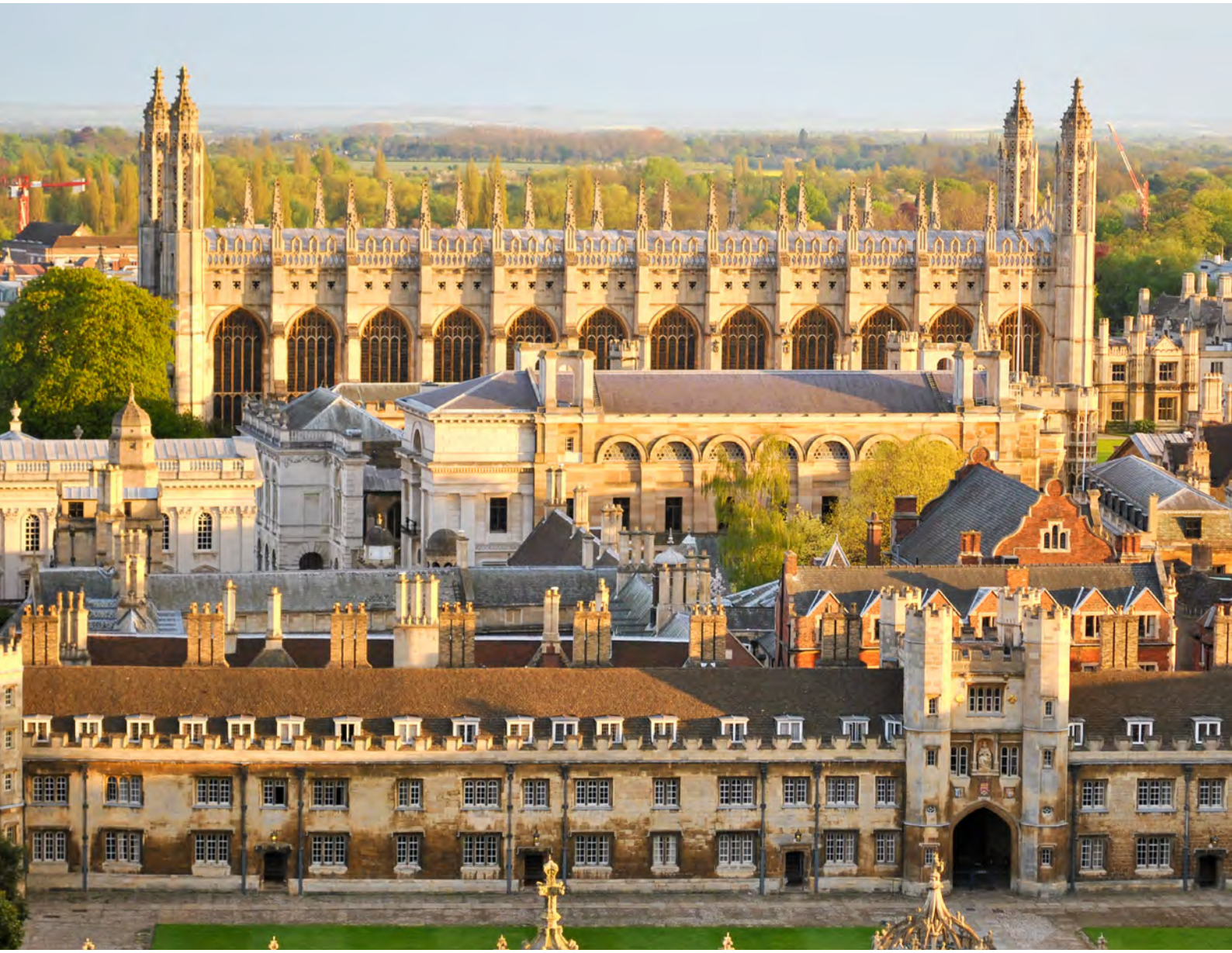
HM Government

The Case for Cambridge

March 2024



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Foreword by the Secretary of State for Levelling Up, Housing and Communities

For 800 years, Cambridge has been one of the intellectual centres of the world – a crucible of innovation, the home of Bacon, Newton, Widdowson, Rutherford, Crick, Watson, Franklin, Venki Ramakrishnan and Richard Henderson to name but a few.

Now, the next chapter is opening in this lengthy story of scientific and human achievement. One where new space is created for the laboratories and research activity which Cambridge so urgently needs, and new housing for the talented graduates and academics who are currently priced out of the area.

This document takes you into that future, where we work with local and national partners to create beautiful, integrated neighbourhoods and healthy communities. We will protect and enhance the cultural institutions and green spaces that are a treasured part of life in Cambridge and look to develop a sustainable transport network that makes congestion a problem of the past.

These are the changes needed to supercharge this scientific and economic supercluster, ensuring that it continues to make the advances that will see it flourish and thrive.

It will be a Cambridge that Wordsworth would recognise – the ‘long-roofed chapel’ of King’s College, the ‘glimpse of Cam’ that lifted his dreary morning as he passed over Magdalene Bridge – but made fit for the 21st century and beyond.

Cambridge has always moved with the times – pushing at the frontiers of human knowledge and understanding. From evolution to Artificial Intelligence, its work has shaped the course of history and made Cambridge one of the United Kingdom’s most innovative economies.

As Europe’s leading life sciences centre, Greater Cambridge is home to a vast array of international businesses and dynamic start-ups – critically important to UK Plc and our global standing.

Yet continued success cannot be taken for granted. The significant challenges that prevent Cambridge from reaching its full economic potential – specifically the lack of housing and research space, particularly when compared to international rivals – also serve to make it the most unequal city in the UK. This both jeopardises future growth and risks wasting the human talents which are vested in the city.

As a country, we should not stand by and let that happen. This document builds on the establishment last summer of the Cambridge Delivery Group under Peter Freeman, chair of Homes England and one of the country's leading authorities on delivering new developments.

While some will believe that Cambridge is too precious a jewel for this kind of expansion, we want to enshrine everything about Cambridge that people cherish most, and make it a city that brings out the best of all its talents: through beautifully-designed houses and neighbourhoods, joyfully-easy access to nature and green spaces, world-class cultural amenities, and fast and reliable public transportation with a wealth of options for walking and cycling. I ask the reader to fall back in love with the future, with the potential of what central government, collaborating with local partners and communities, can achieve for Cambridge.

This document outlines how in the years ahead we can give new life to the spirit of innovation and endeavour which has been the cornerstone of Cambridge's success.

Foreword by the Chair of the Cambridge Delivery Group

In the seven months since the Rt Hon Michael Gove MP, Secretary of State for Levelling Up, Housing and Communities, appointed me as chair of the Cambridge Delivery Group, I have had the opportunity to work with a wide range of Cambridge's political, business and academic leaders.

I have been consistently impressed by the shared civic pride, and the quality of leadership and collaboration on display, all with the aim of ensuring Cambridge fulfils its potential and that new jobs, homes and wider growth offer the best quality of life to residents.

My aim is to bring additional resource and support from central government to help achieve this and I have stressed the importance of close collaboration between central government and local government to ensure there is a well-funded, long-term, infrastructure-led plan to ensure everyone in Cambridge benefits.

The level of growth proposed by The Case for Cambridge will necessarily require an unprecedented level of funding and we will seek to optimise the contribution that can come from the land.

Cambridge in 2050 should be an urban exemplar for placemaking, combining good design, sustainable transport, new employment and housing that benefits everyone. We must retain and enhance everything that is special about Cambridge and ensure that its quality of life is as exceptional as its history.

