REPORT

Savills Research

The Oxford-Cambridge Innovation Arc

ONE OF THE GREATEST OPPORTUNITIES FOR ECONOMIC GROWTH IN EUROPE?

savills

Unlocking potential

The arc of land encompassing Oxford, Milton Keynes and Cambridge is one of the most dynamic and innovative places in Europe today. It is already home to 3.7 million people and generates over 2 million jobs. If the present ambitions are fulfilled, by 2050 it will have grown by a further 2 million people and at least a further million jobs.

But it is not just about big numbers. It is also about prosperity. The arc contains globally renowned 'ideas engines' such as its universities and science parks, a powerful magnet for inward investment. Capitalising on that economic strength is undoubtedly a key part of how the country will keep pace with a rapidly changing global economy.

The arc has many such strengths on which it can build, and some weaknesses that need to be addressed too. If done well, its growth can result in a place where its people enjoy prosperous lives with fulfilling work set in a sustainable environment.

This is a project that will stretch over 30 years or more. Our productivity, place making, connectivity and environment will all have changed substantially by then.

So in thinking about that ambition and how to unlock opportunity, in the short term we need a clear understanding of current trends and patterns. This report analyses the dynamics already at play in the arc. But the longer term requires more ambition, and so, this report also aims to identify where the industry can innovate to deliver the right real estate to help unlock the full potential of this strategically important area.

Richard Rees
Managing Director
0207 016 3726
rrees@savills.com

Summary

The Oxford-Cambridge arc could deliver 1 million new homes and 1.1 million new jobs by 2050, if the required new infrastructure is delivered.

2.1 million people work in the arc, and employment growth has averaged 44,000 new jobs per year for the last five years. Productivity is over 3% higher than the UK average.

The arc needs to deliver an additional 3.9 million sq. ft. of office/R&D floorspace in the next 10 years. Longer-term, by 2050, there will be a need for 9.6 million sq. ft. more floorspace.

To meet the government's ambitions, land for an additional 680,000 homes beyond the existing pipeline needs to be identified, equivalent to around 23,000 hectares. Delivering 1 million new homes would also generate requirements for an extra 69 million sq. ft. of warehouse space.

Productivity in the arc as a whole is 2.6% higher than the UK average

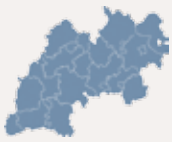
Key facts

3.7m

Existing population: 3.7 million

£111bn

Size of economy



26

26 district and unitary authorities and 5 Local Enterprise Partnerships

£27.4bn

Corporate funding invested so far in 2019

Building the arc

Improving the connectivity between these two famous university cities will unlock the potential for growth in the future

The arc between Oxford and Cambridge has long been touted as the area with the greatest growth potential outside London. Bookended by two leading university clusters, and containing a concentration of high value employment and the UK's fastest growing city, it has an agglomeration of assets and activity not found anywhere else in the country.

The original initiative for the area was launched in 2003 by three regional development agencies. The fact that it is yet to really accelerate highlights the challenges in the way of maximising the area's potential. The area does not function as a single labour market, and commuting between the key urban areas is almost non-existent. There is no train line across the corridor, and the road network is disjointed. East-west direct public transport is limited to a coach service, which takes 1 hour 50 minutes between Oxford and Milton Keynes at peak times, and a further 1 hour 40 minutes to Cambridge.

Clearly, improving the corridor's connectivity and infrastructure could therefore act as a catalyst for future growth. But this won't be a fast or easy process; the final routes for both the road and rail links are yet to be confirmed, and construction on the Expressway is not projected to start until the mid-2020s. At the same time, the focus should not just be on the end to end journeys the new links will enable. Much of the greatest growth potential lies in the expansion of the travel to work catchments for settlements within the arc, which will link specialised economic hubs, and improve connectivity to London and Birmingham. This will enable greater collaboration and ease pressure in local housing markets.

Why this area?

The arc already has key strengths that make it a suitable location for large scale growth. Productivity in the arc as a whole is 2.6 % higher than the UK average. In addition, it has bucked the national trend for declining productivity growth since 2008, with growth in GVA per head between 2005 and 2015 over 3% higher than the England and Wales average. Milton Keynes is the most productive area, almost 45% higher than the national average outside London.

The productivity of the area is driven by the concentration of knowledge intensive industries located there. Cambridge generates 19 times more patents in a year than the national average, Northampton has the highest business start-up rate per capita outside London, and across the corridor there are world leading hubs for bioscience, engineering and tech.

2.1 million people work in the Oxford-Cambridge arc, and employment growth has averaged 44,000 new jobs per year for the last five years. Oxford Economics forecasts lower growth in the future, however, this projection is likely constrained by the current working age population. In reality, continuing the current trajectory of job creation would lead to increased migration to the area.

While Oxford and Cambridge themselves are currently constrained by green belt, the centre of the corridor offers huge potential for development. The greatest opportunities are likely to be where new infrastructure intersects existing rail and road, creating new hubs.

Bedfordshire sits at the centre of this opportunity, with the new east-west links crossing the Midlands and East Coast Main Line and the M1 in the county. Milton Keynes offers strong growth potential for both residential and commercial development, with proposals to create a new STEM focused university, densify the city centre and very little constrained land surrounding the city. Satellite new settlements around Oxford and Cambridge, and second tier settlement growth across the arc will also form a key part of the sustainable growth agenda.

Milton Keynes is currently the fastest growing city in the UK

The challenges to delivering on the potential

The National Infrastructure Commission (NIC) found that the main risk to the success of the area is a "lack of sufficient and suitable housing". While there may not be another UK region that could be a challenge, without a joined-up plan for housing, jobs and infrastructure across the corridor, the area will be left behind by its international competitors. The new east-west transport links provide a clear opportunity to tackle this problem through strategic planning for major development, including new settlements to help meet the area's future housing need.

Currently, the pattern of growth is not evenly distributed across the corridor. Milton Keynes is the fastest growing city in the UK, and is projected to continue that growth, with the population increasing from 270,000 in 2018 to 500,000 by 2050. To accommodate this growth, new homes have been built for the last five years at an annual average of 1.3% of existing stock. In contrast, net additional dwellings as a percentage of existing stock has averaged 0.9% in Northampton and 0.4% in Oxford over the same period. Housing development has been hindered by land constraints and competition from alternative uses.

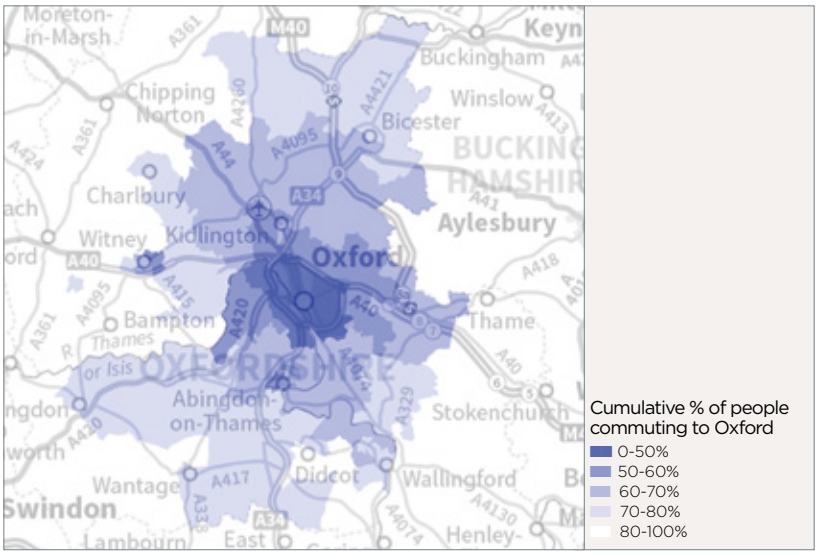
A further challenge to maximising the potential of the new infrastructure is that there is no joined up planning for the corridor. There is an emerging trend for more strategic planning, such as the Oxfordshire Housing Deal and the Cambridge and Peterborough Combined Authority, but these are mainly at a city region geography, rather than covering the whole growth area, and can be subject to changes in local politics, seen most recently in South Oxfordshire with the recommendation to throw out their current Local Plan.

