ENGLAND'S ECONOMIC HEARTLAND

Connecting economies:

Milton Keynes

Unlocking economic potential through improved connectivity

// SUMMARY

Milton Keynes is 'better by design'. From its roots as a new town in the 1960s, it has become the largest 'designed' city in Europe, famous for its modern heritage, embrace of technology and innovation (Milton Keynes is a leading 'smart city') and shopping and leisure facilities.

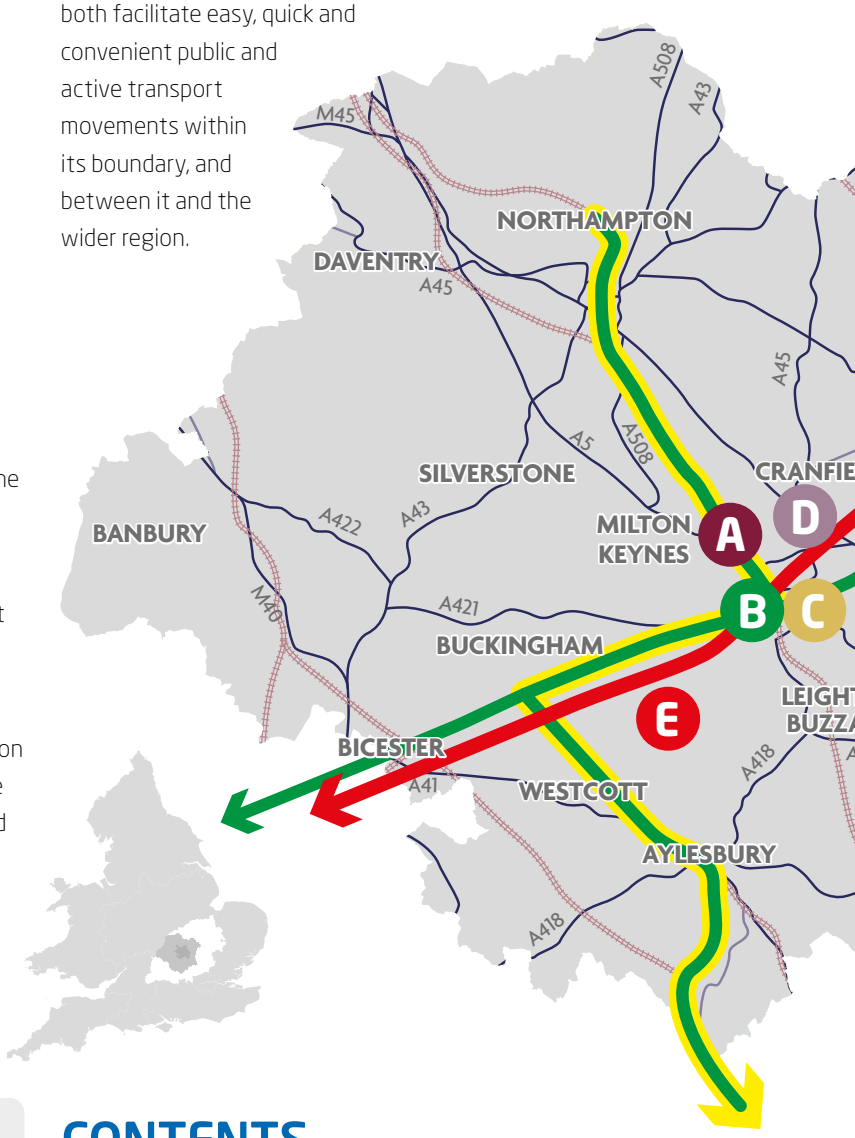
Centrally located with Oxford to the west, Cambridge to the east, London to the south and Birmingham to the north, Milton Keynes today is an economic powerhouse, and a jewel in the crown of the EEH region.

It exhibits the second highest productivity in EEH, hosts 27 established innovation clusters (only Cambridge has more in EEH), and has driven some of the fastest jobs and economic growth in the region over the past 50 years.

New research by Cambridge Econometrics suggests that enabling Milton Keynes to continue to grow its economy, and with it benefit from increasing agglomeration effects, is a key component of the wider regional economic growth opportunity.

However, journeys in and around Milton Keynes are heavily reliant on the car. The vision for the future of the city recognises that future growth requires new, sustainable transport options, to protect and enhance the quality of life and environment which makes Milton Keynes such an attractive place to live, work and do business.

To allow Milton Keynes to make the next step in its evolution, new, sustainable transport solutions are required that both facilitate easy, quick and convenient public and active transport movements within its boundary, and between it and the wider region.



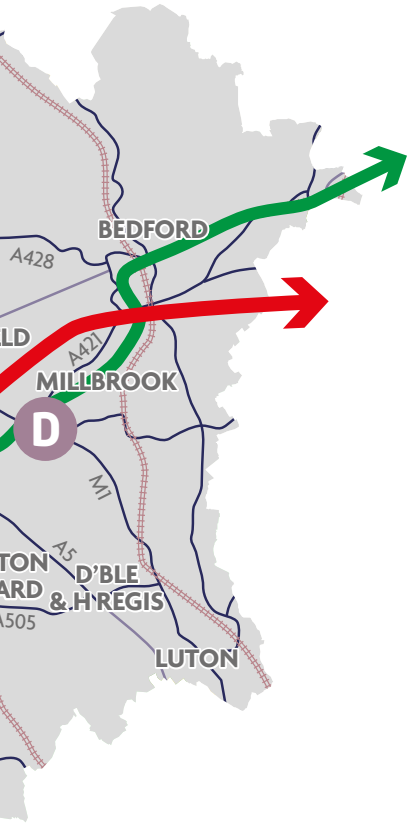
About this brochure

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 is the brochure outlining the economic narrative and priority interventions for the Northampton-Buckinghamshire-Thames Valley corridor.

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 Milton Keynes mass rapid transit. See pages 18-19

B Maximising opportunities from East West Rail including: Bletchley Station entrance; north-eastern chord; Aylesbury link and Northampton-Old Oak Common. See pages 20-21

C A5 Kelly's Kitchen improvements. See page 22

D M1 Junctions 13 and 14. See page 22

E Varsity Way. See page 23

THE MILTON KEYNES AREA AND NEIGHBOURING AREAS

For the Connecting Economies brochures, 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' (MSOA) geographies. The 'Milton Keynes area' (MKA – highlighted in green on the map) also includes, for example, Deanshanger and Cranfield, which are located in West Northamptonshire and Central Bedfordshire authority areas respectively. The 'neighbouring areas' (the grey area of the map above) includes major towns within an approximately 30 mile radius. For completeness, headline economic statistics for the Milton Keynes City Council area only are below.

Milton Keynes City Council area only:
GVA: £14.9bn (2021)
Productivity: 24% above national average
Population: 287,100 (2021)
Jobs: 180,000 (2022)

GVA

MILTON KEYNES AREA: £16.3m (2021) Economic growth (in real terms) between 2011-2019 was 3.4% pa, above the national average (2.2%) and second fastest among 18 EEH areas.

MKA AND NEIGHBOURING AREAS: £51.9bn (2021) Economic growth (in real terms) between 2011-2019 was 2.5% pa, above national average (2.2%).

PRODUCTIVITY

MILTON KEYNES AREA: Productivity rates are 21% higher than the national average (24% higher within the Milton Keynes City Council boundary), and second highest among the 18 EEH areas.

MKA AND NEIGHBOURING AREAS: Productivity rates are 6% below the national average.

POPULATION

MILTON KEYNES AREA: 339,100 (2021) Up 17% between 2011-2021, with nearly 20,000 homes delivered, more than twice national average.

MKA AND NEIGHBOURING AREAS: 1.7m Up 16% between 2011-2021.

JOBS

MILTON KEYNES AREA: 204,800 (2022) Pre-pandemic rates of job creation (3.2% p.a.) were double the national average (1.6%) and higher than any other EEH area.

MKA AND NEIGHBOURING AREAS: 823,400 Jobs growth (2.1% p.a.) exceeded the national average (1.6%) pre-pandemic (2011-19).

INEQUALITIES

Milton Keynes contains several neighbourhoods amongst the top 10% most deprived in the country. Deprivation levels are notably higher along the north-south spine running through the middle of the city. Deprivation caused by barriers to accessing housing and local services is particularly acute (MK City Council is ranked 23rd out of 317 authorities by this metric).

FAST GROWTH CITY

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

// ENGLAND'S ECONOMIC HEARTLAND

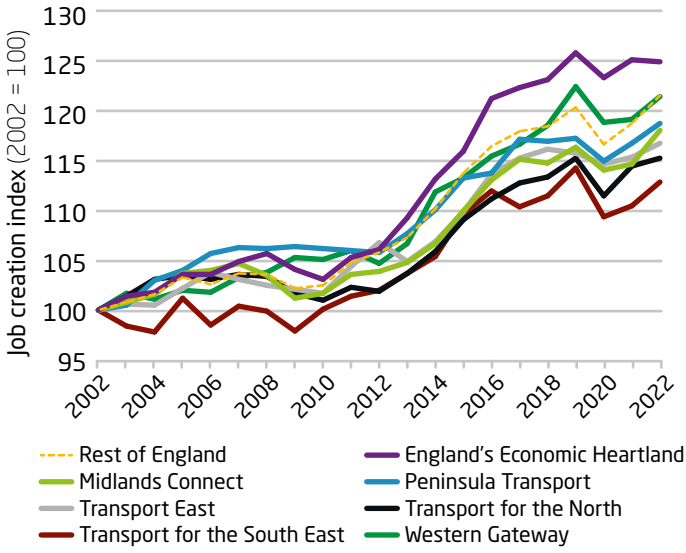
There's a reason why we're called England's Economic Heartland. Stretching from Swindon and Oxfordshire in the west through to Cambridgeshire and Hertfordshire in the east, our region is unrivalled in the country for the number of economic specialisms and clusters existing within it. Its success brings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

