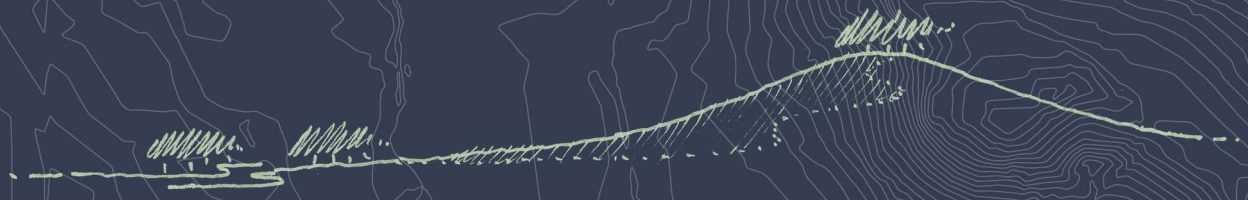

CAMBRIDGE SOUTH

The Case for Cambridge South

Jesus College Cambridge

St John's College University of Cambridge

Cambridgeshire County Council

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Contents

1. Introduction

Cambridge is endowed with a legacy of extraordinary discovery and contribution to the health and wellbeing of humankind. In 1953, scientists here discovered the double helix DNA structure which underpins how all living things operate; this has since helped us to understand and overcome some of our most critical health challenges, including, most recently, COVID-19.

DNA's double helix structure is perhaps the most famous example of the discoveries made in Cambridge, but we have excelled too at creating the practical tools to solve some of the world's most difficult health challenges. The pharmaceutical innovations which have emerged from the work of the Medical Research Council Laboratory of Molecular Biology (LMB)'s Prof Sir Gregory Winter, a Nobel Prize winner, account for the top five selling drugs in the world; the highest selling, HUMIRA, generates sales of nearly $18 billion annually, helping millions of people cope with rheumatoid arthritis and many other debilitating diseases.

The unique alchemy of Cambridge, the mixture of academic brilliance, business dynamism and the dedication and practical insight of local healthcare professionals in a contained and beautiful environment has established the city as one of the best places in the world for Life Sciences research. The discoveries made in Cambridge laboratories have improved lives around the world. But it is wrong to assume that this has been inevitable, or that it will last.

Cambridge's ability to build on this legacy is at risk. Life Science clusters are growing around the world as other places – the Harvard-MIT powerhouse of Kendall Square in Boston, the Stanford University-based developments in Silicon Valley, and even newer developments in Shanghai and Oxford – invest in their researchers, their institutions and the environments they work in. Kendall Square in Boston was properly established eight years after CBC, but now is home to nearly 50 organisations and attracts one in four of all dollars invested in Life Sciences in the US.

Over the last half century, Cambridge's economy has grown rapidly, fuelled by the development of our knowledge-intensive specialisms. Life Sciences are pre-eminent among these, and over the last six years have grown at an average of 21% each year, double the rate of the city's average. Over 30,000 people work in Life Sciences across the public and private sectors. Businesses specialising in everything from antibody preparation to drug discovery and medical technologies have thrived here.

But space for continued growth of Life Sciences research, development and delivery in Cambridge is in short supply. The new Children's and Cancer hospitals are set to be the last major developments on Cambridge Biomedical Campus (CBC). The Babraham Research Campus has no available space and growing waiting lists, and while the Wellcome Genome Campus has recently been granted permission to expand, its specialist nature does not cater for the full range of Life Science needs. Cambridge is becoming a victim of its own success, and homegrown organisations and those from around the world will look elsewhere if we cannot accommodate them. This is Cambridge's challenge: such organisations will not wait.

Securing many more decades of Life Sciences excellence in Cambridge requires space and the release of a new allocation of expansion land from the Green Belt. Planners may wonder why more yet more space is required, given other new and recently approved developments in and around our city. But the only place in Cambridge—or indeed the UK or Europe—that

delivers *both* clinical/research on-site collaboration opportunities *and* true bench-to-bedside potential is CBC. The UK government has identified Life Sciences as a key pillar of its industrial strategy and the international competitiveness of the economy. Its ambitions for the Oxford-Cambridge arc demonstrate that this region is of central importance to Life Sciences in the UK: already hundreds of acres of Green Belt land have been released close to Oxford for one million square feet of dedicated Life Sciences development.

CBC is at the heart of Cambridge Life Sciences. In 1999, Addenbrooke's NHS Trust (today Cambridge University Hospitals NHS Foundation Trust), the University of Cambridge and the Medical Research Council first came together to argue for the further development of their sites. The planning authorities recognised that the 2020 Vision, which proposed the development of CBC, justified the release of Green Belt land to create a truly collaborative environment bringing together healthcare delivery with R&D and education in a single location. Since then, new world-leading hospitals and research labs have been built at CBC, and the site has attracted multinational Life Sciences companies to Cambridge.

Having largely fulfilled its 2020 Vision, CBC's occupiers came together to consider what role it should play in the coming decades to support Cambridge, the UK and Life Sciences globally: the product of that work is the CBC Vision 2050.

However, the creators of Vision 2050 recognise that the significant pressures of previous development in Cambridge have created transport and housing issues that must be addressed head-on. Aspects of the 2020 Vision are yet to be fulfilled, and CBC's further Life Sciences development must offer healthy, diverse, and sustainable living conditions to attract and retain talent. At the same time, Cambridge residents want to protect the natural beauty, community cohesion, and the accessibility of our city; they have a right to expect this.

This proposal for planning, prepared by the four landowners adjacent to CBC – St John's College, Jesus College, Cambridgeshire County Council and a private family trust – responds to the need to translate the Vision 2050 into practical development. Having come together as a single body, we will work together in a contractually-bound long-term relationship with Cambridge Biomedical Campus Ltd, the recently formed entity comprising the Abcam plc, Cambridge University Hospitals NHS Foundations Trust, Cambridge University Health Partners, Cambridgeshire and Peterborough NHS Foundation Trust, the Medical Research Council Laboratory for Molecular Biology, Royal Papworth Hospital NHS Foundation Trust, and the University of Cambridge.

We have put sustainable, attractive, and measured development at the heart of our proposals, anticipating the needs of Cambridge and particularly of the future CBC. These proposals contain a commitment that development here must improve this part of the city, creating a better environment not just for CBC, but for its neighbours. We will work to support a globally competitive CBC in which we can all take pride, delivering extraordinary healthcare and economic benefits, but rooted in a recognition of the importance of place and how people live their lives.

2. The Landowners of Cambridge South

The land being promoted for the expansion of CBC is owned by four major landowners – Jesus College, St John's College, Cambridgeshire County Council and a private family trust: "the landowners".

The landowners have a deep history in and a strong affinity with Cambridge, and recognise a responsibility to respond to the needs of the city. The landowners have come together and formed an agreement to propose how the future needs of CBC can be best addressed.

Working closely with CBC, the landowners propose to develop plans that respond directly to the CBC Vision 2050 – to create an integrated expansion to the Campus and help it develop into a comprehensive living and working innovation district, delivered to the highest standards of design and sustainability and capable of competing with the best in the world.

The landowners are excited by the prospect of contributing towards the creation of a world-class Life Sciences community on the south side of the city. The landowners recognise that the proposals should not be developed speculatively – they need to respond to the needs of the Campus and to be phased and developed in concert with the Campus. Accordingly, the landowners intend to contract with Cambridge Biomedical Campus Limited for this exact purpose. This is an unusual arrangement, born from a recognition of the local and national importance of the Campus. It means, however, that the planning authorities and the local community can be assured that the proposals being advanced will come forward as they have been proposed. This is not a Trojan Horse for speculative development.

But these proposals are at an early stage. They need to be shaped working with our communities, and they need to be examined and tested through the Greater Cambridge Local Plan, which will itself be subject to extensive consultation and independent examination. These are proposals – they respond to an important purpose, but it is for the local authorities to determine whether they have a place in the draft Local Plan when it is first published later this year, and for affected communities to make their views known.

As part of this process, the landowners also recognise their responsibility to nearby communities and to the environment. The land we propose for expansion of the Campus is in the Green Belt. It can only be developed in exceptional circumstances and only then if its development provides the highest standards of sustainability and is sensitive to its surroundings. Development needs to meet the Councils' objectives, which include net zero carbon and no increase in traffic on local roads. We embrace those challenges and have appointed expert consultants whose first task has been to consider how the requirements of CBC can be met at the same time as respecting and enhancing the southern edge of the city. This document and the reports which support it present that work.

But first it is important to understand the requirements of CBC's Vision 2050 and why seeking to meet it is so important.