A key challenge for the area will be combining national planning policy with a regional strategic vision for the whole corridor that joins up infrastructure delivery with economic and housing growth.

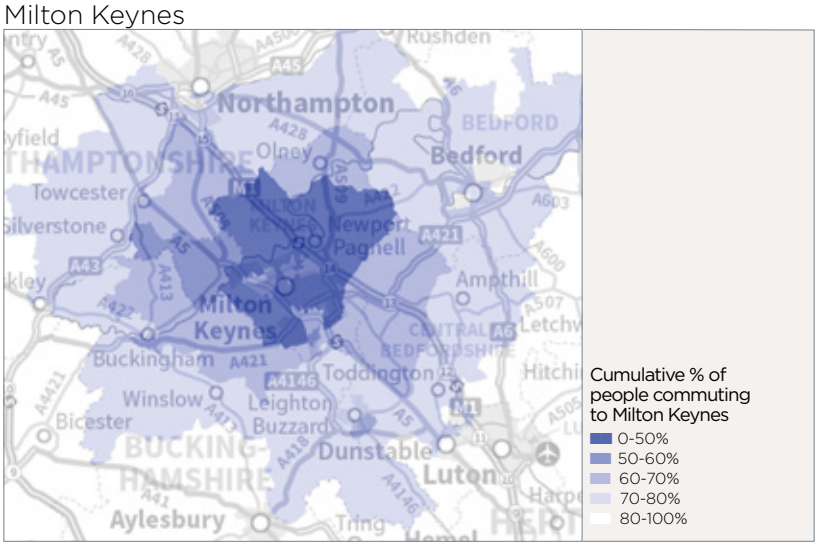
"Improving the area's connectivity will act as a catalyst for growth"

Travel to work areas

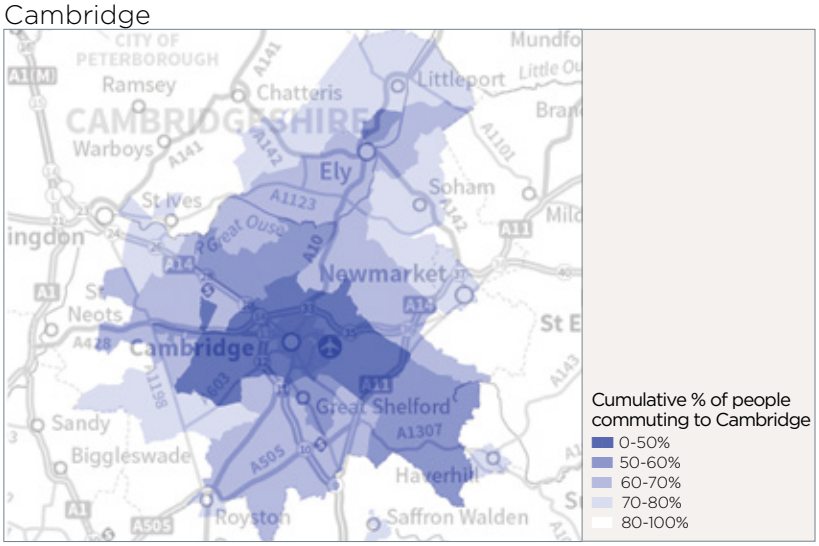
Oxford



Milton Keynes



Cambridge



Source 2011 census, OS

Economic centres

Understanding the corridor

Mapping out the key economic centres located within the arc

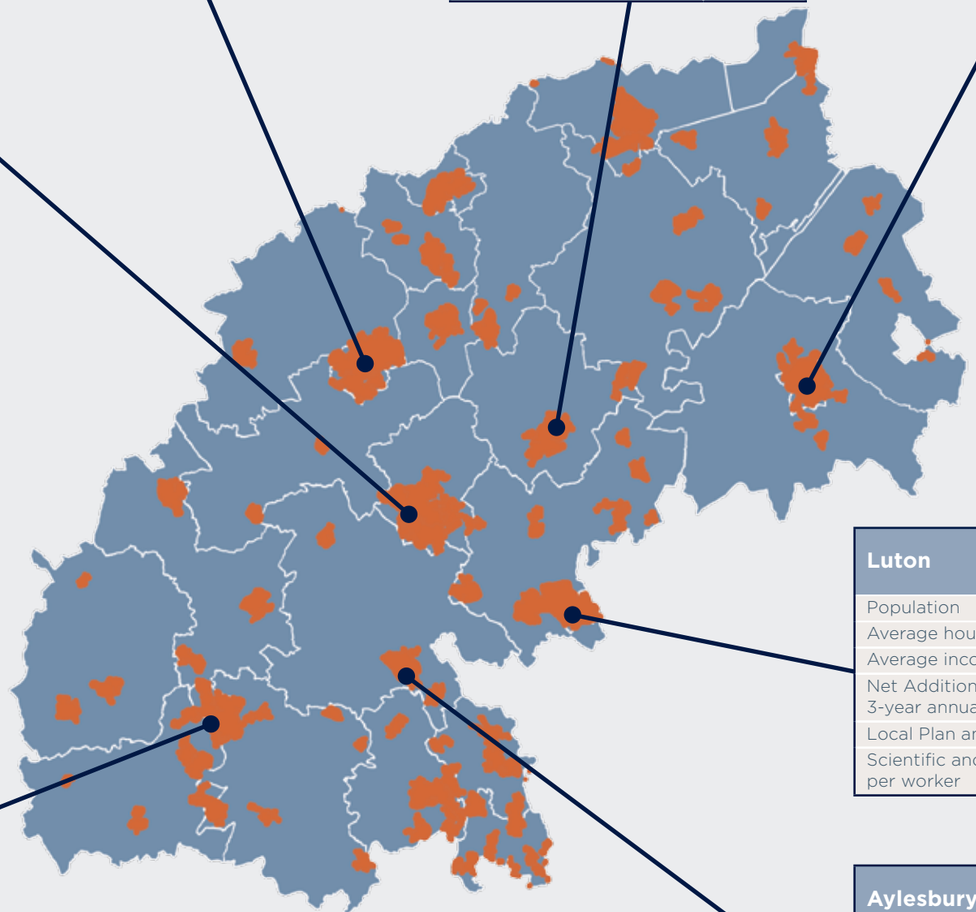
While the arc is often spoken of as a single unified area, it actually operates as several distinct economic centres, with varying commercial and residential real estate markets. Housing availability and affordability varies significantly; the average residential transaction value across the arc in the year to March 2019 was £373,000, but ranged from £228,000 in Northampton to £524,000 in Cambridge. The ratio of average earnings to average house prices varies from 6.7 in Corby to 12.9 in Cambridge.

Unsurprisingly, in Oxford and Cambridge, education is the largest employment sector, but in the surrounding local authorities of South Cambridgeshire, South Oxfordshire and Vale of White Horse, the professional, scientific and tech sector dominates. In Milton Keynes and Bedford, although the scientific and tech sectors are still very productive with a high GVA per worker, the largest employment sector is wholesale and retail trade.

While knowledge intensive industries form a key part of the economies of this region, there are significant variations across the arc and clusters often have strong links with London and Birmingham rather than with other locations in the corridor. The 2017 SQW report for the National Infrastructure Commission identified four main clusters; the greater Oxford area with strengths in bioscience and high tech engineering through the Harwell campus, high performance engineering centered on Silverstone with links to Milton Keynes, Cranfield and Northampton, food tech around Bedford and the Ivel Valley, and bioscience, pharmaceuticals and digital across greater Cambridge, benefiting from the universities and well established science parks.

