poor' or 'very poor'.

The report identified opportunities for improvements for network coherence, safety, comfort, attractiveness, and convenience in the form of interventions such as resurfacing, path widening, quiet-way treatment, traffic calming and signage improvements, amongst others.

The options assessment has laid the groundwork for collaboration with partners to unlock the full potential of the Varsity Way as a vital east-west active travel route. This initiative aims to facilitate walking and cycling, fostering seamless movement within and across the area. It also presents an opportunity to cultivate a comprehensive network of active travel routes, leaving a lasting legacy aligned with the East West Rail project.

Beyond Varsity Way, it is crucial that there is continued investment in active travel in all areas of EEH which provides greater accessibility and sustainable alternatives to the car, especially within our more rural areas.

Next steps: Detailed feasibility and costings, collaborating with local partners, alongside a specific project relating to alignment of the route in the Marston Vale in Milton Keynes/ Bedfordshire.

IMPROVING OXFORDSHIRE'S CORE BUS NETWORK

Oxfordshire has historically had some of the highest levels of bus patronage in the country.

In 2019 a total of 40.8 million bus journeys were made with 59.0 journeys per head of population, making Oxfordshire the best performing shire county in terms of bus use per capita. Patronage today is around 90-95% of pre-COVID levels.

Oxfordshire County Council wants to create an environment where people choose to use public transport, walking and cycling as the natural first choice. The focus is on reducing car dependency in and around Oxford through enhanced public transport services, zero emission buses, expansion of the Zero Emission Zone, modal 'traffic filters', workplace parking levy and bus priority, and making the best use of existing road infrastructure to maximise its use for active and public transport modes.

The proposals are expected to support faster, more direct connectivity by public transport and will substantially improve air quality and reduce congestion in the Oxford urban area through avoiding unnecessary vehicle journeys and moving more car trips onto improved public transport services, and active travel modes such as walking or cycling.

Improvements in bus services will need to be complemented by improvements in interchange for onward transport connections. This will include development of mobility hubs at key locations such as on the A44 south of Woodstock and Oxford Parkway station.

Next steps: Oxfordshire County Council will work with its partners, stakeholders and local communities to introduce a Traffic Filter Trial and develop proposals to expand the Zero Emission Zone and a Workplace Parking Levy. The latest Oxfordshire Bus Service Improvement Plan was adopted in June 2024 and will continue to secure the bus service improvements through the Enhanced Partnership.

IMPROVING BUS JOURNEYS ALONG THE A34 BETWEEN ABINGDON AND OXFORD

The A34 is a key part of the strategic road network, connecting the ports in the south to the Midlands.

However, it also plays a key role in local connectivity in and around Oxford and the wider area. It suffers from peak hour congestion with high levels of HGV traffic that result in journey time unreliability, air quality issues and creates severance impacting local communities.

Part of the proposals to support Oxfordshire County Council's Local Transport and Connectivity Plan are proposed A34 bus priority measures to provide faster and more reliable journey times between Abingdon and Oxford that would support the introduction of new express bus services.

Proposed measures include:

- Capacity improvements at the Hinksey Hill/ A34 interchange to better facilitate the movement of express bus services through this junction
- New bus lane on the A34 between Lodge Hill and Hinksey Hill
- Capacity improvements and bus priority measures at and on approach to the A4130/A34 Milton Interchange

In addition to committed work from National Highways, there is also a need for targeted junction improvements on the A34 to improve journey time reliability for local and express bus services, in particular at Hinksey Hill Interchange.

Next steps: Further develop the concept of the Core Bus Network outlined in Oxfordshire County Council's Central Oxfordshire Travel Plan, including potential for Mobility Hub/Park and Ride proposals along the along this corridor and a detailed M40/A34 SRN Corridor Travel Plan.

Eynsham Park and Ride

A40 IMPROVEMENTS

Oxfordshire County Council is improving the A40 between Witney and Oxford.

The project consists of six major schemes, which will deliver a new park and ride, an extension of the dual carriageway around Witney, new bus lanes and junction improvements. The plans will result in better transport links, the creation of new jobs and housing, reduced emissions, and more sustainable travel options.