3. Significance of Cambridge Biomedical Campus

CBC is Cambridge's specialist Life Sciences district. Home to three NHS trusts, major research centres for molecular science and cancer, and the headquarters of multinational Life Sciences firms, the Campus hosts the concentration of institutions and expertise which make new discoveries possible and provide health services for the whole region. Activities at CBC drive an integrated care system of 1m people locally and 5m regionally.

In 1999, the publication of CBC's 2020 Vision started a period of development which has led the Campus to today. A planning application secured the release of Green Belt in 2006 of 70 acres of land, on which the Cancer Research UK Cambridge Research Institute, Addenbrooke's Treatment Centre, and Institute of Metabolic Science were built in 2008. Over the last decade this was followed by the new MRC Laboratory of Molecular Biology and an extension to the Rosie Hospital, both officially opened in 2013, and in 2015 the Royal Papworth began building its new hospital, which was opened four years later.

This concentration of clinical and research expertise has attracted major businesses to CBC. In 2015, the global pharmaceuticals giant AstraZeneca transferred its UK R&D hub and corporate HQ to Cambridge, an investment of over £330m and thousands of jobs in CBC. In 2019, Abcam, one of Cambridge's early innovators, opened their new HQ on the Campus as an established multinational Life Sciences giant.

Both businesses came to CBC because of the opportunity that being here gives them to access expertise and also real use cases for their work. Institutions here are connected in a way that allows researchers valuable insight into the health system and, in turn, helps healthcare workers benefit from state-of-the-art techniques and treatments, whether from academia or business. This bench-to-bedside cycle of Life Science development is what brings research-intensive businesses and the world's most talented academics here. The sheer concentration of healthcare providers is what sets CBC apart from other Life Sciences clusters around the world. There are few places that can match the strength of CBC's triple helix of frontline healthcare, academic excellence and business dynamism.

Recent successes highlight the Campus's potential. The 2014 founding of CMR Surgical to create a small, modular surgical robot in collaboration with Addenbrooke's clinicians, has gone on to attain $100m in investment and 350 patents. In 2018, Professor Sir Gregory Winter of the LMB was jointly awarded the Nobel Prize in Chemistry for use of phage display for the directed evolution of antibodies, the latest in a line of twelve Nobel Prize winners whose work is undertaken at the LMB. Even more recently, CBC's hospitals have been at the frontline of the UK's response to COVID-19, taking patients not only from the region but around the country. Partners worked across disciplines to support the pandemic response, for instance by collaborating to improve ventilator engineering.

Figure 1: Life Sciences breakthroughs at Cambridge Biomedical Campus

Nobel Prize winners, medical discoveries, and spinout success
Venki Ramakrishnan, 2009 Nobel Prize for Chemistry
▪ Determination of the atomic structure of the part of ribosomes that reads genetic code of mRNA
Michael Levitt, 2013 Nobel Prize for Chemistry
▪ Combining classical computational structure biology with quantum physics in a single program to simulate enzymatic reaction
Richard Henderson, 2017 Nobel Prize for Chemistry
▪ Discovery of extracting signals from randomly dispersing molecules to obtain detailed atomic structure
Greg Winter, 2018 Nobel Prize for Chemistry
▪ Pioneering us of phage display for the directed evolution of antibodies, with the aim of producing new pharmaceuticals
▪ This work has led to three spin out companies: CAT; Domantis; and Bicycle Therapeutics
Mark Kotter Neurosurgeon
▪ Clinical research in Dr Kotter's lab led the first regenerative medicine trial for degenerative cervical myelopathy
Development of Opti-Ox – a technology enabling efficient reprogramming of human stem cells
Other major spinouts, including:
▪ Elpis Biomed Ltd, developing human cells for research, drug discovery, and cell therapy
▪ Meatable, a Dutch company producing cell-based meat

CBC supports the physical and mental health of our city, the one million people in the area and near five million people in the region. And while the current configuration of CBC provides a platform for the highest quality healthcare delivery, it can do more. Opportunities for additional specialist centres providing cutting edge support for ageing, mental health, movement, obesity and other issues will succeed on CBC, as ground-breaking research and the ability to deliver it to real patients comes together.

Significance of Life Sciences

For the world

Life sciences are critical to our future and they are booming, fuelled by major advances in technology and the growing need across developed and developing economies alike for healthcare. Global Life Sciences research and development (R&D) spending hit a record $179 billion in 2018, a 23% rise on four years earlier. By 2024, global R&D spend is forecast to reach $213 billion.[1]

The COVID-19 pandemic has emphasised the power of modern diseases to threaten lives and damage our economies. But the response has shown the power of human ingenuity to find solutions: experts from public and private institutions across the globe have mobilised at

[1] JLL analysis of EvaluatePharma data, 2019. Life Sciences Outlook, 2019. JLL, p6.

speed to develop, test and manufacture vaccines and, in turn, governments are investing heavily to build up vaccine stocks.

Global economic and health trends are only likely to increase the need for research into new medicines and treatments. Zoonotic viruses, antibiotic resistance, and cancer will require the continued development of treatment and prevention techniques, helping the world to deal with the challenges of an ageing population, climate change, and more. These are some of our major challenges, and solutions require the power of brilliant minds from across academia, business, and healthcare.

This demand is fuelling the development of the sector everywhere. In the US, Life Science-related growth was three times stronger than total US employment in the last decade. Since 2000, employment in Life Sciences has increased by 88%, outstripping the average national growth rate.[2] In China, the healthcare market more than tripled in value between 2010 and 2017.[3] The UK is facing increased competition for global talent and investment.

CBC's growth trajectory can be seen in other Life Sciences hubs around the world. The competition for talent is increasing, and other places have much to offer.

Kendall Square, Cambridge, Massachusetts

Kendall Square, a one square mile neighbourhood in East Cambridge, Boston, has become a centre of global Life Sciences research. In 2010, the Massachusetts Institute of Technology began to work proactively with the city to rejuvenate the area. Focusing on its own research strengths and track record in commercialisation of research, MIT has developed Kendall Square immensely.

The success of the area is testament to the appeal and the power of agglomeration to Life Sciences organisations and businesses. Over the last ten years, 10 million square feet of laboratory space has been developed in Kendall Square, and today more than 1 in four dollars invested in Life Sciences in the US is invested in a business in Greater Boston.[4]

Next to MIT and a short walk from Harvard, Kendall Square is where the research excellence of the two universities finds commercial and real-world applications. It hosts the mixt of research institutions, business spaces for international giants and spaces for fledgling business ventures that forms an ecosystem. Large international Life Science businesses such as Shire and IMB Watson Health and manufacturing giants such as Philips occupy space in the district, sitting next to sit next to start-ups in a diverse range of sectors in biomedical research, AI and data science.

Kendall Square is a dense urban environment, with housing and retail to add to the office, R&D and amenity uses. It has developed as a whole, and been curated as an integrated neighbourhood, densely packed with restaurants, cafes and other amenities. These are meeting spaces for researchers, academics, entrepreneurs and investors to mix, animated with events, hackathons and tech meet-ups, all contributing to an innovation culture. This is fertile ground for the commercial breakthroughs that, in turn, pull more people to the square.

Kendall Square is now pushing up against the same kind of space constraints as CBC, despite its density. Asking rents for new class A space in Kendall Square are now higher than $100 in triple net rent per square foot, and with a vacancy rate of just 1.5% in East Cambridge, firms

[2] Life Sciences 2020: The Future is Here. Cushman and Wakefield, 2020, p9-12.
[3] Overview of China's Life Science Market, Government of Canada, 2018.
[4] *How was the USA's Cambridge-Boston biotech hub built?,* The Pharma Letter, 2019; *Boston Life Sciences New Frontiers; a Prescription for Change 2020,* CBRE, 2020.

looking to share in the benefits of the area are being forced to explore other parts of the conurbation.[5]

The trajectory of growth in Kendall Square over the space of just 10 years demonstrates the high demand for Life Science clusters of high quality. Firms are willing to pay a premium to access the spillovers that places like this offer, the ability to mix and collaborate increasing the chances of those moments of serendipity which lead to the development of ground-breaking new treatments.

Houston, Texas

While Kendall Square remains the pre-eminent Life Sciences hub in the US, Houston in Texas is fast growing its innovation expertise in biotechnologies. Houston was ranked one of the top-two emerging Life Sciences clusters in the US by CBRE in 2020, based on size and growth in employment, concentration of R&D Life Sciences employment, and the amount and growth in public and venture capital funding.[6] Like CBC, large institutional healthcare acts as the anchors of the cluster, the pull of the Texas Medical Centre, the world's largest block of healthcare institutions, attracting firms such as Johnson and Johnson to open an incubator there, over 34,000 square feet of facilities.