The pattern of future growth is also not anticipated to be uniform across the arc, and will result in very different commercial property requirements. The corridor between Cambridge and Luton is projected to see the most growth in the professional, scientific and tech sector, while in both Bedford and Oxford, health is anticipated to be the fastest growing employer.

Milton Keynes and Northampton are both projected to see strong growth in the administrative and support sector. Future housing development will need to account for the range of affordability and tenure needs that will arise from this growth.



Milton Keynes	
Population	268,607
Average house price	£310,105
Average income	£31,782
Net Additional Dwellings 3-year annual average	1,303
Local Plan annual target	1,750
Scientific and tech GVA per worker	£50,303

Northampton	
Population	225,146
Average house price	£228,887
Average income	£26,974
Net Additional Dwellings 3-year annual average	805
Local Plan annual target	1,431
Scientific and tech GVA per worker	£36,226

Bedford	
Population	171,623
Average house price	£308,401
Average income	£28,520
Net Additional Dwellings 3-year annual average	1,190
Emerging Local Plan annual target	868
Scientific and tech GVA per worker	£45,178

Cambridge	
Population	125,758
Average house price	£524,561
Average income	£33,199
Net Additional Dwellings 3-year annual average	1,071
Local Plan annual target	735
Scientific and tech GVA per worker	£92,678

Luton	
Population	214,109
Average house price	£258,207
Average income	£29,339
Net Additional Dwellings 3-year annual average	765
Local Plan annual target	425
Scientific and tech GVA per worker	£38,269

Oxford	
Population	154,327
Average house price	£511,444
Average income	£35,519
Net Additional Dwellings 3-year annual average	292
Emerging Local Plan annual target	1,400
Scientific and tech GVA per worker	£57,698

Aylesbury	
Population	199,448
Average house price	£375,085
Average income	£30,000
Net Additional Dwellings 3-year annual average	1,309
Emerging Local Plan annual target	1,326
Scientific and tech GVA per worker	£34,797

Source Oxford Economics, ONS, MHCLG, HM Land Registry

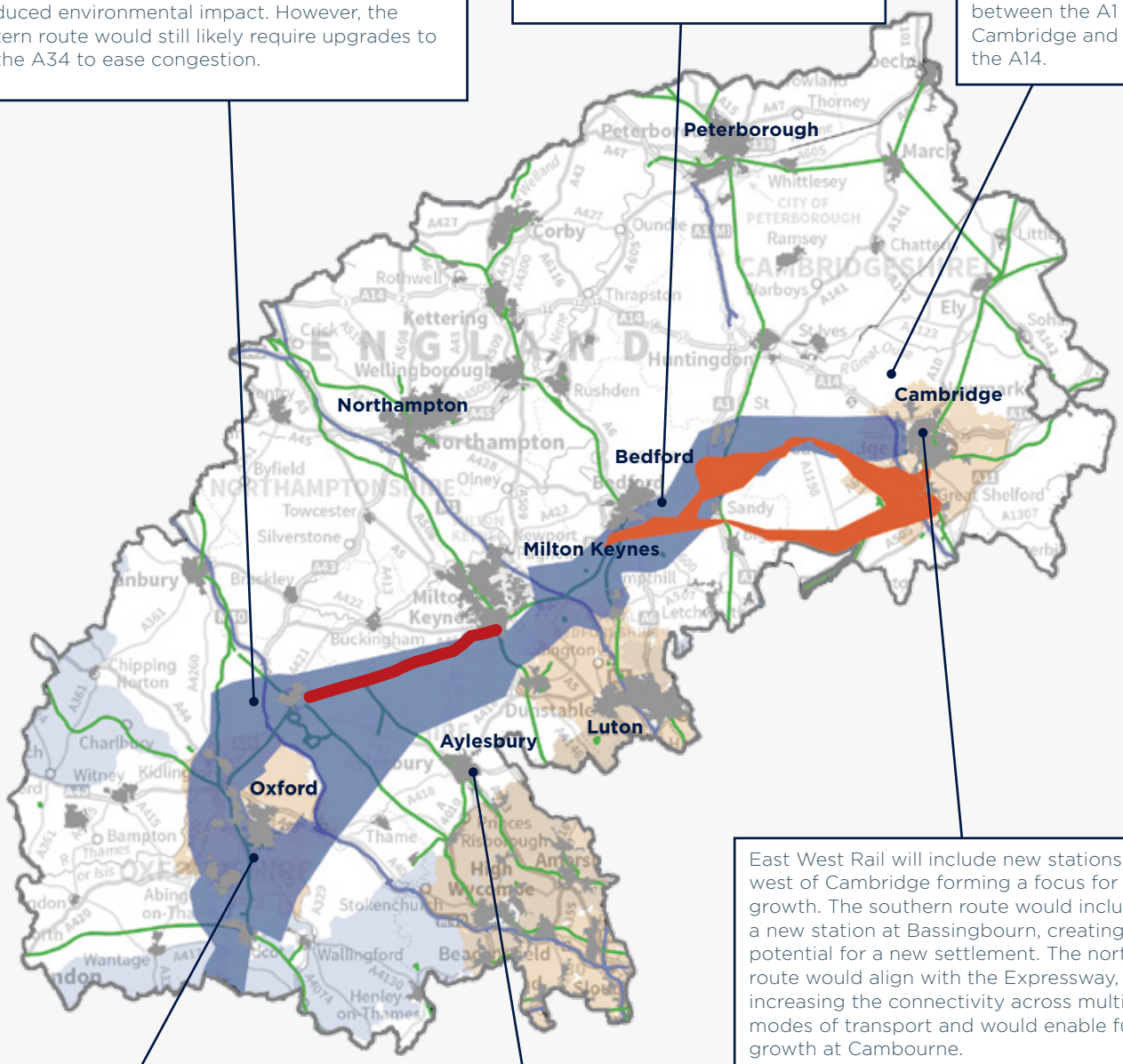
Infrastructure improvements

Where are the key decision points and what opportunities will be created?

A key decision is whether the Expressway will go to the east or west of Oxford. Highways England's assessment has concluded that the western route could use existing infrastructure and would have a lower cost, but the eastern option would have a reduced environmental impact. However, the western route would still likely require upgrades to the the A34 to ease congestion.

Intersections with existing major infrastructure will create new opportunities for logistics and distribution, and are also most likely to support new settlements.

Increased road and public transport capacity will open up new development opportunities between the A1 and Cambridge and along the A14.



East West Rail will include new stations west of Cambridge forming a focus for growth. The southern route would include a new station at Bassingbourn, creating potential for a new settlement. The northern route would align with the Expressway, increasing the connectivity across multiple modes of transport and would enable further growth at Cambourne.

The Expressway will bring over 450,000 people within a 45 minute drive of the Oxford Science Park. If the road route goes to the south of the city, it would tie in more closely to this cluster.

The focus is not just on the Expressway itself, but also on the surrounding network. Upgrading the link from Aylesbury to the new Expressway will be important to ensuring the town is able to accommodate increased housing development.

