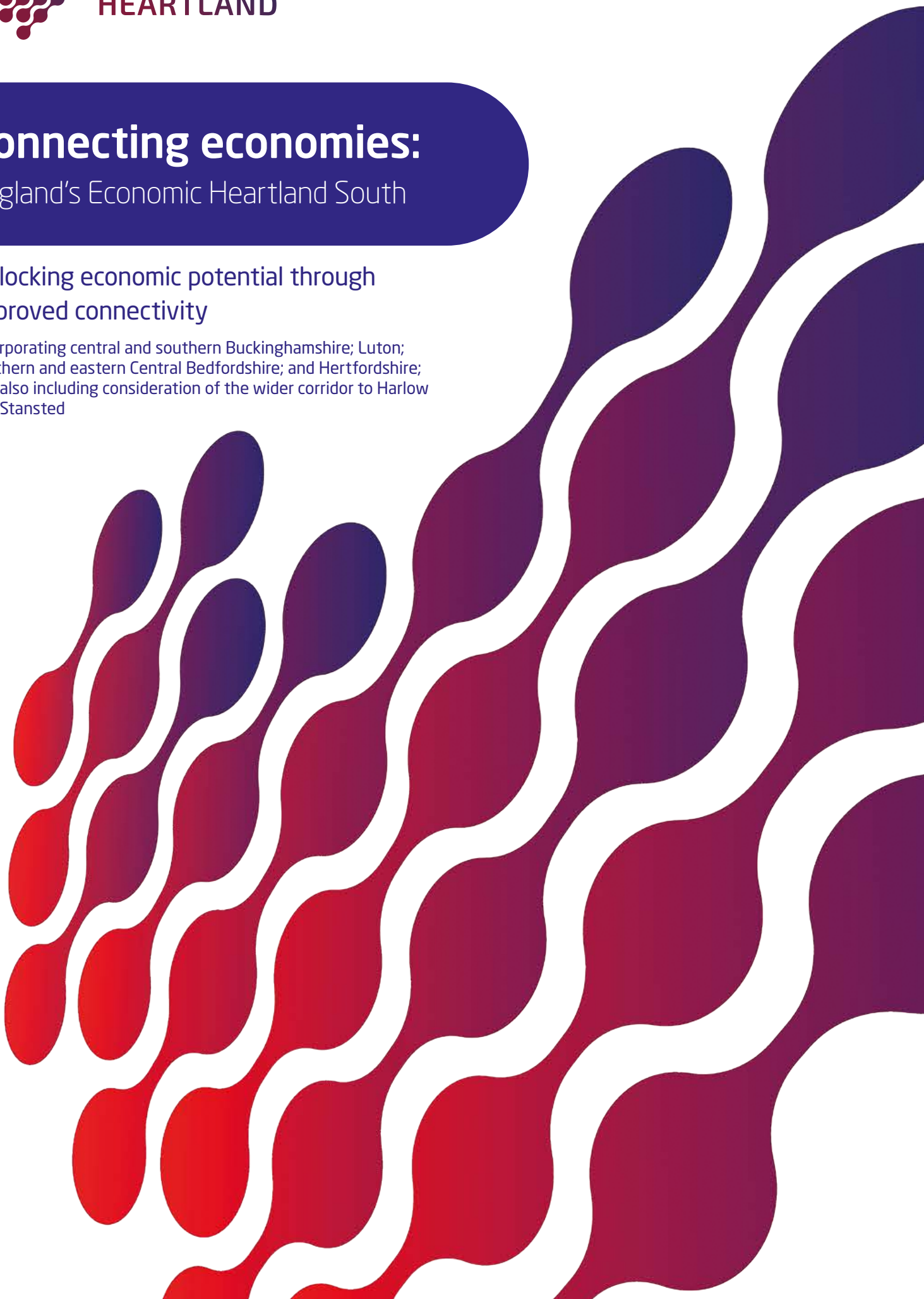
ENGLAND'S ECONOMIC HEARTLAND

Connecting economies:

England's Economic Heartland South

Unlocking economic potential through improved connectivity

Incorporating central and southern Buckinghamshire; Luton; southern and eastern Central Bedfordshire; and Hertfordshire; and also including consideration of the wider corridor to Harlow and Stansted



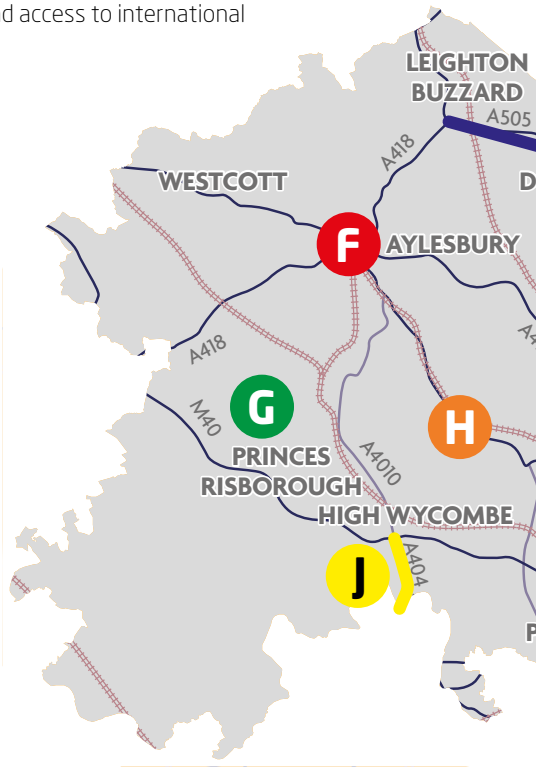
// SUMMARY

The EEH South corridor, which includes central and southern Buckinghamshire, Luton, southern and eastern Central Bedfordshire, and Hertfordshire, accounts for more than two-fifths of the region's economic activity.

Bordered by Oxfordshire, Cambridgeshire and London, it is the home of Britain's world-renowned film and television industry and employs a third of the region's life sciences workforce. London Luton Airport is the fifth busiest airport in the UK – and if the corridor is extended a little further east into Essex, one finds the fourth busiest at Stansted Airport, together with the important economic centre of Harlow.

New research by Cambridge Econometrics demonstrates the corridor's importance to the UK economy. Yet despite its many successes, the independent research highlights a clear and compelling narrative for improving transport infrastructure across the corridor's length. Doing so will maximise economic opportunities while addressing challenges and barriers to further growth. This includes through:

- Further boosting the corridor's prowess in life sciences
- Maximising the potential of digital and creative industries
- Supporting logistics and access to international gateways
- Growing productivity
- Unlocking affordable floorspace
- Reducing housing pressures



About this brochure

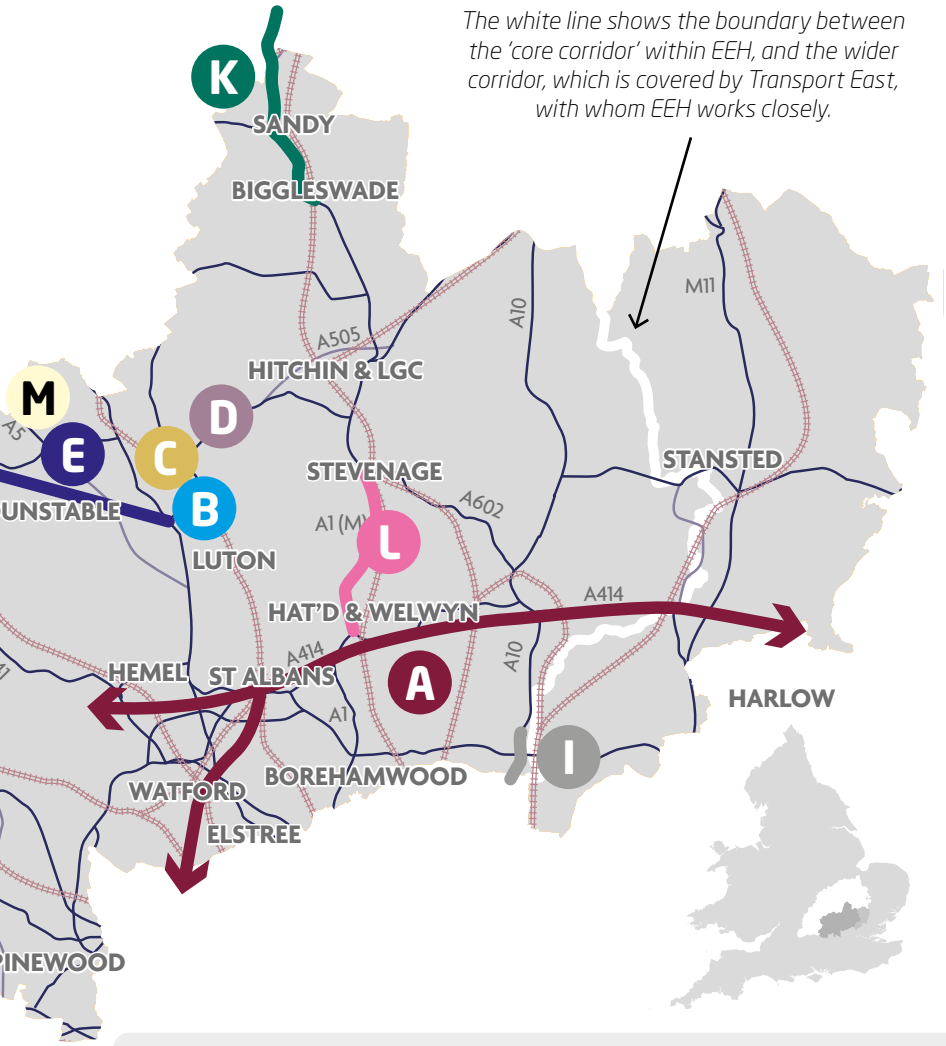
This brochure provides a compendium of both evidence and asks to government, which England's Economic Heartland, its local and combined authority partners, MPs, private sector and others can use to make the case for improved connectivity and infrastructure investment in our region. It provides the high-level 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:

- Luton-Bedford-Corby (to be published autumn 2024)
- Northampton-Buckinghamshire-Thames Valley
- Cambridgeshire and Peterborough (including consideration of neighbouring areas)

CONTENTS

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.



- **A** Hertfordshire-Essex mass rapid transit. See pages 18-19
- **B** Luton Station railway improvements. See page 22
- **C** A505 Vauxhall Way corridor improvements. See page 22
- **D** Butterfield Business Park Mobility Hub. See page 22
- **E** Expansion of Luton-Dunstable Busway and wider bus connectivity improvements, including to London Luton Airport. See page 21
- **F** Orbital-road and gardenway improvements in Aylesbury. See pages 24-25
- **G** Princes Risborough relief road. See page 23
- **H** Chiltern main line improvements including train lengthening and rolling stock. See page 23
- **I** A10 improvements at Cheshunt. See page 20
- **J** Improvements along the A404 corridor including the A404/M40 Junction 4 Handy Cross Roundabout, Westhorpe Interchange and Bisham Roundabout. See page 26
- **K** A1 connectivity: Huntingdon to Biggleswade. See page 27
- **L** A1(M) junctions 6-8. See page 27
- **M** Solution for the A5 Hockliffe. See page 23

GVA: £75.7 BILLION (2021)

GVA (measured in real terms) increased £13.6bn (22%) between 2011-19, above national average of 20%. The GVA of the 'core corridor' (ie that within EEH, excluding Harlow and Stansted areas) was £69.8bn, amounting to 41% of EEH's total GVA.

POPULATION: 2.47 MILLION (2021)

Population increased by 232,400 people – or 10% - between 2011-2021, above the national average of 7%. The population of the core corridor grew 9% to 2.2 million, amounting to 40% of EEH's total population.

JOBS: 1.20M (2022)

The number of jobs increased by 185,000 between 2011-2019 – or 19%, above the national average of 17%. Jobs in the core corridor amount to 1.1 million (41% of all EEH jobs).

PRODUCTIVITY

The corridor's productivity deficit is widening. As of 2021 it stood at 5% below the national average (and 4% for the core corridor).

INEQUALITIES

Luton and Broxbourne local authority areas contain neighbourhoods within the 10% most deprived in the country (2019). Luton is ranked 52nd out of 317 authority areas for overall deprivation. It is striking how much of the core corridor is amongst the top third most deprived in the country as measured by access to housing and services. This includes physical distance to access health, education and shopping, alongside housing overcrowding and affordability issues. Included in the bottom third on this metric are: Broxbourne, Luton, Hertsmere, Watford, Chiltern, Welwyn-Hatfield, Stevenage, Aylesbury Vale and Wycombe.