With over 54 institutions employing 100,000 employees, eight different academic and research institutions and 21 different hospitals, TMC is visited by over 160,000 each day and more than 7.2 million each year, including over 18,000 international patients.[7] This network of institutions and patients provides the proximity to clinical care and practitioner expertise that commercial researchers need and sets the preeminent hubs apart from their competitors.

Houston's five-year growth rate of 15.5% in the number of Life Science establishments is among the top three highest rates in the US.[8] This growth is fuelled by research: while Houston is not the within the top ten clusters for Life Sciences in terms of employment, a third of its jobs are in R&D roles. A large and growing component of the appeal of the cluster in Houston to Life Sciences businesses is the close connection between clinical practice and research.[9]

With significantly lower rents than Kendall Square and Boston, but similarly low vacancy rates, Houston is catching up with the best clusters in the US and the world. CBC must look to places like Houston as its rivals in the competition for investment and jobs. The network of clusters with clinical care excellence at their heart is only likely to increase.

Both Houston and Kendall Square have grown at rapid pace. Their anchor institutions, healthcare and academic, have curated the character of these districts, building out the business spaces that Life Sciences organisations of different sizes demand, This combines with the character of place to support growth and encourage the innovative atmosphere that sets them apart. They show that CBC is part of an international set of excellent R&D spaces. Cambridge UK competes with Cambridge (Mass.), Houston, Shanghai, Toronto, and other growing sites worldwide, and each continues to add to their offer to the international

[5] *Life Sciences Outlook,* JLL, 2019.
[6] Leading Life Science Clusters, CBRE, 2020.
[7] The Texas Life Sciences Landscape: Innovating for Today and Tomorrow, Texas Insight, 2019.
[8] Life Sciences Outlook, JLL, 2019.
[9] Leading Life Science Clusters, CBRE, 2020.

businesses with the resources to expand around the world. To compete, Cambridge, and CBC, must match what the best in the world are doing.

For the UK

The UK is among these countries at the forefront of Life Sciences growth. Life Sciences contributes over £30bn in Gross Value Added (GVA) to the UK economy and employs 256,100 people, growing by 9% since 2010, and with a further 268,000 people employed across medical technology, digital health and biopharmaceutical sectors.[10]

As the number of firms has grown, so has growth within companies. The Life Sciences sector has an outsized proportion of growth companies; firms that have experienced growth of employment and/or turnover of 10% per annum or more over the five years up to 2019. Around 63 out of 1,000 companies in the sector become high-growth companies, which is over four times as high as the next knowledge intensive sector.[11] It is unsurprising that government policy is very supportive and that it urges for the sector to be supported to make its full contribution to the country.

The *Life Sciences Sector Deal*, published in 2017 as part of the Government's previous *Industrial Strategy*, recognised the fundamental role that Life Sciences play in the UK economy and around the world. The UK is home to one of the strongest most productive health and Life Sciences industries globally: the strategy identified the fundamental opportunity for the UK to put human clinical disease studies back at the heart of medical discovery, and that by connecting academics, industry, investors, clinicians and the NHS, we could deliver better patient outcomes alongside domestic economic growth.

Most recently, the Government has published *Build Back Better – our plan for growth* (March 2021). The UK's international success in Life Sciences is given a prominent role in leading the economic recovery from the pandemic. The sector is identified as employing 224,000 people in England with a turnover of £73.5bn but there is no doubt that the Government is determined that the UK should capitalise on its world leading credentials, which represents one of the country's most significant opportunities for growth. As the document makes clear:

> *"The pace of technological change and global competition means that we must consider how to support the sectors and technologies that will help shape the UK's future, for example:*
>
> - *In Life Sciences we will build on our performance and leadership to date to create the most advanced genomic healthcare system in the world."*

Our strengths in Life Sciences connect us to our neighbours, near and far. Talented researchers travel to the UK to learn and work, and we are renowned for the quality of our institutions and our healthcare system. As we renew our relationship with the world in the years ahead following our exit from the EU, the strength of Life Sciences here will be crucial to our influence abroad, the connections we can forge and the contribution we can make.

[10] UK Life Sciences Bioscience and Health technology Sector Statistics 2019, Office for Life Sciences.
[11] Centre for Business Research (2020)

Whilst the UK remains strong, it cannot afford to stand still, as global economies continue to invest and expand their Life Sciences offering. The Oxford-Cambridge Arc's ambition to double economic output will require space, and it will take Cambridge to attract the talent and businesses and nurture the environment that sparks discovery. Specifically, it will require places like CBC, where the NHS, research, and industry can connect, to fulfil their potential as the engines of Life Science growth in our economy. There is an opportunity for the UK to continue its growth within the sector, which it needs to do if it is to remain competitive with other economies.

For Cambridge

Cambridge, with its concentration of world leading research institutions, healthcare providers, and network of businesses, is one of the few highly specialised places with the potential to lead the world in the development of new treatments. It can deliver the highest quality and cutting-edge healthcare to the population here, and beyond.

The Life Sciences sector in Cambridge has been a major source of the city's economic success, the 21% annual growth in turnover and 11% in employment outpacing every other sector here over the last six years. Life Sciences accounts for £2.3bn in GVA, 20% of Cambridge's total. There are 12,400 employees in commercial Life Sciences, with a further 21,200 public sector jobs in medical research within institutes and public hospitals.

4. Cambridge Innovation Ecosystem

Over the last half century Cambridge has emerged as a technological powerhouse. Life Sciences are part of a boom in advanced technical specialisms here, which encompasses computing, electronics, and engineering. Cambridge functions as the world's R&D lab, experimenting with new technologies and finding the commercial niches which allow them to change lives everywhere. There are nearly 68,000 people working in over 5,000 high growth businesses in the Cambridge cluster, generating £18bn in turnover.[12]

There are 330 Life Sciences businesses here including some of the world's most important companies as well as a source of highly dynamic start-ups.[13] The productivity of the sector is extremely high – £187,000 per employed person compared to £64,400 across the Cambridge economy as a whole.

Between 2014 and 2019, venture capital investment in Life Sciences in Cambridge increased tenfold.[14] The companies that attracted this include "unicorns" like CMR Surgical and Abcam, now based on CBC. Other scale-up firms with high growth potential include genomics companies such as Inivata and Congenica, and Therapeutics companies like Astex Pharmaceuticals and Bicycle Therapeutics. They sit alongside the research and healthcare institutions which set Cambridge apart and have made it a magnet for the world's most talented minds. It's the reason Europe's flagship laboratory for the Life Sciences, EMBL, chose to locate at the Wellcome Genome Campus.

Innovation has become part of the character of Cambridge. Since 1960, when a group of alumni founded Cambridge Consultants with the ambition to "*put the brains of Cambridge University at the disposal of industry*", Cambridge has pioneered an approach to research and innovation built on collaboration.[15] This group was the first to explore the commercial potential of academic research here, but since then the links between research expertise and commercial application have become stronger. This approach has led local discoveries to become the useful inventions which have fuelled Cambridge's prosperity.

Cambridge's success lies in its networks. This is a place where large businesses interact with academics, small businesses and start-ups; where established entrepreneurs become knowledgeable investors and mentors. Cambridge is compact and attractive, allowing people from all backgrounds and disciplines to socialise and participate in each other's research freely and easily. This unique ecosystem has the highest rate of patent applications in the UK with over 18 times the national average.[16]

Innovation Districts: a distinct model for driving success

In the last half century, a particular model of innovation district has established itself in Cambridge which has fuelled science and technology growth. Beginning with the founding of Cambridge Science Park in 1970, a network of science and innovation parks has spread across the city, offering a mixture of offices, research space and labs and educational facilities

[12] Cambridge Ahead, 2019-20.
[13] Centre for Business Research (2020).
[14] Tech Nation Data Commons for UK Tech.
[15] The Cambridge Phenomenon, 50 Years of Innovation and Enterprise, Kate Kirk and Charles Cotton, 2012.
[16] Cities Outlook 2017, Centre for Cities.

which has contributed to the sharing of ideas and knowledge spillovers across organisations. Today, Cambridge's entrepreneurial environment has the highest patent rate in the UK (316 per 100,000 residents) and the cluster supports more than 5,000 knowledge-intensive firms with a combined annual revenue of over £15.5 billion and a workforce of around 61,000 people. A Development Economics report commissioned by AstraZeneca in 2018 calculated that further unimpeded growth of the cluster would generate an additional £2bn annual GVA by 2032.

In advanced economies, innovation has become a precondition of productivity and economic growth. The application of new ideas, whether technologies or processes, to our challenges fuels investment and growth. To maintain GDP growth at the level of the past 50 years in the UK, 90 percent of future growth would need to come from productivity gains.[17] Creating the conditions that enable such innovation are essential for places to prosper.