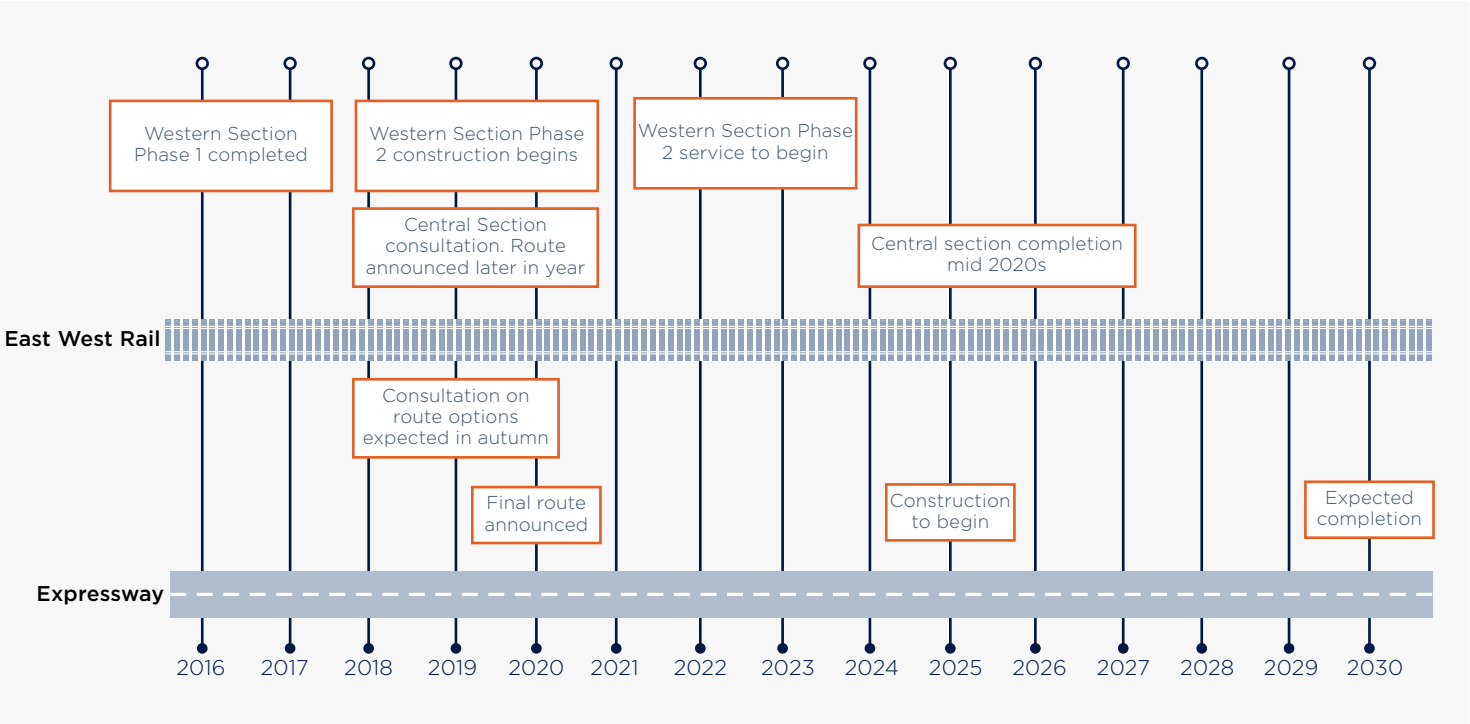
Infrastructure development
- East West Rail (West Section)
- East West Rail (Central Routes A & B)
- Oxford Cambridge Expressway
- Existing Railway
- Existing Motorway

Constraints
- AONB
- Green Belt

Source Savills Research

Two key areas where the impact of new infrastructure can be maximised are to unlock more land and create new transport hubs

Proposed infrastructure timeline



Source Highways England, East West Rail

Key decision points

Currently, investment in the arc is focused on Oxford and Cambridge. The main opportunity that could be unlocked by new infrastructure is to create a new focus for investment and growth in the centre of the arc around Milton Keynes and Bedford. This area has the benefit of not being constrained by green belt as Oxford and Cambridge are, and also having existing routes crossing it from London and Birmingham.

Creating a new focus for innovation and growth in the centre of the arc will be supported by the new university in Milton Keynes. The university is planned to open in 2023 and will have 5,000 students, focused on science, technology and engineering. It will be in the centre of the city, forming an important part of the plans to densify the area, including delivering 4,000 new homes and additional commercial space.

There are two key areas where the impact of new infrastructure can be maximised. The first is where it aligns with existing growth areas, to unlock more land and allow development at higher densities. The prime example of this would be Cambourne, which will be served by the Expressway potentially the new railway and proposed Cambridge Metro, meaning it could accommodate an increased amount of overspill housing need from Cambridge with greatly improved public transport links. The alternative southern option for the railway has the potential to support growth at Bassingbourn, but at a slower rate, as any development would need the Ministry of Defence to relocate from Bassingbourn Barracks.

The second is to create new transport hubs where new infrastructure connects with existing road and rail. Such nodal points can be found at Sandy, Bicester, Milton Keynes and Bedford. Intersections with existing major infrastructure will create new opportunities for logistics and distribution, and are also most likely to support new settlements.

With HS2 now under review, it could be appropriate to consider whether creating a station where it meets the East West rail would unlock more land to deliver further growth.

Additional office space equivalent to a market the size of Reading will be required by 2050

Attracting the best talent

What are the commercial requirements for the knowledge intensive sectors?

Savills own research to understand the needs of the office worker (What Workers Want 2019) highlights the importance of comfortable working conditions and the ability to commute with minimal time and cost. For the Oxford-Cambridge arc it is imperative for the delivery of commercial offices and research and development (R&D) space to meet the needs of the workers, to attract and retain the best talent and grow the economy by attracting the best companies in the world.

The arc is bookended by two of the world's leading educational institutions providing anchors of global significance. The mix of investing institutions, the appropriate supply of quality of labour and mobility solutions, including business-to-business and commuting, must be underpinned by the commercial real estate. This will reconceive the link between people, places, knowledge and industry. The knitting together of high-value, research-orientated sectors and highly creative fields, including industrial design.

The global rise of the 'innovation district' is a good starting point to understand the needs for the Oxford-Cambridge arc and how it must develop through time. The arc is well placed with the ingredients of globally-renowned anchor institutions, established clusters and a very healthy mix of start-up organisations to stimulate innovation. All must be physically linked by integrated mobility solutions, both large-scale and micro-scale to support the transfer of people, products, investment and, importantly, knowledge and ideas.

What does the future office/science/technology park look like? Commercial developments must increasingly be configured with shared work and laboratory spaces and smaller, more affordable areas for start-ups. The more traditional R&D route to discovery is increasingly heading towards a roadblock and it is no surprise to see large pharma looking towards smaller companies, particularly the technology community for collaboration and assist with future discovery.

Investment driven growth

Across the Oxford-Cambridge arc, there are several clusters of world leading industries that have the potential to realise further synergies by enhancing the connectivity of the region. The delivery of the arc strategy is akin to the industrial revolution, where the interdependence of many sectors and input of capital, both money and people, led to waves of economic prosperity and the foundations for an improvement in living standards.

The arc in the next 10 years will be driven by those sectors that have attracted significant investment in the past five years. The key clusters in the region include; aerospace, life sciences, data and computing and motorsport, particularly Formula 1. Indeed, this is reflected in the flow of private equity and venture capital investment. The last five years has seen pharmaceutical, software (cybersecurity), automotive (including autonomous vehicles) and biotechnology sectors attract the largest amounts of capital. Oxford and Cambridge areas have seen the largest share of corporate investment in the past five years. The delivery of the appropriate quantum and quality of floorspace in the Milton Keynes and Bedford areas would see a wider share of investment in the future.