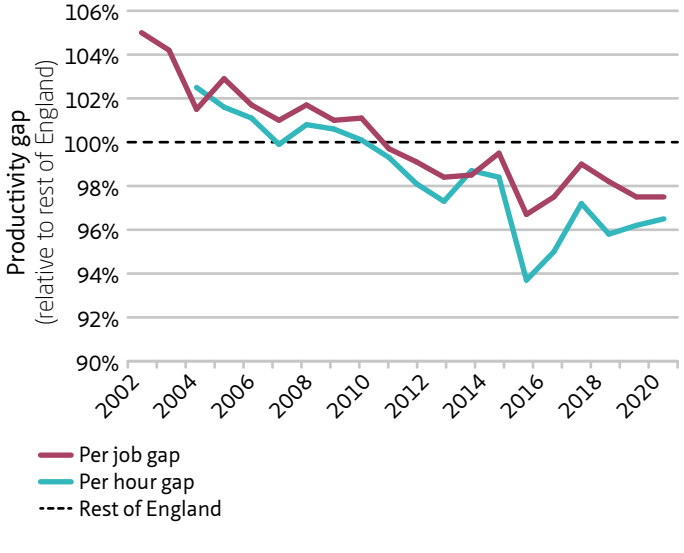
ECONOMY

For methodology see our website and p27

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

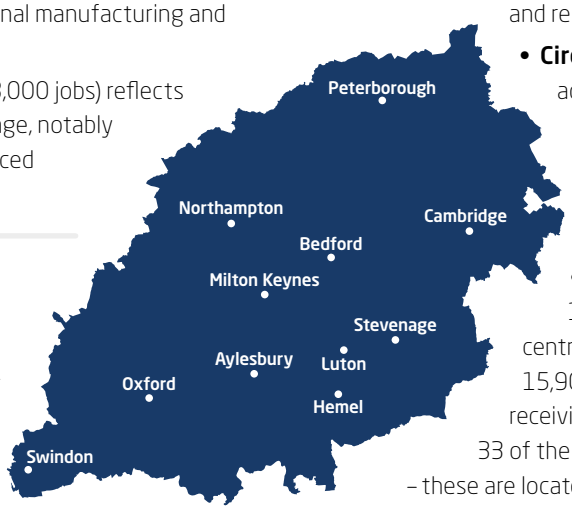
- **Total emissions:** Per capita CO_2 emissions were 4% higher than in the rest of England in 2021, & have declined at a slower rate (-24% 2005-21, rest of England -27%)
- **Transport emissions:** Transport accounts for 37% of total EEH emissions (rest of England 31%), and decreased more slowly (-8%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

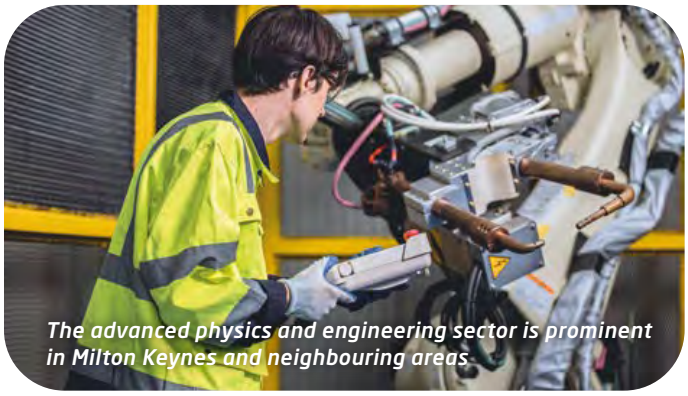
- **Research and development:** Almost 1 in 10 jobs (240,000 total) in EEH are R&D-intensive, the highest share of any STB region and also London. Almost a third (28%) of EEH firms report undertaking R&D, more than any other STB region, whilst a quarter (24%) are innovation active, introducing new methods 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.

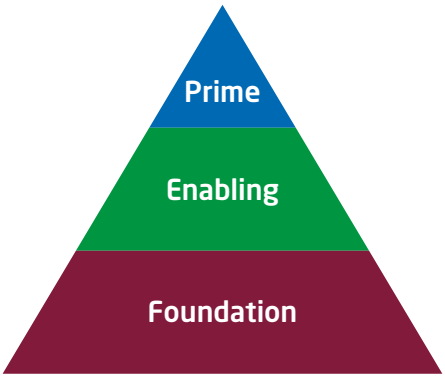
// WHERE'S WHERE IN THE CORRIDOR

The cutting edge digital control room at Cranfield Airport in Central Bedfordshire



The advanced physics and engineering sector is prominent in Milton Keynes and neighbouring areas

SECTORS AND INNOVATION CLUSTERS



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

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

The EEH website contains a full breakdown of the EEH economy, sector by sector – see page 4 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.

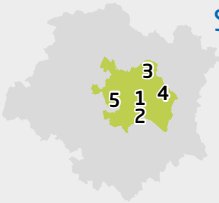
The visitor economy: With its rich history, stunning countryside and modern leisure hubs, travel and tourism plays an important role in the region's economy. During 2024/25 EEH will undertake study on how our transport system supports the region's visitor economy.

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 27 for further notes.

(Relatively) old meets new: Handcarved with Scottish granite in 1984, this statue is inspired by Robert Burns' poem, 'O, wert thou in the cauld blast' about providing shelter to those in need. It was purchased by the Commission for the New Towns and now stands in Station Square in Milton Keynes in the shadow of Unity Place, a new landmark building in the city centre. Alongside being the headquarters for Santander, the £150m development is also a hotspot for flexible office space, dining and leisure.



Settlements include: 1. Milton Keynes, 2. Bletchley, 3. Olney, 4. Cranfield and 5. Deanshanger

GVA: £16.3bn (up 31%) / Population: 339,100 (up 17%) / Jobs: 204,800 (up 29%) / Firms: 17,400 (up 51%)

Sectors: Logistics & Freight (20,600 jobs, 15% of EEH total) / Higher Education (13,200 jobs, 13%) / Digital & Creative (14,300, 10%) / Advanced Physics & Engineering (21,300, 8%) / Management & Social Science (10,200) / Finance (9,600)

Innovation clusters: Autonomy and Robotics (6th largest in UK) / Data Intermediaries (7th largest) / Photonics (10th largest) / Advanced Materials / Data Infrastructure / Software as a Service (SaaS) / Software Development

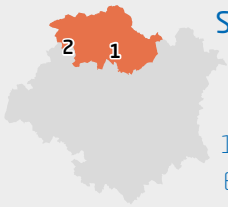
Economic assets include:

- The Open University, one of the largest universities in Europe and a leading innovator in digital learning & educational technology
- Cranfield University, a specialist postgraduate university with world-class expertise and including a global research airport
- The headquarters and factory of the Red Bull Racing Formula One team
- Highest level of electric vehicle infrastructure outside of London

Insights:

- Pre-pandemic (2011-19), rates of job creation (3.2% p.a.) were double the national average (1.7%), and higher than any other EEH area; driving economic growth (in real terms) of 3.4% p.a. over the same period, above the national average (2.2%) and second fastest among EEH areas. Employment rate of 82.3% exceeds the national average (75.7%), and is the fourth highest rate among EEH areas
- Productivity is substantially (21%) higher than the national average (and second highest amongst EEH areas), although productivity growth was a third of the national average pre-pandemic (2011-19)
- 38% of jobs are in EEH 'prime' sectors – the fourth highest share among EEH areas – while 41% are in 'foundational' sectors (the lowest share)
- 27 established knowledge clusters centred locally (second-most in EEH), three UK top-10 ranked, hosting 2,900+ knowledge-intensive firms and £36m of public research funding; 17,000 jobs (8% of total) are R&D-intensive – only three EEH areas host more
- A UK 'Smart City': a testbed for new ideas and a UK leader in technology and innovation
- The area accounts for 6% of EEH's population and saw population growth (1.6% p.a.) double the national average (0.8%) between 2011-21, fourth highest among EEH areas
- The second lowest old age dependency ratio in EEH, with 86% of residents young or working age (national average 81%)

NEIGHBOURING AREAS



Settlements include: 1. Northampton and 2. Daventry

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

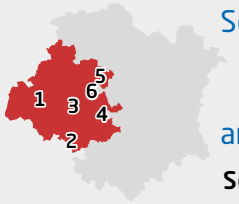
Innovation clusters: Supply Chain Logistics / Immersive Technologies / Agency Market / E-Commerce

Economic assets include:

- MAHLE Powertrain; Daventry International Rail Freight Terminal; and University of Northampton. Every single F1 engine to have a Mercedes badge since 1995 has been constructed at its base in Brixworth

Did you know?

- The area has the second highest share among EEH areas for head office sites



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

Sectors: Agri-food (6,300 jobs, 9% of EEH total) / Advanced Physics & Engineering (12,900, 5% of EEH total) / Construction (12,300) / Metal Products (4,700) / Chemicals Materials (3,300) / Wood Products (2,300)

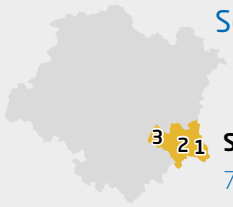
Innovation clusters: Pharma / Computer Hardware / In-Orbit Space Manufacturing / Telecommunications / Electronics Manufacturing / Advanced Manufacturing

Economic assets include:

- Silverstone, world-famous racing circuit and home to high tech cluster (three F1 teams based in this area); Catesby Aerodynamic Research Facility, a worldwide benchmark for aerodynamic testing; University of Buckingham; Upper Heyford Creative City; Bicester Village

Did you know?

- The area has lowest unemployment rate (1.7%) among EEH areas



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

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

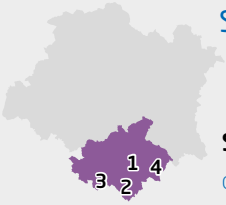
Innovation clusters: Internet of Things / E-Commerce / In-Orbit Space Manufacturing / Food Tech / Electronics Manufacturing

Economic assets include:

- London Luton Airport; University of Bedfordshire; Power Court (stadium and cultural quarter in Luton); Luton and Dunstable guided busway

Did you know?