1. Introduction

Cambridge is an exceptional city. It is a world-renowned centre of science and innovation, grown from the intellectual roots of its ancient university. King's College Chapel. The Mathematical Bridge. The Backs that line the River Cam. Few, if any, places around the world can match the city's blend of historical wonder, natural beauty and academic prestige. From John Milton to William Wordsworth, Charles Darwin to Rosalind Franklin, Isaac Newton to Stephen Hawking – the wealth of poets, scientists and pioneers that Cambridge has produced over the centuries is staggering. Indeed, the University of Cambridge has an astonishing 121 Nobel Laureates, more than any other university in the world except Harvard.[1]

It was Cambridge where, in 1953, Francis Crick announced to patrons of The Eagle pub on Bene't Street that he and James Watson had 'discovered the secret of life', following their discovery of the structure of the DNA molecule. Their work led to the rise of modern molecular biology and a plethora of real-life applications, from genetic fingerprinting to modern forensics.

The story of Crick and Watson encapsulates the spirit that has driven the success of Cambridge and its surrounding area. Since their monumental breakthrough, Greater Cambridge has become one of the UK's foremost innovation centres, home to a flourishing scale-up ecosystem and range of globally significant companies. Across the major innovations in life sciences, artificial intelligence, robotics, computing or telecoms, the ideas and patents conceived in Cambridge are likely to have played a part. As of 2023, a total of 23 businesses born in Cambridge have reached the $1 billion 'unicorn' status and the city is Europe's largest technology cluster, home to over 5,000 high tech firms.[2] This explosion of innovation and entrepreneurship has been termed the 'Cambridge Phenomenon'[3] – an inspiring example of sustained human ingenuity and the power of urban agglomeration.

But Greater Cambridge is already facing a number of challenges that are holding back its potential and risking its eminence in frontier research – one of the UK's crucial economic assets that drives its international competitiveness. These challenges are also impacting those who live, study and work in the city. They include:

- **Housing affordability.** Cambridge is one of the most expensive cities in the UK for buying a home, second only to London relative to local pay. In the last 10 years, house prices in Cambridge have increased by 78% and pay by only 23%.[4] Rents are also high, often making it difficult to live close to work, particularly for those on lower incomes who may not feel that they are the beneficiaries of the quality of life afforded to higher earners in the area.

- **Water supply.** The Environment Agency (EA) have advised that some water bodies in the Cambridge area are at risk of deterioration, and that any new development that takes place must not increase abstraction and risk deterioration to water bodies in Greater Cambridge.

- **Transport and mobility.** Severe road congestion is a feature of daily life, leading to journey delays, frustration for local people, poor air quality and related health consequences. Critically, pressured public transport and poor connectivity is constraining the local economy, wasting time and is inefficient for everyone. A journey from the north of Cambridge to the south of Cambridge can frequently take longer than the train from King's Cross to Cambridge.

1 University of Cambridge: Nobel Laureates https://www.cam.ac.uk/research/research-at-cambridge/nobel-prize. (2024)
2 Wired. How the Cambridge phenomenon continues to drive innovation. (2023)
3 Kirk, K., Cotton, C. The Cambridge Phenomenon: 50 Years of Innovation and Enterprise. Third Millennium. (2012)
4 Cambridge Econometrics. Cambridge City Portrait: State of the City. (2023)

- **Laboratory space.** There is a significant shortage of laboratory space in Cambridge. Businesses are seeking 2.2 million square feet of lab space between Oxford, Cambridge and London.[5] Larger occupiers expanding in Greater Cambridge could take years to acquire the right facilities, with the risk that they choose to locate outside of the UK entirely. This supply shortage has led to large rent premiums for laboratory space compared to European and US competitors.

International comparators: Boston, Massachusetts

Boston and the surrounding Massachusetts area is the world's largest life sciences cluster. There are over 130,000 jobs in life sciences, six times the number in Greater Cambridge. Employment in life sciences in Massachusetts grew rapidly between 2010-2022 and is set to continue, with forecast growth of 2.8% per year between 2022-2032.

At the centre of this life sciences community is Kendall Square, an innovation district within Cambridge, Massachusetts. Bordering the Massachusetts Institute of Technology (MIT) and situated in an historically industrial area, today it is home to startups and technology firms, including AstraZeneca, Biogen, Johnson & Johnson Innovation, Novartis and Pfizer. These world-class businesses have helped to bring over $2 billion of investment to Kendall Square.

The mix of living space, retail, hospitality, leisure and transport connectivity encourages professionals, academics and businesses to relocate to the area. It is also common for new graduates to seek employment in the area after leaving university. The unique interaction between researchers, entrepreneurs, clinicians and students drives innovation and excellence within the Kendall Square area.

Beyond the shared name, the parallels between Cambridge, MA, and Cambridge, UK are clear. Both are home to highly regarded, established universities that are engaged in cutting-edge research, as well as innovative businesses. Proximity to academic excellence is a significant private sector draw in both areas, particularly in the life sciences industry.

A place where professionals and academics alike want to live, Kendall Square and its wider area has become one of the most intensive and successful innovation clusters in the world.

Box source: MassBioEd. MassBioEd_2023_LS_Workforce_Trends_Report_5.31.23.pdf (wbur.org). (2023)

Cambridge is a central component of the UK economy's overall success. The government is therefore tackling these challenges head on, both to improve the lives of its current residents and make sure, in the national interest, that the city is set up to sustain the Cambridge Phenomenon into the future. In recent years:

- The region has been a particular focus for the government's **devolution agenda** with:
    - A £500 million Greater Cambridge City Deal, investing in infrastructure, housing and skills to facilitate the continued growth of Cambridge.
    - A £600 million Cambridgeshire and Peterborough Devolution Deal that will deliver substantial economic growth, doubling the area's economic output over 25 years to over £40 billion.

5 Knight Frank. The shortage of lab space in the UK's "Golden Triangle". (2023)

- The government has made substantial investments in key **infrastructure** schemes, such as:
    - The £1.5 billion upgrade of the A14 Cambridge to Huntingdon, which opened in 2020.
    - East West Rail, which will link Oxford to Cambridge and play an important role in boosting connectivity and unlocking productivity across the region.
- Significant government investment in **research and innovation** has supported the success of the Cambridge ecosystem, specifically:
    - £516 million of R&D funding for Cambridge in 2020-21.
    - Support, in 2022, to develop the masterplan for the Cambridge Biomedical Campus to help unlock its future as Europe's leading centre of life sciences.
- On **housing**, between 2010 and 2022 the government has supported the delivery of 3,500 new affordable homes in Cambridge, including over 2,500 affordable homes for rent in the Cambridge area.

Local authorities in Greater Cambridge share the ambition for high-quality sustainable growth, as demonstrated by the current plans and the emerging Greater Cambridge Local Plan. This ambition is matched by a strong record on delivery, particularly on housing where the delivery of new homes in Cambridge has outpaced benchmarks. In the last 10 years, Cambridge has had the highest housebuilding rates in the country, with more than a third of new housing provided as affordable housing and increasing rates of home ownership.

Cambridge has the potential to nurture the innovation and talent that is already prevalent across the city and the wider area. Indeed, Cambridge could foster an even broader cluster of knowledge intensive industries than Silicon Valley, given its existing local strengths and strong links to the broader UK innovation ecosystem. It is our ambition that plans to realise the economic potential of Cambridge are delivered with a firm commitment to the highest standards of architecture, planning, sustainability and urban design. The physical expansion of Cambridge required to facilitate its economic growth must be on a par with the most successful urban expansions of the past, from Edinburgh to Barcelona, and create a lasting legacy that benefits both current and future residents.