But innovation cannot just happen anywhere. Today, the greater the importance of knowledge and ingenuity to a sector, the greater its adaptability and its competitiveness. Innovation fuels itself, requiring skills, talent, and knowledge, but also stimulating them, with relationships, chance encounters, and the competitive atmosphere that concentrations of people with expertise enable, driving individuals and organisations to ground-breaking discoveries. There are a select few places around the world with the concentrations of institutions, expertise, investment, and atmosphere that have this alchemy. The CBC Vision 2050 articulates the importance of integrated and spatially defined innovation districts:

> *"Innovation districts demonstrate a new relationship between economic activity, place making and networking. Open innovation rewards collaboration and innovative organisations and workers require the proximity that allows the quick and seamless exchange of knowledge, ideas, intellectual property and projects. Science parks co-locate firms but true innovation districts demonstrate a mixture of organisations co-located in strong environments built to support collaborative activity while also providing good places to live and work."*

The collocation of businesses of different sizes, anchor institutions, and research organisations within a district allows networks to form between different economic sectors and across institutional boundaries that would otherwise not exist. Simply put, concentration of talented and intelligent people in the same place allows them to combine their skills, share ideas, collaborate and compete.[18] Collocating the fundamental 'triple helix' components of collaboration – academia, business, and public sector institutions – produces more benefits for innovation, productivity and economic growth than dispersed development across a wider area.

Cambridge boasts the institutions and businesses necessary generate the ideas and, crucially, the networks that help an innovation ecosystem to thrive. Innovation in turn drives productivity and economic dividends, meaning that companies that locate within strong clusters are able to maximise their returns on investment. Scale is another attribute intrinsically

[17] Global growth: Can productivity save the day in an aging world? McKinsey Global Institute, 2015, via Place Matters, Innovation and Growth in the UK, Bruntwood SciTech, 2020.
[18] Agglomeration, clusters, and industrial policy, Max Nathan and Henry Overman, 2013.

linked with the ongoing efficacy of an effective Campus or district, since strong occupiers and facilities will in turn attract new strong tenants and forces.

The University of Cambridge and its concentration of academic and technical expertise in a wide range of specialisms has been a prime mover in the development of the city as an innovation ecosystem. Awarded University Enterprise Zone status in 2019, the University is now redoubling its focus on this model of collaboration between academia at business via its two major scientific sites: West Cambridge and CBC.

West Cambridge, which houses the Cavendish and Whittle Laboratories, is the centre of the university's expertise in physical sciences, manufacturing and engineering. Over the years, the space available for commercial R&D has expanded at the site, creating a base for translational research and commercial innovation. The shared-use facilities at the site benefit businesses at different stages with business development, product design, prototyping and scaling. These are supported on the site by funding organisations specialising in technology transfer and shared desk and lab spaces for use by researchers from the university and industry.

CBC, which houses the University's School of Clinical Medicine, one of the world's leading clinical schools, alongside major academic research institutes, such as the LMB, is the city's foremost concentration of biomedical expertise. It is there that an expansion of commercial space for Life Sciences will have the greatest effect, connecting businesses with leading academic institutions with a track record of Nobel Prizes and frontline healthcare. Medical research has grown rapidly within the university in the last 50 years, and as the health economy continues to expand, it is this cluster which will attract international Life Sciences businesses to the city.

These two sites interconnect, and while both will have their primary focus – physical and Life Sciences respectively – the mix of organisations on each means that researchers and businesses will be able to collaborate across the sites' boundaries. The GRANTA backbone network, the University's privately owned optical fibre network, connects both for high-speed information sharing between the sites. The sites as two poles in the Cambridge innovation ecosystem – fuelling each other's research potential and acting as engines for the broader ecosystem and constellation of parks.

CBC and West Cambridge, in addition to their potential to act as innovation districts powering Cambridge's innovation ecosystem, have something else in common. Each of the sites is located such that they might function as true urban extensions to Cambridge. As such, they can provide truly sustainable, future-proofed and inclusive communities that both function as self-contained, accessible sites for people to work and live, while also connecting with Cambridge and the wider innovation ecosystem to drive growth.

Significance of CBC within the local ecosystem

Cambridge is an economy built on research and innovation. CBC sits within this network, benefiting from the connections other innovative sites in Cambridge as well as the 'Golden Triangle' with Oxford and London. The character of institutions on CBC have made it the city's specialist site for Life Sciences research.

The scientific strengths of the university and the concentration of healthcare at CBC knit with the abilities of businesses to identify opportunities for innovation, see applications and fund risky commercial ideas. Today, CBC's academic, health and commercial occupiers complement each other in a tightly woven network of specialisms, allowing each to be better than the sum of its parts.

At the heart of CBC's mission is ensuring that the UK population has access to the most innovative treatments and the best healthcare outcomes possible. Achieving this mission is made possible through collaborations with researchers and industry. The Health Foundation recently established the Healthcare Improvement Studies Institute in Cambridge with its largest ever single grant, in order to improve quality and safety in healthcare throughout the NHS. During the recent COVID-19 pandemic, Royal Papworth Hospital managed the sickest patients in the UK on their ECMO unit and Cambridge University Hospitals (CUH) supported a range of regional hospitals via outreach and had very strong clinical outcomes. Patients also benefited from being able to be included in the latest treatment trials.

Leading edge care accessible to the local population is not limited to COVID-19, and the recent successful Integrated Care Systems (ICS) application for Cambridgeshire and Peterborough recognises the importance of innovation and practice happening at CBC to healthcare across the region. The establishment of the National Heart and Lung Research Institute integrated with Royal Papworth Hospital and the future Children's and Cancer hospitals, where researchers will work alongside clinicians, will continue to support delivery of cutting-edge treatments and high-quality care to the population.

Since the government published its *Life Sciences Sector Deal* in 2017, CBC has been an anchor for many government-funded initiatives, including the establishment of the national NIHR Bioresource, launch of digital innovation hubs and use of AI in radiology. Continuing to build on the success of this model is a priority for CBC and for Cambridge and will allow the city to continue to drive the UK's economy in decades to come.

Places like CBC are not isolated from their cities. The world's best innovation districts are connected to the rest of their city through physical and human networks. But the concentration of organisations specialising in Life Sciences at CBC makes it the best place for research, and the place that the world's leading organisations want to be part of.

Despite the rapid pace of growth in Life Sciences here, demand is showing no sign of abating. R&D space in Cambridge has increased by 50% over the last five years, but vacancy rates have been at or near zero since 2009.[19] Take up of space in Cambridge has been driven by the benefits of locating here. Firms from around the world are attracted to places with a concentration of expertise and the track record of discovery that facilitate innovation.

Cambridge is a leading centre of Life Sciences, but one of an increasing number of places around the world competing for investment and talent. In the US, China, Germany, and many other places, governments, businesses and institutions are working together to create the environments that attract the brightest minds and the most sophisticated organisations that will unlock discoveries in Life Sciences. It is essential that CBC is empowered to continue growing to meet the health challenges of tomorrow, and that it does so in a way that benefits its community first and foremost. This proposal for development at Cambridge South identifies

[19] CoStar.

the space that will allow CBC to thrive as an innovation district, while also mitigating the challenges of the city's growth.

5. Challenges of Growth

Challenges facing Cambridge

Cambridge has grown at a fast pace as its knowledge-intensive economy has developed. Our population has increased by over 50% since 1951, with a corresponding growth in business numbers, economic output, and employment.

This has, however, put substantial pressure on Cambridge's networks and services. The size of the Cambridge catchment, or Travel to Work Area (TTWA) increased by 43% between 2001 and 2011, more than any other in England.[20] The growth of the economy is bringing greater prosperity to Cambridge, but causing strains which are affecting the quality of life of its residents. The conditions which have led to Cambridge's success in the past may now be victims of its current success.

The Cambridge and Peterborough Independent Economic Review noted that 'companies may be deterred from setting up in the area if they do not believe the houses their workers require will be available'.[21] In their responses to the study, employers expressed the risk that the lack of affordable housing and extended commuting times were leading talented staff to look elsewhere. 63% of businesses which responded to a survey as part of the CPIER research noted the cost of renting as a very important or critically important issue affecting recruitment and retention of staff.[22] As a result of high housing costs, young people are moving away from the City. Indeed, between 2014 and 2019, Cambridge saw a net decline in the population of 20-50 year olds of 4,450.[23]

Partly due to the housing challenges but also due to lack of infrastructure investment there are also transport challenges. More recent data shows that over the last 10 years, traffic levels have increased by 10%, making Cambridge the 16th most congested city in the country.[24]

Like house prices, the costs of business space are rising. Despite the provision of new space for Life Sciences businesses, demand in Cambridge continues to rise. The vitality of Cambridge as an innovative economy has been maintained by the mix of businesses here, from entrepreneurs to multinational giants to everything in between. The interplay between these businesses of different sizes has ensured that good ideas develop into viable ventures, boosting the productivity and prosperity of Cambridge.