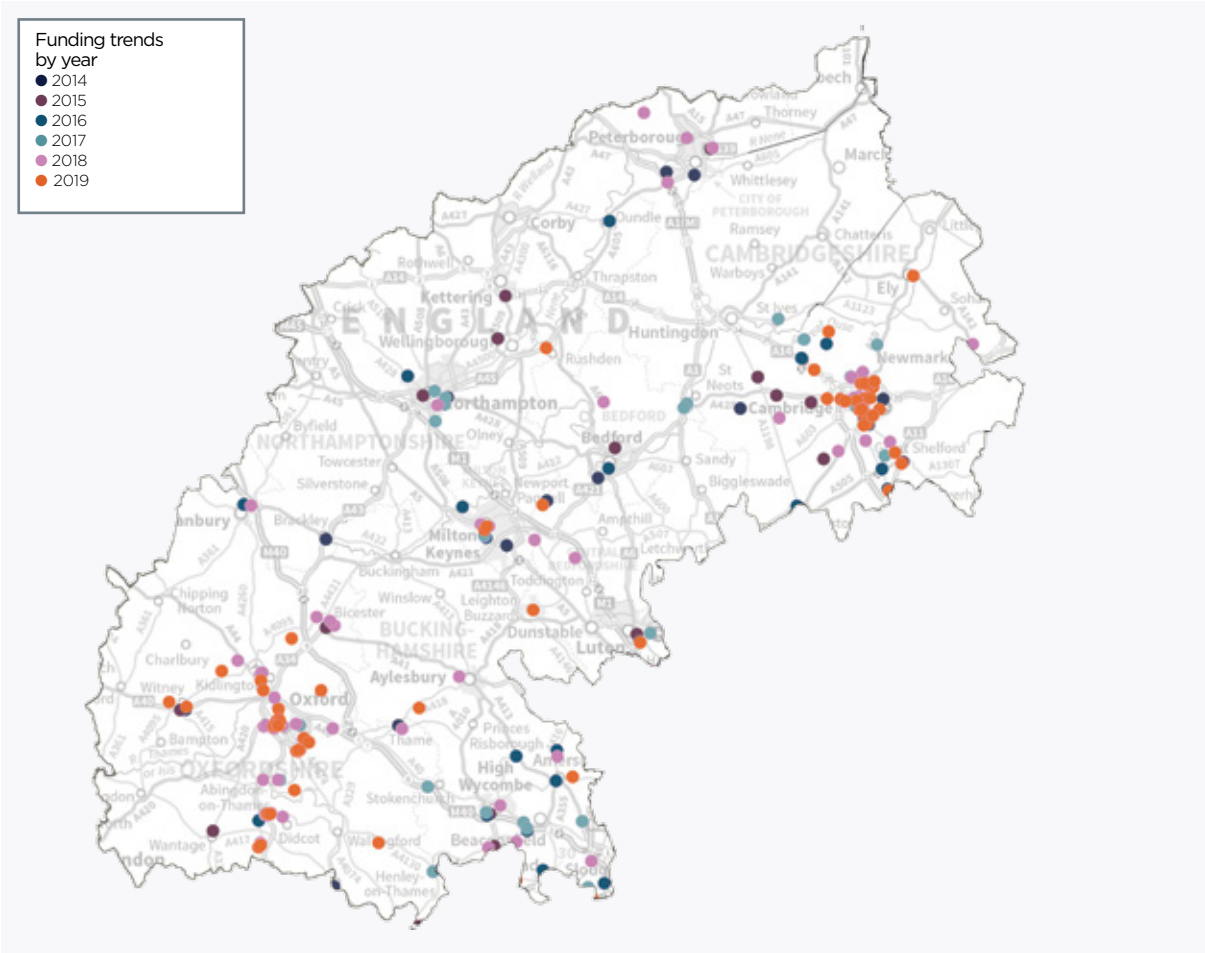
Encouragingly, the 2019 funding patterns show a rise from £10.2bn in 2018 to £27.4bn (170% increase to end-Q3 2019). In terms of venture capital, this has risen from £861m in 2018 to £1,076m as at end-Q3, a 25% growth rate despite the high level of political uncertainty in the UK.

The arc is home to ten universities and greater connectivity will encourage more collaboration between the institutions which will strengthen the clusters' ability to commercialise ideas. The interdependency between educational institutions and corporates is absolutely key. The network of proposed "living laboratories" will help enable greater collaboration between businesses and academia in the region.

Furthermore, there will be increased use of assets such as Harwell, Silverstone and Cranfield, which will help establish and develop networks.

5,000 students will enrol in MK:U, the first university to focus on digital skills

Venture capital investment is concentrated in the east and west of the arc



Source Savills Research, Pitchbook

Creating new clusters

Office-based employment is set to grow substantially in the arc, according to the National Infrastructure Commission. If growth constraints are removed from the region and the area's housing shortage is addressed this could result in 1.1 million new jobs. Milton Keynes is expected to experience the strongest commercial property development levels across the region. Furthermore a new university in Milton Keynes (MK:U) is being developed by Cranfield University and will be the first university to focus on digital skills. This will enrich the already existing highly skilled labour pool and benefit the arc directly.

Place making that embraces future methods of mobility will be essential to ensuring knowledge intensive industries continue to thrive in the region. The arc is well placed to respond to the demands of The Future of Mobility Grand Challenge which looks to reduce carbon emissions and congestion and make mobility available on a widespread basis. Related to this, the South East Midlands Industrial Strategy for example is committed to build on the existing R&D strengths of the area.

For example, there are over 4,000 high tech and innovation companies within an hour of Silverstone. Further investment into the region's established clusters will be needed to accelerate innovation and pioneer the use of new technologies. The research, development and commercialisation of autonomous vehicles will continue across the arc and the new commercial development will need to be able to adapt to these technologies.

Oxford and Cambridge will remain the driving forces of the arc. However, there is a need for choice in terms of scale, commercial property price points and location. A polycentric model of expansion is credible to alleviate pressures on the two historic ends of the arc. For the area to achieve its full potential there needs to be commercial districts across the region which ensure that the benefits of clusters are not localised. To achieve all the aims, including the delivery of the 'right' housing, the commercial sector must deliver an additional 3.9 million sq. ft. of office/R&D floorspace in the next 10 years.

Longer-term, by 2050, the Oxford-Cambridge arc will have to deliver an additional 9.6 million sq. ft. – this is an office market the size of Reading or 1.2 times Milton Keynes office stock today. Some of this will be delivered in Oxford and Cambridge, but the emergence of new stock in the centre of the arc is critical for its success.

UK is in fourth place globally attracting venture capital and private equity

Competing on the world stage

How does the area measure up when compared to its international competitors?

The degree of success of the arc will be determined in part by the growth of competing locations across the globe. It is key to deliver the most appropriate office and R&D space within specific sectors including healthcare and high-value automotive to retain and expand those sectors within the arc.

Healthcare is an obvious sector to concentrate on. Analysing the flow of capital in to this sector provides the clues as to the dominant global locations. Of the top global locations, that have attracted venture capital and private equity, the UK is in fourth place, with nearly £15 billion raised in the last five years. However, this is significantly behind the US at £206 billion. China is second overall at £22 billion.

A review of the Global Innovation Index 2019 (Cornell University, INSEAD, and the World Intellectual Property Organization), with a focus on global health, shows the relative strengths of 129 economies, of all scales. The 'best' Science & Technology clusters using scientific publications and patent filings under the World Intellectual Property Organization (WIPO) data for Patent Co-operation Treaty (PCT) shows where the UK sits, but more specifically, Oxford and Cambridge.

Both are in the top 100, with Cambridge 58th, nestled between Rome and Sao Paulo; Oxford in 71st place between Delhi and Vancouver (London is 15th and Manchester is 92nd, the other two UK clusters in the top 100). Both Oxford and Cambridge have not moved in the rankings, whereas almost all Chinese clusters moved significantly up the rankings.

Strengthening of the arc will push UK locations higher, eventually challenging for a top 10 place.

It is clear that for the life science cluster in the arc region to compete internationally there needs to be greater collaboration between major centres. There are localised initiatives which are improving connectivity between research and industry, although this needs to be expanded across the region. The Life Science Sector Deal 2 ambitions include the UK being the world's most innovative economy. The collective strength of the arc's Life Science cluster can help achieve this objective if there is sufficient collaboration and the physical connectivity of the region improves.

There are other world-leading clusters which are located in the arc. The aerospace cluster includes the Harwell Science and Innovation Campus, Oxfordshire which comprises 90 space organisations and employs nearly 1,000 people and is the largest space cluster in Europe.

Westcott Venture Park, Aylesbury is a growing space cluster with a notable specialism in upstream space. The world renowned Life Science clusters in Oxford and Cambridge are the most productive in Europe. These two clusters compete with international world leading locations.