- 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



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

Sectors: Agri-food (3,200 jobs, 5% of EEH total) / Advanced physics and engineering (8,300, 3%) / Circular Economy (1,000 jobs, 4%) / 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, which includes the National Space Propulsion Test Facility, the only of its kind in the UK; Stoke Mandeville Hospital, the birthplace of the Paralympic movement, home to the Health Research and Innovation Centre; the Arla dairy near Aylesbury, one of the biggest and most technologically-advanced dairies in the world

Did you know?

- Only 5% of residents are low or unskilled (second lowest of EEH areas)

Settlements include: 1. Bedford, 2. Ampthill and 3. Flitwick

Sectors: Logistics & Freight (5,800 jobs, 4% of EEH total) / Advanced Physics & Engineering (10,100, 4%) / Real Estate (2,700) / Electricity (400) / Construction (6,300) / Accommodation (2,800 jobs)

Innovation clusters: Food Tech / Autonomy & Robotics / Geospatial Economy / Electronics Manufacturing / Research & Consulting (Physical Sciences & Engineering)

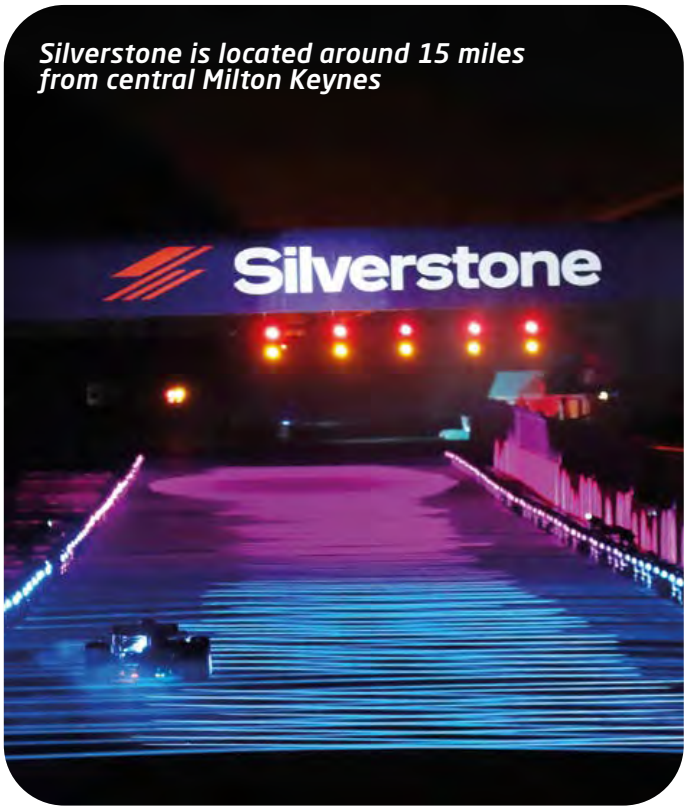
Economic assets include:

- Millbrook Proving Ground (UTAC) one of the largest vehicle testing centres in Europe; Cardington Studios, host to many blockbuster movies and one of the largest indoor film spaces in Europe; Aircraft Research Association, an aerodynamics research institute with the largest transonic wind tunnel in the UK

Did you know?

- Economic growth (in real terms) was faster (3.1% p.a.) than the national average (2.2%) pre-pandemic, and the fourth fastest of EEH areas

Milton Keynes' famous delivery robots



Silverstone is located around 15 miles from central Milton Keynes

// UNLOCKING ECONOMIC GROWTH THROUGH IMPROVED CONNECTIVITY

Cambridge Econometrics has identified several ways in which improved connectivity could unlock opportunities for further economic growth in Milton Keynes and the wider area.

This includes:

A catalyst for innovation

The Milton Keynes area is central to the EEH science and technology innovation ecosystem.

Milton Keynes is a 'Smart City' which has the second most established innovation clusters in the EEH region. Its autonomy and robotics, data intermediaries, and photonics clusters are ranked in the UK top-10 while several other local clusters, such as advanced materials, data infrastructure, and software as a service, are also significant. These enterprises are highly innovative, employing 17,000 people in R&D-intensive roles and attracting £36m of public research funding. Milton Keynes has 4.6bn m2 of affordable commercial floor space and so, as the area becomes increasingly connected to Oxford and Cambridge, its highly technical, R&D-intensive industries have room to expand and will likely draw in additional firms and workers.

Greater transport connectivity has the potential to broaden R&D capacity while also enabling established clusters in Milton Keynes to benefit from closer ties to emerging clusters and labour markets in neighbouring areas. For example, the Northampton area's immersive technologies clusters would gain from greater access to the R&D resources in Milton Keynes while its established supply chain logistics and agency market clusters could provide valuable support services to firms in Milton Keynes. There are also advanced materials and life sciences clusters to the north-west of Milton Keynes and autonomy and robotics and research and consulting clusters in the Bedford area, that are research and capital intensive. These clusters would be supported in their development and expansion by increased interactions with leading innovation centres in Milton Keynes.

The Milton Keynes area accounts for 10% of all digital and creative jobs in EEH, and contains innovation clusters in data and software development

For a quick guide to the relationship between connectivity, productivity and economic growth turn to page 26.

Improving access to labour

The Milton Keynes area supports 8% of all EEH jobs in the advanced physics and engineering sector. There are significant potential benefits to increasing the interconnectivity between this regional hub and the growing advanced physics and engineering sectors in and around places including Bedford, Luton, Northampton and the Silverstone tech cluster. Greater labour mobility would connect workers to more productive jobs and employers to more skilled employees while catalysing collaboration among firms.

Boosting productivity across the wider area

The Milton Keynes area enjoys high productivity rates (21% above the national average), driven by rapid job creation and economic growth rates. This contrasts with the areas which neighbour it, all with productivity gaps compared to the national average. 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, connecting workers to highly productive jobs in Milton Keynes and elsewhere in the wider area, and catalyse the colocation of businesses (by ensuring access to skilled labour and logistics networks).

There is an abundance of affordable commercial floorspace across Milton Keynes and the areas which neighbour it, exhibiting average costs below the national average and stocks in excess of 1.6bn square metres. However, excepting the area in and around Northampton, enterprise rates are generally low. Milton Keynes and the wider area has the space, at low costs, for new and growing businesses to expand into. Improved transport infrastructure would increase the accessibility of local economic centres and address productivity deficits.

Spearheading innovation in sustainable transport

There is an unexplored potential to spearhead advancements in low carbon, efficient movement and support sustainable travel behaviour. For instance, Milton Keynes is a leading transport innovator with unique assets such as a grid system of roadways along with a well-established and growing electric vehicle charging network (Milton Keynes has the highest level of EV infrastructure in the UK outside of London). This infrastructure is conducive to increasing uptake of low emission vehicles not only in the city but also among its neighbouring areas.

Reducing housing pressures

In general, house prices are higher in the areas which neighbour Milton Keynes to the south than the north. Over the past decade, housing delivery rates in the wider area have been above the national average rate. As population grows, building more efficient transport links between the areas will ensure that people have greater choice of housing and reduce housing pressure in places of constrained development.

Supporting freight and logistics

The logistics and freight sector is inherently dependent on transport infrastructure for the movement of road, rail, and air freight. Additionally, improvements in public transport decrease commuter traffic on roads which, in areas as car dependent as Milton Keynes, would minimise congestion around key warehouses and logistics hubs. R&D and innovation within Milton Keynes' logistics and freight industry are supported by the Connected Places Catapult, an innovation accelerator for cities and transport, and the Cranfield University, a specialist postgraduate university with expertise in large scale facilities. Improvements in transport connectivity in the wider Milton Keynes area would facilitate the diffusion of established industry expertise and capital in Milton Keynes to the emergent logistics and freight centres in and around Bedford and Luton.

The Northampton-Daventry area, which is already home to more than 20,000 logistics and freight jobs, would also benefit from increased access to Milton Keynes' knowledge base. Simultaneously, established logistics and freight operators in Milton Keynes would be able to hire from a larger pool of skilled labour and have the potential to expand their operations to new facilities in these other areas. Investments in transport infrastructure would thus see reciprocal gains arise for the logistics and freight sectors across the greater area and improve the capacity of firms in different areas to leverage existing infrastructure, such as London Luton Airport, more effectively.

HEADLINE CONCLUSIONS

Milton Keynes is very much a jewel in the crown of the EEH region: it exhibits high productivity, hosts 27 established innovation clusters (only Cambridge has more in EEH), and has driven some of the fastest jobs and economic growth in the region over the past 50 years.

It also has ambitious growth plans as articulated in its local plan and Strategy for 2050. Enabling Milton Keynes to continue to grow its economy, and with it benefit from increasing agglomeration benefits, is a key component of the wider regional growth opportunity.

However, Milton Keynes was originally designed for the motor car. The vision for the future of the city recognises that emerging growth requires new, sustainable transport options, to protect and enhance the quality of life and environment which makes Milton Keynes such an attractive place to live, work and do business.

To allow Milton Keynes to make the next step in its evolution, new, sustainable transport solutions must be devised that both facilitate easy, quick and convenient public and active transport movements both within its boundary, and between it and neighbouring areas.

MILTON KEYNES STRATEGY FOR 2050

Milton Keynes City Council's Strategy for 2050 provides a vision for how the city should look in 25 years' time. It includes 'seven big ambitions' for the city by 2050.