Constraining supply will put this vitality at risk. Higher rents and the lack of space with the flexibility that small firms and entrepreneurs require will exclude them from the environments that are so valuable to them and which help them to grow. So many of Cambridge's successful businesses began as speculative ventures and benefitted from the environment and networks

[20] TTWAs are a statistical geography created to approximate labour market areas – that is, self-contained areas in which most people both live and work. The criteria for defining TTWAs are that at least 75% of the area's resident workforce work in the area and at least 75% of the people who work in the area also live in the area. The area must also have an economically active population of at least 3,500. Therefore, a growing TTWA in Cambridge demonstrates that more people in the area are commuting into the City from further away.
[21] CPIER (2018) Independent Economic Review – Final Report.
[22] CPIER (2018) Independent Economic Review – Final Report.
[23] ONS (2019) Population estimates - local authority based by single year of age.
[24] City Access, Greater Cambridge Partnership, 2020.

here – to ensure that the economy continues to thrive, we must ensure there is room for them to develop.

The ongoing interest of businesses in Cambridge and the desire to share in success that being here has had for other firms will continue to bring demand for space. Growth may come regardless. But if not properly planned for, this growth could exacerbate the problems which have attended Cambridge's development into an innovation hub, further increasing traffic, pricing even more key workers out of homes, and putting additional pressure on the communities and services residents need.

Cambridge's growth has increased our prosperity and that of the country. But, to grow in a way which preserves the character of our city and to ensure that we can continue to innovate, it must grow in the right way.

Opportunities created by future growth at CBC

Over the past 20 years, organisations at CBC have provided modern and effective healthcare to residents, expanded commercial and academic research capacity, and attracted major businesses to the city. But there is work to be done to unlock the innovation potential of the site and to make this an inspiring place to live, work, and do business. The challenges facing Cambridge are the same ones shared by CBC.

The pace of growth at CBC demonstrates the demand for space at the site. Outline permission was granted for a Phase 2 of development in 2017 but was drawn down significantly ahead of schedule leading to the opening of a new HQ for Abcam in 2019. This growth has left deficiencies with the Campus which need now to be addressed, increasing amenities and community and social spaces: this must be an attractive area of Cambridge that benefits the wellbeing and quality of life of the people who live, work and visit.

CBC can also become a different kind of sustainable neighbourhood for local communities. The role of Life Science quarters has evolved considerably since the establishment of CBC over 20 years ago. New and progressive settings include buildings at the human scale, integrated development of transport impact and accessibility, engaging environments with both relaxing green spaces and enlivening amenities based on an understanding of the needs of the people who work there. We now understand much more about how CBC has operated and its impact, and this informs our perspective in delivering a better future CBC for all of Cambridge.

Supply of excellent commercial spaces

The world's most dynamic innovation districts carefully curate a business ecosystem through the provision of different types of business space. Start-ups have different needs to established businesses on an upward growth trajectory, and their requirements are again different from those of international giants. Shared spaces and serviced space can be transformative for innovative businesses, providing them with the opportunities to mix and the support which allows them to establish themselves. This is especially important for Life Science businesses, for whom equipment costs can be prohibitive to growth and the commercialisation of a good idea.

While CBC has been successful in attracting major businesses to Cambridge, there is work to be done to curate the mix of businesses that drives the productivity of the whole ecosystem. There is a need for small business space here that and the larger facilities for businesses that are scaling-up. The demand for Life Sciences R&D space in Cambridge demonstrates the need for this, and if the city fails to provide it, businesses will go elsewhere. The waiting lists at neighbouring parks and the continued demand for space demonstrate that there is an opportunity for Cambridge, and CBC, to unlock the latent potential of the Life Sciences economy here by unlocking the right offer at CBC.

Creating amenity

CBC has work to do to realise the aspiration of the 2010 masterplan for shared and amenity space. As the Campus has expanded, it has added essential infrastructure, but there remains a need to develop an integrated and attractive wider quarter to enable innovation. This will require careful curation of the existing and future site to unlock the potential of this place.

CBC also lacks the key worker housing that would enable people who work in its hospitals and institutions to live near the site. The Campus is without the vitality and buzz that residents bring, and which would support the viability of a range of different amenities and services that would bring life to the Campus. Similarly, visitors need amenity and many need overnight or short term accommodation, of which there is none. This is all intimately connected to the character of the Campus, the impact on local transport networks, and the function of this place as a part of the fabric of the city.

Researchers need to do more than just work, and currently the Campus does not offer the mix of uses that create an atmosphere that will attract highly mobile knowledge workers from around the world. There is a lack of locally consumed services in CBC which provide for the needs of the people who work there, whether shops, cafes, restaurants or entertainments. To enable the mixing of individuals from different organisations which characterises the world's best innovation districts, there must be more amenities at CBC.

Best-in-class placemaking

Cambridge is a city that presents the ideal model for how to support talent and enable collaboration between different organisations. The city offers the quality of life, institutions, and finance for workers and businesses; the accessible social spaces where chance encounters can take place; and the network of mentors to guide fledgling entrepreneurs and researchers. Expanding on this system at CBC by creating a liveable, thriving quarter will enable CBC to fulfil its promise and integrate the Campus more closely into the city.

CBC's fast-paced growth has undermined its ability to curate the attractive places that benefit the people who work and those that live nearby. While CBC has grown, it has not nurtured the attractive spaces it needs, failing to provide the green space, squares and thoroughfares which characterise the world's best innovation districts. CBC is not yet dense enough. The distance between and the separation of institutions, with few facilities for people to come together, limits the benefits of co-location and prevents the ability of researchers to collaborate.

CBC has the foundations in place to act as a standout global centre of healthcare delivery, Life Sciences research and commercialisation, and must become a new, integrated and attractive quarter of Cambridge to do so. Creating the attractive green spaces that contribute

to the wellbeing of staff and residents nearby, while developing in a sustainable way will enhance and preserve the character of the local landscape and public spaces.

Addressing transport pressures

CBC's success has put pressure on nearby transport networks, the limits on capacity of public transport to this part of the city contributing to an increase in traffic on local networks. As more people have come to work at CBC, these pressures have grown. The lack of housing and other amenities on CBC means that many of the people who work on the site travel in from outside, or travel out for daily needs – to drop and collect children from schools, to shop, to relax or to visit supporting firms and businesses who cannot be located here due to lack of space.

Future solutions must incorporate a mix of uses which reduce the need to travel and active travel networks between. The culture at CBC should be one that embraces the enhanced public transport already in prospect to prevent an overload of local roads. Again, CBC has the ingredients to develop as a highly sustainable district – public money has funded the Guided Bus, new transit connections and the coming investment in a new rail station and East-West rail. These characteristics make CBC an ideal location to focus development and achieve sustainable outcomes.

Affordability for key workers

Thousands of people work at CBC, from key workers and early career researchers to business leaders and senior academic researchers. Many of these key workers at the beginning of their careers find the high housing costs make living close to CBC unaffordable. This in turn is putting pressure on the local transport networks.

Housing needs to be much more readily available but also carefully designed to be truly affordable to CBC's key workers, allowing them to live close to the places where they work in a pleasant environment, and through this benefitting their wellbeing and their productivity at work. At the same time, mixed housing solutions can be developed to meet Campus needs – short term accommodation for visitors and researchers needing temporary or rental space – shared accommodation for single and small households – grow on homes for CBC families.

Space to grow

Ultimately, what CBC lacks is space. The limits of the existing Campus have been reached, with all available space earmarked for future healthcare development, while there are now waiting lists at neighbouring parks. The challenge now is not only to provide space, fulfilling the promise of this highly concentrated network of world leading institutions and businesses, but to do it in a way which respects our neighbours and allows CBC to thrive.

While Cambridge has a wealth of science parks around the city, none of them match CBC for its capacity for Life Sciences innovation. Spreading businesses across the city would dilute the potential of what we have here, and disappoint the businesses and organisations which come to CBC for the concentration of research and clinical excellence that cannot be found elsewhere in the UK.

bit.bio, an award-winning human synthetic biology enterprise founded in Cambridge is currently interested in moving to the CBC as it looks to expand to 3 to 4 times its current size.