// ENGLAND'S ECONOMIC HEARTLAND

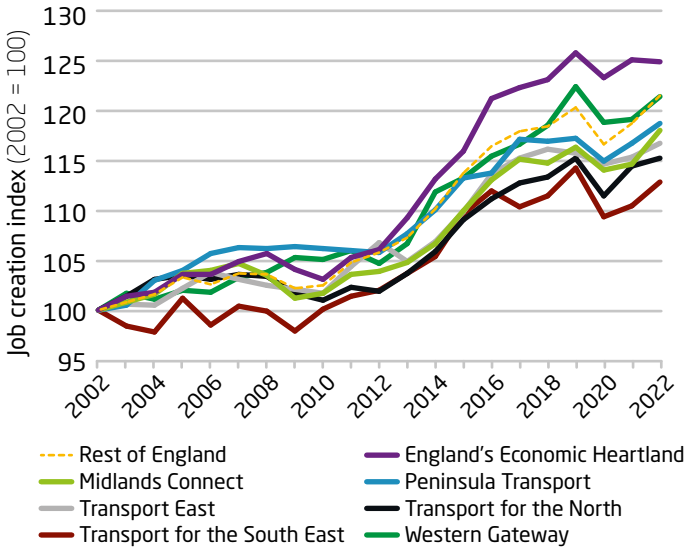
There's a reason why we're called England's Economic Heartland. Stretching from Swindon and Oxfordshire in the west through to Cambridgeshire and Hertfordshire in the east, our region is unrivalled in the country for the number of economic specialisms and clusters existing within it. Its success brings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

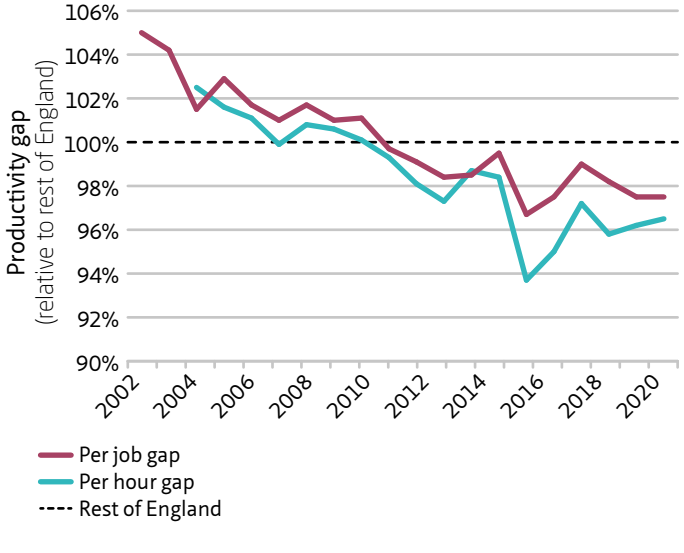
ECONOMY

For methodology see our website and p31

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

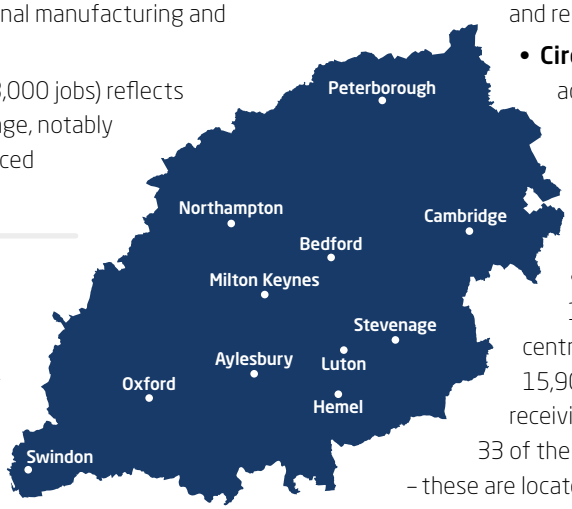
- **Total emissions:** Per capita CO_2 emissions were 4% higher than in the rest of England in 2021, & have declined at a slower rate (-24% 2005-21, rest of England -27%)
- **Transport emissions:** Transport accounts for 37% of total EEH emissions (rest of England 31%), and decreased more slowly (-8% 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

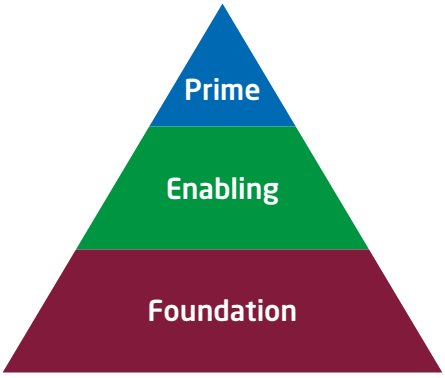
England's Economic Heartland (EEH) is one of seven sub-national transport bodies (STBs) which cover the entirety of England outside of London. It is overseen by the leaders of our 13 transport and combined authority partners, allowing us to speak with a single, powerful voice. EEH works closely with 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

The National Film and Television School in Beaconsfield, a short distance from Pinewood Studios

Airbus Defence and Space in Stevenage

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 31 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.

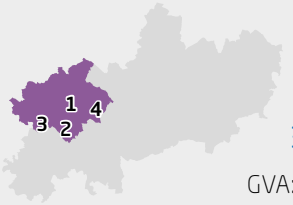
Real Time Industrial Classifications (RTICs) are used to classify innovation clusters. Many firms in EEH's prime sectors are part of, will interact with, and indeed benefit from, its innovation clusters.

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 31 for further notes.



Settlements include: 1. Aylesbury, 2. Princes Risborough and 3. Thame and 4. Tring

GVA: £5.4bn (up 9%) / Population: 208,600 (up 17%) / Jobs: 92,700 (up 17%) / Firms: 12,000 (up 22%)

Sectors: Agri-food (3,200 jobs, 5% of EEH total) / Circular Economy (1,000 jobs, 4%) / Advanced Physics and Engineering (8,300, 3%) / Management & Social Science (5,800) / Wood Products (1,500) / Business Support Services (15,100)

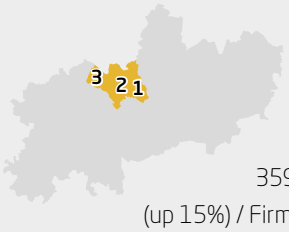
Innovation Clusters: Space economy

Economic assets include:

- The Westcott Space Cluster, located in the Westcott Venture Park enterprise zone, home to a growing nucleus of space-related companies developing new innovative technologies in rocket propulsion, 5G communications and in-orbit servicing and manufacturing. It includes the National Space Propulsion Test Facility, the only of its kind in the UK, and of two in Europe; the In-Orbit Serving and Manufacturing facility, the Drone Test and Development Centre, the Future Networks Development Centre and the Satellite Applications Catapult also has a presence
- Stoke Mandeville Hospital, the birthplace of the Paralympic movement, home to the National Spinal Injuries Centre, and the Health Research and Innovation Centre
- The Arla dairy near Aylesbury, one of the biggest and most technologically-advanced dairies in the world

Insights:

- Only 5% of residents are low or unskilled (second lowest of EEH areas)
- Pre-pandemic (2011-19), rates of job creation (2% p.a.) exceeded the national average (1.7%). However, productivity growth was the third lowest of EEH areas pre-pandemic, opening up a -11% productivity gap relative to national average
- 88% of firms in the area were micro-sized in 2023 – the highest share in EEH
- The area saw the third fastest population growth (1.6% p.a.) in EEH, more than double the national average (0.7%) between 2011-21, with housing delivery rates twice the national average



Settlements include: 1. Luton, 2. Dunstable and 3. Leighton Buzzard

GVA: £7.4bn (up 28%) / Population: 359,600 (up 13%) / Jobs: 161,400 (up 15%) / Firms: 15,000 (up 42%)

Sectors: Logistics & Freight (10,100 jobs, 7% of the EEH total) / Advanced Physics & Engineering (15,400, 6%) / Real Estate (4,800) / Transport Services (4,600) / Business Support Services (36,500)

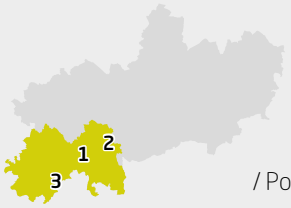
Innovation clusters: Internet of Things / E-Commerce / In-Orbit Space Manufacturing / Food Tech / Electronics Manufacturing

Economic assets include:

- London Luton Airport is the fifth busiest airport in the country, with 16.2 million passengers in 2023. It has ambitious expansion plans, with approval to increase capacity to 19m passengers, while it has applied for a development consent order for 32m by the mid-2040s. It is also one of the biggest private aviation hubs in Europe. Its enterprise zone is being developed to provide business space for sustainable research and finance, aerospace, engineering, advanced manufacturing and specialist support for airlines and airport operations
- University of Bedfordshire, a top 300 university in the world under 50 years old
- With Luton Town FC's recent success making headlines across the world, Power Court will be a new state-of-the-art football stadium which will also bring live music, new homes and a new retail and leisure offer to the town
- Luton and Dunstable guided busway, one of the longest guided busways in the world, with a total length of 8.3 miles, of which 4.8 is guided track

Insights:

- Economic growth (in real terms) was faster (3.2% p.a.) than the national average (2.2%) pre-pandemic, and was the third fastest growing EEH area
- Luton is projected to be the second fastest growing urban economy in 2024, behind only London, and the town often ranks UK top-10 for start-ups & survival
- The area has the lowest old age dependency ratio in the EEH, with 86% of residents young or working age (national average 81%)
- Housing is 3% more affordable than the national average, though house prices have grown (3.3% p.a. 2013-23) more than any other EEH area



Settlements include: 1. High Wycombe, 2. Amersham and 3. Henley

GVA: £13.5bn (up 8%) / Population: 400,400 (up 7%) / Jobs: 185,000 (up 13%) / Firms: 26,400 (up 17%)

Sectors: Digital & Creative (14,800, 11% of EEH total) / Life Sciences (7,600, 10%) / Circular Economy (1,900, 8%) / Advanced Physics & Engineering (19,200, 8%) / Management & Social Science (11,400) / Construction (11,200)

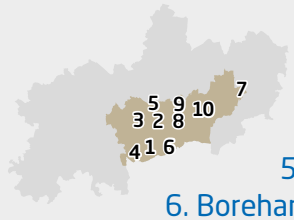
Innovation clusters: Digital creative/ E-Commerce / Artificial Intelligence / Life Sciences

Economic assets include:

- Pinewood film and television studios, synonymous with some of the big and small screen's most enduring productions over its 85-year history, home to the legendary 007 Stage, a further 30 stages including the unique permanently-filled Underwater Stage, three TV studios, one of Europe's largest exterior tanks, acres of backlot and thousands of square feet of production office and workshop space. The National Film and Television School is located nearby in Beaconsfield
- Buckinghamshire New University in High Wycombe, with courses in applied, practice based and translational research and related advanced scholarship
- Henley Business School, among a small elite group of business schools world-wide which hold triple accreditations for the quality and capability of its faculty and outputs

Insights:

- The area is 14% more productive than the national average, and the third most productive EEH area
- It has the second highest share (88%) of firms that are micro-sized in EEH
- 73% of residents are employed in skilled work, the highest share in EEH
- Housing is 49% less affordable than the national average, making it the least affordable area in EEH
- Whilst population growth over 2011-21 aligned with the national average (0.7%), this was the slowest increase among all EEH areas



Settlements include: 1. Watford, 2. St Albans, 3. Hemel Hempstead, 4. Rickmansworth, 5. Harpenden, 6. Borehamwood, 7. Bishops Stortford, 8. Hatfield, 9. Welwyn and 10. Hertford

GVA: £34.8bn (up 32%) / Population: 942,200 (up 9%) / Jobs: 519,300 (up 25%) / Firms: 55,200 (up 34%)

Sectors: Digital & Creative (31,900, 27% of EEH total) / Advanced Physics & Engineering (37,300, 15%) / Life Sciences (11,500, 15%) / Construction (37,800) / Management & Social Science (26,400) / Legal & Accounting (20,800) / Business Support Services (85,600)

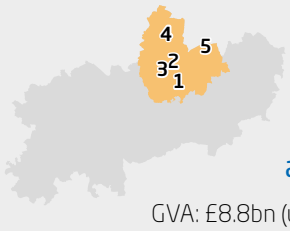
Innovation clusters: Autonomy & Robotics (9th largest in UK) / Internet of Things / MedTech / Energy Generation / Artificial Intelligence / Sensors

Economic assets include:

- Several television and film studios including Elstree Studios, BBC Elstree, Warner Bros Studios at Leavesden and the newly developed Sky Studios in Borehamwood. From Star Wars to Strictly Come Dancing at Elstree, through to Harry Potter (and the accompanying studio tour) at Leavesden, the studios have been responsible for some of the most iconic movies and TV shows ever made
- Rothamsted Research and the Building Research Establishment in Harpenden, global leaders in the fields of agri-tech and building research
- The area is home to a number of specialist institutions connected to life sciences – the UK Stem Cell Bank (Potters Bar) and the Royal Veterinary College (Hatfield) are just two examples
- Tesco and Ocado supermarkets have their headquarters in Welwyn Hatfield
- University of Hertfordshire, one of the top 200 universities in the world under 50 years old, with specialisms including animation, life sciences and smart mobility

Insights:

- Pre-pandemic (2015-19), rates of job creation (2.8% p.a.) were well above the national average (1.7%), and third highest among EEH area, and over the same period it also exhibited the fastest economic growth (in real terms) in EEH (3.5% p.a.), also well above the national average (2.2%)
- 87% of firms are micro-sized – the third highest share among EEH areas
- Housing is 35% less affordable than the national average, and the second least affordable among EEH areas
- 51% of residents have received a higher education, above the national average (45%) and fourth highest among the 18 EEH areas. 67% are in skilled work



Settlements include:
1. Stevenage,
2. Letchworth, 3. Hitchin,
4. Biggleswade
and 5. Royston

GVA: £8.8bn (up 16%) / Population: 328,600 (up 9%) / Jobs: 137,100 (up 11%) / Firms: 16,000 (up 18%)

Sectors: Advanced Physics & Engineering (15,200 jobs, 6% of EEH total) / Life Sciences (4,800, 6%) / Construction (12,300) / Metal Products (4,700) / Chemicals Materials (3,300) / Wood Products (2,300)

Innovation clusters: Pharma / Computer Hardware / In-Orbit Space Manufacturing / Telecommunications / Electronics Manufacturing

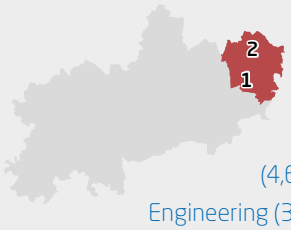
Economic assets include:

- The Bio Science Catalyst in Stevenage is a leading location for companies, including GSK and Lifearc, to develop and commercialise cutting edge therapeutics. GSK is developing a 37-hectare R&D site in Stevenage, intended to house 5,000 skilled workers, to be one of the largest life science campuses in Europe
- Airbus Defence & Space MBDA UK Ltd, a £35 million UK space and defence headquarters in Stevenage
- Johnson Matthey (JM), a global leader in sustainable technologies, is building a £80 million gigafactory at its existing site in Royston, to scale up the manufacture of hydrogen fuel cell components

Insights:

- 14,500 jobs are R&D-intensive, which as a share of total jobs (11%) is the fifth highest share among EEH areas
- It boasts the highest proportion of jobs in 'enabling' sectors of all EEH areas
- 50% of residents have received a higher education, above the national average (45%), and increasing the third most among EEH areas between 2012-22
- Its unemployment rate (2%) is also well below with national average (3.8%), and is the joint third lowest among EEH areas
- The area is the seventh most productive in EEH, with productivity similar to national average. Productivity growth was sixth fastest in EEH pre-pandemic
- Commercial floorspace average costs are 14% below national average.
- Housing is 11% less affordable than the national average, whilst house prices have grown (3.0% p.a. 2013-23) at the third highest rate in EEH.