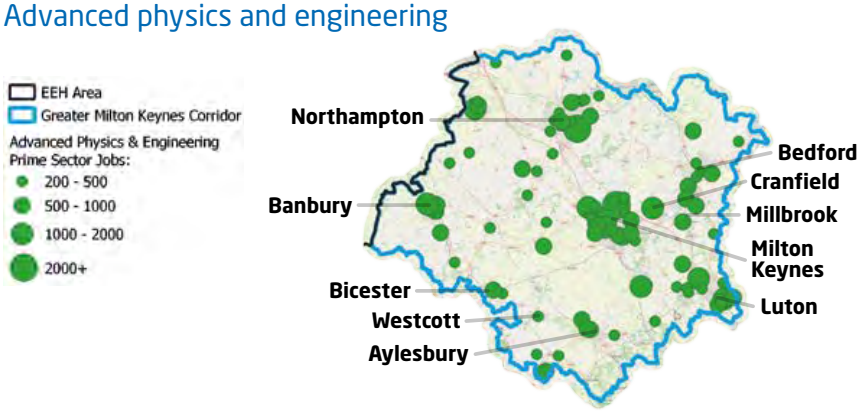
"We are confident about our future prospects. By 2050, there will be a further 50,000 – 90,000 jobs in the borough. As our population grows, so will our 'foundational economy' – creating jobs to meet everyday needs. We will promote high quality jobs as an important route out of poverty. Our construction and logistics sectors will remain strong. Yet, it will be our 'knowledge-intensive' industries, such as technology and high performance engineering, which will drive our growing economy. The city has a global reputation as a centre for innovation. With our track record in sustainability we will continue to be attractive for companies investing in the green economy.

Many of the new knowledge intensive jobs will be located in CMK. To take full advantage of East West Rail linking us with Oxford and Cambridge, Bletchley will also become a popular business base. We have plenty of vacant employment land throughout the city and there is also scope to redevelop some of our original employment areas. We are ready to meet the needs of 21st century companies."