The unique characteristics of Cambridge mean its successes cannot simply be replicated elsewhere, and nor can they be taken for granted.

That is why, in 2023, the government established the Cambridge Delivery Group (CDG), chaired by Peter Freeman, the visionary behind the regeneration and transformational revival of King's Cross, to kickstart the development and deliver an ambitious programme of work. Now also Chair of Homes England, he brings over 40 years of experience of planning and delivering the regeneration of local areas and creating places that are both socially and economically vibrant. The CDG has already engaged extensively across Greater Cambridge with local leaders, businesses, landowners, academic institutions and wider organisations to understand local priorities and concerns, as well as accessing their wealth of expertise.

In the longer term, we are taking the steps to establish a development corporation to oversee and coordinate the complex operation and the fundraising required to deliver a bold vision for Cambridge. The development corporation, once established, will be backed by a multi-year funding settlement that is commensurate with the government's high level of ambition. This will be set out at the next Spending Review. Through this support, and with close local engagement, all that is great about Cambridge and its wider area can be protected and enhanced to sustain the city into the future.

This document sets out the case for Cambridge. It first outlines the economic rationale for the growth of Cambridge and its potential to enhance its position as Europe's science capital. Then it explores the core design, movement and placemaking principles that will underpin this endeavour. The final two sections outline the actions the government and the CDG, working with local partners, are taking to deliver infrastructure enhancements and accelerate the development of key sites in and around the city.

2. The case for growth

The crossing of an ancient Roman road and the River Cam marks the geographical origin of Cambridge. The original settlement was surrounded by a rich and unique variety of landscapes – the Bedfordshire and Cambridgeshire Claylands, the Fens and the East Anglian Chalk – each with their own unique ecological characteristics. The area has been a pre-eminent site for academic excellence since 1209 when the university was founded, and as its colleges have grown in renown, so too has the city's economy.

In 1950 William Holford and Myles Wright produced a report for the Planning Committee of Cambridgeshire County Council.[6] In response to the rate of population growth, Holford and Wright sought to restrict the expansion of Cambridge, instead focusing on what became known as the 'necklace villages' that surround Cambridge. This approach was supported by the establishment of Cambridge's Green Belt in 1965, a development which continues to shape the geography of the city to this day.

The size of the economic prize, and the potential contribution Cambridge could make to the UK economy, is significant.

Already, the University of Cambridge alone makes a total net economic impact on the UK economy of nearly £30 billion annually. This makes the university's contribution to the UK almost four times that of the Premier League.[7] Supporting the university and wider Cambridge ecosystem will have a significant impact on the overall economic health of the UK.

Illustrative growth scenarios show that if 150,000 new homes are built by 2050, which could increase the population and number of economic residents, there is potential to add approximately £6.4 billion to the economy (between £3.2 billion and £9.7 billion with a central estimate of £6.4 billion), with a fiscal benefit to the UK exchequer of approximately £2 billion in today's terms.

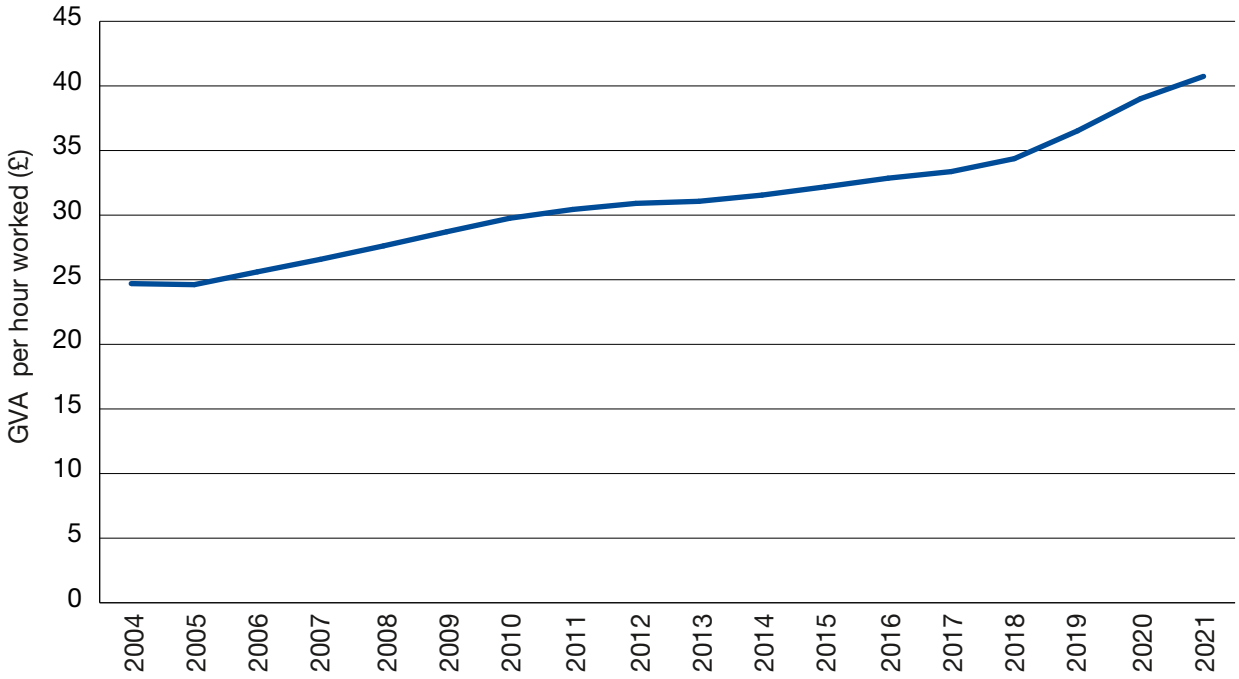
Together with Oxford, Cambridge is our nation's preeminent centre of academic excellence. Continuing to foster the spirit of scientific discovery that has driven its unparalleled success to date will unleash Cambridge to achieve its full economic potential. Doing so is a national imperative, as it is Cambridge that can rival the other international academic cities that have grown vertiginously over recent decades. If we do not act decisively, by following an ambitious and long-term growth plan, we risk permanently diminishing our position on the global stage.

A growing economy

A productive economy is characterised by higher wages and international competitiveness. Higher wages generate tax receipts, which allow the government to provide quality public services. As a city with higher-than-average rates of productivity, Cambridge already makes a leading contribution to the UK economy.