NEIGHBOURING AREAS



Settlements include:
1. Stansted and
2. Saffron Walden

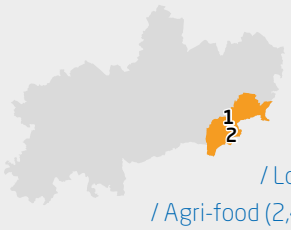
Sectors: Logistics & Freight (4,600)/ Advanced Physics & Engineering (3,300) / Construction (2,500) / Transport Services (5,600 jobs) / Hospitality (3,800)

Economic assets include:

- London Stansted Airport, the fourth largest airport in the UK, serving over 27m passengers annually
- Stansted Business Park, a 45-acre site that offers flexible solutions for industrial, warehouse and office space
- Stansted World Cargo Centre offers 55,000 sqm of warehouse and office space, and handles over 258,000 tonnes of cargo annually

Insights:

- Employees are significantly (-32%) less productive than the national average
- Housing is 25% less affordable than the national average



Settlements include:
1. Harlow and 2. Epping

Sectors: Advanced Physics & Engineering (6,400 jobs) / Logistics & Freight (3,800) / Agri-food (2,400) / Construction (6,200 jobs) / Chemicals & Materials (1,600)

Innovation clusters: Omics / Pharma / Agency Market

Economic assets include:

- PHE Harlow, Public Health England's future, world-leading campus and headquarters
- Harlow Enterprise Zone, 51 ha of Advanced Manufacturing and Life Sciences development opportunities
- Anglia Ruskin MedTech Campus, 1,300 m^2 of lab space equipped with the latest technology and containment level 2 environment

Insights:

- Housing is 17% less affordable than the national average
- Employees are 10% less productive than national average

// 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.

Further boosting the corridor's prowess in life sciences

The corridor connects several of the EEH area's prominent life sciences assets. Indeed, the core corridor (ie, within the EEH region) employs a third of EEH's life sciences workers (over 26,000 jobs). Improving transport connectivity across the corridor has the potential to realise agglomeration effects in the life sciences sector through increasing the flows of expertise and capital between the prolific industries in Oxford and Cambridge and the already established industries in the corridor sub-areas.

Maximising the potential of digital and creative industries

The south-west of the corridor is home to some of the world's most famous movie and TV studios. This helps support a significant digital and creative prime sector in the Henley-Wycombe-Amersham and Watford-Hatfield-Hertford sub-areas: more than 46,000 people are employed in the sector, 38% of the EEH total. Improved transport connections between these creative hubs would connect workers to more productive jobs and enable employers to draw from a larger pool of skilled labour.

The corridor contains a prominent life sciences sector

For a quick guide to the relationship between connectivity, productivity and economic growth turn to page 30.

Supporting logistics and access to international gateways

The Luton, Harlow, and Stansted sub-areas have established logistics and freight prime sectors which employ 18,500 workers. These industries are bolstered by their proximity to London Luton and Stansted airports (two of the five biggest airports in the UK) as well as the Stansted Business Park and Stansted World Cargo Centre which handles over 258,000 tonnes of cargo annually. The logistics and freight sector is inherently dependent on transport infrastructure and so investments in improving transport connectivity in the corridor would support businesses and enable them to leverage local economic assets more effectively. Alongside this, improved sustainable surface access to the airports increases their potential market catchment, while reducing the impact on the environment.

Growing productivity

Despite its economic strengths the corridor has performed relatively poorly in terms of productivity, though the picture is mixed. The Henley-Wycombe-Amersham sub-area is 14% more productive than the national average and is the most productive in the corridor. However, its average pre-pandemic productivity growth was – 0.5%. Productivity in the Stevenage-Letchworth-Biggleswade sub-area is in line with national average and pre-pandemic productivity growth was the sixth fastest in EEH. The rest of the sub-areas in the corridor exhibit productivity gaps to the national average.

The overall impression is of a region that, given its prime sector specialisations, R&D capabilities, and economic assets, is underperforming. Agglomeration effects, emerging from increased interactions and collaboration/competition between businesses, are an important potential driver of productivity growth.

Investments in transport infrastructure can increase labour mobility, enabling firms to hire from a larger skilled labour pool, and allowing the expertise and capital of established industries to radiate throughout the corridor. Improved connectivity could therefore be an effective framework for supporting and stimulating productivity growth in the corridor.

London Luton Airport

Unlocking affordable floorspace

Commercial floorspace costs in the Henley-Wycombe-Amersham area are 9% above the national average and it is one of only two areas in EEH to lose floorspace stock between 2013-23. Firms in the area may be constrained, and potential new market entrants deterred by the elevated costs and slow growth in supply of commercial floorspace. Investments in transport infrastructure would connect these businesses to the abundance of affordable commercial floorspace across the rest of the corridor. The corridor has the space, at low costs, for new and growing businesses to expand into. Improved transport infrastructure in the corridor would increase the accessibility of local economic centres and work to address the productivity imbalances described above.

Reducing housing pressures

It is striking how much of the core corridor scores highly on the deprivation metric for access to housing and services. Housing is expensive throughout the corridor and house prices are rising across the board. In Henley-Wycombe-Amersham, house prices are 49% above the national average – making it the most expensive area to buy a house in EEH. Only in Luton-Dunstable-Leighton Buzzard is housing marginally more affordable than the national average, although house prices here have grown faster over the decade than any other EEH area. Build out rates over the decade have generally been high, which is favourable to ensuring housing affordability and accessibility in the future. However, having efficient and reliable transport networks is necessary to sustainably meet housing demand.

HEADLINE CONCLUSIONS

This corridor has clear and compelling narrative for improving transport infrastructure across its length.

The corridor is an important economic engine within EEH, accounting for over two-fifths of its economic activity and generating more jobs and growth than any of the other six corridors considered by Cambridge Econometrics for the 'Connecting Economies' brochures. It also exhibits the many diverse sectoral and innovation strengths associated with the region - with a particularly clear and emerging narrative as a life sciences corridor - and hosts significant economic assets, ranging from R&D centres and universities, to international airports and film and TV studios.

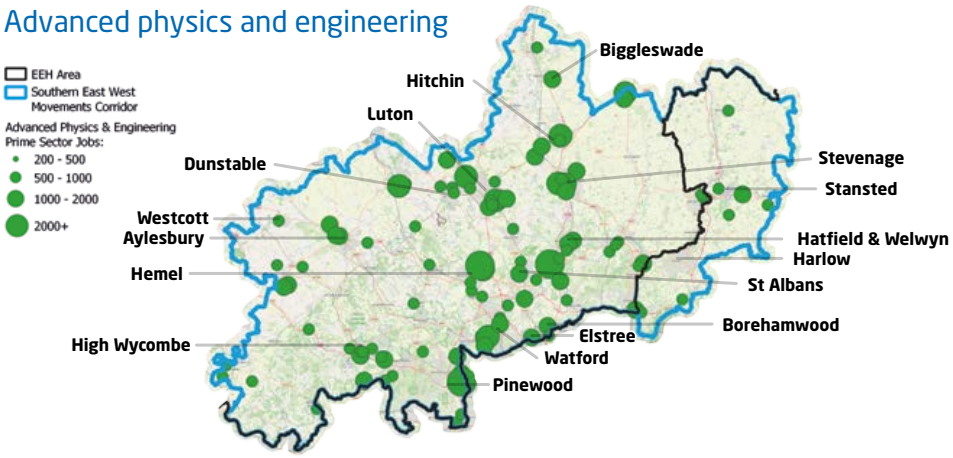
Yet despite its many successes, there still remains a clear and compelling narrative for improving transport infrastructure across its length, particularly to address and overcome some of its emerging challenges and barriers to growth. For instance:

- The corridor's biggest challenge is that many of its most successful and productive areas – especially those bordering London to the south - have severe affordability pressures through a shortage of housing and employment space provision. In contrast, areas to the north and east have an abundance of affordable housing and floorspace, but economic performance is constrained by a range of social and environmental constraints, including poor skills attainment, worklessness, deprivation and high car-dependency
- Improvement and expansion of the regional transport network, especially close to and between its fast-growing employment centres, is crucial in alleviating the pressure in the high-demand areas along the corridor, while also (through agglomeration benefits) helping boost productivity and enhancing knowledge exchange and strategic connections both within the corridor, and neighbouring areas – which at either end includes the global knowledge centres of Oxford and Cambridge respectively, and London to the south
- Transport infrastructure improvements would also help areas to the north of the corridor, around Luton and Aylesbury, to improve their offer to potential new residents and businesses, overcome social and environmental constraints, and unlock new spaces for commercial and planned housing development