The schemes:

1. A40 dual carriageway extension: A scheme to upgrade the A40 between east of Witney to the Eynsham park and ride site into a dual carriageway.
2. Eynsham park and ride: A new 850 space park and ride in Eynsham will provide easier access to improved and more reliable bus services into Oxford.
3. A40 integrated bus lanes: A 6.5km proposed eastbound and westbound bus priority corridor along the A40 between Eynsham park and ride towards Duke's Cut, with improved routes for pedestrians and cyclists.
4. A40 Duke's Cut: A new eastbound bus lane and improved cycling and pedestrian facilities linking together the A40 integrated bus lanes project (scheme 3) with A40 Oxford North (scheme 6).
5. A40 Access to Witney: The A40 Access to Witney scheme proposes improvements to the existing B4022/ A40 junction at Shores Green.
6. Oxford North: A scheme delivering highway improvements, bus priority measures and enhanced cycle and walking provision located between Wolvercote Roundabout and the A34 viaduct.

A40 dual carriageway extension

The programme amounts to around £180m of investment in the A40 corridor. Funding has been secured from several partners, notably the Department for Transport's retained Local Growth Fund (LGF); Homes England Housing Infrastructure Fund (HIF); Oxfordshire Local Enterprise Partnership; The Housing Growth Deal (HGD) and various S106 developer contributions.

Next steps: Two of the schemes, the A40 Oxford North and Eynsham Park and Ride are now under construction. The initial proposals are now complete for the A40 HIF2 Smart Corridor (Duke's Cut, integrated bus lanes and the extension of the dual carriageway) and Access to Witney. In light of global inflationary pressures, the A40 improvements programme was extensively reviewed between November 2022 and June 2023. In July 2023, Oxfordshire County Council's cabinet approved a new plan to build the programme in phases.

The initial phase includes dedicated bus lanes between Eynsham Park and Ride and Oxford, as well as the addition of controlled crossings and upgraded shared-use paths to make walking and cycling safer along the historically congested A40 between Witney and Oxford. Later phases of work will be planned and delivered as funding becomes available.

A40 integrated bus lanes

REOPENING OF COWLEY BRANCH LINE

There are exciting plans to regenerate south Oxford, home to the Oxford Science Park, ARC Oxford and several important science parks and the Mini factory.

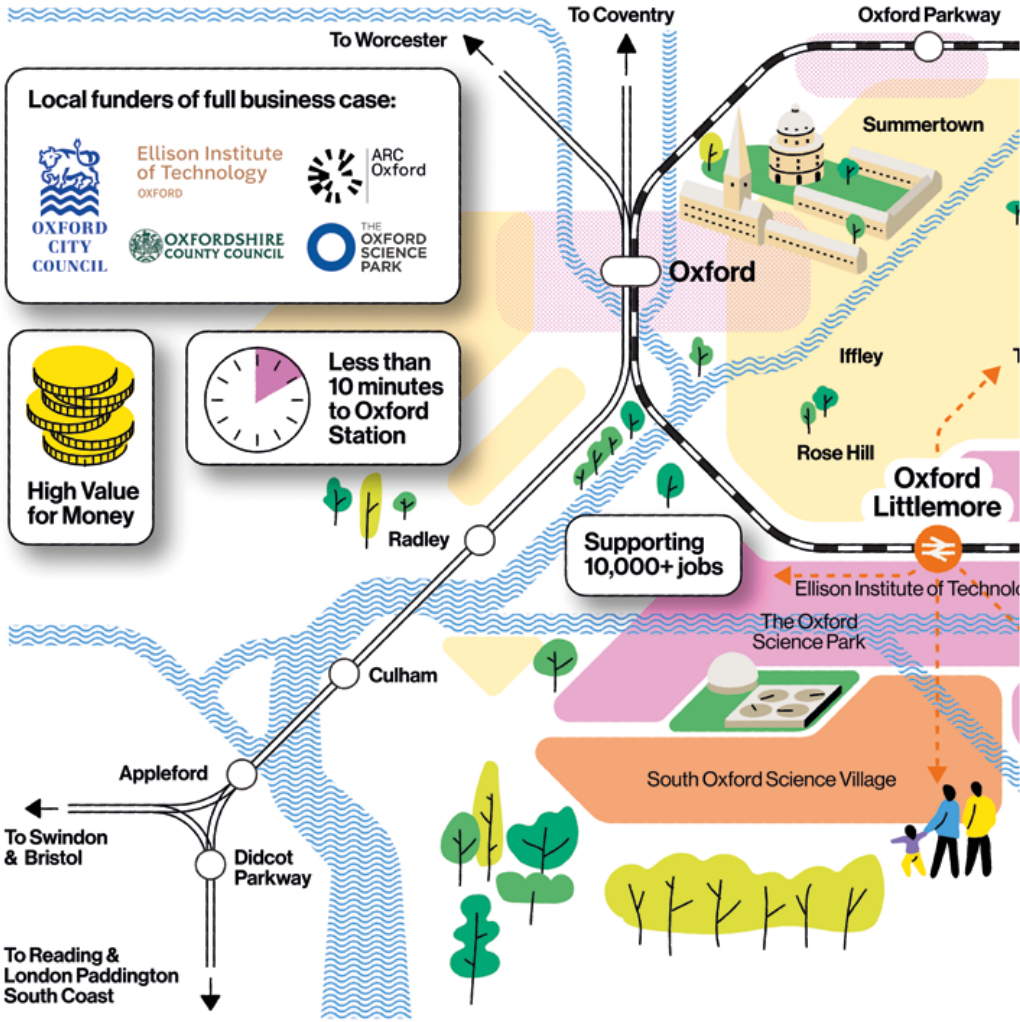
The Cowley branch line is currently used exclusively for freight. This project would see passenger services introduced and new stations at "Oxford Littlemore" (for Littlemore and The Oxford Science Park) and "Oxford Cowley" (for Blackbird Leys and ARC Oxford) – significantly increasing access to sustainable mobility within and to/from Oxford and cutting road congestion.