A previous attempt to move to the CBC was unsuccessful due to insufficient space being available; they have since been successful growing at the Babraham Campus. Soon though, bit.bio will be looking for a new HQ. Founders Dr. Mark Kotter and Florian Schuster emphasised the company's dedication to staying in Cambridge in order to benefit from the immense local talent pool, the potential for to people move between academia and industry, and the opportunities to work with leading NHS hospitals. CBC would be the ideal location as they look to take two products into the clinic within 24 months but also because ongoing product development requires collaboration with scientists located on the CBC. Their technology platform needs to sit at the centre of an ecosystem of research institutes, joint ventures, spinouts, and the opportunity to carry out clinical trials. They will need a building roughly the size of Abcam's current base to include collaboration, research and manufacture of cell products. Companies like bit.bio will continue to thrive and grow in Cambridge, but require space and to be surrounded by the right facilities

As our global competitors are showing us, support space is also an essential part of the mix. CBC is expected to offer hotel and conference space, office space for support business, retail, café and leisure amenities for occupiers and social facilities to make a genuinely integrated community. And all that must be delivered to the highest quality of design within a green, sustainable framework.

Nowhere else in the country has the components of a world leading Life Sciences cluster like CBC, but we will only get one chance to unlock it. This is why CBC developed its Vision 2050, and it is the same ambition and acknowledgement of CBC's potential that has brought together this Cambridge South proposition.

6. The ‘Cambridge South’ solution

A world class innovation district

Vision

In order to consolidate its position as a globally leading and locally rooted vibrant community as articulated in its Vision 2050, it is fundamental to understand CBC as a maturing neighbourhood with an aspiration of achieving its potential as a world class science hub and an established district of south Cambridge.

Fulfilling this aspiration requires growth beyond the existing site boundaries, which needs to be sensitively planned but which creates an opportunity to achieve a positive transformation of the southern edge of the city into a more accessible place, structured around public green spaces that are set within an enhanced natural landscape.

The qualities of Cambridge South

The area we call Cambridge South has formed a Study Area which has been carefully examined to develop proposals for expansion of the CBC as well as creation of an urban extension to Cambridge. These proposals respect neighbouring communities and respond to the sensitivity of the environment to the immediate south of the city.

Figure 2: Study area

Cambridge South is one of the most sustainable locations for the city's growth. A unique set of qualities create the ideal conditions for a new development that aligns with the emerging Big Themes of the Local Plan. These qualities can be explored and developed under three headings: Natural setting, Accessibility, and Proximity to CBC.

Natural setting

Set amongst the river valley and the chalk hills, there is an excellent opportunity to create a new link with nature at the edge of the city. By consolidating, protecting and enhancing the existing natural landscape, there is an opportunity not only to enrich wildlife habitats and green spaces, but to make these open and accessible to the rest of Cambridge. To achieve this, the new development will aim to provide one hectare of enhanced Green Belt area for every hectare of developed land. This would directly accord with the themes of' Biodiversity' and 'Green Spaces', which are central to the new local plan as well as being important for 'Wellbeing' and' Social Inclusion'.

Understanding the topography and constraints of the study area has enabled our work to identify two development zones, east and west of Cambridge Road, which can be developed without detracting from the characteristics and environmental assets which are most important to the immediate south of the city.

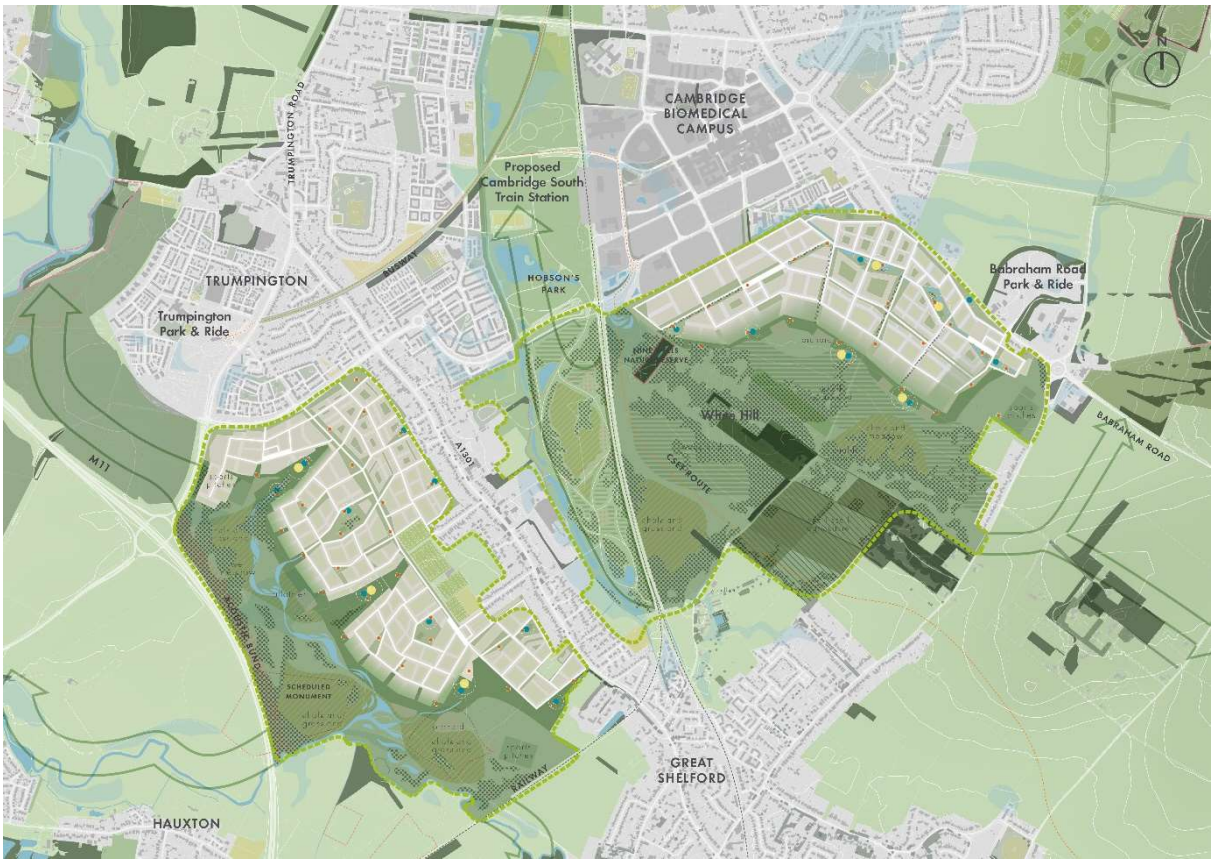
Figure 3: Opportunities for Green Belt enhancement

The boundaries selected for development on the eastern patch enable an expansion of the Campus onto the land immediately to its south while following the contours of the land to maintain the openness of the rising land at White Hill and allow the green corridor that stretches from the Botanic Gardens through Hobson's Park to be extended south and create a substantial buffer to the properties on Cambridge Road. Keeping to the lower land means

there is limited impact on higher level views from the Gog Magog Hills but new development can take the opportunity to provide a green edge to the Campus in place of a current hard urban edge.

To the west, development can be set back from the M11 and create a gateway into Cambridge, whilst allowing the expansion and protection of the Cam river corridor, set in a substantial new Country Park.

Figure 4: Landscape strategy



Accessibility

The study area is embedded in the urban fabric of the city, benefiting from excellent access to existing and planned infrastructure such as the Cambridge South railway station and the Cambridge South East Transport (CSET). There is therefore an opportunity to establish a new mobility strategy based on active and sustainable travel, on-site car reduction and addressing existing constraints to achieve a 20-minute neighbourhood. Focussing development in a sustainable location adjacent to the city, while creating close functional links with a range of development that meets the needs of the Campus, would reduce the need to travel and make a major contribution to the theme of 'Climate Change' and the supporting theme of 'Infrastructure'.

Proximity to CBC

The existing Campus is an evolving hub of employment and activity with the potential of becoming embedded in its local community by offering access to a mix of uses including the Cambridge University Hospitals. Through the Vision 2050, it is on the path to becoming one of the most important innovation clusters in the world. The expansion proposals offer the opportunity to create a new and inclusive neighbourhood with a rich mix of uses accessible and affordable to everyone. This would contribute to the theme of 'Great Spaces' and the supporting themes of 'Jobs, Homes and Infrastructure'.

By planning the right mix of uses to meet the needs of the Campus and linking them through investment in active travel corridors, the expansion proposals can create a 20 minute neighbourhood making the use of the car redundant for many journeys.

Figure 5: Illustrative view of Cambridge South

Creating a new place

Set amongst existing and enhanced natural features and connected through a sustainable mobility network, Cambridge South has all the qualities to become a recognisable place and a natural extension to the city. This new neighbourhood of Cambridge will provide for the long-term expansion of the Campus, with new employment space to support the projected needs of CBC over the next 30 years, through a range of uses including clinical, R&D, conferencing, hotel, leisure, and retail. New homes with associated social infrastructure including open spaces and new schools, will complement the commercial uses to create the conditions to house a new thriving and sustainable community.