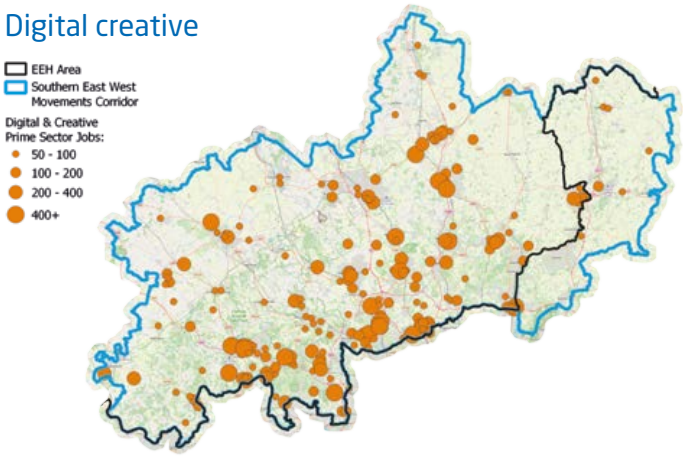
PRIME SECTORS

See page 5 for prime sector definitions

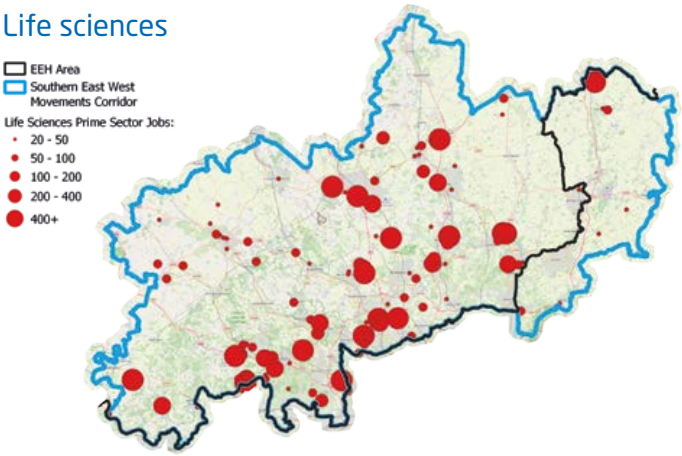
Advanced physics and engineering



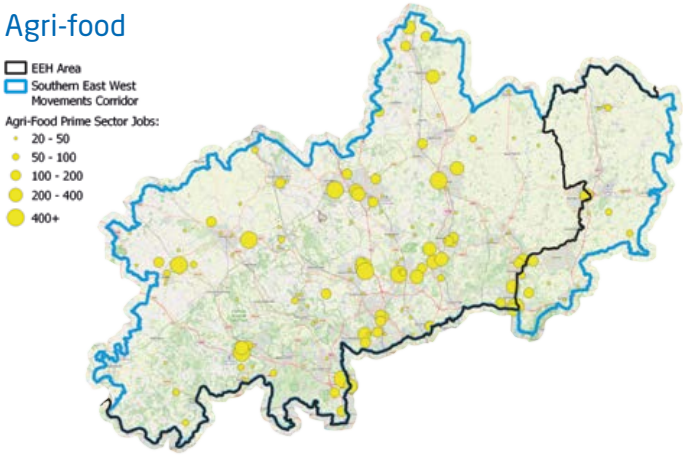
Digital creative



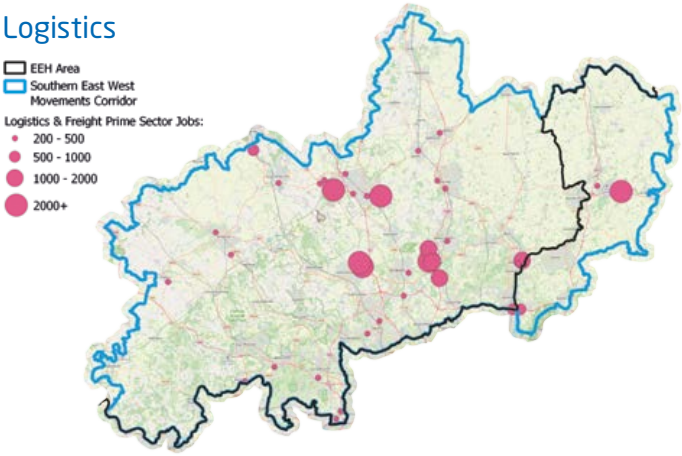
Life sciences



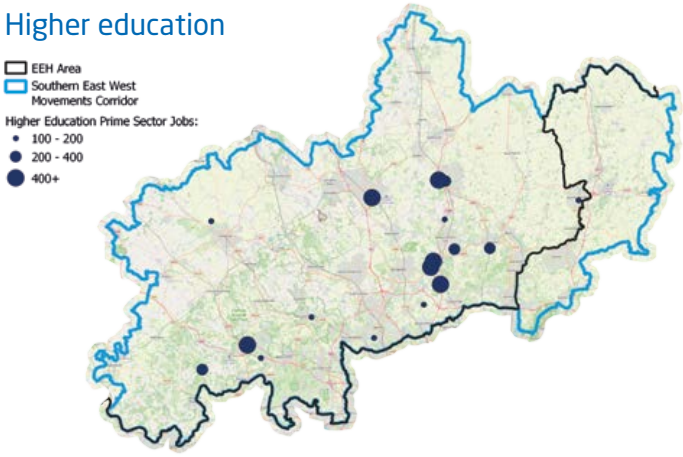
Agri-food



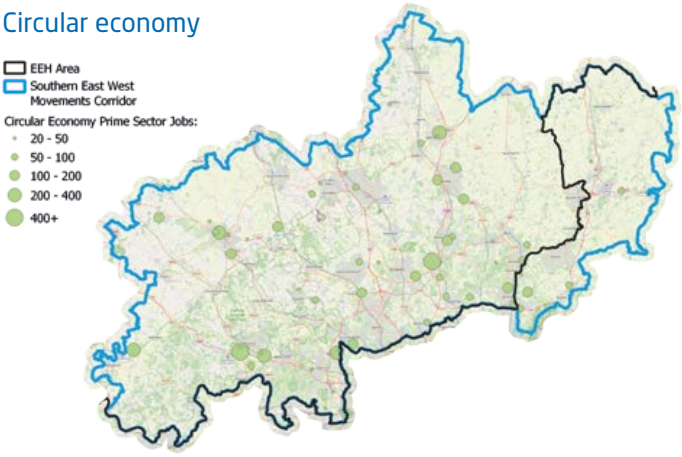
Logistics



Higher education



Circular economy

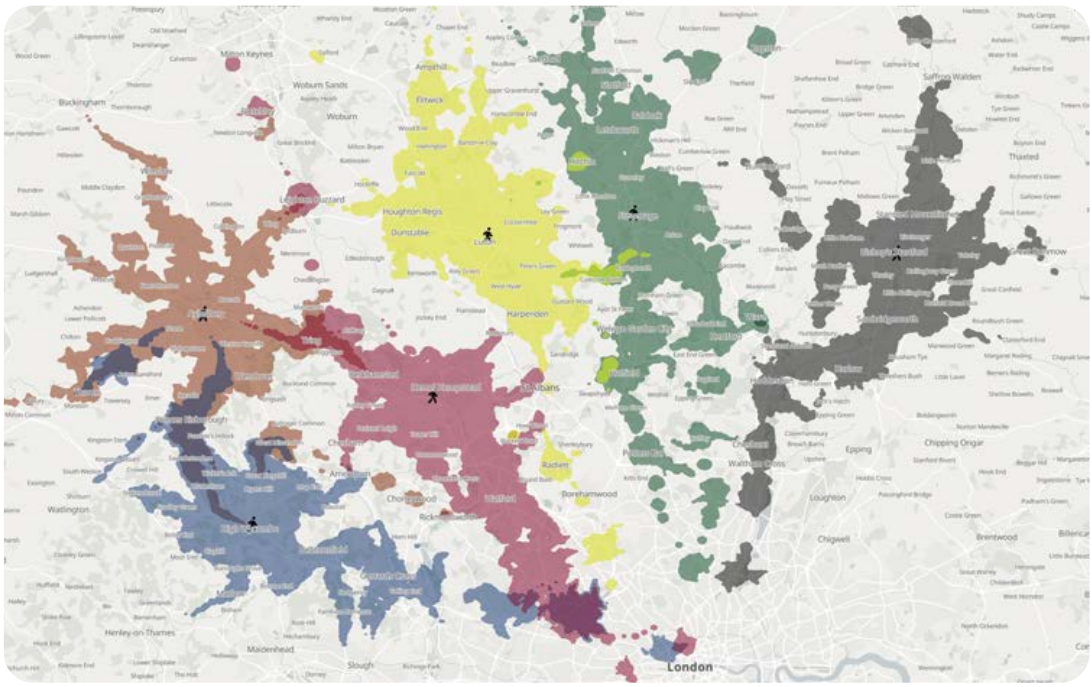


// CONNECTIVITY TODAY

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 Aylesbury (brown); High Wycombe (blue); Hemel Hempstead (maroon); Luton (yellow); Stevenage (green); and Bishop's Stortford (grey). For methodology and assumptions see p31. The map visually demonstrates the challenges of connectivity by public transport moving west to east across the corridor, particularly when compared to the ease of making north-south movements.

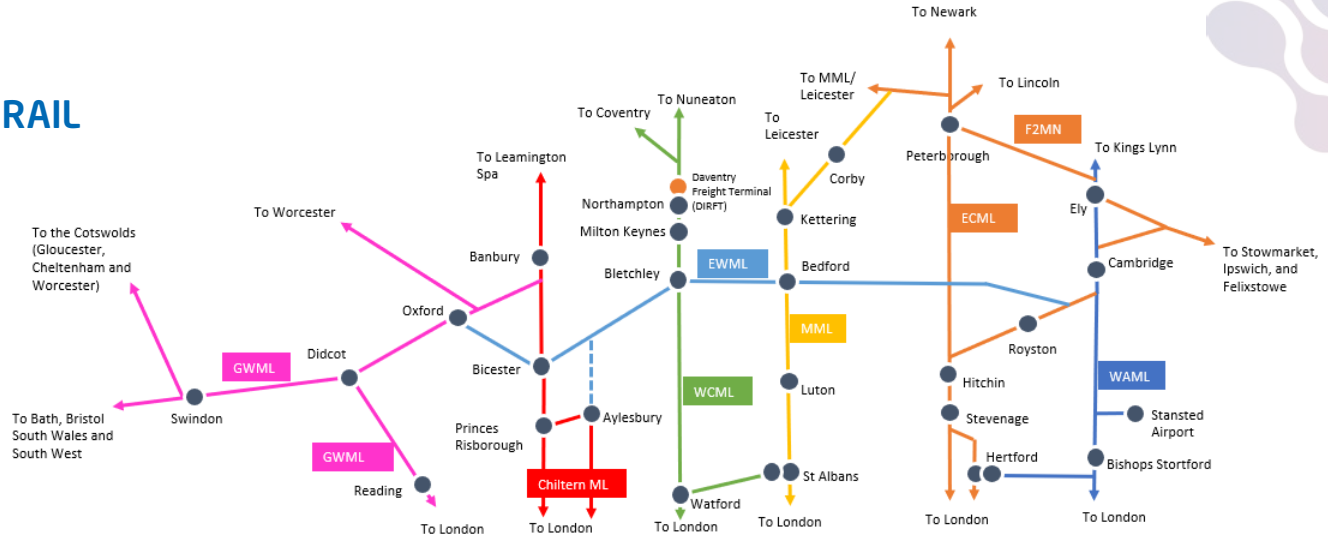


BUS

There is a relatively dense bus network covering the corridor. All key settlements in the study area are served by high frequency bus services in the morning peak (routes with 11+ buses per hour 2-way). However, there is a clear rural/ urban divide in respect to the frequency of these services. Inter-urban bus connectivity is more limited. While there are three high frequency bus corridors with more than six buses per hour two-way (High Wycombe-Princes Risborough-Aylesbury;Luton-Harpenden-St. Albans-Watford; Letchworth-Stevenage-Hitchin), these all run in a north-south direction. The number of east-west bus services is more limited, with less than five buses per hour two-way operating along the corridors between Luton and Stevenage and High Wycombe and St Albans.

The bus interchange outside St Albans station

RAIL



The diagram above shows the main lines within the EEH region (including the proposed East West Rail line between Oxford and Cambridge). The corridor's key settlements are spread between five, separate radial main lines (Chiltern, West Coast, Midland, East Coast and Anglia), with poor connectivity between each. In its 2020 study for EEH, Network Rail calculated generalised journey times (which takes into account frequency of service and interchange to produce a more realistic figure) between key settlements in the region. Aylesbury had a GJT of 209 minutes to Hemel Hempstead and 212 minutes to Luton, despite both only being around 20 miles away. St Albans had a GJT of 160 minutes to Hertford, separated by just 13 miles. Travelling across the region, from High Wycombe in the west to Bishop's Stortford in the east had a GJT of 192 minutes.

Station usage

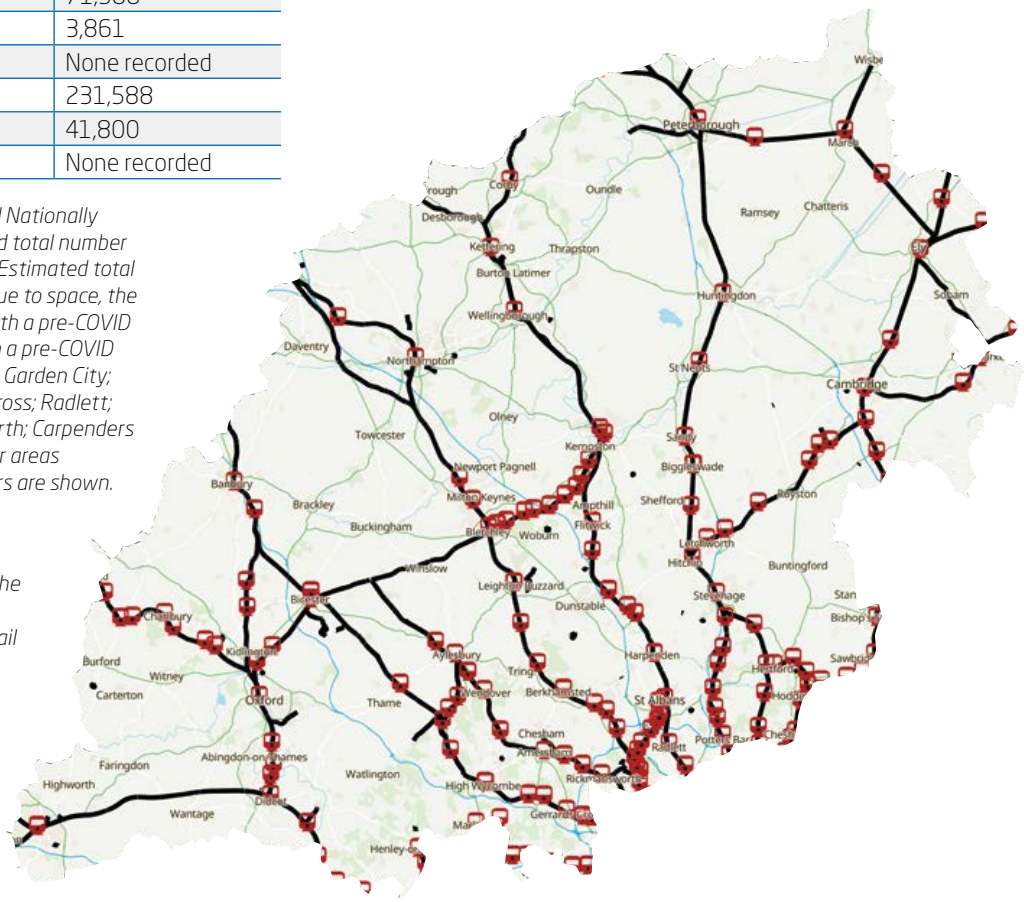
Station	2022-23	Interchanges 2022-23
St Albans City	5,572,152	121,850
Watford Junction	5,536,096	281,507
Stevenage	4,050,328	1,957,268
Luton Airport Parkway	3,767,790	5,783
Luton	3,282,132	51,288
Hitchin	2,512,254	77,171
Elstree and Borehamwood	2,481,658	None recorded
Bishops Stortford	2,363,480	71,988
Harpenden	2,345,866	3,861
Hatfield	2,188,460	None recorded
Cheshunt	2,125,726	231,588
Welwyn Garden City	2,080,782	41,800
Potters Bar	2,072,754	None recorded

Station	2022-23	Interchanges 2022-23
High Wycombe	1,917,270	91,589
Amersham	1,563,462	None recorded
Leagrave	1,380,408	None recorded
Hemel Hempstead	1,306,686	9,093
Leighton Buzzard	1,142,588	None recorded
Beaconsfield	964,906	None recorded
Gerrards Cross	901,146	34,829
Aylesbury	873,932	3,679
Biggleswade	753,050	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. Note: Due to space, the table only shows stations in Hertfordshire with a pre-COVID footfall of more than 2m. Other stations with a pre-COVID footfall of more than 1m include: Letchworth Garden City; Broxbourne; Watford High Street; Waltham Cross; Radlett; Royston; Berkhamsted; Bushey; Rickmansworth; Carpenders Park; Hertford East; Hertford North; Ware. For areas outside, stations with over 1m pre-Covid users are shown.