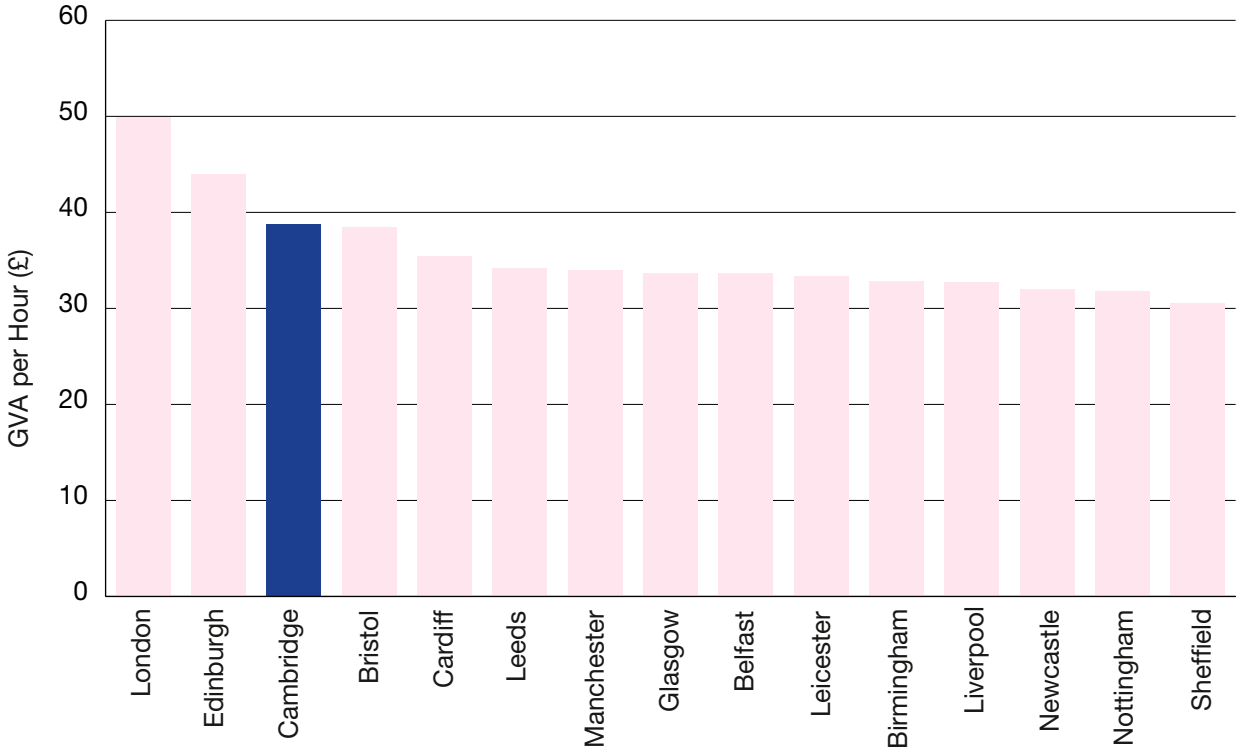
6 Holford, W and Wright, M. Cambridge planning proposals: a report to the Town and Country Planning Committee of the Cambridgeshire County Council. Cambridge University Press. (1950)
7 The Economic Impact of the University of Cambridge. le_-_economic_and_social_impact_of_university_of_cambridge_-_final_report.pdf. (2023)

Productivity in Cambridge (2004 - 2021) measured as gross value added (GVA) per head



The city's average productivity (measured by Gross Value Added (GVA) per hour between 2019-2021) is amongst the highest of the UK's major cities, with a GVA per hour of £39.[8]

Productivity of UK's major cities (2019-21)



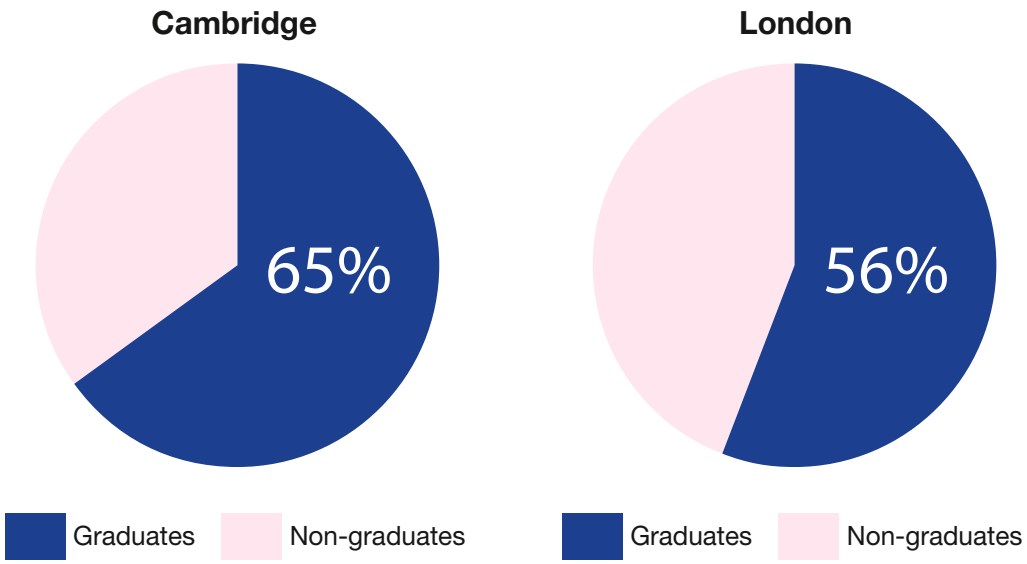
8 ONS. Subregional productivity: labour productivity by city region. (2023)

High demand for skills

As a home to global leading research clusters, demand for specialist skills is very high. Cambridge has the highest share of graduates of all cities in the UK: the share of its working-age population who are graduates is 65%, far higher than London's 56%.

Cambridge also has the highest share of qualifiers in science, technology, engineering and mathematics (STEM) subjects.[9] For example, in 2021, the percentage of people employed in Knowledge Intensive Business Services in Cambridge (18%) was above the England (14.7%) average.[10]

London and Cambridge - share of the working age population who are graduates



Life sciences and technology

Cambridge's business environment is strong, innovative and successful. The unique blend of academic excellence and innovative businesses linked to life sciences began in the 1960s and was spurred on by the Mott Report (1969) which identified the importance of nurturing links between the university and industry.[11] This report led to a relaxation of planning rules that prohibited commercial property near colleges and the first science park – Cambridge Science Park – was established by Trinity College shortly after.[12] In the decades that have followed, Cambridge's science-driven economy has continued to boom.

The University of Cambridge is consistently among the leaders in the country for patent applications and globally for academic citation and the research council spend (2020-21) in the Cambridgeshire County Council area is c.£460 per person, eight times higher than the average UK spend of c.£56 per person.[13]

9 HESA Open Data. HE student enrolments by HE provider and subject of study 2019/20 to 2021/22 (2023)
10 NOMIS. Business Register and Employment Survey. Data from 2022 (2023)
11 House of Commons Science and Technology Select Committee. House of Commons - Science and Technology - Minutes of Evidence (parliament.uk). (1999)
12 Cambridge Science Park. The history of Cambridge Science Park. (2024)
13 UK Research and Innovation (UKRI). Geographical distribution of spend data financial year 2020-2021. (2022)

Businesses are not only attracted by the university R&D offer, but also the internationally significant research institutes based in and around Cambridge, including the Wellcome Sanger Institute, the MRC Laboratory of Molecular Biology, the NIHR Cambridge Biomedical Research Centre, Cancer Research UK, the Cambridge Stem Cell Institute, the Babraham Institute, the Milner Therapeutics Institute, the Scott Polar Research Institute and the Sainsbury Laboratory.

Case Study: Wellcome Genome Campus

The Wellcome Sanger Institute was founded in 1992, and the Genome Campus opened in South Cambridge in 1994. The campus is used by nearly 3,000 people, bringing together Sanger, EMBL-EBI, academic institutions, students and specialist genomics/ biodata companies.

As a partner in the Human Genome Project, the institute is a truly world-leading site for genomics research and was responsible for sequencing one third of the human genome. As a partner with UK BioBank, it has completed the sequencing of 200,000 human genomes and working with more than 12 other academic institutions provided sequencing capacity for the COVID-19 Genomics UK Consortium.

At the start of the COVID-19 pandemic, a small number of staff at the Wellcome Sanger Institute embarked on Project Heron, with the aim of sequencing and understanding the COVID-19 virus. The Wellcome Sanger Institute has now sequenced millions of COVID-19 genomes, which helped map the spread of the virus and identify threatening new variants. By May 2022, the institute had sequenced over 2.5 million SARS-CoV-2, representing about 20% of the global total publicly available.