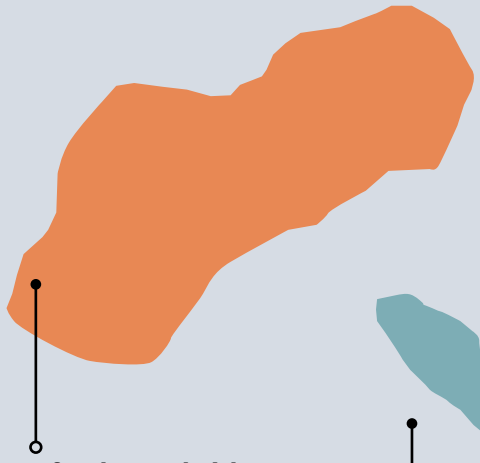
However, for the arc Life Science clusters to remain competitive in the future there needs to be acceleration in the delivery and provision of laboratory space. There is currently circa 175,000 sq. ft. and sub-50,000 sq. ft. of laboratory space available in Cambridge and Oxford, respectively, whilst in Boston there is around 250,000 sq. ft. available of a total stock of 13.5 million sq. ft., highlighting the comparative shortfall of laboratory space in the arc.

Top 10 global healthcare clusters		Total healthcare capital raised (£bn; 2019)
1	Tokyo-Yokohama, Japan	£3.40
2	Shenzhen-Hong Kong, China/Hong Kong	£0.39
3	Seoul, Korea	£0.76
4	Beijing, China	£6.97
5	San Jose-San Francisco, US	£19.05
6	Osaka-Kobe-Kyoto, Japan	n/a
7	Boston-Cambridge, US	£26.65
8	New York City, US	£81.92
9	Paris, France	£0.49
10	San Diego, US	£2.69

Source: Cornell University, INSEAD, and the World Intellectual Property Organization

The arc can compete globally on its affordability, prime office rents in Cambridge and Oxford are approximately £45 per sq. ft. whereas in West Cambridge (Boston), they are over $90 per sq. ft. There will need to be a conscious decision from developers and investors to price office and laboratory space appropriately in the arc that will allow the Life Science cluster to continue to expand and thrive whilst allowing for sensible rental growth.

Overall, the success of the arc will be driven by embracing the human factors. It must focus on building an international community. This means improving tenant interaction, networking and cross fertilization of ideas, enabled by the latest mobility solutions. This would generate innovation.



Oxford-Cambridge Arc, UK

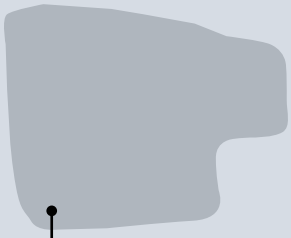
£27.4bn
Total capital raised

£1.1bn
Venture capital
2019

Silicon Valley, US

£149.2bn
Total capital raised

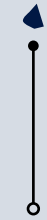
£34.6bn
Venture capital
2019



Beijing, China

£27.0bn
Total capital raised

£12.6bn
Venture capital
2019



Boston/Cambridge, US

£36.3bn
Total capital raised

£5.1bn
Venture capital
2019

Sophia Antipolis, France

£0.08bn
Total capital raised

£0.01bn
Venture capital
2019

Global

£2.8tn
Total capital raised

£158.2bn
Venture capital
2019

0 5 10 15 20 Mi

Source: Savills Research, Pitchbook

Does physical scale matter?

A comparison of the arc to innovative global locations, in both physical size and fundraising, is interesting to highlight the fact that it is the quality of the ecosystem that drives future prosperity and not just the size. Embracing all types of technology and innovation is important to ensure longevity of the locations. Silicon Valley leads the way on this. It evolved throughout the second half of the 20th century but still leads the way on fundraising activity, globally. Sophia Antipolis developed from the 1970s, and had been successful to diversify the local economy and create a scientific community in a previously untested location.

However, the recent funding patterns in the Oxford-Cambridge arc are relatively lacklustre in comparison to the burgeoning Chinese locations, including Beijing and the Zhongguancun science zone. Positively, the arc has a history and reputation for all types of technology and innovation. International recognition of the arc as a community of scientific and high-value industrial communities will deliver future success.

Current local plan targets across the arc total over 18,000 homes per year

Room to live

How is the necessary housing to support growth going to be delivered?

Across the Oxford-Cambridge arc, annual housing need is currently assessed at 18,000 homes. The majority (53%) of this is concentrated in just nine local authorities; Milton Keynes, Northampton, Cherwell, Vale of White Horse, South Cambridgeshire, Peterborough, Bedford, Huntingdonshire and Aylesbury Vale.

Only four of these nine local authorities are currently meeting their need; Vale of White Horse, Central Bedfordshire, Aylesbury Vale and Cherwell. The others are all falling short, with Oxford, Northampton and Milton Keynes having the largest shortfalls across the entire corridor.

Building new homes is an important step towards alleviating affordability constraints, which hamper economic growth by pricing out workers, and ultimately reduce the attractiveness of an area for occupiers if they believe they will struggle to recruit. In Cambridge and Oxford, homes are 13 and 11 times greater than workplace based earnings respectively.

The more affordable cities of Milton Keynes, Northampton, and Bedford still have house price to earnings ratios of over 8, well above the national average. This highlights the need for the proposed infrastructure improvement to unlock new areas that can support the region's growth potential.

Are we on track for a million homes by 2050?

The UK Government's ambition is for 1 million new homes to be built across the arc by 2050. However, if delivery was to remain at present levels over the next 30 years, only 630,000 homes would be built.

If the government's ambition is to be reached, housebuilding needs to rise by 13,000 homes annually. This equates to an additional 47% of the current delivery level and would mean building at a rate of 3.1% of the corridor's 2018 stock every year; a level not currently being achieved anywhere in England.

One of the challenges facing some parts of the corridor is the green belt; particularly around Oxford, Cambridge and the southern fringe near Luton and High Wycombe. The restrictions caused by this mean that there is increasing need for coordinated approaches across neighbouring districts to provide housing for growing workforces in these areas.

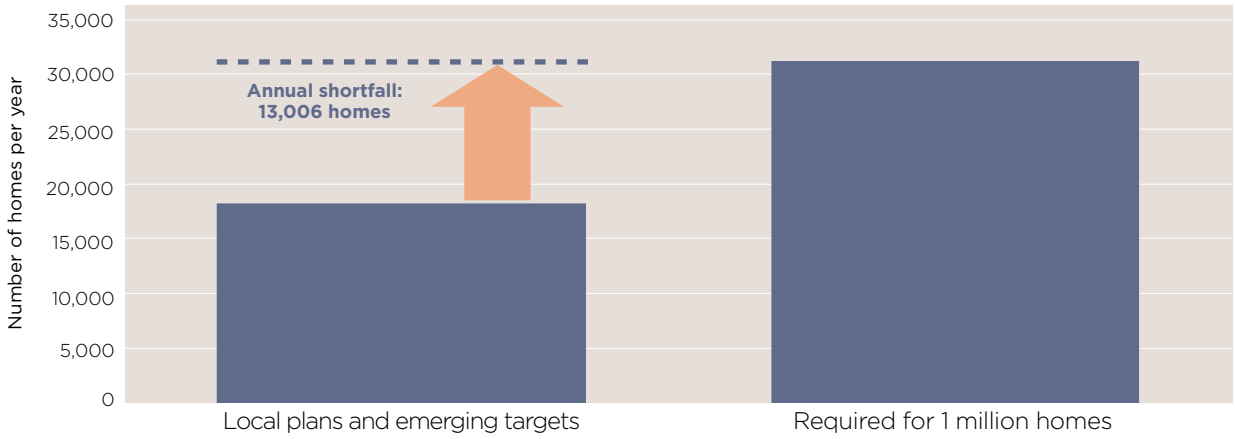
The greatest potential for development is likely to be in the middle of the arc, where land is less constrained, and the intersections of new and old infrastructure will have the greatest impact on connectivity. These areas already have the highest forecast household growth, and have the most capacity for accommodating growth beyond this baseline.