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 p31 for methodology and assumptions, including full list of expected speeds based on road type). Urban centres with the largest amounts of congestion include Aylesbury, High Wycombe, Luton, Watford, Stevenage and St Albans. Several smaller settlements such as Radlett, Chesham, Hertford, Harpenden, Berkhamstead, Hitchin and Bishops Stortford also suffer from significant congestion. Several key highway junctions outside of the main settlements also have high congestion including the A505 Between Luton and Dunstable; M40 Junction 1 near Denham; M25 junction 23 near South Mimms; M25 Junction 18 near Chorleywood; M1 Junction 5 near Watford

Legend:

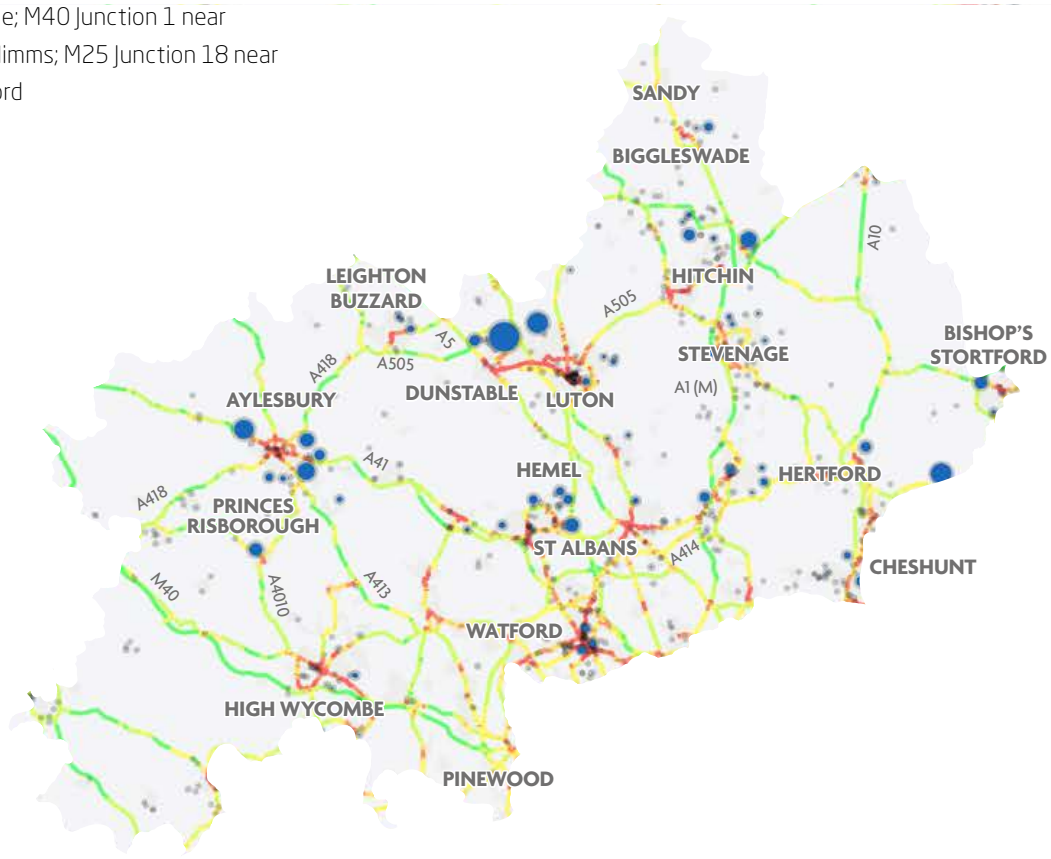
Congestion score morning peak hour

- 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

- 5,000 homes
- 4,000 homes
- 3,000 homes
- 2,000 homes

HOUSING

The map is overlaid with housing sites allocated in current local plans. There are major development sites allocated throughout the corridor, with some of the biggest growth happening in Aylesbury; Luton and Dunstable; Hemel Hempstead; Welwyn-Hatfield; Arlesey and Baldock; and Gilston, north of Harlow.



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:

- A1/ A602 in Stevenage
- M25/A41 in Kings Langley

Due to its high number of signalised junctions (171) and presence of an air quality management area (AQMA), the study also identified Watford as an urban centre which could immediately benefit from smart junction technologies. The study added that several urban or built-up areas in the region, such as Aylesbury, have strategic inner ring roads which support strategic transport demand. Smart junction technology can therefore look to distinguish and prioritise between local and strategic or through movement demand or between local modes such as public bus, walking and cycling and all other traffic.

DIGITAL CONNECTIVITY

A Settlements include: Aylesbury, Princes Risborough, Thame and Tring

- 62% of homes are covered by ultrafast broadband, below the national average (69%)
- Only 31% of firms are covered by ultrafast broadband, below the national average (43%). Download speeds are however 10% faster

B Settlements include: High Wycombe, Amersham and Henley

- 61% of homes covered by ultrafast broadband, below the national average (69%)
- 44% of firms are covered by ultrafast broadband, in line with the national average (43%), though download

C Settlements include: Luton, Dunstable and Leighton Buzzard

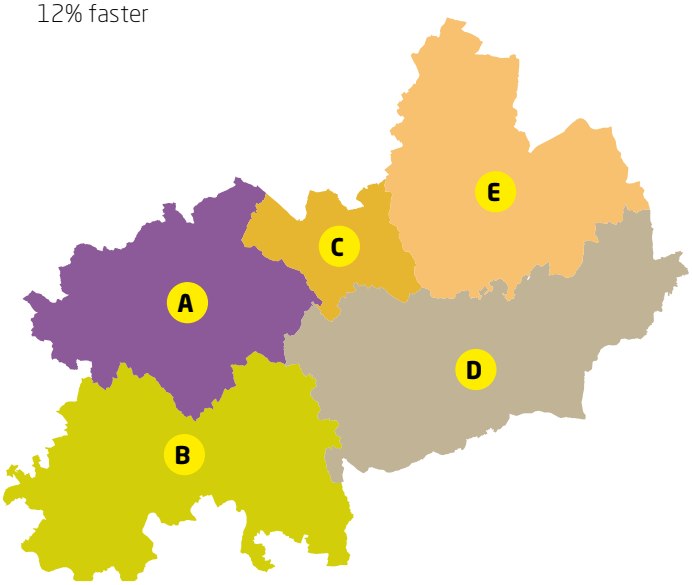
- 83% of homes are covered by ultrafast broadband, above national average (69%)
- 58% of firms are covered by ultrafast broadband, above national average (43%), whilst average download speeds are 28% faster

D Settlements include: Watford, St Albans, Hemel Hempstead, Rickmansworth, Harpenden, Borehamwood, Bishops Stortford, Hatfield, Welwyn and Hertford

- 81% of homes are covered by ultrafast broadband (national average 69%)
- 51% of firms are covered by ultrafast broadband, above the national average (43%), with average download speeds also 13% faster

E Settlements include: Stevenage, Letchworth, Hitchin, Biggleswade and Royston

- 77% of homes are covered by ultrafast broadband, above the national average (69%)
- 36% of firms are covered by ultrafast broadband, below the national average (43%), though average download speeds are 12% 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, which are around transport and advanced manufacturing, are designed to be replicable within the region and across the UK.

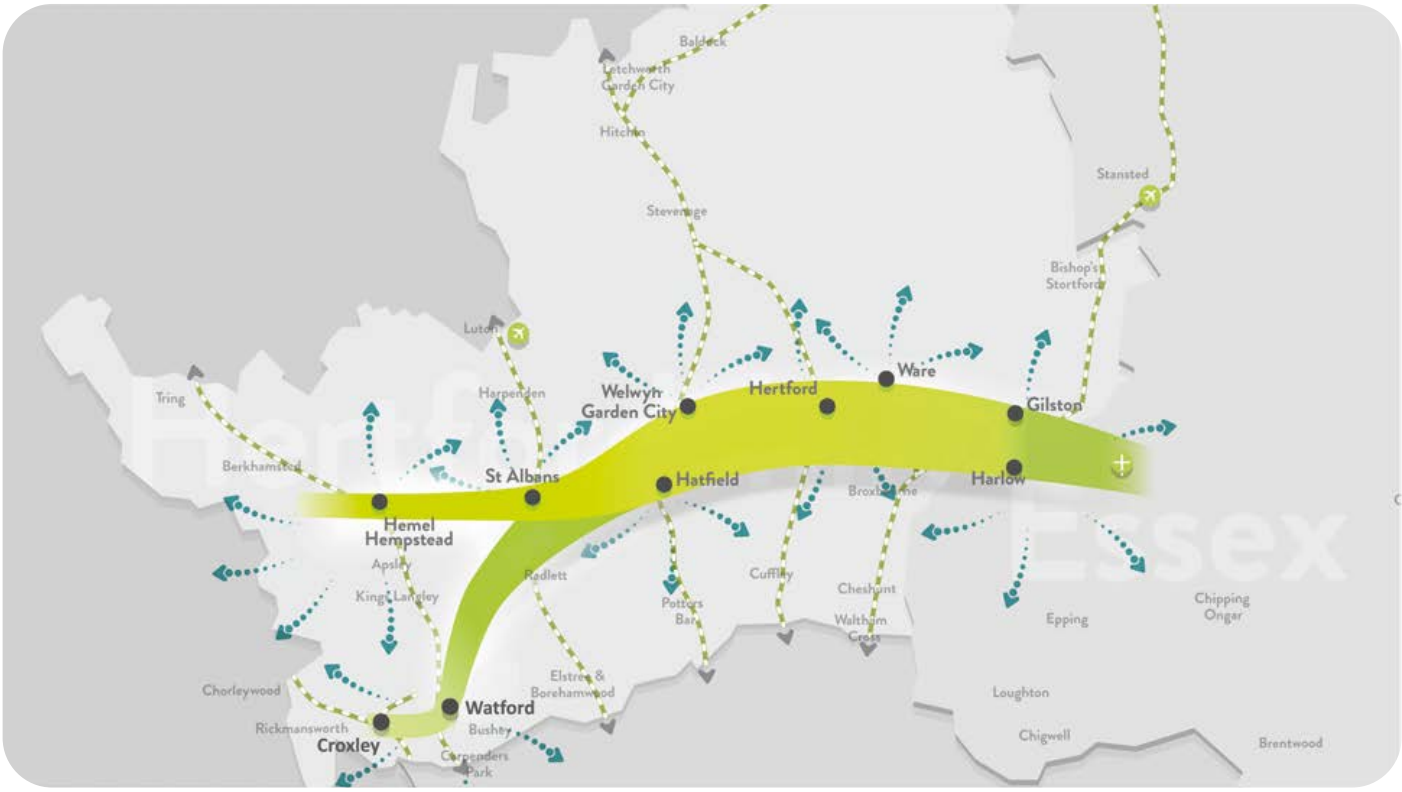
// PRIORITY INTERVENTIONS

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.

HERTFORDSHIRE-ESSEX RAPID TRANSIT (HERT)

The HERT Mass Rapid Transit (MRT) system will deliver a step change in east west connectivity through Hertfordshire and into Essex.

As such, it is a key intervention identified in EEH's 'southern east-west movements' connectivity study (2024): a modern, flexible and realistic solution which helps to address the major gap in connectivity highlighted by Network Rail in EEH's Passenger Rail Study (2021). Primarily focused on the A414 corridor, the HERT will connect with north south rail lines to create new sustainable journey options across the whole of Hertfordshire and beyond.



MRT is core to Hertfordshire County Council's A414 corridor strategy aimed at delivering greener and more efficient travel through a package of measures designed to improve travel between the east and west of the county, boosting economic growth and reducing car dependency. The roads in the corridor currently experience significant traffic congestion and poor journey time reliability. With more than 100,000 new homes and associated jobs planned over the next 15 years, pressures on the network will only increase.

The HERT will run as a trackless tram (a rubber-tyred, high capacity vehicle deployed in a similar way to light rail) on-highway from Watford and Hemel Hempstead in the west to Harlow in Essex in the east.

It can be considered in three sections:

- Hemel Hempstead-Gilston (Harlow): is the main east-west section that will serve the main settlements between Hemel Hempstead and the new Gilston Garden Town. It will also improve connectivity to London Luton Airport via interchange in St Albans City Station
- St Albans-Watford: this north-south section will operate between St Albans and west Watford (Croxley). Part of this corridor is currently served by the Abbey Line railway and the section from Watford to Croxley would use the redundant Croxley branch line
- Gilston-Harlow (for onward connections to Stansted Airport): this section will provide links from Gilston Garden Town and into Harlow, providing improved onward connectivity to Stansted Airport via interchange at Harlow Station

The aim is to take a building-block approach over the period 2025 to 2035 to stimulate the passenger transport market by incrementally introducing bus priority and mobility hubs for current and new bus services, including improved connectivity for active travel as funding becomes available and in line with planned development. As such, the HERT is fully reflected within Hertfordshire's Bus Service Improvement Plan (BSIP).

Passive provision will be made for trackless trams within the schemes until market demand and the infrastructure reaches a critical mass in 2035 to 2040. It is then expected to be commercially viable to introduce a fully-fledged transit system utilising high quality MRT trackless trams of appropriate technology and capacity along the strategic spine, integrated with a buoyant local bus network. The aim is that each of the blocks building towards the ultimate HERT system will deliver benefits to current passenger transport in their own right.