It would support more sustainable development of planned strategic housing sites at Grenoble Road and Northfield Farm (approximately 4,800 homes), while connecting significant employment sites (including four hectares of employment identified within 2.5 km of new stations). Existing and new residents would be able to access the city centre in less than 10 minutes.

The proposal is for a half hourly service from "Oxford Cowley" through to Oxford and onto London Marylebone. Passengers would also be able to access East West Rail via a single interchange, contributing to an enhanced rail network across the region.

Network Rail estimates that more than 1,000,000 journeys per year would be made using the new stations after only three years of operation. All of this while still safeguarding the continued use of the line for freight operations.

Next steps: Partners in Oxfordshire to finalise the 'Cowley Plus' project, which includes the business case, timetabling and rolling stock strategy.

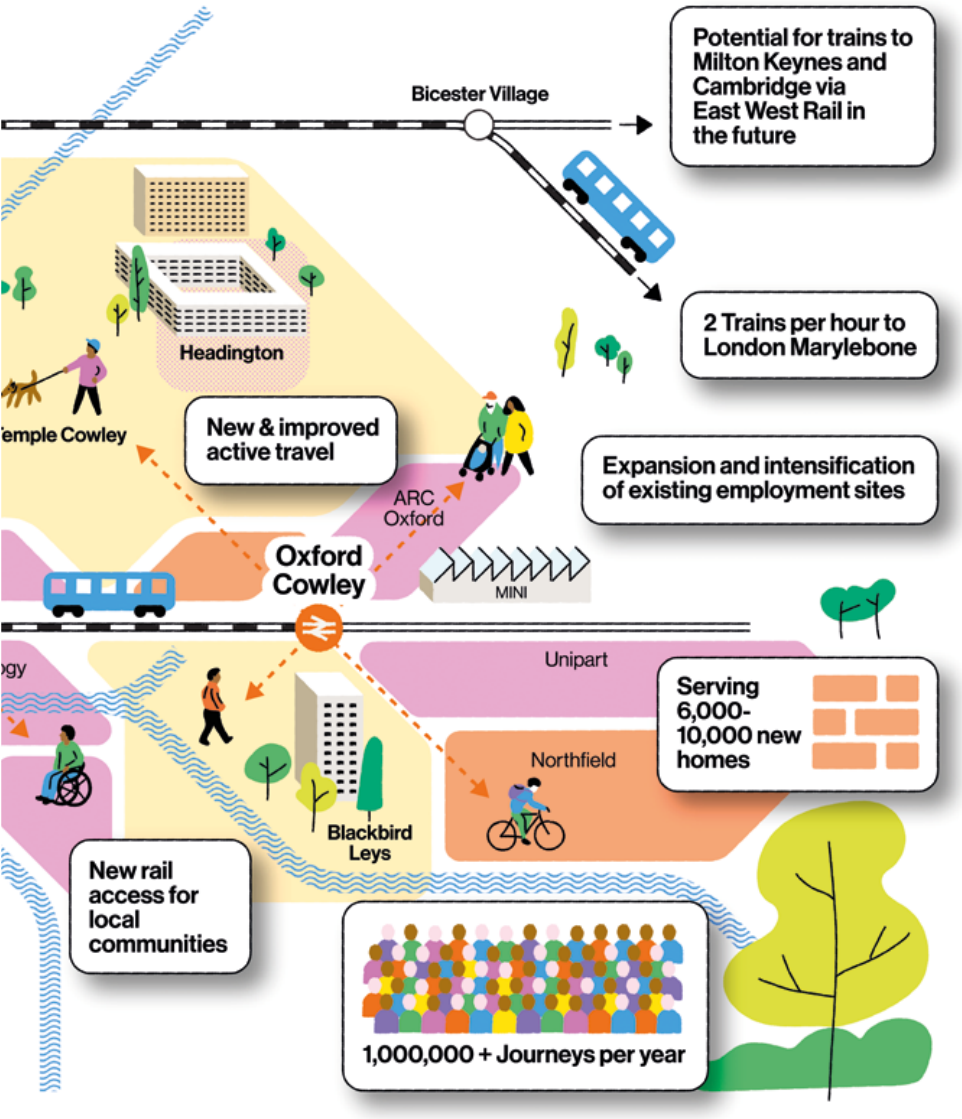


Developing a strategy for rail in Oxfordshire

Oxfordshire sits at a strategic position on the national rail network, with passenger linkages to the west and London via the Great Western Main Line and to the Midlands via Banbury.

It will also have new links to the east via East West Rail, and is on a key rail freight route between the south coast and the Midlands and north.

The Oxfordshire Rail Corridor Study, jointly developed between Oxfordshire local authorities and the rail industry, recognised this strategic position, but also the need for the rail network to continue to develop to support economic growth, both in Oxfordshire and beyond. In particular, it identified the need for focused investment to enable enhanced and new services through Oxfordshire, including to Cowley linking



with major new development areas, new services from East West Rail to majorly upgraded or new stations including Culham, Didcot and Wantage and Grove, as well as enhanced services along the Cotswold Line, and towards Bristol.

The upgrades underway at and close to Oxford station are key to unlocking the potential of rail in Oxfordshire, but more will be needed to enable all planned services to come forward, including capacity enhancements between Oxford and Didcot and Oxford and Hanborough, as well as completing electrification of the lines through Oxfordshire. Local and regional partners will continue to work with the rail industry and central government to enable and plan for delivery of these improvements, including identifying priorities for investment in a new rail strategy for Oxfordshire.

UPGRADING OXFORD STATION

Through the Oxfordshire Connect project, Oxford Railway Station is being expanded and the wider area upgraded to support East West Rail services.

The programme is upgrading Oxford Station, expanding the railway infrastructure in the area and improving the local road network, including:

- A bigger, improved railway station
- Provision for East West Rail services
- More rail capacity for the future
- A safer road layout

This investment underway is an essential part of the transport strategy for the wider region and plans for growth, increasing rail capacity for passengers and freight and reducing congestion.

The wider redevelopment of the station to increase its capacity further remains a central rail priority in the Oxfordshire Infrastructure Strategy. To realise this, local partners and landowners have funded a masterplan, in partnership with Network Rail to:

- Futureproof a second new track and platform to ensure capacity through Oxford Station can be increased and supports additional service enhancement and connectivity opportunities, subject to the availability of industry funding.
- Provide a much-needed gateway to one of the UK's global cities, creating better integration with public and active travel modes to facilitate the doubling of passengers expected by 2050, unlocking land for commercial development.
- Be a catalyst for the Oxford West End Opportunity Area, which has the potential for over 4.5m sq. ft. of lab and innovation space in the heart of the city centre.

Next steps: Partners to devise an 'interim improvements programme' for delivery over the next three years. This will help to cater for growing passenger numbers and provide a more welcoming experience to the city for visitors and investors.