The new homes would be a key element of the expansion – aimed at meeting the needs of the Campus, to enable workers to live locally and to enrich the vitality of the Campus by adding social infrastructure including schools, nurseries, leisure facilities and shared open space.

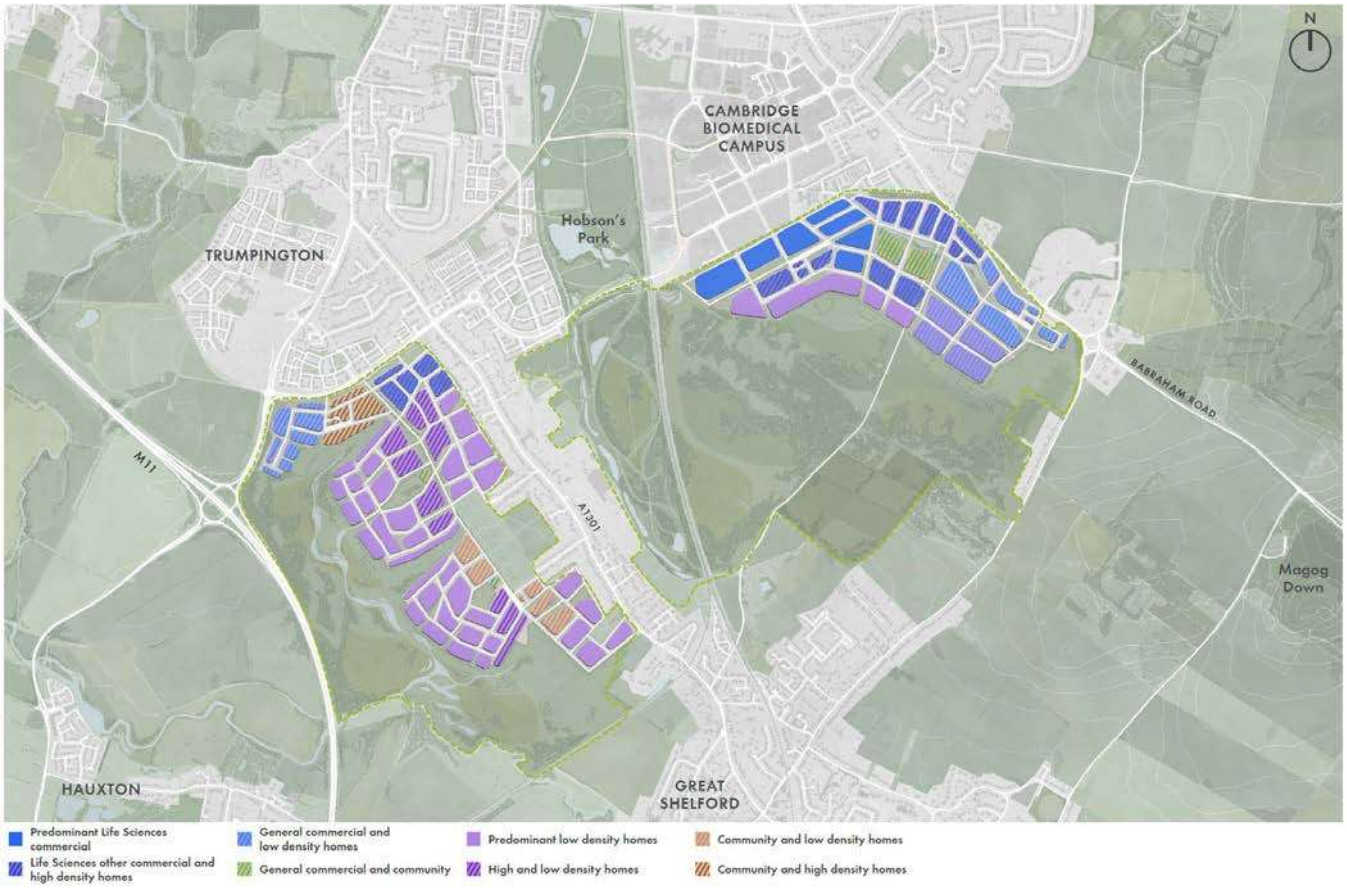
New open spaces and public realm would be created, linking with footpaths and cycleways to help break down barriers within the Campus and enhance the spirit of open science and collaborative working. Shared catering and working spaces would enable the campus community to come together.

The proposed breakdown of uses is purely indicative at this stage, and it will be important to retain flexibility in the long-term, but a draft mix of land uses has been developed for further discussion with CBC, with the local authorities and with the community, as follows:

- Provision of 4,360,000 sqft (405,000 sqm) of employment floorspace, including clinical, research, commercial R&D, education, supporting office and logistics spaces, comprising an estimated mix:
  - 680,000 sqft of clinical floorspace,
  - 1,220,000 sqft of research floorspace,
  - 1,610,000 sqft of commercial R&D floorspace,
  - 600,000 sqft of supporting office floorspace,
  - 100,000 sqft of supporting logistics floorspace,
  - 150,000 sqft of education floorspace.
- Provision of 5,000 homes.
- Provision of supporting ancillary uses, including:
  - 225,000 sqft (20,900 sqm) of hotel and conference space.
  - 215,000 sqft (17,200 sqm) of supporting leisure and retail uses.
- Provision of 30,300 sqft (2,815 sqm) of community uses.
- Provision of 35 ha of formal and informal amenity space, embedded in wider Green Belt enhancements as well as providing critical nature network linkages to the surrounding countryside.
- Provision of supporting transport infrastructure and improved transport connections.

The figure below shows an indicative distribution of these land uses into a mixed and integrated 20 minute neighbourhood.

Figure 6: Land use distribution



The western and eastern districts would all form part of the expanded CBC, developed to meet the expanding needs of the Campus over time. The eastern development zone would contain more employment based uses – as a direct expansion of the current CBC uses but also including a hotel and conference centre and other uses to serve the Campus and maximise the ability for occupiers to come together and share their work.

Some Life Sciences occupiers may be attracted to the western zone, which would be within easy proximity of the core area, linked by walking and cycling routes and shuttle transport connections. The western zones can also accommodate support offices and services for businesses that need to be close to the Campus but not centrally located within it.

Parking would be generally restricted, except where it is necessary for uses such as the Hospitals. Parking may be consolidated on the western area, as well as logistics facilities, intercepting trips into the heart of the Campus and creating the opportunity for space to be designed for the neds of public transport, shard transport, walking and cycling.

Housing would be integrated into each zone, to optimise the sense of community, enliven the expanded Campus and meet the needs of workers in a diverse range of tenures, catering for those who need affordable housing, renters, short term visitors but also with a range of family homes for campus workers.

If the expansion proposals are accepted in principle, we would work closely with occupiers, our local communities and with the planning authorities to develop detailed proposals.

An exceptional case for Green Belt release

Background

The expansion land lies in the Cambridge Green Belt. The land plays an important role in preventing the spread of Cambridge into open countryside and in separating Cambridge from surrounding villages. Development can only be contemplated for the most exceptional reasons and any development needs to be very carefully and sensitively planned with care and respect.

The exceptional circumstances policy test is met if there is a need for development that cannot be met elsewhere. If there is, the Framework explains where Green Belt release should be considered:

> *"When drawing up or reviewing Green Belt boundaries, the need to promote sustainable patterns of development should be taken into account."*

In other words, where Green Belt release is necessary, the most sustainable locations should be preferred. There could be no more sustainable way to meet the needs for expansion of CBC.

In preparing the Greater Cambridge Local Plan, the Councils have recognised that:

> *"The Green Belt restricts growth on the edge of Cambridge, a location that the evidence indicates has sustainability advantages in terms of access to jobs and services and reducing trips by the private car that could help mitigate our climate impacts."* [25]

To consider whether Green Belt release is necessary as part of the new Local Plan, the Councils have assessed eight different spatial growth options, which include proposals to locate growth on the edge of Cambridge in the Cambridge Green Belt. The work identified two important conclusions:

- Options which concentrated growth in the City outside the Green Belt did not provide enough growth to meet housing and employment needs;
- Options which dispersed growth away from the City beyond the Green Belt performed poorly in terms of sustainability and their carbon footprint – because residents would travel into Cambridge for most of their employment and other needs.

By contrast, Options which located growth adjacent to Cambridge in the Green Belt performed best in terms of sustainability and the work found that the options that performed best out of those were options which were:

- well located in terms of access to public transport;
- combined homes and jobs or were close to existing clusters of employment; and
- were of a large enough scale to enhance sustainability by investing in public transport and other sustainable infrastructure.