Box source: Wellcome Sanger Institute. COVID-19: update on SARS-CoV-2 genome sequencing at the Sanger Institute - Wellcome Sanger Institute Blog. (2022)

Business clusters

Research by the Department for Science and Technology (DSIT) has identified 12 clusters where Cambridge is in the top five in the UK by number of active firms.[14] These are primarily in the life sciences, advanced physics and digital sectors. Cambridge is now Europe's largest technology cluster, with £21 billion in total annual turnover generated by knowledge-intensive firms.[15,16]

The life sciences and healthcare industry in Cambridge employs nearly 23,000 people in just over 600 companies, and has a turnover of £9 billion. The ICT industry employs nearly 24,000 people with just under 3,000 companies and a turnover of £5 billion.[17]

14 Data City Innovations Ltd. The Innovation Clusters Map from the Department for Science, Innovation and Technology – DSIT. (2023)
15 Fell, S. University of Cambridge. Quantifying the Cambridge Cluster. (2023)
16 ONS. Estimates of the population for the UK, England, Wales, Scotland and Northern Ireland. (2021)
17 Cambridge Ahead. Cambridge Cluster Insights. Cambridge City Region Data 2021-22. (2022)

Leading global businesses

As well as cultivating start-ups and unicorn businesses, Cambridge is home to trailblazing international companies, for example leading life science business AstraZeneca, one of the UK's most valuable companies on the FTSE-100.[18] AstraZeneca has invested significantly in Cambridge, opening a 'Discovery Centre', their new £1.1 billion global headquarters and strategic R&D centre, employing over 4,000 people and cultivating 200 partnerships across the Cambridge area.[19]

The city and wider area have evolved as a home for tech and AI developments. Sinclair computers, founded in Cambridge, pioneered home computing in the 1980s. In 2015, the Raspberry Pi single-board computer stole Sinclair's crown as the bestselling British computer, overtaking Sinclair's ZX Spectrum. Companies including Microsoft, MathWorks, Samsung and Amazon all have R&D bases in the city, and the leading semiconductor and software company Arm was founded in the city.

Laboratory in AstraZeneca's The Discovery Centre, at the Cambridge Biomedical Campus (source, AstraZeneca)

18 FTSE 100. At the time of writing this report Table - FTSE 100 FTSE constituents | London Stock Exchange
19 AstraZeneca. Advancing UK life sciences through innovation and collaboration. (2023)

Case Study: Arm

Arm is one of Cambridge's outstanding success stories, with its microprocessor designs helping to fuel the mobile phone boom in the 1990s. Arm's processing chips are now in over 90% of mobile phones.

Arm was founded in Cambridge in 1990 and it specialises in designing the microprocessors that are key to the silicon chip. Apple, Samsung and Sharp were early customers, and the success of the company grew rapidly along with the popularity of mobile phones. As it did with mobile phones, Arm is now in a position to help fuel the next technological revolution in AI with its designs keenly sought after by microchip producers.

Arm is a global company employing nearly 6,000 people worldwide and with a turnover of $2.68 billion but the headquarters remain in Cambridge, employing around 3,000 people.

Box source: Arm. (Accessed 2024)

Challenges and constraints

The rates of economic and population growth seen in Cambridge to date cannot continue within the current city boundaries. Without intervention, residents may more often experience the downsides of living in an economically constrained city, including unaffordable housing supply. The imperative for change has become more urgent in recent years.

Population growth

In spite of the post-1950s planning policies designed in part to limit the size of the city, population growth in Cambridge has historically been higher than other UK cities. For example, it rose from approximately 124,000 in 2011 to just under 146,000 in 2021, an increase of 17.6%.[20]

This population growth is causing problems: pressure on house prices; high levels of congestion. A truly ambitious plan for growing the city and population will bring benefits, as opposed to frustrations, to residents.

Housing demand and affordability

The demand for housing in Cambridge has increased as the population and economy have grown. This trend has led to unaffordable housing prices for residents and a supply issue for businesses who want to grow their workforce.

The city's affordability ratio (based on 2020-2022 averages) is 12.7 (median house price in years of median salary), far higher and therefore less affordable than both the English average (8.4) and most other major cities which range around 5 to 9 (London has 14.7).[21]

20 ONS. Cambridge population change, Census 2021 – ONS. (2021)
21 ONS. House price to workplace-based earnings ratio. (2023)

Demand for commercial floorspace

Cambridge is experiencing an acute shortage of laboratory space. There is a strong demand from both start-ups and large companies, including multi-national life science companies.[22]

Land values in the city suggest there is also unmet demand for land for a range of other purposes. Cambridge ranks second only to London in land value for residential, office and industrial uses.

In 2020 the volume of laboratory floorspace sought by companies in the city exceeded the level of office space available, and Cambridge's high density of vacancies due to skill shortages, which is the highest of all UK cities, suggests that supply of skills may not be fully keeping up with the pace of demand.

There is huge potential for Cambridge to become Europe's answer to Silicon Valley. But, if the government does not work urgently with local partners to address the demand for housing, skills shortages and pressure on local infrastructure, there is a real risk that Cambridge's technology and science clusters will stop growing or relocate to other competitor cities around the world.

22 Lang,S., Preece, S. Savills UK | Spotlight: Cambridge Offices & Laboratories. (2022)

The economic opportunity

The economic growth of Cambridge is central to the government's ambitions for the city. The challenge of tackling existing barriers to growth, while protecting and enhancing the environment, is one that government is determined to meet.

Illustrative housing scenarios

Increasing the housing stock, improving affordability and easing journeys will boost the supply of skilled labour to the city, removing one of the major constraints to Cambridge's economic growth. Using illustrative scenarios we can demonstrate the potential for growing the productivity (measured in GVA) of the city if we achieve this goal.

These illustrative scenarios estimate the potential additional value to the economy once new residents have moved into the properties. Given Cambridge's highly skilled and specialist economy, we anticipate additional investment and skilled labour to be attracted from abroad, reducing any displacement of jobs from elsewhere in the country.

Building 100,000 new homes by 2050 has the potential to add approximately £4.3 billion to the economy (between £2.1 billion and £6.4 billion with a central estimate of £4.3 billion). This in turn has the potential to translate in today's terms into an annual increase of approximately £1.5 billion of additional receipts for the exchequer (income from taxes and other sources), which can be spent on public services.

Building 150,000 new homes by 2050 has the potential to add approximately £6.4 billion to the economy (between £3.2 billion and £9.7 billion with a central estimate of £6.4 billion). This in turn has the potential to translate in today's terms into an annual increase of approximately £2 billion of additional receipts for the exchequer (income from taxes and other sources), which can be spent on public services.

The benefits of agglomeration

There is a positive relationship between city size and productivity, which can be explained by 'agglomeration,' defined as the impact of geographically concentrating economic activity. Agglomeration allows businesses, organisations and workers to benefit from collaboration, knowledge exchange and skills sharing.

The positive impact of agglomeration multiplies as a city becomes larger, because the benefits of agglomeration increase as the size of the market increases. This can be seen in London and Paris, which are Europe's largest and most productive cities. Evidence suggests that agglomeration can have a 4.4% cent uplift on productivity as city size doubles, but in more knowledge intensive businesses it is much higher at 8.3%.[23]

The positive impact of geographic concentration is already visible right across Cambridge's unique life sciences and technology ecosystem, and if we hold agglomeration as a central principle of any future growth plans the benefits will continue to increase. This is especially the case as knowledge based industries, which Cambridge is famed for, tend to benefit most from the free flow of knowledge and information. At present the difficulty of moving speedily is constraining the effective size of Cambridge and its potential for productive growth.