// PRINCIPLES FOR SUCCESS

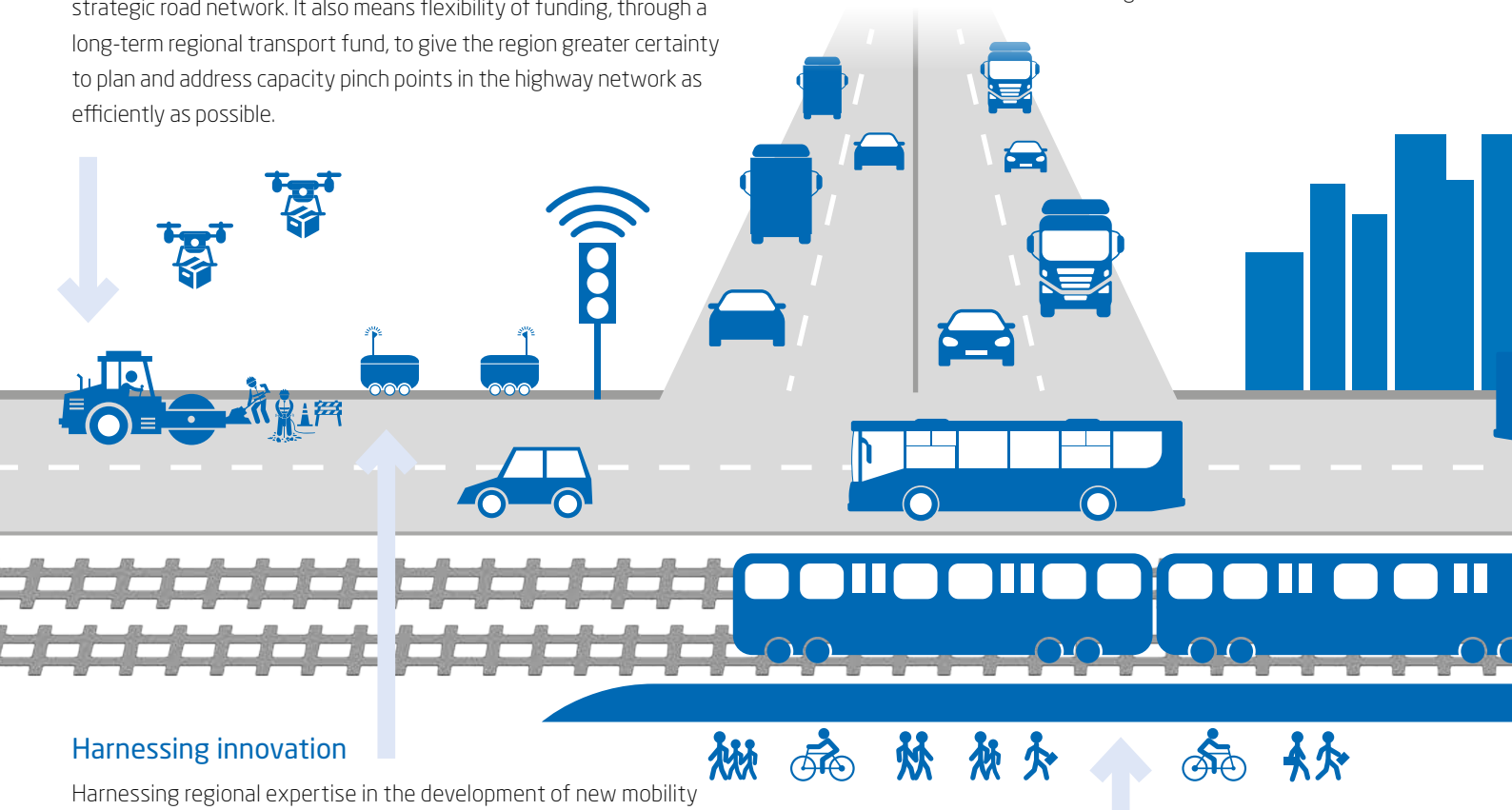
This brochure details the priority infrastructure – some major, others comparatively minor investments – which are required to improve connectivity across its geography. However, it is not just securing funding for new infrastructure that is important, we must be able to make the most of our existing infrastructure and maximise the benefits that we can extract out of new infrastructure- stretching the benefits to as many of our communities and businesses as possible.

Well-functioning roads

The region's existing road capacity must be well maintained and managed so the maximum amount of benefit can be leveraged for all road users, in line with local place-based ambitions. For local authorities this means receiving appropriate levels of roads maintenance funding which take account of the impact of climate change and also that of traffic which has been generated by the strategic road network. It also means flexibility of funding, through a long-term regional transport fund, to give the region greater certainty to plan and address capacity pinch points in the highway network as efficiently as possible.

Addressing issues on strategically important roads

During 2023, National Highways, in partnership with EEH and the Department for Transport completed the Oxford-Cambridge Connectivity: Roads Study. The work identified areas on the region's major road network (MRN) and strategic road network (SRN) which performed most poorly against expected service levels. The study identified a series of priority areas on the Heartland's road network that must be either addressed or investigated further.



Harnessing innovation

Harnessing regional expertise in the development of new mobility solutions will not only benefit the region, but also provides the UK with a competitive edge, unlocking benefits well beyond transport. It is a key part of the transition to net zero. The work underway in and around Oxfordshire, Cambridgeshire, Hertfordshire and Milton Keynes provides the region with access to experience on which it can build. But for innovation to be scalable, it must be supported by the right funding and supportive business models. EEH, through its innovation board champion and innovation working group is playing a key role in several regional projects: helping to ensure funding is in place; regulatory reform is supported where necessary; and by raising the profile of opportunities as they emerge.