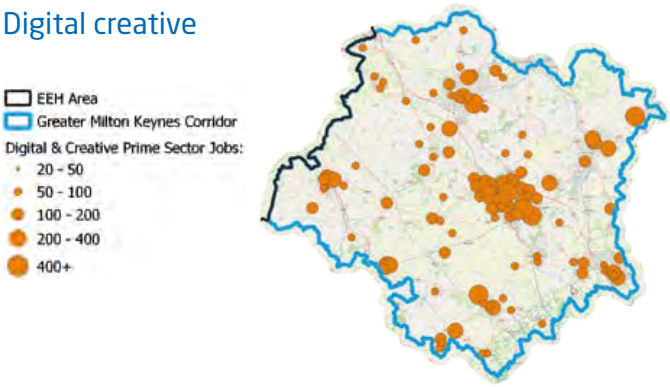
PRIME SECTORS

See page 5 for prime sector definitions

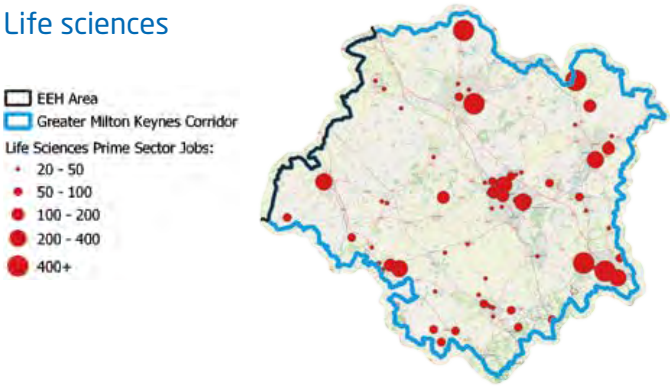
Advanced physics and engineering



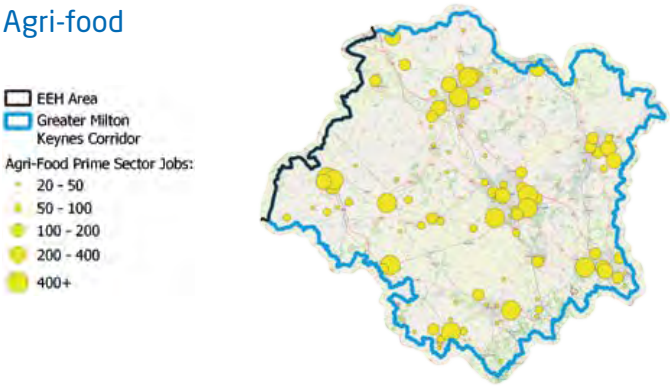
Digital creative



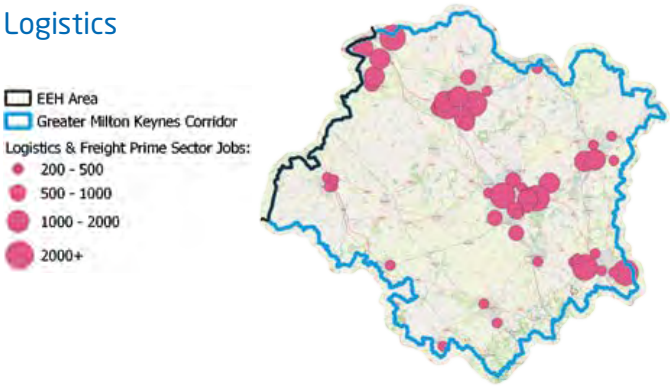
Life sciences



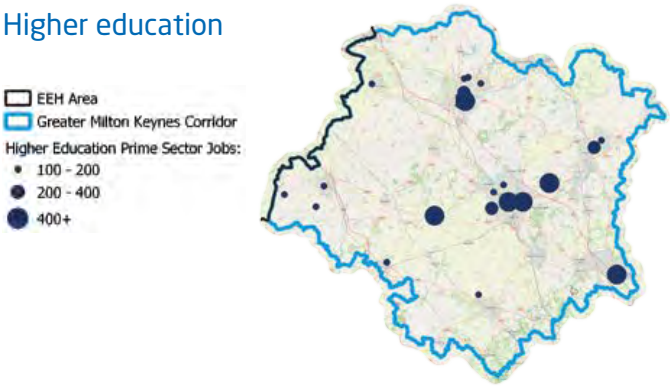
Agri-food



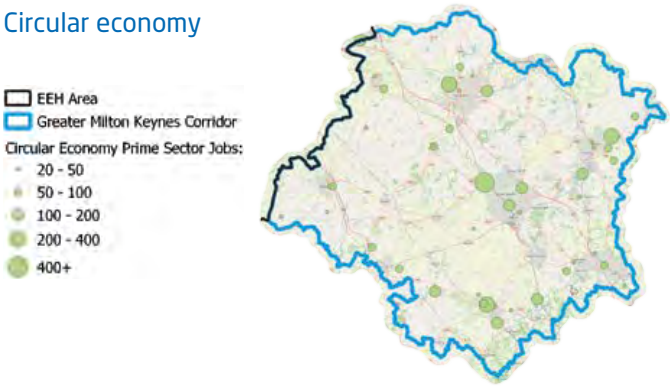
Logistics



Higher education



Circular economy

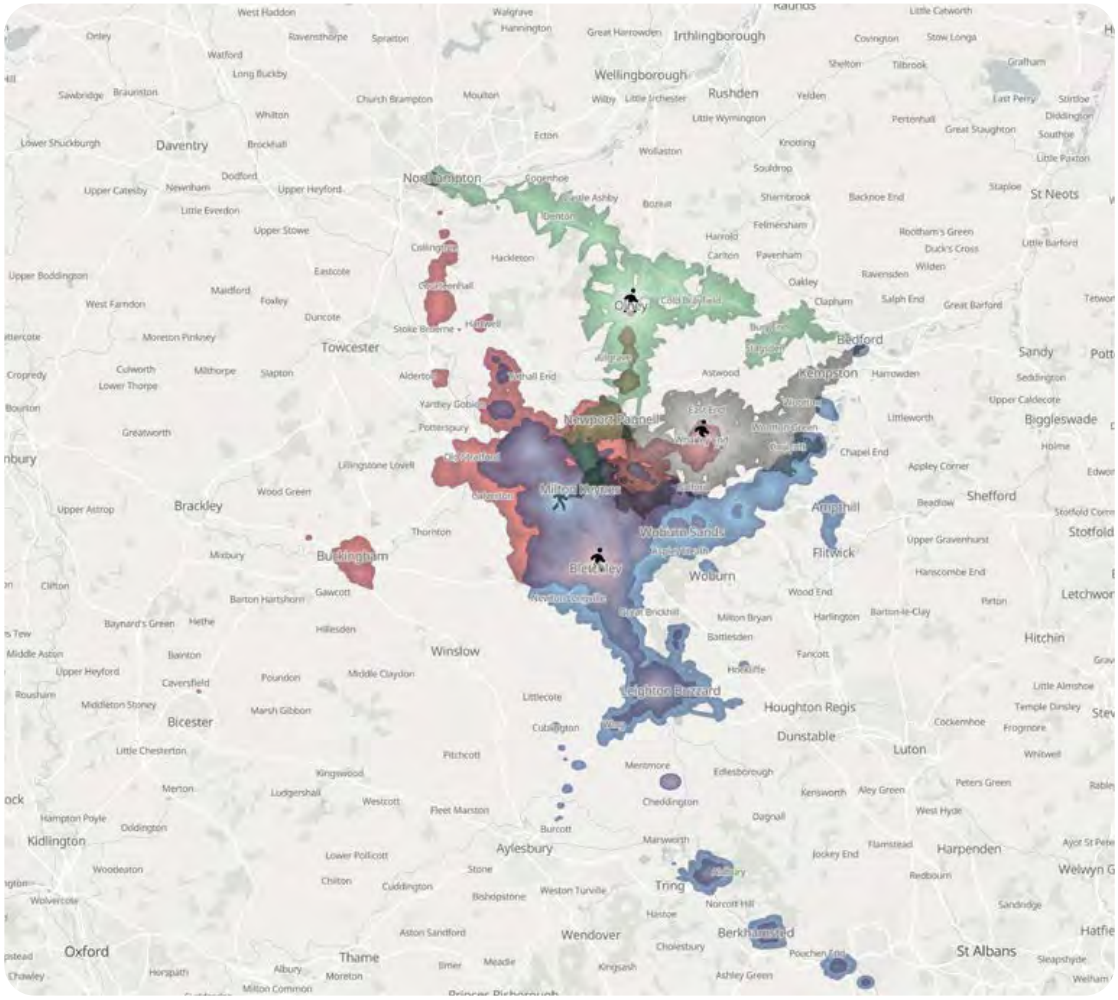


// CONNECTIVITY IN CONTEXT

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

PUBLIC TRANSPORT

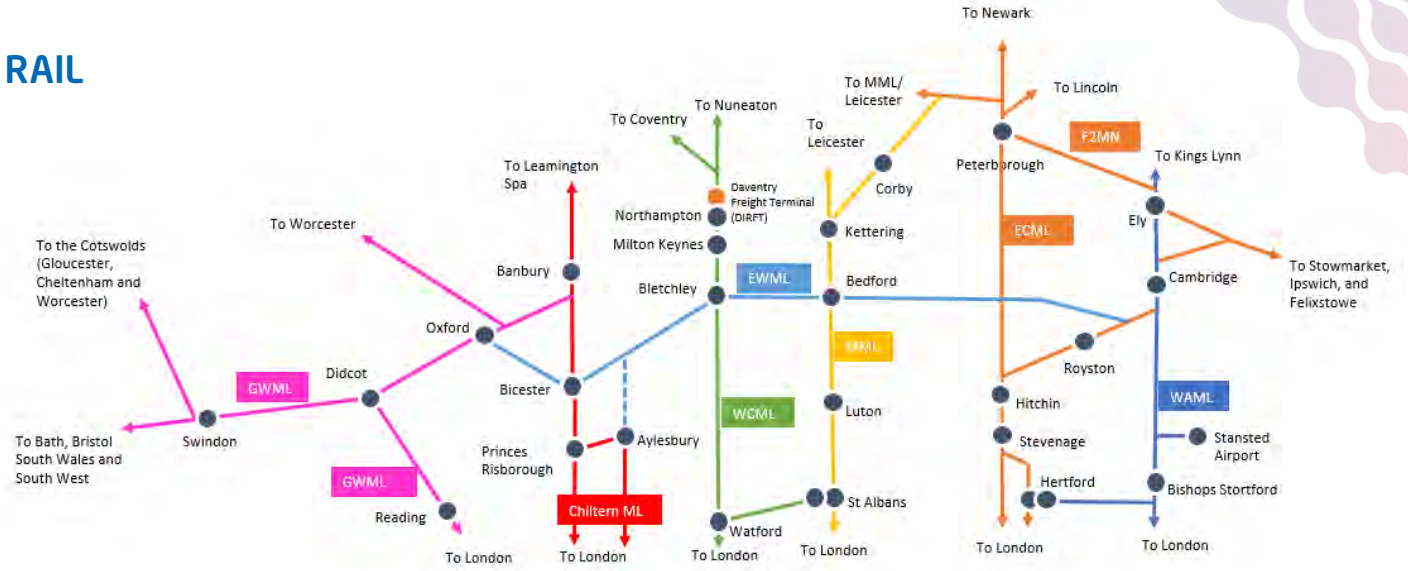
This map factors in average journey times and service frequencies to give a balanced indication of places which can be travelled to within 60 minutes on a weekday morning from a journey starting on foot and using bus and rail. The journeys are from outside Milton Keynes Central (red) and Bletchley (blue) rail stations; Cranfield University (grey) and central Olney (green). For methodology and assumptions see p27. The map visually demonstrates the challenges of connectivity by public transport from Milton Keynes, particularly to places not connected by the West Coast Main Line, for example central Buckinghamshire and wider Northamptonshire. East West Rail to Oxford will significantly improve connectivity westwards, but without the previously expected rail link to Aylesbury, connectivity to Buckinghamshire will remain a challenge.



BUS

Some places in the Milton Keynes area enjoy daytime frequencies of a bus every 10 minutes, whilst others have a bus every 30 minutes or more. In some parts of the city, services come together to provide higher combined frequencies (ie, every 10 or 15 minutes) between Newport Pagnell and central Milton Keynes (CMK); Wolverton-CMK-Bletchley; and Westcroft-CMK. Arriva operates the majority of services and carries about 85% of passengers. This includes most of the Milton Keynes city network, along with interurban services such as to Aylesbury (hourly frequency) and Northampton (less than hourly frequency). Stagecoach also operates interurban services, such as the X5 to Oxford and Bedford (half hourly) and MK1 to Bedford and Luton (hourly). Uno, a bus company owned by University of Hertfordshire, provides services on the Milton Keynes to Bedford corridor, centred on Cranfield University (broadly half hourly). MK Connect, Milton Keynes City Council's on-demand bus service, has been successful at cost effectively plugging gaps on low demand routes.

RAIL



The diagram above shows the main lines within the EEH region (including the proposed East West Rail line between Oxford, Milton Keynes and Cambridge). Milton Keynes and Bletchley sit on the West Coast Main Line, with very good connectivity to London, Birmingham and the north. There is currently poor connectivity between this the West Coast Main Line and other lines such as Chilterns and Midlands. East West Rail will significantly improve this, making seamless interchange between lines vital. However, in the absence of its previously-expected link to Aylesbury (shown by the dotted line), connectivity into central and southern Buckinghamshire will remain unrealistic by rail.

Station usage

Station	2022-23	Interchanges 2022-23
Milton Keynes	4,509,584	189,748
Bletchley	734,210	58,278
Wolverton	266,578	None recorded
Woburn Sands	24,618	None recorded
Bow Brickhill	18,532	None recorded
Fenny Stratford	11,350	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.

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 morning peak average across the entirety of EEH network for that road type (see definitions section on p27 for methodology and assumptions, including full list of expected speeds based on road type). Traffic flow around Milton Keynes, which has a grid layout, generally compares favourably to other towns and cities in the region. However, there are several major pinch points, particularly where the local road network interacts with the strategic road network. This will only be exacerbated by the very significant amount of economic and housing growth planned in Milton Keynes in the coming years. Examples of major congestion issues are at the M1 junctions 13-14; the A5 junctions, including Kelly's Kitchen near Bletchley; and the A421.

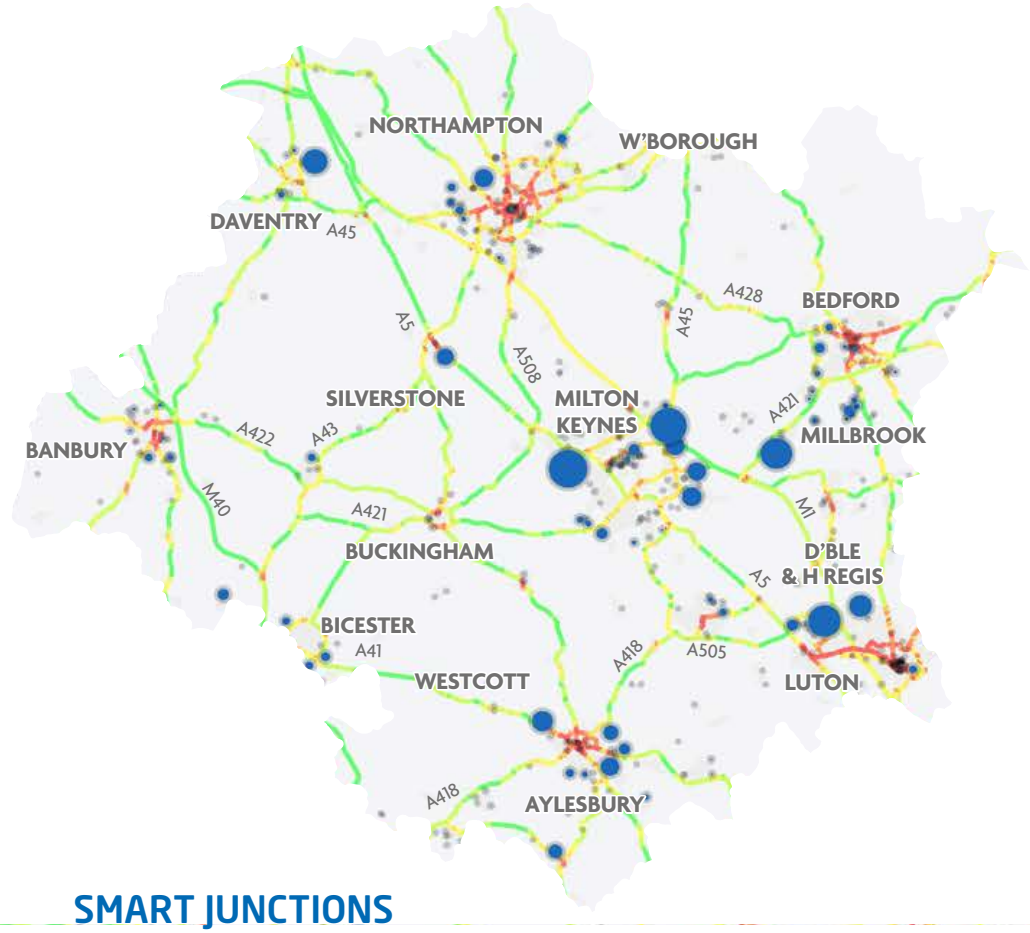
HOUSING

There were 29,000 new homes allocated in Milton Keynes City Council's current local plan (2016-2031). Significant sites within the plan can be found to the west, south and east of Milton Keynes, including:

- Western Expansion Area (close to A5): 6,079 homes
- A series of development sites totalling around 6,000 homes to the south of Milton Keynes, in proximity to the A421 and A4146
- Around 15,000 homes to the east of Milton Keynes, in proximity to the A509, M1, A421 and A4146, including 5,750 at 'Milton Keynes East'

Nearby towns, including Northampton, Bicester, Aylesbury and Houghton Regis are also undergoing significant housing growth. Similarly, the Marston Vale area in Central Bedfordshire, between Milton Keynes and Bedford, has a number of major housing sites, including 5,000 homes at 'Marston Vale New Villages' on the A421.