These are also the more affordable markets with land values that are more able to support the diversity of mix and tenure needed to enable the high rates of absorption needed to build homes at 3% of existing stock.

We have identified a pipeline of 320,000 homes on major sites across the arc, of which almost 20,000 homes are currently under construction. Much of this pipeline is long term strategic land; 140,000 homes are on sites that have been allocated in a local plan, and a further 35,000 homes are on sites at a draft allocation stage. But there is still a significant requirement for more land, particularly for sites that will come forward beyond 2030.

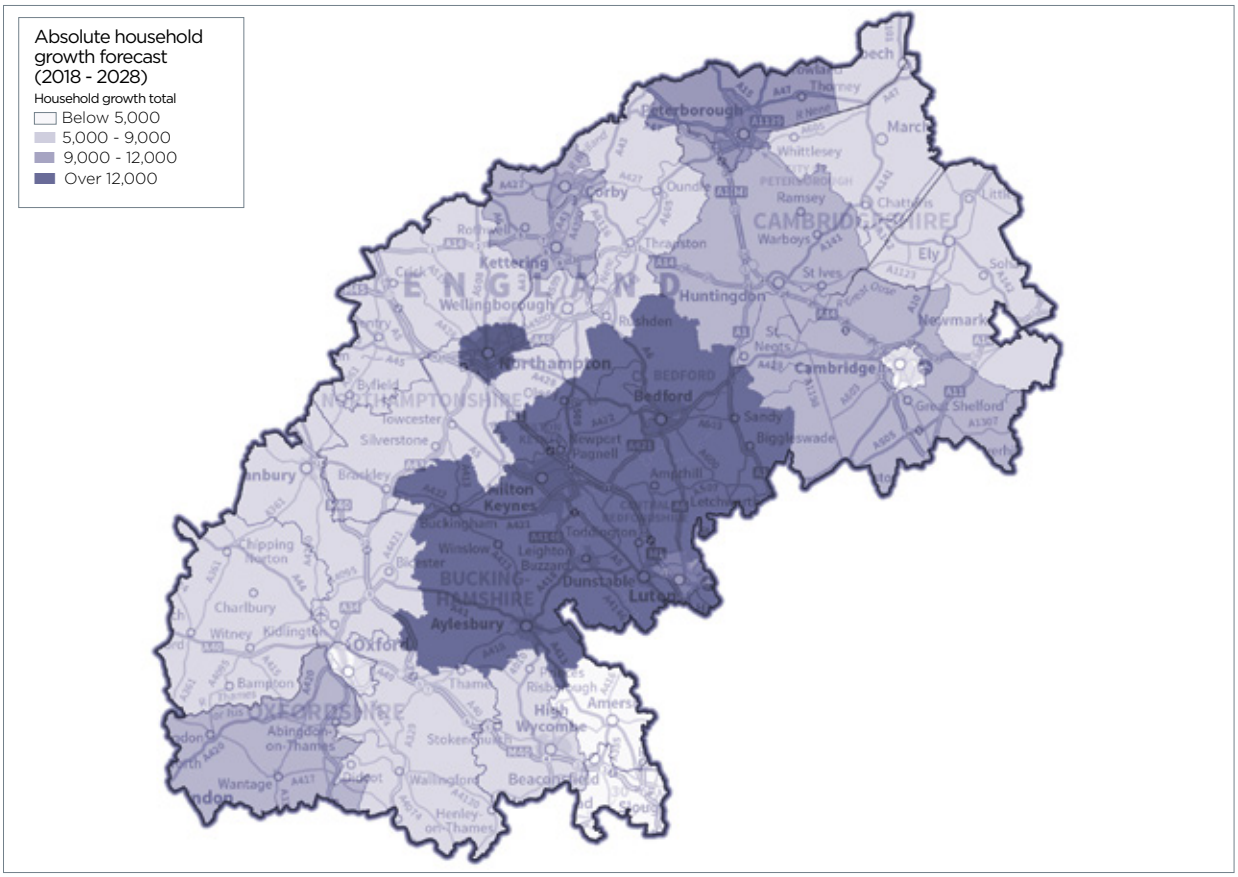
To meet the ambition of delivering 1 million homes by 2050, land with capacity for 680,000 homes needs to

Planning for 1 million homes



Source Savills Research

Where could housing be delivered?



Source: ONS

be identified. Based on the typical current density for development in the arc, this is equivalent to over 23,000 hectares. However, improving infrastructure will enable development at higher densities.

The government has announced four new garden villages within the corridor; in South Oxfordshire, Vale of White Horse, West Oxfordshire and Central Bedfordshire. While these will support delivery, at only 10,500 homes they are not the silver bullet to increasing delivery to the required level.

The NIC has suggested a further four areas for potential new settlements, between Bicester and Bletchley, at Marston Vale, at Sandy and between Sandy and Cambridge. However, the specific capacity of these areas to support new development will be dependent on the final routes of East West Rail and the Expressway.

Meeting need across tenure and price point

To deliver 1 million homes by 2050, innovative approaches will be needed to enable high levels of market absorption. Across the arc, there were 55,000 residential transactions in the year to March 2019, of which 17% were new build. This compares to the national average of new build comprising 14% of all transactions, and suggests that if housing delivery is to increase in the arc, open market capacity to absorb new homes will be limited. Instead, developers will need to provide a range of tenures.

This problem is particularly acute in both Oxford and Cambridge; in these locations the proportion of the population able to access home ownership is so limited that the private rented sector now accounts for over 30% of all households. This is in comparison to an average of 18% across the whole arc.

In these cities, it will be very challenging to build homes for open market sale at the price point they are needed; while the professional, scientific and tech sector is projected to grow significantly, it will still only be a proportion of overall employment, and new housing will have to accommodate workers on a wide range of incomes.

There are two possible solutions. The first is for city local authorities to continue to work with more affordable surrounding areas to accommodate their overspill of need.

This is already starting to emerge through the Oxfordshire Housing Deal, but without an overarching strategic body responsible for enforcing this co-operation, these agreements will always be at risk of changing local politics. City region strategic planning needs to be in place across the arc if the full enabling potential of the new infrastructure is to be realised.

Secondly, there may be more schemes to deliver homes for specific needs and across a range of tenures such as the recently announced partnership between L&G and Oxford University which will provide discounted homes for university staff on university land alongside homes for general sale.

To deliver 1 million new homes in the arc would require 69 million sq. ft. or assuming a site cover of 45%, 3,450 acres of employment land

The race for space

Delivering the industrial space to support growth

The continued success, and future growth, of the arc is not guaranteed unless there is action to overcome to area's housing crisis. However, less understood is the relationship between housing and employment land. This relationship has recently been examined by the British Property Federation through the release of the "What Warehousing Where?" report which highlights logistics as an integral part of the economy. As the population continues to grow and more homes are delivered it is equally important that we build in the capacity to serve the people who live there to ensure and support modern ways of living. The report emphasises that there is 69 sq. ft. of warehouse floor space for every home in England.

The ambition to deliver 1 million new homes in the arc would require 69 million sq. ft. or assuming a site cover of 45%, 3,450 acres of employment land. Although, it should be noted that the demand for warehouse space is not only directly related to house building but also other factors such as the ever-increasing shift towards online retail.

The demand for industrial and logistics development has been historically higher in well-connected areas; improved connectivity from the proposed infrastructure upgrades, particularly around new transport hubs will likely drive demand beyond that generated by growth in the arc itself.

Such growth in the demand for warehouse space will also see a substantial increase in the amount of jobs in the B class industries in the regions. Oxford Economics employment forecasts for the 22 local authorities in the arc show that the arc requires significant additional allocated industrial land to meet the anticipated space demands from future job growth. Oxford Economics forecasts for the transportation and storage sector along with the professional, scientific and tech sectors show a dramatic rise in job creation. It is projected that by 2030 there will be an additional 34,259 employees working in B Class industries throughout the arc.