The vision is that, for the most part, buses and trackless trams will complement each other under a common branding, providing quality passenger experiences, sharing the same infrastructure and benefitting from 'intelligent transportation systems' (ITS) technology that provides appropriate, selective on-highway priority when it is needed.

Next steps: A more detailed 'prospectus' for the HERT will be published by Hertfordshire County Council in spring 2025, setting out the preferred routing and delivery strategy.

An early focus will be on delivering elements of:

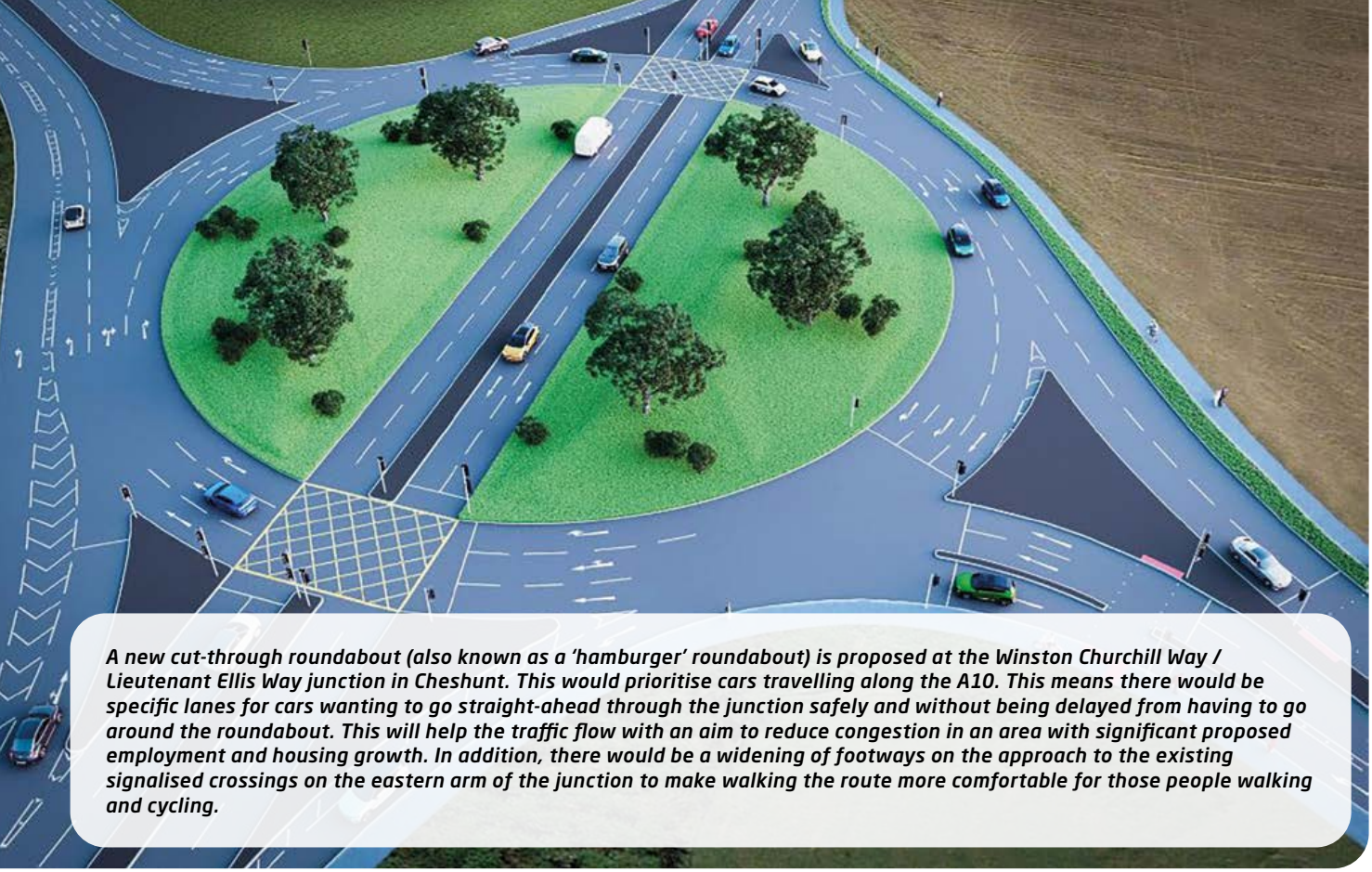
- The Croxley to Watford section where Hertfordshire County Council has been working with Watford Borough Council, Three Rivers District Council, Network Rail and Transport for London to investigate options for an alternative to the Metropolitan Line Extension; and
- Sections associated with the Gilston Garden Town development, which is currently being brought forward

As indicated by the timescales above, this is a long-term project and will require substantial investment from both local and central government, together with private sector investment. The overall cost of introducing the full HERT system is estimated at between £500m and £750m.

Autonomous Innovation

EEH worked with partners including Hertfordshire County Council and City Science to secure over £275,000 for research projects into the potential use of both segregated and mixed traffic environments to run 'dedicated, driverless' articulated buses, along sections of the HERT network.

The outcomes of this work will provide both a better technological understanding of how connected and autonomous vehicles could operate but also consider any costs savers over traditional mass rapid transit systems. Roads that would benefit from segregated self-driving vehicle operations have been identified using previous research conducted by the project team for the National Infrastructure Commission.



A new cut-through roundabout (also known as a 'hamburger' roundabout) is proposed at the Winston Churchill Way / Lieutenant Ellis Way junction in Cheshunt. This would prioritise cars travelling along the A10. This means there would be specific lanes for cars wanting to go straight-ahead through the junction safely and without being delayed from having to go around the roundabout. This will help the traffic flow with an aim to reduce congestion in an area with significant proposed employment and housing growth. In addition, there would be a widening of footways on the approach to the existing signalised crossings on the eastern arm of the junction to make walking the route more comfortable for those people walking and cycling.

A10 IMPROVEMENTS AT CHESHUNT

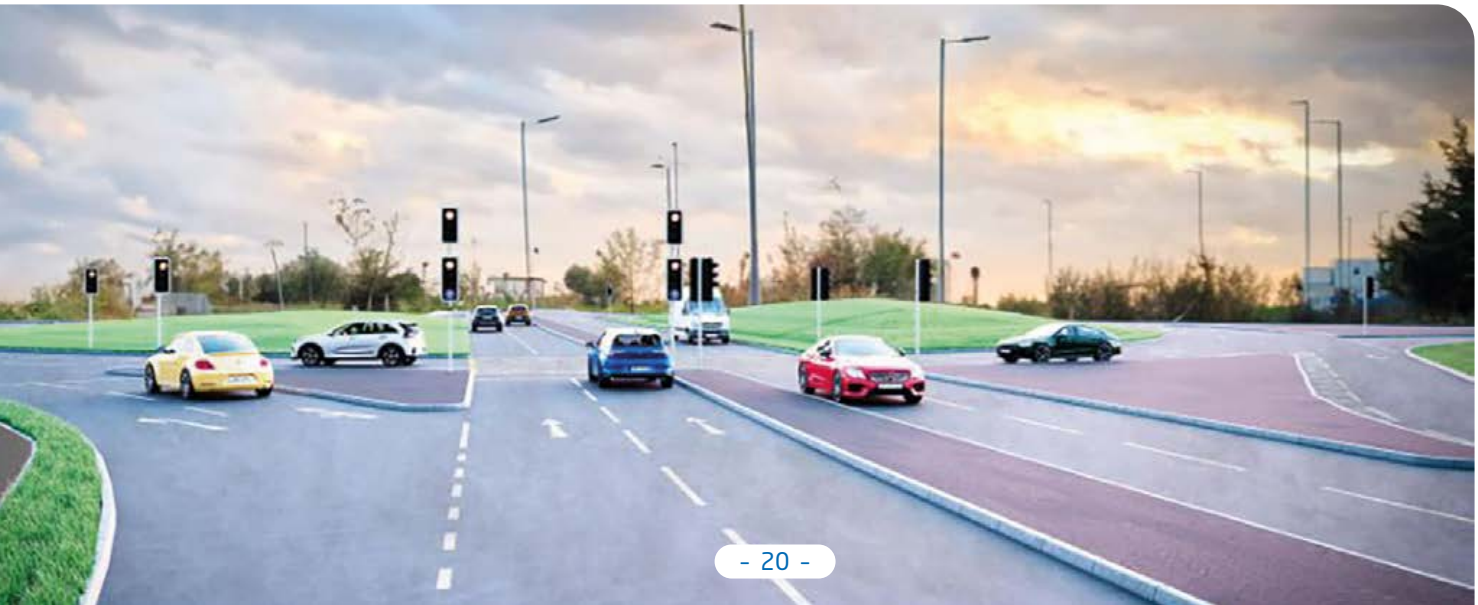
The A10 is a key strategic route within Hertfordshire, connecting the M25 with the north and east of the county and onwards to Cambridge.

However, it is subject to local network delays and congestion at junctions at the southern end of the route in Cheshunt, which mean these more strategic journeys are becoming an increasing challenge.

The road also cuts through the middle of local communities in the Cheshunt area making east west journeys difficult. This is likely to be an increasing problem with significant new housing and employment growth proposed west of the A10.

To address this Hertfordshire County Council is in the process of developing a package of measures to improve transport including at grade junction improvements at key pinch points on the route, including the College Road and Church Lane junctions, reconfiguration of the Lieutenant Ellis Way junction into a hamburger style layout and a supporting package of active travel interventions, such as enhancements to cycle and pedestrian routes to reduce severance and provide more choice for local journeys.

Next Steps: The A10 junction improvement package has been accepted into the DfT Major Road Network programme. The first stage of the business case process, the strategic outline business case, was submitted to the Department for Transport in early autumn 2023. Public engagement on the scheme was undertaken in early 2024 and feedback is being used to refine the designs and develop the next stage of the business case.



EXPANSION OF LUTON-DUNSTABLE BUSWAY AND WIDER BUS CONNECTIVITY IMPROVEMENTS, INCLUDING TO LONDON LUTON AIRPORT

The Luton-Dunstable busway opened in 2013 and is considered a trailblazer for other guided busway schemes.

The route of 8.3 miles (including 4.8 guided track) connects Houghton Regis, Dunstable, Toddington, Luton and London Luton Airport, with core services between Dunstable and Luton up to every seven minutes at peak times. The busway ferried more than 21 million passengers in its first 7 years, and also provides a popular active travel corridor along its length for pedestrians and cyclists.

Given this success, there is a desire to expand the opportunity of Luton-Dunstable Busway services wider both to the west toward Leighton Buzzard, and eastwards as far as Stevenage (via Hitchin), with the option for services to extend further to major locations such as Stansted Airport. However, there are several highway capacity challenges and route choices would need to be investigated further.

Nevertheless, wider bus connectivity to places such as main line rail services at Leighton Buzzard, Luton, and Stevenage, using rubber wheeled vehicle options, is supported by wider regional transport studies and responsible local transport authorities within the area.

Any improvements would be developed with due consideration of other bus services in the region such as those serving Aylesbury and rural areas of Buckinghamshire to provide significantly improved bus connectivity into Dunstable, Luton and onward to the London Luton Airport.

For example, the current Service 61 from Aylesbury to Dunstable (via Tring) exists, but only goes on to Luton once a day – this option could be enhanced by improvements to bus service frequency.

High-flying Luton

As Cambridge Econometric's analysis has demonstrated, Luton has a dynamic and growing economy, and a key role to play in the region's success. There are several regeneration projects planned and underway, with more than £5bn of investment including a new stadium for Luton Town Football Club, who were promoted to the Premier League in 2023 and major redevelopment of the town centre. Luton's airport is the busiest within the EEH region and fifth busiest in the country and its 'direct air rail transit' (DART) scheme has transformed connectivity between the terminal and Luton Airport Parkway Station on the Midland Main Line. Proposals to increase the capacity of London Luton Airport to 32 million passengers per annum (mppa), by making the best use of its existing runway, are at an advanced stage.

LUTON RAILWAY STATION IMPROVEMENTS

Used by more than three million passengers every year, Luton Railway Station is a key gateway to the town, making it vital the station provides a positive first impression and a welcoming and comfortable environment for rail users.

In the short term, a programme of access and accessibility improvements is being delivered at the station, under the governments 'Access for All' funding. This includes replacing the station canopies on platforms and the installation of a new bridge and three lifts to improve the station's accessibility. Construction is due to start in 2025.

However, given the quality of the existing infrastructure, a full redevelopment of the station is required. Doing so would maximise the value of nearby projects, including the major town centre regeneration focused on Bute Street, and Power Court – the new stadium for Luton Town Football Club, who have enjoyed unprecedented success in recent years.

Next steps: Luton Council, working with key stakeholders and politicians, will continue to make the case for much needed investment at Luton Station. The council will explore all opportunities to seek the investment needed to create a high-quality, welcoming , 21st century station that maximises the potential of development in the town and broader regeneration plans.

A505 VAUXHALL WAY CORRIDOR IMPROVEMENTS

The Vauxhall Way corridor is one of Luton's most important arterial roads and an essential part of Luton's strategic highway network and the Government's major road network.

With major developments proposed in the east of Luton area, coupled with future growth, the road will face overcapacity in the future, resulting in increased traffic, longer queue lengths and slower journey times to London Luton Airport. To address this, Luton Borough Council, with partners, is exploring the optimal highway solution to meet future demand sustainably, increasing opportunities for active travel and public transport.

The council, working with consultants and the Department for Transport, is developing designs that will future-proof the link against future demand. These schemes include options for widening the road and enhancing capacity along the junctions that serve it. The scheme will deliver a connectivity solution that considers the needs of all transport users. Realisation of highway improvements along Vauxhall Way will transform local and regional connectivity.