23 Graham DJ., Gibbons S., and Martin R. Imperial College London. Transport investments and the distance decay of agglomeration benefits, Working paper. (2009)

How will we do it and what will it cost?

In Cambridge there is a unique opportunity to harness future economic growth to pay for the new infrastructure needed to grow the city and increase the quality of life for residents.

The development corporation for Cambridge, once established, will receive a long-term funding settlement at the next Spending Review. This will allow the corporation to start delivering on the government's plan to unleash the economic potential of the city.

Building on historical precedent, such as the development of the garden cities and Milton Keynes, there is huge potential to capture, for the public benefit, any increase in land value that will arise from development decisions taken in Cambridge by central and local government.

3. Falling back in love with the future

Cambridge has been known and loved by many over its remarkable history. One need only walk its narrow streets, spend an afternoon at the Fitzwilliam Museum or enjoy an evening at one of its many inviting pubs to understand why. Its desirability as a place to live, work, study and visit is unparalleled on so many levels.

The growth of Cambridge must therefore be undertaken in a way that protects and enhances what people love about the city and wider area. Those in Cambridge today will only support changes to their city if they see improvements to their neighbourhoods, public services, transport and job opportunities. Equally, the investors and researchers we need to attract will continue to come only if the quality of life can compete with other international centres.

Too many people, however, currently believe that new developments will be ugly, faceless and careless of the surrounding environment, and that they will lack the infrastructure required to support thriving communities. There is an opportunity in Cambridge to enhance what is special about the city and create a model for ambitious urban growth – aesthetically and environmentally – that demonstrates how new places can be equal to, and even better than, the old.

The development of new and existing places will be subject to extensive engagement and consultation with local communities. This section is intended to start that discussion, with a view to what might be possible if the expansion of Cambridge is carried out with care, consideration and long-term planning.

Beautiful design

Cambridge and the wider South Cambridgeshire area have a unique design character of which local communities are rightly proud. The city is known around the world for its historic centre with its famous university buildings, medieval churches and Georgian terraced housing. This commitment to design quality continues and is clearly visible in and around the city, for example the Cambridge Central Mosque, Great Kneighton and Marmalade Lane.

There are a range of tools to help set the design framework and de-risk development: for example design codes, pattern books, visual preference surveys, local design review panels, development orders and thoughtful masterplanning. The government is committed to helping Cambridge grow in a way that is popular, beautiful, sustainable and long-lasting with many firms, individuals and organisations playing their part. Asking for support from the new Office for Place as well as local experts and drawing on a wide range of design tools and expertise – in architecture, urban design, planning, landscape architecture and infrastructure – we will support the definition of a series of beautiful and popular neighbourhood types, most at walkable ‘gentle density’, and the home, street and building types within them.[24]

Masterplans and codes will evolve over time to provide clarity on what is locally popular and acceptable. They will vary by area, but all be ‘of Cambridge’, and draw on national design guidance to ensure all the components that make a place are considered – local distinctiveness; easy movement; a coherent pattern of buildings, streets and neighbourhoods; accessible open spaces and well enclosed public squares; use of local and sustainable materials; and a variety of uses and popular architectural detail.

24 Department for Levelling Up, Housing and Communities. The National Model Design Code (2021) Department for Levelling Up, Housing and Communities. The advisory board for the Office for Place has also developed 10 criteria for effective design coding. (2023)

The future development corporation will have a key role to play in working with local communities to shape the design of new development. This collaborative approach will be vital in making sure that design outcomes are popular and embraced by the wider public and understand and respect local preferences.

Terraced housing in Cambridge (source, Samuel Hughes) and the Marmalade Lane scheme, designed by Mole Architects (source, Jim Stephenson)

Gentle density

‘Gentle density’ typically means the level of density that falls between high-rise tower blocks and car-dependent suburbia. It is found in neighbourhoods such as Clifton in Bristol and Marylebone in London, as well as many European towns and cities such as Utrecht and Toulouse. It encompasses some of the most admired urban typologies of the past, including mansion blocks and terraced houses, as well as many of Britain and Europe’s most popular and prosperous places.

Gentle density has many of the advantages of lower density (such as space, gardens and the potential for quieter streets) but also the advantages of higher density, such as more sustainable living patterns and readier economic agglomeration effects. This density level can also reduce land take and creates the type of place which, thanks to its higher density, can support a greater mix of shops and communal spaces while encouraging options to walk and cycle.

Like many historic towns, many of Cambridge’s suburbs and neighbourhoods (not just its historic city centre) are already at gentle density. The government is committed to deploying gentle density as a core tenet of the city’s physical growth to support the local economy, encourage well-connected and resilient neighbourhoods and reduce the necessary land take. This approach can be applied in a way that is suitable to the specific location, for example wider terraced and semi-detached houses on the edge of Cambridge and mixed-use neighbourhoods with apartment buildings, offices, cafes and shops nearer the centre.

Examples of gentle density in Clifton, Bristol and Paris (source, Samuel Hughes)

Connected city quarters

Cambridge has at its heart an exceptional historic centre that deserves to be safeguarded for its architecture, heritage and landscape. It is primarily a place for students and tourists, with specialist leisure and shopping for residents of the wider area. To make sure that the city grows in a sustainable way that protects its central character, the government is examining major new urban quarter opportunities, plugged into and connected with the existing city.

Any new quarter must embody the commitment to design and gentle density set out above, built in a way that is in keeping with the historic centre and that maintains proximity to the countryside. A sustainable transport network will also be key – including, for example, streets, bike paths and mass transit options – that connects new areas to existing ones and improves traffic flow.

It is in this way that an expanded Cambridge can provide a network of beautiful and well-connected town centres and economic clusters, where active travel is prioritised and with all the social and health facilities required to service local communities. While no decisions on the location of any new quarter have been taken, this pattern of development aims to protect and enhance what is special about Cambridge and will be central to assessing future options for sustainable growth.

A green and resilient city

Greater Cambridge is a place of exceptional natural beauty. A stroll from Central Cambridge are the much-loved Botanic Gardens and the wildflowers and reedbeds of the idyllic Grantchester Meadows. Here, kingfishers, otters and water voles can be spotted alongside the ducks and swans. In the wider area, places like Wandlebury Country Park and the Paxton Pits Nature Reserve provide a diverse range of options for those who wish to experience some of the UK's finest green countryside.

There are already strong commitments at the local level both to increasing and improving networks of green space, for people and for wildlife, and to support the area in becoming more resilient to current and future climate risks. The two commitments are closely linked and are key to the enjoyment, health benefits and feeling of safety that people take from their local area. The government is fully supportive of these commitments and will work with local partners to make them a reality.

Cambridge has the potential to be an exemplar of urban expansion that enhances the natural environment, with great parks, generous local allotments, tree-lined streets, wildlife corridors and easy access to nature through the 'green fingers' that already stretch into the countryside. Work is already underway to increase the nature reserve around Wicken Fen to the north of the city, which will contribute to Greater Cambridge's healthy and beautiful natural environment.

It is vital that Greater Cambridge is set up to face climate-related challenges. The government is already taking action to address the priority issue of water scarcity, working closely with the Environment Agency and the local planning authority (see Section 4 for further information).

As well as an efficient water system, the government and future development corporation will work with local partners to limit carbon emissions of new development and mitigate its impact on the environment. Through this work, Cambridge can be at the forefront of meeting our net zero targets.