Milton Keynes City Council has ambitious plans for further housing growth. Its Milton Keynes Strategy for 2050 envisages the city council area having a population of 410,000 by 2050, up from 287,000 in the 2021 census.



Legend: Congestion score morning peak hour

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

- 6,000 homes
- 4,000 homes
- 2,000 homes

SMART JUNCTIONS

A study by City Science for EEH, due to be published shortly, identifies initial opportunities for smart junction technology for existing signalised junctions on key strategic corridors in EEH. Smart junctions are emerging as a key way in which road capacity can be optimised, easing traffic flow or supporting journeys by public transport or active travel. This is based on vehicular demand, including for HGVs, congestion, key bus routes and collisions. It identified A421/A5130 junction, Milton Keynes as being a potential focus area for smart junction technology. Milton Keynes City Council is actively seeking an intelligent signals network using the latest iteration of the SCOOT® adaptive urban traffic signal control system, starting with central Milton Keynes.

DIGITAL CONNECTIVITY

Milton Keynes, Bletchley, Olney, Cranfield and Deanshanger

- 84% of homes are covered by ultrafast broadband, above national average (69%)
- 53% of firms are covered by ultrafast broadband, above the national average (43%), whilst download speeds are on average 6% faster

Key

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

IMPORTANCE OF DIGITAL INFRASTRUCTURE

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

ENGLAND'S CONNECTED HEARTLAND

England's Connected Heartland (ECH) is a 5G 'Innovation Region' encompassing Oxfordshire, Buckinghamshire, Central Bedfordshire, Cambridgeshire and Berkshire. EEH supported its successful grant application to Department for Science, Innovation and Technology and works closely with its project team. Acting as a 'real world' testbed, its projects are designed to be replicable within the region and across the UK. This includes deploying a 5G network along poorly connected sections of East West Rail between Bicester and Bletchley. This will improve passenger connectivity as well as deliver functional improvements for onboard devices, for example around train condition sensors and CCTV. It will offer connectivity options for trackside neighbours including public services providers, agricultural and other rural businesses and potentially communities.

MK: SMART

Led by the Open University and involving more than 20 organisations, MK:Smart began ten years ago to introduce large scale technology trials to Milton Keynes in order to research and demonstrate how cities around the world could improve standards for their citizens through innovation, with specific work into sustainable transport, energy use and water consumption.

MK:Smart saw Milton Keynes becoming the first UK place to trial a driverless car and laid the foundations for robots on city streets and many more innovations. While high tech research projects continue today in the city, such as recent trials of self-driving shuttles and of delivery drones that could revolutionise the supply of emergency medicines, and the city even developing its own dedicated 5G network solely for research use, MK:Smart as a project officially ended in 2017. But now, the partners are returning to MK:Smart to remind the academic and business community that Milton Keynes is a brilliant place to run 'living laboratory' tests and trials.

// 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.

MILTON KEYNES MASS RAPID TRANSIT

Milton Keynes City Council's 'Strategy for 2050' proposes population growth within the authority's boundaries from around 290,000 today to 410,000 by 2050. This would be realised with the construction of around 33,000 new homes (detailed in the MK City Plan 2050) in addition to the 30,000 homes already committed through existing plans. It also proposes up to 90,000 new jobs across the city.

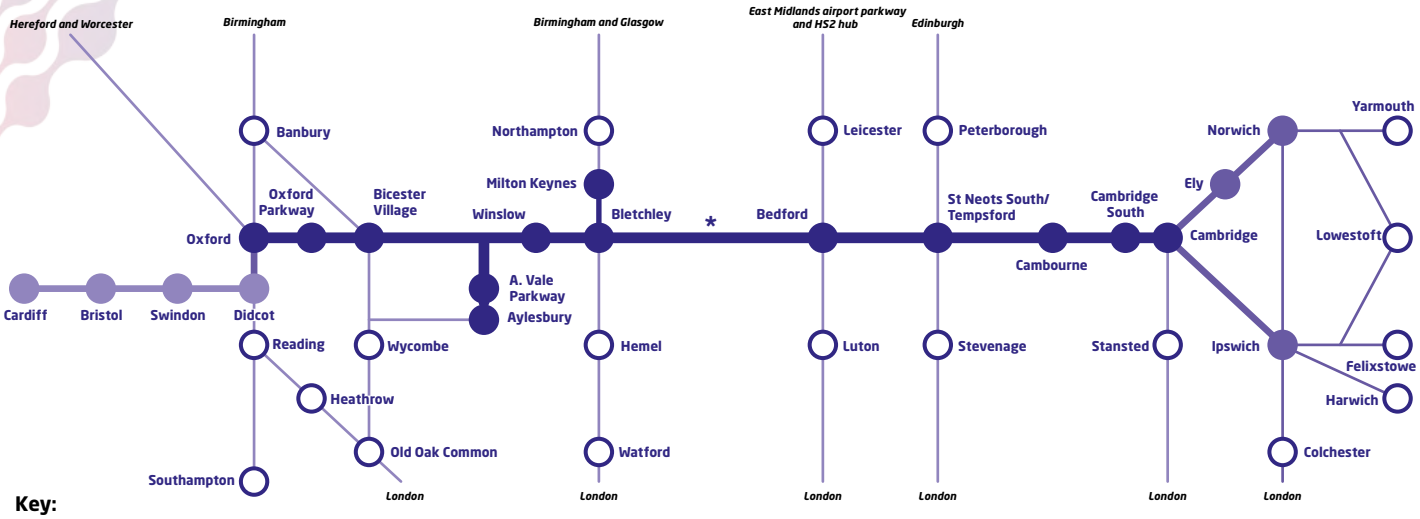
A mass rapid transit system is being planned to support the growth of the city and offer residents, businesses and visitors a convenient, sustainable, cost-effective and efficient alternative to private vehicles.

It would include high quality dedicated vehicles delivering a fast and attractive service on segregated routes across Milton Keynes, potentially linked to park and ride sites and mobility hubs and supported by the bus and demand responsive network.

The system would provide: dedicated running lanes; priority at junctions; distinctive stops with real-time passenger information; and network branding.

Next steps: A strategic outline business case is complete and outline business case is underway. It is anticipated central government support will be needed (please see page 25 for EEH's position on MRT funding).

Artists' impressions of how the Milton Keynes MRT could look



[*] The configuration of stations between Bletchley and Bedford is to be confirmed by East West Railway Company following a public consultation.

East West Main Line Partnership's vision for a coast-to-coast East West Main Line

MAXIMISING OPPORTUNITIES FROM EAST WEST RAIL

Government's investment in East West Rail from Oxford to Cambridge is transforming connectivity across the EEH region.

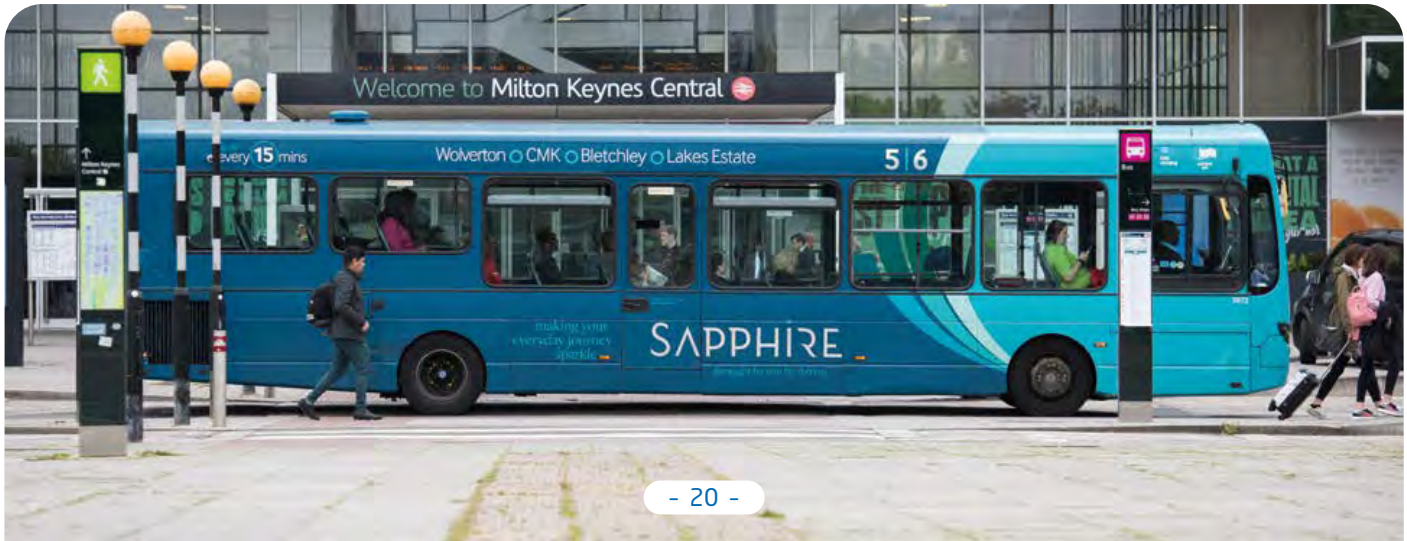
Milton Keynes is located at the heart of the scheme, with the link between Oxford and Milton Keynes, via Bletchley, opening in 2025, and (subject to funding) the sections to Bedford (via the Marston Vale) and Cambridge following by around the turn of the decade.

East West Rail will fuel economic growth and innovation; connect businesses to a significantly larger labour pool; and boost global investment in the UK. As Steve Salvin, CEO of Milton Keynes-based tech company Aiimi, told us: "Milton Keynes is a growing tech hub. It has the potential to be a more natural meeting point between the big university cities, creating a connected region that can be at the forefront of the conversation around blockchain, metaverse and decentralised finance. Better connectivity would help us shape and lead that conversation to the benefit of the whole of the UK."

Maximising the benefits of the scheme for residents, businesses and for leisure is crucial.