Planning for workspace growth

Local authorities vary in the approaches they take to employment land reviews and allocations policies, with much information being outdated or incomplete. However, according to Savills own land database there is roughly 1,555 acres of employment land suitable for B class development within the arc. Assuming a site cover of 45% the current available land will provide roughly 31.1 million sq. ft. of space. Paired with the current pipeline of 2.29 million sq. ft. there is a rough total supply of 33.39 million sq. ft.

Furthermore, based upon the five-year average take-up of 5.02 million sq. ft. the current supply provides just 6.7 years' worth of supply within the arc. Factoring in the increased demand from both the rise in house construction and job growth the actual supply of land would be considered far lower.

There is currently a shortfall of 1,895 acres of employment land to meet the projected need from residential development. This land shortfall does not take into account the additional land requirements from the projected future employment growth.

It is clear from the evidence presented above that there is a severe mismatch in the amount of employment land required in the corridor compared to the amount currently being offered for logistics and industrial development.

A more structured and consistent approach to employment land reviews would allow for more effective strategic planning across the corridor. The lack of consistent data means that we have not been able to draw firm conclusions on the overall planned supply of employment land in the different market areas.

However, the analysis in this report does indicate that employment land supply is not responding quickly enough to meet need for land which would provide mechanisms for future economic growth throughout the Cambridge-Milton Keynes-Oxford arc.

69 million sq. ft. of additional demand for warehouse space will stem from 1 million planned new homes

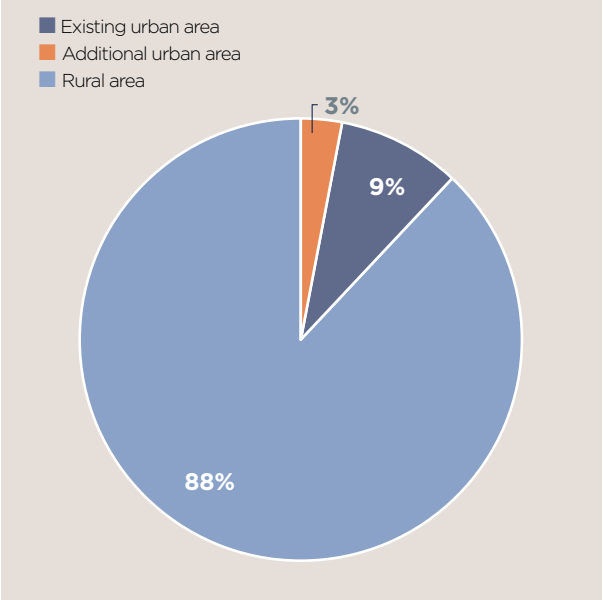
Net Environmental Gain

The Arc will be a hotspot for development over the coming 30 years, but will also require significant amounts of environmental offsetting to mitigate the impact of this development, creating new opportunities for landowners. As expected the Environment Bill 2019, published in October, formally introduces the concept of Net Environmental Gain on all development. In essence, net gain means that the environmental impact of a development is quantified prior to planning being granted. This impact is calculated in biodiversity units. The emphasis will be on avoiding impact in the development, and then mitigating within the masterplanning of the site.

However, in many cases a surplus of units will be needed to deliver the required 10% improvement, so an agreement will be needed with a landowner near the site to implement an environmental management plan that delivers the necessary biodiversity gain over a 25-30 year period. Net Environment Gain is not intended to enable development on protected or irreplaceable habitats, but to take an additional slice out of landowners' planning gain to improve a habitat nearby that merits investment.

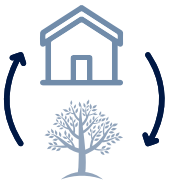
Urban land currently accounts for 9% of land use in the corridor. Savills estimates that building 1 million new homes will require almost 35,000 hectares of new urban land, increasing the total urban land cover to 12%. An average Net Gain scheme on farmland yields around 4 biodiversity units per hectare at an average value of £9-15,000 per unit for the duration of the management agreement. However, the number of hectares required for offsetting will depend on the ability to limit the overall environmental impact of development, and to mitigate onsite to start with.

Land use in the Oxford-Cambridge arc

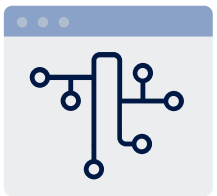


Source Savills Research

Key conclusions

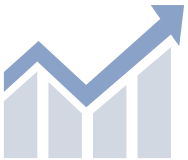


1. In addition to the current pipeline, we have estimated that land for an additional 680,000 homes, 9.6 million sq. ft. of office space and 69 million sq. ft. of warehouse space needs to be identified and delivered by 2050. Based on current development densities, this amounts to at least 23,000 hectares of land. However, these are not the only pressures on land use. Offsetting the environmental impact of this development will be a key part of ensuring the arc is sustainable.

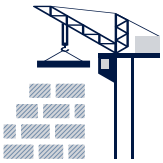


2. There is a need for joined up planning across the arc to ensure its potential is fully realised. A strategic plan needs to extend across all local government areas within the functioning economic area, with consistency over time. It should consider and plan for the optimum spatial relationships amongst housing, employment and transport investment, to facilitate sustainable development. Re-examining the role of green belt in achieving sustainable development will inevitably be part of that spatial planning.

3. The pattern of future growth will be concentrated in the centre of the arc. This area has the greatest potential for rapid expansion, aided by fewer land constraints, intersections of new infrastructure with links to London and Birmingham, and the creation of a new STEM focused university in Milton Keynes. Growth will be delivered both from densifying existing urban areas, and from new settlements and urban extensions.



4. To maximise inward investment in the arc, commercial development needs to focus on creating the appropriate dedicated eco-systems to cater for key growth sectors. Space needs to be specific and targeted for the key specialities of the different economic centres within the arc. Creating specialist clusters will be more attractive to inward investment and ultimately corporate occupiers. City regions and the ten universities in the arc have an important role to play in creating this vision.



5. In order to build the number of homes needed to support economic growth, housing development will have to diversify and innovate. Developers will have to provide a range of tenures to reach the required levels of market absorption, and new homes will need to accommodate workers on a wide range of incomes. We anticipate long term strategic partnerships between developers, investors and housing associations will be a key part of the solution.

savills

Savills Research

In-depth research and analysis into property market trends, forecasts from our specialist research teams, and market-leading commentary to help you make the right property decisions.

Emily Williams
Residential Research
0207 016 3896
ewilliams@savills.com

Steve Lang
Commercial Research
0207 409 8738
slang@savills.com

Kevin Mofid
Commercial Research
0203 618 3612
kmofid@savills.com

Richard Valentine-Selsey
Residential Research
0203 320 8217
richard.valentineselsey@savills.com

Emily Norton
Rural Research
0207 016 3786
emily.norton@savills.com

Savills Oxford

Richard Binning
Head of Office, Rural
01865 269 168
rbinning@savills.com

Charles Campion
Rural
01865 269 161
ccampion@savills.com

Charles Rowton-Lee
Commercial
01865 269 030
crlee@savills.com

Mark Townson
Building & Project Consultancy
01865 269 107
mtownson@savills.com

Roger Smith
Planning
01865 269 057
rasmith@savills.com

Tim Watson
Development
01865 269 144
twatson@savills.com

Savills Cambridge

Rob Sadler
Head of Office, Commercial
01223 347 209
rsadler@savills.com

David Henry
Planning
01223 347 253
dhenry@savills.com

Richard Janes
Development
01223 347 097
rjanes@savills.com

John Wootton
Rural
01223 347 179
jwootton@savills.com

James Kelway
Building & Project Consultancy
01223 347277
jkelway@savills.com

33 Margaret Street
London W1G 0JD
+44 (0)20 7499 8644