Cultural life

It is through culture that we come together, enrich our shared experiences and develop the pride in place that is at the heart of all great towns and cities. Cambridge already boasts outstanding cultural institutions such as the Cambridge Arts Theatre, founded by John Maynard Keynes, the Corn Exchange, which has hosted some of the world's best-known artists, and the Fitzwilliam Museum, home to some of the most beautiful art from around the world.

There is also excellent work happening at the local level to develop the city's cultural offering, which the government is committed to supporting and enhancing. The government will consider any future plan to help create a flourishing and diverse cultural city. From concert halls to community arts centres, we will encourage the creation of world-class centres for culture while supporting the growth and development of local institutions.

Imagining a Cambridge of the future (source, Create Streets)

4. Infrastructure and movement

As Cambridge grows, the provision of sustainable and efficient infrastructure will determine whether it becomes a better place in which to live, work and study. Easy movement – how people move and travel around a place – will be a crucial component in the high growth, high productivity Cambridge of the future.

Infrastructure is too often felt as an absence – such as a lack of public transport options or poor broadband speeds. This is clearly felt by Cambridge residents, who consistently identify congestion and lack of reliable public transport options as key challenges.[25] Arguably most pressing is the supply of water – with low annual rainfall and the highest average temperatures in England, there are concerns about the availability of a sustainable water supply for the city and the surrounding region.[26]

These concerns are partly why infrastructure is talked about as a problem or a constraint, but with the right support there is a significant opportunity, as the city grows, to enhance connections across Cambridge.

Our aspiration is for an expanded Cambridge based around well-connected city quarters where residents experience:

- **Quicker journey times** across and around the city as improved links between different parts of the city make it easier to get around by public transport, car, cycling or walking. We want to help people 'move freely' by making a wide range of safe, speedy and pleasant transport options.
- **Better digital and power connections**, making it easier to set up and run a business, and work and study in the city.
- **A safe and sustainable supply of water** that not only serves the city's population but protects the area's natural environment.
- **Improved access to health and social care services**, supported by neighbourhoods that encourage healthy lifestyles.
- **Better air quality** through improved cycling, walking and public transport connections, and reduced emissions from traffic, following the introduction of the Air Quality Management Area.[27]

The government's ambitions for growing Cambridge will require a step-change in the type and scale of infrastructure that we plan for, and we will need to take a longer-term view of growth than is required generally by Local Plans. The emerging Local Plan looks to 2041. Our timeframe is to 2050 and beyond. By setting up a development corporation with the powers and funding to consider the infrastructure needs of all parts of an expanded Cambridge, and using its convening power, the government will be able to facilitate and drive forward sustainable infrastructure-led growth.

25 Greater Cambridge Partnership. Choices for Better Journeys Brochures. (2019)
26 Anglian Water, Capital Economics. Thriving East. (2023)
27 Cambridge City Council. Air Quality Annual Status Report. (2023)

More sustainable water resources

Our first priority is water scarcity, which is holding back development and risks causing environmental harm. It is vital that the city has the water supply it needs to support long-term growth, including a new reservoir in the Fens and a new pipeline to transfer water from nearby Grafham Water. We are also making a one-off intervention to support growth in the shorter-term by delivering water savings through improved water efficiency of appliances in existing buildings that can offset new homes and commercial space.

The government will:

- Deliver a unique offsetting intervention to save water now through improving efficiency and support sustainable growth – set out in detail in a paper published alongside this document.
- Issue a joint statement from the Environment Agency, Greater Cambridge Shared Planning, DLUHC and Defra, outlining our commitment to sustainable growth and development on the basis of our water credits scheme.
- Appoint Dr Paul Leinster to chair the Water Scarcity Group to advise the government on future water resource options, including the reservoir in the Fens and the Grafham Water pipeline.

Improved transport options

Second, we want to help people to move freely, with a wide range of options that are safe, speedy and pleasant. We need to plan now for the long-term transport options that will serve the city and link in with the wider region, which has the potential to transform life for Cambridge residents, make it a much better place to do business and support improvements to air quality.

Movement around the city should be a joy – something that is undertaken with pleasure and with ease. It should be natural to walk and cycle for shorter trips, with a public transport system that sets the benchmark for efficient urban mobility. To deliver the step-change in capacity and connectivity this ambition requires, the government envisages a transport system made up of several elements, which may range from improved walking and cycling routes to mass transit system options, such as trams and light rail.

To support this long-term ambition and the immediate transport requirements of Greater Cambridge, the government will:

- Deliver East West Rail, radically improving connectivity to other innovation and economic centres in Bedford, Milton Keynes and Oxford, and making sure we bring the full benefits of this new line to the city of Cambridge.
- Ensure that the Cambridge Biomedical Campus, the world-leading life sciences cluster in the south of the city, has the right public transport links by providing £7.2 million to progress connectivity schemes. We will ensure that any scheme is connected into the city's future transport network, including the new station at the campus, currently in development, that will improve connections into south Cambridge.

An integrated approach

Third, we need to start work now to plan for the new digital, health, power, drainage and waste infrastructure to support Cambridge and its new quarters – the hidden plumbing that is so essential to a thriving place. It is vital that this work is considered as part of a wider infrastructure network, alongside transport and land-use requirements, for a truly integrated approach.

The government will work with local stakeholders, including the Greater Cambridge Partnership and the Cambridgeshire & Peterborough Combined Authority, as well as independent experts to consider long-term infrastructure requirements and potential solutions, from reservoirs to mass transit options. This work should build on and enhance existing local plans. The government will ensure that the East West Rail Growth Board, chaired by HMT, includes consideration of how the new rail connection into Cambridge can be best integrated into the city's transport network for the future.

Sustainable infrastructure: Freiburg, Germany

Freiburg im Breisgau is a medium-sized city in Southwest Germany, with a population of just under 250,000.

Over the past 30 years, Freiburg has received numerous accolades for its commitment to sustainable infrastructure and urban mobility. These achievements can be traced back to decisions made in the 1960s, when the city was experiencing significant population growth that tested the capacity of the local transport system. Freiburg actively decided to take an integrated approach to transport planning, and also to maintain and expand the tram network as the backbone of urban development.

This approach has helped keep the city compact and easy to walk around. The transport system now consists of: extensive bicycle networks and parking spaces; easy access to public transport; and an integrated tram, bus and railway network. The tram is the centrepiece of the city's public transport system, with over 40 kilometres of tracks that are separated from the roads. Reliable, convenient and frequent, the tram is embraced by locals and visitors alike.

The results of Freiburg's approach to transport planning are striking, with more options for residents and visitors to move around the city. The overwhelming majority of journeys in the city are by foot, bicycle or public transport.

There are several lessons for cities, including Cambridge and its surrounding area, that want to emulate the successes of Freiburg in sustainable infrastructure development: the integration of land-use and transport planning; and public transport accessibility. The most important lesson is arguably a long-term and holistic vision, which emphasises the safety, needs and enjoyment of those who use live in and visit the city.

Box source: ICLEI. https://sustainablemobility.iclei.org/wpdm-package/iclei-cs-210-freiburg-ecomobility-alliance-pdf/?wpdmdl=64851. (2022)

A tram in Freiburg, Germany

5. Existing plans and next steps

Cambridge has a spirit of ambition, innovation and collaboration at its core, evident in the exceptional leaders, institutions, investors, entrepreneurs and companies that champion the city and the positive impact it has on the world. This spirit is evident in the companies that grow, and choose to locate, in Cambridge, as well as the work of thought leaders and networks, such as Cambridge Ahead, Innovate Cambridge, One Nucleus, Cambridge Network and Cambridge Wireless.