Key to this is the delivery of:

Bletchley Eastern Entrance: Milton Keynes City Council has long-established plans for the regeneration of Bletchley. However, the town is currently severed in two by the railway station and sidings, with little east-west connectivity. This is a major problem as the railway station faces west, delivering visitors into west Bletchley rather than the town centre, so a difficult route faces visitors wanting to access the town centre (and bus station). With the arrival of East West Rail, it is imperative that an eastern entrance is built, creating a high quality station gateway that will be the main arrival point for people travelling into Bletchley by both bus and rail (a new bus interchange is proposed on Saxon Street where the new Eastern Entrance is proposed, creating an accessible transport focus for the town centre). The existing western entrance (which provides access to Bletchley Park and Milton Keynes College's Bletchley campus) would be retained and enhanced.



Creating the high level platforms at Bletchley was one of the biggest engineering feats of East West Rail's construction between Oxford and Milton Keynes. The current entrance can be seen to the right of the image, however the town centre is located on the left

Bletchley North-East chord: Currently, direct East West Rail services east of Milton Keynes to Bedford and Cambridge would not be possible. To facilitate a through route for East West Rail to Milton Keynes Central, and alleviate rail capacity constraints between Bletchley and Milton Keynes, a north-east chord is required, with supporting capacity enhancements at Milton Keynes Central Station (integral to the proposal is the addition of a further track of main line between Bletchley and Milton Keynes Central and the creation of new platform capacity at Milton Keynes Central). The delivery of the chord and additional track would likely compound the benefits by providing for a range of additional passenger and freight connections, and contributing to centring Milton Keynes as a focal point for the West Coast South and East West Rail networks.

Northampton to Old Oak Common via Aylesbury: The link between Milton Keynes and Aylesbury has been a fundamental element of East West Rail for several years – it was included in the Transport and Works Act agreed by the Secretary of State in 2020, but then withdrawn from the first stage of works a year later. Alongside better connecting the economies of Aylesbury and Milton Keynes and reducing the number of cars into the city, the link would also open up the possibility of a wider Northampton-Milton Keynes-Aylesbury-Wycombe-Old Oak Common corridor, providing greater choice and resilience to the rail network.

Marston Vale: East West Rail will be transformational for the existing cities, towns and villages, alongside the planned new settlements and communities, along its route. But whether in a city such as Milton Keynes or a rural location such as the Marston Vale, it will only realise its true value if people can easily and sustainably access stations. EEH strongly supports the urgent need for first mile/last mile funding for local authorities.

Door-to-door connectivity: It is essential that the line is supported by superb door-to-door connectivity, enabling the most amount of people to sustainably access services as possible (EEH and its partners are engaging with East West Railway Company on its door-to-door strategy). Given the significant role that local transport authorities have in enabling integration, it is vital they are co-creators of the strategy – and that there is appropriate levels of additional funding to enable the words in the strategy to be realised on the ground.

East West Main Line: There is a broader ambition for East West Rail between Oxford and Cambridge to be the catalyst for a truly coast-to-coast main line offering direct services between Ipswich and Norwich in the east and Swindon, Bristol and Cardiff in the west.

Net zero: It is disappointing that East West Rail between Oxford and Milton Keynes will open using diesel traction. It is vital that in the longer-term, East West Rail meets contributes fully to the UK's decarbonisation ambitions and operates as a net zero railway.

Next steps: East West Railway Company will publish its latest position on the scheme for statutory consultation in 2024, providing an important channel for representations. A study into the case for the Bletchley eastern entrance, as part of the £15 million allocated by the Chancellor for local opportunity planning, is currently underway. EEH and the East West Main Line Partnership will continue to gather evidence and press the case for the north-east chord, Aylesbury link, appropriate levels of first mile / last mile funding for local authorities; the wider main line concept; and net zero.

Map showing congestion on the A5 Kelly's Kitchen. For key see page 16.

A5 KELLY'S KITCHEN IMPROVEMENTS

The A5 accommodates long distance movements through the region as part of the strategic road network. In EEH, it connects Luton, Milton Keynes, Towcester and Daventry.

In Milton Keynes, the A5 runs from the Kelly's Kitchen roundabout to the south and Old Stratford roundabout to the north (with the Old Stratford roundabout being located in West Northamptonshire). It forms part of Milton Keynes City Council's 'primary route network'. The junctions on the A5 are located in areas which roughly align with some of the main areas of employment. There is easy access from Kelly's Kitchen roundabout to employment centres such as The Open University and Red Bull Racing.

However, Kelly's Kitchen roundabout is a well known congestion hotspot, where the A5 North and South meet the A4146 and access to other local routes. New warehousing is currently being constructed in the vicinity of the junction. Future growth will put pressure on the A5 junctions to the north and south of Milton Keynes which are not grade separated.

When the M1 is compromised, closed or congested, the A5 is used as an alternative route by freight, compounding current localised issues at junctions.

Therefore, upgrades are required. An integrated land use, highway and transit solution will be needed, alongside interface with park and ride sites and mass rapid transit. This is underpinned by Milton Keynes 2050 Strategy, which includes proposals for both junctions to the north and the south of the study area.

Next steps: The A5 through Milton Keynes was considered by National Highways as part of its Oxford to Cambridge connectivity roads study. EEH is keen for National Highways to now develop the interventions identified within the study, and for appropriate funding to be allocated as part of roads investment strategy process.

Map showing congestion at Junction 13, top, and 14, bottom. For key, see page 16.

ACCESS TO M1 JUNCTIONS 13-14

The M1 is part of the strategic road network and is a key north-south route in the EEH region and a high freight carrier.

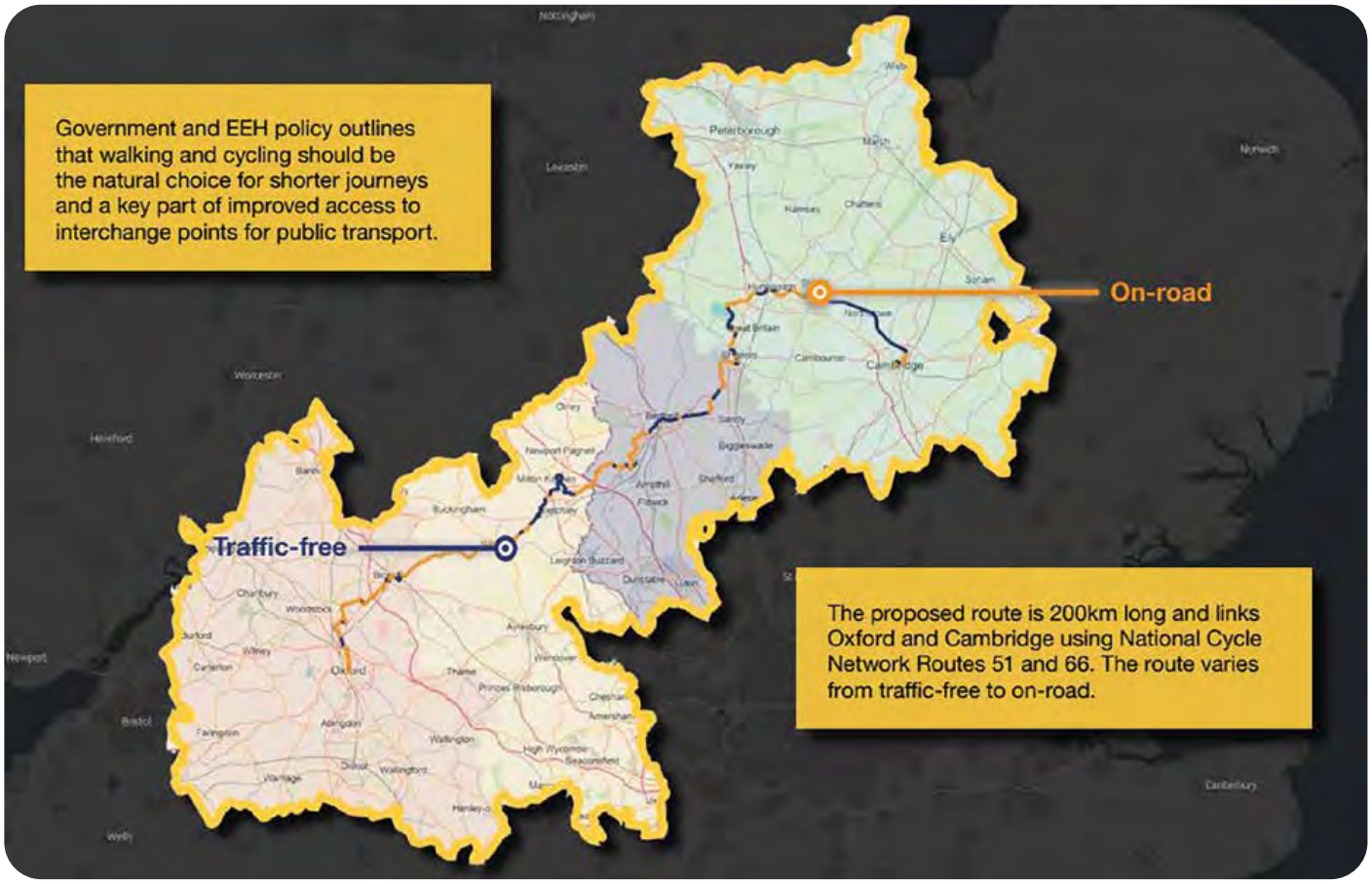
Reliability and safety improvements at junctions 13 and 14 are of urgent importance with planned growth forecast to worsen pressure on the junctions and journey time reliability (the junctions would also experience additional pressures as a result of the proposed Universal Studios development). There are regular minor incidents at peak times on this section of the M1 which result in congestion.

A joined up approach to the planning of future improvements at the junctions, including access to them, is critical for both national and regional opportunities.

Junction 13, near Ridgmont, is a key access point onto the M1 for drivers travelling to/from Bedford and Central Bedfordshire along the A421 (linking the A1 and M1). It was identified as one of the most important to be taken forward for further development by National Highway's Oxford-Cambridge roads study.