Next steps: Luton Council awaits a positive decision from the DfT to grant programme entry (approval to outline business case stage). Following this agreement, the council will work with consultants and partners over the next year to refine the options include in the business case and agree the preferred scheme.

BUTTERFIELD BUSINESS PARK MOBILITY HUB

The 83-acre Butterfield Business Park, on the A505 on the edge of north-east Luton, was established in 2015 and has played a key role in supporting economic growth in the town and beyond.

More than 325,000 square feet of commercial space has been delivered, with plans for a further 454,000. A new interchange facility is proposed at the Butterfield Business Park site. This will intercept private vehicle trips destined for locations in Luton town centre along key routes. The A505 is a key corridor into Luton town centre, serving the towns of Hitchin, Letchworth, Stevenage and Cambridge as well as many smaller settlements in Hertfordshire and Central Bedfordshire. It is expected that the park and ride site will include electric vehcile charging and ancillary, microbility modes of transport, that located together will form a mobility hub.

Next steps: Planning Consent for the park and ride site was given in March 2024 with site clearance due to take place by the end of November 2024 and then site hand over in 2025. Construction of the parking surface is likely to take up to six months with other ancillary works to enable the site operation due to be completed in 2025. Funding for the project is coming from Bus Service Improvement Plan funding that awarded Luton £19.1m in 2022. A demand responsive transit (DRT) backed bus service will transport users to the town centre and station via the Luton-Dunstable Busway.

CHILTERN MAIN LINE IMPROVEMENTS INCLUDING TRAIN LENGTHENING AND ROLLING STOCK

Chiltern Railways uses the oldest trains in the country, with an average age of around 30 years, operating purely using diesel traction.

This can lead to reliability problems, as well as giving a poorer customer experience, alongside crowding on many services. Reliance on diesel traction is also not sustainable, given the need to improve air quality standards and decarbonise our transport network.

There is a need to secure new rolling stock for the Chiltern routes in the short-term which will increase capacity and reliability with newer longer trains, alongside improving customer experience onboard. In the longer-term, there is a need to deliver rolling stock that operates on electric power, alongside the infrastructure needed to deliver this. This is likely to be through use of emerging technologies, such as battery power, alongside overhead equipment and charging infrastructure.

Next steps: Develop the business case for upgrading rolling stock and railway infrastructure for electric power. EEH will continue to support Chiltern Railways and other rail industry partners in developing these plans.

A SOLUTION FOR THE A5 HOCKLIFFE

Hockliffe was highlighted as a priority in the OxCam Roads Connectivity Study as strategic traffic including HGVs passes through the village creating environmental and quality of life challenges.

The locally led A5 Hockliffe Junction Improvement Study suggests that in the short term A5-A4012-B5704 junction improvements and signalised crossings, possibly combined with B5704 traffic restriction, would help to alleviate traffic impacts in Hockliffe. However, in the long term a relief road from the A5 to B5704 would be more effective. It would reduce the impact of traffic and substantially enhance non-car access within the village with the existing route being detrunked (including a ban on HGV movements). Strategic traffic relief measures would also help to enable local planned development by ensuring appropriate network capacity is available for public transport services and movement of private vehicles.

Next steps: EEH is keen that National Highways progresses delivery of initiatives to address the priorities identified within the OxCam Roads Connectivity Study. This includes delivery of a long-term solution for Hockliffe which improves quality of life for local communities, while unlocking opportunities for planned, sustainable development.

PRINCES RISBOROUGH RELIEF ROAD

The long term vision of the Princes Risborough relief road is the creation of an alternative alignment to the existing A4010 around the town, facilitating smoother journeys between High Wycombe and Aylesbury.

It would support the delivery of around 2,500 new homes allocated within the current Wycombe local plan and remove the negative impact of through traffic on the existing A4010 alignment through the town centre.

The scheme design includes new active travel infrastructure to support greater walking and cycling accessibility for the town, especially to Princes Risborough and Monks Risborough stations.

Next steps: The road is being planned and delivered in phases. The first phase is well advanced, with planning permission granted. Later stages are the route to the north that will be delivered through planned development, and the route to the south called the Culverton Link Road.

ORBITAL-ROAD AND GARDENWAY IMPROVEMENTS IN AYLESBURY

Aylesbury has one of the poorest performing parts of the strategically important road network in the region.

Three major road network routes (A41, A413 and A418) meet and run through Aylesbury town centre, making congestion a significant issue. Indeed, analysis by INRIX lists Aylesbury as being within the top 250 most congested places in the world, a remarkable ranking given the market town is being compared to some of the biggest cities and metropolitan areas on Earth. Driving in Aylesbury during peak times costs motorists an additional 40 hours every year, compared to if they were travelling at other times of the day. The poor levels of service on Aylesbury's road network were also highlighted by National Highway's Oxford to Cambridge roads study - which identified it as one of the most important issues to be taken forwards in the region.

By its nature, the major road network in the centre of Aylesbury tends to be used by significant amounts of through-traffic. For example, Aylesbury is on the primary route for journeys between High Wycombe and Milton Keynes; and between north London and Oxford and Bicester. Completion of 16,000 additional homes set out by the Vale of Aylesbury Local Plan will only increase pressures on the network.

A key part of the Aylesbury Garden Town project therefore is the creation of a series of link roads, forming an orbital road around the town as set out in Buckinghamshire Council's Aylesbury Transport Strategy, and orbital Gardenway walking and wheeling route as set out in the Aylesbury Local Cycling and Walking Infrastructure Plan (LCWIP).

The orbital road would see a new alignment of the major road network around Aylesbury, taking cross-town and through traffic away from the town centre to a more appropriate peripheral route. The link roads are predominantly being delivered through local plan housing allocations, some of which are already in place.

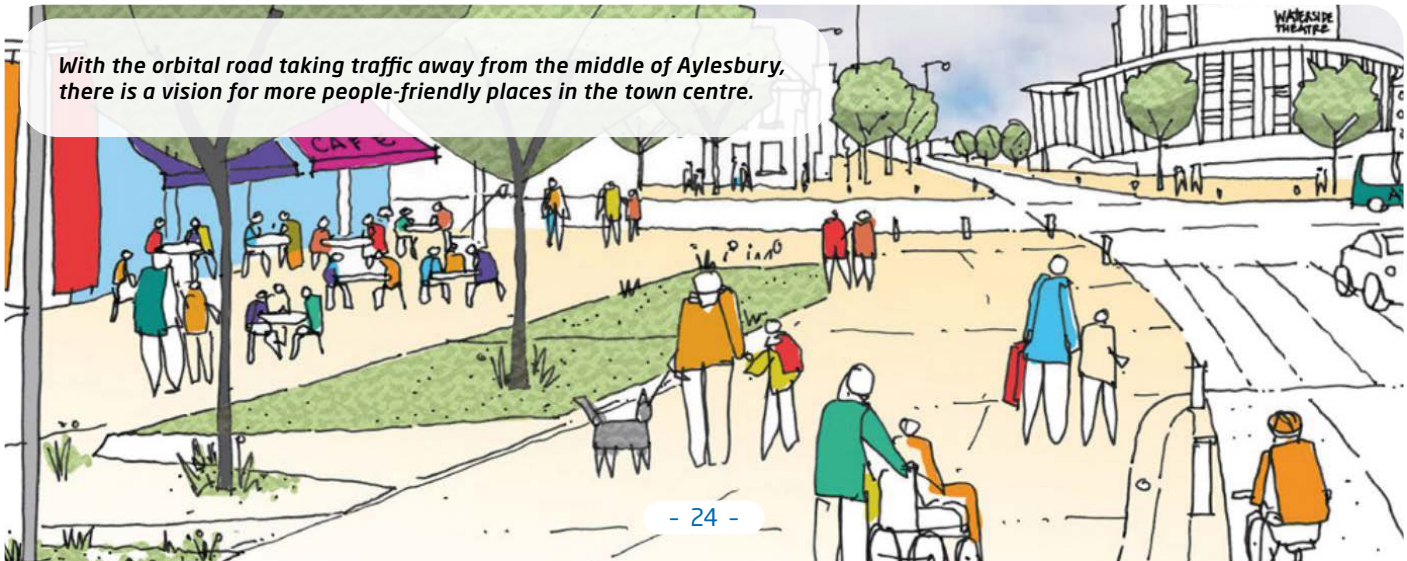
The orbital road will enable committed local plan growth, minimising the impact of growth on the town. It will support greater travel choice by providing for cycling, walking and public transport priority improvements to take place on the main radial roads closer to the town centre, while enabling town centre regeneration.

A key role of the link roads and gardenway is to connect new developments and create new links to existing built-up areas. The gardenway will include local parks, woodlands, playgrounds, community gardens, natural areas, waterways and heritage sites.

The new link road will also be designed to facilitate the gardenway by allowing for access and crossing (where necessary) for pedestrians, wheelchair users, bike riders and passenger transport users. Furthermore, the gardenway will provide key connections to the Buckinghamshire Greenway, which will form a key link in the National Cycle Network in years to come.

Next steps: Further design work on the remaining sections of the orbital road is now required. EEH will continue to support Buckinghamshire to promote and progress the schemes.

In addition, EEH's connectivity studies also identified the need to reduce the impact of traffic on the quality of life of communities on the major road network into and out of Aylesbury, including Wing (A418) and Waddesdon (A41). EEH continues to work with Buckinghamshire Council and other stakeholders to identify appropriate solutions for these areas.



With the orbital road taking traffic away from the middle of Aylesbury, there is a vision for more people-friendly places in the town centre.

Movement vision

- Strategic through traffic
- Reduce through traffic in town centre
- Gardenway
- Greenway links
- Strategic cycle routes*
- Local cycle routes*
- Park + Ride
- Bus station
- Train station
- Proposed HS2 route

** Routes identified in LCWIP study (June 2019) and other emerging schemes under development*

Above, the vision for the Aylesbury gardenway, and below, the wider movement vision which includes for strategic through-traffic.

IMPROVEMENTS ALONG THE A404 CORRIDOR INCLUDING THE A404/M40 JUNCTION 4 HANDY CROSS ROUNDABOUT, WESTHORPE INTERCHANGE AND BISHAM ROUNDABOUT

Along the A404 corridor, the M40 Junction 4 (Handy Cross in High Wycombe), Westhorpe interchange (Marlow) and Bisham roundabout (in Berkshire, just south of Marlow) are well-known areas of congestion.

A comprehensive scheme is needed to ensure economic growth within the areas continues to be supported, alongside providing for a safe and efficient strategic road network.

Improvements to A404/M40 Junction 4 (Handy Cross) and Bisham roundabout were included in the Road Investment Strategy 2 (RIS2 - 2020-25) as RIS3 pipeline schemes (2025-2030). However, improvements to this key corridor may be delayed to 2030 or beyond.

The location of the A404 means that it connects High Wycombe in Buckinghamshire with the wider Thames Valley, providing access to economic centres, jobs and opportunities. This includes sector-specific connectivity such as linking several opportunities in life sciences and digital and creative (centred on nearby Pinewood Studios).

The corridor is also one of Buckinghamshire's most economically productive, and includes established high performing businesses operating out of Cressex Business Park (High Wycombe) and Globe Business Park (Marlow) – and new thriving business areas at Handy Cross Hub and Cressex Island. Businesses on Cressex and Globe Business Parks have created business improvement districts to act as a lobbying voice to address the congestion along this corridor and associated access and egress to their trading areas.

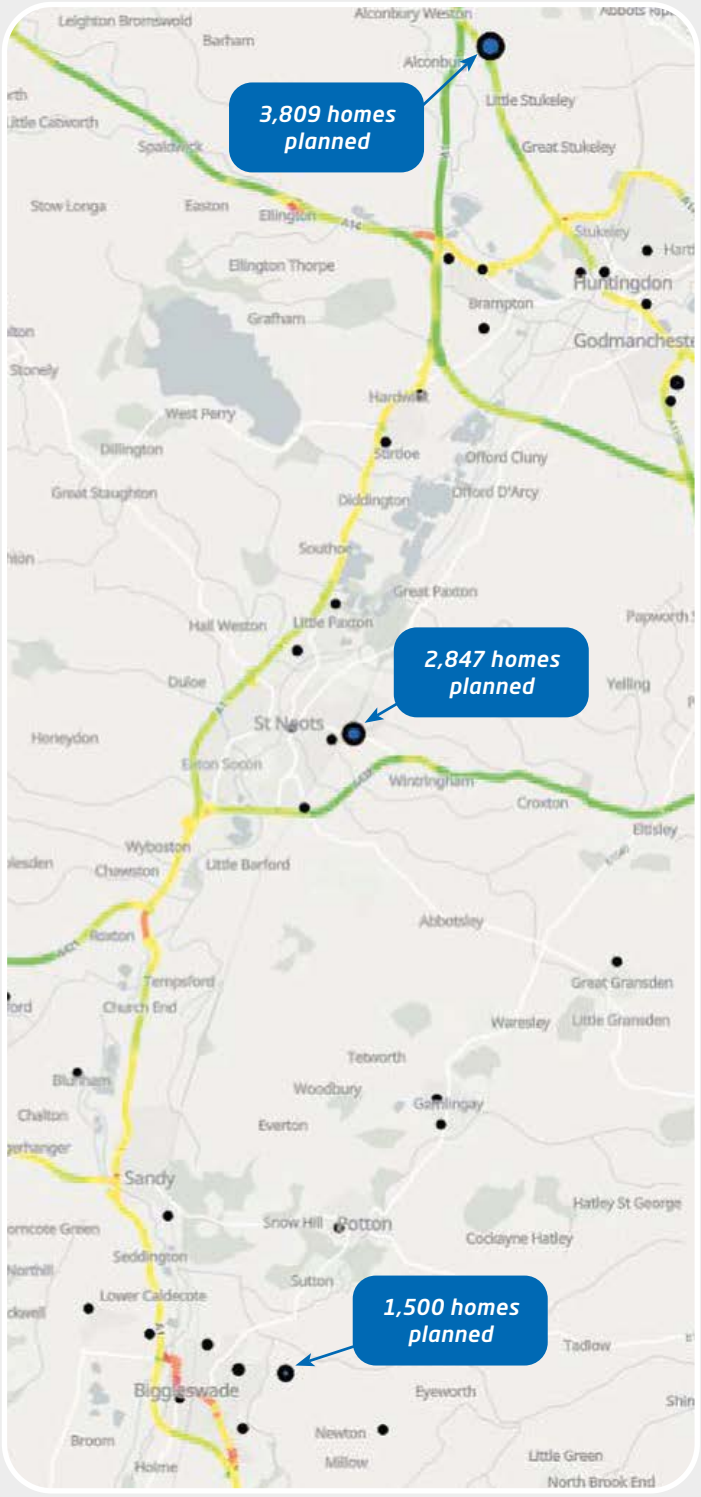
Congestion is the number one issue to address, impacting future inward investment and growth on both business parks and a reason that businesses consider relocating their operation and headquarters. Improvements to the A404/M40 are vital to realise the full potential of these key employment areas.