A leading role in rail reform

Legislation to create Great British Railways must enable the role of sub-national transport bodies, as locally-formed partnerships of elected leaders and mayors, to be identified explicitly as partner organisations to the integrated rail body. EEH, Transport East and Transport for South East have created the Wider South East Rail Partnership. It can guide the way the rail industry, STBs and Transport for London are working together to maximise the potential of the rail network in the wider south east of England: a critical part of the UK's rail network in terms of patronage, through-journeys (by both passenger and freight) and revenue.

Collective responsibility for the success of infrastructure

Our local and combined authorities, and national government and its agencies, have signalled the importance they attach to the work of sub-national transport bodies. Our work extends far beyond advising on our region's priorities. We are working to maximise the value of infrastructure throughout its lifecycle, from concept and planning (including providing our local and combined authorities with capacity and capability, and addressing the skills pipeline), to construction and operation (including door-to-door connectivity and integration). A multi-year funding settlement from DfT would help EEH and its partners leverage the benefits that come from organisational certainty and allow our region to take collective responsibility in delivering the benefits of infrastructure investment.

Bus funding and models

In our role supporting members in our region to realise their ambitions for public transport, EEH is working with partners to ensure cross-boundary opportunities for bus are fully realised. In the context of local government funding pressures and a region with relatively small cities, market towns and large rural populations, our local authorities need to fully understand the viability of of franchising, the opportunity involved and whether there will be access to additional funding to cover this. Flexibility of approach is crucial. Government must learn the lessons of the past, including the uneven BSIP funding, and avoid creating a two-tier system between authorities which franchise and those which opt not to to.