Next steps: Following the evidence gathered in the roads study, EEH is working with National Highways and DfT to ensure that interventions are progressed.

VARSITY WAY ACTIVE TRAVEL CORRIDOR



EEH's flagship Varsity Way project would see an east west active travel route linking Oxford to Cambridge.

It provides the opportunity for a 'green spine' across the Heartland; one that can act as a focal point for developing a region wide network of greenways – and attract tourists and leisure riders from across the country.

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

The assessment identified improvements which could be made to ensure the route is of good standard across the region to provide a high-quality link from Oxford to Cambridge. Currently 48% of the route is traffic free, with 157,236m of route considered 'good' or 'very good' and 133,317m considered 'poor' or 'very poor'. The report identified opportunities for improvements for network coherence, safety, comfort, attractiveness, and convenience in the form of interventions such as resurfacing, path widening, quiet-way treatment, traffic calming and signage improvements, amongst others.

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

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

Next steps: EEH plans to undertake detailed feasibility and costings, collaborating with local partners, alongside a specific project relating to alignment of the route in the Marston Vale between Milton Keynes, Central Bedfordshire and Bedford. This includes options for it to potentially integrate with East West Rail, current and aspirational active travel networks, the proposed Bedford-Milton Keynes Waterway, and the proposed Universal Studios development.

// PRINCIPLES FOR SUCCESS

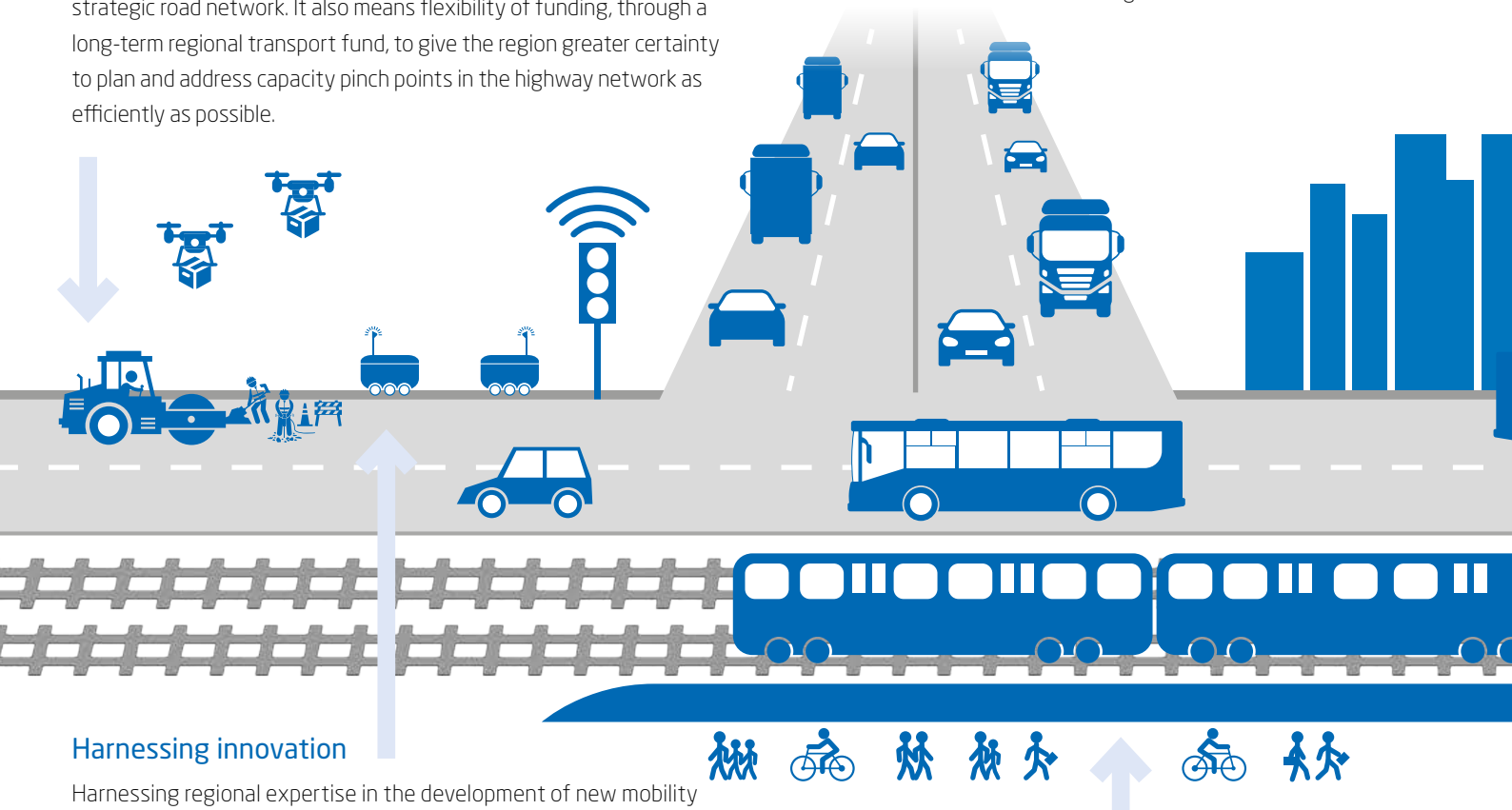
This brochure details the priority infrastructure – some major, others comparatively minor investments – which are required to improve connectivity across its geography. However, it is not just securing funding for new infrastructure that is important, we must be able to make the most of our existing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

Well-functioning roads

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

Addressing issues on strategically important roads

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



Harnessing innovation

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

A leading role in rail reform

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

Collective responsibility for the success of infrastructure

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

Bus funding and models

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

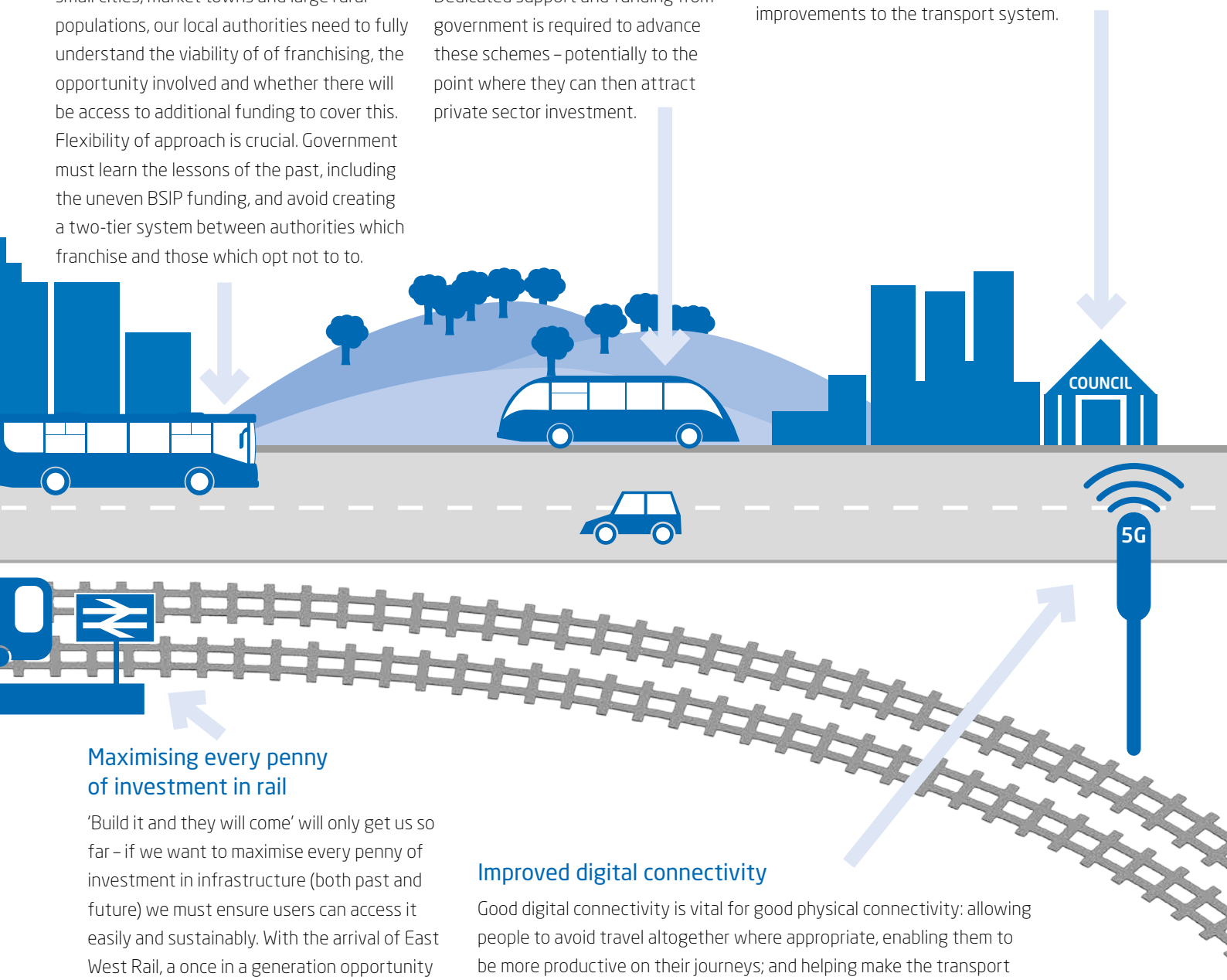
Mind the gap on MRT funding

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

Long-term local transport funding

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

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



Maximising every penny of investment in rail

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

Improved digital connectivity

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

// NOTES AND METHODOLOGY

CONNECTIVITY: THE THEORY

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

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

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

For firms:

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

For residents:

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

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

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

Productivity and agglomeration

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

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

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

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

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

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

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

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

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

CONNECTIVITY SECTION DEFINITIONS

Definitions and sources for Connectivity Today section

Congestion map: Full definition

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

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

Public Transport Catchment map:

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

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

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