Investment in the corridor would also provide resilience for the wider road network, both inside and outside the EEH region, including outer orbital journeys outside of the M25. Handy Cross roundabout is a well-known hotspot for congestion, with journey times significantly impacted by queuing at the junction – both on local roads such as the A4010, and on the two main strategic roads.

This queuing also has environmental implications, with the Wycombe Air Quality Management area focused on the M40 near the Handy Cross junction, as well as the A404 approach from the town. This is likely to be compounded by housing growth in High Wycombe itself. Funding for improvements, alongside investment in the wider corridor and decarbonisation of road vehicle transport, are therefore critical.

Next steps: Continue to make the case for improvements to be part of the next national Roads Investment Strategy. Buckinghamshire Council is undertaking a high-level economic business case to support this.

A1 CONNECTIVITY: HUNTINGDON TO BIGGLESWADE



The performance of the A1 between Biggleswade and Huntingdon, with local plan housing sites also shown by the blue circles (size relative to number of homes – the number of homes included within three of the largest sites have been given as examples).

The A1 and A1(M) serves as a nationally significant artery, running through the East of England, linking the north with London and the south-east.

Stretching 350 miles from Stirling Corner junction in London to Berwick in Northumberland, it is one of the longest roads in England and forms part of the strategic highway network that is managed by National Highways. It is an important north-south route that provides an alternative to the M1 corridor and is critical to the country's logistics networks, providing access to freight distribution hubs in the Midlands and the north, and ports in the east (via the A14 and A428), and south (via the M25).

However, the A1 is one of the poorest performing roads in the EEH region, in particular on the A-road standard section between Huntingdon and Stevenage. This section currently includes five roundabouts in the short stretch between Buckden in Cambridgeshire and Biggleswade in Central Bedfordshire that create significant pinch-points in the network. While the Black Cat roundabout is being removed by the creation of a grade separated junction as part of the A428 upgrade, it will still have four roundabouts, each of which suffer from significant congestion, air quality and environmental issues and impact the quality of life of nearby residents in Buckden, Sandy and Biggleswade. These roundabouts are the only remaining roundabouts on the whole 350 mile route.

The poor performance of the A1 not only impacts on the reliability of a vital economic artery, but also contributes to air pollution, safety and severance issues. National Highways' Oxford to Cambridge roads study highlighted that the problems between Sandy and Biggleswade in particular are one of the most pressing issues for the EEH region.

There is planned growth along and in the proximity to this poorly performing stretch of the A1, with significant housing sites in Alconbury Weald, St Neots and Biggleswade (whilst the proposed Universal Studios development would be likely to add further pressure). Therefore a long-term approach to managing transport demand in the area, including tackling challenges on the A1, alongside delivery of other infrastructure such as a new East West Rail station planned at Tempsford (between St Neots and Sandy) is required.

Next steps: Further work is required to identify and deliver the most appropriate solution for addressing the challenges on the A1 from Huntingdon to Biggleswade (National Highways is conducting a study in the area). EEH continues to press the urgency for a solution to the A1.

A1(M) JUNCTIONS 6-8

The A1 from junction 6-8 in Hertfordshire is over capacity at times, especially in peak periods, resulting in strategic traffic using local routes as an alternative. This creates congestion and quality of life challenges in surrounding towns and villages, including negative impacts on bus services, active travel, air quality and carbon emissions. National Highways was planning to convert the A1(M) between junctions 6-8 to a smart motorway to provide capacity, reduce congestion, help alleviate traffic rerouting on the surrounding network and make journey times more reliable. According to National Highways, this would have provided 50% additional traffic capacity, converting the existing two lane dual carriageway into creating a three-lane motorway between junction 3 (Hatfield) and junction 9 (Baldock / Letchworth). However, the national smart motorways programme has been cancelled in recognition of the lack of public confidence felt by drivers and cost pressures. With significant housing and economic growth planned along the A1 corridor, there is now a need to identify an alternative solution.

Next steps: Work with National Highways to highlight concerns and look at potential solutions to A1(M) from junctions 6-8. There is also an opportunity to work with Network Rail to look at opportunities to increase use of the East Coast Main Line, which runs parallel to the A1(M), for strategic and local journeys, as an alternative to the car and freight where appropriate.

Legend:

Congestion score morning peak hour.

See page 31 for methodology and assumptions.

- 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

// PRINCIPLES FOR SUCCESS

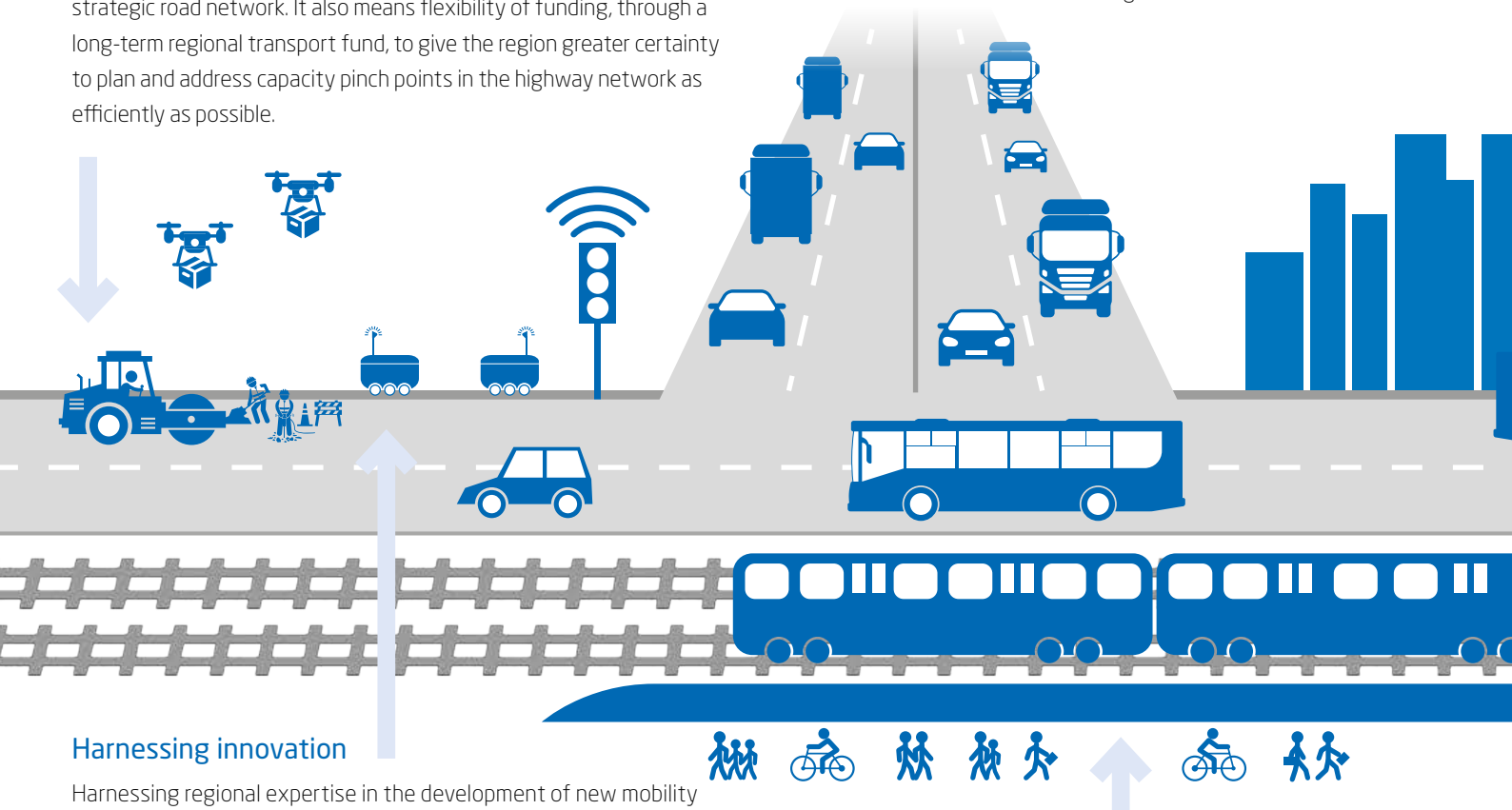
This brochure details the priority infrastructure – some major, others comparatively minor investments – which are required to improve connectivity across its geography. However, it is not just securing funding for new infrastructure that is important, we must be able to make the most of our existing 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.

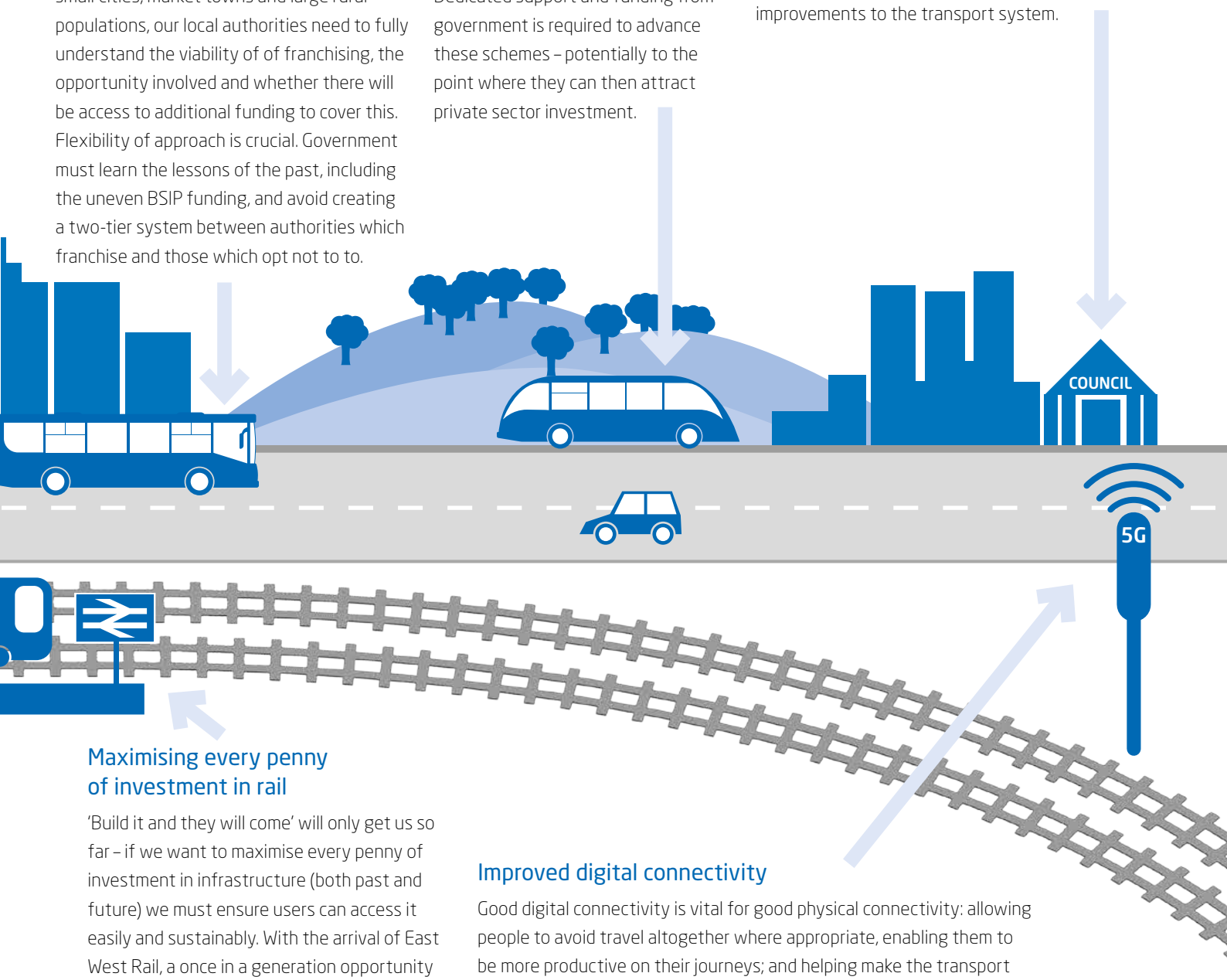
Mind the gap on MRT funding

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.

Get in touch

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