25 Paragraph 25. Joint Local Planning Advisory Group Committee Report, 24th November 2020.

In principle, the work establishes that there is a strong case to release land from the Green Belt on the edge of Cambridge and that the proposed expansion of CBC onto Cambridge South appears to have all the credentials to meet the policy test that the release of Green Belt land should be in sustainable locations.

Exceptional Circumstances

The strong need for housing and employment in Cambridge and the lack of suitable brownfield land on which to locate it is in itself an exceptional circumstance which establishes the principle of Green Belt release. However, there are a number of additional circumstances at Cambridge South which create a compelling case.

CBC's growth is nationally important

Earlier sections of this document have explained the critical importance of CBC to the local, regional and national Life Sciences sector. CBC is extraordinary. It provides the greatest concentration of biomedical Life Science expertise in Europe and the exceptional co-location of world class research and clinical expertise, combined with leading commercial research and development make it unique in the UK. The rapid growth of the Campus since 2008 has established a remarkable platform for innovation and growth which national policy and the national interest require not to be constrained.

National policy supports the sector in the strongest terms. This means that the Greater Cambridge Local Plan should embrace the potential expansion of CBC and plan positively for the expansion of research, hospital and commercial R&D floorspace but also recognise the other growth requirements for a diversity of supporting and collaborative facilities to enable CBC to match the best in the world.

The case for housing

The price of and shortage of housing in Cambridge is well known. As well as bringing social costs, the lack of housing is a serious constraint on the economy. As Dame Kate Barker found in her economic review for the Combined Authority:

> *"…house prices have soared and journey times have increased as congestion has intensified. This has meant that many have been forced to endure unpleasant commutes, or have been priced away from the city altogether due to the unaffordability of rents".*

These issues are felt strongly at CBC. The lack of suitable, affordable housing handicaps CBC's ability to attract global talent at the same time as imposing long commutes on CBC staff, which in turn brings congestion to local roads and disincentivises business expansion. At the hospitals, a survey of staff in 2020 established:

- High rents in the local market require a higher-than-average proportion of household salary paid towards rent, leaving households unable to save to buy a home.
- Up to 40% of the CUH staff find it a challenge to meet housing costs.

- The difficulty in finding home ownership opportunities within a reasonable commuting distance of the Campus means that for some, the easiest way to improve their housing situation is "*to simply relocate out of the area".*

These sources of dissatisfaction are particularly acute for those who are stretched in meeting housing costs and it encourages outward migration, particularly for 30–44-year-olds who make up a significant proportion of the CBC employee demographic.

This is no basis on which to support a knowledge cluster of the importance of the Campus and CBC is determined to do what it can to improve the housing conditions of its current and future workers.

The addition of housing to an expanded Campus brings the opportunity to do much more than meet housing needs – it enables the Campus to be planned as a fully-fledged Innovation District – a sustainable living and working community to match the best in the world.

These are genuinely 'exceptional circumstances'.

Enabling sustainable outcomes

The 'Big Themes' on which the new Local Plan is to be based include: climate change (with a commitment to net zero); biodiversity & greenspace; wellbeing & inequality; and great places.

Cambridge South offers the opportunity to optimise the success of the Local Plan against these critical objectives.

Central to this is enabling sustainable local living through the development of the Campus as a 20 minute district. This is discussed further below but in short Cambridge South can:

- create a deliberate diversity of complementary uses to dramatically enhance the operation of the Campus and reduce the need to travel. Meeting the needs for hotel and conference facilities, meeting places, on site logistics, support offices and day to day retail and leisure facilities for workers and visitors would not only enable a 'great place' but it would internalise trips and, critically, enable them to be made by foot, cycle or shared travel; and
- the scale of development enables investment in infrastructure to maximise opportunities from planned investment in rapid transit, Cambridge South station and East-West Rail. This includes investment not only transport infrastructure such as enhanced connectivity, shared travel, public transport enhancement and freight consolidation but also investment in:
  - Social infrastructure such as new schools, nurseries and health facilities;
  - sustainable energy and utilities solutions; and
  - greenspace – which forms the essential structuring framework for the CBC expansion – see further below.

Planning at scale in a location which builds on and integrates with the current CBC employment cluster to bring it to life as a fully functioning Innovation District will exemplify the outcomes which lie at the heart of the new Local Plan.

If growth is to be planned for, there are many, exceptional reasons to plan it here, at this scale.

Benefits to the Green Belt

The Cambridge Green Belt was analysed for the Councils in the Cambridge Inner Green Belt Study, 2015 for the last Local Plan. It recommended the release of the Phase 3 land at CBC to meet short term needs (and in so doing recognised the suitability of this location for Green Belt release and economic development). CBC itself was established by the release of Green Belt land.

The new Greater Cambridge Local Plan is looking to the longer term and will need to confirm or set Green Belt boundaries that take account of long term needs and will endure. The CBC Vision 2050 establishes those long-term needs.

The 2015 Study is helpful in establishing that:

- neither the western nor the eastern elements of Cambridge South contribute to the approach to the historic core of Cambridge. The western site is described as providing an approach to suburban development at Trumpington, whilst Addenbrookes hospital is said to block any visual connection even from elevated views across the eastern site.
- The southern edge of Cambridge lacks a suitable Green Belt boundary – instead the boundaries are formed by 'hard urban edges'. The development along Cambridge Road offers it back to views, creating a continuous poor edge to the built up area, whilst the current CBC boundary is very visible and also presents a hard urban edge.
- The area is said to lack a strategic landscape structure.

Some clues are given as to what might form the basis of that strategic landscape structure by the Study, which recognises that land to the north and east of the eastern land sits in a landscape bowl, which contains Cambridge, but that the landform and vegetation of White Hill are key in maintaining the separation of Cambridge and Great Shelford. Similarly, to the west the significant landscape features are the valley corridor of the River Cam and the hard boundary formed by the M11. The west site itself is a flat, barren agricultural site offering open and exposed views to Trumpington and the properties on Cambridge Road.

These observations have helped inform our own analysis. At present the land at Cambridge South is arable agricultural land with very limited public access. If Green Belt land is released to enable the expansion of CBC, a positive strategy can be put in place funded by the development to transform the Green Belt. That strategy would enhance a comparable area of Green Belt. The masterplan shows the commitment to enhance a hectare of Green Belt land for every hectare lost. Very substantial improvements can be made to the quality and use of the Green Belt by opening it up to public access and investing in landscape, biodiversity, cultural and recreational enhancements. These improvements would connect the Cam river corridor and White Hill in particular to the residential neighbourhoods of Cambridge and Great Shelford and form an enhanced, sustainable long-term Green Belt boundary.

These proposals comply with planning policy – to enhance the remaining Green Belt when exceptional circumstances justify the release of Green Belt land.

Figure 7: Illustrative masterplan

How to read the supporting technical reports

We have submitted a number of documents to explain and support our proposals.

- **Cambridge South Planning Report**

The report evaluates the proposals for the expansion of CBC onto the land known as Cambridge South, within the context of up to date national and local planning policy.

  - *Appendix 1: Site specific sustainability appraisal*

- **Cambridge South: Building a world leading innovation district for the Life Sciences**

The report examines the potential demand for floorspace at CBC in the context of historic development of space and the growth of Life Sciences in the economy at international, national and Cambridge specific levels.

  - *Appendix 1: Floorspace need consideration*
  - *Appendix 2: Future floorspace requirements*

- **Cambridge South Spatial Masterplan Report**

The report examines the Cambridge South study area and establishes a landscaping and placemaking strategy that would support the sustainable growth of CBC and the creation of a new 20-minute neighbourhood.

- **Cambridge South Environmental Appraisal**

The report sets out the key environmental constraints associated with Cambridge South acknowledging the value, sensitivity and importance of assets within the study area and its surrounding area in the context of Greater Cambridge

- **Cambridge South Transport Strategy**

The report outlines the key mobility principles of the draft Spatial Framework and considers the effect of development on local trip budgets.

- **Cambridge South Utilities Appraisal**

The report sets out the key opportunities and constraints with respects to utilities and drainage for Cambridge South.

Next steps

The proposals described here have been submitted to the Greater Cambridge Planning Service so that they can be considered as the Councils prepare the Greater Cambridge Local Plan. A first draft Preferred Options version of the Local Plan is due in the Autumn of this year and it will be for the Councils to decide whether these proposals should feature in the draft. Thereafter, there will be a number of stages of public consultation on the Local Plan and independent examination before it is adopted.

The landowners expect to also engage and consult with the local communities specifically in relation to the proposals for Cambridge South.