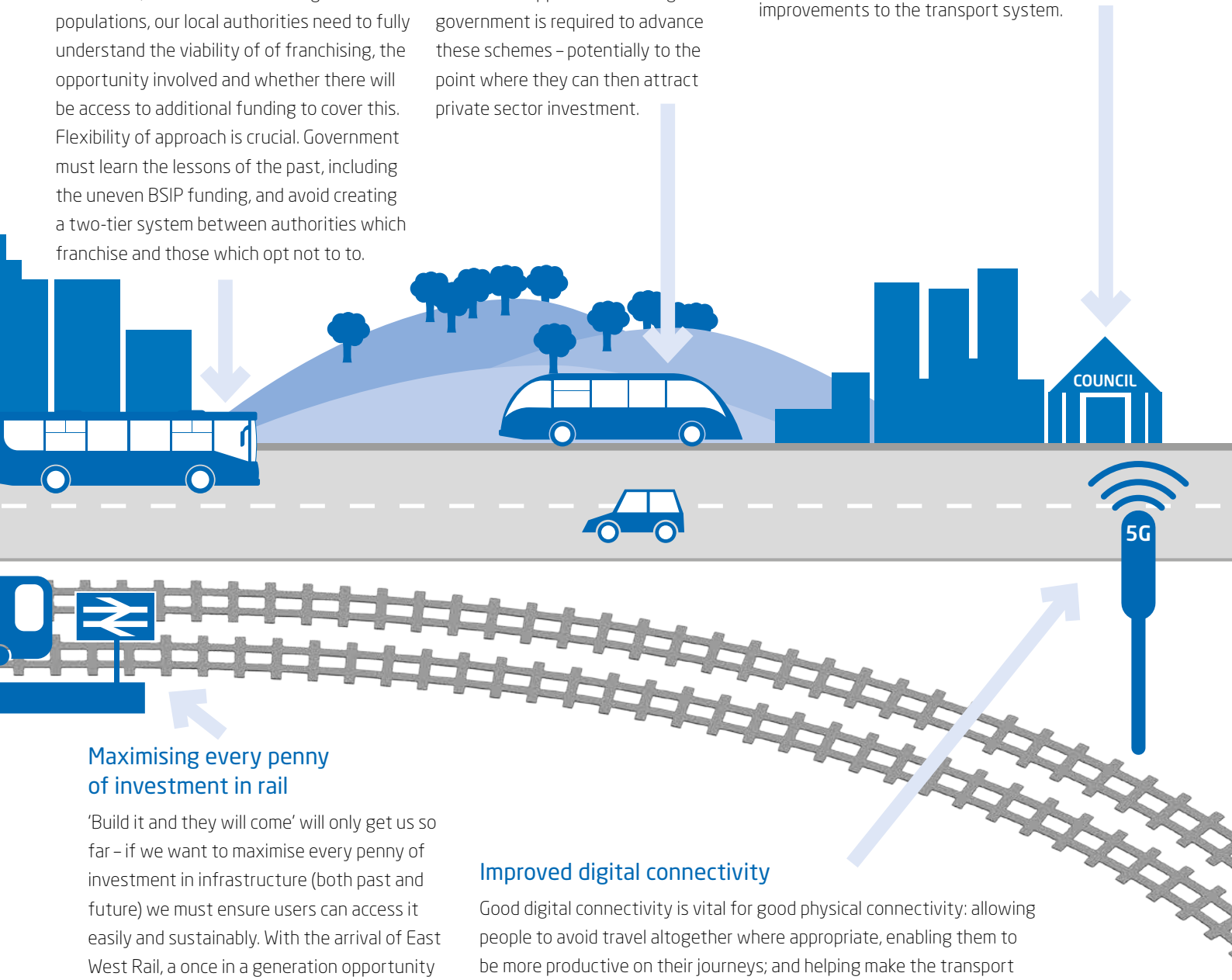
Mind the gap on MRT funding

Several of our local authority partners are developing ambitious mass rapid transit schemes for their places. However, funding to progress MRT falls 'through the gap' due to it not being covered by roads or rail funding. Dedicated support and funding from government is required to advance these schemes – potentially to the point where they can then attract private sector investment.

Long-term local transport funding

It is vital that the long term funding which benefits the strategic road network and our railways is matched by long term settlements for local transport.

Long-term funding should be available everywhere in the country: empowering local leaders to plan and deliver tailored place-based and people-focused improvements to the transport system.



Maximising every penny of investment in rail

'Build it and they will come' will only get us so far – if we want to maximise every penny of investment in infrastructure (both past and future) we must ensure users can access it easily and sustainably. With the arrival of East West Rail, a once in a generation opportunity will be squandered if the region is unable to provide high quality door to door connectivity to stations, and avoid community severance wherever possible.

Improved digital connectivity

Good digital connectivity is vital for good physical connectivity: allowing people to avoid travel altogether where appropriate, enabling them to be more productive on their journeys; and helping make the transport system itself smarter and more efficient. In a region world renowned for its science and technology innovation, it cannot be right that a quarter of all our homes and more than half of our firms lack access to ultrafast broadband, with coverage particularly poor in many rural areas.

// NOTES AND METHODOLOGY

CONNECTIVITY: THE THEORY

Connectivity is critical to enabling economic expansion and cluster development, to ensure accessibility to key centres and enabling and attracting labour supply growth, and the sustainability of existing and new communities.

Broadly, there are two ways in which improved connectivity can unlock economic growth.

Static impacts are those which capture the various direct effects on existing firms and residents:

For firms:

- Reduction in costs of shipping and freight movements
- Reduction in costs of business travel
- Access to a larger labour pool, as previously unattractive commuting movements become more viable
- Access to a larger pool of customers in physical attendance at premises

For residents:

- Interventions that improve speed, safety and reliability of local transport networks and reduce congestion and pollution
- Improvements in inter-regional or inter-national connectivity provides local residents with better access to tourism and recreation opportunities
- Increases in access to employment opportunities, providing residents with a greater choice and selection of jobs
- Increased access to education and training opportunities

Dynamic impacts are the subsequent impacts of new economic activity entering a local market as a result of better transport connectivity. Their long-term effects can significantly outweigh the scale of the initial static effects:

- Firm-worker proximity benefits: Positive feedback between the presence of workers with specific skills, and firms that require said skills
- Firm-firm proximity benefits: The co-evolution of sector value chains, with the presence of downstream actors attracting upstream suppliers, and vice versa, or firms in similar sectors co-locating/clustering
- Agglomeration-growth cycle: whereby the productivity and competitiveness benefits of co-location allows firms to win greater market share and expand operations (see right)
- Some of the other induced effects of dynamic impacts include an increase in property prices (often seen as a negative) and an increased amount of money spent locally by better-paid workers (generally seen as a positive)

Productivity and agglomeration

A key theme for the EEH region is improving productivity: the ways in which individual workers are able to produce more, or higher quality, output, as measured by the revenues the firm is able to capture less the direct costs of the inputs. Some obvious reasons for productivity growth might be: more skilled workers, better equipment, and smarter processes. Some less obvious, but equally important, reasons might be lower costs of inputs and higher prices of outputs, both of which may be a result of local economic conditions, or the firm's increased market power.

One of the most important ways in which transport systems help drive productivity growth is through agglomeration. Agglomeration benefits are the benefits that firms experience from being connected to, and interacting with, a wide number of other economic actors. This brings two benefits: efficiency, and innovation.

Agglomeration drives efficiencies through economies of scale and matching benefits. Firms that are able to access and serve larger markets, and have greater choice of suppliers and workers are often able to run their businesses more efficiently than those with smaller markets and more limited choices. This boosts revenue, decreases costs, and helps productivity grow.