The government intends to build on these foundations and go further to recognise and support the compelling proposition that Greater Cambridge presents, as a unique place, with potential to leverage its existing science and tech industries to drive forward growth and investment. By investing in the city and addressing the constraints on housing and laboratory space, Cambridge can drive growth across the region and wider country while boosting opportunities and living standards for local residents.

The Cambridge Delivery Group

In 2023 the government established the Cambridge Delivery Group (CDG), chaired by Peter Freeman (Chair, Homes England), to drive forward the vision for Cambridge in collaboration with local partners. Close engagement with local partners is fundamental to understanding the wealth of knowledge and evidence that already exists and will inform future growth.

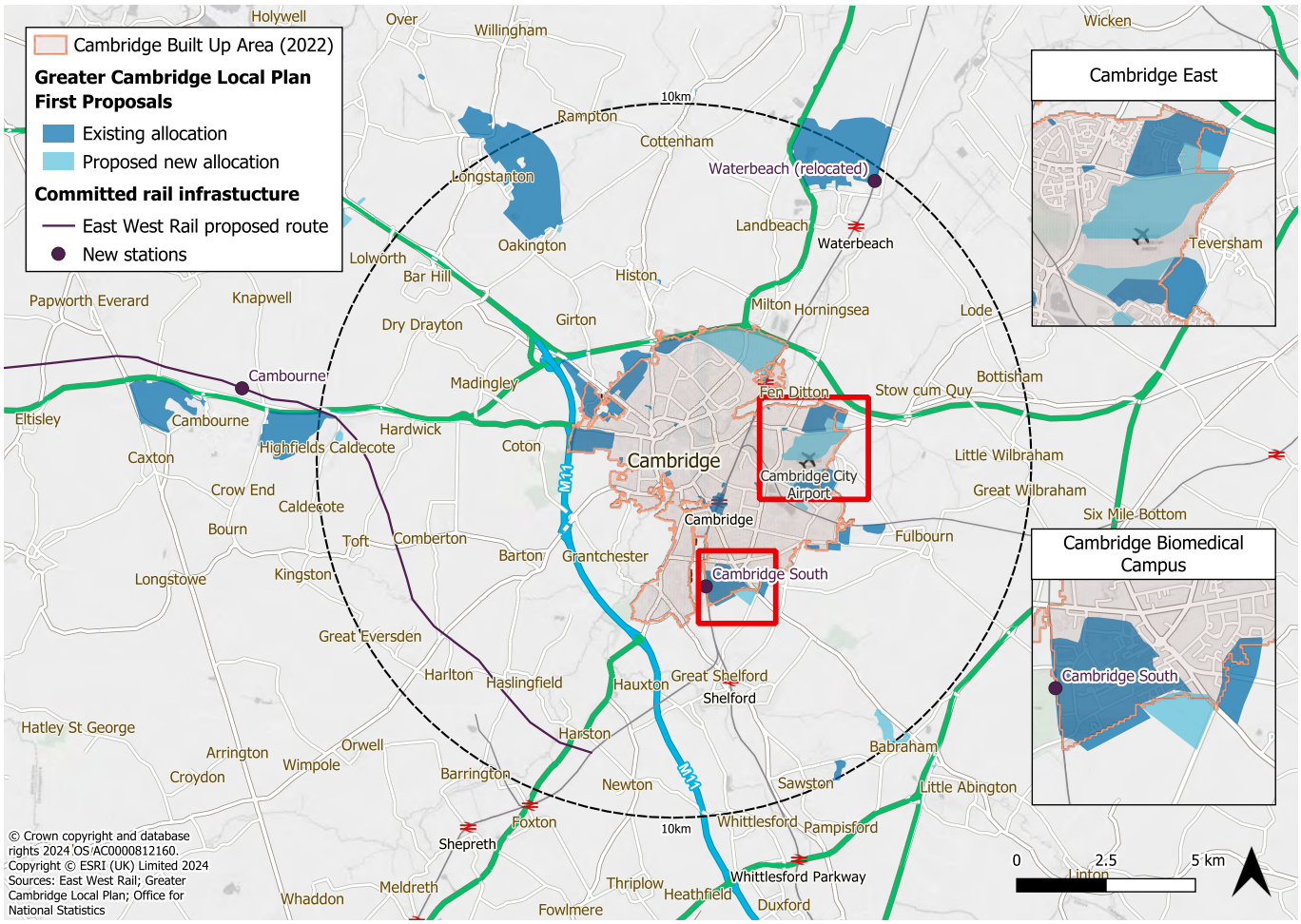
Since its inception the CDG has engaged extensively in the Cambridge area. CDG representatives have met with local MPs, leaders of local authorities, business leaders, university representatives, utility suppliers, infrastructure providers and developers. These discussions highlight some of the concerns, core values and ambitions that coalesce around the future of Cambridge, including water scarcity, transport infrastructure and public services.

The CDG will continue to place the highest value on working collaboratively with local stakeholders through a detailed and long-lasting programme of engagement that will include the general public, local government, business communities and wider organisations. A range of local partners, including local authority leaders and representatives of the academic, innovation and infrastructure sectors, will be invited to participate in CDG governance through a new advisory council.

Building on the excellent work of local authorities and Homes England in the region, the CDG will focus in particular on working with local partners to support the delivery of the existing and emerging Local Plans and accelerate existing sites in and around Cambridge. This work will support immediate and long-term growth ambitions, backed by central government to overcome barriers to delivery.

Early progress and current plans

There are a number of early opportunities identified by local partners that help to realise Cambridge's long-term potential. The CDG is actively supporting the local area to unlock and accelerate the delivery of planned growth at key strategic sites, including the Cambridge Biomedical Campus, Cambridge East (Marshall's Airport) and North East Cambridge.



Map showing current local plan allocations in Greater Cambridge area and early opportunity areas

These opportunities, alongside the government's measures to address water scarcity, aim to accelerate the local area's existing plans in the near-term. The CDG will continue to enable and accelerate delivery of development opportunities in a way that supports the government's ambitions for Cambridge, while engaging and consulting directly with local stakeholders.

Next steps

The CDG is in the process of reaching out and listening to local authorities, communities and stakeholders to understand how they would like to be involved in the government's work on Cambridge going forward. This information will form an engagement strategy that will bring together insight and ability from across Greater Cambridge, harnessing a representative cross section of local voices. The CDG will also establish an advisory council to build local representation into its governance framework.

The government will continue to take the steps to establish a development corporation to oversee the long-term work and coordination required to realise Cambridge's full potential. The work of the CDG will form a key component of this process, helping to lay the institutional groundwork for the future of Cambridge.

Annex: Key economic assumptions

- The illustrative scenarios in Section 2 assumes 2.4 residents per home, as per the current Cambridge average.
- Assumptions on economic activity and employment reflect the current rates for Cambridge.
- Assumptions on productivity per employed resident are in line with the current average GVA per job filled for Cambridge.
- Given Cambridge's highly skilled and specialist economy, we anticipate additional investment and skilled labour to be attracted from abroad, reducing any displacement of jobs from elsewhere in the country. As such, while a range of estimates is presented to reflect the uncertainty around displacement (25-75%), a central scenario of 50% displacement is assumed.
- The fiscal impact has been estimated using the OBR ready reckoner (Autumn 2023 Economic and fiscal outlook).

This document/publication is also available on our website at www.gov.uk/dluhc

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