Agglomeration also helps firms innovate, through expanding the network of contacts with which they are able to interact. This helps them access the knowledge and ideas that they can use to improve their business. Innovation is a major driver of productivity; in fact, many of the most beneficial ways we conceive of productivity growing, be it through better equipment, a more efficient workflow, or a better end-product, are forms of innovation. Helping firms invest and innovate, either directly or by creating the right incentives and conditions, is probably the main way of driving productivity growth in the long-run.

For Cambridge Econometrics' full methodology, including data sources, SIC codes and MSOAs used, see our website www.englandseconomicheartland.com/connecting-economies

Datasets: Datasets used were the most recent available during spring 2024. Cambridge Econometrics used middle layer super output area (MSOA) level data, rather than local authority-level data. This was necessary as the corridors and areas within these brochures do not necessarily conform to local authority boundaries. However, MSOA data is not updated by ONS as regularly or as quickly as local authority-level data – hence why in some cases it may appear there is more recent data available, but this would be at a local authority rather than MSOA level.

Use of pre-Covid data: Throughout the brochure Cambridge Econometrics has used a mixture of pre-and-post Covid data. Pre-Covid data is used to assess the longer term trends and performance of an area, avoiding the significant distortion of the pandemic on the data.

Definition of sub-areas: Cambridge Econometrics defined 18 'sub-areas' across the EEH region, using workplace density and commuter zone analysis from ESRC-commissioned research. The areas are separate from administrative boundaries, using MSOA geographies. Where an area is 'ranked' in comparison to other EEH areas, it is therefore out of a total of 18 areas within EEH. The full list of MSOA areas which make up each sub-area is available on the EEH website.

Definition of sectors: Cambridge Econometrics has identified sectors using standard industrial classification (SIC) codes, held by the Office for National Statistics (ONS). Businesses self-report the most appropriate SIC code for their area of focus. There are hundreds of SIC codes, each representing a specialism, and Cambridge Econometrics has grouped these together to form sectors. By its nature, this requires a degree of judgement on the part of Cambridge Econometrics as what specific activities form a sector: classifying sectors, particularly those involved in science and technology innovation, is as much an art as it is a science. The full list of SIC codes which make up a given sector is available on the EEH website.

CONNECTIVITY SECTION DEFINITIONS

Definitions and sources for Connectivity Today section

Congestion map: Full definition

To produce the map, City Science first analysed INRIX data to provide an indication of average road speeds by car for various road types (eg dual carriage, single carriageway) across the entirety of the EEH motorway, A and B road network between on a weekday morning. Individual sections of road were then given a rating reflecting how their average speed compared to the EEH average for that road type. Analysis conducted uses the weekday morning peak period (i.e. 0700-1000) in June 2022. The vehicle type "car" was analysed as a proxy for understanding network performance. The full list of speeds (in mph) and scores is in the table below.

Road Type	A	B	C	D	E	F
Single Carriageway	>46	>36	>28	>24	>20	<20
Dual Carriageway / Motorway	>66	>59	>43	>30	>23	<23
Traffic Island Link	>41	>32	>26	>23	>20	<20
Roundabout	>38	>33	>29	>26	>23	<23
Traffic Island Link at Junction	>36	>31	>26	>22	>19	<19
Slip Road	>53	>45	>39	>33	>24	<24

Public Transport Catchment map:

The map, by City Science, makes a number of assumptions. Walking speed is 3mph as standard, though this can vary depending on incline. For calculating journeys by rail and bus, the period 7am-10am (weekday) has been divided by the number of services within that period to give a 'headway'. The average wait time is half the value of the headway (ie, the time you'd wait if you arrived exactly halfway between two train/ bus services). The travel time is the average across all services between 7am and 10am (ie, if there is a mixture of fast and slow services to a destination, it is an average of these). These assumptions ensure the map gives a balanced view of journey times, however it may not reflect the fastest possible time it would take to get to a destination. Example:

There are 12 services between Place A and Place B from 7am to 10am, equating to one service every 15 minutes. The average wait time is therefore 7.5 minutes. Half of the services are 'express' and take 30 minutes to get to Place B, the other half are 'stoppers' and take one hour. Therefore, the average journey time is calculated as 45 minutes. In this scenario, the total 'journey' would be 52.5 minutes, plus the time it would take to walk to a station/ stop from the starting / finishing position. The bus and rail timetable information comes from the Bus Open Data Service (BODS) and Rail Delivery Group respectively.

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